ITA
ITALIAN TRADE AGENCY

Agenzia Spaziale Italiana

ITALIAN SPACE INDUSTRY

Products - Services - Applications - Technologies
Edition 2021-2022

AIAD
ITALIAN INDUSTRIES FEDERATION FOR AEROSPACE, DEFENCE AND SECURITY

AIPAS

ASAS

Italian Space Industry

This directory collects the company profiles of Italian enterprises operating in the Space Sector, with their products, services, applications and technologies. The initiative is jointly edited by ASI and ITA - ItalianTrade Agency, in collaboration with the National Industrial Associations AIAD, AIPAS, and ASAS. The information in this publication is provided directly by the companies under their responsibility. This initiative complements the Italian Space Industry Online Catalogue available on-line @ https://italianspaceindustry.it/ as well as the ASI tool D.V. (Distretto Virtuale web 2.0 interactive portal).

Giorgio Saccoccia
President of ASI | Italian Space Agency

It is my pleasure to introduce the fifth edition of the Italian Space Industry Catalogue. This new edition includes more start-ups and a larger number of Small and Medium-sized Enterprises which represent the backbone of our industries together with the Large System Integrators and, for the first time, a brief description of our National Aerospace Clusters.

Italy, since the inception of the space age, has always had a leading role, initially acting as a valuable partner of the major world space actors and, over the years, the space industry is a well-established industry that covers the whole space supply chain with excellent results in all application sectors, also thanks to the academic and research community and to the support of the Government and the Italian Space Agency (ASI).

Despite the COVID-19 pandemic, the Italian space industry has confirmed to be resilient and has continued to work even under the most difficult circumstances. The Italian space industry can boast many achievements in the past year in all sectors from space exploration, to earth observation, navigation, science, telecommunications and space transportation. Sign that our national industry has reached a very high level of maturity. Also, innovation has not suffered a significant setback as many space driven tools have been developed last year by the Italian industry to support for example the sector of healthcare and distance learning education and mitigate the effects of the pandemic.

The Italian Space industry has a strong tradition of internationalization and boasts commercial relationships with a wide number of countries in all continents, both at bilateral and multilateral level. Thanks to the cooperation with the Ministry of Foreign Affairs and International Cooperation and the Italian Trade Agency this edition will be enriched with an interactive Space Industry Catalogue available online that will be a valuable tool to introduce the Italian industrial capabilities to a larger number of stakeholders.

Setptember 2021

Giorgio Saccoccia

ASI President

Carlo Ferro

President of ITA | Italian Trade Agency

The aerospace industry plays a leading role in the Italian economy with deep historical roots, dating back to Leonardo da Vinci's visionary engineering projects. Today, it stands out among the other high-tech industries with innovations capable of cross-fertilising the whole value chain. The extraordinary performance of Italian enterprises, from large champions to innovative SMEs and start-ups, paired with the excellence of our Centers of Research and universities, have made Italy the 4° aerospace industry in Europe, and the 8° exporter worldwide, generating 13 billion euros in revenues.

Moreover, the aerospace industry is among the leaders in R&D spending, essential to boost a virtuous cycle of innovation-export-growth that generates new research and fuels more growth on the global market. It accounts for 15% of turnover, resulting in significant technological innovations and spill-over effects in other technology-intensive industrial fields such as nanotechnology, new materials, microelectronics, defence, communications and electronics.

These capabilities are open to cross-border cooperation. Indeed, the Italian aerospace industry is a vibrant, rapidly growing environment, eager to establish new relationships globally. The Italian Trade Agency aims at facilitating these connections. Therefore, we promote stronger cooperation with the Italian Space Agency (ASI) and have created several new actions and initiatives.

The first results of this new modus operandi are already visible, like the ASI candidacy, supported by ICE, to host IAC 2024 in Milan.

In this current edition, in addition to the traditional sections sporting consolidated players in the industry, you will also find a dedicated spotlight on start-ups as well as the industrial districts specialised in aerospace, a strong driver for the robust growth of the Italian aerospace industry.

We are looking with optimism at a post-pandemic scenario that will require a focus on innovation and sustainability – fundamental elements for the Italian industry – to contribute to this vision and accelerate recovery. In this context, the National

Recovery Plan represents an unparalleled opportunity for our Country to complete the twin transitions towards sustainability and digitalisation that will spread their effects for years to come.

The Italian Trade Agency is prepared to play its role in this scenario for helping SMEs to take on the challenges of the international markets and sustain their effort to innovate.

Allow me to wish for the health of all and the prompt recovery of all industrial activities and global trade.

July 2021

Carlo Maria Ferro

President of ITA - Italian Trade Agency

Photo Credits: ESA/Roscosmos/CaSSIS

AIAD - Italian Industries Federation for Aerospace, Defence and Security

The Italian Industries Federation of Aerospace, Defence and Security (AIAD) was funded in 1947. It includes almost all the national enterprises that operate with advanced technology in the design, production, research and services activities for the civil and military aerospace, military navy and army sectors. It acts as the point of reference for all the national and foreign institutions for the coordination of all those activities in which there is a need to represent the sector's national interest, it is a member of the equivalent European Association (ASD). AIAD is the actor of the intensive promotional activities abroad, both to coordinate the Italian participations to the most important international events and to organize and direct not only the mission of our enterprises abroad but also the visits of foreign delegations in Italy. AIAD is a funding member of the National Technology Cluster for Aerospace. Headquartered in Roma and an office in Brussels.

AIPAS - Association of Italian Space Companies

AIPAS is a not-for-profit Association born in 1998 aiming at protecting the interests of Italian Space Small and Medium Enterprises. Since 2007, AIPAS has also allowed Large Enterprises to participate in the Association, becoming an example of good collaboration between Large Enterprises and SMEs, including Startups, aiming at developing a favourable eco-system for all space enterprises regardless of their dimension.

AIPAS Members are active both in the upstream and the downstream covering all the space value chain. They have competences in the principal technology domains and consolidated experience both in ESA e EU programmes, being Prime Contractor of complex activities, subcontractors or coordinators of consortia with several partners.

Nowadays, AIPAS has 52 Members, among which 4 Large Companies, 1 Consortium and 47 SMEs.

AIPAS is co-founder and Operational Secretariat of SME4SPACE, the European representative Organisation of Space SMEs.

Photo Credits: ESA

ASAS - Association for Space-based Applications & Services

ASAS is the Association for Space-based Application and Services. It was established in 2004 by the most significant Space industries whose mission is to develop and enhance applications and services based on space, to bring technologies and capacity "from Space to Earth".

ASAS promotes space applications and technologies as a powerful tool to develop knowledge and innovation, support wellness and quality of life and contrast natural disaster and critical emergencies.

To date, ASAS has 34 members among large companies and SMEs, some of them being the Italian branch of large multinational Corporations, all focused on Space-based Services and Applications. As a result of such a combination, ASAS covers a large area of Space up and down Streaming technologies. ASAS is member of CSIT (Confindustria Innovative and Technological Services) and AIAD (Italian Industries Federation for Aerospace, Defence and Security).

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AIPAS, Association of Italian Space Companies
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APPLICATION DOMAINS AND ENABLING TECHONOLOGIES

Company	Application Domain	Enabling Technologies	System Capability
AEREA	Earth observation | Materials, structures, thermomechanical, mechanisms and others		Payload design and integration|Platform design and integration
AGT ENGINEERING	Earth observation | Integrated applications, security services and others | Materials, structures, thermomechanical, mechanisms and others | Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
AIKO	Earth observation | Integrated applications, security services and others | Observing the universe, science and robotic exploration | Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Software, data management and signal processing	Platform design and integration>Large more than 2000 kg|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
AIRBUS ITALIA	Earth observation | Integrated applications, security services and others | Observing the universe, science and robotic exploration | Satellite navigation | Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Payload design and integration
ALFA MECCANICA	Earth observation | Human spaceflight and microgravity | Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space transportation, launch and re-entry services|Telecommunication		
ALMA SISTEMI	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration	Software, data management and signal processing	Payload design and integration|Platform design and integration>Small 50-500 kg
ALTEC	Human spaceflight and microgravity|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Space transportation, launch and re-entry services	Software, data management and signal processing	Payload design and integration
ANTECH SPACE	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Telecommunication	Technologies for space transportation	Platform design and integration>Small 50-500 kg
APR	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	
ARCA DYNAMICS	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg
ARESCOSMO	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space transportation, launch and re-entry services	Technologies for space transportation	
ARESYS - ADVANCED REMOTE-SENSING SYSTEMS	Earth observation|Integrated applications, security services and others	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration
ARGOTEC	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration
ASTRA	Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Technologies for space transportation	

Company	Application Domain	Enabling Technologies	System Capability
AVIO	Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Launch vehicle mission design and integration
AVIOSONIC SPACE TECH	Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services	Software, data management and signal processing	Platform design and integration>Large more than 2000 kg|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
AVIOSPACE	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	Platform design and integration>Small 50-500 kg
Aviotec	Earth observation|Observing the universe, science and robotic exploration | Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space transportation, launch and re-entry services | Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation |Software, data management and signal processing	
BEAMIT	Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	Platform design and integration>Large more than 2000 kg|Launch vehicle mission design and integration|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
BERCELLA	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space transportation, launch and re-entry services|Telecommunication	Technologies for space transportation	Platform design and integration>Large more than 2000 kg|Launch vehicle mission design and integration|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
BLU ELECTRONIC	Earth observation|Human spaceflight and microgravity|Observing the universe, science and robotic exploration|Satellite navigation|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
BLUE ENGINEERING	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space transportation, launch and re-entry services	Software, data management and signal processing|Technologies for space transportation	Launch vehicle mission design and integration|Payload design and integration
B-OPEN SOLUTION	Earth observation	Software, data management and signal processing	
BRIGHT AEROSPACE	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Payload design and integration
BRIGHT SOLUTIONS	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	

Company	Application Domain	Enabling Technologies	System Capability
BUSINESS INTEGRATION PARTNERS	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Software, data management and signal processing	
CAPGEMINI ENGINEERING	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	
CBL ELECTRONICS	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
CENTRALE VALUTATIVA	Earth observation	Software, data management and signal processing	
CESI – CENTRO ELETTROTECNICO SPERIMENTALE ITALIANO "GIACINTO MOTTA"	Earth observation|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	
CGI ITALIA	Earth observation|Satellite navigation|Telecommunication	Software, data management and signal processing	
CISTELAIER	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Satellite navigation|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	
COLOMBOSKY	Earth observation	Software, data management and signal processing	
COMPOLAB SRL	Materials, structures, thermomechanical, mechanisms and others	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration
CONSORZIO DI RICERCA HYPATIA	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	
CRISEL	Earth observation|Integrated applications, security services and others|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Software, data management and signal processing|Technologies for space transportation	
DASSAULT SYSTEMS ITALIA	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Software, data management and signal processing	

Company	Application Domain	Enabling Technologies	System Capability
DAVI - PROMAU	Materials, structures, thermomechanical, mechanisms and others		
DIGIMAT	Earth observation|Integrated applications, security services and others|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Software, data management and signal processing	
D-ORBIT	Earth observation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
DTM	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space transportation, launch and re-entry services	Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Large more than 2000 kg|Launch vehicle mission design and integration|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
ECHOES	Earth observation|Integrated applications, security services and others|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Payload design and integration
ECOR INTERNATIONAL	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation		
E-GEOS	Earth observation|Integrated applications, security services and others	Software, data management and signal processing	
EICAS AUTOMAZIONE	Satellite navigation|Space situational awareness and in orbit servicing	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
EIE GROUP	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing|Telecommunication		
ELLENA	Materials, structures, thermomechanical, mechanisms and others	Electronics, photonics, optics, integrated sensors and cryogenic components	Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
ETS SISTEMI	Materials, structures, thermomechanical, mechanisms and others		
EURO STAMP 1	Materials, structures, thermomechanical, mechanisms and others		
EURO.SOFT	Earth observation|Integrated applications, security services and others|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Payload design and integration
EXPRIVIA	Earth observation|Integrated applications, security services and others	Software, data management and signal processing	
FLYSIGHT	Integrated applications, security services and others|Satellite navigation	Software, data management and signal processing	

Company	Application Domain	Enabling Technologies	System Capability
G&A ENGINEERING	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	Platform design and integration>Large more than 2000 kg|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
GEM ELETTRONICA	Space situational awareness and in orbit servicing	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
GEO-K	Earth observation|Integrated applications, security services and others	Software, data management and signal processing	
GEOMATICS RESEARCH & DEVELOPMENT (GRED)	Earth observation|Integrated applications, security services and others|Satellite navigation	Software, data management and signal processing	
GEOPHYSICAL APPLICATION PROCESSING (GAP)	Earth observation|Observing the universe, science and robotic exploration	Software, data management and signal processing	
GERICO SECURITY	Integrated applications, security services and others		
GERMANI ENTERPRISE	Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services		
G-NOUS	Integrated applications, security services and others		
GP ADVANCED PROJECTS	Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration
GTER	Satellite navigation	Software, data management and signal processing	
GUIZZO SPACE	Observing the universe, science and robotic exploration|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
HTT	Earth observation|Observing the universe, science and robotic exploration|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	
I-EM	Earth observation|Satellite navigation	Software, data management and signal processing	
IMT	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Telecommunication		Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration

Company	Application Domain	Enabling Technologies	System Capability
IN QUATTRO	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others	Technologies for space transportation	
INFORMATION TECHNOLOGIES SERVICES - ITS	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Satellite navigation|Telecommunication	Software, data management and signal processing	Payload design and integration
INGENIARS	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	
INNOVA CONSORZIO PER L'INFORMATICA E LA TELEMATICA	Earth observation|Integrated applications, security services and others	Software, data management and signal processing	
INTECS SOLUTIONS	Earth observation|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Software, data management and signal processing	Platform design and integration>Nano/micro up to 50 kg|Payload design and integration
INTELLIGENTIA	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
ITALCONSUL	Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space transportation, launch and re-entry services	Software, data management and signal processing	Payload design and integration
ITALSPAZIO	Earth observation|Space situational awareness and in orbit servicing|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/micro up to 50 kg|Platform design and integration>Small 50-500 kg
KAYSER ITALIA	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Launch vehicle mission design and integration|Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
KELL	Earth observation|Integrated applications, security services and others|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
LABORMET DUE	Materials, structures, thermomechanical, mechanisms and others		
LATITUDO40	Earth observation	Software, data management and signal processing	
LEAD TECH	Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Nano/micro up to 50 kg|Platform design and integration>Small 50-500 kg

Company	Application Domain	Enabling Technologies	System Capability
LEAF SPACE	Earth observation|Integrated applications, security services and others|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
LEN	Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration
LEONARDO	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Payload design and integration
LMA	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space transportation, launch and re-entry services|Telecommunication	Software, data management and signal processing|Technologies for space transportation	
LOCCIONI	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others	Software, data management and signal processing	Payload design and integration
LTG ELETTRONICA	Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	
M.B.I.	Telecommunication	Software, data management and signal processing	
MEC	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	
MEDIA LARIO	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Payload design and integration
METASENSING	Earth observation|Integrated applications, security services and others	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Payload design and integration
METEOROLOGICAL ENVIRONMENTAL EARTH OBSERVATION -MEEO	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration	Software, data management and signal processing	
MTM PROJECT	Integrated applications, security services and others|Telecommunication	Software, data management and signal processing	
NABLAWAVE	Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Software, data management and signal processing|Technologies for space transportation	Platform design and integration
NADIR - PLASMA & POLYNERS	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	Platform design and integration>Nano/ micro up to 50 kg

Company	Application Domain	Enabling Technologies	System Capability
NANORACKS SPACE OUTPOST EUROPE	Human spaceflight and microgravity	Software, data management and signal processing	Launch vehicle mission design and integration|Payload design and integration
NCM TECNOLOGY	Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation		
NEMEA SISTEMI	Earth observation|Integrated applications, security services and others|Satellite navigation	Software, data management and signal processing	Platform design and integration
NEXT INGEGNERIA DEI SISTEMI	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Software, data management and signal processing	
NHAZCA	Earth observation	Software, data management and signal processing	
NHOE	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	Platform design and integration>Medium 500-2000 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
NPC SPACEMIND	Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services	Software, data management and signal processing|Technologies for space transportation	Launch vehicle mission design and integration|Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
NURJANA TECHNOLOGIES	Earth observation|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing	Software, data management and signal processing	
OBO SPACE	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Platform design and integration>Nano/micro up to 50 kg|Payload design and integration
OFFICINA STELLARE	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing	Electronics, photonics, optics, integrated sensors and cryogenic components	Payload design and integration
OHB ITALIA	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Launch vehicle mission design and integration|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
ON-AIR CONSULTING & SOLUTIONS	Earth observation|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Launch vehicle mission design and integration|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
OPENET TECHNOLOGIES	Telecommunication		

Company	Application Domain	Enabling Technologies	System Capability
OPTEC	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Payload design and integration
PASQUALI MICROWAVE SYSTEMS	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Small 50-500 kg
PICOSATS	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Platform design and integration>Nano/micro up to 50 kg|Platform design and integration>Small 50-500 kg
PLANETEK ITALIA	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Satellite navigation	Software, data management and signal processing	Payload design and integration
PROESYS	Integrated applications, security services and others|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Payload design and integration
PROGEM	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others		Platform design and integration>Nano/micro up to 50 kg
PROGETTI SPECIALI ITALIANI	Earth observation|Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
PROGRESSIVE SYSTEMS	Earth observation|Integrated applications, security services and others	Software, data management and signal processing	
REDCAT DEVICES	Earth observation	Electronics, photonics, optics, integrated sensors and cryogenic components	
RF MICROTECH	Earth observation|Integrated applications, security services and others|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
RGM	Earth observation|Integrated applications, security services and others|Satellite navigation	Electronics, photonics, optics, integrated sensors and cryogenic components	
RHIENMETALL ITALIA	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
RINA CONSULTING	Earth observation|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Telecommunication	Software, data management and signal processing	Launch vehicle mission design and integration|Payload design and integration
S2G TECHNOLOGIES	Earth observation|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
SAB AEROSPACE	Human spaceflight and microgravity|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Technologies for space transportation	

Company	Application Domain	Enabling Technologies	System Capability
SAB LAUNCH SERVICES	Earth observation|Human spaceflight and microgravity|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services	Software, data management and signal processing	
SABELT	Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services	Technologies for space transportation	Platform design and integration>Large more than 2000 kg|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
SAFE STRUCTURES COMPANY	Integrated applications, security services and others	Software, data management and signal processing	
SATE - SYSTEMS AND ADVANCED TECHNOLOGIES ENGINEERING	Human spaceflight and microgravity|Integrated applications, security services and others|Satellite navigation|Telecommunication	Software, data management and signal processing	
SERCO ITALIA	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing	Software, data management and signal processing	
SICILSAT COMMUNICATIONS	Earth observation|Satellite navigation|Telecommunication		
SIDEREUS SPACE DYNAMICS	Space transportation, launch and re-entry services	Technologies for space transportation	Launch vehicle mission design and integration|Platform design and integration>Nano/micro up to 50 kg|Payload design and integration
SIHEALTH PHOTONICS	Earth observation|Satellite navigation	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
SITAEL	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Payload design and integration|Platform design and integration>Small 50-500 kg
SOCIETÀ AEROSPAZIALE MEDITERRANEA - SAM	Earth observation|Observing the universe, science and robotic exploration	Software, data management and signal processing	
SÒPHIA HIGH TECH	Materials, structures, thermomechanical, mechanisms and others	Technologies for space transportation	Platform design and integration>Nano/micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
SPACE DYNAMICS SERVICES	Earth observation|Integrated applications, security services and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing	Software, data management and signal processing	Launch vehicle mission design and integration
SPACE LAB	Materials, structures, thermomechanical, mechanisms and others|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	

Company	Application Domain	Enabling Technologies	System Capability
SPACE TECHNOLOGY FOR INNOVATION	Earth observation|Integrated applications, security services and others|Satellite navigation|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
SPACEARTH TECHNOLOGY	Earth observation|Satellite navigation	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
SPACEEXE	Integrated applications, security services and others|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
SPAZIOFUTURO	Earth observation|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication		
STAM	Earth observation|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing	Software, data management and signal processing	
STELLAR PROJECT	Earth observation|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
STMICROELECTRONICS		Electronics, photonics, optics, integrated sensors and cryogenic components	
STUDIOMAPP	Earth observation	Software, data management and signal processing	
SURVEY LAB	Earth observation	Software, data management and signal processing	
T4I - TECHNOLOGY FOR PROPULSION AND INNOVATION	Space transportation, launch and re-entry services	Technologies for space transportation	Platform design and integration>Nano/ micro up to 50 kg|Platform design and integration>Small 50-500 kg
TAITUS SOFTWARE ITALIA	Earth observation|Space situational awareness and in orbit servicing	Software, data management and signal processing	
TEC EUROLAB	Materials, structures, thermomechanical, mechanisms and others		
TECHNO SYSTEM DEVELOPMENTS	Earth observation|Human spaceflight and microgravity|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
TELESPAZIO	Earth observation|Integrated applications, security services and others|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Software, data management and signal processing	

Company	Application Domain	Enabling Technologies	System Capability
TEMIS	Earth observation|Observing the universe, science and robotic exploration|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	
TESI TECNOLOGIE E SERVIZI INNOVATIVI	Human spaceflight and microgravity|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services		
THALES ALENIA SPACE ITALIA	Earth observation|Human spaceflight and microgravity|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Large more than 2000 kg|Launch vehicle mission design and integration|Platform design and integration>Medium 500-2000 kg|Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
THINKQUANTUM	Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components	Platform design and integration>Nano/ micro up to 50 kg
TIBERLAB	Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others	Electronics, photonics, optics, integrated sensors and cryogenic components	
TRANS-TECH	Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
TYVAK INTERNATIONAL	Earth observation|Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Observing the universe, science and robotic exploration|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing|Technologies for space transportation	Platform design and integration>Nano/ micro up to 50 kg|Payload design and integration|Platform design and integration>Small 50-500 kg
UNIVERSO ENERGIA	Earth observation	Software, data management and signal processing	
VITROCISET	Integrated applications, security services and others|Materials, structures, thermomechanical, mechanisms and others|Satellite navigation|Space situational awareness and in orbit servicing|Space transportation, launch and re-entry services|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	Launch vehicle mission design and integration|Payload design and integration
WISE ROBOTICS	Integrated applications, security services and others	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	
YETITMOVES	Integrated applications, security services and others|Satellite navigation|Telecommunication	Electronics, photonics, optics, integrated sensors and cryogenic components|Software, data management and signal processing	

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ITALIAN AEROSPACE CLUSTERS

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Cluster Tecnologico Nazionale Aerospazio (CTNA)

Description

The CTNA is a PPP born in 2012 from the aggregation of the main regional technological districts, industrial and research players in the aeronautical and space sectors, the Italian Space Agency and AIAD - Italian Aerospace Defence and Security Federation, with the aim of implementing a strategy based on research and innovation for the competitiveness of the Italian aerospace sector. The association is recognized by MUR as a driver of sustainable economic growth in all the regions of the national economic system, as it fosters the innovation and specialization of Italian manufacturing systems.

Space highlights

The CTNA Action Plan defines the road maps and priorities for actions in the aeronautics and space sectors, in accordance with the relevant EU and national policies. The Roadmap for Space identifies a series of enabling technologies (upstream) in view of a Space Economy perspective, as well as a number of "enabled" space products and services (downstream). Working groups at CTNA are currently working on advanced data acquisition, transmission and processing systems; APS; new materials, processes and components; Robotics technologies; Technologies for big constellation; Integrated services and applications; New design and production methodologies.

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Dominio ICT Aerospazio Abruzzo - DICTAS

Description

The CTNA Action Plan defines the road maps and priorities for actions in the aeronautics and space sectors, in accordance with the relevant EU and national policies. The Roadmap for Space identifies a series of enabling technologies (upstream) in view of a Space Economy perspective, as well as a number of "enabled" space products and services (downstream). Working groups at CTNA are currently working on advanced data acquisition, transmission and processing systems; APS; new materials, processes and components; Robotics technologies; Technologies for big constellation; Integrated services and applications; New design and production methodologies.

Space highlights

In the Space field, the ICT/Aerospace Abruzzo Domain, operates for the development of solutions and projects related to themes such as:

- Enabling Space Technologies;
- Innovative ""enabling"" products and services.

The activities will focus primarily on those segments of the supply chain that concerns the midstream (ground segment, operations etc.) and downstream (VA applications and services).

For the evolution of the Aerospace sector for the Abruzzo region it is necessary to consider both the Objectives and Trends defined by the National Policies and Agendas for the Aerospace sector, and the strategic objectives of the major players operating in and around Abruzzo.

With this in mind, Telespazio s.p.a. is the reference company for the Abruzzo ICT/Aerospace Domain and, in this capacity, has identified, in collaboration with the University of L'Aquila, the guidelines for the near future in the field of aerospace, grouping them into the following macro-themes:

- Unmanned/Air/Space Traffic Management;
- Earth Observation;
- Access to Space;
- Space exploration.

These themes will be developed in midstream and downstream projects, specifically in the three key sectors for the domain, namely:

- Satellite Navigation;
- Satellite Communication;
- Geo-Information.

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Distretto Tecnologico Aerospaziale della Campania - DAC S.c.a r.l.

Description

DAC was established on May 30th, 2012 with the precise goal of stimulating collaboration between research centers, universities and companies in the Campania region in order to foster business opportunities and continuous growth and innovation. Currently DAC involves 188 direct and indirect partners, including 24 large companies, 19 Research Centers and 133 SMEs. DAC is the element of cohesion between large companies, SMEs, universities and research institutes. Coherently with the Smart Specialization Strategy of the Campania Region, DAC realizes the synergy between large enterprise and supply chain (SMEs) favoring their involvement already in the study phase and initial design of future products within aerospace strategic areas. DAC has the capability of integrating all the regional players of the technological and productive supply chain and putting them in relation with research: this allows the creation of an innovative model of governance ensuring a proper representation for each member while at the same time offering a collaborative system of project & knowledge management with an integrated view. Furthermore, DAC performs several horizontal activities in order to address the regional strategy in the aerospace field. Including: vocational training and high education, technology transfer and communication, duality and internationalization.

Space highlights

The Campania compartment is an active part in the transformation of the national space sector, generated by the adoption of the New Space Economy paradigm in its upstream and downstream dimensions. Projects such as the MISTRAL satellite with its reentry capsule, the PM3 multi-mission satellite and the MISENO downstream application project are examples of the DAC in action. The gateway to the world of opportunities offered by the Space Economy is consistent with the capability of offering new products: (i) nano and microsatellites operating in distributed systems (Constellations, Swarming, Formation Flight, Federated Satellites), (ii) enhancement of the performance of satellite subsystems thanks the adoption of Key Enabling Technologies, such as Additive Manufacturing for the realization of integrated multifunctional structural components (Thermal control systems, data transmission and power systems) and (iii) Machine Vision techniques assisted by Artificial Intelligence for the autonomous control of in orbit Rendez Vous & Docking operations . The regional space sector was the forerunner of new technological directions, aimed at developing innovative solutions for small, newly conceived, modular and reconfigurable satellite platforms. DAC is thus active on the development of "Nano and Micro-satellite Platforms and Associated Services", with specific regard to a multi-purpose satellite system based on the technology of small E2E satellites.

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Lazio Aerospace Technology District (DTA)

Description

DTA, established in 2004 by a MoU signed by Italy Ministry of Research and Lazio Region, was one of the founding partners of Italian Cluster for Aerospace Technology. It plays a leading international role in Aerospace and Security, in terms of R&D, manufacturing, hi-tech value added services. Lazio Region supports Space also by European Structural Investment Fund and equity financing to Startups / SMEs

Space highlights

Launchers (Vega, solid rocket motor for Ariane); EO, NAV & TLC SATs manufacturing and services; Micro Nano SAT Constellations; Space Surveillance and Tracking (SST); Manned and Unmanned Space Exploration (incl. ISS); Safety & Security; Homeland/Cyber Security. DTA has NASA ESA and ASI among its governmental clients; plays a leading role also in EU space programs, such as COSMO-SkyMed and ESA-VEGA launcher.

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SIIT Scpa

Description

SIIT-Ligurian Technology District Intelligent Integrated Systems Technologies is a non-profit consortium company, founded in 2005 with the aim to create an integrated system among large industries, medium and small enterprises, the University of Genoa, public institutions, research and finance, with particular attention to the development of industrial research and technology transfer activities.

Space highlights

The Liguria Region has the historical presence of one of the oldest aircraft manufacturers operating in the general and business aviation sector.

The main thematic areas are: security (safety, security and cyber); complex automation systems, industry 4.0; ICT platforms and technologies; territory monitoring; critical infrastructures; modeling and simulation; decision support systems; applications of AI-Big data, IoT.

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Lombardia Aerospace Cluster

Description

Recognized association founded in 2009, LAC represents the Lombardian aerospace system: 220 companies, 16,500 employees, € 6 billion of turnover, € 1 billion of export.

3 complete supply chain in 3 flight platforms:

- fixed wing
- rotary wing and vertical flight
- satellites, parts for space use, scientific payloads for Earth observation and space exploration.

Urban Air Mobility is also a focus area.

Space highlights

In Lombardia, the space supply chain includes the complete production of satellites with scientific payloads for Earth observation and space exploration. The sector is characterized by the presence of a strong integration of producers with land infrastructure and downstream services.

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Distretto Aerospaziale Piemonte

Description

DAP is a no-profit association established in 2019 to ensure continuity of the previous Committee. Since 2005, the Cluster involved all relevant stakeholders to enhance the competitiveness of Piedmont's aerospace industry, guaranteeing coordination and long-term vision for public and private investment in technological innovation. So far, DAP gathered over 70 members.

Space highlights

Large System Design, Development, Assembly, Integration, Post-Delivery Support; Pressurized Structures; Mechanical components and processes; Habitability and Environmental Control Systems; Thermo-Fluidic Systems and Components; Software, Avionics Component/Electrical Ground Support Equipment; Guidance, Navigation and Control; Mechatronics/Artificial Intelligence applications; Digital twins; cubesat and microsat

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Distretto Tecnologico Aerospaziale

Description

Founded in 2009, DTA s.c.a.r.l. - Distretto Tecnologico Aerospaziale (Technological Aerospace Cluster) is a non-profit consortium society based in Brindisi, Apulia region, Italy. Its members include enterprises, academia, public and private research centres. Recognised by the Italian Ministry of Education, Universities and Research (MIUR) as a technological cluster, DTA proposes and implements research, training and innovation projects aiming to develop key technologies, to create new professional figures, and to build infrastructures for research and innovation at national and European level. Research, innovation and education have been instrumental for the growth and consolidation of the aerospace sector in Apulia, helping to strengthen its international reputation. This is confirmed by the number of companies (over 80), of employees (including researchers over 7,000) and the value of exports which in 2018 was 561.6 million euros, with an impact on national exports that exceeded 9.7%, and in 2019 an export turnover of 738 million euros, up by 31.8 % compared to the previous year and an incidence on national exports of 11.9%. Thanks also to the strategic vision and technological expertise of the DTA, Apulia is, today, one of the most competitive Italian regions in the aerospace sector, with a strong attractiveness and concentration of initiatives, resources and investment.

Space highlights

DTA is involved in a number of national and international space projects in collaboration with industries, research centres, academia and space agencies, at national and international level.Regional skills and expertise include:

- design and building of satellites; space applications in the field of Earth observation, navigation and integrated applications
- Aeronautic manufacturing development and applications of Industry 4.0 technologies to aerospace industry (Advanced materials, additive manufacturing, augmented reality, cyber security, Big)
- UAS/RPAS: Aerial platform development
- UAS/RPAS applications in service provision: precision farming, emergency management
- Space technologies: Application of GNSS and SATCOM services to unmanned transports
- Aerospace propulsion system
- Microsatellites: satellite platform and avionic modules, propulsion systems, innovative EO services

Moreover, DTA has launched in partnership with Aeroporti di Puglia (AdP), the ""Grottaglie Test Bed"", a national research infrastructure with the mission to become a pole of excellence in the testing of UAVs.

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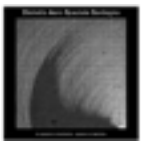
Distretto AeroSpaziale della Sardegna DASS Scarl

Description

Distretto AeroSpaziale della Sardegna (DASS) is a limited liability consortium company established on the 15th of October 2013 and currently owned by five public and twenty-four private shareholders with a share capital of €95112 (fully paid-up). The company's purpose is consortium-based, mutualistic and non-profit, and it cannot therefore distribute profits to shareholders, which, if produced, must be reinvested in research, development, training and dissemination activities. The purpose of DASS is to undertake initiatives suitable for the development, in the Region of Sardinia, of an aerospace technological district. The Company also aims to support, through its scientific and technological expertise, the attractiveness of investments in high-technology production sectors, to contribute to the strengthening of the technical and scientific skills of its Members, and to strengthen the Sardinian, national and international regional research system.

Space highlights

DASS owns 100% of the rights to the patent families referred to below: "Fabrication process of physical assets for civil and/or industrial structures on the surface of Moon, Mars and/or asteroids", Patent 10453PTWO, 28/07/2011 "A process for the production of useful materials to sustain manned space missions on Mars through in-situ resources utilization", Patent PCT/IB2012/053754, 24/07/2012.



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GATE 4.0 - DISTRETTO REGIONALE TOSCANO "ADVANCED MANUFACTURING 4.0"

Description

The "Distretto Tecnolologico Advanced Manufacturing 4.0" is a network of SMES, research centers and laboratories located in the Tuscany region. It aims at facilitating technology dissemination and transfer from research to the market and business matching among potential partners.

GATE 4.0 is the managing institution of the Technological District on Advanced Manufacturing of the Tuscany Region. GATE 4.0 is a network ("rete di imprese") made of three participants: GATE SpA, ERRE QUADRO SRL and Industria Servizi. GATE 4.0 manages all the activities related to the dissemination of knowledge about I4.0 technologies and their applications, the organization of both one-to-one and plenary initiatives and meetings to ensure the matching between demand/supply of technology and funding opportunities. Furthermore, GATE 4.0 aims at acting as a "system integrator" in order to fill the technology value chain, amplify business opportunities and improve the competitiveness of the affiliated companies.

GATE 4.0 benefits from the financial support of "Programma operativo regionale (POR) FESR 2014-2020.

The network of entities affiliated to the District counts nowadays over 150 SME, Departments from 3 Universities and CNR, and over 20 labs/research centers.

Space highlights

+20 SME from aerospace in the District

Leading Research Centers in Tuscany

Partner of the National Aerospace Cluster (Cluster Tecnologico Nazionale Aerospazio, CTNA)

Organization or participation to sector specific dissemination and matchmaking initiatives for aerospace SMEs

Contact

Regione:

Toscana

Presidente del distretto:

Giacomo Tazzini

Head quarters:

Largo Padre Renzo Spadoni, snc

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Point of Contact

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General manager

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Umbria Aerospace Cluster

Description

Umbria Aerospace Cluster boasts competences in electronics, mechanical and software development, special processes and engineering. Cluster companies can supply finished mechanical engine and structural components, electromechanical and hydraulic actuation systems, equipment, aerostructures, electronic and control systems, fittings, production and testing systems. Professional skills and technological processes include heat treatment, electroplating, painting, welding and qualified services in non-destructive tests, cabling, assembly and inspection.

Space highlights

High precision machining, design and manufacturing of custom environmental test chambers and equipment, test program development, board testing and reliability test support, space simulators, design and manufacturing of custom embedded systems, propulsion systems, actuators, 3D digitizing systems, structural design and sress analysis, metal surface treatments, thermo-mechanlcal analysis and design, design and prototyping of microwave satelitte communication systems, satellite systems development and simulation, satelitte software applications.

Contact

Regione:
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Photo Credits: ESA | contains modified Copernicus Sentinel data (2020) | Perù

START-UPS

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AIKO

Company profile

AIKO S.r.l. is an innovative deep-tech company with a unique mission: "Introducing Artificial Intelligence to space, to catalyze the evolution of space systems towards smarter, more autonomous and more efficient satellites" AIKO is a deep tech company, delivering state of the art Artificial Intelligence solutions for flight and ground software with the goal of enabling autonomous space missions. AIKO has active contracts, collaborations and partnerships with many european institutions and companies, including European Space Agency and the European Commission.

AIKO has been the first European company to publicly announce the in-orbit demonstration of Deep Learning algorithms, in October 2019.

Founded in 2017 in Torino and registered in the list of innovative Italian companies, since May 2017 is incubated in I3P (www.i3p.it), one of the most important public incubators in the world (15th worldwide in 2014, 1st worldwide in 2019). AIKO business focuses on the development of Artificial Intelligence software for space applications, targeting automation of operations, support to operators and advanced mission autonomy. Key areas of expertise are Machine and Deep Learning, Knowledge-Based Systems and embedded software design applied to space missions, in the domains of autonomous decision-making, payload data information extraction, failure detection, and mission replanning. AIKO is composed of a team of highly skilled researchers and engineers, boosting years of experience in space programs, including two small satellites launched and operated, publications on international journals and congresses and collaborations with some of the most prominent research institutes, such as ESA, NASA JPL, and MIT. Since June 2018, AIKO is part of the NVIDIA Inception Program, a program reserved for startups that have Artificial Intelligence as the core competence and focus. The program nurtures dedicated and exceptional startups who are revolutionizing industries with advances in AI and data science. AIKO has secured both private and public funding, including investment from VC involved in the field of Artificial Intelligence.

Products | Services | Applications |Technologies

AIKO provides state of the art technology and expertise in four distinct domains related to the design and development of Artificial Intelligence for space missions:

State of the art AI-enabled automation: AIKO main product, MiRAGE (Mission Replanning through Autonomous Goal gEneration) is an AI-based ground and flight software designed to enhance the autonomy level of a spacecraft. MiRAGE is currently at TRL6, and features several AI technologies interacting, such as Deep Learning and Knowledge-Based Systems. The technology enables state of the art functionalities in mission operations automation, such as goal generation and management, event and failure detection including prediction, and mission re-planning, performed by analyzing on-board telemetry and payload data and generating an operations schedule that adapts to the events monitored. MiRAGE enables E4 mission autonomy on spacecraft. Deep Learning and AI on the edge: AIKO unique expertise involves developing and deploying state of art AI to edge devices, including recent releases of AI accelerators. Among the applications developed by AIKO, and compatible with integration on onboard computing platforms, there are: cloud detection and segmentation, terrain and urban detection and segmentation, ship detection, predictive maintenance and failure prediction, attitude and position estimators for Rendez-Vous maneuvres, and more. Complex automation algorithms: autonomous decision-making algorithms, advanced planning, goal reasoning and goal management. AIKO develops algorithms that enable spacecraft coordination, cooperations and interaction. AI for safety-critical applications: in addition to the expertise in quickly and reliably integrating state of art technologies upstream, AIKO expertise is growing in the field of verification and validation of AI for safety-critical applications, both in the field of supervised AI and in the field of robust and explainable AI.

Contact

Business Name

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Data di costituzione

2017

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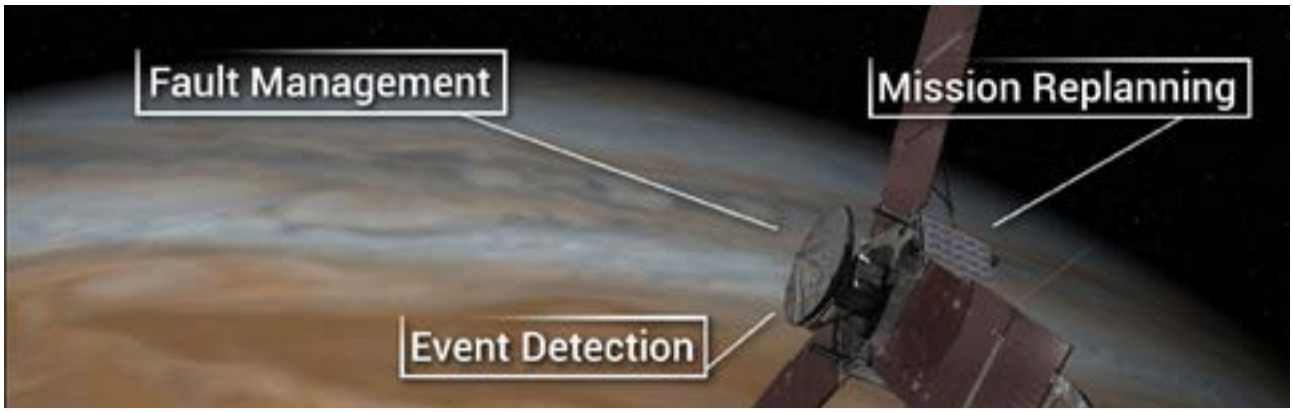
DEEP TECH
IN TORINO.
ITALY.


Fault Management
Mission Replanning
Event Detection


DEEP TECH TEAM.
FOUNDERS.
B.DEV.

Antech Space

Company profile

Antech Space designs, manufactures and integrates turn-key satellite telecommunications systems and related RF equipment.

The company, founded in 2016, is made up of a team of great experience and already known among the operators of the satellite market, especially between the owners of teleports and their end-users (such as National Broadcasters, Defense and Space Agencies). Recently the company has specialized in participating in international tenders, organized by State Institutions or private companies.

Antech Space has a large range of products, that include Ka, K, Ku, X, C, S and L Band feed/horn RF solutions, both for fixed and mobile antennas, or electronic parts (as ACU - antenna control unit for GEO/LEO/MEO satellite antenna systems): every solution is configurated and customized according to customer needs.

Antech Space team is also able to carry out any kind of refurbishment activities on old satellite telecommunication systems, both from the RF and the mechanical and handling point of view."

Products | Services | Applications |Technologies

Satellite Earth Station

Antech Space projects, designs, integrates and installs satellite Earth station with antenna dish dimension from 3.7 mt up to 18 mt.

Frequency range Tx/Rx:

L/S band (1.6 – 2.5 GHz),

C band (3.4 – 6.8 GHz),

X band (6.7 – 8.5 GHz),

Ku band (10.7-14.5 GHz),

K band (17.5 – 18.3 GHz),

Ka band (20 – 30 GHz)

Configurations:

Prime Focus, Dual Optics, Cassegrain, Gregorian, etc.

Project, Design and Measurements Division

Antech Space projects, designs, produces and sells every kind of satellite passive parts (feed or parts of it) under project or specific customer requirements for any kind of application from L band to Ka band, giving also measures and calibration in its laboratory (equipped with an anechoic chamber). Its main capabilities are:

1. RF measures on passive parts of the antenna feed;
2. RF measures on power amplifiers with a high level electronic laboratory;
3. antenna alignment service (e.g. Teodolite, Laser tracker, Photo Grammetry);
4. antenna on site measurement (e.g. Gain, G/T, Waveguide loss).

DSNG Vehicle for Governative Agencies

Antech Space can provide turn-key coach worked vehicle for the Governative agencies equipped with mobile satellite antenna systems and other RF equipments for disaster recovery, Military and Police services. Last main installations/refurbishment works:

SNRT/Morocco: Supply and installation of Nr.9 - 2.4mt V-SAT Ku band antenna system, installed in Rabat

Italiana Ponti Radio/Italy: Satellite band management for RPAS (Remotely Piloted Air System), named Falco-EVO, related services

Telespazio/Italy: New 4ports monopulse Ku band feed for ITA-FOC-04C antenna system installed in Fucino Teleport

E-Geos/Italy: 10mt antenna system with a new X band monopulse Feed and high speed motorization sub-system completed with ACU for LEO application

Hellas Sat Teleport/Cyprus: 7mt Antenna system refurbishment activities on Az. & El. motors kit

Dish Media Network/Nepal: 9mt Antenna system refurbishment activities on Azimuth motors kit

Contact

Business Name

Antech Space srl

Data di costituzione

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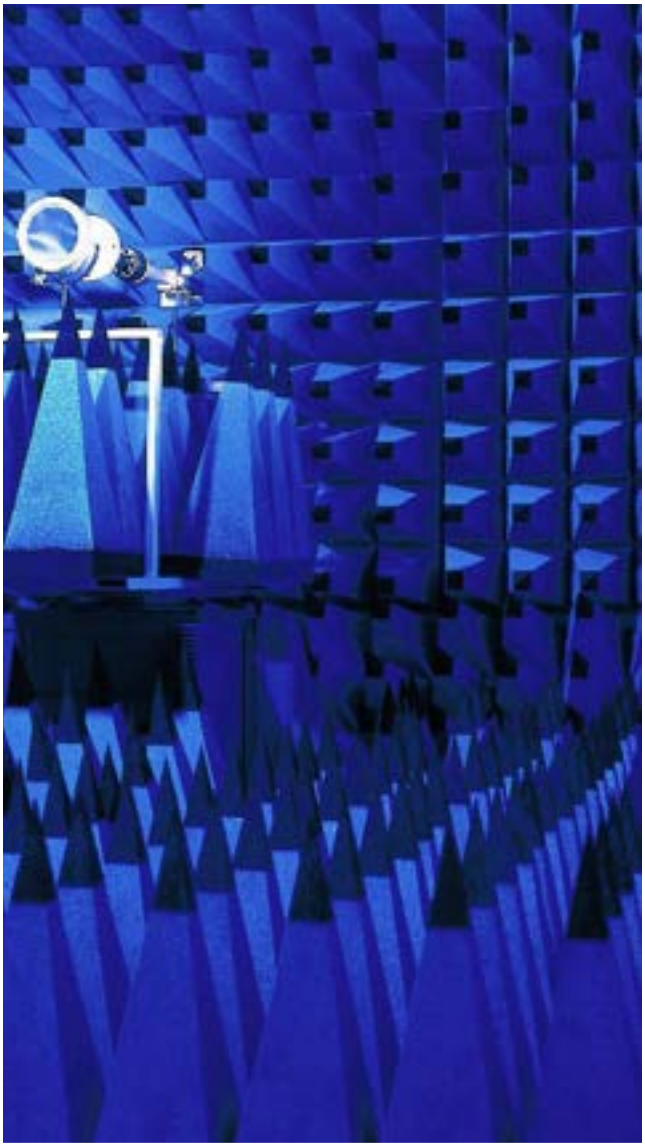


sky
sky
sky

ARCA Dynamics

Company profile

ARCA Dynamics is a New Space company providing innovative solutions for environmental and Space exploitation sustainability. Using and operating its proprietary nanosatellites, ARCA offers Space Traffic Management and Earth Observation services.

The company is constantly evolving by carrying out Research & Development activities for enabling and cutting-edge technologies aimed to a sustainable space exploitation and human resilience in space.

Thanks to its patented technologies, ARCA is able to provide:

- STM solutions: highly accurate AI-based collision risk analysis, "smart" on-board devices for hazard and threat detection;
- EO solutions: asset tracking, including maritime traffic monitoring, critical infrastructure and EM pollution monitoring;
- On-board components: "green" reaction wheels, "smart" stellar sensors and AI GNC software.

In-house skills and capabilities cover the whole value chain of a nanosatellite mission, from mission/subsystem design to development, launch and operations.

Products | Services | Applications |Technologies

Maritime surveillance

Thanks to the acquisition of a new type of data that integrates synergistically with current technologies (AIS, SAR, optics), ARCA Dynamics is able to geolocate and characterize with very high precision and in real time maritime vessels at any time of day or night, anywhere in the world, regardless of weather conditions.

AI Space Camera

An optical sensor with different available functions based on AI, such as star tracking, stellar gyro and hazard detection.

Plug'n'play, fully autonomous and cost efficient.

Fluid Wheel

An innovative reaction wheel that enables near null angular velocity manoeuvres while providing clean torque.

Fully disposable, low power and customizable.

AI integrated solutions and software

Extended expertise and know-how of on-board and ground cutting-edge AI is used to design and develop deep tech solutions for the most challenging needs of our customers.

New Space consulting for mission design, development & operations

Thanks to its know-how, network and expertise with nanosatellite missions, ARCA Dynamics is able to design from scratch, develop and operate nanosatellite missions enabling New Space entities to deliver their value proposition through a sustainable satellite infrastructure using reliable and cost-efficient cutting edge technologies.

Contact

Business Name

ARCA Dynamics

Data di costituzione

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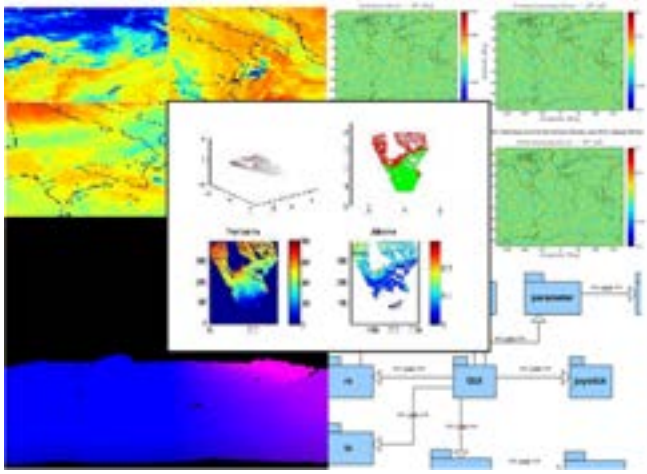

Centrale Valutativa

Company profile

Centrale Valutativa S.r.l. is an innovative start-up founded in January 2016 by seven partners who had been working together over the past decade, as a team, in a big consulting company operating in agro-environmental field. We have been involved in the past decades in the evaluation services related to rural development programmes as a part of the European Common Agricultural Policy (CAP). Evaluation is a discipline which requires the application of research and methods in order to gauge the evidences of policy effects. With this respect, we progressively became aware that part of our evaluative research could have been turned into a business opportunity addressed to the environmental impacts' mitigation of the agricultural and agribusiness activities. Evaluation still remains company's core business, but we now offer other environment related services like:

EO-based services for farmers, insurance companies and golf courses: TETHYS – Smart Farming; Innovation brokerage and advisory services promoting circular economy solutions for a better management of waste in agriculture and agribusiness sector;

Carbon foot print applications at farms and industries level in the agriculture and agribusiness sector, to estimate greenhouse gas emissions and to obtain carbon credit certificates.

As for earth-observation based services, we've received some awards:

Winners of 2017 ESA-BIC Incubation

Third place in 2017 Copernicus Masters B2B Challenge

Participation to the 2018 Copernicus Accelerator programme

Finalist in 2018 Copernicus Masters Land Monitoring Challenge

Winners of 2019 Copernicus Incubation

The team of Centrale Valutativa is made up of seven partners with 20 years of proven experience in the agricultural field.

The strengths of our team rely on:

The multidisciplinary background (3 agronomists, 2 economists, a statistician, a GIS and EO-data expert)

The experience gained over the past decades in the agricultural area and the contacts we've built in it

The applied research and methods carried out in the evaluation activities on environmental impact assessment

The cooperative network of researchers focusing on environmental and other issues, which has been consolidated in the past decades
The strong motivational attitude of new entrepreneurs

Products | Services | Applications |Technologies

TETHYS - Smart Farming is a Decision Support System, using earth observation and other (weather, soil and agronomic) data to enable farmers better manage their dayby-day decision-making process. It includes specific services on crop vigour monitoring, smart irrigation and crop yield estimation. TETHYS - Crop Monitor is useful to monitor, with proper vegetation and biophysical indexes, the crop health and maturation in each part of the field. NDVI (to monitor the health of crops by detecting in advance any occurrence of stress conditions), NDWI (to estimate the percentage of dry matter of the crop) and other vegetation indexes are used to monitor specific agronomic issues. TETHYS - Water Saver guides farmers in irrigating only where, when and how much it is necessary. Water is a common but precious resource, essential for human life. Agriculture consumes more than 70% of the available fresh water globally, with inefficiencies and waste reaching up to 40% of the total. It is therefore a pressing imperative, driven and fuelled by public policies, to use farming water resources more efficiently and consciously.

TETHYS - Water Saver is able to estimate the correct amount of water to be distributed in each portion of the field, reducing waste and limiting consumption, with obvious positive effects on the company's balance and on the environmental sustainability of production.

TETHYS - Yield Estimator, to assess the agricultural production of each area of the field. Estimating agricultural production at harvest time is a difficult and costly task and often leads to inaccurate and generally poor results. New technologies offer different alternatives to traditional estimation methods, from drones to sensors, but they are still expensive and not free of flaws (non-repeatability, high time commitment).

TETHYS - Yield Estimator is able to estimate the daily production of biomass for each area of the field, allowing the user to monitor the progress during the growing season and to create yield maps and prescription maps at the end of the season. This allows the farmer to better plan the agronomic activities and to differentiate the use of production factors according to the actual needs of each area of the field, reducing the overall use of inputs and maximizing the production capacity of the company, and improving farm accounts.

The services are highly scalable, with interesting possible applications for insurance companies, golf clubs, public bodies and other subjects.

centrale valutativa

Contact

Business Name

Centrale Valutativa

Data di costituzione

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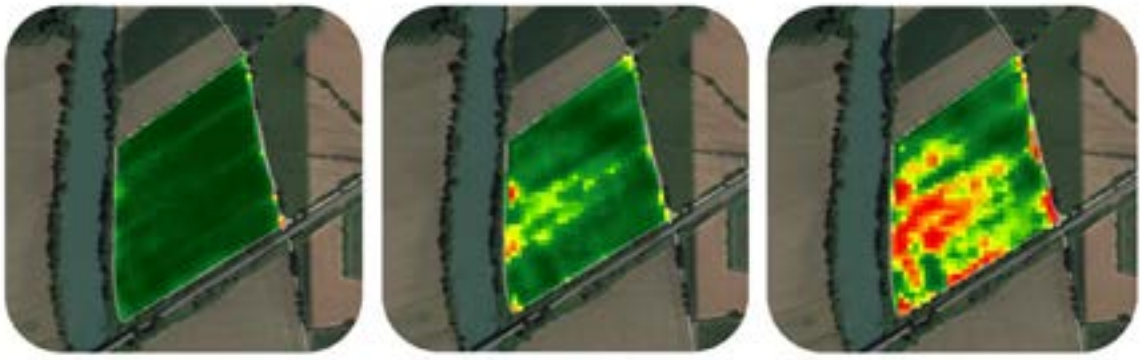

Red spider (Tetranychus urticae) attack on a maize crop

TETHYS
Crop Monitor

T E T H Y S

Colombosky

Company profile

"ColomboSky is an Italian startup that develops custom remote sensing products through the study of the process optimization for well-defined new niche markets. The exploitation of remote sensing products on new markets aims to generate profits and relieve the pain points of our customers.

Our team is composed by professionals with experience in marine biology, oceanography, remote sensing and data analysis. ColomboSky team members have deep experience in international projects for Earth Observation and machine learning, as well as aerial and drone inspections through image processing."

Products | Services | Applications |Technologies

AquaX is the satellite-based service for water quality monitoring at a global scale. AquaX allows improving fish farming performance by providing enhanced environmental monitoring and forecasting, reducing losses due to biological threats. Thanks to precise satellite measurements and customized oceanographic models, AquaX can measure and forecast a wide range of ocean parameters such as temperature, salinity, currents, and waves, and biological phenomena like algal blooms and jellyfish outbreaks over large spatial scales and continuously in time. AquaX is a powerful tool that provides easy and actionable information for an effective management of environmental risks that can impair fish farms productivity.

Contact

Business Name

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Data di costituzione

2017

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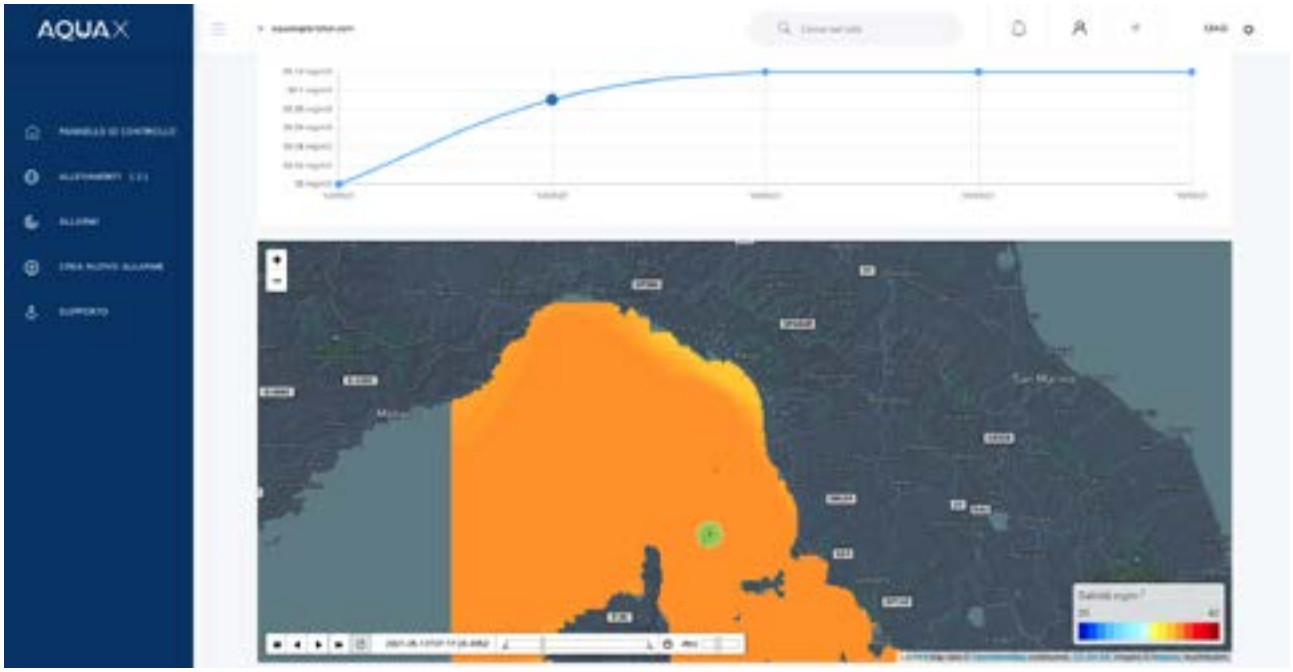
AQUAX

ECHOES

Company profile

ECHOES s.r.l. is an Italian engineering company specialized in the design, the development and the manufacturing of innovative radar systems and sub-systems (HW & SW). Founded in 2015 as a joint spinoff company of Interuniversity Consortium for Telecommunications (CNIT) and University of Pisa, nowadays, ECHOES is fully operative with many national and international customers and it has set itself apart through its ability to bring new products to market focusing on the future.

ECHOES offers customer-oriented full-stack radar solutions, from the design to the small-series production for a wide range of civil and military applications.

Since its founding, ECHOES has been involved in structural, geotechnical and environmental monitoring applications. ECHOES has a strong experience in Synthetic Aperture Radar systems with imaging, interferometric and change detection capabilities for deformation monitoring applications from both terrestrial and aerial platforms (UAVs and aircrafts).

ECHOES offers affordable and reliable radar systems with the best user experience guaranteeing an extremely ease of transportability, installation and use also in harsh environments with real-time and on-board processing.

Products | Services | Applications |Technologies

ECHOES offers products and services within the radar framework. In particular:

- Radar system design
- RF design
- Radar processing
- FPGA IP cores & DSP
- Training and workshops

ECHOES segmented its market in four main areas:

- terrain & infrastructure monitoring
- airborne radar systems
- space & defence

Contact

Business Name

ECHOES srl

Data di costituzione

2015

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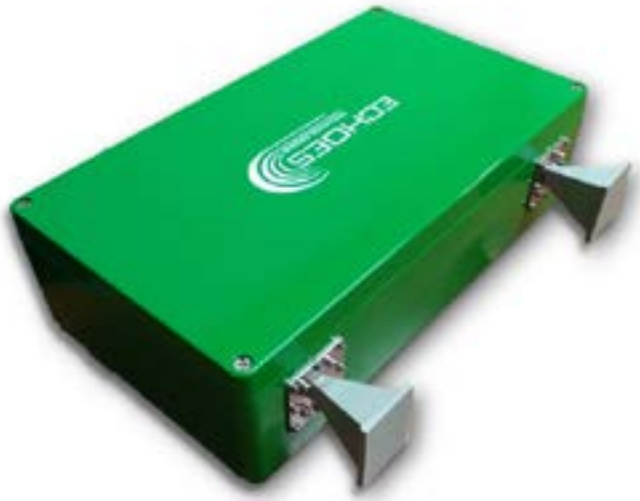
ECHOES
TECHNOLOGIES


ECHOES
TECHNOLOGIES



GERICO Security

Company profile

Gerico Security is a Company specialized in providing expert advice and integrated support in the sector of Information & Cyber Security, Business Continuity and Risk Management, also providing services for business process certifications and Governance Risk & Compliance turnkey projects. It is formed by professionals, committed to meeting the Security demand by making use of the experience gained over the years. It is provided by carrying out real time system development (Space and Telecommunication sectors), and providing support to large Critical infrastructures (Gas Transportation and Telecommunication companies), manufacturing companies, medium and small companies of value-added services. In addition to being active in the field of standards and ISO certifications (e.g.ISO27001), Gerico focuses on innovation and niche services:

- Cybersecurity requirements of US Federal agencies compliant with the NIST:

Gerico is one of the first Italian reality supporting Italian and European DoD suppliers in compliance with DFARS 7012/7019/7020 in accordance with NIST SP800-171r2. Since the end of 2020, it has been taken as the Italian point of reference of CMMC - Cybersecurity Maturity Model Certification by signing a MoU with USA CMMC-CoE and with UK CMMC-CoE.

- The new ISO17020 Inspection Body of Gerico

The Cybersecurity Inspection Body is the first of its kind in Italy and Europe with which it can officially attest the Cybersecurity maturity level of the inspected organizations or of the providers. The Cybersecurity inspections are meant to be an important element to demonstrate the maturity level required by the Italian Ministry to all companies falling within the so-called National Cyber Perimeter or to the NIS EU Directive.

The Company is certified ISO/IEC 27001 (CSQA Cert.57112) and ISO 9001 (IMQ Cert.0647.2021 - EA 33, EA 35, EA 37)

Consulting, training, audit, inspections and verification services on:

- Information and cyber security
- Business continuity
- IT service Management
- Risk Management
- Payment card management (PCI DSS)

Planning of related models, methods of risk analysis and risk management.

Products | Services | Applications |Technologies

Our services are structured as follows: Advisory

Gerico provides the client with ad-hoc services bringing its experience to set out or manage appropriate models of risk management and information security governance processes. It protects your information assets, manages crises and maintains operational and business continuity. Inspection Body

Gerico has the first Inspection Body compliant with the ISO17020 standard in Italy and in Europe. It carries out Cybersecurity inspections and formally attests the current "cybersecurity posture" of an organization. Audit

Gerico ensures 1° and 2°- party Audits of Management Systems or audit activities needed after a cyber incident.

Academy

Upon request, Gerico Academy provides specialised training courses in Information Security, Cybersecurity, Business Continuity and Risk Management in a classroom setting or remotely

The services provided concern the main international best practices and standards on Cybersecurity and Business Continuity. In particular, Advisory, Audit services, Training courses and certification services compliant with:

Cybersecurity ICT and ISMS

ISO/IEC27001, ISO27701, ISO27017, ISO27018, TISAX, PCI-DSS

U.S. DoD Cybersecurity and Federal Agencies Compliance

NIST SP800-171r2, CSF – Cyber Security Framework, CMMC - Cybersecurity Maturity Model Certification

Cybersecurity OT/SCADA and control systems

ISA62443, NIST SP800-82, EUROCAE ED202A

Business Continuity

ISO22301

Risk Management

ISO31000, ISO27005, NIST SP800-30, EUROCAE ED203A

Our management consulting services enable the creation of a management system for information security and provide a clear vision of a company's Cyber exposure In addition, should an organization need a responsible person for Security Governance, who guides the activities and choices according to the business needs and strategies, we propose ""CISO as a Service"": CISO - Chief Information Security Officer. "CISO as a Service" provides organizations with the experience of highly qualified professionals who support such companies for the time strictly necessary. CISO as a Service is all ad hoc, tailored according to the needs of the Client. Our experience is made available to the Management with the aim of carrying out the most appropriate actions for the business. Methods, services and times are decided by clients accordingly

Contact

Business Name

GERICO Security srl

Data di costituzione

2019

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GeriCO
Gestione Rischi
e Continuità Operativa
CERTIFICATION
CENTER OF EXCELLENCE


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Le Certificazioni del team GeRiCO
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ISO
PECB
CSX
M_o_R
CISM
CRISC
CISA
CDPSE
PCI
bci
CPST
DRI
aicq sicev
UNI
PRINCE2
PMP
CMMI
ITIL
COBIT
33

Germani Enterprise

Company profile

The Company, established as an innovative StartUp on March 15, 2021, currently has its registered office in Grosseto (GR) - Tuscany - in Mercurio Street 24. It has as its main object the design, development, production and marketing of an innovative systems for capturing and destroying non-cooperating orbiting objects (so-called space debris).

The system includes a satellite dedicated to the capture, destruction and/or storage of debris whose objective is the active removal of such debris from Earth's orbit. In particular, in the long term, the company intends to introduce itself in the following sectors identified in line with the programmatic objectives of the Italian Space Agency (ASI): In-orbiting servicing, National initiatives, international relations and cooperation, engineering, innovation and technological enhancement, development and enhancement of research and spatial knowledge.

The long-term objective is to guarantee - both in terms of continuity and in terms of reliability - the provision of Active Debris Removal (ADR) active debris removal services and the disposal of satellites no longer operational Post Mission Disposal (PMD).

For a complete treatment please refer to the business plan and contact us.

Products | Services | Applications |Technologies

According to the current concept of the CARD mission, Germani Enterprise aims to realize and produce the following outputs:

- Artificial Intelligence (AI) and Machine Learning (ML) techniques useful for the identification of objects and able to track routes, weight, motions and other relevant data on non-cooperating objects.
- Components, design elements and technologies useful for docking and tugging operations and Active Debris Removal (ADR) and Post Mission Disposal (PMD) services.
- Three satellites, made in three distinct phases, with specific tasks for the removal and recovery of non-cooperating objects (debris) with possible return of these to earth.

According to the current concept of the CARD mission, Germani Enterprise aims to provide the following services:

- ADR services for debris in the portions of space involved in launch and maintenance operations (LEO);
- PMD services for constellations or satellites deactivated in portions of space involved in launch and maintenance operations in orbit (LEO);
- Sale of intangible assets such as AI and software;
- Sale of material goods such as components and design elements;
- Sale of materials recovered in orbit. The provision of ADR and PMD services can represent a value proposition for various operators in the space and non-space sector.

Further aspects are deepened in the business plan.

Contact

Business Name

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Data di costituzione

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In Quattro

Company profile

IN QUATTRO is a visionary Italian startup. It creates game-changing thermal cooling system for high-power electronics. The innovative feature of this system is the use of flow boiling heat transfer for cooling electronic devices. The unique group of researchers has its roots in aerospace, and proven expertise in the multi-gravity environment of parabolic flights - fundamental for the development of their two-phase system, whose low flow rate greatly reduces energy consumption and improves efficiency compared to conventional methods.

In particular, the experiences in hyper- and micro-gravity conditions have been carried out on board the ZERO-G aircraft of Novespace and ESA (European Space Agency) during the parabolic flight campaigns.

IN QUATTRO was selected as an innovative start-up by the ESA - Business Incubator Center in the Technology Transfer Program of ESA and ASI (Italian Space Agency) in collaboration with Lazio Innova. The company is also a spin-off of ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development)."

Products | Services | Applications |Technologies

IN QUATTRO has developed an innovative Two-Phase advanced thermal management system for high-powered electronics.

The evolution of electronic devices (CPUs, GPUs, servers, etc.) leads to miniaturization and power increase. The more power a device consumes, the more heat it generates, the higher temperatures it reaches, if not properly cooled. To maintain an optimal operating temperature, the heat must dissipate in a very efficient way. Recent advanced applications (AMD Threadripper 3990x, for example) generate such extremely high thermal densities (50 – 80 W/cm2) that current cooling technologies (heat pipes, liquid cooling, air cooling) are unable to cool efficiently. These new electronics products require new and more efficient cooling solutions to operate with optimal temperatures.

The innovative new system features the use of flow boiling heat transfer to cool electronic devices, and compared to traditional cooling systems (liquid cooling or heat pipes), it can achieve significantly higher heat transfer coefficients at significantly lower flow rates and pumping power, reducing energy consumption.

Fields of application of the new thermal management system:

- next-generation satellite
- high-performance PCs
- servers and data centers
- power electronics, like inverter of electric cars and batteries
- industrial applications

Contact

Business Name

In Quattro

Data di costituzione

2018

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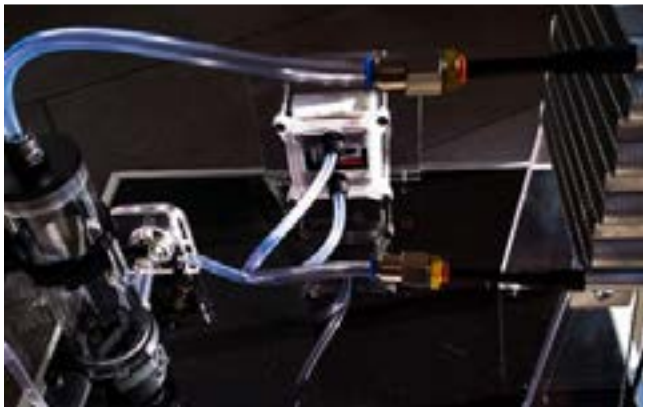
esa
esa
QUATTRO
ENEA
esa
ENEA
QUATTRO
esa
ZERO-G TEAM
LECOOL


SATELLITE
BOILING
GAMING PC
HIGH PERFORMACE
SERVER
POWER ELECTRONICS
COOLING
ELECTRIC CAR
QUATTRO
THE TWO-PHASE COOLING COMPANY
INDUSTRIAL APPLICATION
HI-TECH
RELIABILITY
ENERGY SAVING
EFFICIENCY
COST REDUCTION
DATA CENTER
CONDENSATION
PROFESSIONAL WORKSTATION
TWO-PHASE



Latitudo40

Company profile

Latitudo 40 has created the easiest and fastest platform to turn satellite imagery into geospatial information to support everyday decisions.

Products | Services | Applications |Technologies

We have integrated in a single platform all the technologies necessary to create, manage and use applications of spatial geoanalysis. EarthAlytics automates the entire workflow, from the automatic selection of data sources, based on the final application, to the analysis with automatic processing blocks based on artificial intelligence, up to the representation on an internal GIS and with intuitive information dashboards.

Contact

Business Name

Latitudo40 srl

Data di costituzione

2017

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Point of Contact

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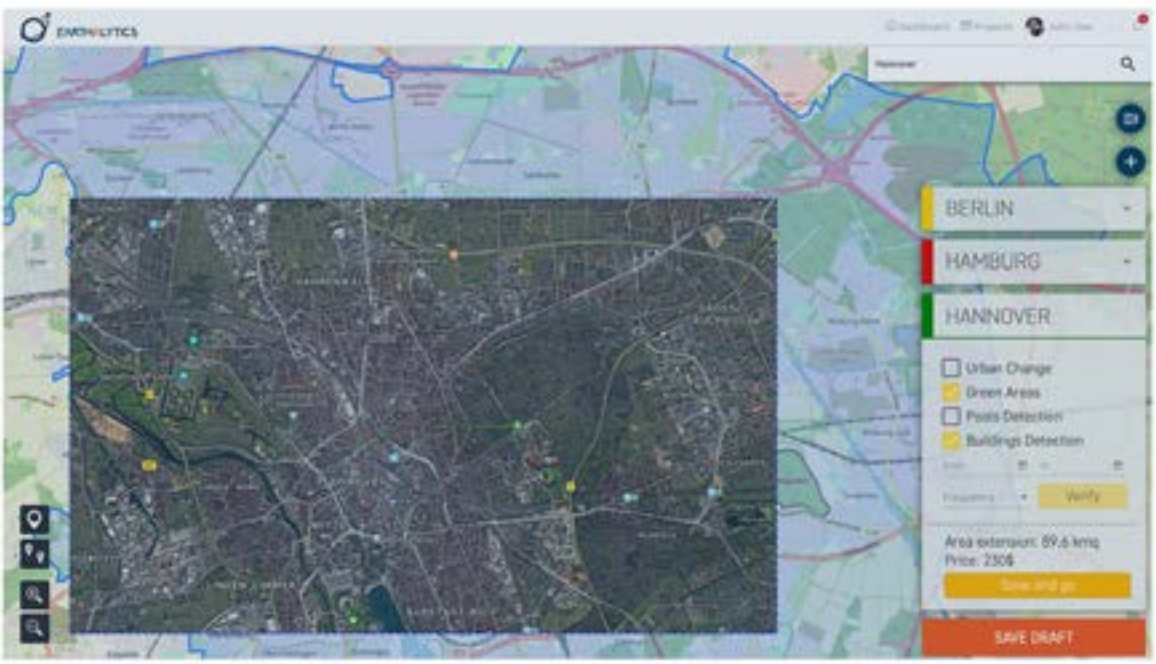
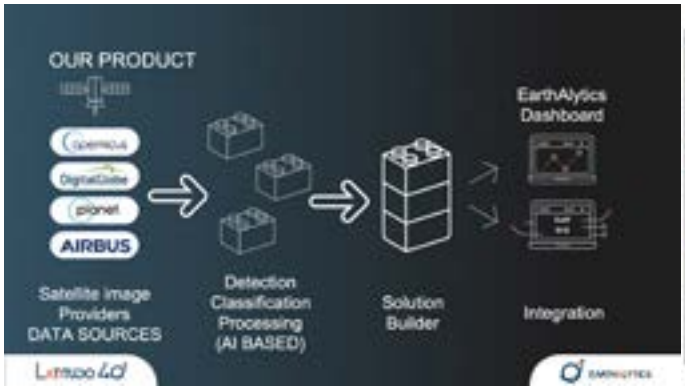

BERLIN
HAMBURG
HANNOVER
Urban Change
Green Areas
Pools Detection
Buildings Detection
Verify
Area extension: 89.6 kmq
Price: 230$
SAVE DRAFT


OUR PRODUCT
EarthAlytics
Dashboard
AIRBUS
Satellite image
Providers
DATA SOURCES
Detection
Classification
Processing
(AI BASED)
Solution
Builder
Integration


NAPOLI

Nablawave

Company profile

Nablawave is an engineering company founded by four senior researchers with experience in both academic and industrial research. In the Aerospace sector, in particular, our team has been involved in the design, simulation and testing of lab-scale rocket engines, up to 10 kN thrust.

Nablawave supports its customers in the research and development of new products through innovative solutions in the field of industrial and aerospace engineering. The consulting activity, combined with a constant collaboration with the world of research, has allowed us to develop unique skills and knowledge applicable to multiple industrial sectors. We strongly believe in transferring knowledge and methods from the aerospace sector to ground applications; on the opposite side, we also look for smart, cost-effective industrial solutions able to minimise development time and costs for the aerospace market.

At the heart of Nablawave there is a team of passionate professionals with transversal skills, capable of providing simple and unique solutions to fit enterprise needs. The organizational structure allows to carry out all the phases of the R&D process, from the preliminary design to experimental testing. Optimization algorithms and machine learning are seamlessly integrated with advanced analysis and design tools to handle the most complex structural and fluid-dynamic problems; the result is a drastic acceleration of the R&D process and an important reduction in costs.

Products | Services | Applications |Technologies

Our services:

- Mechanical design and technical consultancy
- Numerical simulations: CFD, FEM, vibro-acoustic simulations, combustion, fluid-structure interaction, structural and fluid dynamics optimization
- Development of tailor-made software tools and algorithms, optimization and machine learning
- Assistance with experimental tests

Our software tools:

- Automatic piping and harness routing tool for any 3D CAD model environment
- Nablafoil: real time performance prediction of a generic shape airfoil using neural networks"

Contact

Business Name

Nablawave srl

Data di costituzione

2019

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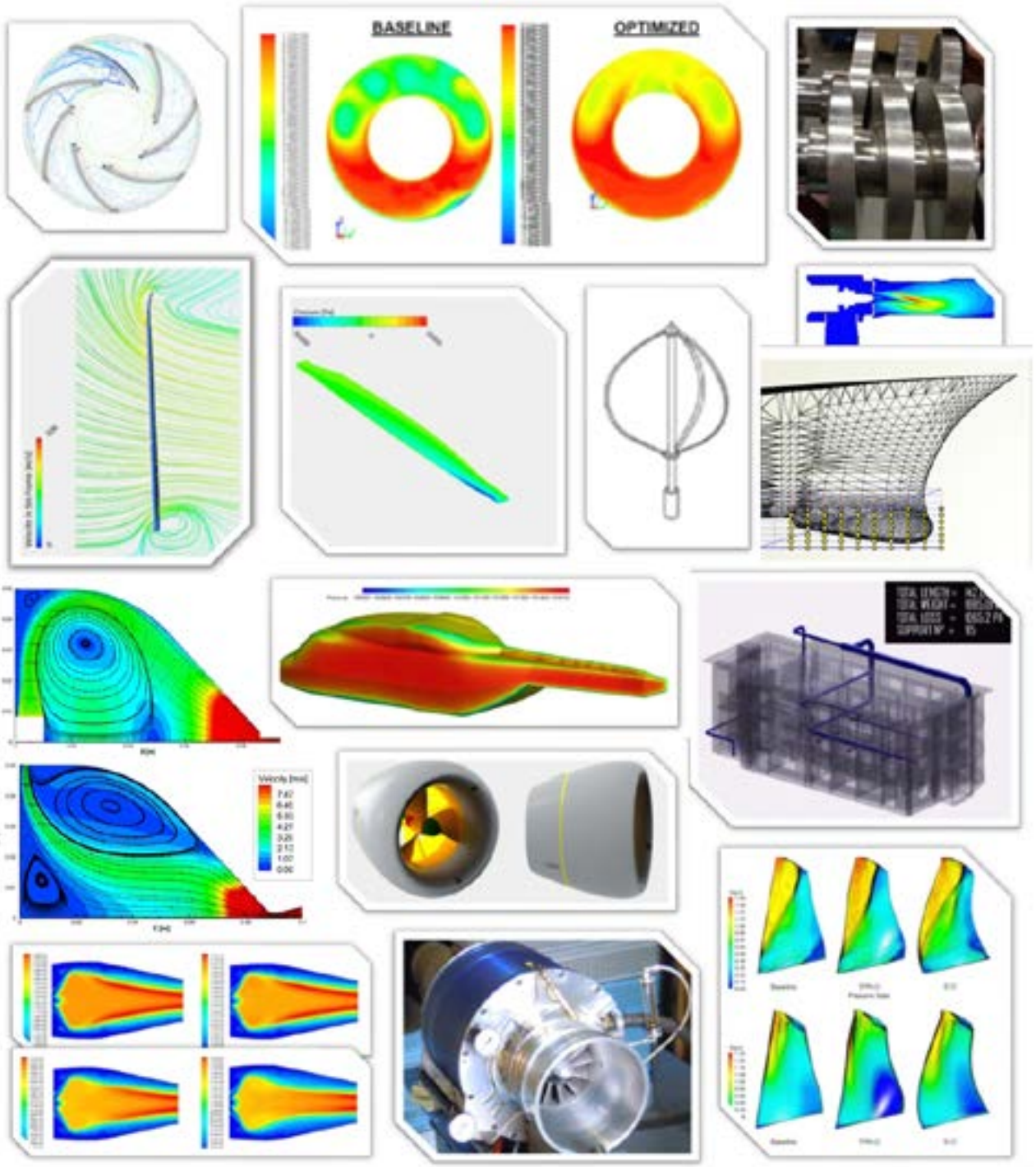
BASELINE
OPTIMIZED

S2G Technologies

Company profile

S2G Technologies is a young startup born after an aerospace engineer and a physicist won an ESA contract for ground spinoff application of space technologies. While actively working on this project, we also look forward to take on new challenges, both in the industrial and research fields. Our expertise covers a wide range of skills, from electronics, software development, hardware, additive manufacturing, FEM analysis and simulations, CAD design and project management. We can thus cover the design and prototype manufacturing completely in-house, accelerating the development of new innovative products. Thanks to the Invitalia - Voucer 3I Initiative, S2G Company has recently placed three patent pending requests, namely: Sat based Air Traffic Controller (Jan 2021), Interleukin 6/ Biological liquids portable readers (Dec 2020) Hot/Steam instantaneous generator from cold water (Feb 2021).

Products | Services | Applications |Technologies

Our expertise includes:

Instruments: Particle Sensors, Proximity Electronics, High Reliability FPGA Based DPUs

Software: On-board Data Compression, On-board Software

Hardware: Ground Support Equipment's, professional Additive Manufacturing (3D printing), CAD Design and Assembly

Analysis: Finite Element Method (FEM) Analysis and Computational Fluid Dynamics (CFD) Analysis

Contact

Business Name

S2G Technologies

Data di costituzione

2019

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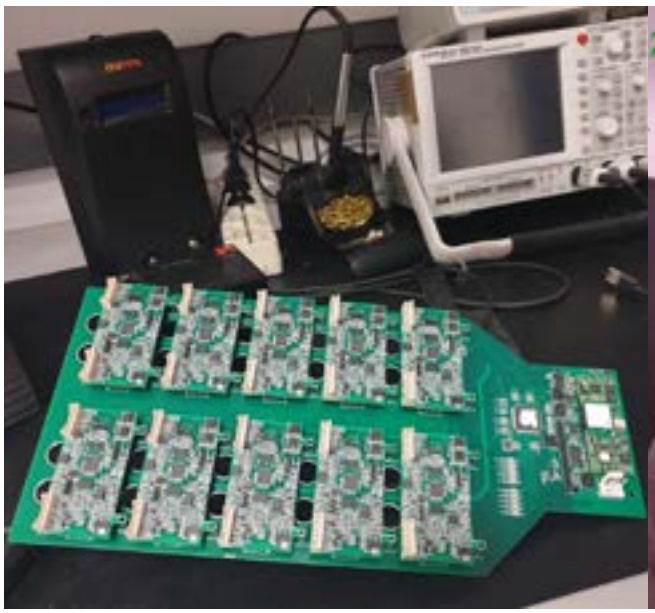

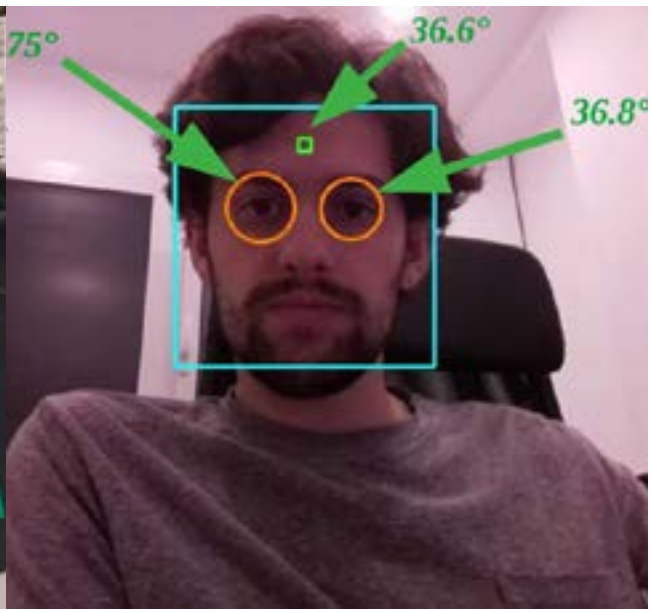
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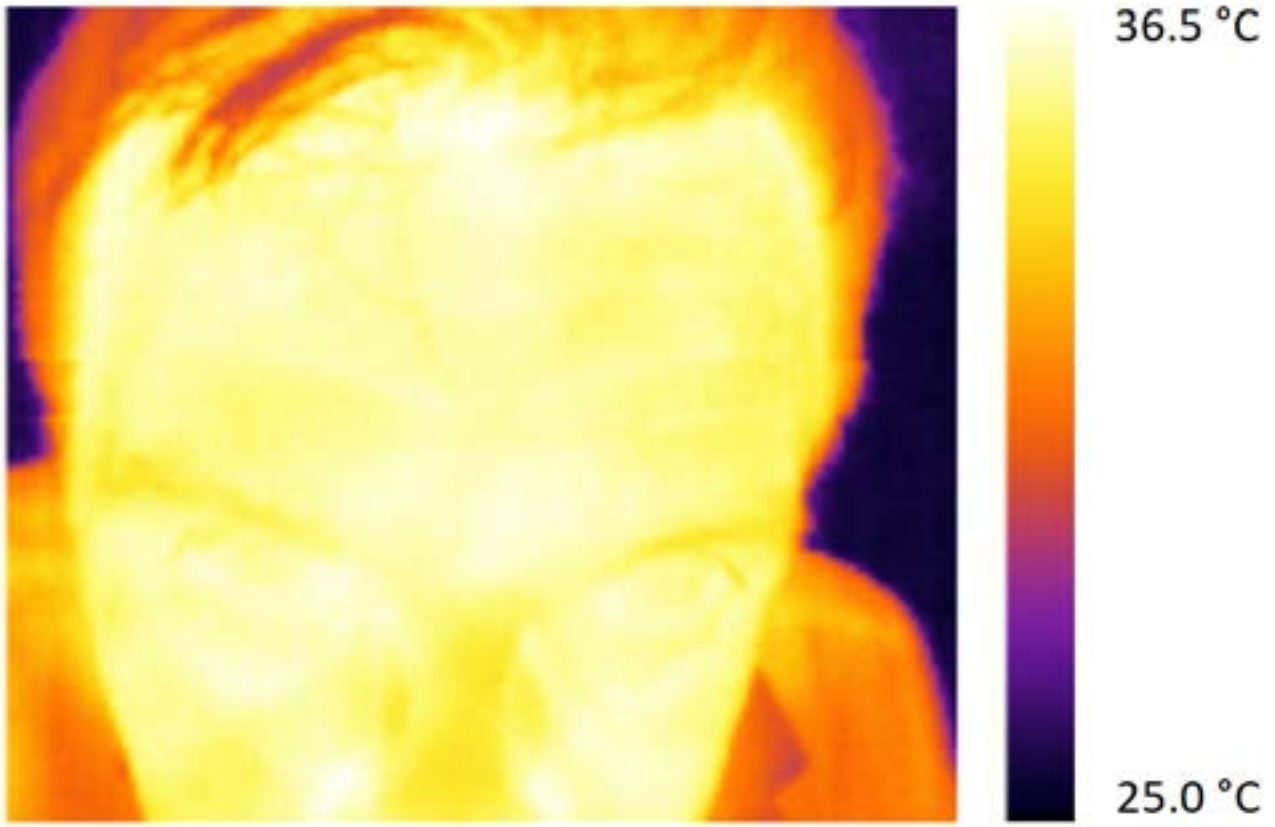
36.6°
36.8°


36.5 °C
25.0 °C

Safe Structures Company

Company profile

Safe Structures Company (SSC) is a start-up founded in 2019 and consecrated to innovation. Its founders (Leonardo Gagliardi, Fabio Gerace and Paolo Di Scanno), coming from Space and Ground markets, joined to share their experiences and to merge their competences in electronics, structures and information technologies to solve industrial problems.

Its first innovation project has been GAMBE – GNSS And Mobile data for BridgE monitoring – with the objective to monitoring healthy of highway bridges by using, GNSS, IoT and Big Data paradigms.

Products | Services | Applications |Technologies

Safe Structures Company (SSC) is a start-up founded in 2019 and consecrated to innovation. Its founders (Leonardo Gagliardi, Fabio Gerace and Paolo Di Scanno), coming from Space and Ground markets, joined to share their experiences and to merge their competences in electronics, structures and information technologies to solve industrial problems.

Its first innovation project has been GAMBE – GNSS And Mobile data for BridgE monitoring – with the objective to monitoring healthy of highway bridges by using, GNSS, IoT and Big Data paradigms.

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Business Name

Safe Structures Company srls

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Sidereus Space Dynamics

Company profile

Sidereus Space Dynamics is an Italian aerospace start-up founded in 2019 to revolutionize access to space. The company can already count on multiple awards won worldwide and the support of numerous players in the industry. Sidereus has developed and is currently testing EOS, a fully reusable orbital launch vehicle for small satellites and payloads. Experimental orbital flights are scheduled for 2022 and commercial flights will start at the beginning of 2023.

Products | Services | Applications |Technologies

Sidereus has developed and is currently testing EOS: a fully reusable orbital launch vehicle for small satellites and payloads. EOS is an extremely versatile SSTO: it can be launched from anywhere, anytime, with zero or minimal launch infrastructures required. It is capable to deploy small satellites to low-earth orbit and bring payloads back to Earth at the cheapest price on the market.

The EOS, named after the Greek goddess of dawn, is an entirely different vehicle from any launcher ever developed, both in terms of technologies and in the concept of operations. Given its very small size (just 3 meters tall, 1 ton fully fueled), the launcher can be operated by a small crew and is powered by storable, safe, and green fuels.

The vehicle has autonomous guidance, like a drone, thus eliminating the risk of uncertainty in air traffic. In case of unforeseen events, the vehicle carries a commercially tested guided parachute (Parafoil), which can be activated any time during the flight, ensuring a safe return to the ground at the launch site.

With launch operations arranged in a day and the lowest price for smallsats as primary payloads, EOS becomes an orbital drone that can be used to deliver CubeSats, run experiments, tests, and commercial operations in space daily, anytime, anywhere.

EOS has a payload capacity to LEO that ranges from 10Kg to 35Kg depending on the destination orbit and an extremely high launch frequency. EOS can be reused at least ten times with zero or minimal refurbishment needed.

EOS vehicle allows Sidereus to offer their clients:

- Fully customizable missions: clients' CubeSats are positioned with extreme precision without using a space tug;

- Launch anytime you want: only one week from notification to launch date;

- Payload re-entry: clients can recover their payload safely, after a period ranging from 12 hours to 1 month into orbit;

- Constellation positioning and replenishment: accurate constellation positioning and fast replenishment in case of satellite failure;

- EOS vehicle as a platform: onboard payload integration to eliminate satellite bus costs;

- Iterative R&D: companies can test any component directly in space conditions on board EOS, with quick and customized launch campaigns;

- Drive-it-yourself: EOS vehicles can potentially be operated autonomously by the client.

After months of R&D and lab experiments, the first prototype of the vehicle has been completed at the end of q1 2021. EOS passed successfully several technical reviews. Sidereus has also already deposited three patents related to EOS technologies.

Two other prototypes are planned after EOS Caronte: EOS Virgilio and EOS Beatrice, named in honor of Dante Alighieri's Divine Comedy. On these prototypes, an iterative R&D will be implemented, testing all the subsystems. The first sub-orbital and orbital flights are scheduled for 2022.

Sidereus Team believes that once the first version of EOS is commercialized, the following EOS Crew and Enhanced EOS Cargo vehicles will be the safest, most economical, and most routine access to space and point-to-point transportation.

Contact

Business Name

Sidereus Space Dynamics srl

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2019

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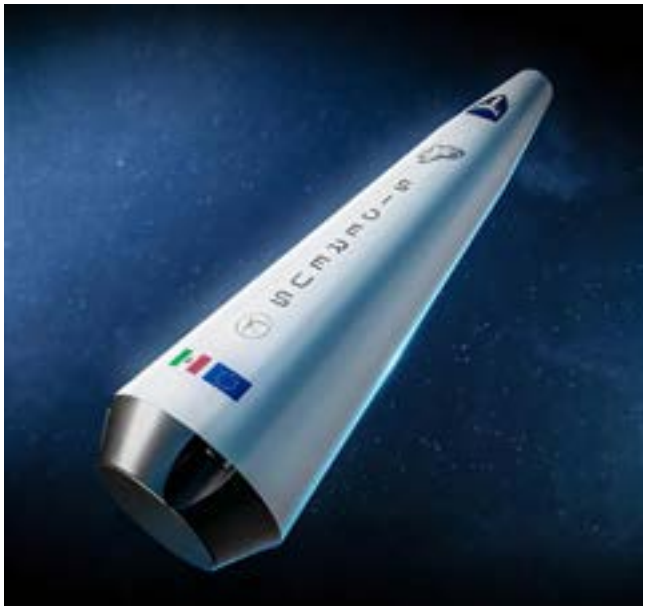
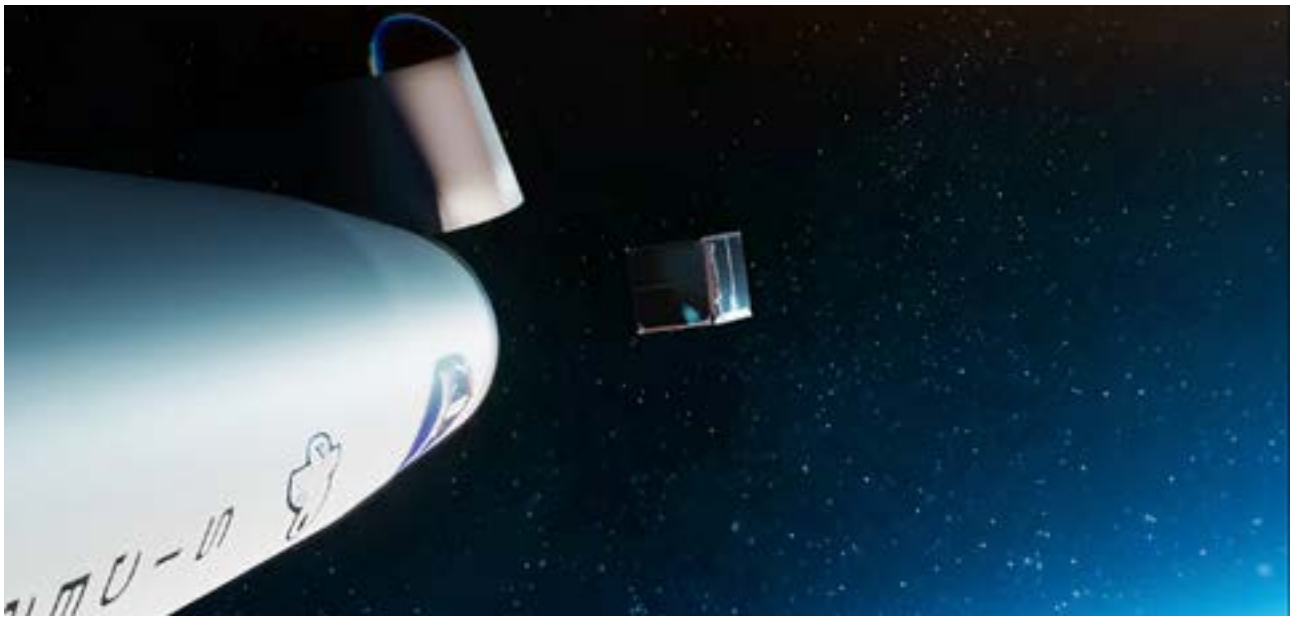



SIDEREUS



siHealth Photonics

Company profile

siHealth Photonics is an Italian SME dedicated to advanced research and development activities of innovative applications for healthcare. From decades of experience in the study and development of image processing techniques, we offer services in Italy and abroad using advance data processing methods applied to optical images, ranging from Earth Observation satellite data to images taken with a mobile device camera.

Through ground-breaking research and collaboration with healthcare professionals on the frontline, we aim to empower individuals to better manage their conditions and deliver data-fuelled insights to health stakeholders.

Together, we believe we can transform lives for the better while working in harmony with the environment around us.

MISSION:

Healthcare has never been more accessible, intelligent, or dynamic than it is today.

It's also never been under more pressure, from rising costs to an ageing population.

That's where we come in.

Through ground-breaking research and collaboration with healthcare professionals on the frontline, we aim to empower individuals to better manage their conditions and deliver data-fuelled insights to health stakeholders.

Together, we believe we can transform lives for the better while working in harmony with the environment around us.

With healthcare being disrupted and transformed by technology at such a pace, we believe it is essential to foster the opportunities to keep people well, help to improve outcomes and the management of illness to improve people's quality of life.

Products | Services | Applications |Technologies

Our people make our business. It is they who discover and develop our solutions and ensure that they reach healthcare professionals and patients alike.

Specialists in their areas, our team of researchers and IT engineers cover a diverse range of scientific and technological domains including:

-Human Physiology

-Photobiology

-Image Processing

-Artificial Intelligence

-Advanced Data Analytics

-Atmospheric Modelling

-Optical Satellite Image Sensing

OUR PROCESS

Research exploration - Specialists in their areas, our team of researchers and IT engineers cover a diverse range of scientific and technological domains.

Innovation - constantly investigating and prototyping new technologies, transferring our knowledge gained from our research exploration and collaboration with research bodies into impactful and accessible mobile health solutions.

Strategic Insight - uncover the key strategic insights by defining the problem that needs to be solved, delivering a solution that mixes science and creativity with strategic innovation. Design - using a human-centred design philosophy and process to create meaningful solutions in collaboration with the intended user. This often means testing and refining our solutions as we go along, whether that be building a mobile health solution for patients or formulating dynamic healthcare insights.

Contact

Business Name

siHealth Photonics srl

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Medicina e Fisiologia

Fotobiologia

Elaborazione di Immagini tramite Intelligenza Artificiale

Analisi Dati Avanzata

Modellazione Atmosferica

Telerilevamento da Immagini Ottiche Satellitari

Stellar Project

Company profile

Stellar Project is a space technology startup created in 2016 as a spin-off of the University of Padova, Italy, offering game-changing solutions for light satellites with a high degree of care towards space environmental sustainability.

Stellar Project aims to fill the gap in performances and capabilities between small satellites and large spacecrafts, providing original and proprietary technology.

The company vision embraces global space democratization, bringing together the best talent and creativity to develop bright ideas to fit into smart satellites products and services.

Products | Services | Applications |Technologies

In 2021, Stellar Project will launch LaserCube, a proprietary and patented revolutionary technology.

LaserCube is a miniature low-power, high-performance laser communication terminal specifically designed for CubeSats and smallsats.

With its independent and accurate pointing capability, LaserCube allows throughput performance more than 10 times higher than state-of-the-art radiofrequency solutions for small satellites enabling several innovative business applications.

LaserCube, as the optical telecommunication highway for small satellites, will deliver an unprecedented increase in data volume, communication security, and speed: another step towards accessible and affordable space technology for all.

LaserCube features two different configurations, one for downlink and the other for inter-satellite link applications. The downlink version can downlink data at an unprecedented rate, permitting the full exploitation of optical payloads for high-resolution multispectral imaging; the inter-satellite link version represents a fundamental element to realize high-efficient IoT and M2M networks, as well as spaceborne data relay constellations. The system is composed of two main parts: the optomechanical unit and the electronic unit, each made of standardized building blocks. The former features a dedicated dual-stage pointing system based on a technology patented by Stellar Project and the optical head, while the electronic unit contains the laser sources and drivers, as well as ancillary electronics.

Stellar Project is also working in consortiums within the H2020 program on Quantum Communication and started to expand its activities on data analytics both for terrestrial applications and the space environment providing tools for Space Debris Analysis and monitoring.

Stellar Project offers a unique consultancy service to analyze the risk of mission deterioration for spacecraft and constellations exposed to the current orbital environment, with a special focus on the threat posed by space debris. Environment analyses are coupled with the examination of spacecraft design reports provided by manufacturers, in order to derive realistic predictions and/or assessments of satellite anomalies, useful for the Space Insurance market.

Because of the growing interest in large constellations of small satellites, the risk related to space debris and space radiation is going to be better perceived day by day. The debris population in Earth orbits is in fact continuously increasing, and the robustness of nanosatellites to the radiation, plasma, and neutral environments is still not at the same level as that of large spacecraft. In respect of these threats, Stellar Project provides advice to operators willing to maximize the environmental robustness of their space systems since early design stages.

Contact

Business Name

Stellar Project srl

Data di costituzione

2015

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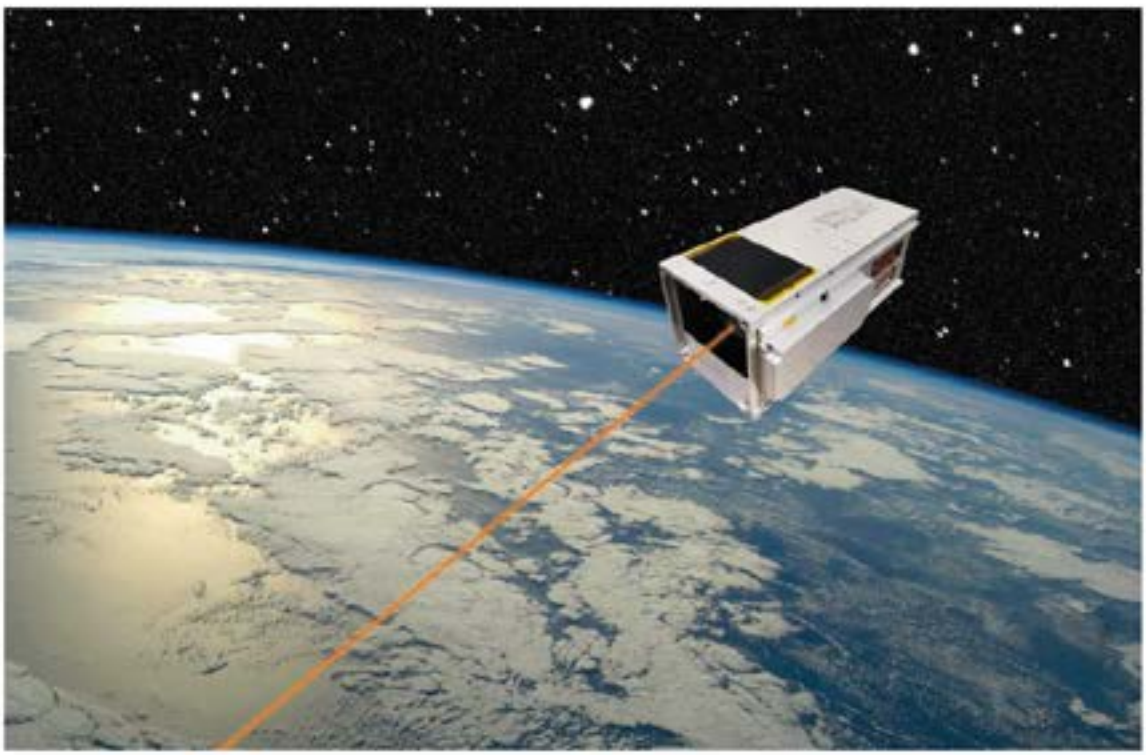
STELLAR PROJECT



LaserCube

Creating the optical highway for small satellites communication

Studiomapp

Company profile

STUDIOMAPP is an innovative startup with offices in Ravenna and Rome (Italy), specialized in AI and advanced ICT. Using AI applied to Satellite and UAV imagery we deliver solutions for location intelligence.

Products | Services | Applications |Technologies

Satellite & UAV imgint. Artificial Intelligence object detection SaaS, 100+ categories (maritime, engineering, ports, mining, logistics, buildings and informal settlements, energy assets, defence). Environmental Intelligence for natural resources management and climate change impact evaluation (vulnerability and risk assessment). Smart farming & precision agriculture. Web Gis, Cartography, data modelling.

Contact

Business Name

Studiomapp srl

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2015

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Qirate


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Building
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Building
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Building
0.14727
Building
0.183543
Building
0.133274
Shed
0.107301
Building
0.1332
Small Car
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Truck
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Building
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Building
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Small Car
0.165479
Building
0.122188
Building
0.338325
Building
0.130673

ThinkQuantum

Company profile

ThinkQuantum Srl is a start-up, spin-off of the University of Padua, offering complete solutions for cyber security and communication systems based on quantum technology. Major industrial partner, OfficinaStellare guarantees access to its scientific and opto-mechanical engineering skillset and to its solid international network and reputation in the Space Industry.

ThinkQuantum, with its personnel and capabilities, covers the full value chain from design and manufacturing to commissioning of quantum key distribution systems and quantum random numbers generation devices.

ThinkQuantum, based in Italy with an Italian shareholders structure, offers a reliable European supply chain to those partners active within geopolitical sensitive application.

Products | Services | Applications |Technologies

Maturity of quantum technologies represents today the best answer to the growing demand for security in communications: an encryption communication can be based on the exchange of a key based on the physical status of photons and thanks to quantum properties endeavours attempts that can be identified. These systems are commonly referred as Quantum Key Distribution, QKD.

ThinkQuantum QKD solutions cover fiber, free-space and hybrid links and they come both in daisy-chain (serial) and star configuration, with a variety of communication schemes such as intra-satellite, satellites-to-ground and ground-to-ground. Devices are based on patented designs.

Despite their relevance, random numbers today come from deterministic methods and are in fact just pseudo-random number. Maturity of quantum technologies represents today the best answer to theneed of true random numbers. Intrinsic randomness of Quantum physics is exploited in order to extract and generate random numbers. These methodology is commonly referred as Quantum Random Number Generation, QRNG. ThinkQuantum QRNG devices provide random number with highest bit rate and unbeatable purity. Devices can be easily integrated into the security systems and professional electronics for a variety of applications.

Contact

Business Name

ThinkQuantum srl

Data di costituzione

2021

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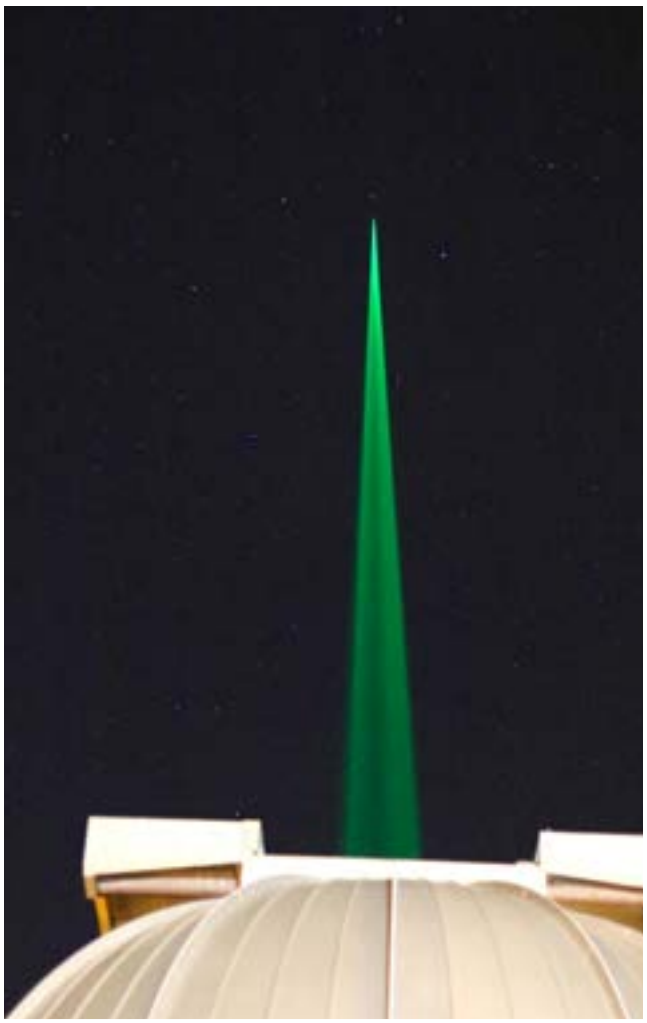

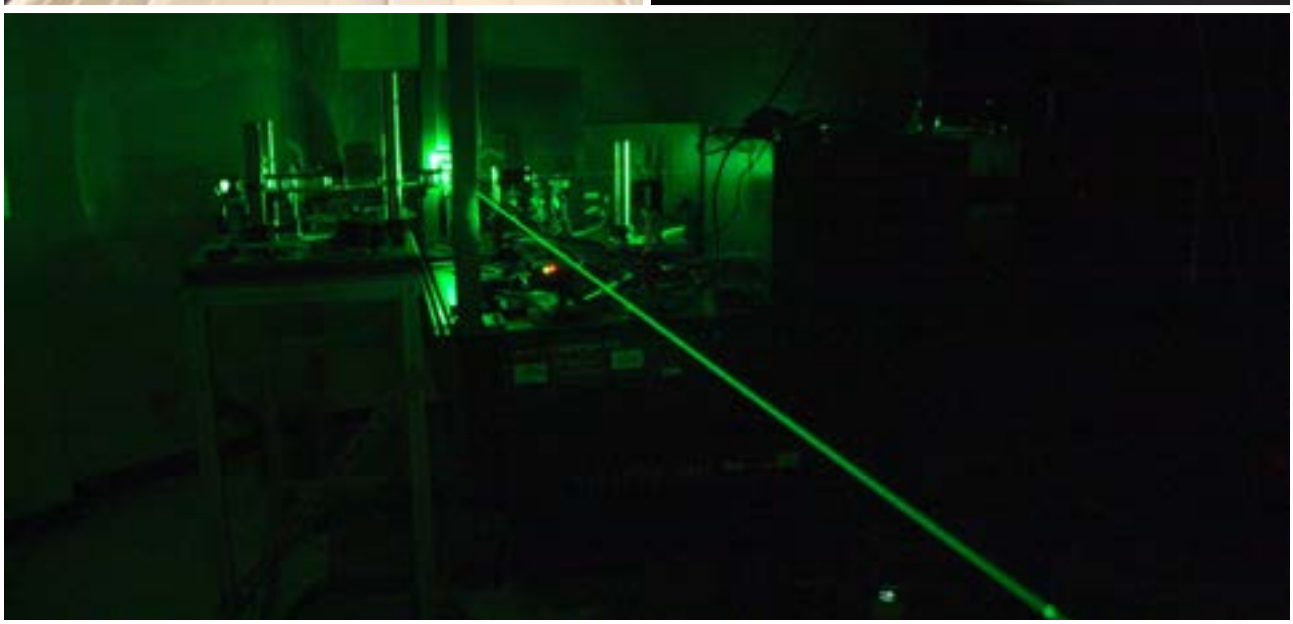

Universo Energia

Company profile

Universo Energia is an innovative start-up that operates in the green economy sector with a view to sustainability and safety. In this context, it offers management consulting services, systems integration and due diligence (for the photovoltaic secondary market).

It has developed a software platform, based on big data and artificial intelligence, dedicated to the photovoltaic market. The project received funding from the Italian Space Agency, the European Space Agency and the Lazio Region.

It deals with energy efficiency, circular economy and the construction of plants based on renewable energy sources (taking care of the entire process: design, installation and management).

Products | Services | Applications |Technologies

The platform Solìsia developed by Universo Energia acquires data relating to solar irradiation and geo-localized weather conditions at the installation sites of the photovoltaic plants managed.

The most relevant data source is the Copernicus program.

The data of the electricity production of each photovoltaic system are then collected and the relative efficiency levels are assessed.

Finally, the platform Solìsia deals with the evaluation of the economic aspects connected to each photovoltaic system and offers the necessary tools to seize the recent opportunities offered by the innovation of the electricity markets induced by the energy transition underway."

Contact

Business Name

Universo Energia

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2016

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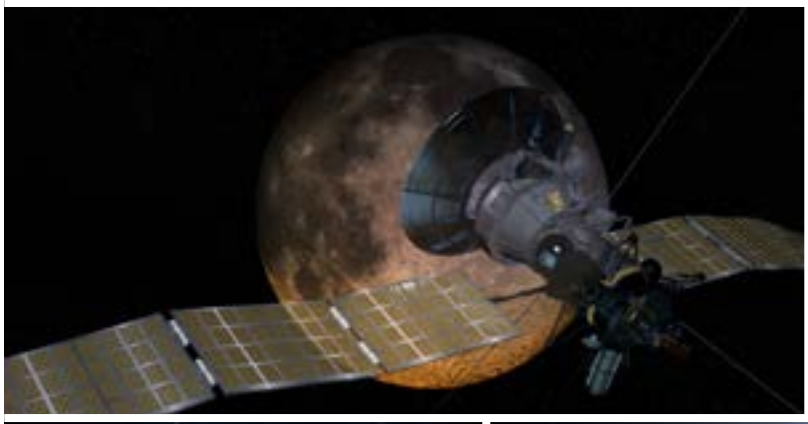

Wise Robotics

Company profile

Wise Robotics is a startup born in 2015 made up of electronic and IT engineers, data scientists, economists and structural engineers with the mission of improving the quality and security of people's life, through the development of a lot of monitoring solutions able to analyse the data to provide information and analysis in real-time.

Wise owns expertise in Software Engineering, Artificial Intelligence, Big Data Analysis, Robotics, System Development and Cloud Computing.

Among the projects developed by Wise, it is worth noting the Quakebots system, which is an innovative structural health monitoring platform based on Internet of Things, Machine Learning and Cloud Computing.

The value of Wise Robotics has been demonstrated by relevant European awards such as SME Instrument Phase I and recognized by several key players such as the Enterprise Europe Network, Microsoft, LVenture and Forbes for the development and validation of the Quakebots System.

Products | Services | Applications |Technologies

Quakebots is an innovative real-time vibrational monitoring system to analyze the dynamic response of buildings and infrastructures. The system is a micro-computer with a high sensitivity accelerometric sensor connected to the Quakebots Cloud platform via Wi-fi, Ethernet or LTE.

Quakebots is a system that combines the latest technologies in AI, IoT and Cloud computing to offer high precision and high-quality services. Wise has worked to create a Cloud platform that is highly scalable and has the potential to handle millions of buildings with very low latency. The system enables a continuous monitoring of the structure over time, which in turn allows to discover deviations of the behaviour of the structure from its normal state by means of AI and engineering algorithms, with the aim to help asset managers in the optimization of the maintenance operations.

The Quakebots system has achieved relevant national and international awards that have contributed to the development of the startup.

Among them we can find the European Space Agency grant that allowed Wise developing the Quakebots SAT technology.

The new patented Quakebots SAT system combines the vibrational algorithmic component of measurements on buildings and infrastructures, with a positional component related to the use of GNSS. The Quakebots SAT allows to detect even the smallest displacement, landslides and the early identification of any slippage of a structure over time.

The GNSS Quakebots SAT was installed on the Basilica of S. Francesco in Assisi, one of the test sites where it remained to perform acquisition and transfer of data. This allows Wise to integrate these components with vibrational monitoring devices already present on the structure, through external prototypal connections, in order to obtain results and data based on the correlation between the movements registered by the vibrational algorithms and movements registered based on the component of GNSS.

Quakebots is a patented technology and has been tested on ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development) vibrating table, together with DICA (University of Perugia), that certified Quakebots system and has already received an important market validation considering clients not only in Italy, but also in Belgium and Israel.

Quakebots

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Quakebots

YETITMOVES

Company profile

YETITMOVES is an Italian company, headquartered at EUCENTRE – University of Pavia, whose mission is the scientific research, design, development, production and marketing of innovative and high technology solutions and services in the field of Geomatics. YETITMOVES boasts a consolidated experience in GNSS data processing for high-precision static and kinematic positioning applications. Since its foundation, YETITMOVES has been working with EUCENTRE (European Centre for Training and Research in Earthquake Engineering) participating to international research projects, also with funding from the European Commission and the European Space Agency. YETITMOVES develops and markets innovative solutions, easy-to-use and low-cost, made according to the most advanced practices of Geomatics.

Products | Services | Applications |Technologies

YETITMOVES is an Italian company, headquartered at EUCENTRE – University of Pavia, whose mission is the scientific research, design, development, production and marketing of innovative and high technology solutions and services in the field of Geomatics. YETITMOVES boasts a consolidated experience in GNSS data processing for high-precision static and kinematic positioning applications. Since its foundation, YETITMOVES has been working with EUCENTRE (European Centre for Training and Research in Earthquake Engineering) participating to international research projects, also with funding from the European Commission and the European Space Agency. YETITMOVES develops and markets innovative solutions, easy-to-use and low-cost, made according to the most advanced practices of Geomatics.

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YETITMOVES

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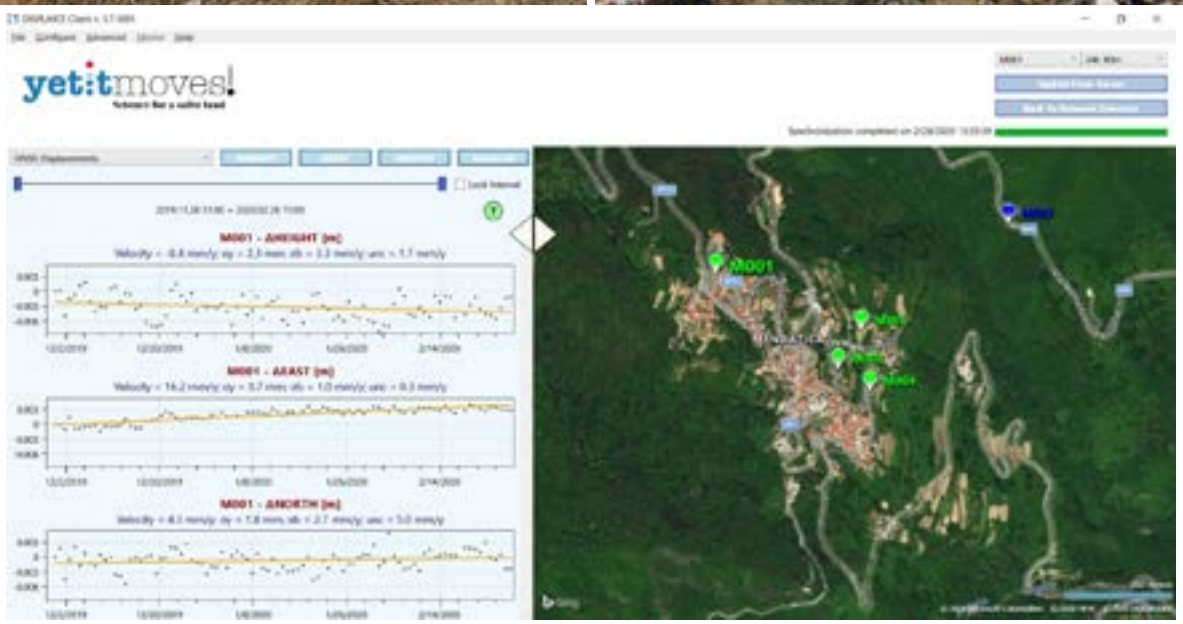
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M001 - ΔHEIGHT [m]
M001 - ΔEAST [m]
M001 - ΔNORTH [m]

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AEREA

Company profile

Since 1927, AEREA is a privately owned business active in the design, development and manufacture of mission equipment for high performance military aircraft, devoted to carriage and safe release of payloads.

Since 2011, strong of its technology innovation capabilities, AEREA started to explore ways to exploit its legacy expertise for new application within the space sector: space Hold Down and Release Mechanism (HDRM) and aeronautic Mission Equipment shown some similarities in mission requirements of restraining, releasing and deploying ìpayloadsî.

In 2012, as part of a technology innovation program, funded by the Italian MISE-MIUR agencies, in collaboration with former Selex Galileo (now LEONARDO Airborne and Space Systems Division) acting in the integrator role, AEREA developed, and subsequently worldwide patented, SHREK (SHockless RElease Kinematic), an innovative HDRM actuated via Shape Memory Alloy technology.

In 2014 AEREA initiated the development of ALARM (Advanced Latch And Release Mechanism), an high pre-load HDRM, actuated with piezoelectric technology and aimed to latch and release satellites/payloads of mass up to 400 kg.

In 2015, in collaboration with the Department of Aerospace Sciences of the Polytechnic of Milan, and Leonardo, AEREA developed the breadboard model of a Nozzle Tool, subsystem of a technology demonstrator for a In Orbit Refueling System between collaborative satellites. This activity was nested within the section STRONG (Sistemi Tecnologie e Ricerche per líOperativit‡ Nazionale Globale) of the larger project SAPERE (Space Advanced Project Excellence in Research and Enterprise) funded by Italian MIUR.

Since 2015, AEREA is pursuing Additive Manufacturing technology for aerospace applications. Initially with EBM technology, applied to Ti6Al4V powders, and lately with technical polymers.

In 2017, AEREA did carry out a feasibility study for a HDRM for CubeSat in support of the Argotec proposal to the ESA ITT AO/1-8930/17/NL/PS.

In 2018, AEREA manufactured with Additive Technology, and tested, a set of torsional springs aimed to be integrated in deployment mechanisms.

In 2019, SHREK has been selected to be integrated on the PLATiNO platform as HDRM for the Solar Array and as of 2021 is completing its final qualification process.

Products | Services | Applications |Technologies

HDRM (Hold Down Release Mechanisms) for small and mini satellites.

Mini HDRM for CubeSats.

DM (Deployment Mechanisms).

Additive Manufacturing (Techno Polymers and Titanium Alloys).

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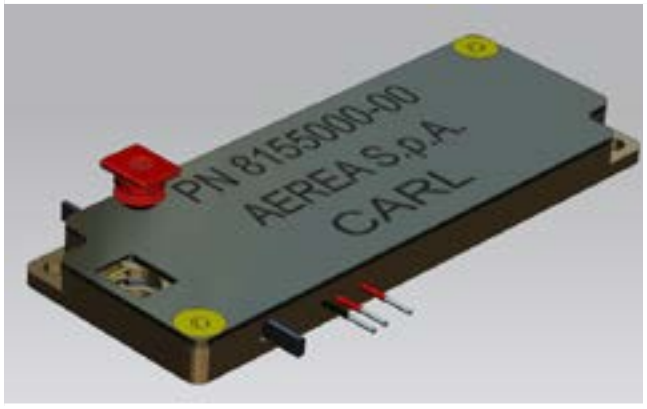
06-2014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AEREA S.p.A.
CARL

AGT

Company profile

Agt is a scientific, engineering, marketing and sales integrated organization.

Agt enhances its customers products with innovative technologies identified by its sales team, reviewed by its R&D development team, engineered by its engineering team, and repositioned in their respective markets by its marketing team: this way injecting innovation and adding value into its customers products.

In addition, Agt develops horizontal capabilities of technology transfer and consultancies, develops its own prototype products, and operates services based on Artificial Intelligence proprietary patents applications.

Agt is active in the Aerospace, Transportation, Oil and Gas, and Energy production and distribution fields.

Products | Services | Applications |Technologies

AGT is a company specialised in industrial and applied research, technology transfer, engineering and prototyping, as well as project management, marketing and sales of projects and systems in the areas of transportation (aerospace, terrestrial and marine), energy generation (conventional, advanced and renewable), and of the application of innovative materials and processes to the Industrial companies. The AGT capabilities are:

Ideation and Research: assistance to structure research activities and research financing, when possible through European and national funds, both for customers and on self generated ideas. - Technology Transfer: Scouting of specific technologies to design and manufacture innovative systems and components developed in existing market areas, this way reducing time and costs of the R&D. Conversely, valorisation of technologies, processes, systems or components originated by its own applied research projects to new market areas.

Engineering and Prototyping: Transformation of the results of the research and development into operational projects, systems and products for validation and testing of an innovation.- Production: Streaming of the prototypes developed and tested into pre-series and small batch production. Assistance in the implementation of the series production.

Project Management: Project Management for its customers for high technology content projects.

Marketing and Sales: Build up and management for its customers of methods for strategic marketing; turn-key sales networks structures; follow-up in the European and North American Countries; introduction and sale of high technology systems and components into the European and Italian markets. AGT is therefore operational in the entire value chain of the innovative technologies, from ideation and research to the full commercial deployment of innovative systems and components, generating added value to its Customers through its knowledge of the detailed methods to apply innovation, and the technology transfer of innovative materials, components and processes. A Special Project department has been recently added, to implement the potential of Artificial Intelligence systems to the Industrial applications in various areas, from the energy distribution systems to the aggregation of international clusters and companies. AGT has been partner of the ESA (European Space Agency) to transfer to the European Industries the activities available on the ISS (International Space Station), in the areas of Life Sciences and Advanced Materials; and to the ASI (Agenzia Spaziale Italiana) and NASA to perform two experiments with the Italian Astronaut Luca Parmitano during his mission on the ISS. AGT is also partner in an International Consortium for the development and manufacture of innovative rail structural systems; designs and manufactures special systems and parts for the F1, the transportation and the aerospace markets; runs activities of Project Management for important Multinational Groups; Acts as Technology Broker for the Association Lazio Connect inside the DTA-Filas district of the Aerospace Industries, and for Lazio Innova for the internationalization of the Aerospace cluster companies of the Lazio district.

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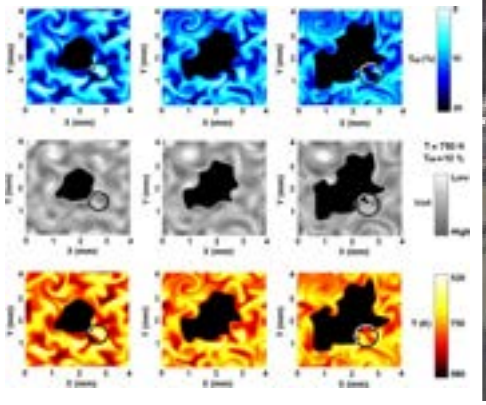
POWER
ACT

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ACT

Alfameccanica

Company profile

ALFA MECCANICA is specialized in High Precision Machining (Milling up to 8m and Turning), EDM, FPI (Nadcap Accredited), Precision Cleaning and Cleanliness Inspection (Qualified by GE Aviation), Assembling, Testing and Design&Manufacturing of Jigs and Fixtures (Support Equipment and MGSE).

Products | Services | Applications |Technologies

The main products are: Engine and Propulsion subassemblies, Aerostructures, Structures for Space (Cargo Modules primary structures, Hatches, opening and closing mechanisms, honeycomb panels trimming and drilling, wave guides, tie rods and components) Jigs and Fixtures, Support Equiment and MGSE.

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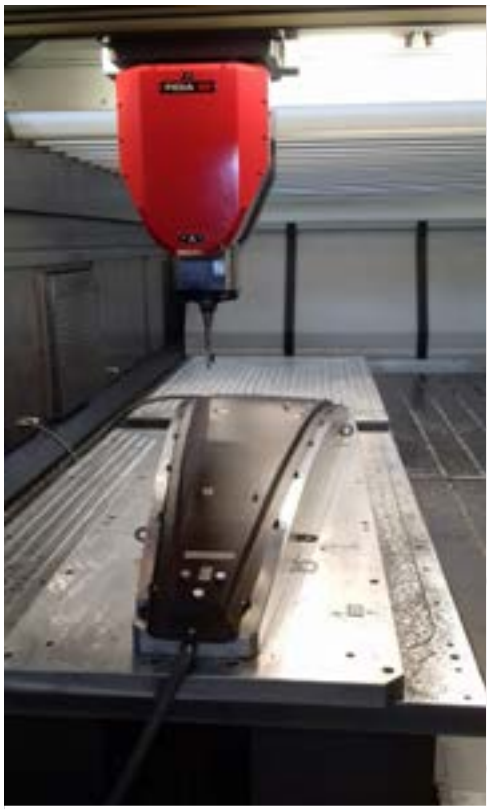

ALMA Sistemi

Company profile

ALMA Sistemi Srl is an Italian SME established in 2005 providing high-level engineering and consultancy in the space and defence markets. ALMA provides services in Business Development, Project and Proposal Management, Mechanical and Electrical Ground Support Equipment, Software Engineering, image processing for Earth Observation applications with specific focus on Cultural Heritage.

ALMA Sistemi help research organisations and industries to identify potential opportunities, make project proposal, development plan and implement new products and services. ALMA has contributed in behalf of its international clients to a number of key space projects funded by the EU, ESA, NASA and ASI.

In fact ALMA Sistemi has successfully completed 10 research and development projects under FP7, H2020, ESA and national/regional programs. ALMA is currently involved in four H2020 projects of which three as coordinator.

ALMA turn-over in 2018 was 1,5 MÄ with a current workforce of 15 employees and consultants. ALMA is certified ISO 9001:2015 for engineering

Products | Services | Applications |Technologies

ALMA Sistemi Srl provides turn-in key product and engineering in the frame of Mechanical and Electrical Ground Support Equipment (trolley, stands, transport containers, lifting devices, adapters, Instrument EGSE, Software EGSE, RF and Power Special Check-Out Equipment etc.) for payload and satellites.

Services include Project and Proposal/Bid Management, Business development and market analysis, in the frame of European Space Agency, European Union and Italian Space Agency programs.

ALMA Sistemi is engaged in several international Research & Technology Development projects in the frame of EU (H2020) covering instrument development for planetary exploration for dating rocks and sediments, plasma metamaterials lens and plasma antennas, EO applications for monitoring and assessment of Cultural Heritage structural stability of Historical Centres and archaeological sites risk monitoring.

ALMA is certified ISO 9001:2015 for engineering.

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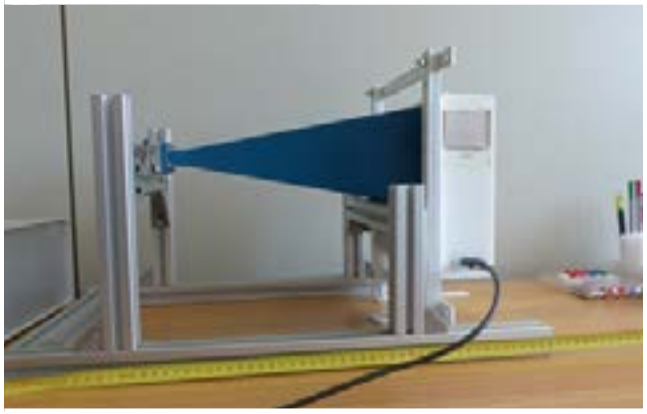
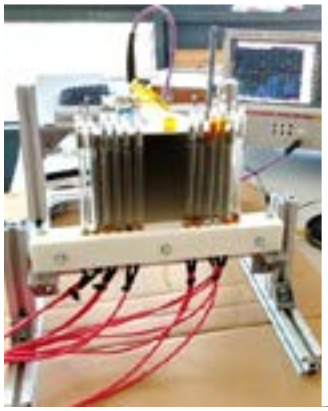
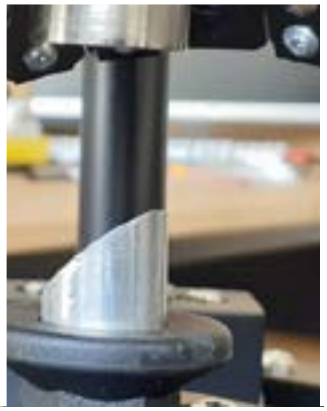



X-Ray unit
PSIT unit
Stimulation unit
Heater and sample interface





APR

Company profile

APR is a SME founded in 1998, active in the design and production of equipment for aerospace industries, notably for propulsion applications. Leveraging on a strong manufacturing footpring of highly critical rotating parts, APR brings to the space industry its expertise and skills on customized solutions and services for fluidodynamic systems and propulsion applications

Products | Services | Applications |Technologies

Turn-key solutions provided by APR to His Customers including activity of co-engineering / co-design with the Customer, Industrialization of products, Production (based on advanced manufacturing technologies) both for series or small batches or prototypes, Supply Chain management, assembly and Testing.

In space sector, APR is operating on design and manufacturing of fluidodynamic equipment, in particular pumps and valves for TCS, ECLS and propulsion applications.

APR provides His customers with 3 branches of services

- Built-to-print production: starting from design provided by the Customer, APR performs industrialization and production based on a fully-verticalized approach. APR is historically active with this type of service, mainly for aero-engines and aerostructures parts, but also for the production of parts for space propulsion equipment.

- Built-to-spec solutions: starting from technical requirements specifications, APR is able to manage the full product development cycle, from the preliminary design up to qualification and recurring production. For our major Customers in the Space industries, APR performs those activities for fluidodynamic equipment such as pumps and valves for propulsion, TCS and ECLSS

- Integrated logistic management services. APR is able to perform services of logistic management for complex products. This may include tasks such as supply chain and quality management, starting from the incoming inspection, rework and repair, kitting and sub-assembly. APR is currently performing this type of services for the logistic management of the Liquid-Oxygen Turbopumps for the Ariane program.

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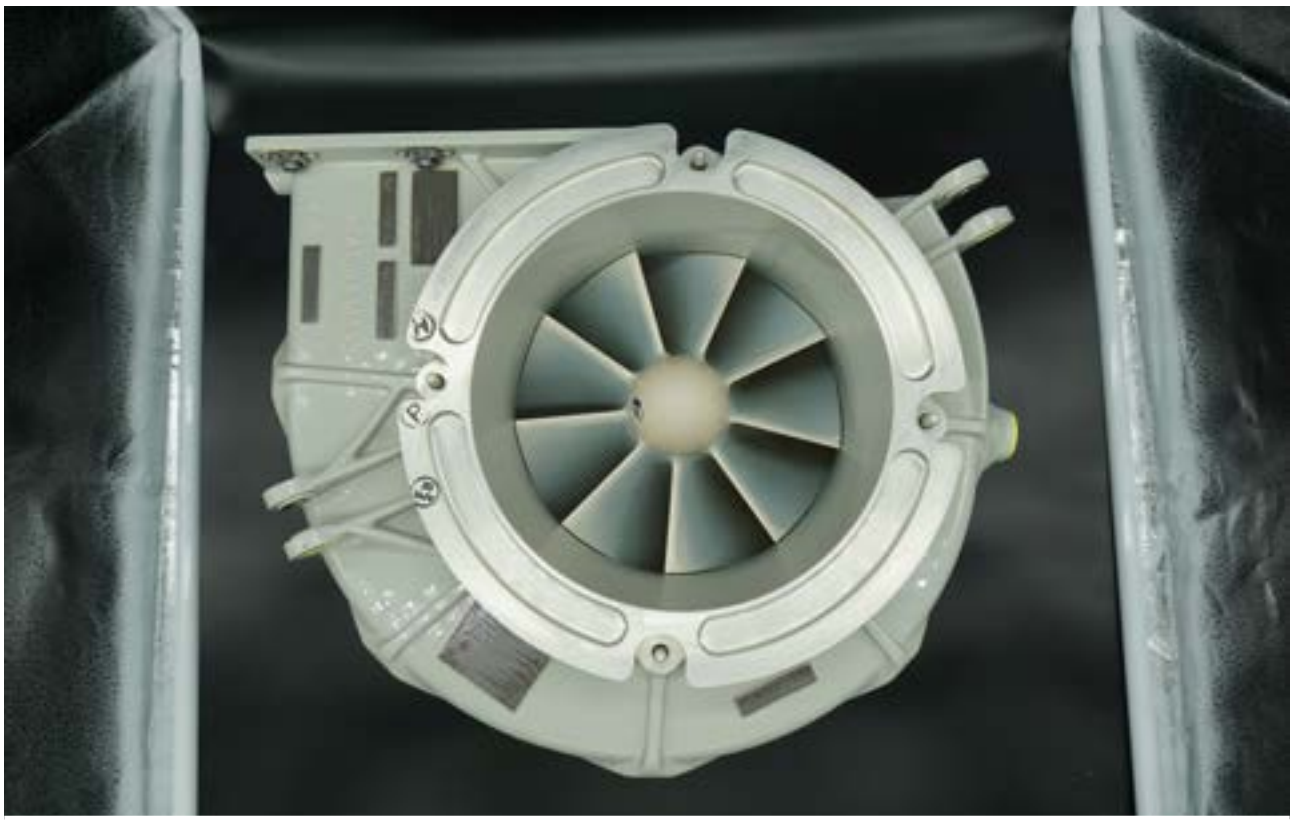

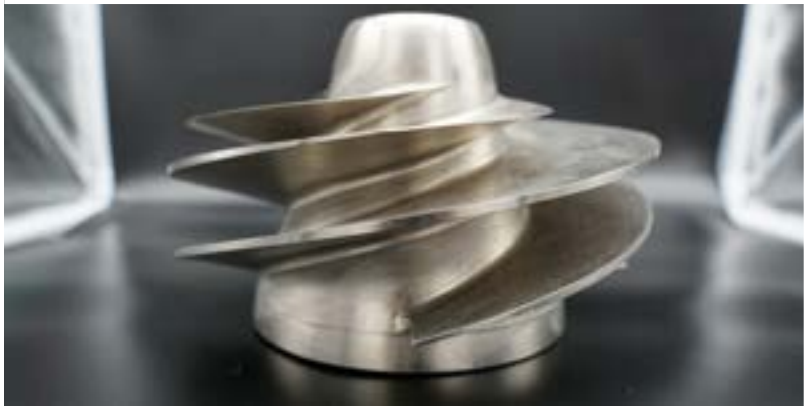

Arescosmo

Company profile

Arescosmoís mission is to supply products and services dedicated to support life and survival of Defense and Security Forces, as well as developing systems for space missions and applications, based on the best and consolidated mechanical technology, software, textiles and innovative materials in a National and International perspective. Arescosmo has gained a significant experience in managing technological programs at system level for space applications; this regards all the lifecycle of the product, starting from the feasibility study up the qualification.

This capability is exploited by means of the consolidated experience of the engineering group and through the capabilities in managing external technological partners.

Engineering has a wide experience in design, testing, test set up configuration and calibration and test correlation with analysis data. Moreover, it is quite usual in Arescosmo to utilize test data acquired on materials and on in house manufactured components as input to perform analyses, covering what is generally required to characterize a space product (in this case mechanical analyses and thermal analyses).

Cooperation with Universities and with Materials Experimental Centres in Italy and in Europe are completing the Arescosmo heritage.

Furthermore, Arescosmo is involved in European working groups in advanced technologies and processes for space, being active in ablative shielding technologies, composites, inflatable structures.

Products | Services | Applications |Technologies

Arescosmo experience in space field resides in designing, manufacturing and management of several space programs, involving several systems and subsystems such as:

- Planetary landing
- Planetary descending
- Atmospheric Re-entry
- Inflatable modules
- Recovery subsystems
- Space agriculture
- Life Support Systems
- Capture Mechanisms
- Planetary protection

Main programs in which Arescosmo has been involved are:
PLANETARY LANDING

MLT-Mercury Landing Technologies

Development and manufacturing of a shock attenuation system for the Bepi Colombo mission lander.

ADLT-Alternative Descent and Landing Technologies

Development of a preliminary prototype of the new vented airbag for future ESA robotic missions in the framework of space exploration, with specific reference to EXOMARS Mission.

EXOMARSñAirbag sub-system

Design, development and verification of the airbag sub-system.

Airbag for Small Landers

Design, breadboard and test a complete airbag system which would be used for small landers (130 to 170 kg mass) to be delivered to the surface of Mars.

PLANETARY DESCENT

EXOMARS 2016ñParachute sub-system

Development of the parachute system for the EXOMARS mission. FM was delivered in July 2014, and was successfully used for the mission on 19/10/2016. The parachute subsystem included a supersonic and relevant pilot chute, both DGB type.

EXOMARS 2018ñParachute sub-system development, manufacturing and test of the parachute subsystem for the Exomars 2018. The parachute subsystem includes a supersonic DGB parachute, and a subsonic Ringslot Parachute and related DGB Pilot Chutes.

ATMOSPHERIC RE-ENTRY

SPACE RIDER DESCENT SYSTEM Responsible for the Architectural definition of the SR Descent system, including a parachute and a guided Parafoil

ARD-Atmospheric Re-entry Demonstrator - Responsible for localization, parachutes and floating systems. ARD capsule in-space flight with Ariane-503 has been performed successfully on 1998.

IRT - Inflatable Re-Entry Technology - Consisting in the development for ESA of an inflatable reentry system for capsule-type vehicle or payloads.

SPEM-SPacecrew Emergency system - Development of a demonstrator of the SPEM concept designed for

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use as escape mechanism by orbiting astronauts.

Marco Polo - Responsible of the preliminary design of the sample return capsule.

INFLATABLE MODULES

IMS- Inflatable Materials for Space

FLECS- FLexible Expandable Commercial Structure - Responsible for design and manufacturing of bladder and restraint sub-structures.

IMOD- Inflatable MODule - Manufacturing of flexible-rigid parts joints and the potential insertion of windows in habitation modules design.

ICMñ Inflatable Capture Mechanism - Study for the sample capture mechanism for ìMars Sample Returnî mission.

STEPS 2 - Development of a flexible module with 2.5 meters diameter and 5 meters high.

RECOVERY SUBSYSTEMS

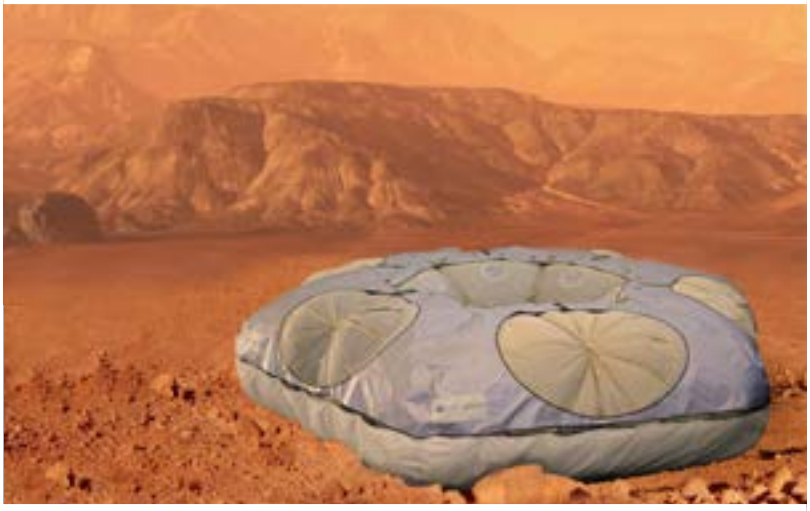
IXVñRecovery Subsystem - Responsible for Design, Manufacturing, and Testing of the floating Subsystem.

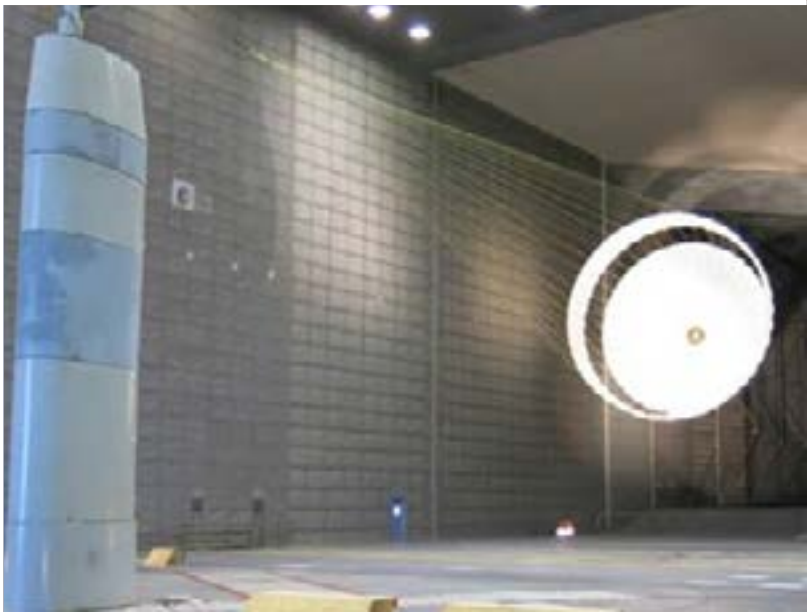
OTHER PROJECTS

Air Bladders Bonding & Sealing Technologies in Manned Inflatables Structures

Elastic tether design and dynamic testing

IDRA Inflatable Deployable Rigidisable Antenna





Aresys

Company profile

ARESYS S.r.l. (Advanced Remote-Sensing Systems) is an Italian innovative SME spin-off of ìPolitecnico di Milanoî, providing solutions since 2003 to the aero-space & defense, oil & gas and industrial markets. It designs and develops ad-hoc innovative monitoring solutions, at HW & SW level, exploiting cutting-edge sensing technologies like microwave Radar/SAR and optical imaging, seismic surveys and vibroacoustic sensors.

Based in Milan, ARESYS is divided in four business units, each of them covering specific technologies and markets. ARESYS expertise covers the following areas:

airborne and spaceborne Synthetic Aperture Radars (SAR);

SAR\Radar EGSE and Simulators;

ground based SAR, RADARS and GPR;

pipeline acoustic monitoring systems;

seismic and geophysical prospection systems.

Nowadays, ARESYS can count on a group of about 60 high skilled professionals (nearly half of them hold a Ph.D.), composed by top-level engineers, physicists and computing science experts for an annual turnover of about 6MÄ from customers in Europe, Asia and South America.

With our 10+ years experience in SAR systems, ARESYS can offer products and services encompassing operational software solutions for simulation, processing, focusing, interferometry and best-in-class engineering services for new SAR system design.

Products | Services | Applications |Technologies

ARESYS offers a complete SAR simulation and emulation framework (RADAR Bench), for SAR satellites and UAV/airborne systems. The solution includes a flexible software raw data simulator (SimRad) and real-time optional components (EchoRad and DigiRad) that are able to provide simulated and emulated data over a real-time IF link or over an high-rate digital link. This solution could be deployed as a SARRADAR Automatic Test Equipment, an EGSE or SCOE, a full End-to-End SARRADR SimulatorEmulator able to represent real and complex terrain and 3D targets scenarios.

SARFOC is a multi-sensor, versatile kernel for SAR focusing and L1 processing. It handles mono as well as bistatic SAR, ScanSAR, TopSAR, Spotlight and other modes. It is designed with emphasis on geometric accuracy, calibration and phase preserving features. SARFOC comes in two different versions: DESKTOP, a light version that can be used on a desktop PC (for academic and scientific purposes) and HPC, a highly efficient and optimized version suitable for multi-core and high-throughput processing solutions for Ground Segments and Operational Data Centers.

SARINT provides advanced tools and components for SAR interferometry and interferometric stacking. It supports Stripmap, ScanSAR, TopSAR and Spotlight acquisition modes. SARINT is robust and mature and it is the core of operational interferometric stack processor of the Sentinel-1 PDGS. it can be used in combination with SARPS to perform multi-temporal interferometric processing and Persistent Scatterer analysis.

uSAR is a low-cost micro SAR for CubeSat 16U, including 2m antenna and able to work in MIMO swarm (3˜32 sats) paradigm, that is currently in development coming from ARESYS design experience on ground radar.

ARESYS supports SAR systems manufacturers and designers world-wide offering highly specialized consultancy services (SAR System Design & Engineering Services). Thanks to the long experience in SAR mission design, through the participation to many national and international SAR projects, ARESYS can offer a unique support service starting from SAR system concept, to SAR operations support, SAR calibration and SAR data processing.

Besides Space activities ARESYS is also active in the following fields: Ground interferometric Radars monitoring solutions, Leak detection systems and pipeline monitoring and Seismic and Geophysics.

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FAN TRAY
POWER
FAN FAIL
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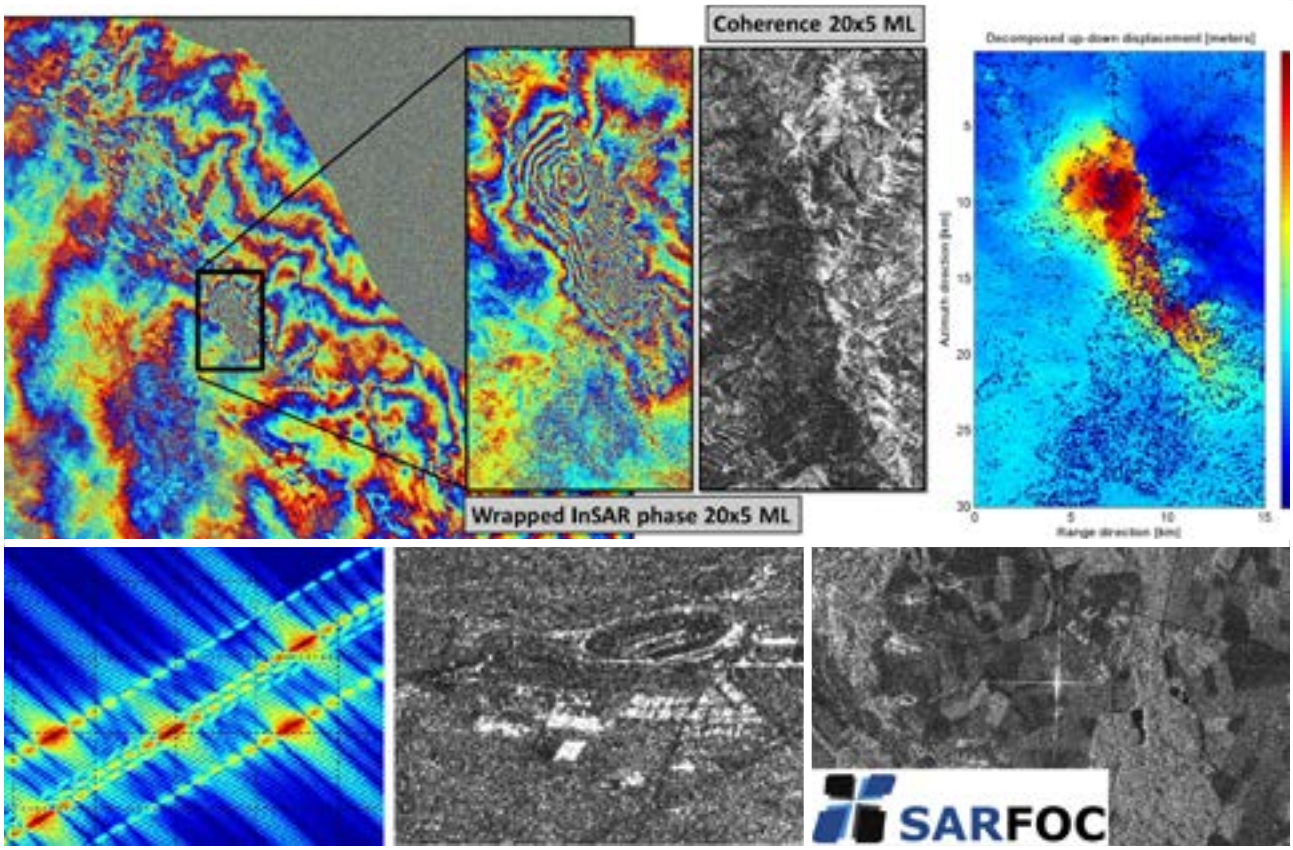
Coherence 20x5 ML
Wrapped InSAR phase 20x5 ML
Decomposed up-down displacement [meters]
Azimuth direction [km]
Range direction [km]

Argotec

Company profile

Argotec is an aerospace engineering company founded in 2008 in which research, innovation, and development involve various fields with a focus on small satellite platforms and human space flight. The first one regards the development of microsatellites able to work in deep space supporting both robotic exploration and inter-planetary telecommunications; in this area, intense research and development activities are oriented to design compact and reliable technological solutions including the usage of Artificial Intelligence for autonomous operations. The second direction includes the development of technological solutions in order to improve and to support the life and the comfort of future space explorers.

Argotec is a UNI EN 9100:2018 and UNI ISO EN 9001:2015 certified company, and it is compliant with the ECSS and NASA standards framework. Moreover, the company has the experience, the tools and the laboratories needed to perform in-house all of the activities required for the design, integration and testing of space systems (e.g. a Clean Room that guarantees cleanliness standard at an ISO 5 level, a Thermal Vacuum chamber, etc).

Since the beginning, the company has always collaborated with the main international space agencies such as the Italian Space Agency (ASI), the European Space Agency (ESA) and NASA. It had promoted the development of innovative technologies which involved universities, research centres and other companies with skills and different backgrounds. This has been substantially translated into partnerships with companies coming from fields other than aerospace. It allowed the realization of innovative systems in order to obtain several patents and international awards.

Products | Services | Applications |Technologies

Argotecís activities follow the ìall in-houseî concept that includes design & development, integration, qualification and operations services. The company is equipped with electronic, thermal and mechanical laboratories, two Mission Control Centres (one of which connected to NASA DSN), a Thermal Vacuum Chamber and a Clean Room that guarantees cleanliness standards according to an ISO 5 level. Argotec makes available the companyís facilities to other companies as well as universities and research institutions that are interested in integration activities requiring high levels of quality and environmental monitoring.

Argotec has the internal expertise to develop microsatellite platforms from the concept to the design, assembly, integration, testing and in-orbit operations. These platforms are designed to operate in Deep Space for Exploration Missions and as part of Telecom constellations: they are equipped with highly reliable and rad-hard electronic components while they guarantee large room for payload allocation (2U for the 6U version and >4U for the 12U version) and an integrated propulsion system. Argotec is also working on advanced algorithms based on Artificial Intelligence to increase the capabilities of the platform during on-orbit autonomous navigation. This feature helps the satellites to handle off-nominal events by executing a series of complex tasks without the involvement of the Ground Segment.

Argotecís Avionics Unit designs and tests space-capable electronic systems. It operates at every level of the development process; its heritage spreads from LEO applications flown on the ISS to systems designed for deep-space. Usually, both hardware and software are designed internally by our team aiming for optimal implementation. As for the hardware side, the core products include Power Conversion and Distribution Units, On-Board Computers and deep-space transponders. From the software perspective, the Unit works on FPGA ìRobustî IP Cores, whole On-Board Software solution and AI-based control algorithms.

Argotec develops and supports the development of payloads for human space flight and space exploration. The company deals with the following HW and SW payloadsí activities: design, development, assembly, integration, testing, on-orbit operations, logistic and safety support. Argotec has recently awarded a 3-year service contract (UTISS) to support the Italian Space Agency to fly payloads on-board the ISS. In the frame of this contract, Argotec is in charge of supporting the management of the Italian ISS resources, interfacing the experiments Principal Investigators and Payload Developers and overseeing the safety evaluation of all Italian payloads. Furthermore, Argotec coordinates the technical team supporting the payload development and supports the payload manifesting process and qualification process leading towards a safe and efficient delivery, utilization and recovery of the payload.

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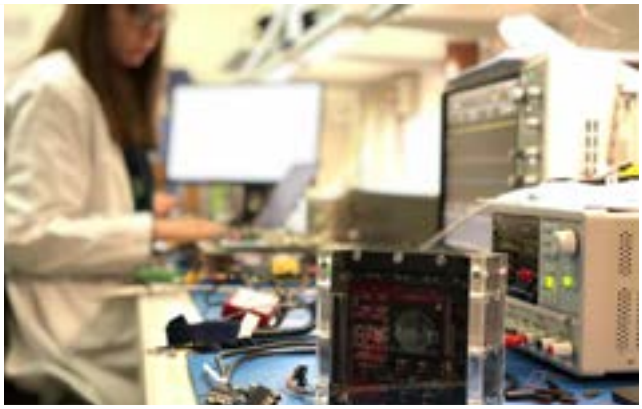

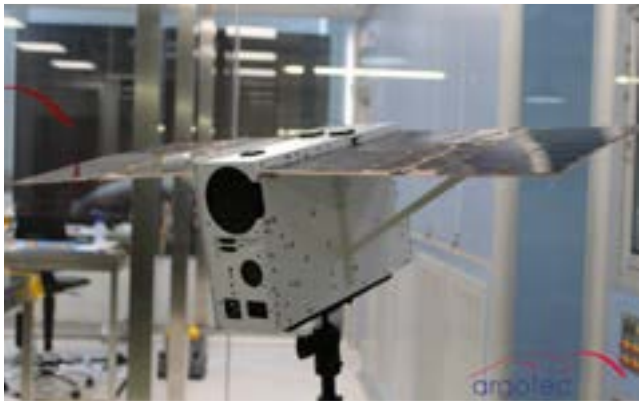
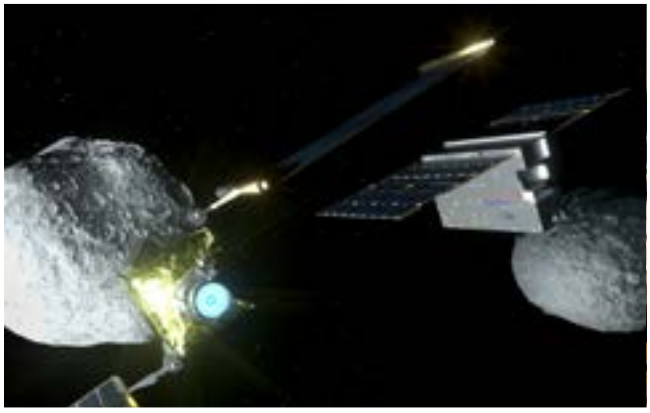


MISSION CONTROL CENTRE


Astra

Company profile

ASTRA (AeroSpace Technologies and ReseArch) was extablished in 2005, to collect the R&D and Business Experiences of its founders in Aerospace Engineering and Scientific Instrumentation fields and give them an entrepreneurial direction.

ASTRA main office is in Via Arte della Lana, in the historical center of Naples; the Production Unit, started at 2007, is located in the Ancient Market Square city zone.

ASTRA staff consists of two aerospace engineers, one mechanical engineer, a draftsman, two technicians, two administratives and several external collaborators for special tasks. The well-established capabilities in the Aeropace Field, together with technical and design skills and a smart organization with low costs are mains Astra assets.

Astra core business is focused on the Aerospace Field, namely:

- Design and Manufacturing of Heat Flux Sensors
- Design and Manufacturing of Heat Flux Probes and Multiple-Sensors Probes
- Design and Manufacturing of Total Enthalpy Probes
- Calibration Services for Heat Flux Probes and Total Enthalpy Probes
- Design and Manufacturing of Electro-Thermal Icing Protection Systems (IPS)
- Test Planning and Preliminary Testing of Thermal Protection Systems (TPS)
- Consultancy for Thermal Spraying Systems (Plasma, HVOF, Cold Spray)
- Consultancy for Wind Tunnels Design and Realization (from Subsonic to Hypersonic)
- Design and Realization of Instrumented Models, Prototypes and Data Acquisition Systems
- Process for Manufacturing of Composite Prototypes CFRP and GFRP (Out Of Autoclave)
- Numerical Simulations (CFD including Multiphase Flows, Heat Transfer, Structures)

Astra has Customers and References in Italy (CIRA), Germany (DLR), United States, South Korea, India.

Products | Services | Applications |Technologies

- Design and Manufacturing of Heat Flux Sensors
- Design and Manufacturing of Heat Flux Probes and Multiple-Sensors Probes
- Design and Manufacturing of Total Enthalpy Probes
- Calibration Services for Heat Flux Probes and Total Enthalpy Probes
- Design and Manufacturing of Electro-Thermal Icing Protection Systems (IPS)
- Test Planning and Preliminary Testing of Thermal Protection Systems (TPS)
- Consultancy for Thermal Spraying Systems (Plasma, HVOF, Cold Spray)
- Consultancy for Wind Tunnels Design and Realization (from Subsonic to Hypersonic)
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- Numerical Simulations (CFD including Multiphase Flows, Heat Transfer, Structures)»

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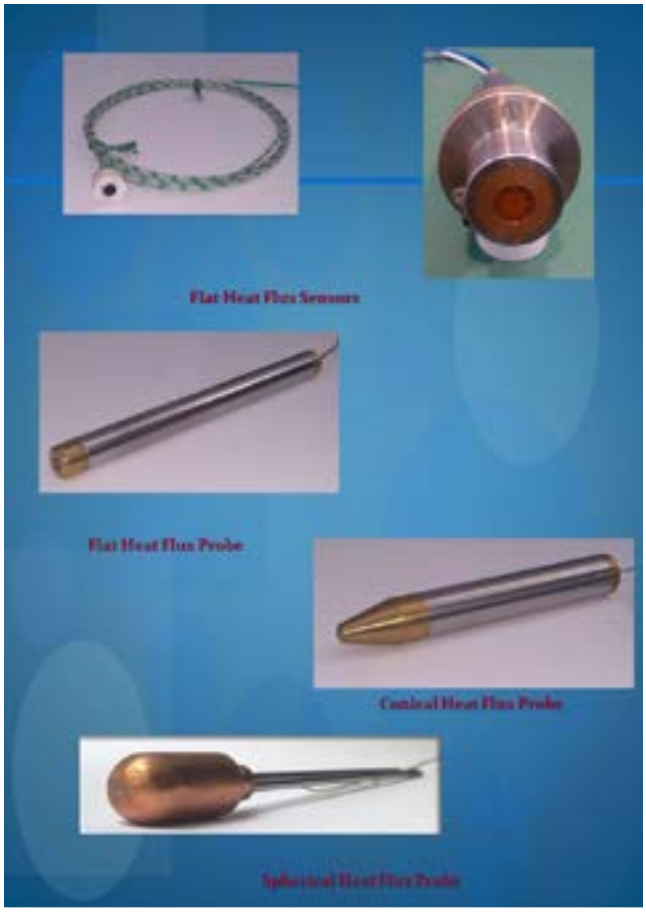
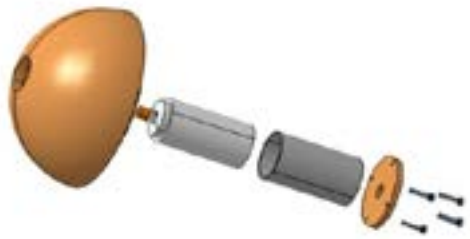
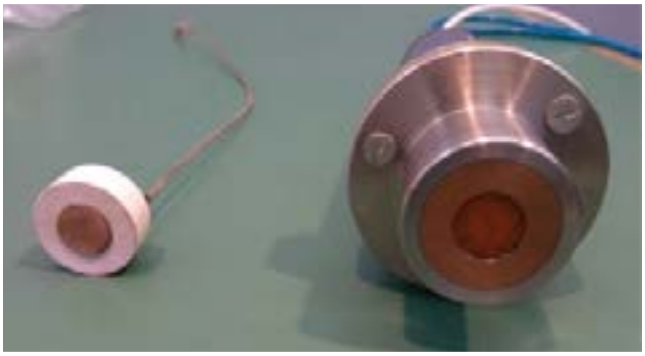

Flat Heat Flux Sensors
Flat Heat Flux Probe
Conical Heat Flux Probe
Spherical Heat Flux Probe






ASTRA
AeroSpace Technologies for Research Application
Aeronautics
Space


ASTRA

AVIOSPACE

Company profile

AVIOSPACE is a space company located in Torino. The company was formed in 2004 and its network of partnership includes various SMEs in the field of Engineering and Manufacturing, several Universities, and Professionals. Between January 2010 and March 2016 Aviospace has been an Airbus Defence and Space company, remaining however an Italian registered company with management and personnel entirely Italian.

Company core competences:

System Engineering, Space Transportation, Future Launchers, and Space Exploration systems Thermal Control, Mechanical structures, Composite materials, and nano-structured material Avionics and On-board Software Propulsion, Multi-layer thermal insulation equipment (MLI), and Multi-physical simulation Human Life in Space and ISS operations

AVIOSPACE can benefit of a network of collaborations with small and medium companies with robust experience in high-quality manufacturing and niche technologies

The scenario of collaborations is permanently in evolution: agreements across Italy and Europe are already established or are in final preparation in the sector of the automatic space systems for transportation and exploration with the Italian Institute of Technology (IIT), as well as with universities and other academic organizations (e.g. INSTM, Politecnico of Torino, La Sapienza) and manufacturers.

Products | Services | Applications |Technologies

Project: Multi Purpose Crew Vehicle – European Service Module for NASA's Orion programme (MPCV-ESM

The activities are developed in the frame of collaboration between Aviospace and Airbus Defence and Space Bremen, it consists in a support for: Design and Manufacturing of mechanical parts of the propulsion systems and for Design and Analysis support for Primary and secondary structure interface for the Propulsion System

Project: Capture and De-orbiting Technologies (CADET)

The project developed and demonstrates, by the development of ground functional breadboards, key technologies for ADR, including the capture systems and a vision based navigation system, including target in-situ recognition and properties assessment

Project: e.Deorbit phase A

The e.Deorbit mission objective is to "Remove a single large ESA-owned Space Debris from the LEO protected zone". The role of Aviospace in the project is the design of a tethered-net capture mechanism.

Project: Activ-jet

The project allowed Aviospace to develop a full process of materials functionalization by means of ink-jet printing, including: 1) Case-by-case nanoparticle-based ink design and formulation (e.g. both conductive and dielectric inks). 2) Printed pattern optimization and printing process set-up. 3) Wide range of possible substrates (e.g. ceramic, metallic, composites). 4) Post-printing thermal treatments. This technology involves the use of a stable and repeatable process, which makes use of less galvanic treatment and waste production. Moreover, mass savings and lower manufacturing costs, as well as the possibility to deal with 3D shapes, make it a competitive alternative to traditional manufacturing techniques.

Project: Wireless Sensor Network

This project focuses on sensing nodes development, powered by a vibration energy harvesting technologies, developed in the frame of the project. The nodes are conceived to be used on-ground, during storage, pre-launch phase, and during ascent/in orbit phases, e.g. Launcher staging, to allow communication between stages after separation. The communication system is composed by a multi-radio communication platform capable of using, in cognitive and opportunistic mode, heterogeneous wireless communication technologies for monitoring and control of complex systems for industrial and aerospace markets. The communication platform consists of multi-radio nodes able to cooperate for building up an intelligence network, that promotes the opportunistic use of wireless technologies with complementary characteristics in terms of data rate, latency, robustness to radio channel conditions, power consumption, and ability to self-organization in networks.

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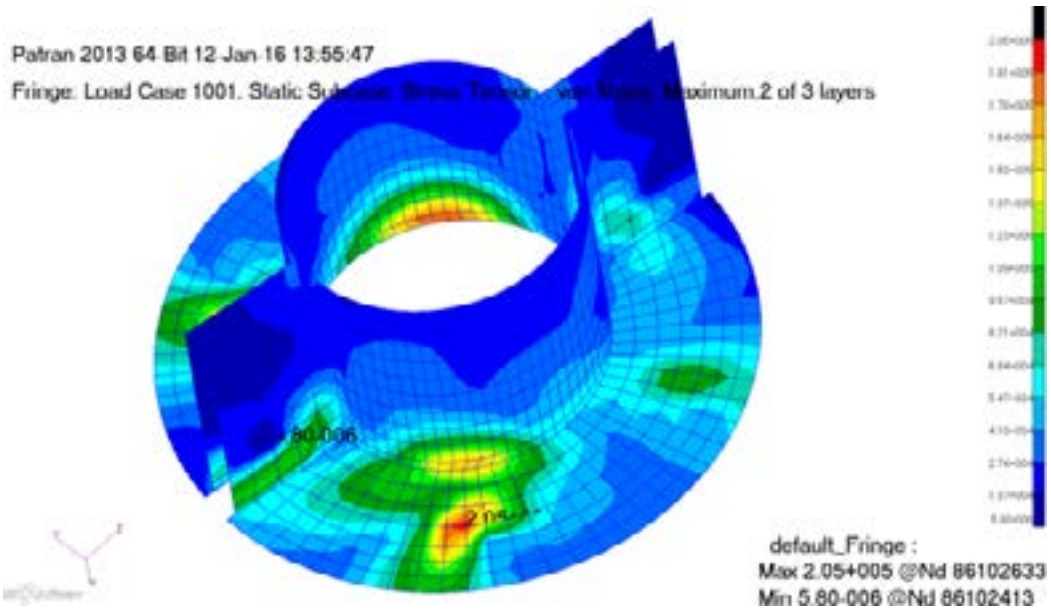
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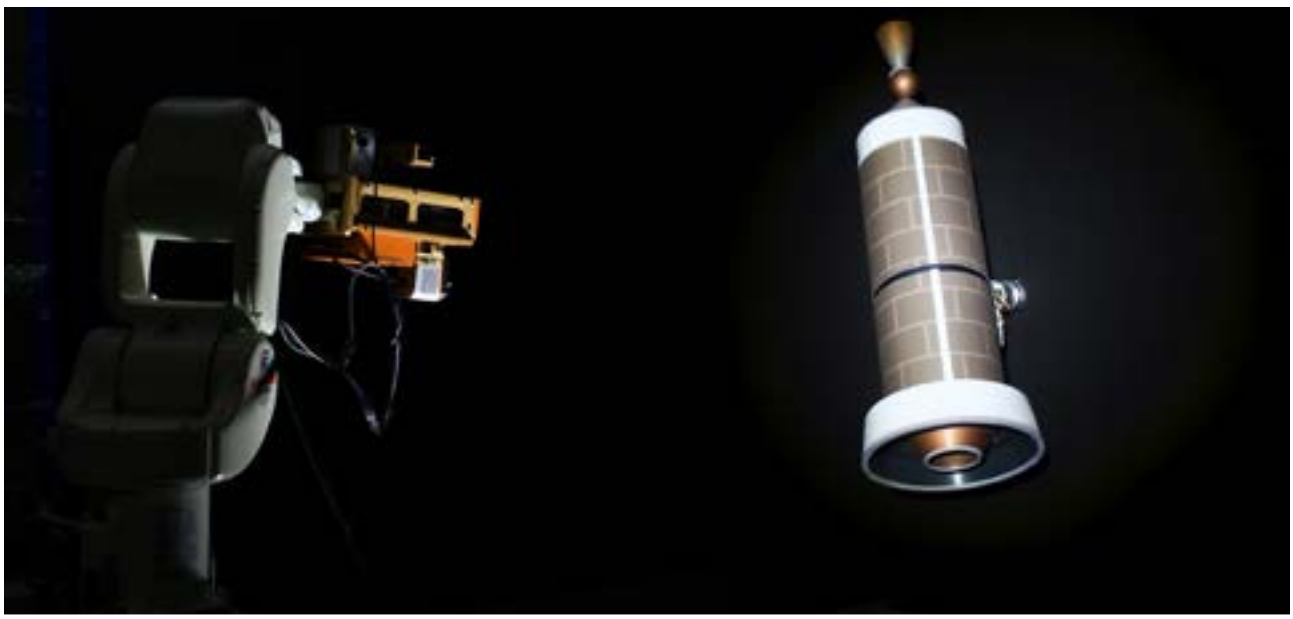

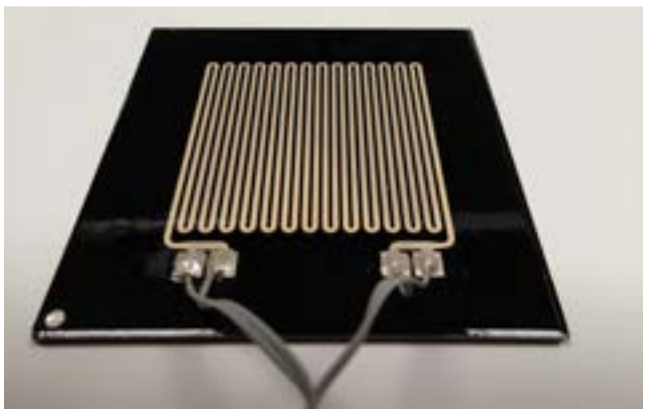

AVIOSONIC Space Tech

Company profile

Aviosonic Space Tech is a company founded in 2015 with the aim of reducing the hazard of re-entering space debris collisions for satellites, air traffic, sensitive installations, and most of all for people on the ground.

The extensive experience in air and navigation safety of founders and professional dedicated to Aviosonicís mission led the company to develop the Debris Collision Alert System, DeCAS.

DeCAS, is a small and lightweight ìsmart black-boxî device that is installed on space vehicles and allows to track and model in real time the trajectory of the fragments and their impact area.

Aviosonic technology solution will improve safety standards and risk assessment analysis not only during the re-entry phase, but throughout the complete descent phase, up to in-orbit phase management.

Indeed, Aviosonicís mission is to offer complete end-to-end safety capsule for satellite operations, covering the complete extension of the space industry segments, from launchers to satellites.

Our Vision is to build a safe and sustainable future for the space activities, ensuring safety for operators long term sustainability of the outer space environment.

Aviosonic technology will therefore provide the following unique benefits to the main stakeholders involved in the space sector:

- Enhanced security for governments and population;
- Easy-to-install Space Debris Mitigation (SDM) ans STM (Space Traffic Management) technology for satellite operators and manufacturers;
- Compliance with international standards and guidelines;
- Reduced space insurance premium for satellite companies.

Products | Services | Applications |Technologies

Aviosonic Space Tech has patented and is developing the Debris Collision Alert System. DeCAS, is a small and lightweight ìsmart black-boxî device that is installed on space vehicles and allows to track and model in real time the trajectory of the fragments and their impact area (footprint). It is provided with standard space technologies for data broadcasting ñ antennas, sensors, gyroscopes and accelerometers, GPS receiver, power supply system.

DeCAS will enable safety agencies to be promptly notified about potential danger for people or property, with a highly precise overlay map of the dangerous area.

It is installed onboard space vehicles and satellites and remains in a dormant status until it is activated by specific triggers during the re-entry phase. The system collects data about the host vehicle and provides its position during the descent to ground stations, so as to pre-determine the expected impact area with progressively higher accuracy.

The technology has been developed to survive the breakup phase, and to act as a ìsmart fragmentî, which can autonomously determine its relative location in the projected fragment area (footprint).

DeCAS is the only system able to collect and broadcast in realtime re-entry data. Since the prediction software onboard is based on actual in situ collected data during and after the breakup, DeCAS smart fragment is able to acquire, elaborate and transmit with progressively higher accuracy.

This allows DeCAS blackbox to track in real time and with progressively higher accuracy the position and fragment footprint of a re-entering vehicle. The process does not involve the enormous expenses required to operate ground station networks because it is embedded in each space vehicle and transmits real data on its actual position. Moreover, it always guarantees first the identification of the satellite and secondly the footprint position starting from the beginning of the re-entry phase, efficiently integrating already established space debris tracking technologies, therefore acting as a complementary capabilitiesí enhancer.

DeCAS enables to easily monitor all the upper stage components and satellites, thus improving global capability to monitor and mitigate potential risks. which currently is primarily focused on specific high profile Active debris removal missions and demisability and re-entry trajectory demonstration.

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Aviosonic solution is conceived minimize risk for air traffic, people, properties, and support space operators in reducing the casualty risk of their missions, complying with international regulations concerning risk of casualties to the surface and lower insurance premiums.

DeCAS provides the following unique benefits to the main stakeholders involved in the space sector:

- Enhanced security for governments and population: DeCAS generates a map overlay of the fragment footprint with high accuracy with respect to the current detection methods (expected error in the order of ± 100 km at break-out), and can notify at break-up time national and international safety agencies: civil and military aviation (for closing very restricted areas and avoid collisions), civil protection centres (protecting cities, buildings, facilities), and high-sensitive infrastructures.
- Easy-to-install Space Debris Mitigation (SDM) technology for satellite operators and manufacturers: thanks to its minimum weight and volume, DeCAS can be fitted in both launch vehicles and satellites for monitoring the re-entry phase.
- Compliance with international standards: The adoption of DeCAS system and the installation of the blackbox onboard missions will ensure compliance with international standards and regulation concerning acceptable risk of collision to the surface. Such hard and soft law, like national laws (i.e. French Law and U.S. Law, amongst others) and international guidelines and standards (i.e. ISO:24113/2019; ESA Guidelines, amongst others) will ensure the safest use of the space environment.
- Reduced space insurance premium for satellite companies: Similar to black boxes in the automotive sector, DeCAS is poised to reduce third-party insurance premium in policies regarding in-orbit insurances for satellites. With the implementation of the international law about the satellite operator responsibilities, the insurance for damages potentially caused to other in orbit satellite or to ground and flying objects (i.e. sensitive installations and aircrafts) is going to be a significant part of the insurance premium cost.

AVIOTEC

Company profile

Aviotec core-businesses are Thermal Control and Electrical Harness sub-systems.

Thanks to more than 10 years of consolidated experience, Aviotec joins high reliability solutions and innovation technologies in order to be ready to catch new Space exploration challenges.

From its headquarter site in Turin, Aviotec combines its SME identity to a policy focused on On-quality and On-time delivery attitude.

Through its ìDesign Authorityî capability already implemented in several flying space projects, Aviotec can support the Customer starting from Design up to integration on the Spacecraft or Payload structure at Customer premises.

Aviotec is a Customer satisfaction oriented Company: our goal is to be considered not only a Supplier but a Customer Partner.

Aviotec QMS is certified EN9100, ISO9001.

Products | Services | Applications |Technologies

Aviotec is specialized in the design, manufacturing, integration and test of MLI, thermal control hardware and electrical harness for spacecraft, defense, and cryogenic applications. Aviotec effort is focused on technological innovations to offer high reliability and cutting edge technology products.

Thermal Control S/S

- Multi-Layer Insulation (MLI) Blankets
- Second Surface Mirror (SSM)
- Tapes
- Heaters
- Thermistors
- Thermo-couple
- Thermal Fillers
- Thermal Washers
- Cryogenic and TVAC Insulation blankets / tapes

Electrical Harness S/S

- Power, signal cables according to ESA standards

ECSS-Q-ST-70-26C

ECSS-Q-ST-70-08C ï

- RF cables
- Continuity and High Voltage electrical test up 7.000 points
- Cryogenic and TVAC vacuum compatible EGSE harness

Starting from raw materials, all the Hardware is accepted, manufactured, inspected and tested in Aviotec ISO Class 8 (100.000) Clean Room.

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THERMAL CONTROL S/S
MULTI-LAYER INSULATION (MLI) AND THERMAL CONTROL HW

Bercella

Company profile

Family owned SME specialized in design and manufacturing of solutions with composites for aerospace and motorsport industry. Turn over of about 9 million euro with over 80 employees and organized with three different production facilities. After more than 20 years of experience with challenging composite parts for different applications, now Bercella can count on a flexible and reactive team of people, with specific expertise and with a solid heritage in different fields.

The regular manufacturing activity is combined with the constant innovation effort and the R&D activity mostly based on composite material and their applications. The Space industry represent a clear trend of development for Bercella, with important accounts such as Airbus DS, Leonardo, OHB, together with many space agencies and other institutions. Among the space projects that belong to the Bercellaís heritage we can mention Rosetta and ExoMars2020 Drill box, substrate sandwich panel for Prisma solar array (OHB Italy), SSMS Dispenser for SAB Aerospace (VEGA Launcher), Semi-rigid solar array and yoke for EurostarNeo Aurbus DS, support Bipods for Majis-Leonardo and more.

Beside the specialization for the space projects, Bercella is also active in other industrial fields, that require advanced design and manufacturing of composite parts, such as: defense, motor racing and transportation. Sometimes for new space projects itís important to count also on alternative sources of inspiration, to elaborate innovative solutions and cost-effective approaches. Bercella makes it possible thanks to its iterdisciplinary experience.

Products | Services | Applications |Technologies

The manufacturing capabilities of Bercella are mainly based on hand lay-up of prepreg for autoclave curing, filament winding and machining. These processes are supported by a set of 5 autoclaves, 2 Filament Windings machines, 6 CNC machines and 2 robotic arms. The lay-up and the filament winding processing are organized in two different Clean Rooms ISO 8 (ISO 7 at rest). Thanks to the considerable dimensions of some of the autoclaves (4 meters of diameter and 6 meters of lengths) itís possible to process large monolithic composite parts. For many space projects, such as reflectors, large sandwich panels and payload adapters, these industrial capabilities have been very important to save weight and to reach a better performance of the even surfaces.

Bercella can count on a ìstate of the artî equipped internal laboratory, where itís possible to run all the mechanical and physical test campaigns, complementary to most of the design and manufacturing phases of the projects. Incoming, Development and Acceptance Test campaigns can be organized more cost-effectively, within the Bercellaís premises.

Design and Co-engineering of composite solutions represent an added value to the proven manufacturing capabilities of Bercella. Especially for the space industry, we noticed how several Prime contracts tend to require more involvement of the manufacturing companies, in different phases of Design, Development and Qualification of important projects. Our Technical Office, together with the Laboratory and the Workshop, are the ingredientes of a versatile system, capable to deliver a complete package of product and service to the Space Industry.

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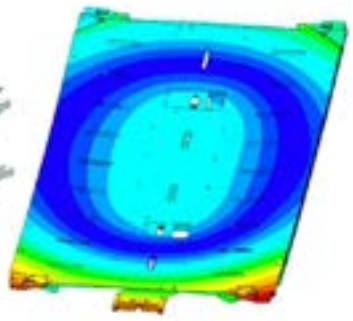

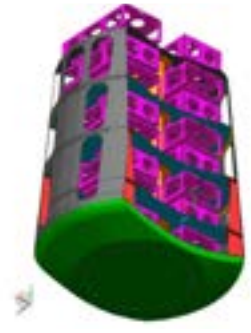

Blu Electronic

Company profile

The company was founded in 1998 and boasts several years of experience in the design and development of electronic boards, equipment and subsystems for its Customers. The principal activities are within the space & avionics' areas. The company maintains established collaborations with European Universities for research projects and tech innovation. Blu Electronic is an UNI EN9100 certified company The Headquarters are located in Desio (MB) Italy .

Company Facilities:

ISO8 (Class 100,000) Clean Room

ESA qualified assembly and inspection process line, according to the ESA ECSS-Q-ST38C standard for space electronics

Electronic Design Automation Tools

Thermal chambers

Test equipment and facilities for the evaluation, debug, functional test

EMC/EMI laboratory

Mechanical test

Temperature/Altitude test

Temperature/Humidity test

Products | Services | Applications |Technologies

International Space Station (ISS Columbus FSL) BLU has designed and developed the following experiment controllers for the Columbus FSL: GeoFlow (Geophysical flow simulations): first run 2008 FASES (Fundamental and Applied Studies in Emulsion Stability): first run 2013 CIMEX-1 (Convection and Interfacial Mass Exchange): on-hold after EM completion SMD (Soft Matter Dynamics, was FOAM): first run 2018 RUBI (Reference mUltiscale Boiling Investigation): FM final integration testing on-ground

Scientific Satellites ñ Large Platform

Power electronics / DC-DC converters

ESA Hershel Payloads.

ESA Sentinel-1 A, B, C & D

Orbital Transportation

Avionics

Pressure and Smoke Detector for the Cygnus Cargo

Expert BAU

Scientific Satellites ñ Small Platform

Data Processing / Power Coversion and Distribution / Satellite Power System

Design, development, production, testing and qualification of the Power Electronic Box

(PEB) for the Italian mission AGILE. Control algorithms include MPPT (Maximum Power Point Tracker)

Other

Power Systems for Small Satellites, Housekeeping boards, Signal Acquisition boards, CPU boards based on: DSP, uC, ARM (Cortex R4 and A9), LEON-III Sparc V8, FPGA boards for custom applications, Stepper and DC motor drivers, Equipment designed according to Customer specifications

Applications:

- EARTH OBSERVATION SYSTEMS
- SATELLITE NAVIGATION SYSTEMS
- SPACE TRANSPORTATION, LAUNCH AND RE-ENTRY
- SYSTEMS
- HUMAN EXPLORATION,SPACE STATION, CAPSULE MANNED
- OBSERVING THE UNIVERSE, SCIENCE AND ROBOTIC
- EXPLORATION

Technologies:

- ELECTRONICS, PHOTONICS, OPTICS, INTEGRATED
- SENSORS AND CRYOGENIC COMPONENTS
- ENABLING TECHNOLOGIES INFORMATICS,DATA AND
- SIGNAL PROCESSING
- TECHNOLOGIES FOR SPACE TRANSPORT

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Business Name

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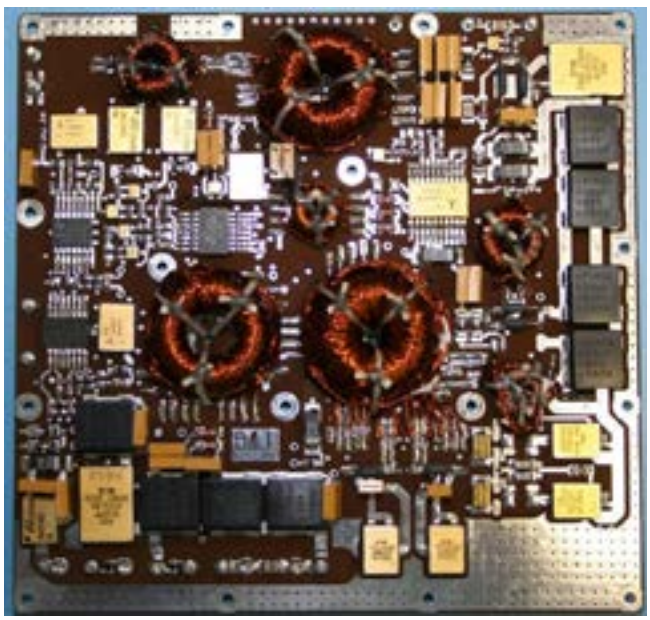

B-Open Solution

Company profile

B-Open is an Italian SME specialised in algorithm design and software development for Earth Observation, image processing and data-/work-flow management. Our team combines a research-oriented attitude ñ with a majority of the resources being post-doc or PhD ñ with a strong industrial background. We have extensive experience working for international organisations and national institutions in Europe and in the Mediterranean Sea, as well as for large Italian companies and multinationals.

Products | Services | Applications |Technologies

B-Open develops software solutions for geospatial data using Python and Open Source Software. We are experts in Earth observation, environmental monitoring and scientific computing.

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We build software
to monitor our planet

Bright Aerospace

Company profile

Bright Aerospace is a company of the Bright Solutions Group focused on the development and manufacturing of Solid State Lasers dedicated to Aerospace applications. Our knowhow spans from Lasers and Optics to Optical Systems Engineering, Optical Equipment and Instruments Technology.

Products | Services | Applications |Technologies

Leveraging on our expertise in manufacturing highly compact/rugged laser units designed for flight, and on our heritage in the development of lasers for satellite instruments, Bright Aerospace can offer design, customization and manufacturing services aimed to the development of laser instruments for space missions.

Bright Aerospace offers Partnership in common R&D Projects, Design, Engineering, Manufacturing, Integration, Industrialisation.

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Enzo Nava

Chief Scientist

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Bright Solutions

Company profile

Bright Solutions Group is focused on the development and manufacturing of Solid State Lasers dedicated to several applications including industrial, medical and Aerospace applications. Our know-how spans from Lasers and Optics to Optical Systems Engineering, Electronic Design and testing, Mechanical design, Optical Equipment and Instruments Technology.

Products | Services | Applications |Technologies

Bright Solutions develops and manufactures highly integrated solid state lasers for applications in the industrial market as well as scientific, medical and aerospace. Our capabilities span from manufacturing of standard DPSS lasers and diode lasers manufactured in volumes to customised developments of single units for unique and specific application fields.

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The green beam of a WEDGE-HF laser (Bright Solutions)
used in the FR lidar model by ALA srl
ALA

CBL Electronics

Company profile

CBL Electronics is an electronic design engineering company focused on avionics, space, defence and naval markets. We can manage the complete workflow from specification acquisition to product manufacturing and testing, with built-to-print, builtto-specification and R&D capabilities.

Products | Services | Applications |Technologies

Our core business is: test benches, test fixtures, custom Electronic boards, telemetry Systems, custom systems integration, system integration for avionics, space and defence application, management and data acquisition softwares for STTEs (dreamTest and Cloudless).

Contact

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CBL Electronics srl

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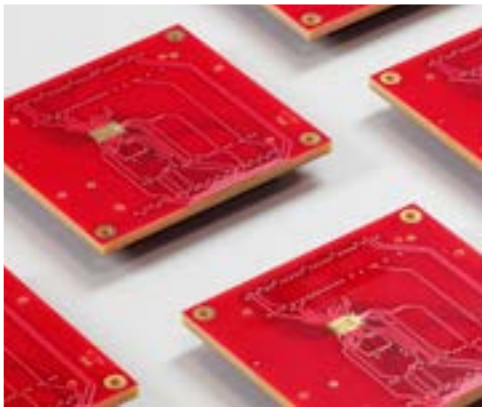
ATOM²
ATOM²
PXI


ATOM²



Compolab

Company profile

We are a multi purpose hub able to meet the demand for qualified and customized services, creating value through smart preocesses for product and process innovation and through accelerated time to market. We make avalilable to our stakeholders: over 400 square meters of technical and productive space; high computing capacity; many years of multidisciplinary experience, in design and calculation. It is also able to actually realize the demonstrator and/or the prototype, up to (the supply of) the industrialized product. It entirely realises special machines for tests, stations for the automation and the robotics of the process.

Products | Services | Applications |Technologies

Starting from customers necessities and requirements (including ECSS), Compolab technicians are able to design and follow the definition and the development stages of experimental tests, example HALT (Highly accelerated life testing), Robotics test; in different contest of R&D industrial.

We perform FEM calculations and simulations, both structural and thermal, relying on a wide professional expertise and using the most advanced computational tools and taylor made. Process simulation, including Stir Welding, and Additive Manufacturing.

Design and costruction prototypes, product demonstrators, test systems and equipment for benchmark activities are here studied and realized. Here at Compolab we are able to develop complete software solutions, based on commercial languages, for specific purpose (embedded) and general purpose devices. Design, construction and testing developing UAV control electronic boards.

Our CAD designers are highly skilled and focused on clientís needs; moreover we own equipments and devices for the scanning, the measurement and the reverse engineering of mechanical components. Closing the circle the digital production in metal and polimers.

Other product/services:

- Data correlation
- Quality
- Support to company management
- FMEA / PFMEA / DFMEA
- Courses and training
- Production start up
- Business management
- Design and calculation CFD
- Calculation and verification of 3D tolerances
- Industrial automatetion

Contact

Business Name

Compolab srl

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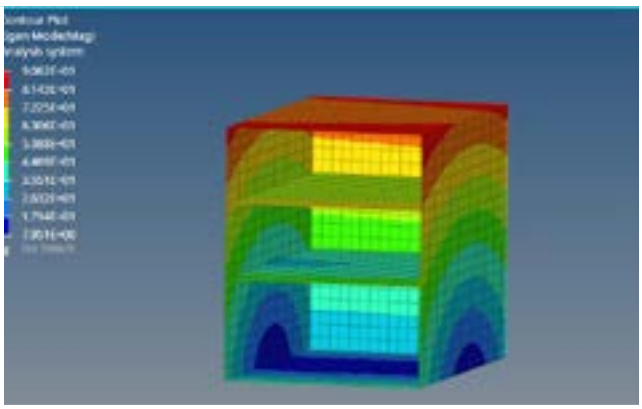

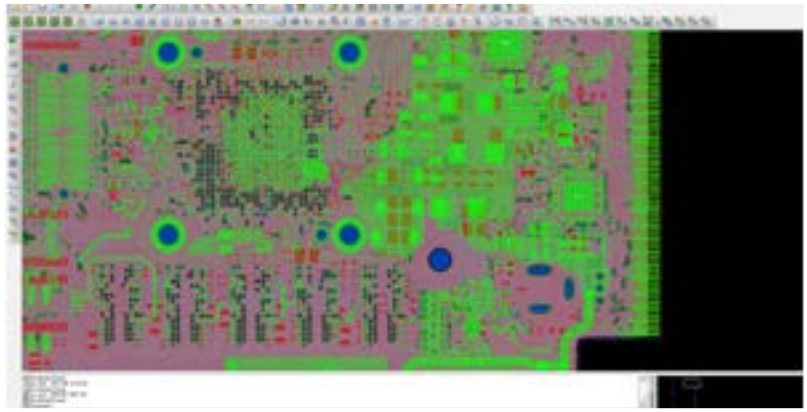

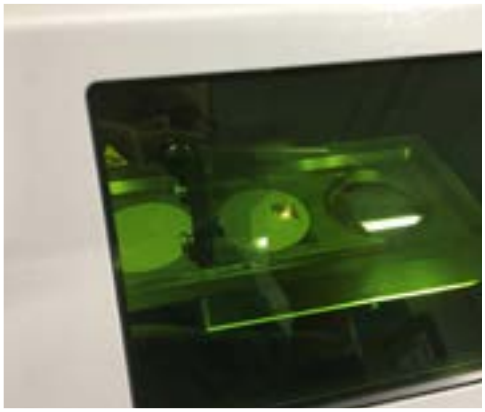

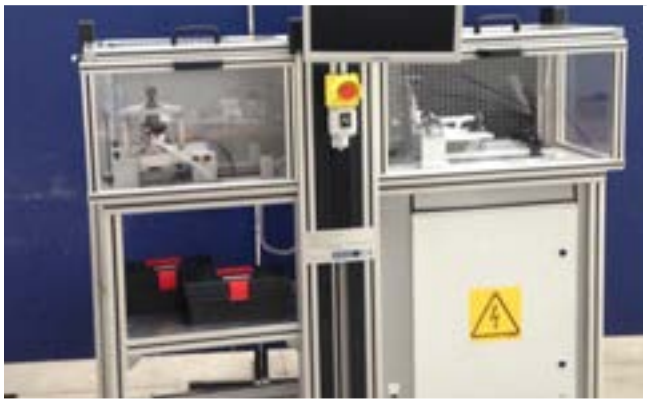

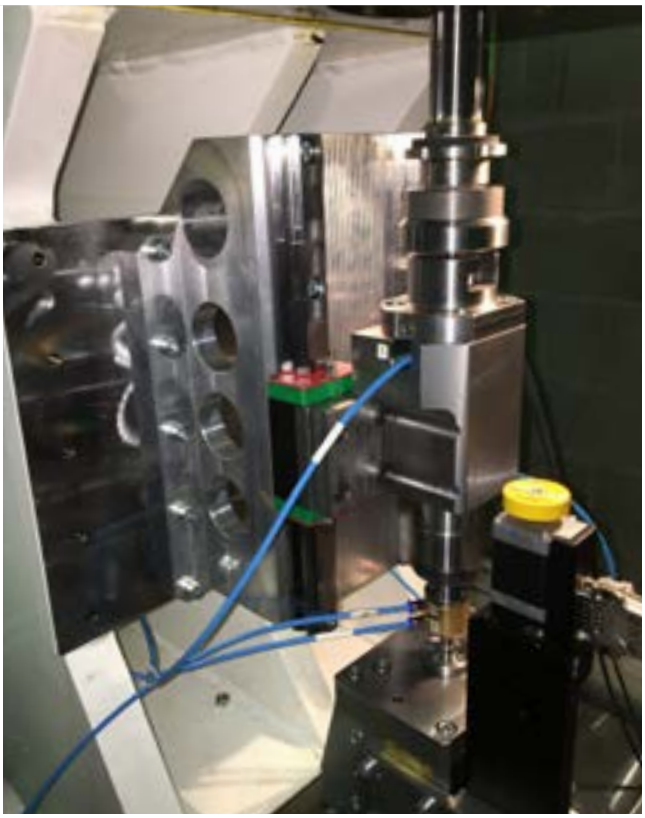

Consorzio di ricerca Hypatia

Company profile

HYPATIA is a Research Consortium of private companies devoted to applied research and space-earth technology transfer to enhance R&D and SMEsí innovation. Research Consortium Hypatia operates to create a shared space for research entities and companies promoting open innovation, at national and european level. Hypatia contributes to the New Space economy, the full range of activities and the use of resources that create value and benefits to human beings in the course of exploring, researching, understanding, managing, and utilising space.

Products | Services | Applications |Technologies

The principal technology areas covered by Hypatia activities include: Advanced Manufacturing, Advanced Materials, Biomaterials, and Renewable Energies. Consortium Hypatia is also active in business services, providing assistance to those who want to fully exploit the growth opportunities in the R&D sector, through the participation in European, national and regional programmes.

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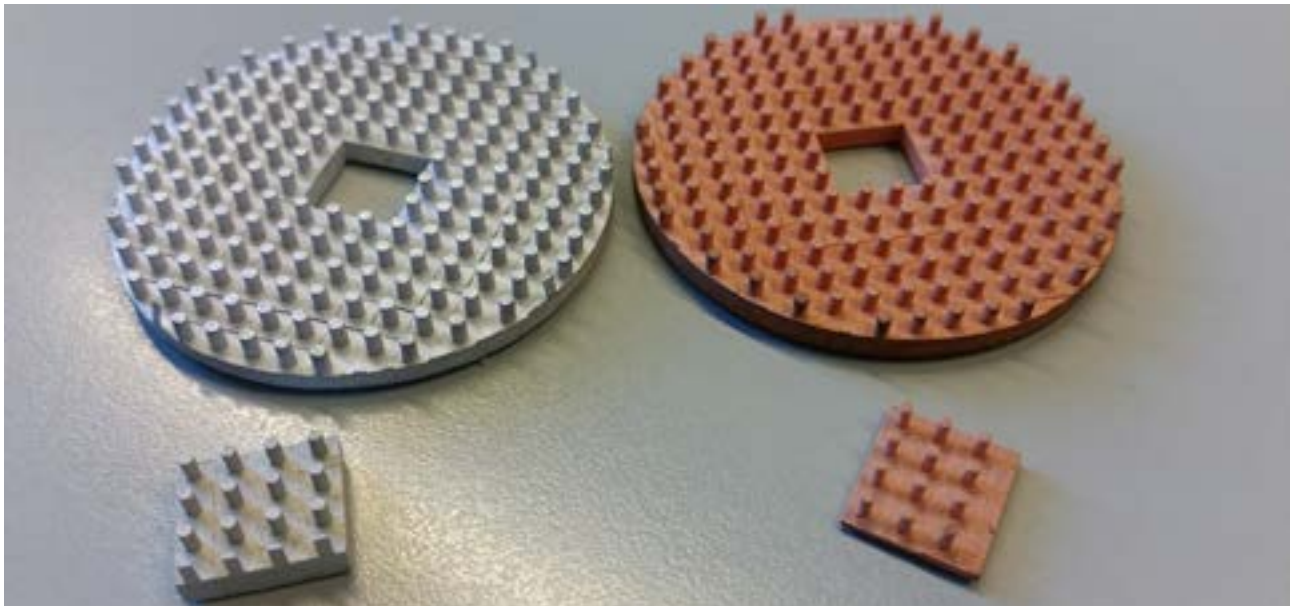

CRISEL

Company profile

Crisel is a leading company in the design, configuration, and supply of high-tech instrumentation for the Space and Aerospace sectors. The company mission is to offer the most advanced technology for the acquisition, transmission and analysis of data from air to ground and from ground to air. Crisel has been present for years in numerous programs of national interest, supplying the Telemetry, Data Link, Safety units, and Ground Station systems for programs such as VEGA, VEGA C, EXOMARS, IRIDIUM, and COPERNICUS. Crisel has a twenty year experience in motion simulation tables, Automatic Test Equipment and enabling technologies for space vectors and satellites as well as passive systems for satellite data acquisition for signal monitoring and geolocation purposes. Thanks to its knowhow and international representatives, CRISEL is able to select the product or system best suited to the design or production requirements. Crisel offers Scientific Technical Consultancy, Systems Design, Testing, Qualification, Distribution, Production, Sales and Maintenance, and training of personnel for Space and Aerospace applications.

CRISEL is involved in research and development activities in the aerospace sector and with the latest TOPPP project has developed, in collaboration with the Physics Department of the Sapienza University, a redundant bidirectional point-to-point optical communication system, with very high data rates. The project has been extended for further two years.

Crisel, is a member of AFCEA and ASAS and has been collaborating with numerous Italian companies for programs of national importance.

Products | Services | Applications |Technologies

SPACE SOLUTION:

- TT&C Baseband Product
- Ground Station from 2.4 to 11 m
- Earth Observation and Deep Space Ground Station
- Cortex HDR (High Data Rate), CRT (Command Range and Telemetry), RSR (Radio Signal Recorder), DS (Deep Space),
- X BAND CONVERTERS
- SSPA S Band Status
- S Band Converter
- Converter Deep Space
- Geolocation System
- Direction Finder Antennas
- Motion System Platform

ON BOARD TELEMETRY

- Data acquisition units (DAU)
- DAU Wireless
- Receivers
- Neutralization systems
- Transmitter
- Transponder
- IFF
- GPS/ GNSS
- Satellite Conformal Antennas and Spacecraft
- IMU e Gyro

GROUND STATIONS AND TELEMETRY ANTENNAS

- Satellite Ground station single and multifeed (L, S, C, X Band)
- Telemetry Receiver multi band (P, L, S, C, X)
- SW and Data Decommutation Stations Multi Source
- ATE
- Post Analysis SW

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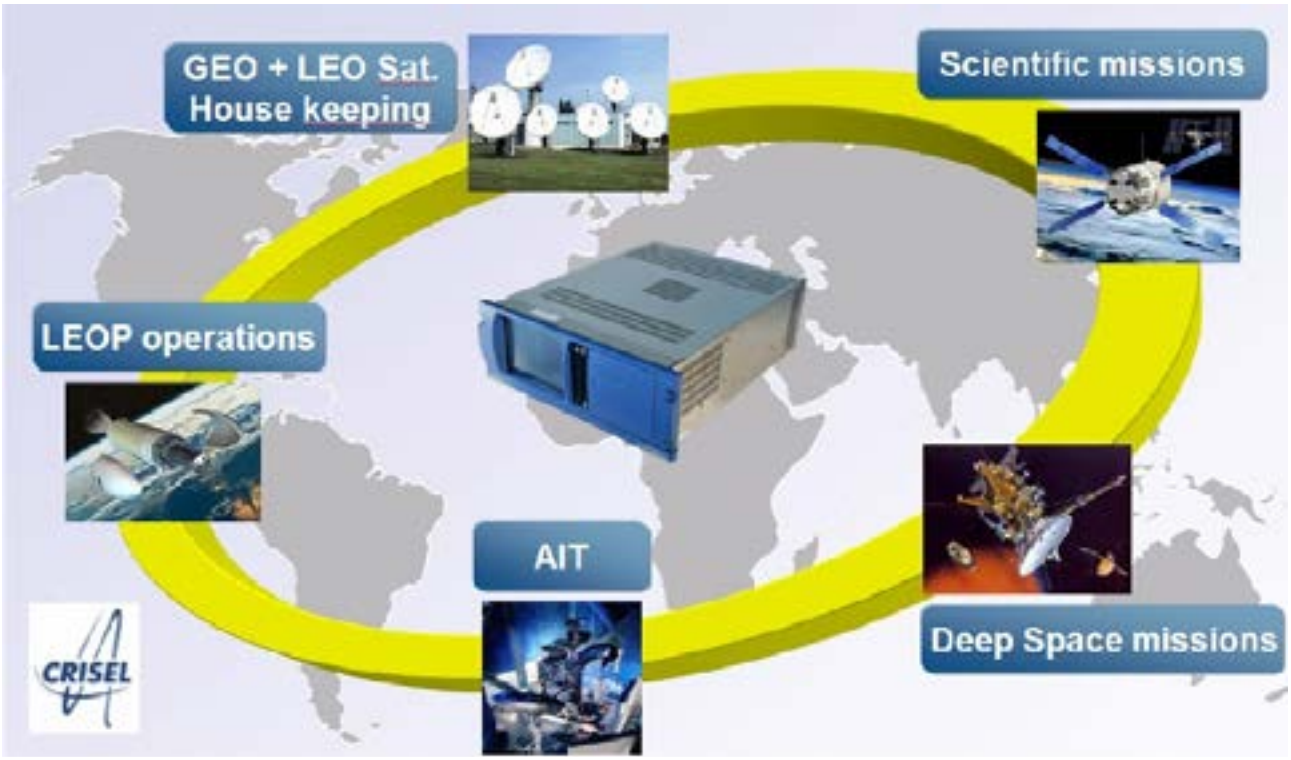
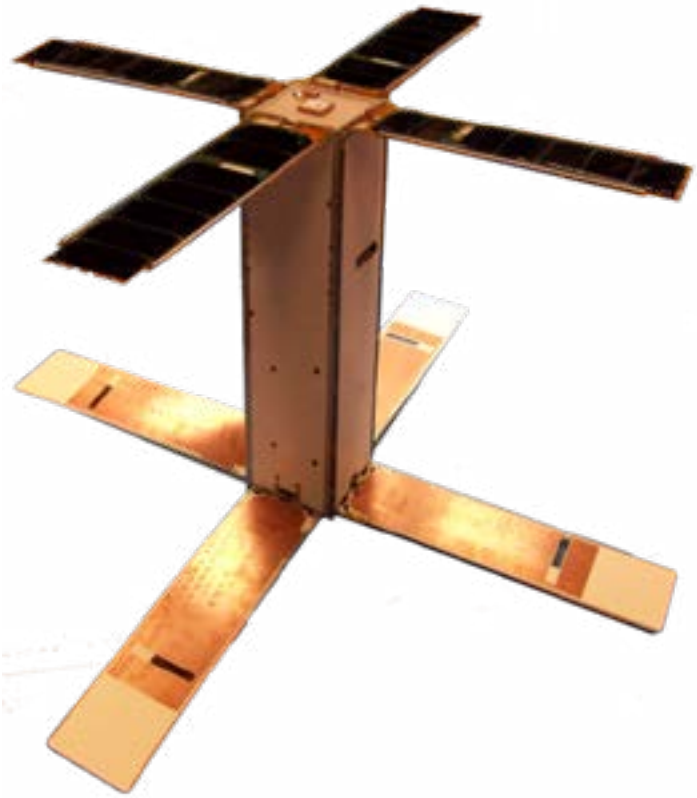

GEO + LEO Sat.
House keeping
Scientific missions
LEOP operations
AIT
Deep Space missions
CRISEL




esa

D- Orbit

Company profile

D-Orbit is a market leader in the space logistics and transportation services industry addressing the logistics needs of the space market with a track record of space-proven technologies and successful missions.

The company has developed proprietary space logistics technology and transportation solutions that will accelerate the growth and development of the space economy.

Committed to helping companies profitably and sustainably maximize the opportunities to do business in space today and into the future, D-Orbit is delivering successful customer outcomes today while developing advanced products and services for the needs of tomorrow.

Founded in 2011, before the dawn of the New Space market, D-Orbit is addressing the logistics needs of the space market. ION Satellite Carrier, for example, is a space vehicle that can transport satellites in orbit and release them individually into distinct orbital slots, reducing the time from launch to operations by up to 85% and the launch costs of an entire satellite constellation by up to 40%. ION can also accommodate multiple third-party payloads like innovative technologies developed by startups, experiments from research entities, and instruments from traditional space companies requiring a test in orbit. To further empower satellite operators to achieve a more profitable and effective business, the company has also developed in-house a proprietary cloud-based mission control software suit designed to control entire satellite constellations.

D-Orbit is a space infrastructure pioneer with offices in Italy, Portugal, UK, and the US; its commitment to pursuing business models that are profitable, friendly for the environment, and socially beneficial, led to D-Orbit becoming the first certified B-Corp space company in the world.

Products | Services | Applications |Technologies

ION Launch Service: is an end-to-end launch procurement, hosting, and deployment service that leverages ION Satellite Carrier, an orbital transportation vehicle manufactured and operated by D-Orbit that hosts a batch of spacecraft into its onboard dispensers, carries them throughout its mission, and release them individually into precise orbital slots according to the needs of the customers. The platform can modify its own orientation, altitude, and right ascension of ascending node (RAAN) before deploying each Individual satellite, enabling deployment strategies previously unavailable to this class of spacecraft. ION's 64U payload bay can host minisats, hosted payloads, and third-party launch tubes alongside D-Orbit's mission-related hardware.

DDOP Launch Service: is a CubeSat launch and procurement service offered by D-Orbit that provides launch opportunities with the major launch operators and equipped with D-Orbit's proprietary DPOD and DCUBE dispensers. The service, available for CubeSats between 3U and 16U+, includes integration within D-Orbit's proprietary DPOD or DCUBE dispensers, which are market leader for in terms of launch vibration protection and lateral protrusions allowance.

ION Hosted Payload Service: ION Satellite Carrier offers a plug-and-play mechanical, electrical, and data interface to quickly integrate experiments and instruments onboard and operate them from the ground as subsystem of ION itself. Experiments and instruments are fitted inside structures ranging from 1U up to 16U in volume, connected to the main spacecraft bus, so they can be managed directly by D-Orbit's mission controllers. Possible applications range from in-orbit demonstration (IOD) missions of 1U experiments, to months-long missions using massive optical or radar instruments. The development and testing of an experiment is greatly simplified by encapsulating the payload inside a CubeSat structure that communicates through standard, well-defined interfaces.

AOCS Suite: is a modular attitude and orbit control system solution built of three nested systems that can be acquired separately. Each layer is built upon the ones below, enabling satellite designers to create an ADCS that fits their needs and budgets. An architecture with redundant data, power, and propulsion interfaces guarantees failure tolerance. The suite is ideal for spacecraft of up to 400 kg, operating in an orbit up to 1200km high, with an inclination above 30° and any beta angle.

D-Sense: is a multi-sensors module that has the capability to track the position of the Sun, the Earth's horizon, the magnetic field, and the angular rate of the spacecraft. It also includes a camera that can be used to take photos and videos, and operate as a star tracker.

OBC Core: is an affordable onboard computer for general application on mini and microsatellites. Build with rugged automotive-grade components, OBC core features a double or even quadruple redundant architecture, making it a

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reliable alternative to more expensive radiation-hardened hardware.

IA Core: is a general purpose computing node with standardized mechanical and electrical interfaces. The core incorporates a low power 32-bit microprocessor for on-board computing tasks and access to a wide variety of communication buses and peripherals.

Aurora: is a powerful cloud-based mission control software suite designed to control a single satellite or a complete constellation through a user-friendly, fully customizable control interface. The software provides graphic representation of orbital position and attitude, with updates on upcoming passages, grants full control of operations, sub-systems status, and energy and power budget, and store all command, telemetry, and photographic data for diagnostics.

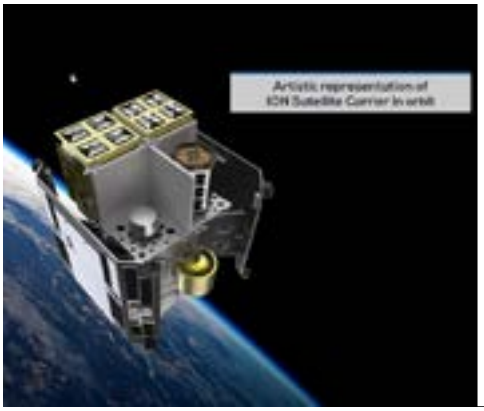
D3: is an independent, smart propulsion system available for all satellite platforms operating in LEO, MEO, and GEO. It is specialized in decommissioning maneuvers to remove the hosting satellite from the operational orbit in a quick, direct, and controlled way at the end of the mission or in case of major malfunction.

D-Raise: is a propulsion system for full-electric satellite platforms. It speeds up the transfer maneuver from parking orbit to the operational orbit, reducing the exposure of the satellite's solar arrays to radiation of the Van Allen belts and enabling an earlier start of the revenue-generating phase of the mission.

Simba: is a lightweight, cost-effective, and versatile onboard computer for platform management and general-purpose applications. Qualified for long-lasting LEO mission, Simba is based on a reliable and flight-proven LEON3-FT SPARC V8 core by Cobham Gaisler (GR712RC).

SimOn: is an Electro-Explosive System (EES) used for the remotely safe ignition of the pyrotechnical chain; in particular D-Orbit provides this electro mechanism for Solid Rocket Motors ignition.

Further info here: "https://www.dorbit.space/our-solutions



DAVI PROMAU

Company profile

DAVI, manufacturer of the most sold Plate and Angle Rolls worldwide, produces Plate Rolls to roll up to a thickness of 400mm as well as Angle Rolls for beams up to a height of 1250mm and pipes up to 1000mm. All the products are completely made in Italy. The DAVI customer care follows the customer from installation and training up to online support, with the most experienced technicians in the sector.

Products | Services | Applications |Technologies

DAVI Plate Rolls are able to roll every kind of components used in the space industry: whatever the material, the dimension and the bending radius requested, DAVI range presents an optimal alternative to offer to the customer. Whether we are talking about building parts of capsules, nacelles or boosters, in different materials (any type of steel, aluminum, titanium or other alloys), DAVI can supply the ideal solution, through both standard machines and products deeply customized, that are granted by a Research & Development Division that is in constant growth and evolution.

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W
NASA


NASA
National Aeronautics and Space Administration
Side Panel Fabrication
A side panel is bent the proper shape to be attached to the side of the simulated crew module.

Digimat

Company profile

Digimat is an Innovative SME, founded in the year 2001 in Matera. The transformation, in 2018, into a public limited company has allowed a greater expansion and led to more prestige. Innovation and research are fundamental elements of the company, our skills focus on several areas of ICT: Software Engineering, IoT, Virtual and Augmented Reality, Cloud Services, Downstream Services, Precision Farming an Industry 4.0.

Our highly specialized team provides customers with scientific methods, practical experience and communication with research centers. Managing the company: Donvito Angelo - Chairman and Manager of SW Dev and R&D, Acito Andrea ñ Managing Director and Head of IT, Pentasuglia Giuseppe - Director and Manager of the Quality Management System Two business units ìSoftware Development and Research & Developmentî and ìIT Services and Consultingî. The first develops Software for SMEs, large companies, public bodies and research institutes. The research laboratory has knowledge, expertise, professionalism and equipment to study and develop SW systems oriented to the management of geo-located data for indoor and outdoor environmental monitoring. Digimat is partner with TIM, Fastweb and Huawei in the MISE call for 5G technologies, on experimentation activities in the Matera/Bari area (Smart Building, agriculture/environment, Tourism). Digimat, cooperated with Ericsson, Fastweb and CNR-IBAM on the project #Roma5G at Diocletian Baths, consisting of high-speed connection networks that offer powerful new solutions to virtual reality and augmented reality.

Within the field of ìAerospaceî, Digimat has developed technological and know-how skills thanks to the numerous research projects carried out. These collaborations have also been formalized through participation in networks such as operational consortia in the field of Earth Observation and Environmental Monitoring: TeRN (recognised by the Basilicata Region and the Ministry of Scientific Research as the Basilicata Technology District for Environmental Monitoring and Earth Observation), Createc and IRIS (with Digimat being one of the founding members), EXO, CETMA. Digimat is involved as partner of Telespazio in the SPACE-ECONOMY-Mirror GovSatCom Program and in several research projects in Precision Farming, recently including also the UAE (agriculture and food security).

Products | Services | Applications |Technologies

Matera Space Center is dedicated to Earth observation activities and also provides operational services for the Space Geodesy Centre. Digimat developed the ASMC (Antenna Station Monitoring and Control) supplying the following features:

Monitoring of the acquisition devices, aimed at the acquisition and display of status and parameters of the antenna system components;

Control of the components of the antenna systems, in order to the set the various components with the parameters necessary to allow the acquisition of satellite data, according to the acquisition schedules;

Resource Conflict Manager, to analyyze and solve conflicts in the use of resources

Monitor & Control system for Supervision and Remote Control of the CSG Ground Segment functional plants located at the Matera Space Centre. The system includes hardware and software components to manage: the air conditioning system; the UPS power generation system No-Break; CEDE air conditioning system.

ACQ: Digimat is involved in the COSMO-SkyMed (CSK/CSG) space project together with Telespazio and TASI in the analysis, design and development of Ground Segment, and image processing on satellite data and its applications.

Digimat developed the ScanSAR data processor and the CCSDS payload data formatter. It worked with Thales Alenia Space on the KOMPSAT 5 project and has developed the geocoding and orthoencryption processor for all SAR data and the validation system.

CUT-3G: Development of a multi-mission system that allows provisioning of remote sensed data for commercial users.

General objectives:

- Provide services to organizations: Allow them to access the multi-mission catalogues and service requests, Provide image products in the requested timelines, Manage user profiles;
- Define and elaborate requests for new acquisitions: multi-mission feasibility analysis, conflict management (within CUT-3G), programming request lists compilation for all missions;
- Receive payload data from satellites of managed missionsí constellation and process auxiliary data necessary for data processing and image geo-location;
- Perform production management in terms of generation of image products,
- Catalogue and archive products and raw data,

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- Distribute products;

The system will remotely manage multiple acquisition stations and processing stations allowing organizations to share resources in order to optimize products supply times.

eMAGE is the e-GEOS distributed framework for data analysis and processing. Currently used in e-GEOS for operational services dedicated to SAR and Optical data management, viewing and processing. Digimat is currently developing a new version of eMAGE server from scratch, featuring many enhancements including authentication, subtask execution, frontend/backend modules, enhanced logging.

Research and development projects to create innovative services based on interoperable downstream services and use of Earth Observation technologies (both satellite and on-site sensors).

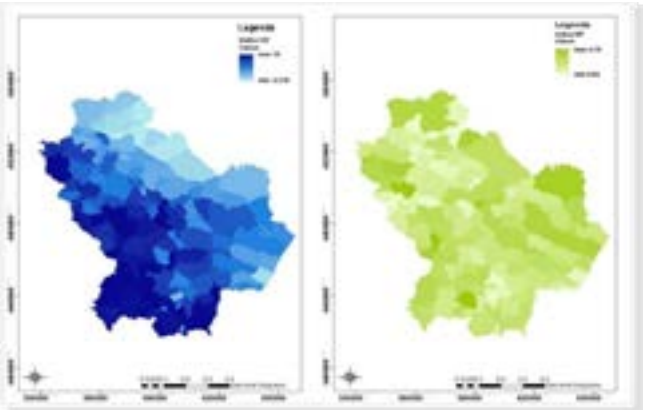
The Web-GIS for precision agriculture provides two operating management services of variable rates fertilization and management of irrigation resources. Both products allow to monitor vegetation health and plan appropriate variable irrigation and fertilization rates. Objective: optimize the use of water resources and to reduce the environmental impact of nitrogen fertilization improving the yield;

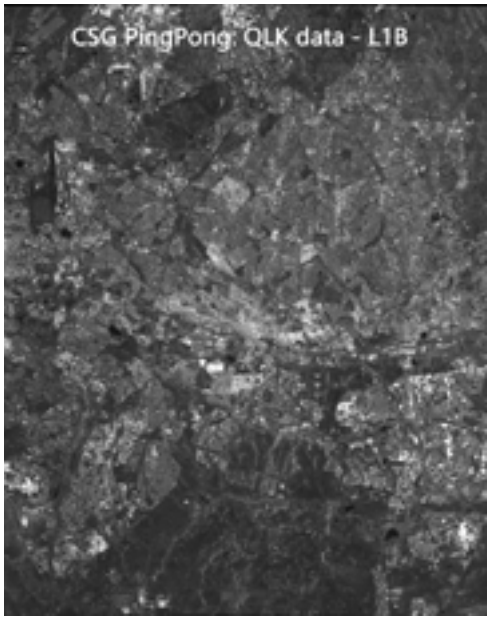
SPOT is a web-based platform for land safety and energy sustainability. SPOT displays products from sensors platform data and satellite imagery. The platform provides services for the monitoring of thermal anomalies (fire risk), wind maps and wind forecasting (for the design and management of wind farms); infrastructure control.

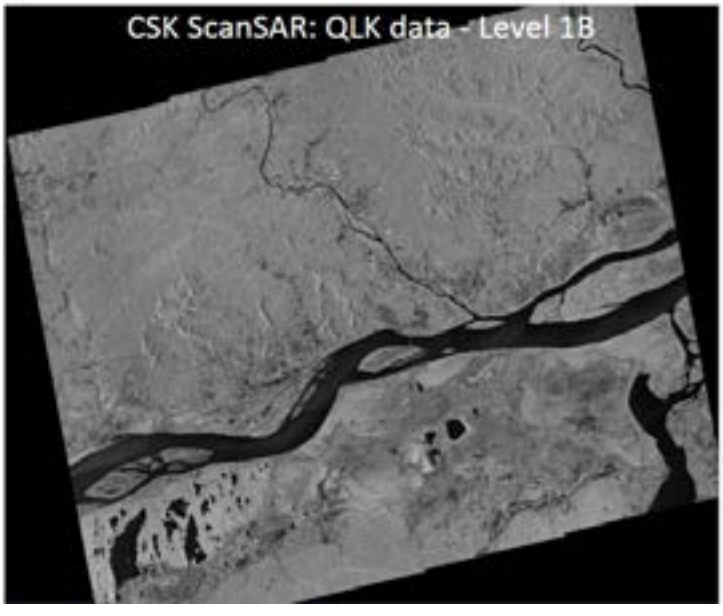
Monitoring and security for the Colosseumís Archaeological Park Area.

Space to Tree S23 (in progress). Digimat with CNR-ISPC and CNR-IMAA, ESA ESTEC call: ìARTES Integrated Application Promotion (IAP) Programme: applications integrating space asset and 5G networks. Aim of the project: monitor the health of trees in public parks of historical and cultural interest. Monitoring system based on a multiscale and multisensor data analysis. Images from remote sensing (UAV and satellite platforms) and data from proximal sensing (in situ sensors network) will be acquired and stored. Dedicated IoT platform: storage layer, service layer and application layer will be displayed in the web-gis. Main product: alert map highlighting trees at falling risk, consultable by park operators.

I-FASENET (in progress). MISE Call SPACE-ECONOMY, Mirror GovSatCom. Digimat will develop a hybrid sw infrastructure, operating in crisis situations on the territory, such as those arising from environmental disaster (eg earthquakes, landslides, floods etc..) it provides services through integrated technologies that make use of IoT networks, 5G, and satellite telecommunication systems. The project is in a pre-startup phase.







DTM

Company profile

DTM is active since 1994 in the design, development and testing of aerospace structures, testing equipments and GSE (mechanical, fluidic, thermal ground support equipments) for satellites, launchers and experiments for manned or unmanned missions.

Design tools include 3D CAD drafting and modelling software, structural, thermal and fluidic analysis as well as fracture control analysis software.

DTM facilities include grey areas for integration of small equipments, ISO6 clean room (ISO5 ready), tools and test equipments for manufacturing and testing of composite parts (autoclave), three thermal vacuum chambers with temperature ranges from cryogenic up to 200∞C and above, static and fatigue test jigs, shaker and many acquisition systems.

DTM head office and laboratory is located in Modena (1100 m2). A second laboratory / integration area is located in Bastiglia (Modena) and provides 500 m2 area (including an ISO 8 clean room) for integration and testing of large equipments like mechanical ground support equipments and other large structures and testing facilities (20 tons crane).

DTM quality management system is certified according to UNI EN ISO 9001:2015 and UNI EN 9100:2018. Main customers in the space field are ESA, ASI, Thales Alenia Space, Airbus, OHB and Leonardo. DTM is also involved in activities in industrial fields like marine, automotive and biomedical sectors.

Products | Services | Applications |Technologies

Mechanical Design and analysis

DTM can develop full turn-key projects taking care for all design (drafting), structural and thermal verification activities or can work on specific design activities thanks to his 3D CAD, FEM and CFD software tools.

Engineering and testing service

DTM offers engineering and testing services including the design of the full experimental (mechanical, electronic, fluidic) and acquisition equipments. Developments are mainly based on National Instruments acquisition systems and Labview for the software. DTM is a qualified laboratory of Emilia Romagna High Technology Network.

Test facilities for launchers and satellite sub-systems qualification

DTM designs and develops custom test jigs to qualify flight structures like the Tank Support Structure of Sentinel 1 (Thales Alenia Space Rome), Vega Interstage 2/3 and composite outer structures of sub-orbital launchers (Swedish Space Corporation)

Satellite and launcher structures

DTM is qualified for the realization of composite or metallic sandwich panels like the Exomars sandwich panels developed for Thales Alenia Space Rome and Prisma primary and secondary structures for OHB and instrument structures for Leonardo (ASI Program). For Thales Alenia Space DTM realized the composite thrust structure of the IXV space vehicle.

Space products

DTM designs and develops heat exchangers for ISS and space vehicles like the heat exchangers for the Orion Multi Purpose Crew Vehicle (prime Thales Alenia Space). DTM also develops custom flight components for challenging application like the filling valve developed for Exomars Ultra Clean Zone Analytical Laboratory Drawer.

Mechanical Ground Support Equipments

DTM designs and develops mechanical ground support equipments (M-GSE) for instruments and satellites handling, integration, purging and transportation. For Airbus Defence and Space DTM developed the mechanical GSE for the Sentinel 5 instrument: integration stand, trolley, handling adapters, protection covers, purging unit, hoisting devices and transportation container.

Fluidic Ground Support Equipments

DTM designs and develops fluidic GSE to support flight hardware operations and tests. We are capable to design extra high purity GSE requiring biological, molecular and particle contamination control like the F-GSE built for the Exomars ultra high purity GSE of the Analytical Laboratory drawer developed by Thales Alenia Space Turin.

DTM also designs and develops custom Thermal vacuum chambers like the one built to qualify ISA spring accelerometer for Bepi Colombo mission (Thales Alenia Space Milano) and fluidic GSE for satellite instrument purging.

Composite components design and qualification

DTM has a strong know-how in designing, developing and testing composite structures for space and non space sectors. Also thanks to facilities available in our laboratory like autoclave and NDI equipments, we can design and realize custom products meeting challenging requirements including all the materials and process qualification tests.

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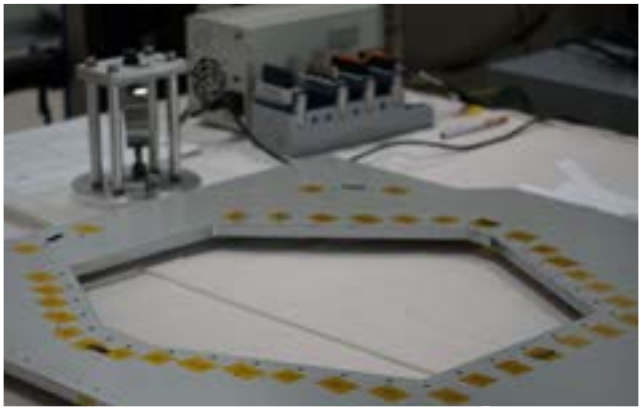

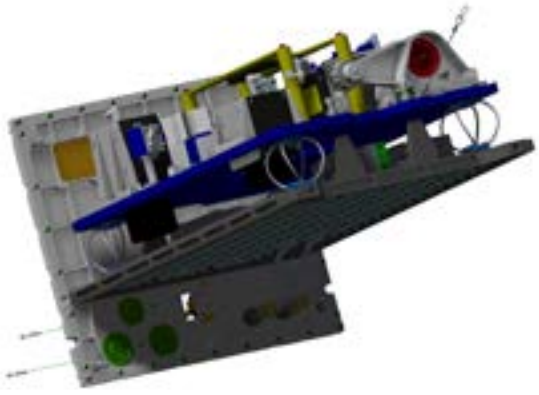


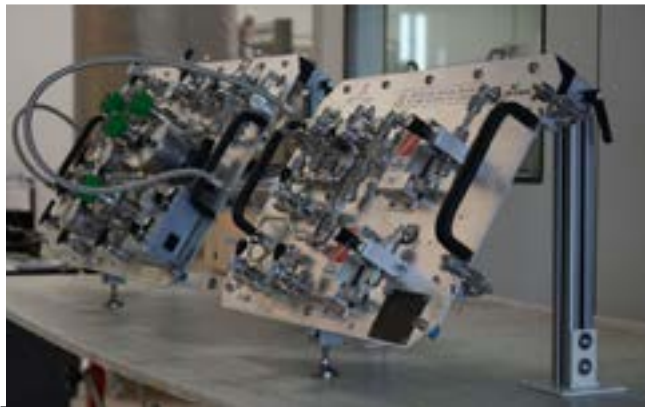

Ecor International

Company profile

Headquartered in Schio, Vicenza, Ecor International produces welded and brazed components in stainless steel, nickel, titanium and aluminium alloys for aircrafts, spacecrafts and orbiting satellites.

The company deals with the complete manufacturing process, starting from draft and implementation of qualification plan, to final control of the parts and the related technical documentation.

Thanks to the competences in the special processes of welding and heat treatment, the availability of qualified personnel and cutting-edge systems, Ecor International guarantees manufacturing high quality standards.

The conventional dimensional controls are integrated by:

- Non-destructive testing (Penetrant and Radiographic Inspection).
- Leak/Proof/Leak - L/P/L at high pressure with helium leak detector.

The production site is equipped with a Cleanroom ISO 7 operational, a clean environment where welding and system integration are performed, aiming at not compromising the cleaning level of the components. The cleaning process in compliance with cleanliness standards and related verification is managed in-house.

Furthermore, for the Space industry, the company performs heat treatments and high-vacuum outgassing on critical items such as protective screens, components and subsystems of orbiting satellites to streamline and improve material performance.

Products | Services | Applications |Technologies

Ecor International has been involved in the following main programs:

- Orion MPCV (NASA)
- Solar Orbiter (ESA)
- Cygnus PCM (NASA)
- PLATiNO (ASI)

Ecor International has achieved the following certifications and accreditations:

- ISO 9001, ISO 14001, ISO 45001
- AS/EN 9100
- NADCAP for welding processes (WLD), heat treating (HT), non-destructive testing (NDT).

The parented company, Il Sentiero International Campus, carries out research activities on Surface Engineering, Reliability Engineering, Additive Manufacturing, Joining Technologies to develop innovative components.

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Business Name

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TAV

EICAS Automazione

Company profile

EICAS AUTOMAZIONE is a small-size high-tech company established in 1984 by a group of professors of Politecnico di Torino and industrial researchers with the aim to set up a company excelling in the complex system management and control area.

The core of EICAS scientific background concerns dynamic system modeling, simulation and control, signals and images elaboration, data fusion techniques, FDIR and dependability.

EICAS has mainly worked on advanced, long term innovation projects for and/or in cooperation with industrial companies, research institutes and Universities, having a strong reputation as a partner and coordinator of EU R&D projects.

Main activity areas include Space, Automotive and Industrial Automation.

Space

Competences: EICAS has a long heritage in the field of attitude determination from star measurement. Starting from the experience gained in the HIPPARCOS Mission, many Autonomous Attitude Determination Systems (AADS) have been designed and validated under ESA/ASI contracts and for large players, moving from mono-head to multi-head and multicamera configuration, from CCD to CMOS technology. In the most recent years the company has finalized a new concept of multicamera system - named ARGO - powerful and low cost, based on sophisticated in-flight auto-calibration techniques both of the camera model and of the cameras relative attitude.

Innovative Products:

ARGO for Space: Highly accurate, flexible, robust and scalable multicamera system for spacecraft autonomous attitude determination, specifically conceived for SmallSats The first proprietary star tracker - ARGO 1.0 - was co-funded by the H2020 SME-INSTRUMENT Programme and is currently being validated in-orbit at TRL9, onboard ION-SCV2 by D-ORBIT. A second star tracker - ARGO 2.0 - is under development co-funded by ESA ARTES C&G, expected to achieve flight heritage by the end of 2022.

Products | Services | Applications |Technologies

EICAS owns a significant portfolio of innovative products and key enabling technologies:

ARGO for Space

Highly accurate, flexible, robust and scalable multicamera system for spacecraft autonomous attitude determination through low cost cameras. The ARGO Star Trackers are tailored for the emerging market of SmallSats where the trade-off performance/ cost/size is fundamental for spacecraft manufacturers.

The first version, ARGO 1.0, is currently being tested at TRL 9 in a IOD co-funded by H2020 EIC SME Instrument Programme. A second version targeting constellations market, ARGO 2.0, is currently under development.

Application domain: Space.

EICASLAB™

The professional software suite for automatic control design and forecasting, able to support the automation of industrial processes through powerful tools for modelling plants, designing and testing embedded control system architectures.

Application domain: Space, Automotive, Industrial Automation, Robotics, Machine Tools, Economics.

EICASLAB RCP Platform

EICASLAB Rapid Control Prototyping multi-core PC platform. Based on EICASLAB™ technology, it represents a turn-key solution for quick, smart and easy validation in field of even complex control architectures. Application domain: Space, Automotive, Industrial Automation, Robotics, Machine Tools

ARGO for Industrial automation

Plug & play, low cost and highly accurate optical multicamera measuring system for contact-less measurement of the pose of moving rigid objects, applicable in many context of Industry 4.0 for the development of intelligent robotic cells. Application domain: Industrial Automation, Aeronautics.

ERSEC

Multisensory precise localisation system for safer and autonomous vehicles, applicable in automotive sector (active safety, autonomous vehicles), industrial automation (automated guided vehicles), in aerospace (unmanned aerial vehicles, AUTOTAXI functionality on the airport surface). Application domain: Automotive, AGV, UAV.

EICAS offers the following consultancy services:

- Automatic control design: innovative and customized solutions for industrial automation, automotive and space
- Control algorithms, real-time software development, rapid control prototyping and FDIR techniques
- Transfer of know-how: Training courses on EICAS control design methodology and EICASLAB technology

Contact

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Caporaletti - CEO

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Accuracy
by intelligent real-time data fusion
Robustness
by multicamera architecture & FDIR
Performance stability in Time
by on-board re-calibration algorithms
ARGO 1.0
THE SKY IS THE LIMIT
Fine in-flight calibration
by smart stars observation
the best metrological sample
Low SWAP
By a careful design suitable for SmallSats needs
Low HW cost
by smart selection of COTS/ML-STD/Space-grade components


ERSEC
Enhanced Road Safety by integrating
Egnos-Galileo data with on-board Control system
www.ersecproject.eu

EIE GROUP

Company profile

EIE GROUP Srl is an International EPCC Company globally operating for more than 30 years in areas such as Aerospace, Astronomy, Astrophysics, and Big-Science.

The core of Companyís experience is the capability to manage large and complex projects, developed in the course of a multi-decennial working history with the most important customers, suppliers, scientific institutions, and industrial groups of the word. Whether it is space instrumentation, space facility, telescope, dome, or optical equipment, the goal of the Company is to satisfy customerís expectations. In this perspective, the business of the Company is then summarized in three macro concepts: Management & Contracting, Engineering & Design, Production & Services.

Thanks to its expertise, the Company responds to extreme projectís functionality, efficiency, maintenance and growing lifetime requirements imposed by the customerís specifications.

At the base of EIE GROUP Srl success are a fluid organizational structure, a multi-skilled personnel with solid engineering/technological/scientific know-how, a deep belief on creativity and emotional intelligence to best serve customer demand. In this sense, the Company promotes a constant growing of its innovation culture.

Products | Services | Applications |Technologies

EIE GROUP Srl is an International Leader in the design and development of cutting-edge solutions for high-impact technological projects. The Company promotes technology and innovation through a unique series of products and services, capable of generating value for its clients and partners. In this perspective, the Company uses exclusively highquality industry standards for the projects undertaken, ensuring their operativity in full efficiency for several decades.

EIE GROUP Srl features an outstanding background in Management & Contracting, Engineering & Design, and Production & Services for:

- The most sophisticated Ground Facilities for Space Missions Testing and Space Situational Awareness Monitoring.
- The most innovative Opto-Mechanical Systems for Solar System exploration and Earth Observation.
- The largest ground radioantennas, telescopes and domes all over the world.

EIE GROUP Srl well knows that the development of space and astronomical technologies represents a powerful engine for human, social, and economical heritage. For this reason the Company offers the TBO Project, a suite of services to support the development of international cooperative Astronomical & Space projects.

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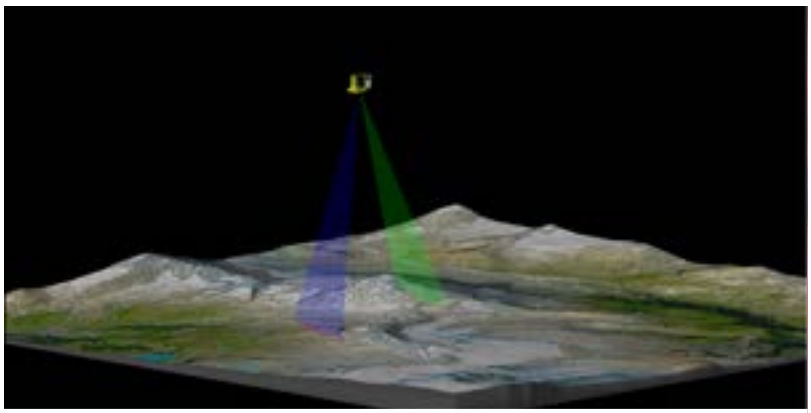

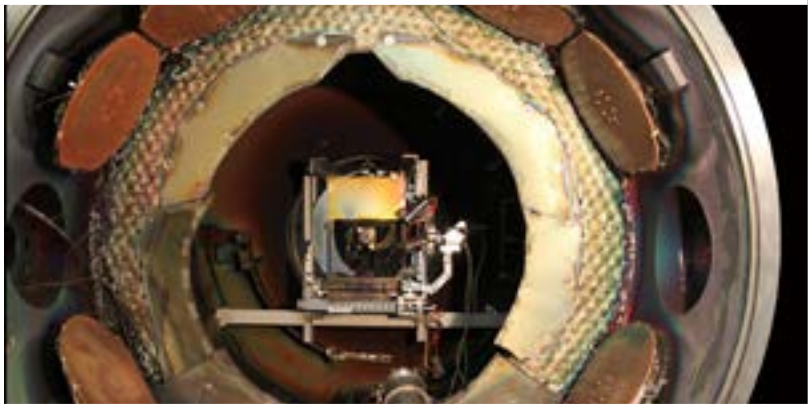

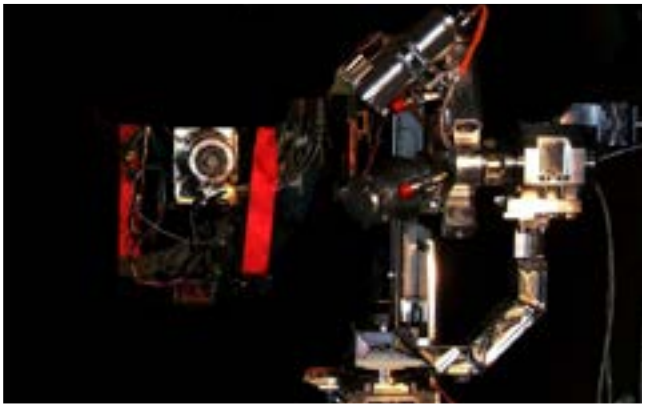

Ellena

Company profile

With more than 75 years of experience, Ellena is a strategic contract manufacturing partner that focuses its activities in three main fields: additive manufacturing, precision machining and assembly.

Ellena supports its customers with co-design, value engineering and supply chain management.

In house additive manufacturing solutions can be offered in different metallic alloys, while finishing operations are performed in Ellena state-of-the-art machining department. Mechanicals and mechatronics assemblies are realized in Ellena assembly department, also equipped with ISO 7 clean room.

Ellena can reply to its customers' needs with the key competences to be an excellent partner in future global manufacturing scenarios.

Products | Services | Applications |Technologies

Metal additive manufacturing components in Aluminum, Stainless Steel and Nickel Based Alloys (SLS powder bed). Polymer additive manufacturing (FDM).

Precision machining with 5 to 7 axis controlled

Standard assembly, ISO 7 clean room assembly, hydraulic and pneumatic test

Contact

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ETS Sistemi

Company profile

Our Company is an SME active in High Tech Fab Maintenance (CleanRoom for aerospace, nuclear and semiconductor) and NDT Testing and Consultancy.

For NDT Branch, we operate principally in all Europe Countries with our service in advanced tecniques Helium Leak Test and Acoustic Test with engineers certified at level 2 and Level 3 under ISO9712/2012 Standards.

We are involved in more European Founded projects (FP7 and Horizon 2020) particularly dedicated to Structural Health Monitoring in Aerospace (like Comphealth: www.comphealth.eu) and nuclear fields

Products | Services | Applications |Technologies

Structural Heath Monitoring

Acoustic Emission Test

Permeability Test

Helium Leak Test

CleanRoom Maintenance and refurbishing

Special facilities for cleanroom process (Vacuum, special gases, chemical), antivibrational frames. Prototyping.

Contact

Business Name

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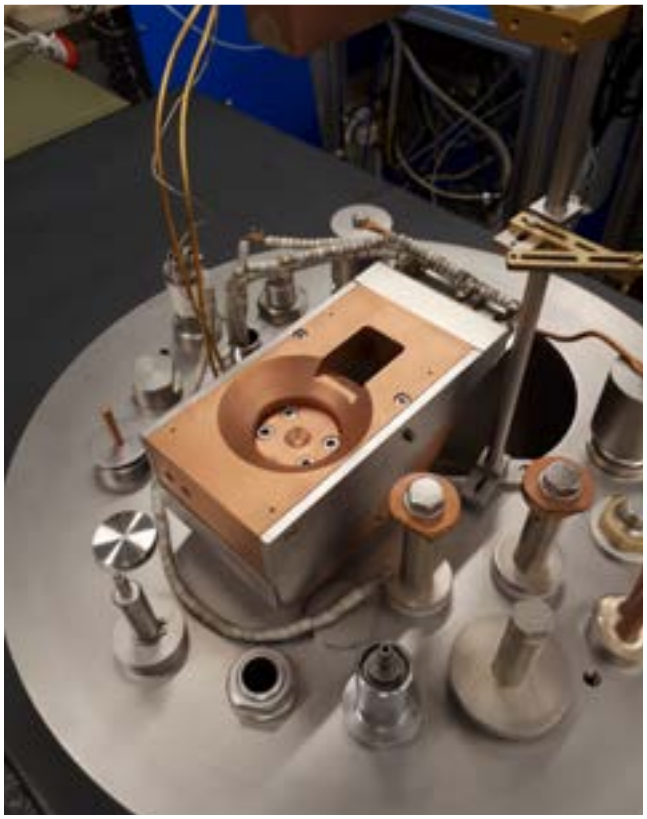
www.etssistemi.com/


CROWCON



EURO STAMP 1

Company profile

Euro Stamp 1 s.r.l. has been working since year 2000 in the engineering sector; we realize moulds, prototypes and sheet metal parts.

Our company is certified IATF 16949 for the automotive sector and ISO 9001 and qualified for ìprivacy and security of datasî.

Weíve created ìworkinsiemeî in July 2019, a business network at customer disposal to provide a complete flexible and professional production supply chain.

Our company takes advantage of a next-generation management system E.R.P. that permits us to interact with customers and suppliers, managing datas and informations in a controlled and efficient way.

Professionality and quality have allowed to Euro Stamp 1 to be a TIER 1 supplier for the customers that operate in automotive and earth-moving sectors. We are also a good supplier for aerospace sector and warehouse automation solutions.

Products | Services | Applications |Technologies

1. Design and construction of prototype moulds
2. Prototypes made of sheet steel, stainless steel, titanium, aluminum
3. Design and construction of definitive medium sized, blocked and/or (progressive) moulds for sheet metal.
4. Cold moulding of sheet metal
5. Processing of wire spark erosion and plunge spark erosion (EDM)
6. Bending of sheet metal up to 12 mm thickness
7. Working of pipes
8. Assembly
9. Welding: MIG (continuous wire), TIG (fusion and carry-over), projection (fixed welders and hanging welding machine)

EURO STAMP 1 s.r.l.

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Euro.Soft

Company profile

Euro.Soft field of work is a result of a number of years of experience in the design, prototyping and manufacturing of hardware and software in various fields of application. The small but dynamic workgroup (15 stable resources) collects within it various skills related to SW-HW design in terrestrial and space environments.

Euro.Soft was set up in 2000 and operates in the aerospace sector, particularly:

- Space software and electronics systems
- E-GSE, M-GSE and data acquisition equipment
- NavSat & TLC applications
- Earth Observation
- Ground systems - Astrophisics (telescopes) and antennas

The Company is certificated ISO 9001 and is compliant with the ECSS ESA standards. The company worked on several space programs as:

ESA: GOCE, EUROSKYWAY, EPDS, MIFE, SMS, TALED, STRETCH

ASI: COSMO SECOND GENERATION, COSMO SKYMED, IRENE, MIOSAT, NADIA, TELESAL, SIGRI, CIRANO, SIMDEO, SAR4Bat, OCEANSAT, MEMORIES.

OTHERS: UDRAGON (MISE), MISTRAL (DAC), PON EO (CC), MSS CPA (CIRA), EBW (AVIO), DEVILS (ROLLS ROYCE), SKA (SKAO).

Products | Services | Applications |Technologies

The Company is certificated ISO 9001:2000 and ISO 14000 and operated in conformity with the ECSS ESA (E40, Q80, M..) standards. R&D department is composed by engineers with know-how in development of HW/SW applications, aerospace platforms, research projects.

Euro.Soft has developed and managed several orders for public and private clients, both in Italy and abroad, demonstrating the ability to integrate different technologies: within the Space field participated, as TASI and Telespazioís sub-contractor, to the COSMO SKYMED program and to the Euroskyway, GOCE, ISS EPDS programs, in which developed land and flight HW/SW and participated to the design, testing and integration activities.

In collaboration with other companies, Euro.soft has participated in many space projects, including MINI-IRENE FLIGHT EXPERIMENT (MIFE), READI -FP (ISS experiment), CIRANO (Italian Vision for Moon Exploration), MIOSAT (Phase B design of a decomposable telescope: autofocus electronics), on board avionics (OBDH) for various programs conducted by the ALI consortium for small reentry satellites, funded by ASI (IRENE), ESA (SMS, IRENE SR, MIFE), MIUR/MISE (MISTRAL, UDRAGON, PM3).In the field of TLC/NAVSat/EO applications, Euro.Soft realized several systems, for municipalities and other authorities. In some cases, Euro.Soft assists and maintain those systems, including the system hosting and tele-maintenance.

In the space downstream application portfolio of the Company, we can mention the ESA and ASI projects: oneTcall (Satellite enabled smartphone VoIP TLC system), SATWORK (Covid-19 screening project), FBEYE (Fire Bombing EYE), TALED (TelecommunicAtion, Localization and real time Environment Detection), MISENO (GovSatCom applications), DIGICULT (fruition of ìcultural heritage spread in the territoryî), NADIA (Navigation for Disability Applications), SMARTGO, OCEANSAT, MEMORIES, ìVento e Portiî, AMICO (data fusion of ground data, NAVSAT, optics and radar satellite images, for maritime applications), SIMDEO, (landfill monitoring), SAR4BAT (marine archaeology), COAST (SAR coastal monitoring), SIGRI (Forest Fire Management), TELESAL (TLC e-health satellite applications), MISSION (maritime GNSS tracking).

Contact

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Chief executive

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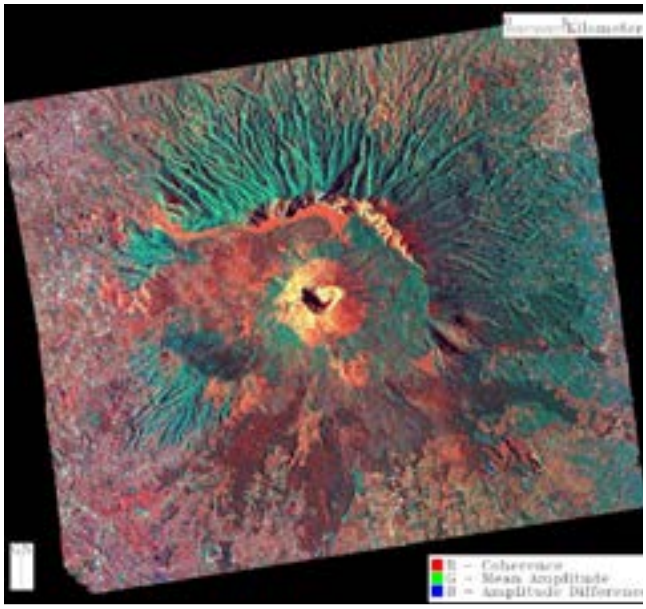
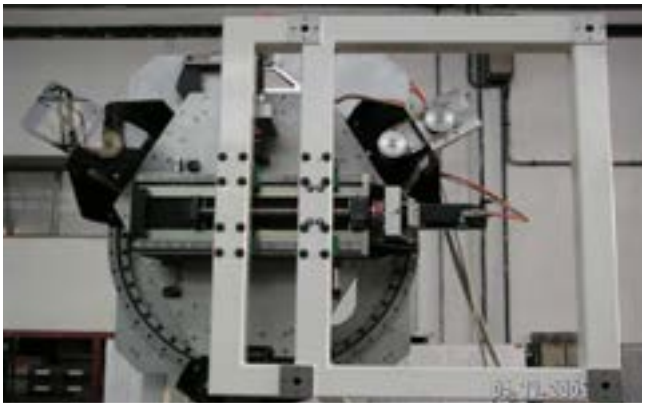
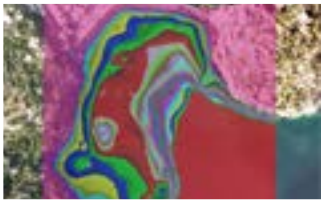

R = Coherence
G = Mean Amplitude
B = Amplitude Difference




SATWORK




Cruise
Airplanes
Industry
Yacht
onetcall
Call other passengers for free
Call home, call your friends, everywhere
Phone-calls where there is no service
Continue to use your phone, your number!
One touch your number everywhere

FlySight

Company profile

FlySight S.r.l. in a SME devoted to design and development of cutting-edge software solutions in the field of Decision Support Systems for aerospace, Defense & Security, civil infrastructures sectors.

The company, as part of theFlyby Group, has been established since 2020 inheriting twenty years of experience in satellite remote sensing and data analytics.

FlySight team is specialized in providing best in class software system formission planning, situational awareness, and debriefing in time critical applications.

The proposed solutions are based onArtificial Intelligence(AI) approaches, exploiting the latest cognitive signal processing and adaptivedata fusion algorithms.

Besides, FlySight adoptsdeep learningmethodologies together withAugmented Realitytechnologiesto provide its customers with disruptiveISTAR(Intelligence Surveillance Target Acquisition and Reconnaissance)systems.

Typical applications are inavionics,navalandunderwaterfields, in order to provide an improvedgeospatial situational awarenessboth for the on-ground and the on-board segments.

Real time PED (Processing Exploitation and Dissemination) is obtained by the integration of our solutions in already existing architectures, thanks to the interoperability of our systems with industrial standards used in both aerospace and Defense & Security sectors.

Products | Services | Applications |Technologies

OPENSIGHT is a multi-platform PED (Processing, Exploitation and Dissemination) system created to provide the best support in decision making. It integrates a geo-exploitation toolbox which represents a new environmental concept for mission data analysis and visualization.

This product is a modular cost-effective system, both for the on-ground segment and for the on-board one.

OPENSIGHTexploits real information in a synthetic environment forGeospatial Situational Awarenessand providesa new approach in the definition ofDecision Support Systemsas a component of theTMC(Tactical Mission Command)or as a tool for thereal-time mission analysis, enabling real-time collaboration in aCOP (Common Operating Picture)of the scenarios.

OPENSIGHT has been developed following the STANAG guidelines and rules through more than 10 years of experience, gained from working on interfacing software tools for airborne data sensors and avionics information processing.

KEY FEATURES:

- Independent platforms (workstation, desktop or mobile, all operative systems)
- Modular plugins (each plugin is exportable as a standalone application or library)
- Fully customizable and extensible through a simple SDK (Software Development Kit) for specific applications

REALITY PROCESSING:

- Real information exploiting in a synthetic environment for scenarios analysis and forecasting
- Simultaneous GIS and 3D graphic rendering capabilities
- Real-time and mission archived data visualization and management

OPEN SOFTWARE LICENSE:

- Anything can be customized.
- Any new functionality can be added.

OPENSIGHT TURNKEY SOLUTIONS:

OPENSIGHT-mc

OPENSIGHT-Mission Console is the turnkey solution for airborne platforms.

It exploits on-board equipment information in an Augmented Reality environment to enable geospatial situational awareness on on-board tactical displays.

Contact

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OPENSIGHT-ac

OPENSIGHT-Analysis Console is the turnkey solution for the on-ground mission management. It exploits a geographic exploitation toolbox, providing the best real-time Processing Exploitation and Dissemination features for the Defense and Security market. It allows for adaptive information processing and distribution to support Command and Control operations.

OPENSIGHT-ud

OPENSIGHT-Underwater Optronic Mast Console is the turnkey solution for electro-optical data processing. It provides special functions for data enhancing in a situational awareness environment and it is specifically designed for the underwater environment.

VELOPMENT TOOLS:

OPENSIGHT-sdk

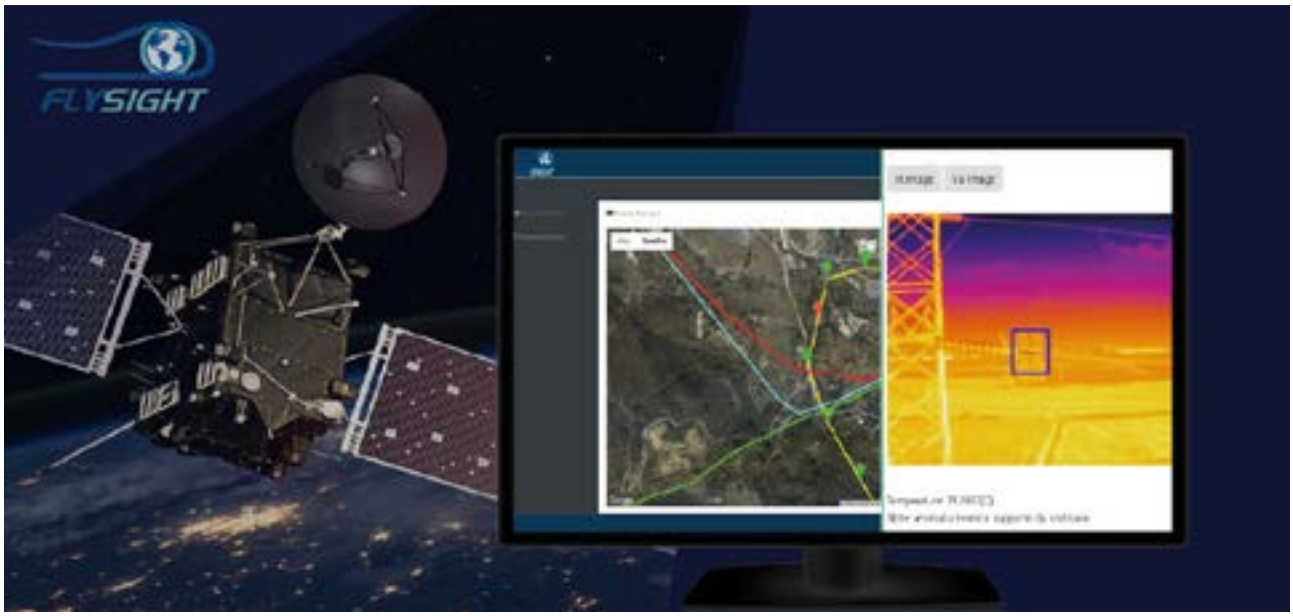
This is the solution created to enable an innovative approach to the development of new Intelligence,Surveillance and Reconnaissance. Exploiting its tools, it enables solutions for real-time mission analysis and dissemination in a COP (Common Operating Picture).

OPENSIGHT-ars

It is the Software Development Kit created to allow for integration of Augmented and mixed Reality contents in existing legacy systems.

OPENSIGHT-atr

It is the solution aimed to exploit innovative deep learning approach for the detection, classification, and identification of targets from images or video.



G & A ENGINEERING

Company profile

G & A Engineering S.r.l. is a small company operating for over 45 years in defense and aerospace sectors, located in a modern plant in Oricola (AQ) structured to meet the needs arising from research, design, engineering, experimentation, prototyping and series construction, that the company carries out in military, space, industrial sectors.

The company has the following certifications: ISO 9001:2015, ISO 14001:2015, SA 8000:2015, Innovative SME, Private Research Center for Microelectronics for Space Application, Private Research Laboratory.

The company has several workshops with tools, machines and equipment of the latest generation that, together with the company know-how and qualified and multidisciplinary staff, have allowed to consolidate high-level technologies and processes that allow to operate in very challenging sectors and that make it independent in passing from an idea to a finished product. Over the years the company has consolidated a structure able to guarantee the sale of services and products at all stages of their ìLife Cycleî, carrying out research, design, engineering, industrialization, manufacturing and logistics activities, integrated with the continuous application of all the standards typical of space, military and industrial sectors.

Unique and peculiar characteristic of the Company is the ability to design and build ìSpecial Equipmentî, custom designed devices built with criteria that make a prototype comparable, for finishes and construction features, with an industrialized product; these special equipment typically include electronic, microelectronic and electrical technologies as well as mechanical, pneumatic, hydraulic, vacuum, etc ...; beyond that, the company is known on the market for its ability to cooperate with the world of research and the ability to make experimental systems indistinguishable from industrial systems.

Products | Services | Applications |Technologies

The company competence are all those necessary for analog and digital electronic and microelectronic, mechanic and micromechanics, electro-mechanic, vacuum , hydraulic, pneumatic, else that software & firmware.

In the space sector, the company participated in the two largest physics experiments ever carried out: AMS-02 and GLAST/Fermi, building the silicon heart of the experiments, under NASA control. We made more than 1 million wire bonds without failure.

With the co-financing the Ministry of Manufacturing Activities we developed an entire micro-satellite (GEASAT) using state-of-the-art technologies and developing all the subsystems. The characteristics of such this satellite is that all subsystems are positioned on the satelliteís side wall, leaving the entire bus available for payload.

Else this microsatellite we have developed and manufactured also some cubesat 1U and 3U, for universities and research activities.

The company participated with its own experiments in two space missions aboard the ISS, Eneide Mission with the EST experiment and DaMa Mission with the APE experiment, as well as having engineered and built other experiments for flight and ground space.

We successfully had direct contracts with the Italian Space Agency and with the European Space Agency, else that with national research institutes.

The company proposes itself in the space market with the following products and services:

- Development and construction of special equipment for space experiments
- Providing custom components for mini and micro satellite buses
- Providing cubesat satellites and standard cubesat parts
- Development and construction of battery packs for satellites and launchers

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GEM elettronica

Company profile

Since1977 GEM elettronica has been on the cutting edge of R&D, design and manufacturing of electronic systems dedicated to the naval, air and land defence & security, costal surveillance and civil market.

As a leading industry in its sector, GEM elettronica has developed an extensive portfolio of products, services and solutions ranging from military defence to civil security which features state-of-the-art technologies and innovative designs.

Thanks to its groundbreaking technical approaches and high product reliability, GEM elettronica has become the supplier of choice for several international navies, coast guards, air force, commercial operators and large system integrators.

The core business is focused on the construction of radar and inertial navigation systems with particular attention to space and maritime applications.

One of the strengths concerns the creation of custom systems for civil and military applications.

GEM elettronica is based in the Marche Region with the Headquarter and R&D facility, its Far-Field test range and its modern production plant.

GEM elettronica is also recognized as a Scientific and Technological Research Center and possess :

- ISO9001:2015 Company Quality Assurance System
- ISO 14001:2015 Environmental Management System
- CMMIÆ3 in progress Appraisal Methodology for Process Improvement
- MIUR Scientific and Technological Research
- RINA Certified Management System
- Wheelmark
- CE
- DNV-GL
- Nemko
- IALA
- WSV.de

Products | Services | Applications |Technologies

GEM elettronica combining years of experience in advanced sensor technology, system integration and software design providing reliable and cost-effective solutions for onboard Command & Control, maritime and harbour security, coastal surveillance and border control. Product line provides a wide range of full solid state 3D radar, navigation radar systems with Low Probability of Intercept (LPI) capability, field radar, Tactical Table, a series of Command and Control Consoles, W-ECDIS, Electro-Optic & Fire Control Systems, Integrated Bridge Systems, Inertial Systems based on Fiber Optic gyroscopes and relevant ancillaries.

FIBER-OPTIC INERTIAL NAVIGATION SYSTEMS

The strap-down inertial navigation system based on state-of-the-art Fiber Optic gyroscopes technology offers a highly reliable solution for: Air and Space, Sea and Under Sea, Land and Underground applications.

GEM elettronica is focusing its research on atomic interferometry, commonly known as ìultra-cold atomî, with the objective of obtaining from its sensors accuracies and performances.

GEM elettronica offers high-precision guidance, navigation and positioning systems technology.

We offer inertial sensors that can be used in avionics and spacecraft applications for navigation and flight control. They utilize closed loop sensor Fiber Optic technology to produce data output (attitude, heading, speed, pitch, roll, yawÔ) with great precision and accuracy, including mission control and flight control systems.

They feature short start-up, very low drift, high stabilization and high shock survivability.

These products can be integrated into complex systems like command and control systems. Our Company provides its customers with solutions tailored to their needs and these capabilities are offered and supported worldwide.

GEM elettronicaís Fiber Optic gyroscopes production facility is certified to EASA Part 21G.

RADARS

GEM elettronica thanks to its 40+ years of experience can provide a wide range of full solid-state navigation radar systems with Low Probability Intercept (LPI) capabilities.

We offer full solid-state 3D and 2D radars, mono or dual band, in different frequency spectrums, for navigation, air & surface target detection, search & discovery, coastal surveillance, VTS/VTMIS applications, homeland & border security, environmental control (Oil Spill), critical infrastructure & anti-intrusion protection.

Our 3D radar is a compact and advanced, short-medium range, Air & Surface multifunction, proposed primarily for Naval Platforms and Land-based operations demanding

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high detection performances, high reliability and availability.

It is specifically designed for search and tracking of very small and fast targets flying at both high/low altitudes and/or on the sea surface (UAV).

GEM elettronica provides advanced radar antennas series of different length and performance, offering a solution to every possible scenario. Our production of radar antennas is the answer to the most demanding requirements of high performances of radar detection of air & surface targets and are designed for vessel traffic management (IALAV-128recommendation), coastal and harbour surveillance and airport security traffic movement.

ELECTRO-OPTIC SYSTEMS

GEM elettronica Electro-Optical Surveillance Systems (EOSS), designed for shore and on-board applications such as SAR (Search-and-Rescue) and day/night Optical Surveillance, allow passive target detection and identification.

Our EOSS can be supplied in many configurations and are also suitable for long-range surveillance applications; continuous Nx360 azimuth rotation is achieved using a slip-ring.

As homeland security systems are suitable for land, mobile and sea applications and provide real-time image processing, monitoring, detection and visualization of the targets also under bad weather conditions.

They can be used in various applications such as border and coastal surveillance, infrastructure protection, maritime, transportation, fire detection, OEM solutions.

GEM elettronica offer a Active Laser Imaging System (ALI), either as stand alone system or as integral part of a surveillance suite

ILS

GEM elettronica provide complete logistic support services worldwide, including system installation, system acceptance testing and commissioning. To ensure effective operation of your onboard system, we can develop and deliver training programs, maintenance programs, warranty support services, after-warranty plans, and system and software upgrades.

TRAINING & SIMULATION

To meet your specific training requirements we offer both standard and tailor made courses that teach the use and maintenance of our products.

Our courses are designed to give participants a deep understanding and detailed product knowledge with in each course curriculum. Courses may include both operational and technical training.

GEO-K

Company profile

Born in 2006, it is the commercial vehicle through which the scientific know-how developed by the Universityís Earth Observation Laboratory is made available to public and private initiatives in the form of user-oriented applications.

Immediately after its foundation GEO-K was incubated within ESA-ESRIN where a new technology, based on artificial neural networks for the processing of satellite data, was further developed.

In 2007, GEO-K was awarded the ISO 9001:2008 certification for ìDesign and development of satellite data processing components for GeoInformation production". The certification has been constantly renewed every year

GEO-K has been involved in contracts with national (ISPRA, ASI) and international (ESA) institutions for the exploitation of EO data. Currently, it is one of the pertners of the Phi-Sat 2 mission, the ESA mission aiming at demonstrating the capabilities of artificial intelligence (AI) technology for Earth observation. The company has also acquired experience in providing educational sessions in EO, mainly addressing companies or technical groups.

Often GEO-K exports its technology and know -how to other fields of engineering not strictly related to EO. In the past, consultancy has been provided for Automatic Incident Detection problems, Solar Energy Devices and Electromagnetic Pollution analysis.

Products | Services | Applications |Technologies

EO Software development - For more than 15 years now, GEO-K has been conducting a variety of Earth-Observation application-development projects leveraging the use of radar and optical data to generate thematic maps, hydrocarbon pollution maps and update land use classification. One such software is Neumapper, which processes remotely sensed imagery using an artificial neural network computational model.

Change Detection - Change detection is an automated process that generally consists of comparing images acquired on two or more different dates. A recent image can also be compared to a geospatial database to spot differences, mainly in terms of the size of mapped linear or surface features. Our change detection services are used to: Assess logging activities caused by forest fires and etc.; monitor urban sprawl and wetlands; detect cm-scale surface movements impacting critical infrastructures.

Precision Farming ñ GEO-K provides you with make use of satellite images acquired during the growing season to generate various agricultural diagnostic tools. Satellite imagery such as RadipEye are especially suited to such a need because of the possibility of acquiring images several times a week. Crop yield diagnostic tools can be used to: access plant growth stage and ground cover; produce a vegetation index to indicate crop vigour; produce economic yield maps.

Natural Disasters - Following natural disasters such as floods or earthquakes, GEO-K may give the authorities in charge images and map information useful for people in the field by: extracting tactical information for emergency situations; providing expertise in the use of radar images in case of heavy cloud cover, particularly for floods.

Thematic Mapping - The combination of satellite optical and radar acquisitions at various spatial resolutions with powerful automatic image processing techniques facilitates the frequent generation of updated worldwide cartography at different scales. During the data production process, one of our thematic specialists extracts the information directly from satellite imagery by using machine learning algorithms. Our thematic mapping services include: land use mapping; eco-forestry mapping; geomorphological mapping;

Image Processing with artificial intelligence - Satellite images abound in information that is sometimes hard to interpret and synthesize; they need additional processing to extract information relevant to the user. We carry out several types of image processing based on artificial intelligence to facilitate information extraction. Besides the spectral values of pixels, the object based approach defines and takes into account many of an objectís features. Applied to ocean monitoring, this approach can, for example, detect ships and oil spills in a radar image.

Drones - The last frontier for imaging and soil data acquisition: drones represent the new way to look down on. GEO-K has achieved the ENAC (the Italian institution for civil aviation) licence to use these versatile devices.

Apps - With modern mobile devices, it is possible to use satellite data smartly thanks to the on line applications. GEO-K has already developed two apps for meteorology and geographic edutainment. Many other applications can be developed: satellite data - and more generally images - permit a territory and its institutions adaptable study.

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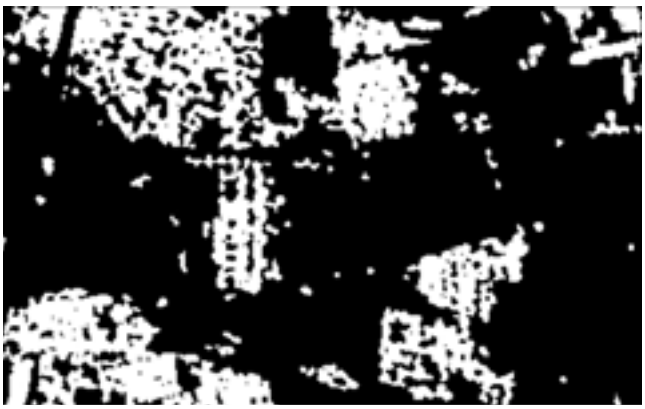

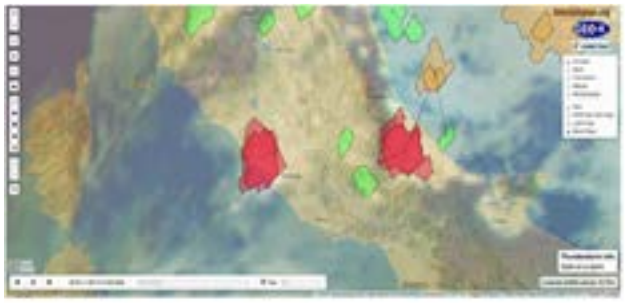

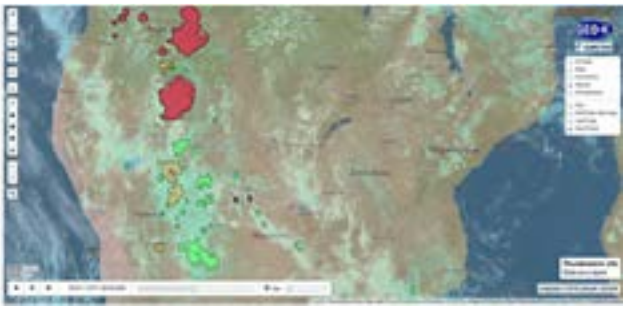


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A F R I C
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Geomatics Research & Development (GReD)

Company profile

Geomatics Research & Development (GReD) is a SME, founded in 2012 as a spin-off of Politecnico di Milano University, that studies, designs and implements innovative and highly customized solutions based on geodesy and geomatics techniques.

GReD's staff is composed of professionals holding PhD degrees by Politecnico di Milano, providing the company with the knowledge and method necessary to tackle complex problems and solve them by means of innovative value-added solutions.

GReD primary objective is to take to the market, with passion and competence, our R&D experience cultivated at Politecnico di Milano in the following application areas:

- GNSS monitoring applications;?
- Gravimetric applications for geophysical exploration;?
- Physical phenomena modelling and data analysis.

ìGReD is a spin-off of Politecnico di Milano, born in the framework of the PhD course on Geodesy and Geomatics (later Geomatics and Infrastructures), as an agreement between myself and four of the Doctors that got their degree between 2009 and 2011. The idea was that there was too much competence built in several branches in Geodesy and Geomatics, to let it be dispersed in the general market. The previous experience with some leading companies in the area, like ESRI Italia, convinced us and the partners that, with a wise management of competence and a serious engagement in transforming ideas into products of industrial value, we could afford the gamble of founding a company having a significant probability of success. Furthermore, matters like the analysis and interpretation of the gravity field, the analysis of GNSS data to monitor the environment (including atmospheric sounding) and structures/infrastructures not only required a high level of competence on the existing techniques but also a capability of developing and implementing new ideas at the frontline of research and maybe a little beyond.î

Fernando SansÚ, GReD President

Products | Services | Applications |Technologies

In the field of GNSS displacement and monitoring, GReD started an end-to-end monitoring service to detect deformations of critical infrastructure and ground movements, based on cost-effective GNSS instruments. The monitoring service, called GeoGuard, is successfully applied to high-voltage power line towers, dams, bridges, and landslides. GReDledthe H2020 project GIMS, on the development of an innovative system to monitor landslides, integrating low-cost GNSS, low-cost SAR active transponders and low-cost inertial measurement units.

GReD GNSS activities include also tropospheric delay monitoring from either geodetic or low-cost stations, for meteorological applications. For this purpose, GReD participated to three H2020 projects (BRIGAID, TWIGA and SINOPTICA), one ESA project (STEAM), one EUROSTARS project (EDWIGE), and one Fondazione Cariplo project (LAMPO).

Regarding Gravity Field modelling and inversion, GReD provides custom development of innovative methodologies and advanced software for the acquisition, processing, and inversion of gravity and magnetic data for geophysical exploration. We also provide services, developed in the framework of the ESA Space Solution Programme with the support of ASI, including gravity and magnetic data processing, analysis, and interpretationgeophysical interpretation for oil&gas exploration.

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GEOPHYSICAL APPLICATION PROCESSING (GAP)

Company profile

Geophysical Applications Processing s.r.l., innovative SME, born as a spin-off company of Politecnico di Bari, Italy, on February 2006, whose mission is to develop products, processes and services with technological and scientific value in the fields of satellite remote sensing, stereo vision and biomedical research, and related software/ hardware technologies. The company is also able to provide scientific and technical trainings in the same fields.

The educational and research background of the spin-off company is based on scientific results achieved, over the last twenty years, by the Remote Sensing Group of the Department of Physics of Bari, and the Institute for high studies on Intelligent Automation Systems (ISSIA) of the National Council of Research (CNR) of Bari, in the framework of research projects funded by national and international space agencies (ASI, ESA, NASA) as well as by the European Commission.

Shareholders of GAP are Polytechnic of Bari, Planetek Italia s.r.l., SITAEL s.p.a., three professors of the Polytechnic of Bari, one professor of the University of Bari and four researchers of CNR.

GAP is member of the Association of Italian Small and Medium Aerospace Enterprises (AIPAS) and the Apulian Aerospace District, an association recognized on 2009 by a regional law that operates to reinforce and consolidate the competitiveness of regional aerospace products, in both national and international markets. The policy of the district aims on the one hand at reinforcing the integration and synergies between large and small & medium enterprises, and on the other hand at increasing and promoting its competence in research and vocational training throughout the entire country.

GAP offers a wide range of products and services for environmental monitoring and mapping through remote sensing techniques as well as in situ measurements. Here below the main areas of competence:

- Radar Satellite Remote Sensing
- VIS/NIR Satellite Remote Sensing
- UAV technologies for Photogrammetry and Remote Sensing
- Meteorological services
- Other areas

The long-term experience in the field of digital signal processing has enabled the transfer of GAP algorithms, developed for remote sensing, in other areas where advanced techniques are required for digital processing of data.

Products | Services | Applications |Technologies

GAP provides the following products and services characterized by high level of innovation and scientific/technological contents in the field of remote sensing and the related hardware and software technologies:

- production, marketing and customer service
- feasibility studies, designing, developing and prototyping of innovative procedures for digital signal processing (DSP) dedicated in particular to satellite remote sensed data; training activities dedicated to the product users;
- activities of research and development aimed at updating the scientific knowledge in the specific fields of interest.

GAP expertise is based on Digital Signal Processing Techniques (Assembly, Fortran, C, Python, Matlab programming) applied to remote sensed data.

These techniques are used to:

- Monitor and study of terrain displacements (earthquakes, landslides, subsidence)
- Monitor building stability ï Monitor the risk of fire in critical areas
- Produce Digital Elevation Models ï Perform water quality analysis
- Weather Forecasts
- Detection of fishing zones

For each of these products, GAP has:

- the expertise to select the right combination of sensors and data sets;
- the tools to process remote sensed data;
- the skills to devise and develop ad hoc tools for a specific problem.

Contact

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GEOPHYSICAL APPLICATION PROCESSING (GAP) srl

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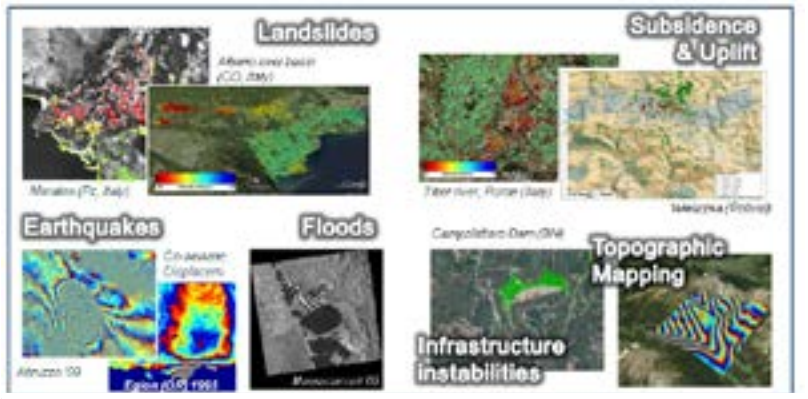
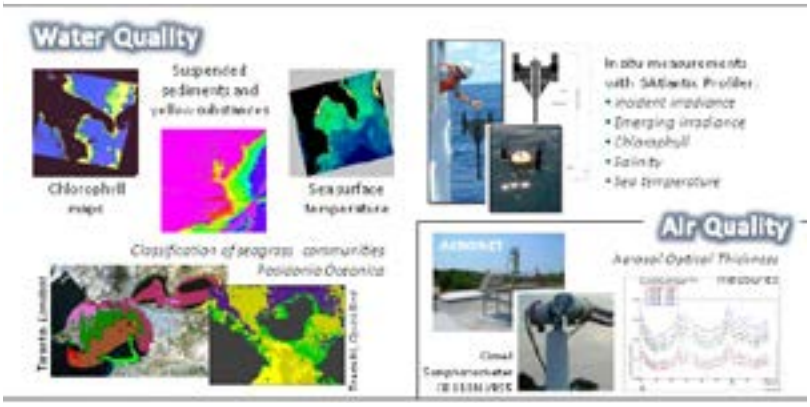
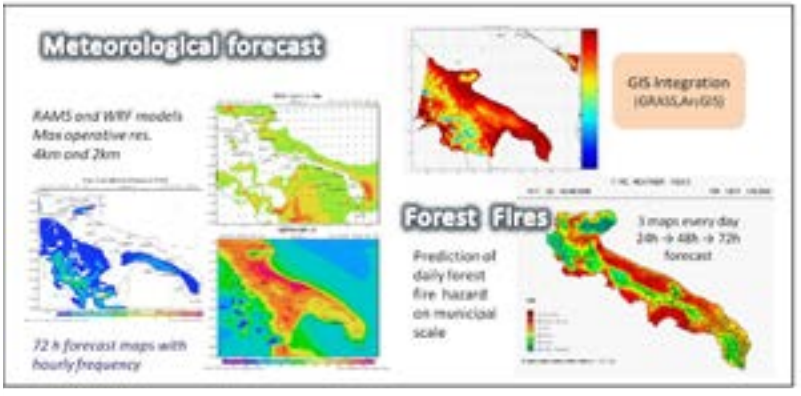
Of particular importance is the GAP expertise concerning the processing of data acquired by Synthetic Aperture Radars (SAR) with particular emphasis on Differential SAR Interferometry. This technique has been successfully applied to obtain topographic maps and study ground displacements with an accuracy of 1 mm/year. One of the major interests of the group is the assessment of EO-based methodologies to produce landslide early-warning maps, which rely on the detection of temporal changes of slope-related surface factors, associated with static landslide susceptibility mapping. The use of these advanced techniques applied to multi-temporal series of acquisitions is essential in this field of applications to detect small-scale phenomena such as slope and building instabilities using the Persistent/Distributed Scatterers (PS/DS) with sufficient spatial density. GAP has implemented a Multi Temporal Interferometry software, named SPINUA and based on PS/DS techniques, able to process multi-temporal series of acquisitions for the monitoring of building and terrain instabilities (seismic displacements, landslides, subsidence phenomena) even in scarcely urbanized areas. SPINUA software implements a proprietary version of the PS/DS techniques. It is able to process L, C and X-Band satellite data and has been successfully tested in many research activities as in the LEWIS (FP-V) and MORFEO (ASI) projects and in many case studies (Haiti, USA, China, Italy, Israel, Poland, Oman, etc.) concerning the monitoring of subsidence, landslides, earthquakes and infrastructures instabilities.







g-nous

Company profile

g-nous is a privately owned Italian company providing business and technology services in the space sector with a focus on downstream projects and on sustainability-oriented applications.

Aiming at building the bridge between space solutions and terrestrial applications, g-nous generates synergies by developing space-based innovation platforms for the creation of sustainable products and services involving the integration of space assets and the most advanced land and marine technologies applicable to different terrestrial verticals.Specifically, g-nous develops new solutions and applications enabled by space-based technologies in the following fields and frameworks: Healthcare, Blue Economy, Agritech & Food, Energy, Environment and Smart Cities.

g-nous matured a consolidated expertise in the design and development of entrepreneurial initiatives, building and leading multi-stakeholder coalitions, structuring and animating communities, connecting business ecosystems, creating cross-sectorial partnerships and multidisciplinary synergies.

The activities are space, innovation, and sustainability - driven and, in line with the United Nations SDGs Agenda 2030, bring together the key dimensions of sustainable development to create shared value in the long term - from technology to business ecosystems.

- Space: from strategic planning to targeted support, g-nous provides years of experience and expertise in the space sector to handle a broad spectrum of innovative projects. Aware of the disruptive impact of space-derived technologies on business and societies (and vice versa), g-nous takes space-based projects from vision to completion while minimising hurdles and maximising value.
- Innovation: one of the greatest challenges for todayís organisations is when businesses want to remain relevant whilst everything around them is changing. g-nousí team helps companies to unleash their potential leveraging on resilience, implementing a holistic and multi-stakeholder approach for effective fast and flawless execution of business innovation processes.
- Sustainability: g-nousí approach focuses to unveil innovative perspectives forsustainable developments, providing reliable solutions for the proper use of resources and for the evaluation of outputs in terms of economic, social, and environmental impacts.

Products | Services | Applications |Technologies

Project Leadership

g-nous designs agile processes and deliver holistic services for venture building: the integrated approach permits to handle multidisciplinary technology challenges, leveraging on open innovation networks to generate business solutions. g-nous leads innovative business projects, collaborating with companies, institutions and entrepreneurs coming from different industry and sectors, to raise flawless networks and out-of-the-box businesses in response to market needs, from technology feasibility to industrialization and business launch.

Core acitivities:

- Cross-sectorial opportunities development for innovative applications
- Ecosystem of technological and sectorial partners.
- Feasibility assessment, business plan and go-to-market.
- Human and intellectual resources for business start-up.
- Connection with investors and institutional partners for funding.

Stakeholders Engagement

g-nous designs thematic initiatives through platform thinking in support of companies and institutions struggling in reaching out their targeted audience. This approach enables g-nous to act as a multi-stakeholder platform, building and animating communities in different verticals by designing stakeholder-stimulation initiatives.

Core activities:

- Thematic events with high-level speakers.

Contact

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- PR and communication strategy and plans.
- Community building and animation.
- Conceptualisation and management of physical and virtual platforms for match-making.
- Tailored market-stimulation programmes.

Technology Integration

g-nous integrates space assets with terrestrial (marine included) technologies for the development of sustainable products.

The tech division aims at providing end-to-end solutions by combining R&D, trade-off analyses, scouting, and integration of space and Earth high-technologies.

g-nous devises integrated solutions that leverage on different approaches and technologies, such as Artificial Intelligence, Machine Learning, space data analysis, Internet of Things, business intelligence, agile software development, advanced manufacturing, robotic automation.

Core areas of expertise:

- Design and development of AI-based algorithms for data regression, classification and prediction.
- Development of technological solutions based on the analysis of satellite observations (SatEO) by means of advanced algorithms (e.g. object detection and classification).
- Development of data visualisation techniques to gain insight and find hidden patterns in data for business intelligence.
- In-line control and data analysis of advanced manufacturing processes, for performance evaluation, predictive maintenance, and Decision Support System (DSS) to improve process productivity, quality and efficiency (Industry 4.0).
- Assessment, design, and development of new products, leveraging on satellite-based data, mechanical and automated systems, IoT, computer-vision, and AI technologies.

GP Advanced Projects

Company profile

GP Advanced Projects is an innovative SME active in both production and management of space projects. The company has qualified its proprietary pico-satellite platform able to perform IoT/IoV activities in LEO, which allowed further growth toward technology readiness and development.

In addition, thanks to its experience in project & innovation management, GP Advanced Projects enabled different non-space companies and institutions entering the space sector; the company is also actively engaged in scientific projects for both ESA and NASA.

All of this, has been made possible by a passionate team of young engineers and managers, based in Brescia, at the crossroad between Milan and Venice.

Products | Services | Applications |Technologies

GP Advanced Projects focuses on innovative projects about cutting edge technologies in the space field and on the terrestrial applications of space technologies. Moreover, the company offers consultancy support to help companies and institutions in entering the space field and provides support in designing and developing space components and systems.

The company is active in the development of nanosatellites and their subsystems, enabling the delivery to clients of proprietary platforms for LEO missions, or profitable data gathered from orbit. Applications areas are, for example, IoT, smart farming, air traffic and navigation control.

This is possible thanks to the development and improvement of our pico-platform technology, validated in space through a first mission (FEES), launched in March 2021 and currently operative, which enabled us to validate our systems, and our customers to trust solutions they can certainly rely on. Such technology will be further confirmed with a second mission planned for later this year and expanded into evolved solutions:

- VIVa is a cubesat platform characterized by a high V/V ratio, since the operational architecture is condensed in a 0.3U volume.
- PiCo is a swarm of nine 1/3U cubesats ready for private launch and space projects.

Additionally, the company product portfolio showcases:

- System engineering and management support on different scientific projects for both ESA and NASA;
- Development of innovative space components, such as:
- MBF401: single main-board which embeds the majority of a satellite subsystems such as: OBC, EPS, memory redundancy and latch up protections, attitude control with redundant IMUs, thermal control. On request, the following feature can also be added: TT&C, TID radiation monitoring.
- WAMS: an monolithic silicon-only, reliable and highly scalable sun sensor with up to 170∞ field of view. It can be easily integrated as a standalone device or as part of our Cubesat Solar Panel.
- Solar panels following Cubesat standards including temperature and fine sun sensor. They host triple junction solar cells, and are developed following Cubesat standards dimensions;
- POD: a 3U+ cubesat deployer, able to deliver your product in orbit with zero momentum.

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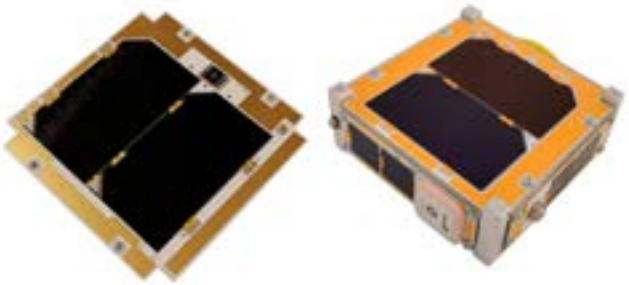

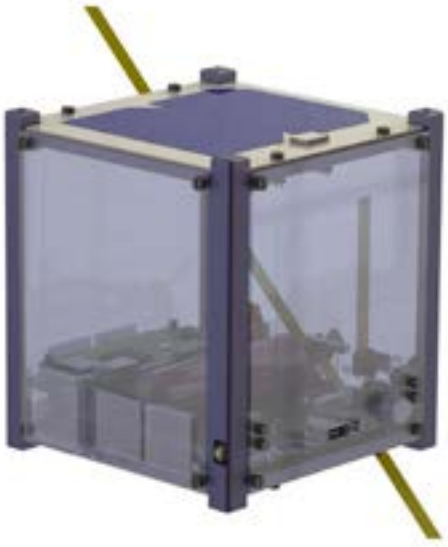

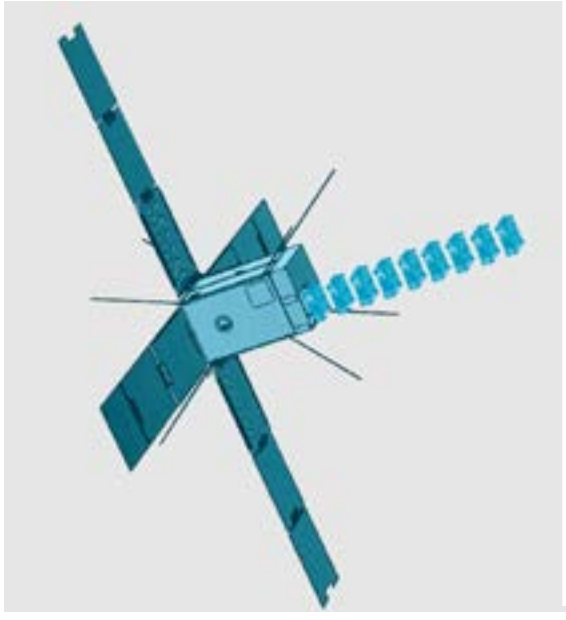

Gter

Company profile

Gter s.r.l. Innovazione in Geomatica, Gnss e Gis (Gter) is a SME that offers products and services based on innovative solutions based upon GNSS positioning and GIS and WebGIS fully Open Source. The activity also includes technical support for all products, both onsite and remotely.

In GNSS area is concentrated most of the R&D activity of the company. Gter projects and develops algorithm for precise positioning in harsh environment, also with mass market receivers.

In GIS area Gter develops custom made Spatial Data Infrastructure mainly for public bodies.

Gter offers practical and theoretical training courses in GIS, GNSS, EO areas.

Finally Gter is cofounder of LIDAR ITALIA, a consortium that is Italian partner of GreenValleyInternational, a company leader in the field of LIDAR from UAV products

Products | Services | Applications |Technologies

GREP: patent pending algorithm for multipath mitigation in GNSS observables. In this field Gter has skills and project to create new devices, based on GNSS and IMU sensors, for robust positioning. The fields of application are very heterogeneous: wearable devices, tracking system for safety, precision agriculture and so on.

GISHOSTING: Geographical hosting service, based upon QGISServer.

LIDAR: HW and SW for LIDAR survey from UAV, generation of DTM, DSM and 3D models of urban and natural environment

E-learning platform for custom made courses on QGIS, RTKLIB, GeoDB

Design and development service for Spatial Data Infrastructure, web based, for management of EO data, digital cartography, data coming from sensors both in real time and in post processing.

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Guizzo Space

Company profile

Guizzo Space is a company working in the space related activities from 2018, founded by Dr. Gian Paolo Guizzo which brought his 25 years of experience in the field together a network of highly experienced international partners.

We provide space qualified electronic boards and units for nano and microsatellites, with professionalism and competence thanks to the profound experience of our human resources highly skilled in space technologies. The products provided are conceived to meet the needs of high reliability applications where failure is not an option, and at the same time working with a view to containing costs.

Products | Services | Applications |Technologies

Our flight products are conceived for nano, micro and small satellites with application in the field of optical telecomunication, scientific payloads and robotics.

An example of our products portfolio is:

- Laser driver boards
- Highly performant FPGA boards based on Xilinx and Microsemi devices
- Microcontroller boards based on CPU Arm Cortex core
- Piezoelectric actuators driver boards
- Power boards
- Application and basic SW for microcontrollers
- FPGA IP cores
- Stackable boards solutions

We provide solutions from a single board solution to the full electronic equipment for payloads and spacecrafts.

In addition the company provides services to Customers which require support on:

- FMECA analysis
- Worst Case Analysis
- Reliability Analysis
- Trade off analysis and system engineering assessment

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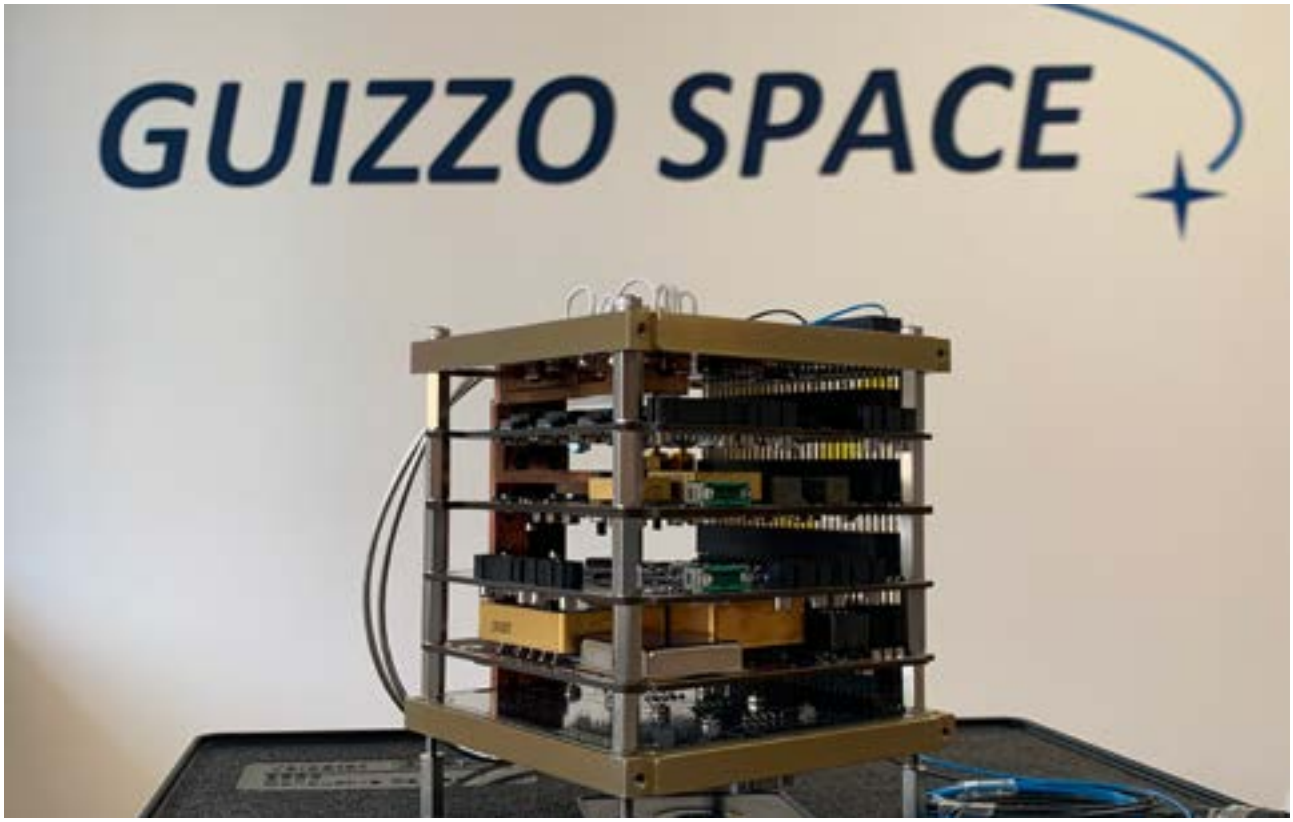
GUIZZO SPACE

HTT

Company profile

HTT is a SME focussed on design, manufacture and value added services of HiRel & VHiRel Custom MAGNETIC DEVICES and POWER ELECTRONIC EQUIPMENTS for Aerospace, Space and Defense.

With over 30 years of extensive hardware design and manufacturing experience, our team is able to offer t-key solutions and problem solving in collaboration with main research institutes and universities for the Industry players across Europe.

Products | Services | Applications |Technologies

HTT is a SME focussed on design, manufacture and value added services of HiRel & VHiRel Custom MAGNETIC DEVICES and POWER ELECTRONIC EQUIPMENTS for Aerospace and Defense.

With over 30 years of extensive hardware/software design and manufacturing experience, our team is able to offer t-key solutions and problem solving in collaboration with main research institutes and universities for the industry players across Europe.

HTT is able to achieve most critical requirements offering also build to print/spec, reverse engineering and fast prototype services.

HTT supports customers and partners from the very first design stages with a 360∞ cooperative approach, long term heritage in design and manufacture projects, innovative products and solutions with high value added.

HTT value proposition involve Design, Reverse Engineering and Manufacture of Custom Transformers and Inductors.

HTT takes part in some of the most important Aerospace and Defense international programs such as, Eurofighter, F35, Tornado, M346, Mirage, Gripen, M35, B787, A320, A350, EH101, NH90, AW149, T129, AW609, Aster, IrisT, Ariete, Centauro, Leopard2, T90, Empar, FADR, Black shark, FREE; PPA, Gaia, Sentinel, Helios, ExoMars, Egnos and many others in partnership with worldwide companies.

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15 01 2009

i-EM

Company profile

i-EM is theintelligenceinEnergyManagement.

Since 2012our company has been developingenergy management solutionsforrenewables projects. We provide public and private players withcustomized servicesin the following areas:

distributed generation from renewable sources

smart grid and energy storage systems

energy efficiency solutions

energy consumption control and optimization

electric vehicles and sustainable mobility.

Born as a business unit of Flyby S.r.l. company, i-EM is now a SME subsidiary of Flyby Group and combines multi-disciplinary expertise with passion for technology innovation and preservation of the Earthís energy resources. i-EM exploits satellite data to bring the intelligence in the Energy Management, providing innovative solutions based on advanced analytics by satellite data awareness, created to optimize energy generation, storage, transmission, and use. Today i-EM works in the global market directly with many different corporate customers. Over the years it has established itself as a leader in the energy decision making.

i-EMmakestheenergy ecosystem more predictableandmanageable, providingadvanced big data analytics powered solutionsfor intelligent energy management ofsmart grid, enablingthe optimization of energydecision making. Our productsexploit a deepknowledge of satellite data, combined todata fusionandcutting-edge big data analytics technologies.

The main application sectors of i-EMís solutions are:smart gridmanagement,renewable plants monitoring(solar, wind, hydro),assetsmanagement, energyforecastingande-Mobility.

The Companyísinnovative flagship solutionsare smart, simple, and fast, andhelp our customersto discover a new way touseandmanage energy, all over the world.

Products | Services | Applications |Technologies

The concept at the basis of i-EM is the use in-field of the IoT energy systems and the use of satellite assets to provide innovative solutions in the energy management services market sector.

i-EMís key technological and know-how proprietary assets include:

- EO Satellite image processing for solar and wind resources assessment
- AI and Machine learning
- Weather and energy forecast models and data assimilation
- Big data analytics for predictive and prescriptive models

In the EO satellite domain, the i-EM approach is to fully use EO satellite resources for different time scale solutions.

The i-EM specific know-how allows the customers to efficiently and constantly plan, design and manage their energy assets, using the following key services:

- economic feasibility studies;
- real-time monitoring, remote management, and diagnostic of distributed generation;
- production forecasting and optimization of energy management;
- energy consumption and storage optimization;
- integration of renewable energy sources in mini and microgrids;
- real-time power flows prediction and management optimization.

i-EM works in the global market directly with many different corporate customers, providing services in more than 800 renewable plants (solar, hydro and wind) in 20 nations for approximately 5 GW of total installed power.

The i-EM products could be divided in two main categories. The solution for the optimal management of renewable plants:

- s-EM, h-EM, w-EM (solar, hydro, wind Ennergy Management solution). The main functionality are
  - Smart monitoring
  - Advanced diagnostics and Predictive Maintenance

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- Power forecast and nowcast
- Solar Sensor Check
- Drone Data Management
- Satellite-based plant construction monitoring

The solutions for the optimal management of the impact of the renewables into the grid:

- g-EM, m.-EM, eV-EM (grid, micro grid, electrical vehicle Energy Management solution). The main functionality are:
  - Grid Infrastructure Services
    - ◊ g-EM.Vegetation
    - ◊ g-EM.Consumption
  - Smart Grid Services
    - ◊ g-EM.e-Mobility
    - ◊ g-EM.SGM
  - Precision siting
  - Optimal sizing
  - Energy management
  - Smart services
  - Charging Point Planner
  - Smart routing (for eV)

IMT

Company profile

Our story began in 1991. IMT srl is a forward-looking company focused on three main types of activities:

- Space: design and development of Nano/Microsatellites and relevant On-board Units for Space Commercial, Scientific and Defense applications.
- Parts Engineering: Characterization and Testing of Electrical, Electronic and Electro?Mechanical components.
- IoT Solutions: design and development of IoT Solutions for Smart Cities, Environmental Monitoring, Infrastructure Monitoring and Agriculture.

IMT srl can offer to the market very innovative and competitive solutions that meet the performances required for a wide range of applications:

- Earth Observation
- Remote Sensing
- Deep Space Exploration Missions
- Environmental Monitoring
- Internet of Things
- Custom Payloads & Subsystems
- EEE Parts Engineering

Products | Services | Applications |Technologies

SATELLITE PLATFORMS:

- ERMES CubeSat 3U
- HORTA CubeSat 6U
- NADIR Nanosatellite
- EOSS CubeSat 6U

SATELLITE SUBSYSTEMS:

- Nanosat X-Band Transponder
- Cubesat/Microsatellite C-Band Transceiver
- IMT uSADA (Solar Array Drive Assembly) for Cubesats 3U/6U/12U
- KA-Band Transmitter
- S-Band Transceiver for Small Satellites

EEE PARTS TESTING ACTIVITIES:

- DPA (Desctructive Physical Analysis)
- Failure Analysis
- Construction Analysis
- Re-Life Test
- Environmental Testing
- Upscreening
- Radiation Testing (TID, SEE, Displacement)

APPLICATIONS:

- Earth Observation
- Remote Sensing
- Deep Space Exploration Missions
- Environmental Monitoring
- Internet of Things
- Custom Payloads & Subsystems
- EEE Parts Engineering

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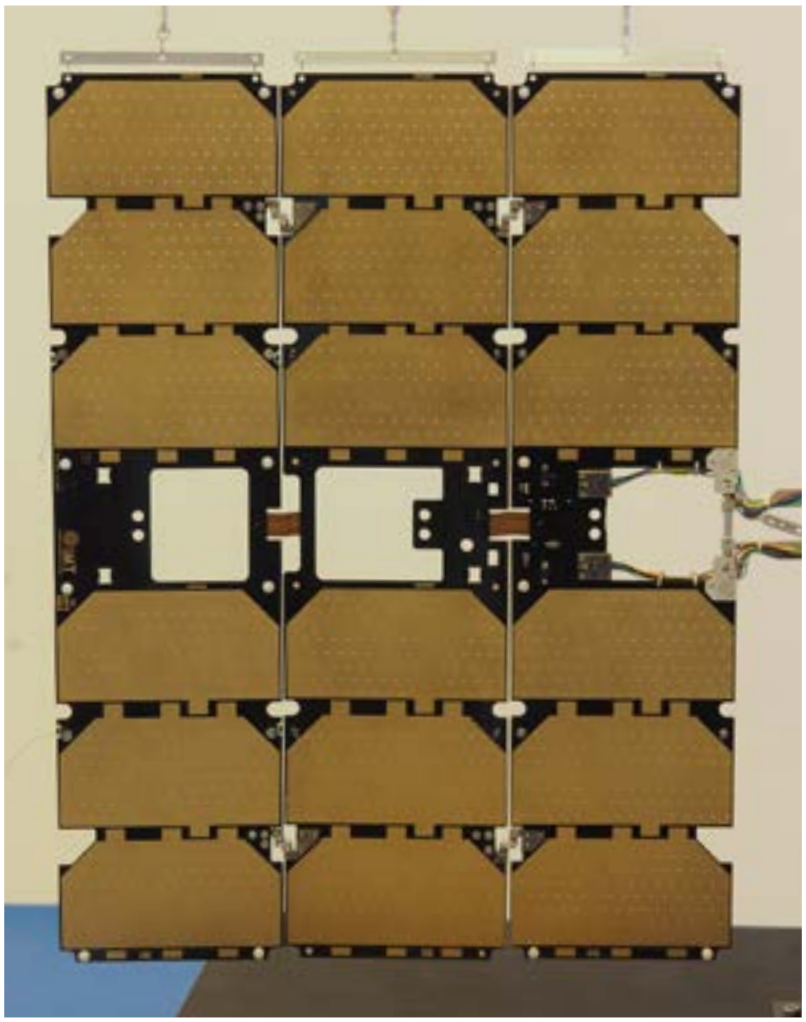

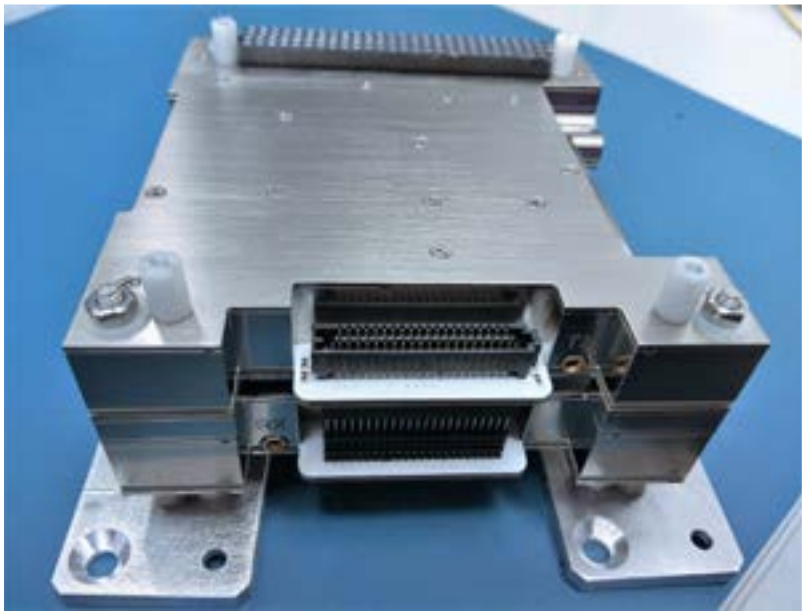

INFORMATION TECHNOLOGIES SERVICES - ITS

Company profile

Information Technologies Services Srl (ITS) was established on 1st September 1999 by managers and entrepreneurs deriving their complementary experiences from a prolonged activity in the main aerospace Italian industries and from the mastery of the financial instruments necessary for the "start-up" of firms focusing in the high technological sectors.

Mission of ITS is to operate in the High Band of the Information Technology field and relevant Electronic Technologies.

The development of ITS, in terms of manpower and turn over, will be based through a mix of internal and external capabilities already present in the Italian and European SME, through a policy of stable partnership.

In this sense a particular attention will be devoted to the relationship between Research and Final Users, carrying out the industrial link for a fast transformation of basic technologies into hi-tech usable products.

ITS main fields of action

In terms of Vertical sectors the action of ITS is addressed mainly to:

- Defence
- Space
- Commerce, deriving competences and technologies from the first two fields

In terms of Horizontal capabilities, ITS will develop the following main ones:

- Data processing of digital images coming from several typologies of sensor (multispectral and hyperspectral electro-optics, radar, etc.) also implementing techniques of data fusion
- System Integration extending the concept of distributed information architectures (LAN and Web) also to Complex and Robust systems (C4I2) using last available wireless links technologies ((Ku, Ka, 5G)
- Simulation and Modeling also of Complex Scenarios (Digital Battlefield)
- Technologies and Systems based on satellite navigation (GPS and Galileo)
- High End Computing also for on-board and distributed systems
- TLC Satellite Space architectures
- TLC Satellite Ground Architecture

Products | Services | Applications |Technologies

ITS main capabilities are relevant to the following technological field:

- On Board Supercomputing for Space and UAV applications
- Anti-Spoofing Simulation and Apparatus Development
- UAV jamming Apparatus
- Ground Segment TLC architectures
- On Board Payload for Micro and Nano Satellites
- On Board Antennas for Aircrafts
- Satellites Antennas
- Multibeam Stearing Antennas

Contact

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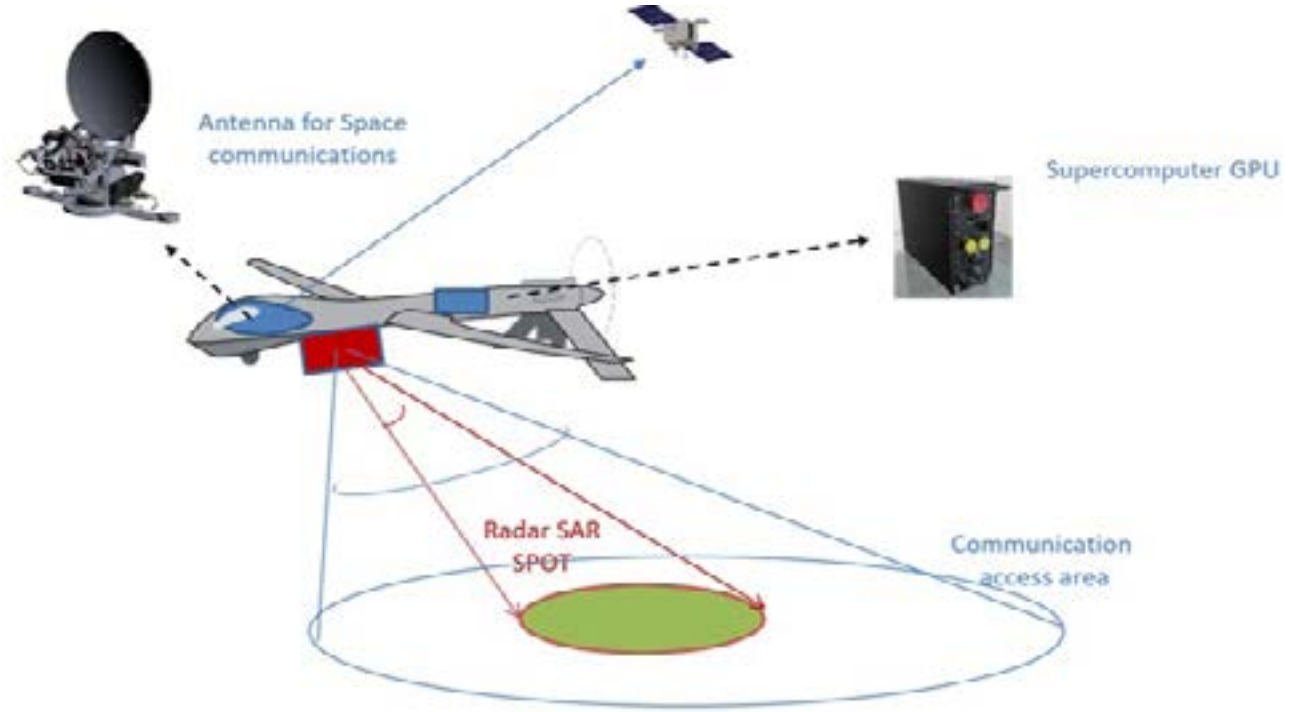
Antenna for Space
communications
Supercomputer GPU
Radar SAR
SPOT
Communication
access area

IngeniArs

Company profile

IngeniArs was founded in 2014 as innovative start-up and University of Pisa spin-off company, from the long experience of our co-founders in the area of Electronics and Computer Science Engineering advanced research. The goal was indeed to pursue the technology transfer through industrialization and commercialization of the considerable results achieved by the co-founders.

We are specialized in design and development of innovative high-tech electronic/informatics systems mainly in the domains of Aerospace, Telemedicine, Cybersecurity and Artificial Intelligence. Thanks to our consolidated experience in the fields of electronic and computer engineering, we are able to manage the full lifecycle of electronics, microelectronics, embedded systems, smart sensors, web application and services, and we offer high quality products and services to our customers and partners.

We had several major achievements over the years, such as winning the European Commissionsí Horizon 2020 SME Instruments Phase 1 and 2 projects which are extremely competitive. In addition, we are running projects with the European Space Agency as prime contractor and we have established partnerships and business collaborations with major companies leaders in the sector (e.g. Microchip, Xilinx). Among our customers, we count important Large System Integrators on a national and international scale.

Today, we are a dynamic and growing company counting talented and highly qualified graduates and PhDs in the field of electronic, informatic engineering and business development. Being a spin-off, we ensure a constant connection with advance research, which enables us to offer our customers innovative and high added value solutions.

Products | Services | Applications |Technologies

In the Aerospace field, IngeniArs develops and offers products and services mainly related to communication/networking protocols, for on board spacecraft among the different acquisition instruments and subsystems for processing (i.e., SpaceWire, SpaceFibre, Wizardlink, etc.), and for downlink telemetry communications with ground segment stations (i.e., CCSDS 131.2-B, etc.).

The products portfolio of IngeniArs includes:

- Intellectual properties macrocells (IP Core) for the realization of high-speed reliable communication link (SpaceWire, SpaceFibre, CCSDS 131.2-B) on board of satellites, implementable on ASICs and FPGAs. IngeniArs IP Core portfolio includes:
  - CCSDS 131.2-B Encoder/Modulator IP Core: fully compliant with the CCSDS 131.2-B standard, combining powerful Serially Concatenated Convolutional Codes (SCCC) with modulations ranging from QPSK to 8PSK and 16-, 32- and 64-APSK, for a total of 27 Modulation and Coding formats (ModCods).
  - SpaceWire CODEC IP Core: a very compact IP Core providing a complete and configurable interfacing solution for high data-rate communications compliant with the standard ECSS-E-ST-50-12C.
  - SpaceWire Router IP Core: it offers a configurable and flexible solution for high data-rate routing switch functionality for on-board satellite networking. It is based on the SpaceWire protocol, defining bi-directional, full-duplex, serial data communication link, and it is compliant with the SpaceWire standard ECSS-E-ST-50-12C.
  - SpaceFibre CODEC IP Core: it is the full implementation of the SpaceFibre standard (ECSS-E-ST-50-11C) for point-to-point links. QoS and FDIR mechanisms foreseen by the standard are built-in in the hardware CODEC. The IP Core also supports multi-lane functionality and is technology independent as far as the core is concerned.
  - SpaceFibre Router IP Core: it offers a configurable and flexible solution for very high data-rate routing switch functionality for on-board satellite networking and it is fully compliant with the SpaceFibre standard (ECSS-E-ST-50-11C).
  - WizardLink TLK equivalent IP Core: the typical use of the Wizardlink TLK equivalent IP Core is to replace Texas Instruments TLK2711 chip in a pre-existing design when using FPGAs equipped with SERDES devices.
- Test-equipment/software in order to simplify systems verification during the development phase.

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IngeniArs test-equipment portfolio includes:

- SpaceWire / SpaceFibre Analyser Real-Time (SpaceART®): standalone device driven by a PC for the functional verification of the interconnections, the standard compliance and the fault-tolerance of the communication subsystems on-board of satellite. SpaceART® is available with Ethernet, cPCI, PCIe, PXI interfaces.
- SpaceART® SpaceWire Sniffer: it allows the analysis of SpaceWire communication between two nodes at character level, with no interaction with the communication.

IngeniArs test-software portfolio includes:

- SpaceWire / SpaceFibre Network Model: this allows simulation of complex, mixed SpaceWire / SpaceFibre networks.
- SCCC SW EGSE: compliant with CCSDS 131.2-B simulates the entire communication from the transmitter to the receiver.
    - Design services: FPGA and ASIC system design following customer specifications.

The company is particularly active in the aerospace business providing design services in several space missions funded by the European and Italian Space Agency such as Meteosat Third Generation, Copernicus, Sentinel 3, FLEX, PLATO, EUCLID, PLATINO and MANTIS. IngeniArs is also Microchip Design Partner and Xilinx Alliance Partner.

INNOVA Consorzio per l'Informatica e la Telematica

Company profile

INNOVA Consorzio per líInformatica e la Telematica Srl is an Italian SME founded in 1989 by three successful local ICT companies. INNOVA is geared mainly towards the space sector, and more specifically towards the Earth Observation sector. The main remote sensing technology on which the company operates is the processing of satellite images acquired with Synthetic Aperture Radar (SAR) used in various civil and military related applications, primarily for monitoring and control of the territory.

Over the last few years the company has also invested in the infomobility sector, focusing on systems that use GPS satellite navigation and of course, ESAís future GALILEO.

We count today with 17 highly qualified professionals and over 15 years as partner of Leonardo (ex Finmeccanica) within the COSMO-SkyMed programme.

Products | Services | Applications |Technologies

INNOVA has had and continues to have a major role in the COSMO-SkyMed programme, the largest Italian investment in Space Systems for Earth Observation, commissioned and funded by the Italian Space Agency (ASI) and the Italian Ministry of Defence (MoD) and conceived as a Dual-Use (Civilian and Defence) end-to-end Earth Observation System aimed to establish a global service supplying provision of data, products and services compliant with well-established international standards and relevant to a wide range of applications, such as Risk Management, Scientific and Commercial Applications and Defence/Intelligence Applications.

Within the programme, INNOVA has been involved in the analysis and prototyping of the focusing algorithms for the StripMap and Spotlight acquisition modes to generate Single Look Complex, Multilooked, Detected, Ground Projected and/or DEM Projected images.

Highlight of said experience is without a doubt the design and development of the processor to focus very high resolution data acquired in Spotlight acquisition mode, of great interest for civil, but mostly, military defence applications.

Currently, the Second Generation programme is underway, which will put another 2 satellites with improved, more advanced electronics in orbit from the second half of 2019.

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Intelligentia

Company profile

Intelligentia S.r.l. is an Italian SME established in 2010 as the result of the collaboration between Balance Systems S.r.l (Milan, Italy), a company designing and producing balancing machines and auxiliary systems for industrial/manufacturing processes since 1975, and the University of Sannio (Benevento, Italy). Intelligentia has its headquarter in Benevento (Italy) and branches in Milan and Stuttgart (Germany).

Intelligentia has two main business units, that is to say, the Space BU and the Industry BU, the latter focused on Industry 4.0 products and projects. Intelligentia aims at having a continuous technology transfer from Space into Industry and vice-versa. We look at the evolution of HW and SW technologies, which can be regarded as enabling factors for business innovation. Nowadays, our customers require increasingly integrated HW/SW solutions and a full flexibility to quickly adapt designs and requirements to the Market needs.

Intelligentia can cover the design, development, verification and validation of solutions from embedded safety critical systems (e.g. satellite on-board software) to cloud infrastructures (IaaS, PaaS, and SaaS), from EGSE SW to customized applications for Satellite AIT for automating and improving the overall assembly and production phase.

Intelligentia has been listed as an Innovative START-UP according to the Italian Law (art. 25, comma II, D.L. 18 October 2012, n.179) up to December 2015, and is officially listed as Innovative SME according to the Italian Law (D.L. 3/2015) in the Italian Business Registry.

In September 2014, Intelligentia acquired a small company in Germany and established Intelligentia Consultech GmbH in Baden-W¸rttemberg (for the on-site support to German companies). In December 2018, Intelligentia acquired Md2 srl, a small company specialized in electronics design and development. The company, now named Intelligentia Electronics S.r.l., can boast many years of experience in design of analog and digital electronics for both the Aerospace and the Industry market. Thanks to this acquisition, we have also some capabilities of HW equipment manufacturing and integration.

Intelligentia applies the ECSS standards (in particular, ECSS-E-ST-40C and ECSS-Q-ST-80C) and is certified UNI EN ISO 9001:2015 and EN 9100:2018 standards.

Products | Services | Applications |Technologies

Our products and services are the result of our own R&D activities and are based on the most reliable and cutting-edge technologies available on the market. The field of application of Intelligentia products and services can vary from Space to Automotive, from Manufacturing to Cloud, from Tourism 4.0 to Green Energy.

As for the Space area, we can highlight the following capabilities, products, and services:

On board software (OBSW) development, verification, and validation

Design, development, verification and validation (V&V) of critical on-board SW running on Space qualified on-board computers. As for the OBSW V&V, Intelligentia has experience in all the V&V activities described in the ECSS-E-ST-40C, e.g., SW Unit Testing, SW Integration Tests, SW TS Validation, SW RB Validation. In particular, we can mention the following SW components: Packet Utilization Standard C library compliant with ECCS-E-ST-70-41C standard, File System Management, Mass Memory Unit (MMU) SW, Packet Store, Equipment Management Service, Satellite Mode Management.

Independent SW Verification & Validation

ISVV for the Boot SW and the Basic SW.

SW tool chain & test bench solutions

Knowledge/usage of typical tool chains for OBSW development, verification, and validation (including the Software Validation Facility). Development of tools for streamlining/automating the OBSW V&V activities (i.e., automatic generation of test scripts and the test reports). Development of unit SW simulators. Manufacturing and integration of unit test bench solutions.

Ground software applications

Design and development of fully integrated Rich Internet applications compatible with the most common

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cloud platforms. Most of the developed software applications have a common technological core based on our platform ELISA (Enterprise Light Information Systems Architecture). In this context, we can mention the Satellite Configuration & Calibration Database (for both AIT and operational calibration activities) and EGSE SW applications.

Industry 4.0 and IoT, space data systems

Intelligentia develops and delivers fully integrated solutions and enabling technologies for the Industry 4.0 systems, such as Big Data, IoT, Cyber-security, Cloud Computing, and Simulation. Real-time processing of real-time data from Industrial plants, also integrated with satellite downstream data, are used to deliver innovative services such as assets monitoring, production and quality KPIs monitoring. In this context, it is worth highlighting the design, implementation and deployment of a big-data based infrastructure hosting data fusion and machine learning algorithms to acquire, process and exploit GNSS IoT data, gathered via smartphone Android apps. Moreover, thanks to an ESA Technology Transfer initiative, we are currently working on the application of the PUS standard into Industry 4.0 context.

Electronics, sensors, and embedded solutions

Motor driver/control algorithm design and implementation, digital electronics for signal analysis and processing, sensor and actuator design and customization (both for aerospace and industrial applications).

Italconsul

Company profile

ItalConsul is an engineering services enterprise. Its Core Business is Logistics Engineering, in particular the R.A.M.S. (Reliability, Availability, Maintainability, Safety), as support for the Design of Systems and Equipments.

ItalConsul offers Logistics Engineering services providing its customers with continuous support in the various phases of the product life cycle: definition of requirements, design, implementation and technical assistance.

Decades of experience gained in RAMS Analysis led ItalConsul to develop its ability to Design in the fields of Mechanical, Electrical, Electronics Engineering (Machinery and Equipment), Software and Assessments.

Moreover, ItalConsul extended over time its skills to simulations by software, such as Finite Element Analysis, Multi-domain and circuit simulations, too. The work-areas of ItalConsul concern Aerospace, Naval, Railway, Defence, Power Plants and manufacturing. ItalConsul employs Human Resources with long experience, gained over decades. They work in symbiosis with young talents, supported and trained constantly to highly advanced projects.

Then ItalConsul is engaged in Research & Development activities. Among its results it includes three patents, seventy scientific publications (also in prestigious journals) and the realization of RelySoftÆ.

RelySoftÆ is a software that automates a methodology conceived to calculated the probability involved in the Physics of Failure (PoF) approach. It can be used for Reliability Prediction in order to overcome the limitations of the traditional reliability prediction methods (like MIL-217 or NPRD approach) but not only for this. Italconsul has been using RelysoftÆ for more than 20 years for railway and aerospace applications.

Products | Services | Applications |Technologies

The following are some analyses that Italconsul provides for its ILS services.

- Reliability
- FMEA/FMECA
- FTA/Event Tree/HAZOP
- Maintainability
- Availability
- LCC and LORA
- Safety
- Hazard Analysis, Hazard Log
- SIL Demonstration
- RCM
- Manuals
- Logistic Support Analysis Report LSAR
- FRACAS
- Testability
- Databases
- Training

Italconsul can also integrate the above traditional logistics analyses by means of Relysoft tool in order to deal with reliability problems that otherwise would not be tractable with traditional reliability methods. RelySoftÆ automates a methodology based on the failure-oriented approach, developed and applied for many years by Italconsul, mainly in the aerospace and railway sectors. RelysoftÆ does not need a considerable number of tests on physical samples in order to quantify the generic failure of the component in time, but analyzes the process underlying the fault and the value and the uncertainties of the quantities involved in the process itself. It is able to assess the probability that this component will fail.

Relysoft is suitable to be used not only for the reliability prediction, but also to perform a Probabilistic Design, in order to:

- Calculate probability of success of a physical process
- Assess the importance of the uncertainties in a process
- Reduce the over-sizing
- Fit design changes (prototype)
- Evaluate the reliability of a process/component over the time
- Determinate the end of life of a component/ system
- Establish the time to perform preventive maintenance, reducing the necessity of predictive maintenance
- Estimate the cost of warranty

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Italspazio

Company profile

The Company

Italspazio is a certified Italian company, specialized in satellite and space technologies, providing solutions, services and equipment meeting the needs of a wide range of sectors and applications.

Our mission is to ensure innovative, cost-effective and bespoke space technology solutions with the intent of creating value for both customers and stakeholders.

Our vision is to nurture inventiveness of space technology to anticipate our customers future needs.

Our multidisciplinary team is specialized in various space technology related segments including but not limited to: Ground Segment servicing and control, Satellites systems, Earth Observation Services, Propulsion Systems, Instruments & Avionics. Through veteran industry knowledge and young innovative minds, Italspazio guaranteeís competence and professionalism when spearheading new advanced technologies into the market. Essentially, innovation in the future always starts with experience from the past.

Main Market sectors

The company ensures secure and reliable satellite solutions since 2005 within a wide range of sectors such as Broadcast, DÈfense, Maritime, Telecommunications, Disaster recovery, Enterprises, Public Administrations and more.

Main Product and Services Categories

The key portfolio includes the following categories:

Space Technology

Transportation

Earth Observation

Navigation

Telecommunication

Research and Development

Products | Services | Applications |Technologies

Space

- CubeSat (Ka) Antenna
- CubeSat Ka LNA
- CubeSat Ka SSPA

Earth Observation

- Situational Awareness (SA) Solutions
- Geospatial Applications

Sat-Com

- End to End SatCom systems
- ESA Antenna
- Transportable Antenna - VSAT
- Antenna Control Unit
- Passive Splitters / Combiners
- Power Amplifiers
- Frequency Converter
- Antenna Ancillary
- SatMonitor Software
- SatCom Services (Refurbishment, installation, maintenance, broadcasting, NOC)
- VSAT Connectivity Services

Research & Development

Italspazio is currently emphasising innovation in its market segment through various Research and Development projects. Two noteworthy projects that the company is currently developing are:

- ARAMIS: A ELINT (Covert Intelligence-Gathering by Electronic Means) System
- GINKO-S: Satellite based RFI detection System

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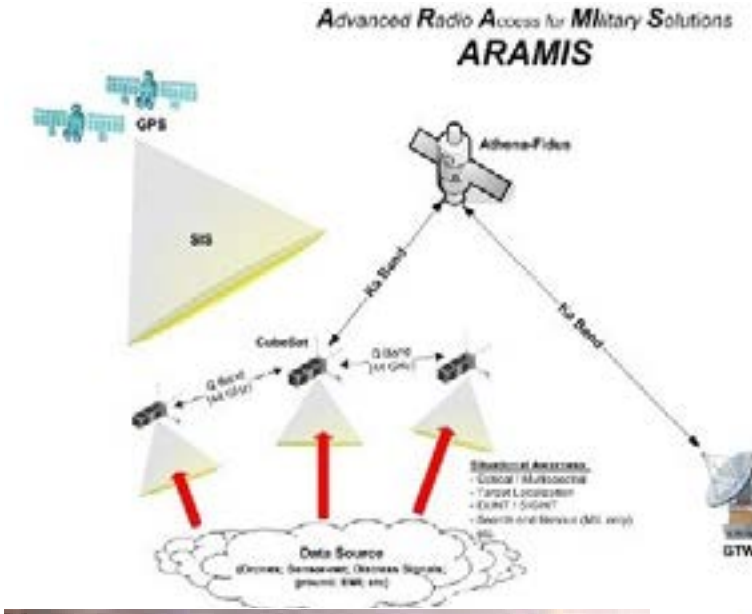
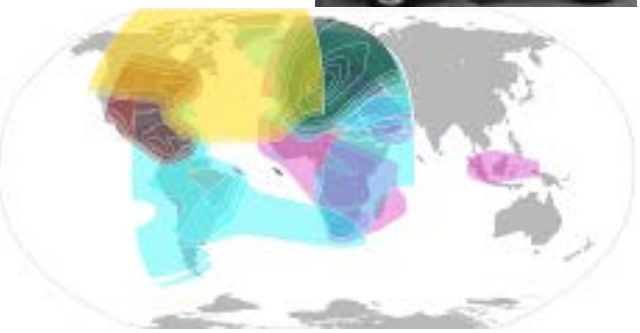

Advanced Radio Access for MIlitary Solutions
ARAMIS
GPS
SIS
Athena-Fidus
Ka Band
Ka Band
CubeSat
Data Source
GTW
C3I Centre



Kayser Italia

Company profile

Kayser Italia is a Small Medium Enterprise (SME), a private independent aerospace system engineering company, owned by Dr. Valfredo Zolesiís family. It has been incorporated in 1986, and since 1995 it is 100% Italian property. The company is located in the countryside of Livorno, in the region of Tuscany, 20 Km south of the international airport of Pisa and 90 Km from Florence. In a modern building, the company has 5,000 sq. meters of property, organized into offices, meeting rooms, conference room, laboratories, clean room, manufacturing, inspection and integration area, and an User Support Operation center (USOC) for the support to the execution of experiments with astronauts on board the ISS. Since the beginning up to now, Kayser Italia has participated to over 70 space missions with more than 110 payloads, all of them completed with full scientific, technical, economic and programmatic success. The staff consists of over 60 high-specialized engineers, with expertise in electronics, aeronautics, mechanics, thermodynamics, physics, computer science, optics and molecular biology. Their design and manufacturing capabilities, joined with a deep engineering background, have allowed the participation of the company as both prime-contractor as well as sub-contractor to many European Space Agency (ESA) and Italian Space Agency (ASI) programmes, especially in the area of life science (biology and human physiology). The payloads developed by Kayser Italia have flown on sounding rockets, on the Russian capsules Bion, Foton, Progress, Soyuz, on the Shuttle Transportation System (STS), on SpaceX, on the Japanese HTV module, on the European ATV module, on the Chinese Shenzhou spaceship and on the International Space Station (ISS). Kayser Italia supports grants and partnership programs with universities and research institutes and is actively involved in the promotion of the integration process between large and Small Medium Enterprises working in space.

Products | Services | Applications |Technologies

PRODUCTS:

- Bioreactors, Experiment Containers, Incubators, etc. for biology experiments
- Bio analysers
- Instruments, devices and consumables for human research experiments
- Experiment hardware for physical and material science research
- Payloads and associated control electronics and software
- Electronic equipment (power conversion and distribution, control, data acquisition, etc.)
- Structures and deployable systems

SERVICES:

- Project Management
- Space system engineering
- Electrical and electronics design
- Manufacturing of electronic circuits and harness
- Structural, mechanical and thermal design and analysis
- Software design and implementation
- System Assembly, Integration and Verification (AIV)
- Product and Quality Assurance, Safety
- Support to ISS on-board astronaut operations by means of dedicated User Support Operation Centre (USOC) and certified personnel

TECHNOLOGIES:

- Deployable space structures based on tensegrity technology
- Miniaturised deployable boom (Cubesat standard)
- Wired and wireless on-board sensors and actuators network

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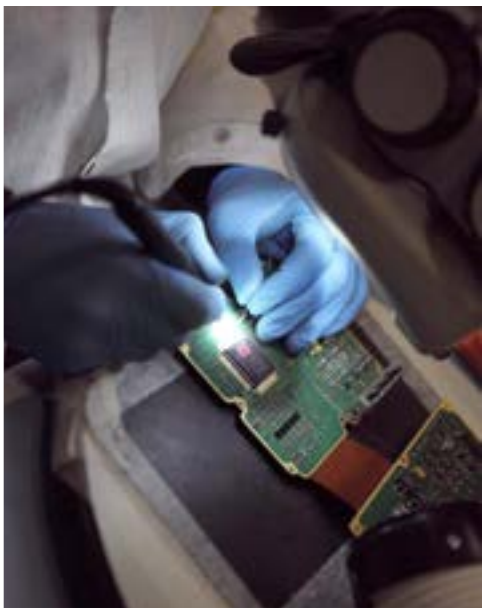

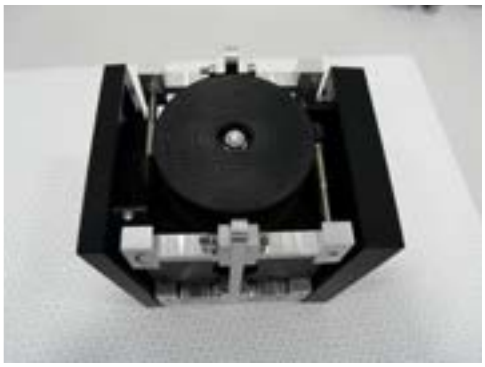

Kell

Company profile

Kell srl is an innovative Italian ICT SME located in Rome, Arezzo and in Gualdo Tadino, near Perugia (operative sites), Italy. It is fully owned by private shareholders.

Kell has over 20 years of experience in space sector developing SW and HW integrated platforms in the field of e-health, telemedicine, e-government, Earth Observation, GIS and navigation systems.

Kell constantly invests in R&D to pursue its vision: ìfacilitate the day-by-day life through ICT, make it easy, usableî. This is pursued by means a continuous innovation process, a strong investment in human resources and collaborations with Scientific organisations as Universities, public and private Research centres.

The team is formed by young researchers and technicians, with strong and focused skills on ICT solutions, informatics, software engineers, electronic engineers, physicists, engineers, electronic, oceanographers, economist who form dynamic and multidisciplinary group engaged in R&D and services activities performed for international and national Public Bodies and private organizations. The team is composed by a fixed group of managers, researchers and technicians and a broader network of professionals with multidisciplinary skills.

Kell has been involved in EU/national funded trans-national programs as prime contractor, lead partner and partner. Kell has also been prime contractor of the European Space Agency (ARTES Programme) and Italian Space Agency projects to develop new SatCom services for e-Health (KosmoMed, TeleSal, NESA, etc.).

Kell internal organization aims to satisfy its customers in respect of its quality system and certified procedure (ACCREDIA and KIWA).

- UNI EN ISO 9001:2015 for the sector EA 33: ìDesign, development, implementation, technical installation of SW platforms and systems for tele-medicine, Earth Observation and navigation for telecommunicationsî;
- UNI EN ISO 13485:2016 for the ìdesign and development, implementation, technical installation and assistance of SW medical platforms and systems for the telemedicineî.

Main technologies and skills are:

- Information Technology: web platform and mobile solutions for e-Health applications;
- Earth Observation: Kell designs and develops software systems for telemetry processing and production and processing of remote sensing images, optical and SAR, archiving and distribution of data and quality control fusion and geo-location for smart agriculture, water and land management;
- Navigation.

Products | Services | Applications |Technologies

Satellite Telecom supports ICT/SW open source web platform, tested in healthcare organizations, to provide and manage the classical e-health services as tele-counselling, tele-consultation, tele-diagnosis, tele-emergency, screening campaigns services, electronic medical records, plus the tele-validation service, that is especially delivered to CRO and pharma companies to raise the performance of management of clinical trials.

During last years, Kell has established a leadership position in the development of telemedicine systems; enhancing technological innovations in the ICT field that can be used in the health sector to improve the efficiency and increase the quality of health processes, in all the different contexts of their ìvalue chainî such as prevention, emergency care, maintenance of own well-being ñ wellness, family support, clinical and epidemiological studies. Along with some of the major Italian companies, it has developed the largest telemedicine programs especially some of them based on satellite communications for mobile telemedicine.

Some examples of applications and tools deployed are:

- KosmoMed: SW/HW integrated system for satellite telemedicine to support high quality video-conference and medical data exchange in all kind of medical branch;
- Mobile Ambulatories (by land and sea): with advanced diagnostic equipment and satellite solutions for screening campaign, clinical investigations, etc.

Kell operates in the Earth Observation since 1997, as service provider for Public and Private organisations, developing and implementing. The use of Satellite technologies, the integration with other sources to collect

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data (aero-UAV, ground sensors), the use of open standards to design and perform ICT applications and solutions, are at the core of the innovation strategy of Kell. Some examples of applications and tools deployed are:

- WAGRIT: a SW tool for the land and agriculture monitoring that able the classification of vegetation.
- AIRFIRE: Satellite and Hyperspectral images monitoring campaign to assess and alert in case of fire.
- MIA-VITA ìMitigating and Assessing Volcanic Impacts on Terrain and human Activitiesî, an integrated tool to assess and manage the volcanic risk for human.
- ITACA (Innovation Technologies and Applications for Coastal Archaeological sites), a tool using satellite techniques, remote sensing, special algorithms from marine movements, to identify sub-marines archeological sites and support the management decisions of public authorities.
- MEMORIES (marine MEteo MOdelling for weather RoutIng Enhanced by Satellite navigation and wave radars), The project developed a prototype of a meteo-navigation onboard terminal and the related service center, to support weather route planning processes (i.e. route planning based on weather conditions to improve efficiency, comfort and safety of navigation).

Labormet Due

Company profile

Labormet Due is one of the most solid commercial structures in Northern Italy in the field of scientific instrumentation for the laboratory and quality control.

The company supplies tools and related consumer products for the control and characterization of related materials, from the stereo-microscope to the 200-ton traction machine.

The real added value of the service offered lies in decades of experience and in the acquired professionalism that allows us to offer customized technology solutions based on customer needs and turnkey laboratories for the solution of any problem relating to the control of materials in the entry, to control production and generally improve quality.

Labormet Due guarantees for all the equipment supplied: installation and training of personnel, after-sales assistance, requalification, and certification.

At the same time, Labormet Due has its metrology and industrial computed tomography laboratory.

Reverse engineering, evaluation of the porosity, internal control of the defects are just some examples of what the tomographic technique can offer.

Typically the purchase of this instrument scares users for its costs and the management and logistical costs that it entails, the offer of the service quantifiable in ìprojectsî or overtime represents an ideal solution both for customers who have continuous requests for analysis and sporadic customers.

In this field, the company has been able to work for various leading companies in the space sector, which more and more often require advanced control techniques to guarantee the highest quality in products of high technology, innovation, and economic value, for example, components additively manufactured.

To provide services in compliance with the requirements of the space supply chain, Labormet Due has certified its quality management system with EN 9100:2018

Products | Services | Applications |Technologies

Quality Control and material characterization products:

- scanning electron microscopes SEM, Micro-analysis EDX, WDX, EBSD, atomic force microscopes AFM, scanning acoustic microscopes SAM, x-ray diffractometer XRD, x-ray fluorescence spectrometer XRF
- systems for industrial x-ray computed tomography
- machines for test traction, compression, and resilience testing and other static mechanical tests
- specific instruments for the control of physical and mechanical characteristics of the rubber
- bench hardness testers HV HR HB, universal, portable hardness tester
- chemo-mechanical durability, fingertip & hand abrasion testers, multi-functional and high dynamic scratch/punch/abrasion testers, universal surface testers, 3D optical measurement systems, micro-calo tests for wear and coating thickness testing
- stereoscopic microscopes, optical and confocal, digital cameras, image analysis systems for metallography and cleaning control details
- furnaces and heat treatment plants
- optical 3D measurement machines (non-contact), roughness, profilers, roundness
- machines and consumables for the preparation of metallographic samples
- resonant testing systems and machines for dynamic materials testing
- development of leading software for the analysis and visualization of industrial computed tomography data
- climatic chambers, rooms for corrosion tests in salt spray, heat treatment furnaces for environmental simulation equipment in general

Industrial X-Ray Computed Tomography Services:

- Failure analysis
- 3D metrology
- Reverse Engineering
- Defect Analysis
- Product Contamination
- Electronics inspection
- Assembly verification
- Weld quality analysis

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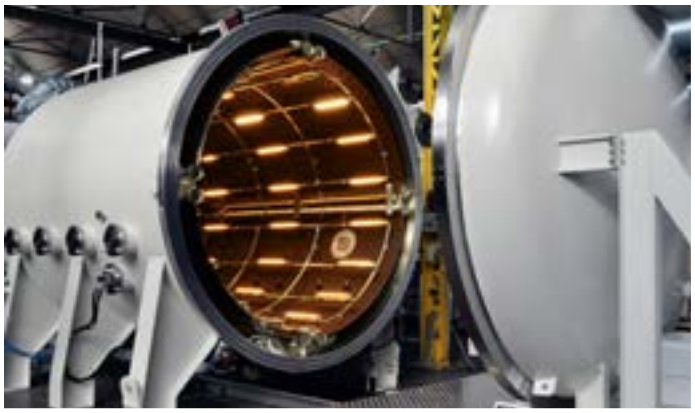

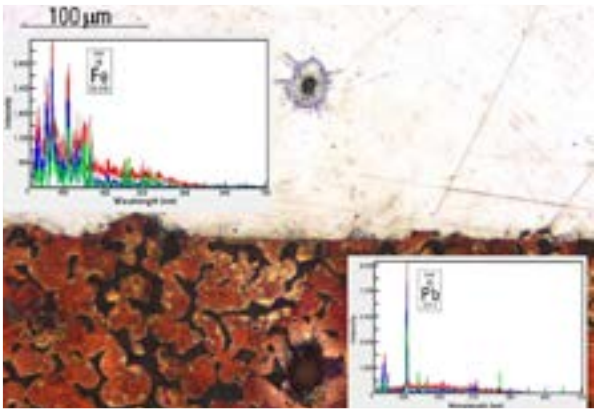
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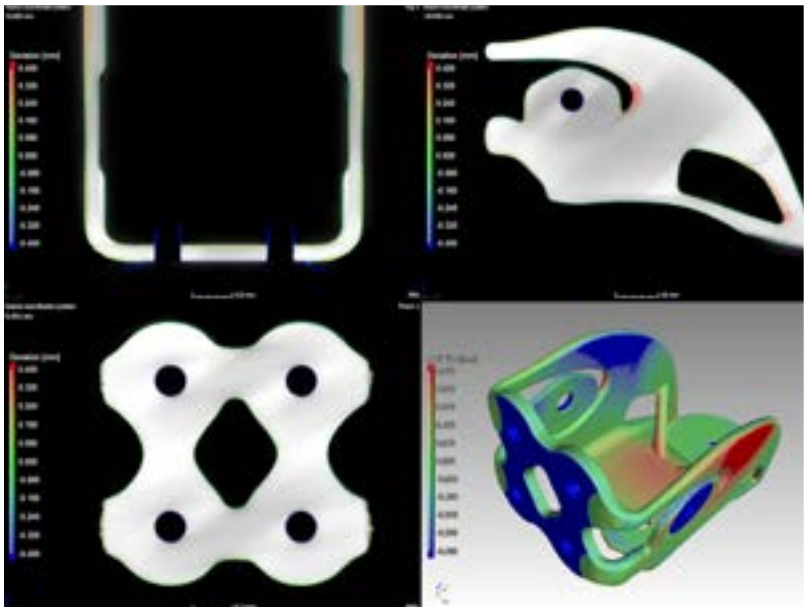

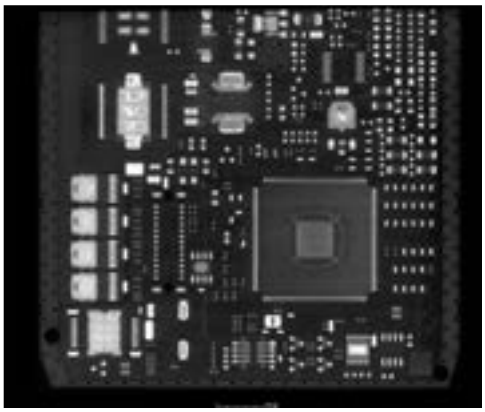

Lead Tech

Company profile

Lead Tech is an engineering company skilled in providing technical support for the design and development of Technical Publications, Management Software, Industrial Automation Systems and Mechanical Design for both the military and civil fields in the aerospace, railway, naval, and industrial sectors.

Our services fall within the Integrated Logistic Support and include study, design and planning of activities as necessary to ensure the effective, efficient and cost-competitive support of systems/machineries during their life cycle.

We believe that partnership is a key factor for every company and the starting point for new projects, new challenges, new opportunities.

Our mission is to offer the best customer care in order to establish more effective, fruitful and durable relationships.

Our company is certificated UNI EN ISO 9001:2015 and EN 9100: 2018 for Design and Production of Technical Publications, Design and Production of Software, Mechanical Design and Space System, Electronic Design and Industrial Automation Systems. Our company is a member of ALI (Aerospace Laboratory for Innovative Components) S.c.a r.l. consortium, operating in the sectors of design, engineering, prototyping and production of aerospace components, integration of systems, electronics and SW / HW applications, on-board systems and remote control systems for aerospace platforms, ITC services and advanced applications for aerospace.

We are a partner of DAC (Distretto Aerospaziale Campano), which gathers tens of entities, including big enterprises, individual SMEís, industrial consortia, 5 universities and several research centers, including CIRA (Centro Italiano Ricerche Aerospaziali).

Main Customers are Leonardo, Hitachi Rail, Geven, Tecnam, CIRA, Magnaghi Aeronautica, MIUR, Vulcanair, Selex, Firema, ABC International, Knorr-Bremse, Thales, Eredi Giuseppe Mercuri, Mermec Group, A. Abete, AIM Altitude, Black Shape Aircraft, MES, Istituto Motori, EOS Belumbury.

Main Partners are Fujitsu, Aerospace Valley, ALI, DAC and Scama.

Lead Tech controls Lead Tech I&D SAS, a small company in St. Sulpice, in the vicinities of Toulouse (France). A business unit is detached in Rivoli (Turin - Italy) and a newest one in Munich (Germany).

Products | Services | Applications |Technologies

Lead Techís activities cover various engineering fields, such as Design and Realization of Technical Documentation, Design and Development of Software, Electronics Design and Automation of Industrial Systems, Mechanical Design and Space Systems.

The design and realization of Technical Publications is developed with the aim of providing clear and complete information to the end-user and can be realized both in paper and interactive/multimedia formats (pdf, html and xml), in accordance with national and international standards (ATA, MIL, AER, AECMA etc.) or according to customerís specific requirements. To support the customer in training activities, our company designs and develops courses such as computer/web-based training and produces educational documentation for multi-language training activities.

Software design and development are carried out with customized, simple and intuitive management systems, to optimize activities and business processes. LMS, Lead Management System, is a proprietary software package of Lead Tech, which allows the production, management and editing of S1000D technical publications. The LMS-RFID System enables the tagging and tracking of aircraft components, according to the ATA Spec 2000 standard. LAM, Lead Company Management System, is another software tool developed in house, which supports corporate administrative and operational management, with particular attention to the management of orders, business documentation and human resources. To the completion of software development, our company provides web services and web marketing services.

Electronic design was initially focused on companyís activities related to Data Acquisition Systems and the LMS-Maintenance System for predictive maintenance management. Later on, its target has been extended to prototype design and implementation of electronic systems for monitoring and commanding of complex systems in the aeronautic field. A Flight Data Recorder (FDR) has been developed for general aviation and Human

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Machine Interfaces (HMI) have been purposely made for automotive and industrial applications.

Mechanical design activities are aimed at the realization of aeronautical mechanical components as well as of complex Space Systems. Currently our company is at the forefront for the design and development of a new technology for atmospheric entry, descent and landing, featuring a variable-geometry heat shield, which also works as an aero-brake, allowing landing without parachute and without retro propulsion. New projects include the development of a proprietary technology for 3D-printed metamaterials with potential applications both in space and industry.

All the production activities are backed by experimental and industrial research, which is performed in the framework of national and international projects, in order to increase Companyís know-how and to offer our Partners and Customers more and more innovative and competitive solutions.

LAM

LEAD MANAGEMENT SYSTEM LMS

Leaf Space

Company profile

Leaf Space operates, and continues to develop, a solid and reliable distributed ground station infrastructure to provide effective ground segment-as-a-service solutions and enable full exploitation of space data. The company has a vision of being the leading provider of such services in order to drive expansion and sustainability of the space ecosystem and downstream applications.

Leaf Space's proprietary concept is focused on providing satellite connectivity as-a-service, to support clients with their satellite operations by managing and procuring the entire ground segment system through a complete set of services. These include time-shared access to ground, customized communication solutions, ground station procurement, consultancy, and backup services.

Leaf Space aims to provide the most easy-to-use, flexible, cost-effective, and operationally solid ground segment solutions to reliably support satellites in LEO and MEO along all lifecycle phases. Focus is put on highly scalable interfaces and operations, while continuously iterating according to NewSpace market needs in terms of new verticals (Launch Vehicles, HAPS) in addition to satellite and constellation operators.

The company's infrastructure is globally distributed and utilizes both 3.7-meter and 3-meter parabolic dishes used for both S-band and X-band operations, while Yagis are used for UHF and VHF respectively, implementing commercial high datarate receivers in combination with Leaf Space baseband processing software.

https://www.youtube.com/watch?v=obBG_U4JXF4 - Ground segment as-a-service - This webinar provides an overview of turn-key solutions, services and products offered by Leaf Space to the global space market.

https://www.youtube.com/watch?v=MkfedIfttIl - Ground Station Network cost structure: build or outsource? - This webinar provides a comprehensive look at a data-driven make-or-buy analysis for the ground segment and the benefits from adopting a Ground-Station-as-a-Service strategy.

https://www.youtube.com/watch?v=lo6crhTYS0E - Cybersecurity Solutions for Satellite Operators - This webinar covers the importance of secure space communications and cybersecurity, in terms of regulation and technology for NewSpace.

Products | Services | Applications |Technologies

Leaf Space provides complete Ground Segment services for the New Space market.

Leaf Line is a unique multi-mission ground segment as-a-service solution, completely owned and operated by Leaf Space. A network of 12 ground station sites (at regime, in Q4 2020) and a strong software infrastructure are the base of the service, which can manage and optimize requests from different users. The GSs time is shared between different customers and missions using a high efficiency scheduling algorithm, optimizing the GSs use while satisfying the customer's constraints. From the operations point of view, Leaf Space will carry out all the activities and management of the ground segment, therefore the customer will have the important advantage of focusing more on his own core business. To interact with the Leaf Line network, our customer can use a dedicated API and a real-time data transfer interface through which a proprietary control centre or ground segment manager software can be integrated.

Leaf Key is an exclusive Ground Segment as a Service solution created for satellite operators and space service providers who need a custom and dedicated way to operate their space assets.

Based on a similar technology and infrastructure as Leaf Line, Leaf Key is tailored on the mission needs both from the performance and operations point of view. The deployment of the network backbone follows the development plan of the customer constellation, guaranteeing the right performance at the right time.

In addition, Leaf Key can be paired with Leaf Line to balance peak loads or to increase the support to the customer's mission.

From the operations point of view, Leaf Space carries out all the activities and management of the ground segment, therefore the customer will have the important advantage of focusing more on his own core business.

To interact with the dedicated network, customers can use an API and a real-time data transfer interface through which a proprietary control centre or ground segment manager software can be integrated. Leaf Space also provides LEOP (launch and early operations phase), anomaly resolution, back-up, capacity boost, consultancy services and ground station provision for New Space market players.

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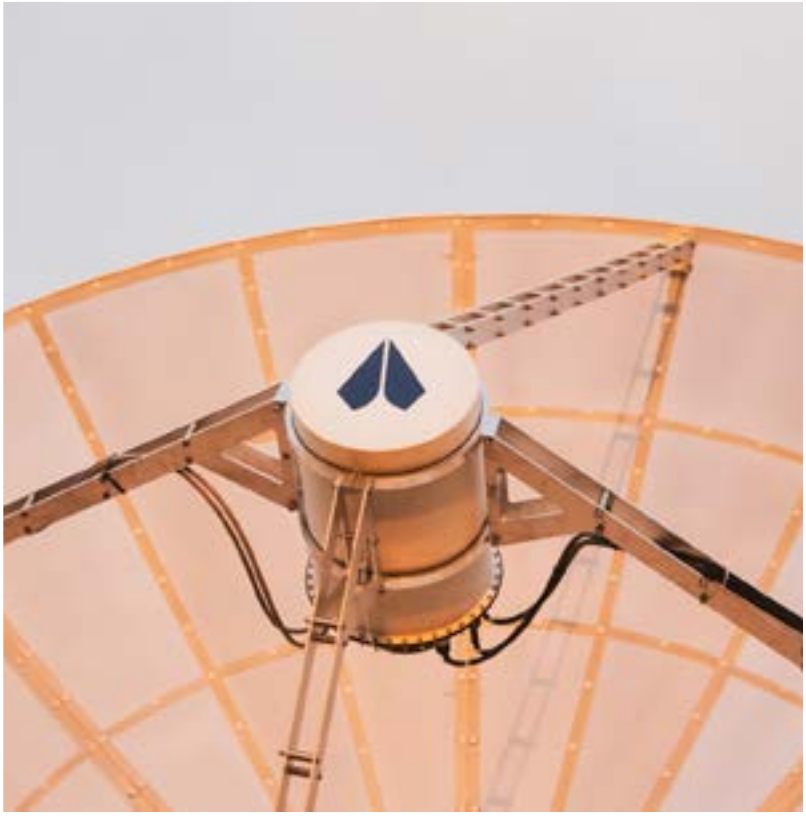

LEN

Company profile

LEN s.r.l. has been designing and manufacturing telemetry systems for stratospheric Long Duration Ballon(LDB) for about 20 years.

The first developed version was MSITel-I which was succesively updated.

Now, under ASI contract, LEN is developing a new telemetry LDB (MSITel-II) in the frame of Hemera project. This telemetry provide throughput at least of 1Mb/s and onboard storage space till 128 GB (SD cards).

Products | Services | Applications |Technologies

MSITel-ILDB telemetry, available in different versions, is bidirectional telemetry data with the possibility of controlling the gondola as well. It has many functions including geolocation with 2 gps, it can use both serial and IP satellite modems, some digital and analog I/O, power relays, on-site anchivings, sending scientific and housekeeping data to the ground-station.

A new much more powerful version (MSITel-II) will be available at the end of 2021.

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LMA

Company profile

Over 50 years of experience in the Aerospace Market, LMA is today a leading global supplier of complex assembled components to the most important Space Customers. A whole set of in-house capabilities and a strong Research & Development enable LMA to offer cutting edge processes (from the detailed-design up to the delivery of the final product) and provide ground-breaking innovation solutions to its customers.

The Company excels at being a Tier 1 Integrator filling the gap between the main Customers and the traditional Subcontractors by integrating the supply base.

By investing in a significant R&D budget, the Company is building its future competitiveness by focusing efforts in the development of the innovative additive manufacturing technologies.

4 fields of excellence:

- Machining (Aluminum, Titanium, Steel, Inconel, etc..) from 30mm upto 8000mm
- Sheet Metal Forming (Aluminum, Titanium, Steel, Inconel, etc..)
- Additive manufacturing (plastic and metal)
- Expertise (NCM, Mechanical, Metallurgical, etc..)

Products | Services | Applications |Technologies

INTERNATIONAL SPACE STATION
MULTI PURPOSE LOGISTIC MODULE (MPLM)
Liquid Nitrogen distributor to refuel the space station.
Manufacturing of key components, assembly and final control.
INTERNATIONAL SPACE STATION
MULTI PURPOSE LOGISTIC MODULE (MPLM)
REAR CLOSING DOOR (Aluminum).
Machining (5 Axis) and final control.
ARIANE IV
SPACE LAUNCHER BOOSTER COMPONENT (Uranus)
Machining (5 Axis) and final control.
INTERNATIONAL SPACE STATION
MULTI PURPOSE LOGISTIC MODULE (MPLM)
Front Door (Aluminum)
Front Door INTERNATIONAL SPACE STATION
MULTI PURPOSE LOGISTIC MODULE (MPLM)
Liquid Nitrogen distributor to refuel the space station.
Manufacturing of key components, assembly and final control.
INTERNATIONAL SPACE STATION
MULTI PURPOSE LOGISTIC MODULE (MPLM)
REAR CLOSING DOOR (Aluminum).
Machining (5 Axis) and final control.
ARIANE IV
SPACE LAUNCHER BOOSTER COMPONENT (Uranus)
Machining (5 Axis) and final control.

INTERNATIONAL SPACE STATION
MULTI PURPOSE LOGISTIC MODULE (MPLM)
Front Door (Aluminum)
Front Door

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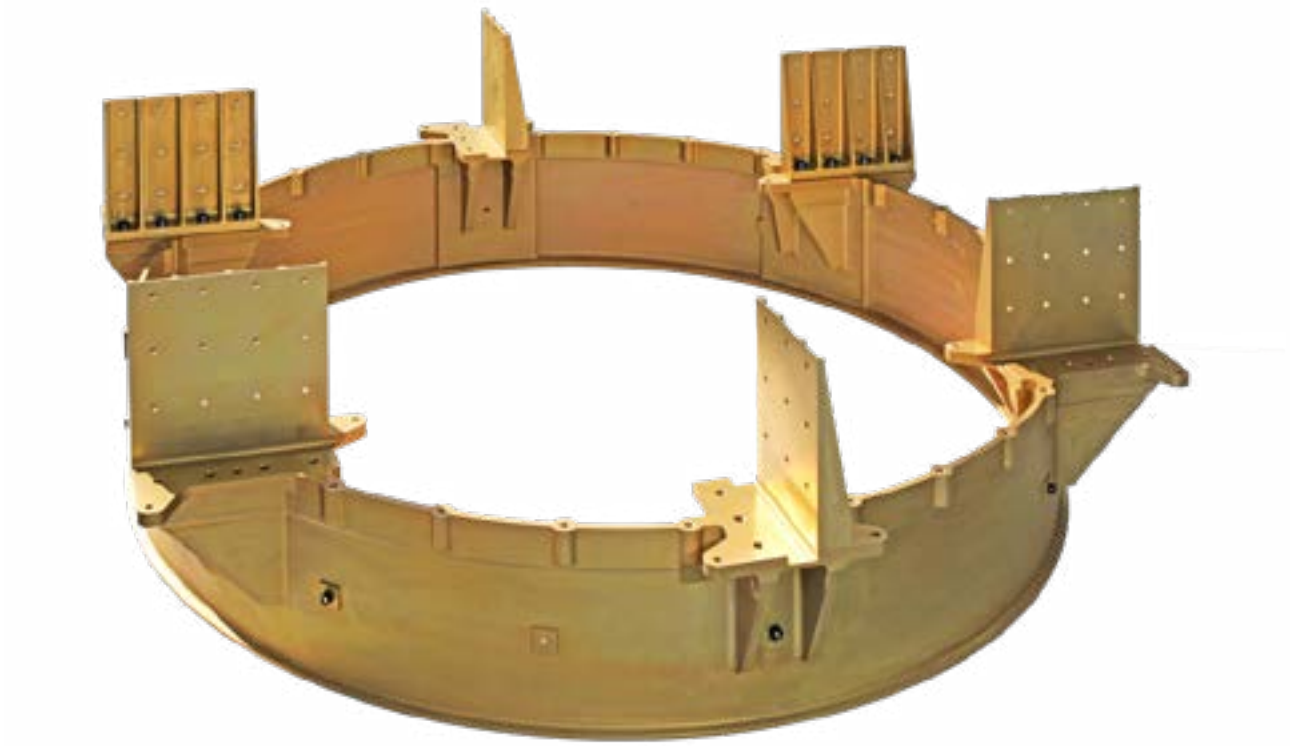

LTG Elettronica

Company profile

LTG Elettronica is active in the design, development, prototyping and small production of electronic equipment, with specific reference to EGSE (Electrical Ground Support Equipment) for the Aerospace Industry.

Our latest EGSE equipments have been provided to the following companies:

- Thales Alenia Space Italia
- Airbus Italia (former Space Engineering)
- Astrium (Airbus UK)
- SAAB Bofors Dynamics Switzerland

Our equipments have been used in the following space programs:

- BEPI-Colombo
- SICRAL
- Athena Fidus
- AMOS 3
- ALPHASAT
- Euclid
- SAOCOM
- MetOp 2G
- Jason CS/Sentinel 6
- ONE SAT
- Biomass

Products | Services | Applications |Technologies

High-Current Pulse Generator Pyrotechnics Initiator was designed as an EGSE (and also available as a transportable suit-case). The four-channel, high-current pulse generator is capable to ignite Electro Explosive Devices (EED), type ìPC23 NASA Standard Initiatorsî (NSI), and to activate the ìNon Explosive Actuatorsî (NEA). By providing a high-energy, time-controlled pulse, unit fires standard initiators well above the all-fire current rating. Constant current design allows long interconnecting cables to be laid between the EGSE and the EED. The FIRE button starts a pulse generator with a selectable width (5 to 60 ms) which allows the current pulse to flow through the selected circuits. A digital LCD display shows the fire current for each channel. Circuit (test current through the harness and initiator) is verified and displayed by LED indicators when unit is switched from SAFE to ARM. EGSE was also used for the final tests theHRMCE devices (Holdown Restrain Mechanism Control Electronics) part of the antenna release mechanisms of SICRAL, the Pyro Valves of BEPI-Colombo in Guyana, and for the HGAMA of Euclid.

APME (Antenna Pointing Mechanism Electronics) EGSE for position and thermal control of two LAPM (Linear Actuators Pointing Mechanisms), each one equipped with two Linear Actuator. Capability to drive bi-phase and three-phase unipolar or bipolar motors. Unit designed to read a LVDT positioning sensor, wich was linearized for full excursion with a 5 degree polynomial. Also ready to interface potentiometers. Unit was used to perform near field measurements of the antennas in anechoic chamber. Actuation sequences were programmed to run tests overnight by means of an integrated batch command processor. Packaged as a transportable unit. System software implemented with LabView Æ.

Modular Test Equipment for the EGSE of the MetOp 2G Microwave Imager (MWI). System composed of 2 boxes: one for DC load and inrush current simulation of all radiometer receivers in the RFA Assembly, the other for thermistors, heathers, video, and SBDL emulation. Test Equipment allowed complete HIL (Hardware In-the Loop) testing of the EGSE hardware, and was also used as an aid to EGSE software development.

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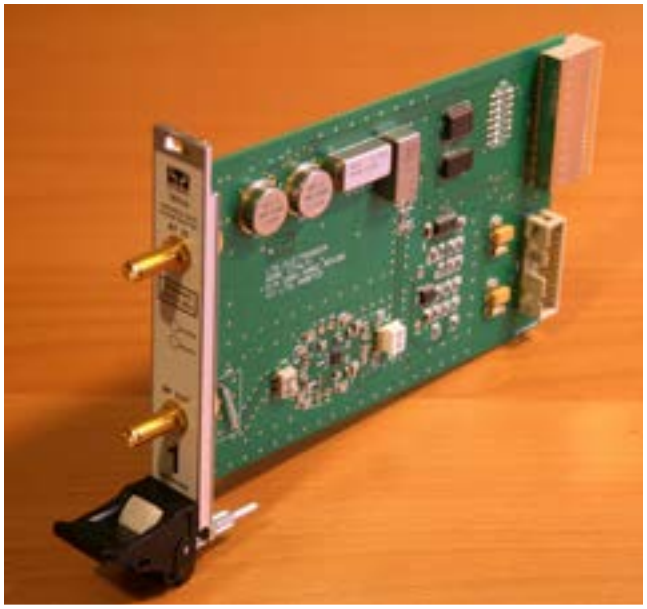

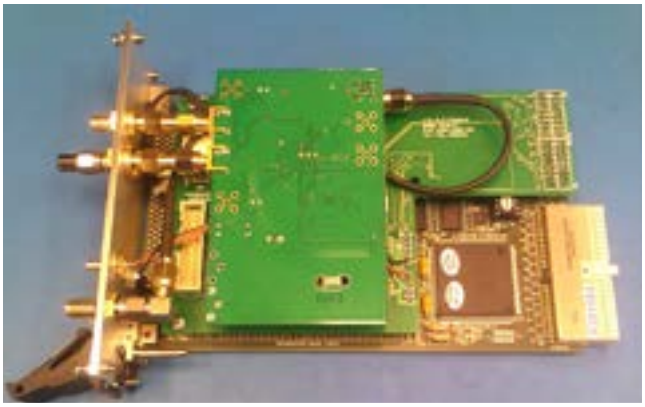

MBI

Company profile

MBI was founded in 2001 with a mission to create innovative IT services and telecommunications systems. MBI uses the most advanced information and telecommunications technologies to develop its business, mostly in overseas markets. Over time it has become an international reference of different areas, a member of some international standardization forums and has been involved in European Union and European Space Agency projects (ESA).

The technical and practical knowledge and expertise of MBIís staff are enhanced by close contact with the prestigious Pisa universities, including the Scuola Normale Superiore and the Scuola Superiore SantíAnna, as well as the National Research council (CNR) and other academic institutions. This, together with the multi-sectorial knowledge gained within MBI, means that technology transfer and training are continuous processes, resulting in high caliber staff. The key ingredients for the success of MBI can be identified as continuous research and development into innovative solutions, its choice of partners and customers which help it grow.

Products | Services | Applications |Technologies

MBI develops next-generation satellite communication technologies for wideband, Internet of Things and Machine to Machine applications.

HYPERCUBE is an innovative, cost-effective solution that meets the requirements of millions of intelligent connected objects to boost machine-to-machine (M2M) applications and to make the internet of things (IoT) a reality. HyperCube paves the way for the deployment of a satellite IP-based network, that enables M2M services, scalable to tens of millions of users, with simple, consumer-grade equipment. This ambitious target can be made possible thanks to the use of state-of-the-art techniques, such as bandwidth-efficient protocols and advanced signal processing, that support tens of million devices, using low-cost and power-saving equipment.

The SSEEM (Spread SpEctrum Esva Measurement) System allows Satellite Operators to measure the co- and cross-polar radiation pattern of the transmit/receive antennas of ground stations during Earth Station Verification and Assistance (ESVA) tests. It is a compact and innovative product based on a spread spectrum approach.

MASSIVE: satellite gateway able to receive and manage the traffic transmitted by a large population of terminals which asynchronously transmit short messages with low duty cycle via a satellite communication channel.

IOT SATBACK: design, development and test of a prototype backhauling solution, including satellite terminal, satellite gateway and NB-IoT network functions, which is capable of providing efficient NB-IoT backhauling services using satellite technologies.

BUSINESS INTELLIGENCE Using big data effectively leads to incredible competitive advantages. Business Intelligence and Business Analytics help monitor Key Performance Indicators and predict how they will progress over time. PowerSched0 is the MBI solution able to go that one step further: it models and simulates real-time business scenarios in order to optimize performance. It is unbeatable for strategic planning support. PowerSched0 is a software tool used to support decision-making for complex business problems and is used in many areas: energy, production, logistics, etc. Starting from the mathematical modeling PowerSchedo processes accurately and reliably the ìactionable insightî, thus gaining real business benefits.

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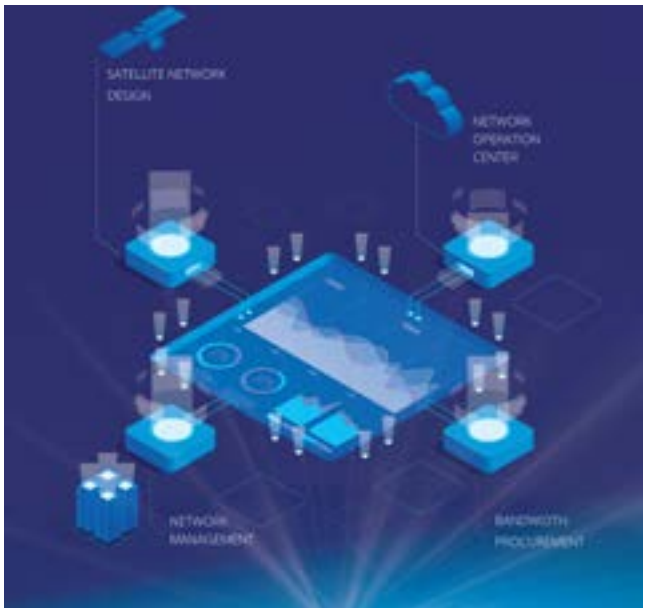
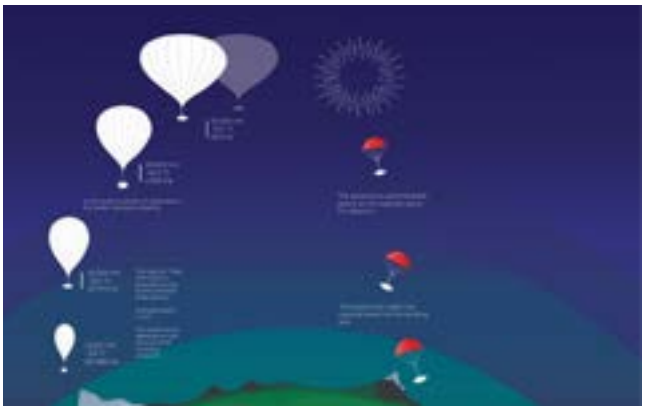

SATELLITE NETWORK
DESIGN
NETWORK
OPERATION
CENTER
NETWORK
MANAGEMENT
BANDWIDTH
PROCUREMENT



MEC

Company profile

MEC was founded in 2004, as spin-off of Bolognaís and Ferraraís Universities, in order to offer to the Italian and European enterprises, the know-how coming from the university R&D department in the field of microwave electronic components, with a main focus on MMIC and TR Modules. The Companyís expertise and core business, are based on the executive design, lay-out generation, on wafer probe test, on jig electrical & thermal characterization of MMIC.s and discrete active components. The leading technologies based on GaAs and GaN semiconductors are used in our projects. A manpower of fifteen PhD Engineers, with solid background and expertise in MMIC design, make the strength of our Company. Further, the most advanced software tools , based on ADS , Microwave Office Sonnet EM and Ansys TAS, are always available to this design team. On the base of the excellent results achieved in strategic European projects for Space, MEC was appointed by UMS (which is first European GaAs/GaN foundry) its official Design House. Since then, a very tight cooperation is in progress with this foundry, which allows MEC to get early access to each new technology. From its inception, MEC had the opportunity to develop, for enterprises which are leaders in satellite systems, as Thales Alenia Space, Selex , and Space Agencies as ESA , CONAE and ASI, very innovative microwave integrated modules and advanced MMICs, which allowed us to become one of the preferred European Design Centre for spatial microwave components. The most known European satellite programmes, to name some : Iridium, Galileo, CosmoSkymed, SIASGE, SentinelÖetc, board MMIC.s and microwave ybrids in their most critical line-ups, developed by MEC.

Products | Services | Applications |Technologies

X-Band GaN Single Chip TR-Module

27W X-band GaN HEMT HPA

50W L-band, 45% PAE

High Power Micro-Modules L, C, X band

Over the twelve years since our inception, we had the opportunity to cover a large spectrum of designs, from L band thru W band, both for small signal and very high power amplifiers. The above pictures give an idea of some significant items which address the new generation of SAR Antenna for Earth Observation 1), 2), 4) and mobile Communications (Iridium) 3).

More in general, the following products, based on GaAs and GaN technologies, represent a short catalog of what a Satellite System Integrators can find as MECís off-the shelf

HPA at X, Ku and Ka band for satellite and terrestrial telecommunication systems.

HPA at L and X band for Earth observation satellite.

Down converter at V band for Telecommunication Satellite.

VCO at C, X and Ku band.

LNAs from 2 to 20 GHz.

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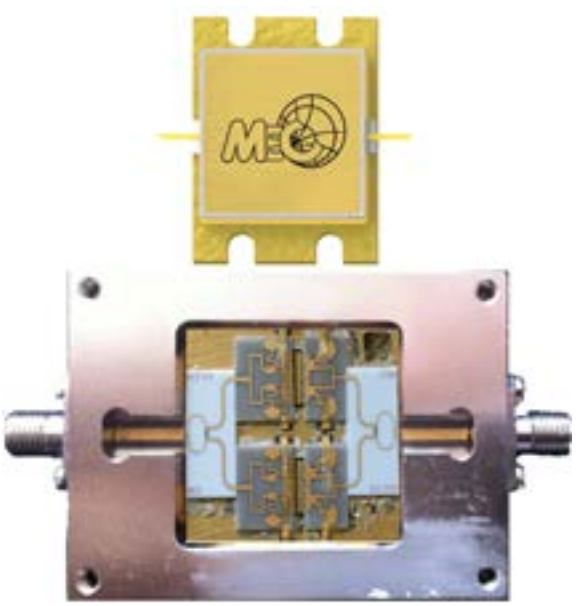

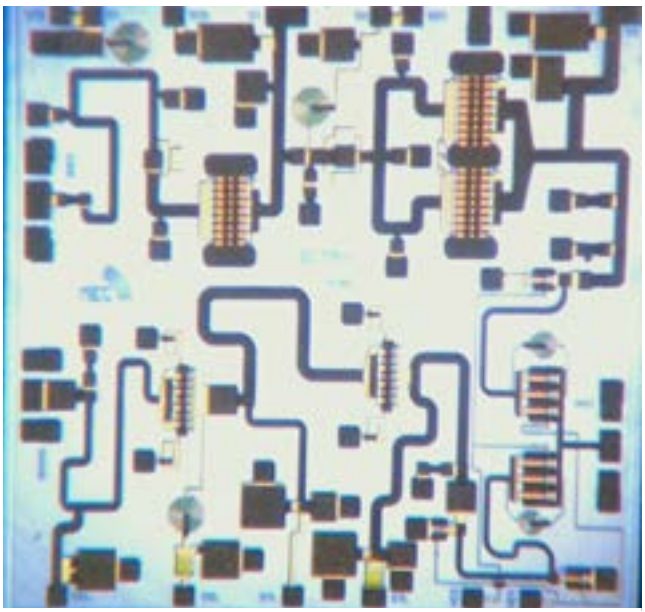

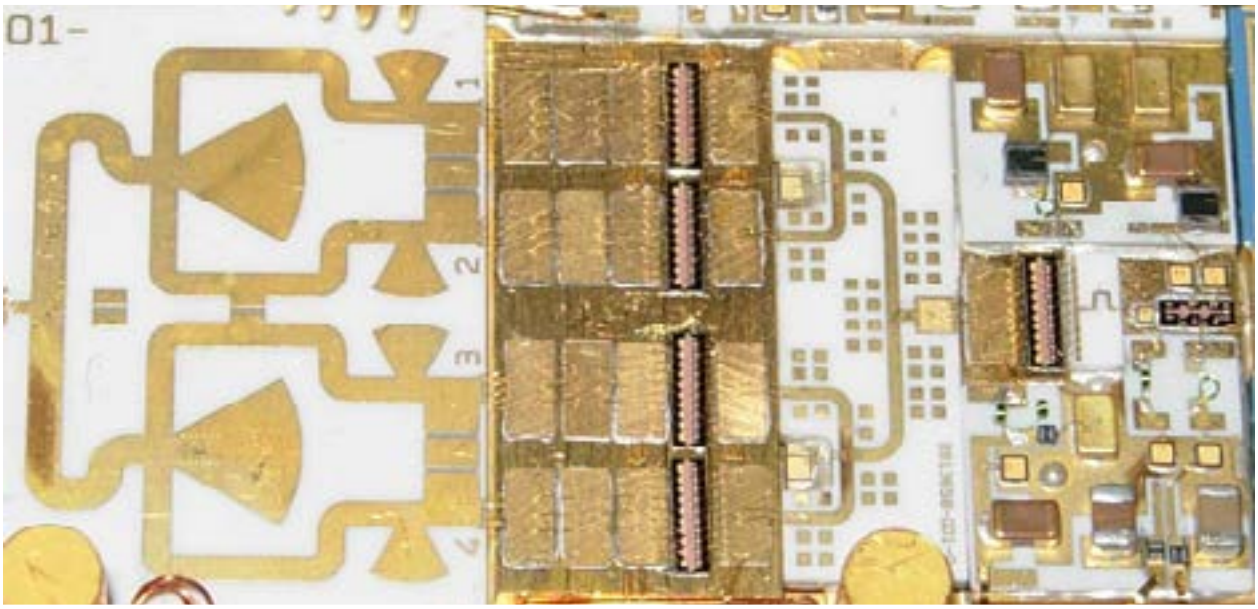
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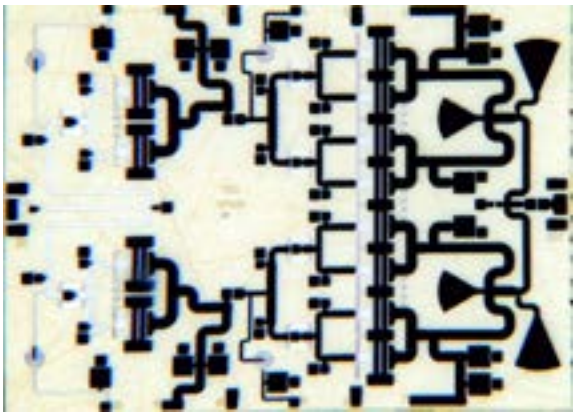

Media Lario

Company profile

OVER 25-YEAR EXPERIENCE OF HIGH PRECISION OPTICS IN SPACE

Media Lario is a dynamic and innovative technology-driven company supplying high specification optical components and optical sstems including the patented Repliformed Opticsô process suitable for high volume applications.

We work with leading industrial and Agency partners including Agenzia Spaziale Italiana (ASI), the European Space Agency (ESA) and NASA.

For more than a quarter century, Media Lario has been providing the technology to take some of the most significant and beautiful Images of the Universe ever seen. This work has contributed greatly to scientific research and understanding of the world in which we live.

Media Lario optics have been utilized in space borne programs since company founding for large scale missions like Beppo-SAX, XMM-Newton, SWIFT, ROSETTA, eROSITA, CHEOPS, METOP.

Ongoing programs include ATHENA, Einstein Probe, ASTHROS, FLEX, PLATO, ARIEL.

Products | Services | Applications |Technologies

REPLI-FORMED OPTICSô

Suitable for high volume ñ 1-day manufacturing time for optics Scalable production ñ Production capacity for 100ís telescopes / month High replicability ñ Process uses a mould, no grinding or polishing High Precision Glass Mirrors, Lenses and Metallic Mirrors Shape accuracy ? 20 nm ñ Aspheric, off-axis, freeform designs for UV, VIS, IR Size up to 1.2 m or larger ñ Including Glass, Quartz, Zerodur, Alum substrates

LASER OPTICAL COMMUNICATIONS TERMINALS OPTICS

Optical assemblies for inter-satellite and ground communication Suitable for small satellite constellations. Utilizing patented high-volume, low-cost manufacturing processes

SATELLITE OPTICAL SYSTEMS

Hyperspectral EO Payload for Small Satellite ñ 9+ bands, 2.7 m res PAN, 5 m res RGB Custom high-performance optical systems with <1 m GSD for small satellites constellations.

X-RAY OPTICS

Optical assemblies utilizing patented electroforming technology Large range of coating materials and complex shapes High Precision Curved Mirrored Panels Laminated structures made of Ni or glass skins glued to Alum honeycomb (? 15 kg/m2) Shape accuracy ? 10 µm ñ Spherical, aspheric, off-axis designs. Life tested to 20 years.

LIGHT-WEIGHT METALLIC PANELS

Light-weight Metallic Panels, with weight per area of 15 kg/m2 for large segmented surface coverage. Shape accuracy better than 10 µm ñ spherical, aspheric, off-axis, freeform designs. Extended lifetime in open and harsh environments ñ life tested to 20 years.

LIGHT-WEIGHT MIRRORED PANELS

Weight per area of 15 kg/m2 for large segmented surface coverage. Shape accuracy better than 10 µm ñ spherical, aspheric, off-axis, freeform designs. Surface materials include coated thin glass, coated polymers, and other materials.

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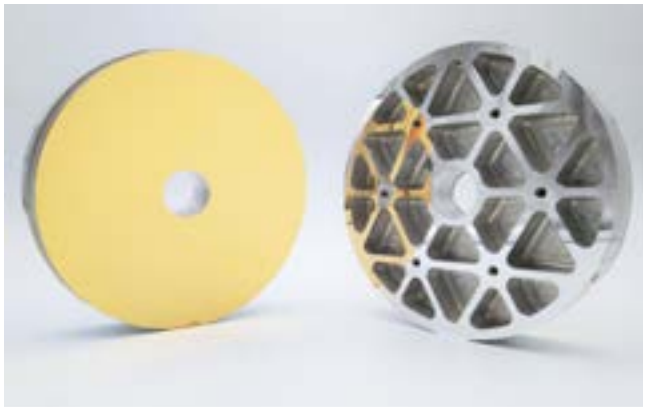

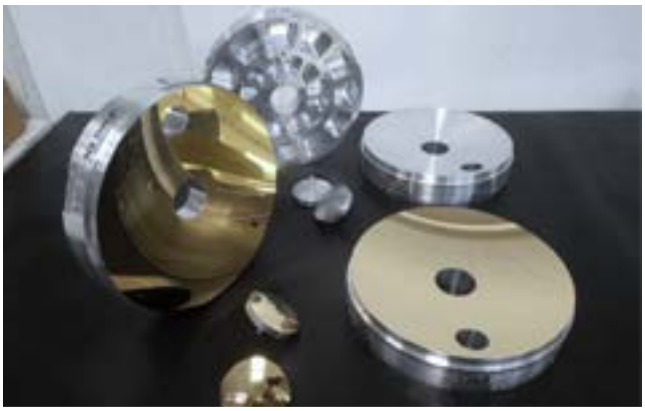


Media Lario

Metasensing

Company profile

MetaSensing Srl is the Italian side of MetaSensing group, specialized in the design and manufacturing of advanced RADAR systems. With offices in Milan, Rome, and Rocca DíEvandro (CE) it represents the company Defence and Space division. MetaSensing is a small-medium enterprise focused on the development of advanced radar technology and systems, especially Synthetic Aperture Radar (SAR), to offer customers cutting-edge solutions for their needs for intelligence, surveillance reconnaissance and defence.

Over the years MetaSensing has developed numerous high-resolution radar solutions for spaceborne, airborne and ground systems.

Technology, hardware, and software, is developed in-house and is company-owned, making MetaSensing a consolidated renown technological reality with a broad portfolio of radar solutions and customers in many countries around the world.

MetaSensing know-how covers the full cycle of a RADAR mission including requirements consolidation, system design and performance analysis, manufacturing, assembly, integration, testing including firmware and control, processing, and visualization software development.

MetaSensing development are based on state-of-the-art technology including solid-state technology, heterogeneous processing with FPGA, CPU, GPU, and advanced simulations and processing algorithms.

With offices in Italy, Netherlands and Singapore and a network of business partners in many countries, MetaSensing offers customized radar solutions for multiple clients including R&D Centre, Universities, Government Agencies, and commercial players.

Products | Services | Applications |Technologies

MetaSensing develops customizable state-of-the-art radar sensors for spaceborne, airborne, and ground based imaging, surveillance, monitoring, security and defence.

STARSAR-X: Multimode high-resolution SAR payload operating at X band with up to 30-centimetre resolution and 3 kW transmitted power. The payload targets small satellites above 250 kg. The StarSAR-X is a phased array SAR system with Spotlight, Stripmap, ScanSAR and TopSAR acquisition mode capabilities and a ground GPU hardware accelerated SAR processor based on Global Back Projection. The same ground SAR processor can also process data from other spaceborne SAR payloads.

AIRBORNE SAR: SAR systems for manned and unmanned airborne platforms with high accuracy, high resolution and a great flexibility compared to spaceborne platforms, allowing for choice of frequency, geometry, trajectory, and flight time. SAR available at P, L, C, X, Ku and Ka frequency band in polarimetric and interferometric configurations.

GUARDIAN: high-performance state-of-the-art end-to-end real-time airborne SAR system with innovative technology for drones and manned aircraft. It provides strategic information through a heterogeneous processing system that uses the computing power of the FPGA, CPU and GPU for real-time high-resolution imaging, moving target detection and tracking, maritime and border surveillance.

FOPEN: Detection of stationary and moving objects in forests using low-frequency SAR with optimal geometric resolution to discriminate the objects from the background.

BISTATIC AND PASSIVE RADAR: Radar systems in which the transmitter and receiver are not collocated, including use of passive radar to detect and track objects by processing reflections from non-cooperative sources of illumination.

SAR SIMULATOR FOR AI AND ATR DATABASE GENERATION: a realistic Synthetic Aperture Radar simulator able to estimate the complex RCS of a realistic scenes with targets and background and to model the SAR collection and processing stages to build a synthetic yet realistic database of target-background SAR images. The simulator can create the database of 10k+ SAR images with labelled targets for the training of convolutional neural networks.

ECR-C: Electronic Corner Reflector is a compact active transponder developed for the end-users of satellite-borne C-band Interferometric Synthetic Aperture Radars (InSAR) for deformation monitoring.

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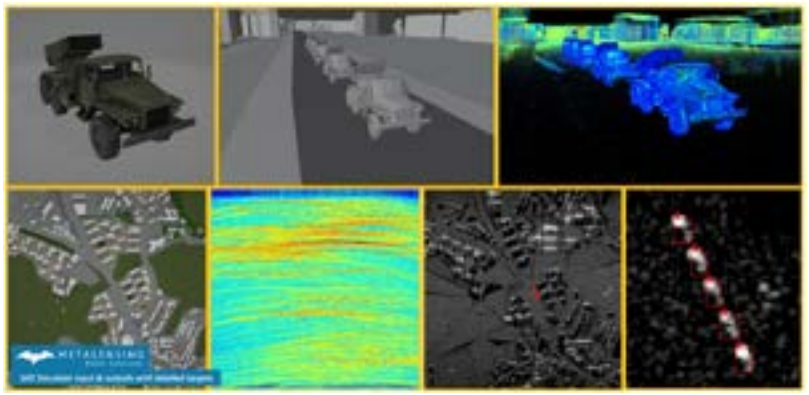
FastGBSAR: Ground-based Interferometric SARfor high-resolution high-revisit time deformation monitoring of landslides, infrastructures, slopes, with 0.1 mm accuracy.

CUSTOM DEVELOPMENT: Custom design and development of advanced radar systems

TECHNICAL ASSISTANCE: Customized airborne SAR data collection at different frequencies (P, L, C, X, Ku, Ka) and in different configurations (Interferometric, Polarimetric, Tomographic, Bistatic) to support future missions and new algorithms developments

SAR DEMONSTRATORS: Customized development of airborne SAR demonstrators, at any frequency, for evaluation of future SAR missions design and for airborne SAR data collection and verification.

Airborne SAR Mapping Services:Airborne mapping services at multiple frequency (P- & X-band) for generation of high-resolution high-accuracy Digital Elevation Models (DEM).



Meteorological Environmental Earth Observation -MEEO

Company profile

It all has begun with the weather. Weather monitoring from space and from local weather stations has always been the fil rouge of the history and the present of MEEO. Since the beginning, the MEEOís staff has been spending all its resources and energy to facilitate the access and the exploitation of any kind of geospatial data with a clear focus on remote sensing and climate data. Founded in 2004 in Ferrara, Italy, MEEO started its activity providing products and services for climate monitoring and atmospheric pollution monitoring, extending successively its application domain to the Earth surface mapping.

In 2006, ESA awarded MEEO with an industrial contract for the implementation and development of products and services based on remote sensing and since that time, the company has been continuously working in the space sector by providing innovative solutions to cope with the never-ending challenge of Earth Observation data exploitation.

MEEO has always been looking for new ways to evolve and, in 2009, a branch company, SISTEMA GmbH, was founded in Vienna as R&D laboratory. SISTEMA is focused on the development of new data processing tools, working mainly on ESA and on Austrian National projects. In 2011 MEEO became an affiliated partner of the Climate-KIC European initiative, investing in innovative projects to create new services for the climate mitigation and adaptation market.

In 2014 MEEO opted to improve the quality of its offer establishing a owned data infrastructure that provides on line processing and storage capability. The MEEO Data Facility (MEEO-DAF) is a high performance infrastructure created to support the high computing demand of geospatial data and services and to develop and test new cloud computing solutions for big geospatial data exploitation.

In 2018 MEEO entered formally in the Copernicus world becoming a partner of the Copernicus Academy network to empower the next generation of researchers, scientists, and entrepreneurs with suitable skill sets to exploit Copernicus data and information services at their full potential.

MEEO boasts a team made by people with a decadal experience and passion for innovative solutions in the use of Climate and Earth Observation data and tools and with a deep knowledge of the whole value chain of the space data management and processing.

Products | Services | Applications |Technologies

MEEO started developing thematic applications in the domain of meteorological and climate data and since the beginning, it was quite clear that the main barrier to provide effective EO data services was the complexity of the data preparation phase. For this reason, in 2008, MEEO decided to extend its internal R&D working programme to the data accessing part of the Remote Sensing Processing value chain. Bridging the gap on data accessibility has become the core mission of the company and the steady effort dedicated to pursuing this scope has produced a game changer product called ADAM, the Advanced geospatial DAta Management platform. ADAM implements the Digital Earth concept allowing the access to large variety of multi-year global environmental data (e.g. temperature, precipitation, vegetation status, etc) enabling visualization, combination, processing and download (https://adamplatform.eu/). ADAM makes global environmental geospatial data Findable, Accessible, Interoperable and Reusable (FAIR). ADAM exposes heterogeneous geospatial data as datacubes allowing effective subsetting functionalities. ADAM provides the user with only the portion of data in space and time which is really needed.

ADAM is an enabling technology for geospatial data processing centres. By means of its unlimited customizations, it allows to implement the ìdata as a serviceî paradigm to enhance the processing performance, to extend the processing capability and to improve the level of automation and flexibility of the cloud-based data processors. ADAM can be linked to existing user environments by exposing backend data access services or it can be provided with user interfaces like a web data portal and jupyter notebooks.

Regarding the Sustainable Development Goals (SDGs), the major part of them can take benefit from the

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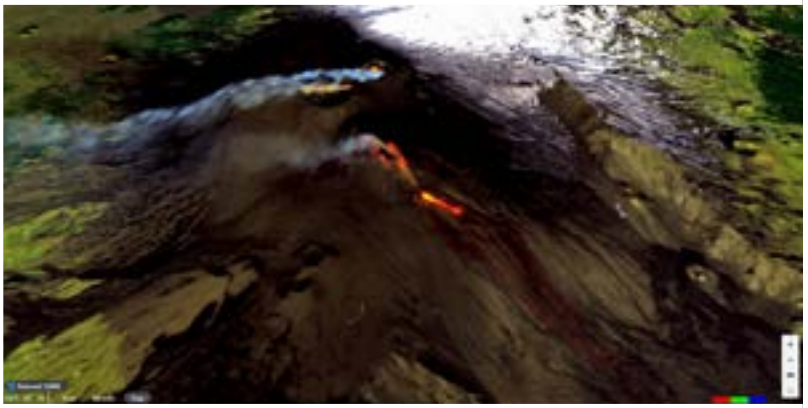
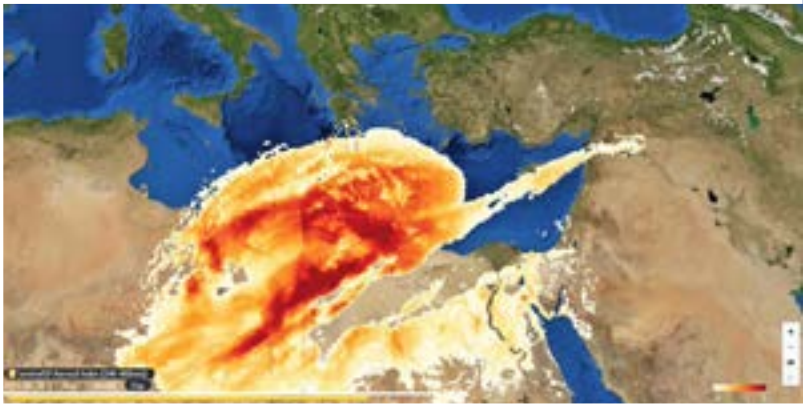
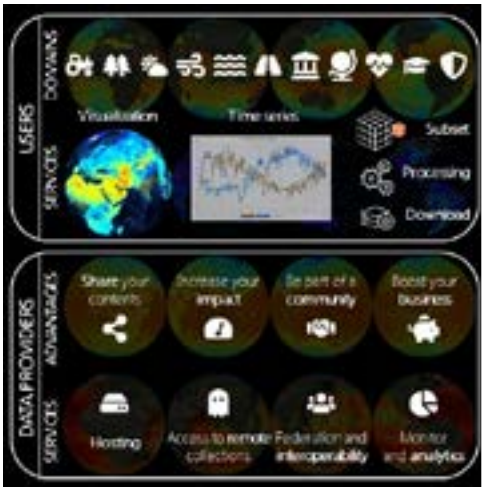
implementation of the ADAM technology. In the Earth Observation for Sustainable development initiative, ADAM is supporting climate-resilient decision making by providing a quick, easy assessment of climate anomalies (hot spots detection) and rapid calculation of climate risk indicators and associated extreme events. The climate indicators and the EO data analytical tools implemented in ADAM are used to support the insurance sector and European farmers community in the agricultural sector, the monitoring of Climate change effects on Cultural Heritage and the assessment of Climate-related Health risk.

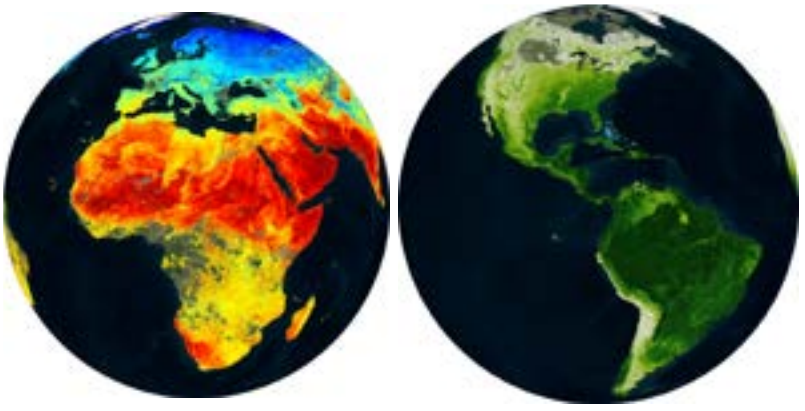
At professional level of education and training, Geospatial Big data is currently one of the hottest topics for data researchers and industry in the space economy and ADAM provides a unique data laboratory and learning environment to grow the new generation of geospatial data experts.

MEEO is bringing its decadal experience in Earth Observation data also to planetary science projects to support scientific communities in data exploitation services development. Thanks to the scientific missions for Mars exploration, a large amount of data is now available and it needs to be made available to planetary scientist to be analysed. In the framework of the European Open Science Cloud program, MEEO is evolving its data exploitation tools to support and promote the Open Science practices and play active role in the materialization of the EOSC ecosystem by efficiently engaging the Planetary Science community.









MTM Project

Company profile

MTM Project is an innovative Apulian SME specialized in software development and IT consulting, one of the pioneers in Italy in the design and development of applications based on the use of virtual and augmented reality.

Main products: AURES: the Smart Glass and Smart Phone software system for service, maintenance and production assistance through Augmented Reality. Advantages: reduces intervention time and costs, as it eliminates distances through remote assistance. It promotes know-hows sharing throughout the company. It is totally ìhands-freeî: you do not require your hands to take notes or compile reports.

HIL VR: the Virtual Reality and Machine Learning software, for the training of technical staff through the use of VR procedures (for learning) and the Machine Learning algoritms (for checking of training) Advantages reduces training costs by 65%, halves training time, promotes self-training and e-learning, improves organization of technical staff

Products | Services | Applications |Technologies

AURES - the Smart Glass and Smart Phone software system for service, maintenance and production assistance through Augmented Reality. It allows to view technical documentation, technical information in AR through mark or QR code, identify tools or elements suitable for each operation, use remote access and video calls for remote support requests, record audio and automatically transform it into text documents, record videos and take photos and store them on the cloud / server.

Advantages: reduces intervention time and costs, as it eliminates distances through remote assistance. It promotes know-hows sharing throughout the company. It is totally ìhands-freeî: you do not require your hands to take notes or compile reports.

HIL VR - the most powerful Virtual Reality and Machine Learning software, integrated in a unique Platform, for the training of technical staff which, through the use of VR procedures (for learning) and the Machine Learning algoritms (for checking of training) allows, in complete safety, to learn the operations that must be carried out at work. In order to anticipate the experience on the job, the system uses three different training steps:

ï learning by observing 360 ∞ video

ï assisted simulation in VR experience

ï simulation through VR experience, without training assistance.

Advantages: reduces training costs by 65%, halves training time, promotes self-training and e-learning, improves organization of technical staff

Contact

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MTM Project srl

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IN VIRTUAL REALITY

NADIR - Plasma & Polyners

Company profile

Nadir S.r.l. is a small enterprise headed by some experienced researchers that focus their activities in the application of an innovative and proprietary cold atmospheric plasma technology and in the development of advanced polymer composites.

The Company holds an international patent, related to the new plasma jet device that is now emerging in several fields ranging from advance manufacturing to biomedical, for surface cleaning, adhesion promotion and functional coating depositions.

Products | Services | Applications |Technologies

Nadir Plasma

The Nadir Plasma device is a dual frequency plasm jet type that works in atmospheric conditions and thus does not require vacuum systems for the plasma generation.

Thanks to the innovative own design the Nadir device is able to generate efficient and cold plasma, (even less than 40 ∞C on the substrate) particularly suitable for surface treatment of heat sensitive materials.

Surface treatments for Printed Circuit Boards, Optical Lenses, othersÖ

Cleaning, Activation, Etching, Bonding, Adhesion, Polymerisation, thin films deposition of functional layers.

The Nadir Plasma device is also mounted as module in additive manufacturing 3D printing application for surface modification of materials during the printing process.

Nadir Polymers

Nadir is a supplier of custom compounds for end users looking for innovative polymer materials, blending a specific polymer with performance additives or other polymers to achieve properties specific to each application. The technology used by Nadir is Melt compounding assisted by the use of a Lab Scale Corotating Twin Screw Extruder.

Consolidated experience in the realization of polymer compound with: à

- Enhanced mechanical, thermal, gas barrier properties à
- Antimicrobial/antioxidant/antibiotic and other biologically activity à
- Graphene based filler for conductivity improvement à
- Metallic nanoparticles for metaldetect-ability à
- Phluorofors for optical recognition à
- Innovative lightweight material (nanostructured bulk or foam polymers)

The custom compounds can be obtained as a pellet or as calibrated filament for 3D printing applications in order to obtain 3D article with specific functionality with a tailor made approach on the base of customer request.

- On demand atmospheric plasma surface treatments and functionalistion
- Customised atmospheric Plasma equipment realization
- On demand specialty masterbatches with tailor made properties
- Melt compounding service
- Technological Scouting of Innovative high performance materials
- Plasma & Polymers scientific consultan

Contact

Business Name

NADIR srl - Plasma & Polyners

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CUSTOMIZED DEVICES

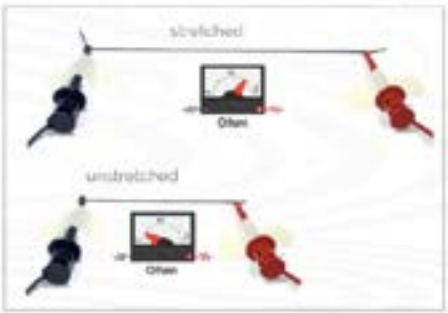
NADIR

6 jets integrated system

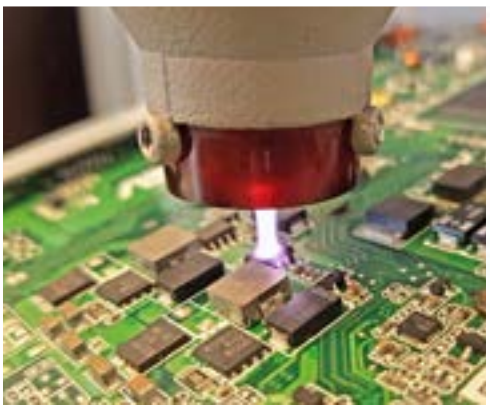
Modular design for higher surface coverage

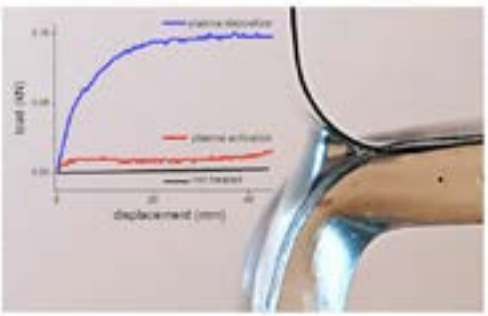
Tubular Plasma for continuous functional coating deposition on tubings and wires

Plasma Jet module installed in FDM 3D printerss for adhesion improvement and functional coating deposition



SMART POLYMERS
Electroconductive & Thermoconductive compounds (2 Ωcm < X < 2 MΩcm)





Adhesion improvement in overmolding applications

Polymer to polymer
Polymer to metal

Nanoracks Space Outpost Europe

Company profile

Nanoracks Space Outpost Europe srl is an Italian company based in Turin, Italy. The company is part of XO Markets Holdings Inc., the worldís first commercial space company, encompassing Nanoracks LLC, DreamUp, Nanoracks Space Outpost Europe (Nanoracks-Italy), and Nanoracks UAE.

Nanoracks is internationally known as the single largest commercial user of the International Space Station, having successfully launched into space over 1000 payloads for customers in over 30 countries and generating revenues in excess of $50 million since its establishment.

Nanoracks is the world leader concerning space accessibility, mainly thanks to the Space Act Agreements stipulated with NASA for use of the ISS. In addition, the company is active in India and China, and is currently involved in the early phases of the new moon initiatives. Furthermore, the company is heavily interested in emerging non-ISS platforms, e.g. free-fly capabilities.

Nanoracks is already an affirmed reality capable of creating space research hardware at efficient price points and, thanks to the accrued experience and leadership acquired over the years, is currently pursuing the goal of becoming the market leader in utilization of the space environment for enabling groundbreaking research in the fields of life sciences, biopharma, and agriculture.

Overall, Nanoracks is poised for a period of rapid growth due to several factors, namely:

- The continuation of the ISS for another decade, allowing for better leverage of the over $40 million in assets already invested in the ISS as of today.
- The companyís growing international reputation and space value chain footprint, further corroborated by the new investments from Voyager Space Holdings Inc., makes so that Nanoracks is uniquely positioned to take advantage of the explosive growth happening throughout the space sector.

In the future, Nanoracks is looking to expand its business activities by working closely with the existing realities present in the territories of their three main hubs (Italy, the US, and the UAE) partnering with them to translate their products and services to the space sector.

Products | Services | Applications |Technologies

Nanoracks can offer affordable and prompt space access services to everyone. Its target market customers are Education entities (e. g. school, universities, etc.), the Science Community and both Space and non-Space technology developers. The main services offered are:

- Satellite deployment, ranging from 1U CubeSat to MicroSat, to LEO;
- Science & Technology Payloads to be installed on internal and external platforms, e. g. sub-orbital crafts, ISS, LEO and beyond;
- Educational programs concerning space-related fields.

The Nanoracks facilities in Space are:

- LEO ISS - Internal Payloads: NanoLabs, Nanoracks Frame-3, and the proprietary Plate Reader, Microscope, and MixStix;
- LEO Satellite Deployment: ISS CubeSat Deployment, ISS MicroSat Deployment, External Cygnus Deployment, Other space vehicles (Indian PSLV, SpaceX Falcon 9, etc.);
- LEO ISS External Platform: Nanoracks External Platform, Bishop Airlock.

Nanoracks has already deployed over 250 satellites (ranging from 1U to Microsat) and delivered over 1000 payloads to space and is closely following the new opportunities offered by new endeavors venturing beyond LEO, primarily in CisLunar space and to Mars. All of these will be commercially driven and procured by customers as services provision request.

In December 2020 the Nanoracks Bishop Airlock was attached to the Tranquility module of the ISS. The airlock was entirely self-funded and will serve as a way to deploy small satellites and expose payloads to the space environment to conduct scientific research over its properties.

As of 2021, the company is also launching the DreamCoder 2.0, a collaborative development and programming environment in Python for the use of an electronic board equipped with 12 sensors both on Earth and on board the International Space Station.

Contact

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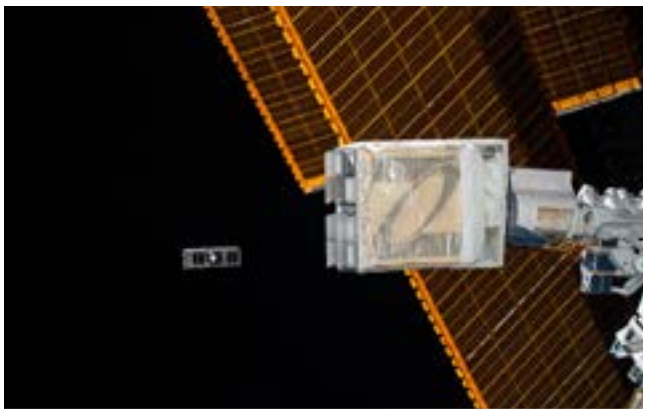

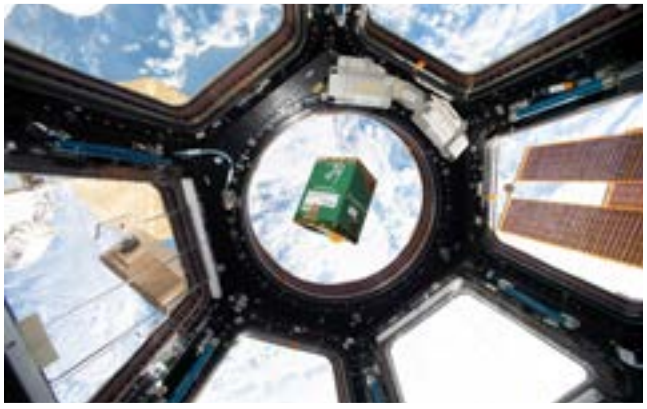

NCM TECNOLOGY

Company profile

We are advanced mechanical parts manufacturers specialized in the aerospace field. We supply aero structures, complex components, assemblies, subassemblies, and parts for the global aerospace industry as subcontractors or as direct suppliers. We can execute the design, manufacturing, testing and certification of all the components that we produce. We are partners of leading companies and we are involved in major projects for the civil aviation, the military aviation and the aerospace industry.

We have capabilities for 3, 4 and 5 axes machining of mechanical parts with dimensions up to 4 meters. With our presence and activity in this sector since 2008, we have now acquired a long experience for manufacturing small, medium and large mechanical parts and we highlight our components and tooling production for all kind of materials.

We are specialized in the manufacture of any kind of aeronautics tooling and we can provide a system of supply vertically organized including materials, machining and special processes. We extended our traditional machines to develop high technology tools that meet all irregular shape parts working especially for the aerospace sector. We produce a wide range of components for SAR satellites and many other aerospace mechanical parts and assemblies.

We have a wide capacity of working hours per year, with great resources and a technical staff with long experience.

The traceability of all the parts realized is ensured thanks to production cycles specifically created for each order. The conformity of the components and the repeatability of all details are ensured through our cutting-edge CMM machines. We stand in a leading position thanks to the high-level technologies used, the accurate realization of the projects and the strict quality tests procedures.

Our quality system is recognized and certified by RINA institution according to the strictest standard rules in place: AS/EN9100 and ISO 9001.

Products | Services | Applications |Technologies

Complex precision machines

SAR satellites mechanical parts

Components for civil and military aviation industry

Complex mechanical assemblies for the aerospace sector

Subassemblies and precision machining in aluminum alloys and any kind of special steel, meant for the global aerospace industry

Molds for Injection

Thermoforming plastic

Contact

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NCM TECNOLOGY srl

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NeMeA Sistemi

Company profile

NeMeA Sistemi Srl an Italian company that operates in the field of territorial and

Geographic Information Systems (SIT and GIS) and provides highly specialized

solutions in the integration of data and systems with particular attention to remote

sensing and the processing of RADAR/SAR satellite images. NeMeA Sistemi Srl was founded in September 2002 and currently has its registered office in Alghero (and local operational headquarters in Sanremo (The company currently serves more than 390

local public administrations and 84 utilities companies throughout Italy. In

the last 5 years, the turnover has grown steadily tripling and doubling the number of employees.

Products | Services | Applications |Technologies

GeoPortalPLUS - Business Object + GeoPortal

QGIS Ecosystem Plugin for Public Administration - CDU, UIU (land registry), Civic (ISTAT), SUEDI (one-stop shop for construction), ADE (cemetery)

QGIS plugin ecosystem for Utilities Companies: SuiteBT (low voltage electrical), -FIBRA (optical fiber), SuiteIP (public lighting), AquA (integrated water service network management)

App & Chat - PriMA (Human Resource Management Civil Protection)

TRUCK - Online platform for the release of new Exceptional Transports.

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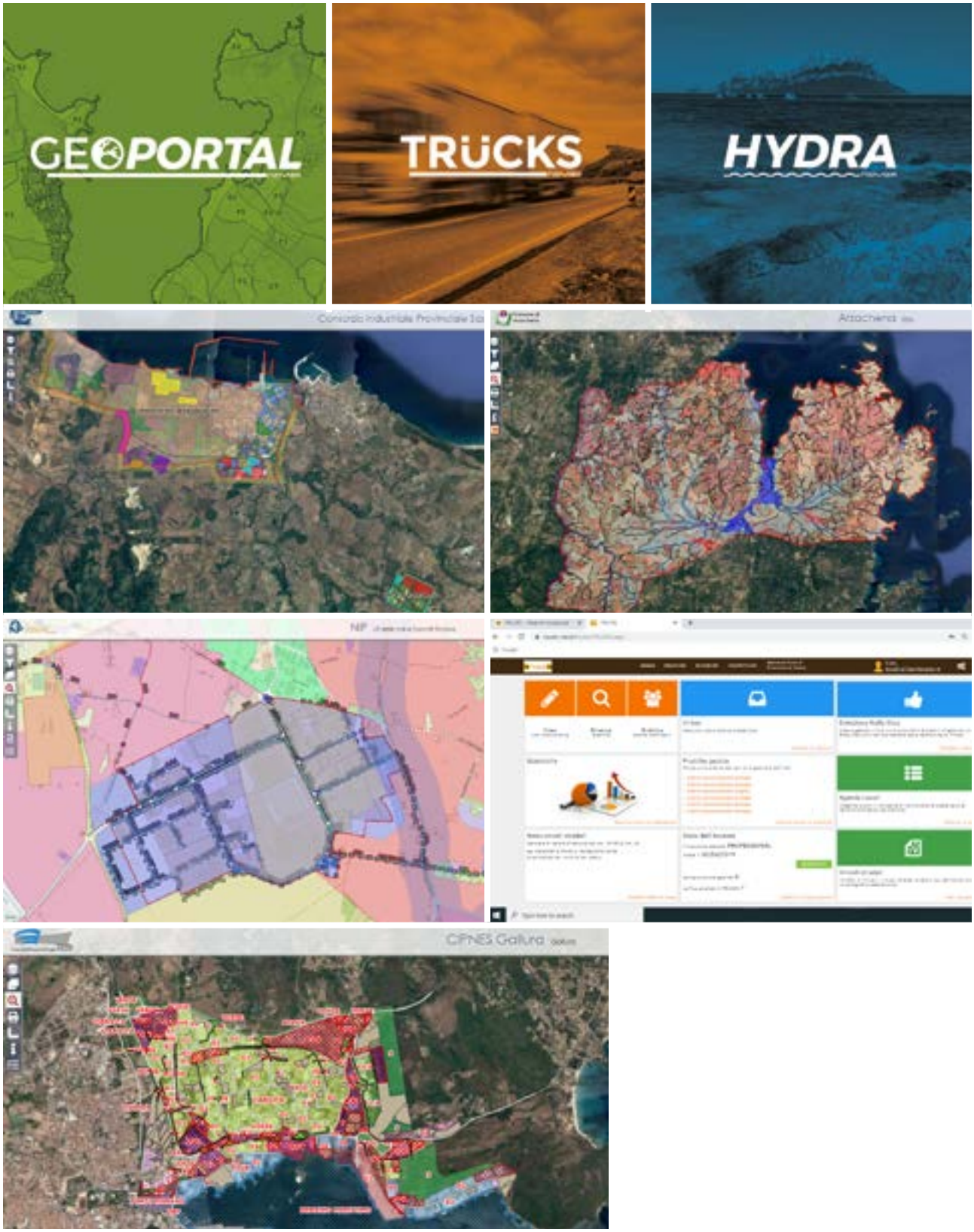
GEOPORTAL
TRÜCKS
HYDRA

NEXT Ingegneria dei Sistemi

Company profile

NEXT Ingegneria dei Sistemi S.p.A. is a strategic company at national level with a strong experience in the Defence, Space, and Cybersecurity markets. The company was born in 1999 and in 2018 joined Defence Tech Industrial Group, a total Italian consortium that owns knowledge and skills of the IT companies qualified in the Defence and Cybersecurity area.

We aim to be a reference point company in IT market, dealing everyday with the most innovative technologies. Our mission is to accomplish our Customers needs through advanced systems, services and products compliant to the most modern technologies and development standards, from the requirementsí identification, planning and implementation up to the evolutionary maintenance. Our services are based on the twenty-yearsí experience of our IT experts. The company is able to adapt its offer to the rapid changes of the markets in which it operates. Resources, creativity and technology are the fundamental elements of our culture. NEXT Ingegneria dei Sistemi S.p.A. is an engineering company qualified for conceiving, developing and integrating complex systems with high level technological content. We reach our goals through: attention to resources and know-how, creativity that produces new and continuous business opportunities, continuous technological evolution.

Thanks to decades of experience working on satellite navigation, earth observation, telecommunications and science programs through the collaboration with major national and international players, the company is able to meet the complex and changing needs of the space market through a diversified commercial offer.

Products | Services | Applications |Technologies

Key commercial offer for Space market

- turnkey supply of:
- ground segment subsystems of satellite missions
- systems using satellite navigation, earth observation, communication data for the application segment
- ground and on-board software "from cradle to grave"
- electrical ground system equipment for satellite system central check-out
- mission analysis and engineering studies
- market-oriented solutions
- provision of services for operational systems, ensuring compliance with the agreed service performance level
- provision of specialist consultancy to support its main customers' activities

Market-oriented solutions (Space)

"Fleet Management Tool" (FMT) is an integrated suite of tools providing a software solution for managing resources, planning tasks, real-time monitoring of tracked assets, post operational analysis and digital reports. Through the FMT it is possible to link different technologies, terrestrial and space, and display the enhanced information in an effective way. Through its distributed architecture, whose applications can be deployed on centralized server and on mobile devices, FMT is a versatile product that can be customized and configured to meet multiple user needs and applications.

ìNanosatellite Control Segmentî (NCS) is aimed to provide control and flight dynamics services to commercial and scientific nanosatellite constellations by means of an innovative ground control segment characterized by the following key characteristics: multi-constellation simultaneous management, compatibility with Mission Operation and Information Management Services, autonomous routine operation management and remote manned mission monitoring & control, multimission automatic orbital control management. NCS is provided with enhanced features to support the most advanced nanosatellite generation as well as standard features to be implemented for basic constellations.

Other company Products / Technologies

ìAR-TowerRî (i.e. Augmented Reality Tower for ATM/ATC) is an ICT system based on Augmented reality and advanced Computer Vision technology strongly integrated with ATC/ATM Primary Radars, Weather Stations, On Board Transponders ADS-B, also capable to manage ìNON Collaborative Targetsî

"SuSyARî (Surveillance System based on Augmented Reality) is a Situational Awareness ICT system and solution, mainly focused on the protection of Sensitive Sites and/or Areas, such as Airports, Military Sites, Power Stations, Power and/or Communication Infrastructures Nodes, Country Borders, Coastal Surveillance. SuSyAR is specifically well designed to detect, respond and manage, in a very fast way, to many kind of threats. Its capability to collect and process in real time a huge amount of data/information coming from heterogeneous and distributed environmental sensors as well as from multi purpose 2 axis orientation day/night/infrared cameras, make it an

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advanced and complete answer to the Urban and extra urban Security needs, and more in general to Smart Cities development, allowing easy integration with IoT (Internet of Thing) methodology and technology.

ìNEXT DATAî is capable to ingest, organise, analyse and through an advanced GUI, allows a very easy retrieval, access and relations creation, to heterogeneous data, no matter their format and organisation structure. Moreover «NEXT DATA», through an advanced GUI, allows the definition of data ontology, while the capability to distribute the analysis work load, allows an easy scalability, depending on the amount of data and analysis requirements.

NHAZCA

Company profile

NHAZCA (Natural HAZards Control and Assessment), Spin-off Company of "Sapienza" University of Rome, is a service and consultancy company, leader in the analysis and monitoring for the management and mitigation of risks of natural hazards and large infrastructures.

As a result of a constant effort in the innovation and optimization of the newest remote sensing technologies, NHAZCA provides to its customers cutting-edge solutions for the management, control and monitoring of natural and man-induced hazards, supporting the construction and administration of large infrastructures and natural resources exploitation projects, with a particular attention for a sustainable and responsible interaction between human activities and the natural environment.

NHAZCA is an international leader in monitoring services through innovative technologies such as the Satellite (A-DInSAR) and Terrestrial (TInSAR) SAR Interferometry. Given the specific properties of radar sensors, such solutions allow the measurement and control of surface displacements of the ground and structures with millimeter accuracy.

NHAZCA develops also the PhotoMonitoring technology to monitor with extreme precision changes and surface movements of structures and terrain using images acquired from different platforms (terrestrial, aerial, satellite) and sensors (optical, multispectral, infrared, radar).

NHAZCA is constantly focused on Research and Development activities to internally design and develop the hardware and software tools to provide its tailored solutions to partners and clients.

NHAZCA supports key international asset managers in the following markets:

- hydrogeological and seismic risk management,
- civil structures and large infrastructures,
- hydroelectric energy production,
- oil & gas,
- mining,
- land management,
- conservation of architectural and monumental heritage.

With an experience of more than 10 years of monitoring services and over 300.000 hours of continuous analyses, NHAZCA daily provides the finest personalized solutions for more than 300 customers from 40 different countries worldwide, representing a reliable partner able to provide high professional standards.

Products | Services | Applications |Technologies

NHAZCA provides monitoring, assessment and forecasting services related to geology, geomorphology, hydrogeology, and geotechnical and environmental engineering through the integration of the newest generation of remote sensing technologies. Moreover, the highly qualified technical and scientific staff is constantly focused on internal design, development and implementation of the necessary hardware and software tools to execute the projects.

NHAZCA makes use of the most advanced technologies, such as:

- Satellite SAR Interferometry for historical and current ground deformation analyses of both small and large areas.
- Terrestrial SAR Interferometry for real-time slopes and infrastructures monitoring.
- PhotoMonitoring services to detect infinitesimal changes and displacement of objects, structures, landslides, glaciers or coastal lines, by use of images from satellites, aerial surveys or ground cameras and adopting different algorithms such as Change Detection, 3D Photogrammetry and Digital Image Correlation.

NHAZCA designs, develops, and realizes:

- TRIVIA - Terrestrial Radar Interferometry VIsualization and Analysis software: the result of more than 10 years

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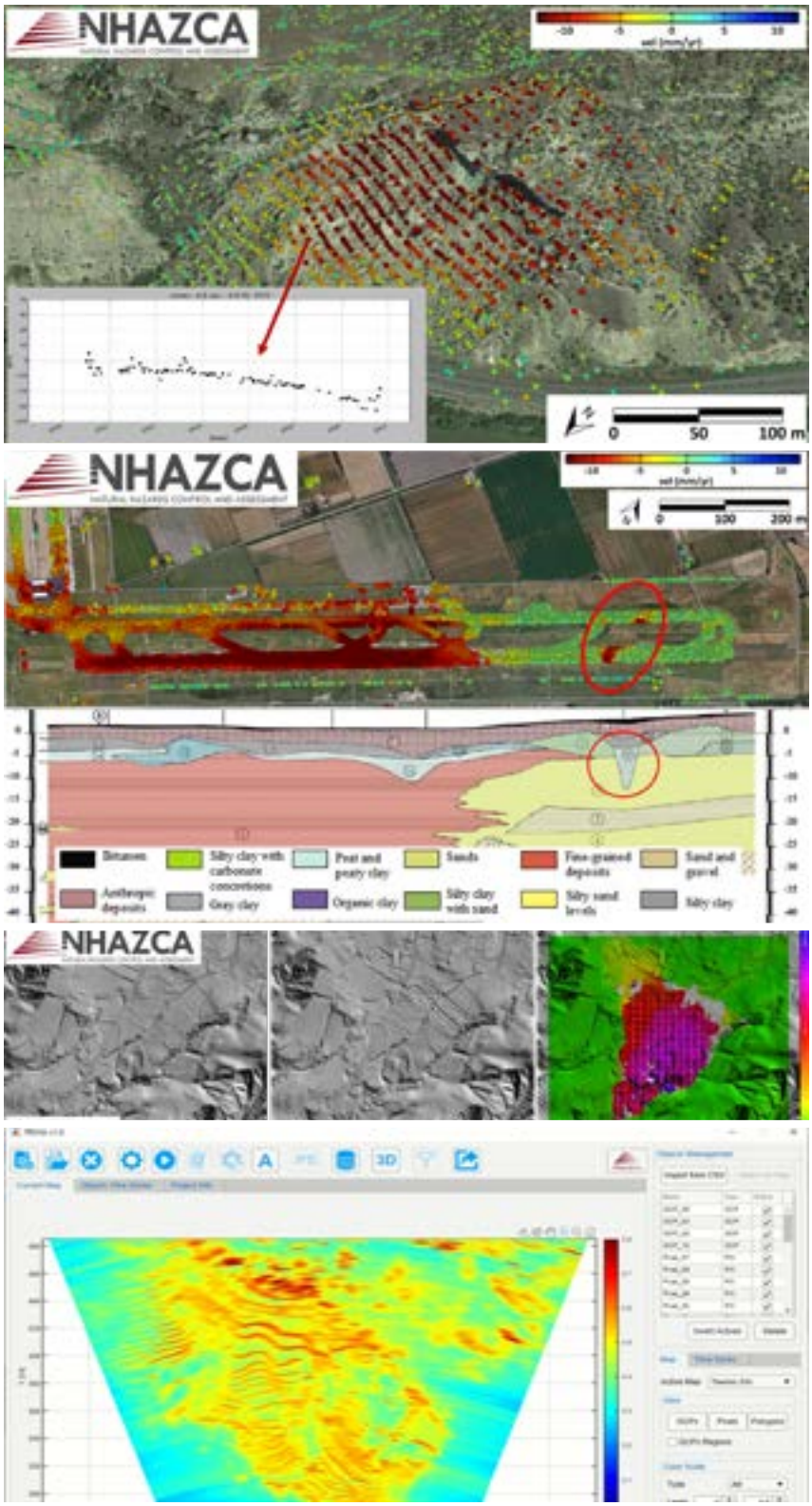
long experience in Terrestrial SAR Interferometry. The software can perform advanced analyses of Terrestrial SAR images, processing data from several radar manufacturers like IDS GeoRadar, MetaSensing and Echoes, providing useful information in real-time to support engineering projects. By using TRIVIA, NHAZCA is able to support clients with excellent real-time data processing capabilities.

- IRIS - PhotoMonitoring software: the unique PhotoMonitoring software for automatic and real-time analyses for image change detection and relative displacement measurement via multi-platform data sources (ground, aerial, drones, satellite), in a user-friendly interface.
- InSARPECT APP: an Android/iOS app that combines and superimposes satellite InSAR data with your collected field data, simply through your mobile devices. It allows the field teams to collect records including geo-referred information such as text, photos, videos, vocal notes, and more.
- NHAZCA Visualization Tool: our web-based protected platform with a user-friendly interface for the distribution of different kinds of results from different types of monitoring systems, which allows to explore the interferometric products and analyze each measurement point, or observing the time series of displacement detected with PhotoMonitoring.

NHAZCA organizes professional training courses in collaboration with several professional orders and national and international associations.In the last 7 years, more than 600 participants, from over 40 different countries and 60 partner companies, attended the training courses organized by NHAZCA, providing very high satisfaction evaluations.

Our most relevant international events include:

International Course on Geotechnical and Structural Monitoring: after more than seven years from the first edition (2014), the increasing interest for the International Course on Geotechnical and Structural Monitoring confirms its leading role as an excellence that is today a global reference course in this sector, as a result of the combination between the Academic world, the industry and the experts' sectors.



NHOE

Company profile

NHOE is a engineering company, created by senior professional engineers working, from few decades, for national and international projects. The company takes therefore advantage from the available engineering competence in order to operate in scientific and high technology areas. In fact NHOE engineers includes specialists operating in Industrial, Power Generation, Nuclear, SPACE, GIS and Aeronautics.

The NHOE skills support the customers, in hi-tech innovative products development, resulting sometimes in customer patents.

NHOE is an INNOVATIVE SME as recognized by the Italian Chamber of Commerce.

The NHOE management experience in the development of systems and / or high-tech subsystems allows to provide synergistic activity fully in line with customer requirements; in particular, NHOE supports its customers in developing products (owned by the customers) at every stage: from specification definition (from design requirements) up to design, testing, construction, and/or industrialization of prototypes or small series production.

NHOE also operates within a network of SME companies allowing to increase its capability perimeter.

NHOE significant experience exists in many important activities with major prime contractors in aerospace activities;

NHOE also carried out important research and development activities for FP7 / Horizon 2020 Clean Sky and ESA .

Products | Services | Applications |Technologies

Industrial Sector

Manufacturing sites / maintenance / handling / storage

MGSE for Aeronautic, Space and Nuclear production sites:

- lifting device;
- tilting trolley;
- trolley;
- 0g device;
- integration tool;
- test equipments.

Customized I/F fixtures for test on shaker with coupled analysis (tested model on I/F fixture); SINE and RANDOM analysis for electronic modules.

Customized transport container for special transport (space or aeronautic); options could be thermal control, shock absorber and other.

Robots in industrial production for the space industrial automation useful for integration.

Molds for the production of manufactured articles of vulcanized rubber and composite (CFRP/KFRP Ö..) products

Aeronautic and Space systems and subsystems for aerospace use:

- Structures and mechanism with advanced metallic materials (aluminum, steel, titanium) with various fasteners: bolts / rivets and / or welding; for example structures for satellite.
- Composite material structures (CFRP, GFRP KFRP etc.) : for example project and production of structural components for antennas used on satellites or aircraft or UAS.
- Frame/container and box for electronics (electronic boards) designed and tested in accordance with appropriate and complete shock absorber components suitably chosen (aircraft and space fields).

Satellite:

- BUS/PLATFORM design and analysis (thermal, structural and thermo-structural);
- PAYLOAD design and analysis (thermal, structural and thermo-structural);

Unmanned Aerial Vehicle (UAV), Unmanned Aircraft System (UAS)

R&D Models for Wind Tunnel

NHOE is certified ISO 9001:2015 for ìDesign, development, manufacturing and assistance of electromechanical systems for space and industrial applicationsì

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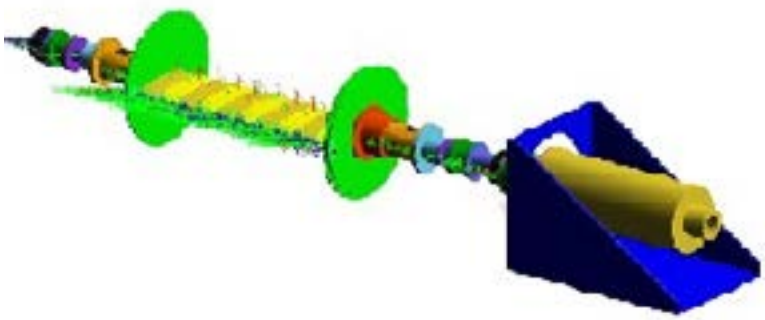

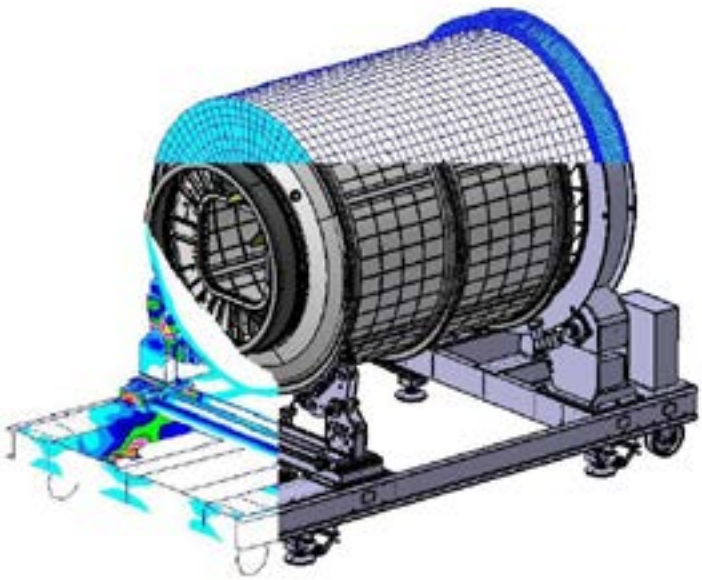

NURJANA TECHNOLOGIES

Company profile

Nurjana Technologies is a niche player with a global reach providing innovative products and systems solutions for the defense and aerospace industries.

Leveraging on our 20+ years of expertise and team agility we design and develop state of the art system solutions integrating remote sensing technologies, such as optics, radars and telemetry, to deliver real time expert systems in support of the human decision process.

Products | Services | Applications |Technologies

NT Application Domains

Aerospace

- Specialized engineering support
- SST/SSA and Orbit Propagation
- Mission Data Analysis, Test & Evaluation
- Autonomous navigation of Swarm of Drones
- Remote Sensing Data Exploitation

Instrumented Test Range

- Specialized engineering support
- Real-Time Command & Control
- Electro-Optical Tracking Systems
- Automatic Target Identification and Tracking

NT brand new products

NAIS, Nurjana Artificial Intelligence for Swarm of Drones: a machine learning environment for a swarm of drones designed for training algorithms.

NEWMOS, Nurjana Earth Wildfire Monitoring and Observation System: a software system for planning tactical strategic interventions aimed at both the prevention and management of forest fires as well as the post-fire recovery activities.

Contact

Business Name

NURJANA TECHNOLOGIES

Head quarters

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Point of Contact

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CEO

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STATUS
TARGET ACQUIRED
DRONE
nais
nurjanatech

OBO SPACE

Company profile

OBO SPACE srl is an independent privately held SME providing technical services and products to the space sector in the area of thermal and mechanical engineering for the development of flight hardware.

Founded in 2020, OBO SPACE inherits the experience of its founder Dr. Enrico Friso who worked for almost 15 years as an independent thermal engineer on behalf of prominent European space companies and research institutions for the development of ambitious ESA space missions.

OBO SPACE distinctive competencies are in the area of space thermal control systems with specific strength including:

- Solid theoretical background on thermal analysis methods for space systems
- Proficiency and availability of space industry-standard software tools (i.e. ESATAN-TMS)
- Experience on Thermal Vacuum Test planning, modeling and correlation
- Extensive heritage of our team gained in numerous space projects including more than 10 ESA missions

We provide high quality thermal and mechanical technical services and products to:

- industry or research institutions without specifically skilled internal resources
- companies who need to fulfill project peak loads for short/medium periods
- new space economy players for Small/Nano satellites development

The unique background of our team in both academic research and space industry ranks OBO SPACE as a suitable partner for the development of both industry-proven or highly innovative solutions for the space market.

Products | Services | Applications |Technologies

SERVICES

Thermal and Mechanical engineering:

- Concept design, requirement analysis, trade-off studies
- Thermal and mechanical system architecture design based on requirements
- GMM and TMM thermal modeling (ESATAN-TMS)
- Detailed thermal design including hardware selection and sizing
- Model order reduction and correlation
- Thermal Vacuum Testing: planning, prediction, support to execution, model correlation
- Mechanical design, CAD modeling and drafting (SolidEdge)
- Structural FE analyses, static and dynamic verifications (Femap/Nastran NX)
- Multi-disciplinary numerical modeling of physical systems
- Compliance to ECSS standards
- High quality technical reporting

PRODUCTS

Thermal control hardware design, selection and procurement:

- MLI, heaters, Peltier/TEC modules, thermal straps, thermal washers
- thermo-optical coatings
- thermal radiators

Mechanical structures design and delivery:

- payloads for Earth Observation, Telecommunications and Scientific interplanetary missions
- nano satellite platforms, payloads, subunits
- on-board electronics, telecom or power units
- specifically designed space structures and mechanism

OBO Space

Contact

Business Name

OBO SPACE srl

Head quarters

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Point of Contact

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CEO & Founder

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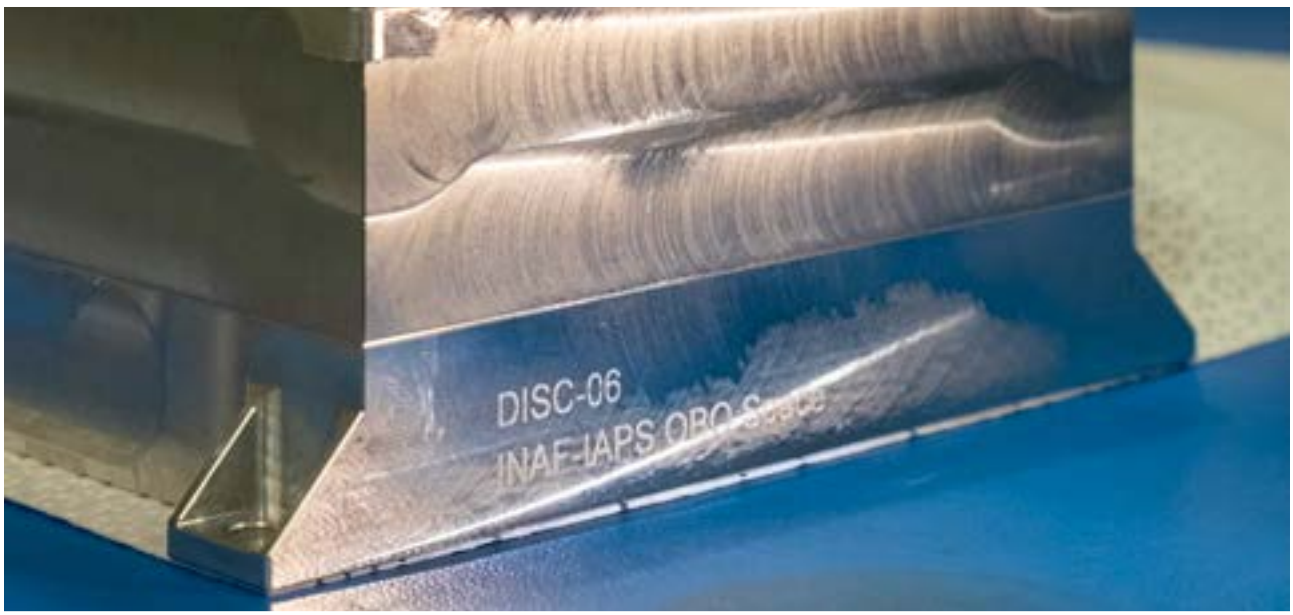
INAF-IAPS OBO Space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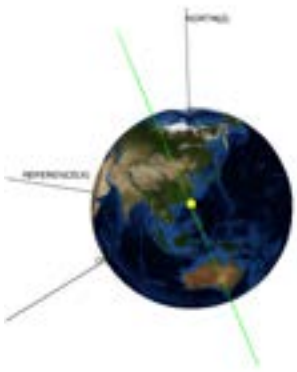

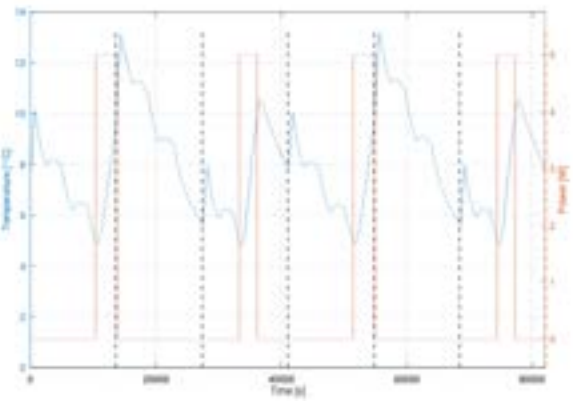

OFFICINA STELLARE

Company profile

Officina Stellare SpA (OS) is an innovative SME with headquarters in Sarcedo (Vicenza), Italy, listed on the Alternative Investment Market (AIM) of Borsa Italiana since June 2019 andactive in the design and production of telescopes, opto-mechanical and aerospace instrumentation for Ground and Space based applications.

Its unique position in the reference market is due to its specialistic in-house expertise and advanced skillset for the development, implementation and commissioning of complex opto-mechanical engineering projects in the aerospace field for scientific, research or defense-related purposes.

From specifications drafting to final acceptance tests, OS guarantees maximum efficiency of the supply chain and high risk management facilities.

Products | Services | Applications |Technologies

Officina Stellare has grown rapidly in recent years, generating its revenues in the Scientific Research, Earth Observation, Aerospace, Laser Communication, SSA/SST and Defense sectors.

The products made by Officina Stellare are renowned for their highly advanced technology and competitiveness. Time-to-market, versatility, results achieved, and the in-house control over most of the value chain make OS uniquely positioned within the reference market.

OS aims to create the first ItalianìSpace Factoryîñ a plan focused on the development of aerospace technologies to consolidate its position in theNew Space Economy. This includes the increase of our capabilities and supply of products to companies (B2G and B2B) and development of goods and commercial applications to be placed directly on the market under the OSí (B2C) brand.

Contact

Business Name

OFFICINA STELLARE SpA

Head quarters

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VI | 36030

Point of Contact

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Co-Founder and Head of Business Development

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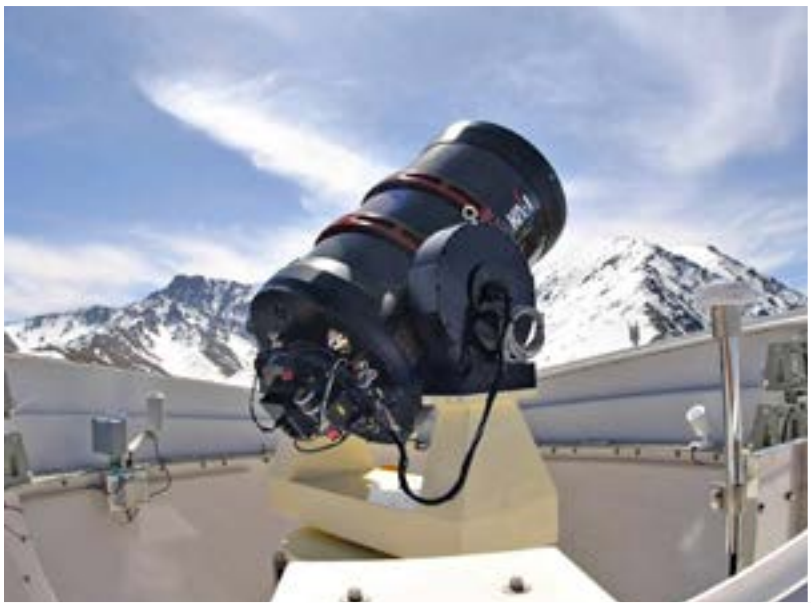
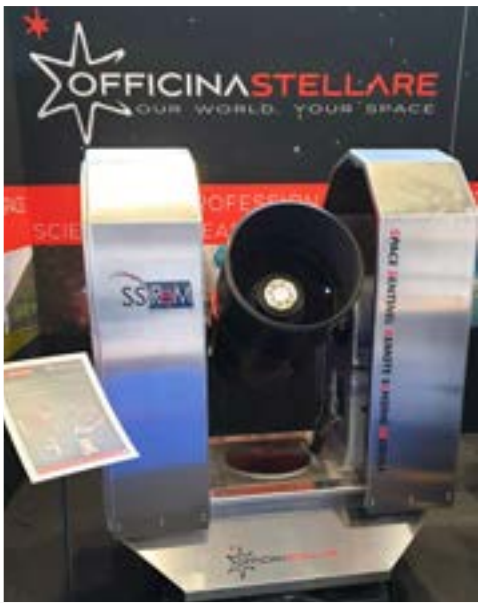
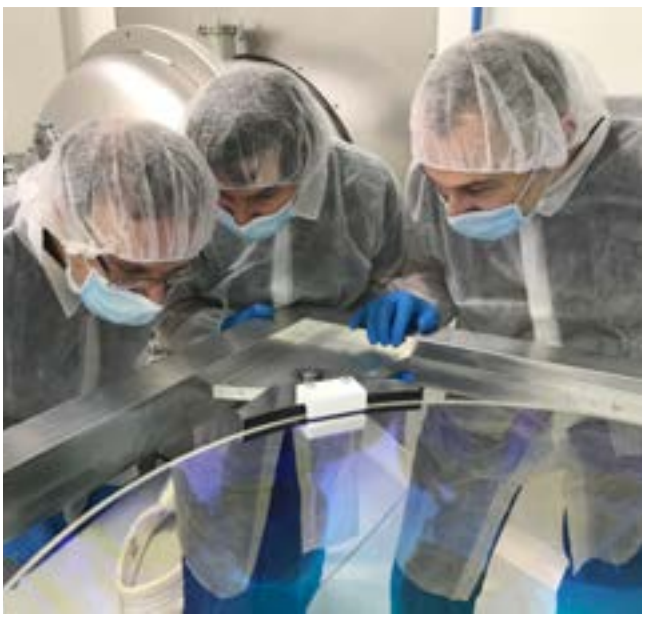



OFFICINASTELLARE
OUR WORLD. YOUR SPACE



ON-AIR CONSULTING & SOLUTIONS

Company profile

ON-AIR Consulting & Solutions is the result of forty years of experience in high technology, in particular in the sectors related to Aerospace and Defense.

It arises from the consideration that Small and Medium Enterprises often have strong potential, but few tools for interfacing with Bodies and Institutions.

ON-AIR therefore aims to offer its strategic consultancy to SMEs, in order to identify the most appropriate fields of action, exploit new opportunities, improve existing operations and develop strategies and processes commensurate with the needs and aspirations of each company.

Thanks to a wide knowledge in highly technological fields, ON-AIR Consulting & Solutions ensures a collaboration with the top management of national SMEs, for the construction of new strategies and new programs based on innovation, networking, and the competitiveness and profitability of products and services.

The founders, Marco Airaghi and Enrico Saggese, have spent decades of their professional life managing industrial and institutional activities with undisputed success.

Strengthened by their experience and knowledge, they finally decided to put their skills at the service of the most talented companies, convinced that any company with dynamism can find its own connotation in this lively and complex productive fabric.

A qualified team of junior and senior engineers works with commitment and motivation in support of customer programmes and in the development of internal projects.

Products | Services | Applications |Technologies

ON-AIR's Areas of Expertise

ON-AIR Consulting & Solutions provides innovative strategic solutions to Small and Medium Enterprises operating in the high technology sectors.

Through careful analysis and considerable data collection, client companies will be able to obtain effective suggestions to effectively address both critical situations and new and better investment opportunities.

ON-AIR assists national SMEs operating mainly in the Defense and Aerospace sectors, helping them to identify the strengths and weaknesses of competitors and new market trends and opportunities, to consequently improve the action strategy and capture a segment market or a specific market, thus directing attention to interesting opportunities for future investments and developments.

Tailored strategies

ON-AIR offers companies that want to be successful, especially in the Aerospace and Defense activities, the critical vision necessary to predict developments and needs, learn the requirements, study market trends and analyze the competition, identifying thus areas of interest and the consequent appropriate strategies.

Its strategic consultancy also extends to organizational solutions of all kinds, in order not to leave out any territory of the complex world of high technology, being able to offer an exhaustive assessment and identify the optimal solution for the customer.

ON-AIR consultants provide personalized research, as well as analysis and support: complete advice for the development of a strategy tailored to the specific needs of each individual company.

ON-AIR focuses its attention, in particular, on the following four areas of interest, but is also ready to support SMEs in every new, innovative field of action.

Space segment

The biggest challenge for any high-tech business is choosing where and how to participate in evolving markets, while ensuring that their core businesses are at their full potential. Even in a time of strong contraction in public

Contact

Business Name

ON-AIR CONSULTING & SOLUTIONS SRL

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demand, due to the serious financial crisis of national and international institutions, the space sector can offer great business opportunities for companies that are able to face the economic situation with an innovative approach, no longer tied exclusively to programs. funded by the institutions, but connected to the offer of useful and innovative and business oriented services. ON-AIR helps its customers to optimize programs, identify opportunities to enter new markets, improving performance

Ground segment

ON-AIR helps to manage the challenges and opportunities that come from the changing and complex world that companies engaged in this sector have to face on a daily basis. To favor the right evolution and full realization, ON-AIR designs and manufactures functional and optimized ground segments. It develops innovative systems for telemetry and remote control, ground software, satellite image processing. ON-AIR can also provide ILS & OPS services, thus favoring a concrete strategic contribution to companies that want to seize the opportunities of a world that seeks efficiency and ever greater economies.

Big Data

ON-AIR has developed a proprietary platform for Big Data management, an enabling solution for data and information management applications from IoT telemetry or from heterogeneous data streams. It therefore includes a set of functions capable of remote data acquisition, in large quantities and short times, therefore for high flows, heterogeneous in formats and contents, typical of big-data, on which to operate with utilization processes susceptible of evolutionary adaptation to qualitative increase of the needs of extraction of complex and derived information. The amplitude of use in distinct application fields makes this enabling solution widely usable in contexts that require the finalization of use processes calibrated on evolutionary situations. This allows you to deal with different application fields.

UAS

The ""drones"" have seen an increase in attention as a sector in great evolution. Until recently, drones were mostly used for Defense. The development of small and inexpensive drones has led to a variety of uses that companies and public institutions are starting to exploit to reduce risk, optimize processes and promote new forms of value for customers and society. ON-AIR develops innovative UAS projects (air, land or sea) that can be used for defense purposes but also in supporting the activities of civil authorities.

MOST PROJECT

GIRL PROJECT

BOI PROJECT

Openet Technologies

Company profile

OPENET Technologies Spa is an SME active since 2000 in the sector of satellite telecommunication and ICT services, multimedia and digital production with particular focus on the education digtal content production.

In 2018, the SPARKme Technological Accelerator - https://www.sparkme.space/ - dedicated to space business and space economy has been launched and it is currently active at the Openet headquarters. As part of the SPARKme Accelerator, there is the Space Academy where training events and dissemination activities are carried out for professionals, researchers, start-ups and schools at all levels.

The portfolio of services and applications is the result of intense and constant research and development activities carried out over the years, in collaboration with national and international organizations such as the Italian and European Space Agency (ASI / ESA), the United Nations, the European Parliament, the European Commission, the Committee of the Regions, FAO, ENEA, the National Research Council (CNR), several universities as well as important private industrial groups.

The opportunities for collaboration and partnership have increased and strengthened over time thanks to the presence on the regional territory of the Space Geodesy Center of ASI and of small and large companies in the TLC / ICT sector. This scenario has facilitated the creation of important clusters where OPENET is an active member (Aerospace, Bioeconomy, Cultural and Creative Industry).

Openet is a Telecom Business Partner for the marketing of both mobile and fixed network services and digital services and the Konnect satellite capacity.

OPENET has developed a strong expertise in the production of multimedia and digital contents also in the educational field, in the management of free-to-air and on-cloud television and radio channels. The company is able to provide publishers and user networks with the entire production cycle, from production to the planning of programs, from scheduling management to broadcasting and transmission of signals via satellite and / or fiber.

Products | Services | Applications |Technologies

1. Design, development, delivery and monitoring of integrated TLC services and solutions for public and private customers in several sectors including, Education, Edutainment, medical teleconsultation / remote assistance, elections, smart services, etc.
2. Multimedia production and post-production
3. Technology acceleration support and technology transfer in the space economy field; training and awareness services about STEAM and dissemination activities (SPARKme / Space Academy)

Contact

Business Name

Openet Technologies SpA

Head quarters

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Point of Contact

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Sat Elections
LANCEMENT OFFICIEL DU PROJET PILOTE
Commission Electorale Indépendante
nous organisons les élections!


SPARKme

Optec

Company profile

Founded in 1985, OPTEC SpA is the Italian firm reference leader in optical, optoelectronic and optomechanical sector, in Europe and in the World.

OPTEC customized development for many Industry sectors, represents the engine of our high standards solutions, and represents for our Customers the correct answer for each problem who tumble in Optecís action area.

Studies carried out inside Optec, are present in several technical publications; inside ìCollana di Ottica e Fotonicaî, a technical Italian publication which contains different and interesting articles, Optec has given a contribute with the 4th volume ìElements of Optical designî, written by our professionals engaging in private Industry and in research area.

Since its start up in 1985, Optec is more than a manufacturer. It is a service organization with a proven record of successful performance.

Optec is always driven by its dedication to serving Customer needs and by its commitment to producing quality products with high performance, with reference to optical sector. Optecís standard and custom products are a result of experience in imaging applications.

In the beginning, Optec provided only lenses, now we offer complete integrated systems.

By providing the complete system, Optec is able to optimize system performance rather than just individual component performance. Optec has a great attention to research field, which has conducted us to collaborate with a lot of important partners in Aerospace and Imaging sectors Industry.

Optec has obtained the quality certificate ISO 9001:2015 by T‹V Italy certification.

Products | Services | Applications |Technologies

Optec designs starting from scratch, manufacture and certify diffraction limited optical payloads, multichannel camera systems for Space, focus mechanism with remote control and every kind of optical system starting from UV, passing through Visible and coming to InfraRed range.

As leading Company of Optica Group, Optec can offer not only long term heritage in designing but also glass polishing capability, mechanical components manufacturing and moreover a new optical coating facility inside of the Group.

Our core business is to follow and guide customers from the very beginning to the final system, offering continuous and tailored support in the niche world of optical and optoelectronic systems.

Optec is directly involved in design and engineering of optical systems for satellites or space stations for various companies around the world.

Through the years Optec has been protagonist of numerous successes in the Space field.

In 2001, in collaboration with CGS, Optec designed and implemented various optical systems still in use in BIOLAB of the ISS.

In 2003, in collaboration with Turin Astrophysics Observatory (OATO) Optec has been involved in SCORE experiment and the optical unit for the solar corona analyzer was realized.

In collaboration with TDS in 2010 the optical unit for the PRISMA mission was implemented. PRISMA is operational and functioning in geostationary orbit.

Under an ASI (Italian Space Agency) contract, in collaboration with TSD and Optec partner Tecnottica, 4 new advanced system were presented as navigation tools for interplanetary exploration.

Together with Space Flight Laboratory (SFL) and University of Toronto Institute for Aerospace Studies (UTIAS) the first extremely high resolution dioptric satellite, limited in resolution only by diffraction, has been designed, manufactured and qualified for launch. OPTEC has delivered, after having successfully performed the qualification campaign, the polarimeter for the ESA Solar Orbiter METIS project which was first flight unit of the METIS Solar Orbited mission to be delivered for integration.

OPTEC is manufacturing ARGOMOON flight optical payloads. ArgoMoon is a nanosatellite that will fly on board the new American launcher, Space Launch System (SLS), during its first mission (Exploration Mission 1) scheduled for late 2021. Optec has also built the Diffraction Limited Telescope for LICIA Cube, part of NASA DART (Double Asteroid Redirection Test) Mission. The mission is intended to test whether a spacecraft impact could successfully deflect an asteroid on a collision course with Earth.

Contact

Business Name

Optec SpA

Head quarters

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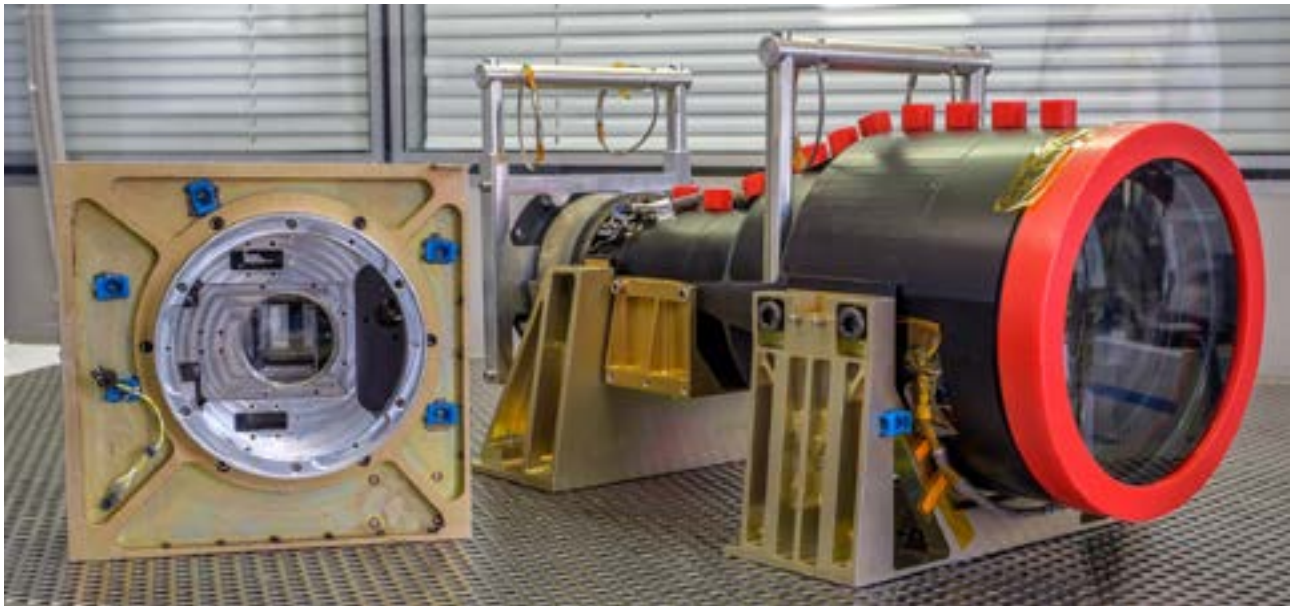

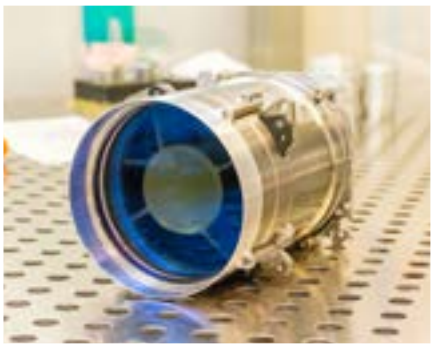

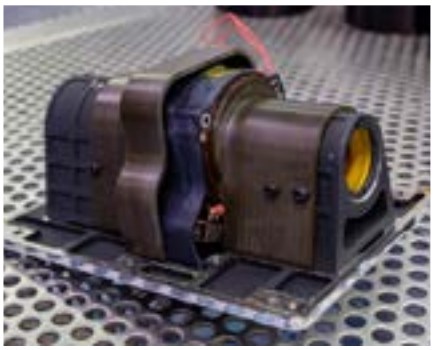

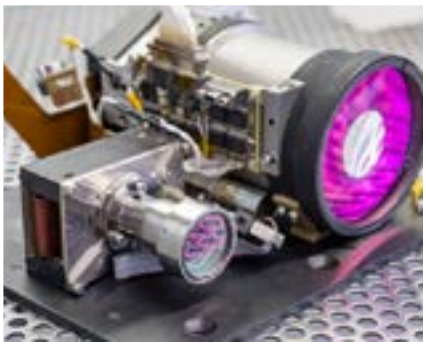

Pasquali Microwave Systems

Company profile

Pasquali Microwave Systems (https://www.pasquali-microwavesystems.com) offers full-in-house Engineering, Manufacturing, Surface Treatments and QA/Testing of µ-Wave and mm-Wave Assemblies (1÷200 GHz, passive and active) for Space, Defense, Naval and Civil/TLC sectors, such as:

- µ-Wave and mm-Wave Waveguide Assemblies and Antennas Systems: 1 GHz ÷ 150 GHz or higher frequencies
- Blackbody RF Absorbers for Calibration Targets and EM Polarizers:

- 10 GHz ÷ 200 GHz, 4°K ÷ 330°K
  - Composite Fiber–Reinforced Materials and Integrated Complex Metals:
- Carbon-Fiber, Glass-Fiber, Kevlar, Innegra, Rohacell, Dyneema, Special Steel, Titanium, Aluminium Alloys
  - Electronics Subassemblies and Components:
- On-waveguide integrated parts, microstrip/PCBs (1 GHz ÷ 50 GHz)

Pasquali Microwave Systems is the main Company of Gruppo Pasquali (https://www.gruppopasquali.com), a holding structure that joints and integrates five Italian leading companies in Microwave Devices and Composites Material Frames.

Each Company has long-lasting heritage, deep know-how and cutting-edge technologies:

- Pasquali Microwave Systems: Precision Mechanics for Microwave Devices Production
- RTW - Ride The Wave: Advanced and Applied RF/EM Design and Prototyping
- Galvanica Pasquali: Galvanic/Metal/Painting Surface Treatments and Electroforming Processes
- Vega Composites: Carbon and Composites Fiber–Reinforced Structures Frames
- Pasquali Microwave USA LLC: Commercial and Sales Department for US market

Vega Composites (https://www.vegacomposites.com) is a long-lasting Leading Company operating in Composites Materials and Metal Assemblies design and manufacturing of large set of items, from small Assemblies (10cm) up to large Structures (more than 6 mt of diameter):

- Radomes and Large Domes
- Antenna Reflectors
- Radiometer Instruments Mirrors
- Tank Shields
- Support Frames
- Drone/Vehicle Parts
- Composite Over-Wrapped Pressure Tanks for Satellites

Products | Services | Applications |Technologies

Companies of GRUPPO PASQUALI (PASQUALI MICROWAVE SYSTEMS, RIDE THE WAVE, GALVANICA PASQUALI, VEGA COMPOSITES) are industrial worldwide leaders in technologies, devices and TLC systems for On-Board Flight Payloads and On-Ground Stations:

- Antenna Systems and Waveguide Assemblies [1 GHz ˜ 100 GHz or higher frequencies]:
  - WGs Assemblies
  - Antenna Systems
  - RF Feed Chains
- Blackbody RF Absorbers for Calibration Targets and EM Polarizers for RF and mm-wave Radiometer Instruments [10 GHz ˜ 200 GHz, 2∞K ˜ 330∞K]:
  - Small Dimensioning

Contact

Business Name

Pasquali Microwave Systems srl

Head quarters

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Point of Contact

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+3955710516

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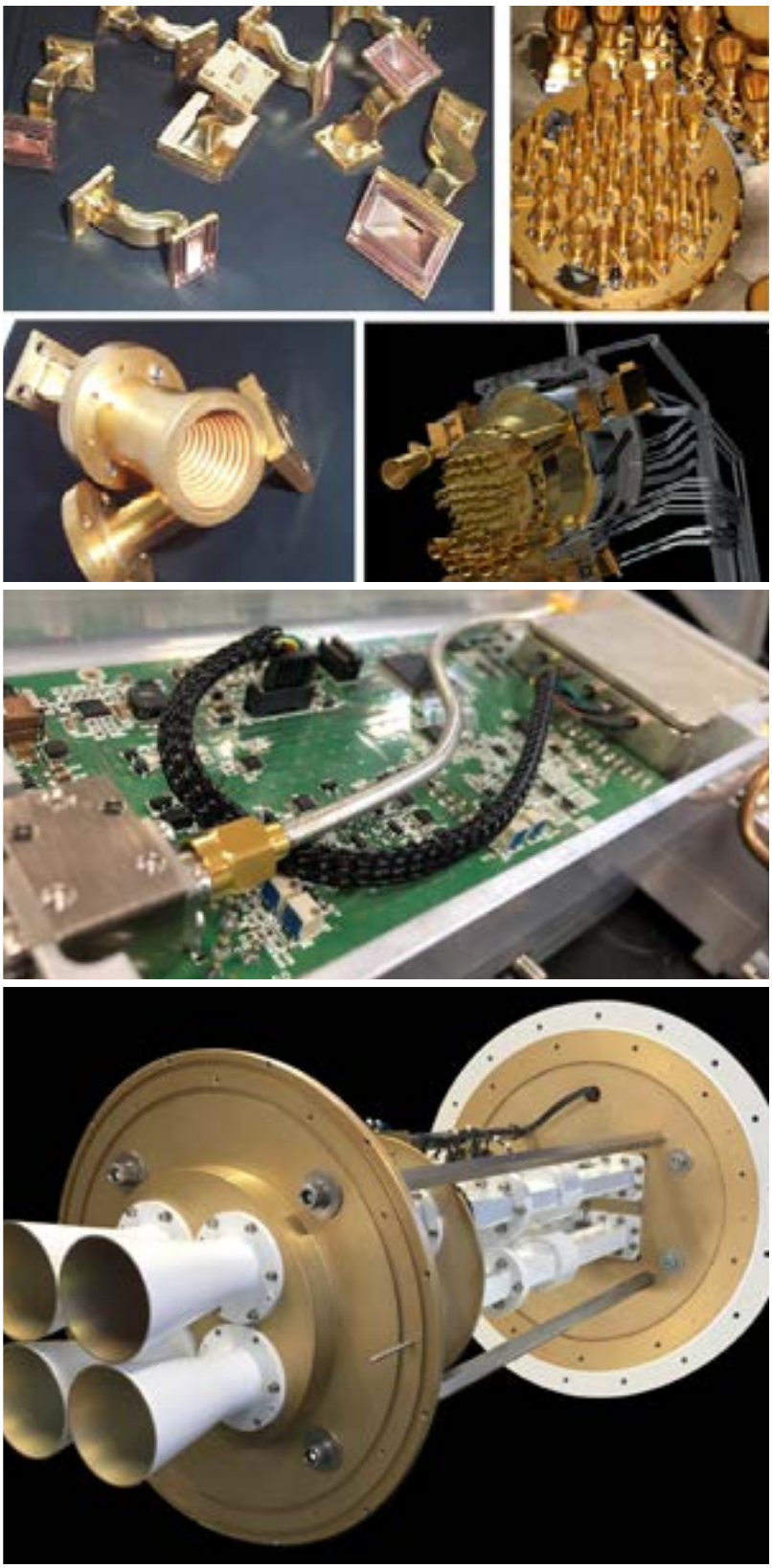
- Medium-Large Arrays
- Arrays for EM Waves

- FiberñReinforced and Metal Fames [Carbon-Fiber, Kevlar, Rohacell, Innegra, Dyneema, Special Steel, Titanium, Alumina]:
  - Reflectors
  - Radomes
  - Mirrors
  - Shielding Panels
- Electronics Subassemblies [Integrated Parts at 1 GHz ˜ 50 GHz]:
  - Front-End Components
  - ST TR Limiters
  - Microstrip/PCBs

Gruppo Pasqualiís work is characterised by high quality and flexibility, as well as:PM, PA&QA, schedule and cost control expertise. Within the Gruppo Pasquali, UNI EN 9100:2018 and UNI EN ISO 9001:2015 are guaranteed.

Design or Co-Design from SoW or Customerís Requirements - Built-to-Specs (BtS) / Built-To-Print (BtP) - Engineering Modelling - Fast Prototyping - Pre-Series - Stock Batches Shipment - Large Scale Supplying



PICOSATS

Company profile

PICOSATS is an Innovative SME founded in 2014 as a spin-off of the University of Trieste. PICOSATS is incubated in the Area Science Park, the largest science and technology park in Italy. PICOSATS commercial scope relates to the development, production and marketing of innovative products, processes and services with high technological value, in particular with regards to the development of small satellites and the associated instrumentation. Currently, PICOSATS main business consists in a new generation of telecommunication systems for small satellites, RADIOSAT. RADIOSAT is a miniaturized Ka-band transceiver, capable of providing a data transmission speed five times higher than the current technologies available in the market. In order to diversify the companyís portfolio of solutions, PICOSATS developed its own full small satellite structural bus, BRICSAT, a new solution for building small satellites by using a promising plastic polymer and 3-D manufacturing technique, with a modularity design. Together, RADIOSAT and BRICSAT create a bundle between the hardwareís side, the satellite bus, and the softwareís side, the communication system, addressed to the same potential users and customer segments. Additional serviced are being proposed for payload design and integration.

Products | Services | Applications |Technologies

RADIOSAT - Telecommunication. A new generation of telecommunication systems for space applications dedicated to small satellites. The key technologies at the core of this system are a software defined radio and a highly directive and configurable antenna, operating at high frequencies (Ka band), and providing very high data rates. The hardware system will be associated with ad-hoc telecommunication services.

BEAMSAT1 - Telecommunication. Ka band horn antenna.

BRICSAT - Mechanics. PICOSATS is carrying on an R&D program towards the hardware development of the structural bus of the satellite that will allow exploiting cross selling opportunities (hardware & software). BRICSAT represents a new solution for building small satellites by using an ad-hoc polymer and 3-D manufacturing techniques. BRICSAT aims at providing the means to get independency in satellite bus manufacturing and to grant accessibility and adaptability of space industry, in the light of a remarkable interest in small space programs, both in the scientific and industrial field. The hardware system will be associated with customization services.

Services. Beyond services associated to the hardware products, PICOSATS is proposing engineering services and consultant services for End to End Scientific Mission simulations

Contact

Business Name

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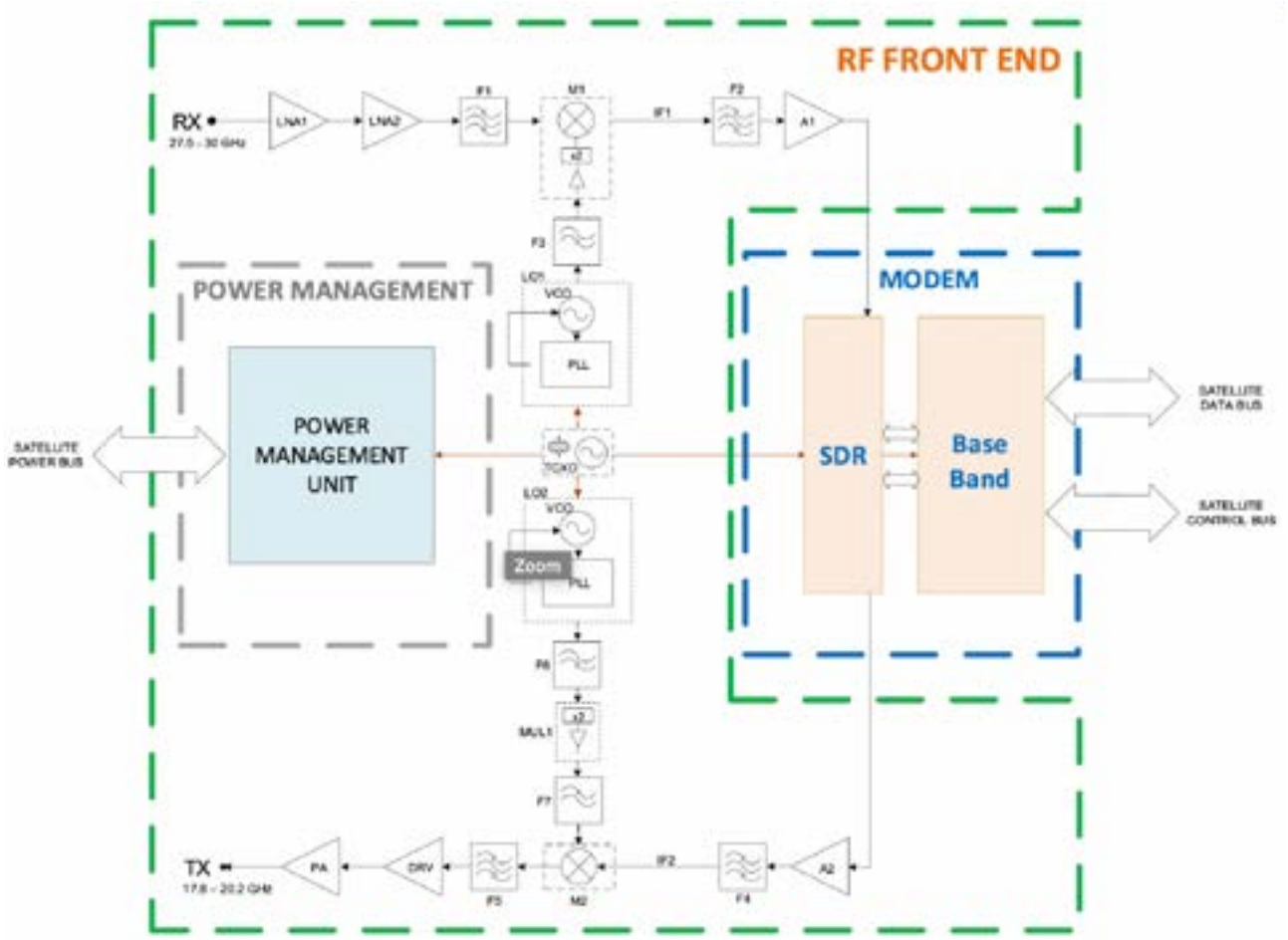
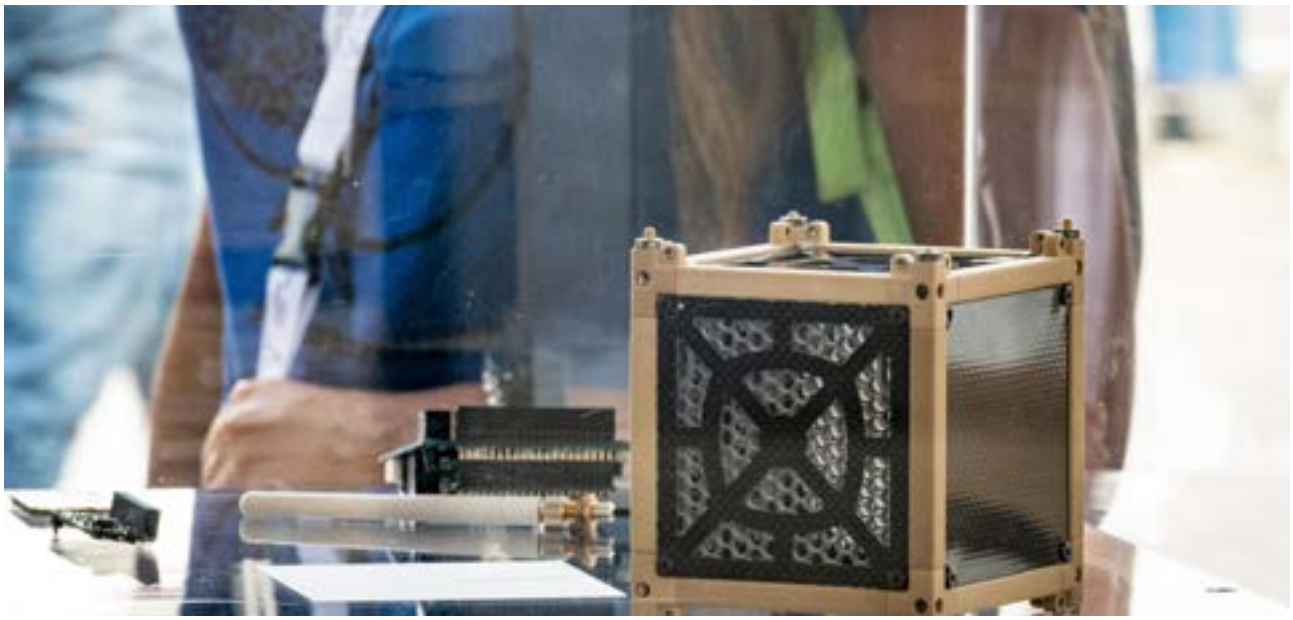

RF FRONT END
RX
27.5 - 30 GHz
LNA1
LNA2
F1
M1
IF1
F2
A1
F3
LO1
VCO
PLL
POWER MANAGEMENT
MODEM
POWER MANAGEMENT UNIT
SATELLITE POWER BUS
TCXO
LO2
VCO
Zoom
PLL
SDR
Base Band
SATELLITE DATA BUS
SATELLITE CONTROL BUS
F6
MULT
F7
TX
17.8 - 20.2 GHz
PA
DRV
F5
M2
IF2
F4
A2



Planetek Italia

Company profile

Planetek Italia is an Italian SME, established in 1994, which employs 55 men and women, passionate and skilled in Geoinformatics, Space solutions, and Earth science.

The Company designs new processes and solutions that simplify the use of geo-localized information.

We cover all phases of the geo-localized data life cycle, from the acquisition, storage, management, analysis and sharing of information in order to produce and generate knowledge.

We adopt the principles of Strategic Design to satisfy usersí needs with full respect for economic, social and environmental sustainability and technological feasibility.

The main areas are:

- Earth Observation services for continuous monitoring of Earth surface, infrastructures, areas under construction, urban dynamics and marine-coastal areas for supporting decision-making and operational activities;
    - Satellite, aerial and drone data processing for the production of maps and geographic information;
    - Design and development of Geographical Information System (GIS) and Spatial Data Infrastructures (SDI) compliant with INSPIRE guidelines for geospatial data archive, management and sharing.
    - Location Based Systems: Design and development of real-time geo-location based solutions, through positioning systems such as GPS/ Galileo/ GNSS and indoor location systems
- Space Software: Development of software for the satellite on-board data and image processing and for ground segment infrastructures.

Planetek Italia is also a premium dealer of Hexagon suite software and a data provider of the main satellite images at global level.

Furthermore, through the RheticusÆ platform, Planetek provides geoinformative services for monitoring the evolution of the earth's surface. RheticusÆ is an automatic cloud-based geo-information service platform, designed to provide fresh and accurate data and information on our changing world.

Finally, to make the satellites more and more at the service of everyone, Planetek gave rise to AI express, thus introducing on the market a new concept of satellite as a service that makes on-demand in-orbit resources such as data and actionable information available to users.

Products | Services | Applications |Technologies

- Rheticus ®: is an automatic cloud-based geo-information service platform designed to deliver fresh and accurate data and information for territorial monitoring. It is designed to deliver up-to-date, accurate maps and historical graphical data via a user friendly dashboard. https://www.rheticus.eu/
- Preciso ®: Geo-information products, derived from satellite and remote sensing data, designed to provide cognitive frameworks that meet the specific needs of each application field. https://www.planetek.it/prodotti/tutti_i_prodotti/preciso
- Cart@net ®: it is the WebGIS solution for the management and consultation of large raster and vector datasets, ideal to distribute on-line catalogues of cartographic data. www.planetek.it/eng/cartanet
- LOD4SDI: it is an open and reusable solution for publishing geographic data on the Web as Linked Open Data, according to the standard RDF / XML. www.planetek.it/eng/getlod
- Blockchain4EO: By means of Blockchain technology, the EO value chain is improved in its aspects related to security, integrity, encryption and distribution of EO very large datasets to a group of peers (in the ground segment and on-board) enabling tradeable distributed processing.
- Information-as-a-Service: new remote sensing applications in precision farming and sustainable development areas by making use of artificial intelligence, machine learning, and cloud computing technologies.
- Satellite Ground Segment: Software infrastructures development for managing, acquiring, processing,

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archiving and disseminating satellite data (radar, optical, hyperspectral)

- Satellite Health Monitoring: technology that detects anomalies and prevents potential failures of the spacecraft or its subsystem. It includes automatic checking tools and visualization tools.
- Earthbit: it is a tool that manipulates very big SAR and hyperspectral images together with image streams (live videos from e.g. drones) in real-time. http://www.planetek.it/eng/spaceBIT
- SpacePDP: it is an open and modular Payload Data Processing framework aimed to transfer satellite data processing from the Ground to Space Segment. It is composed of independent hardware and software modules. http://www.planetek.it/eng/spacePDP
- SpaceADM: it is a real time algorithm to evaluate satellite attitude based on Kalman Filter theory. It is able to integrate data from different devices for providing highly precision estimates of satellite attitude. http://www.planetek.it/eng/spaceADM
- SpaceOP3C: it is a FPGA or SW solution for on-board hi-performance hyperspectral data compression and cloud classification. OP3C compressed data can be processed in their compressed form. http://www.planetek.it/eng/OP3C
- SpacePTS: it is an EGSE SW Front-End for Integration, Verification & Validation activities of a satellite payload. It provids full front-end functionalities (TM/TC, power and custom analogical links) on top of a commercial HW platform. http://www.planetek.it/eng/spacePTS
- ERMES: it is a modular, flexible and interoperable SW, developed by Planetek, to accomplish AIT, Check-Out and Operations activities for Satellites, Payloads, SCOEs and equipment in general.
- CASTeC (Context Aware Spacecraft Telemetry Checking): it is a software tool intended to ease the labour-intensive task of spacecraft telemetry checking, by automating the telemetry signals trend analysis and the detection of anomalous behaviours and novelties.https://www.planetek.it/eng/projects/castec_context_aware_spacecraft_ telemetry_checking

ProEsys

Company profile

ProEsys is a turnkey provider of end-to-end LoRaWANô industrial IOT solutions, from sensors to network infrastructure to network server software. The latest challenge and mission is to design and manufacture IOT sensors connected over satellites, as well as satellite payloads and ground segment equipment based on SDR technology.

Operations started in 2015 at ESA-BIC Lazio incubator. Thanks to the large experience of its founders in professional products design to customer needs, ProEsys is able to develop systems and subsystems according to avionics, railways and aerospace highly demanding requirements.

ProEsys also maintains its own product line of IOT sensors and Gateways based on LoRaÆ technology for critical infrastructure monitoring for Oil&Gas, Energy Transport and Railway markets.

Thanks to cooperation agreements with major satellite operators worldwide, ProEsys is able to offer bidirectional, real-time connection from sensors to satellites, without any existing terrestrial infrastructure, allowing unattended operation on battery for many years.

Technological partner of key semiconductor players, ProEsys has access to cutting-edge RF and microcontroller products to be at the forefront of the latest technological advancements ahead of its competitors.

ProEsys is equipped with an internal R&D and RF lab, SLA 3D printer and pick-and-place electronic assembly line, as well as state-of-the-art electronics, PCB and 3D CAD tools. The company has a quality management system ISO 9001: 2015 certified by TUV.

Products | Services | Applications |Technologies

ProEsys product line is based on:

- IOT sensors for critical infrastructure monitoring, applied to Oil&Gas, Energy Transport and Railway industries. The sensors are based on LoRa technology and can operate on terrestrial or satellite networks
- LoRa Gateways for harsh industrial environments, with low power consumption and multi-band operation on 868/915MHz/2.4GHz
- Network Server for private LoRaWAN networks
- Wireless Safety Network (WSN) for remote monitoring of maintenance teams. Based on Galileo system, it acquires real-time position, vital signs and man-down alarms, relayed over a satellite connection

ProEsys Expertise

- Hardware/Software/Firmware design and development including FPGA and SDR
- Satellite payloads and Ground Station Gateways
- System simulation and validation
- RF/antenna system design and validation
- Custom sensors and network solutions for industrial IoT
- Ultra-WideBand technology for high-accuracy indoor and outdoor location

ProEsys is involved in the following project:

BISS (ASI): Bidirectional IOT Satellite Service, an Italian consortium for the design and development of a constellation of Cubesats dedicated to critical infrastructure monitoring using LoRa technology and inexpensive ground sensors.

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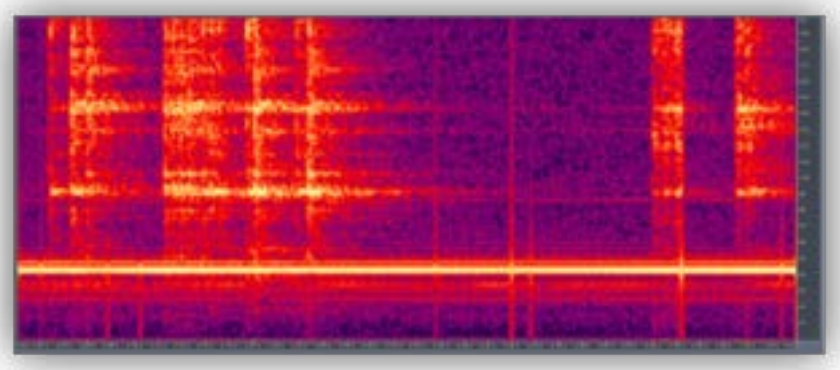
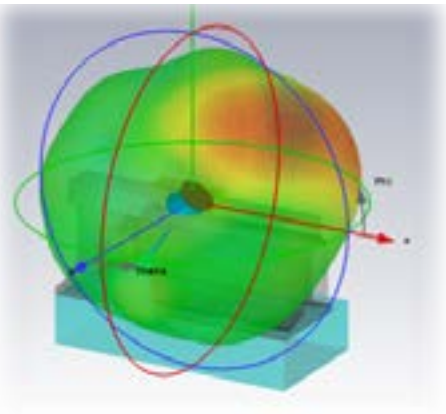
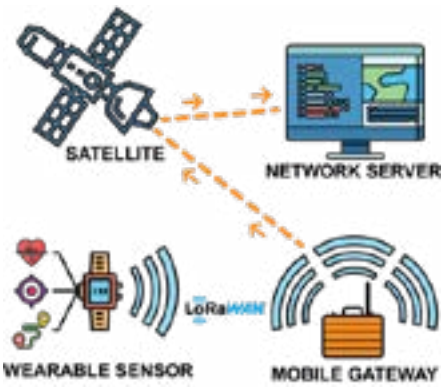



ProEsys


Z
Y
X
LoRa




SATELLITE
NETWORK SERVER
LoRaWAN
WEARABLE SENSOR
MOBILE GATEWAY

PROGEM

Company profile

Progem is involved in the industrialization, manufacture and control of precision mechanical parts for aerospace, space and defense for both civil and military purposes. Progem operates not only in general mechanical environment but also conception, design, processing and construction in other sectors like industrial automation, automotive, agricultural, textile, nautical. Progem manages prototypes and individual pieces, even at a low production rate, and full-bodied bundles of work with a high production rate. Progem designs and manages special processes related to the activity and mechanical assembly and provides complete processing including various materialsí testing and finishing. Progem is involved in several R&d projects related to the Aerospace sector, with the support of the Polytechnic of Turin and some large companies in the Piemonte area (North-West of Italy).

Products | Services | Applications |Technologies

Progem is a Tier1 supplier that design, produce, assemble and test aerospace and defence structures and components. Progem has also successfully developed a carbon fiber strain gauge that should fly in space in 2022. It is a new technology that allows the structural health monitoring of every critical component spending ten time less than the actual solution available. Furthermore Progem can provide technological industrial washing machines created to meet the various needs of degreasing and cleaning of mechanical parts present in the field of industrial mechanical production. Its high versatility makes it suitable for both interoperational cleaning and finishing cleaning. The large number of available options allows the machine to be configured to make it more suitable for different production needs.

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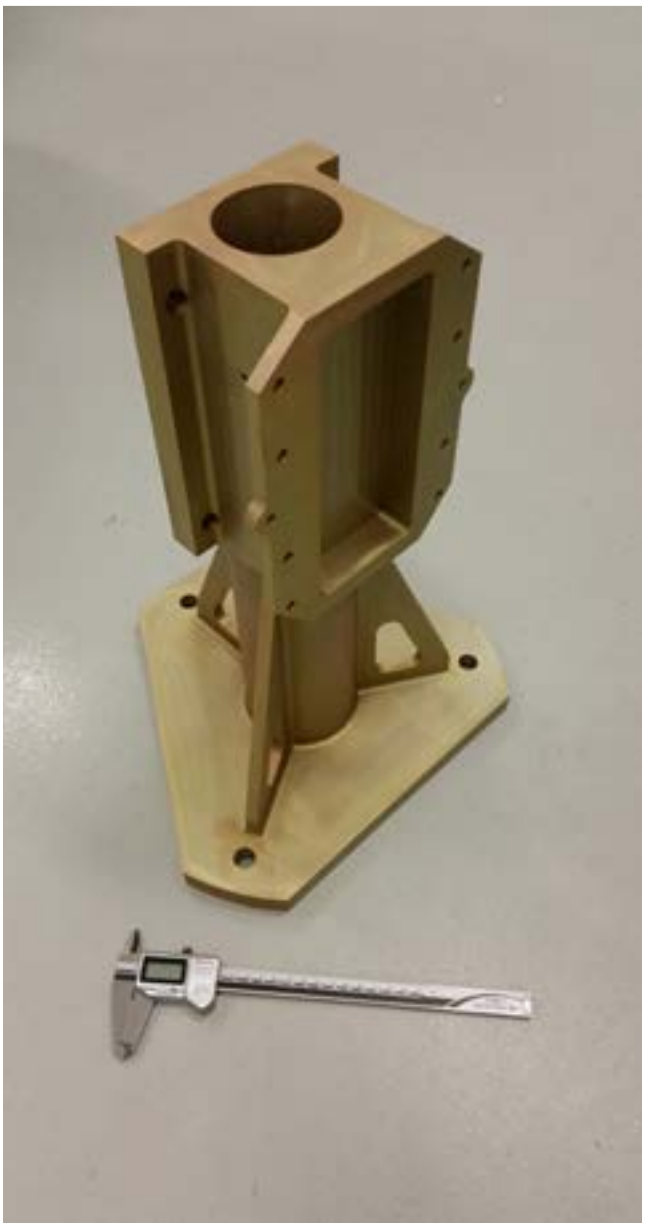
PROGEMI
POLITECNICO DI TORINO
1859
1906
TIKAT



PROGETTI SPECIALI ITALIANI

Company profile

Progetti Speciali Italiani Srl (PSI) is an Italian SME 100% owned by Italian shareholders with a strong capability in the development of Integrated Systems and Multidisciplinary Activities.

The idea behind PSI foundation consists in the fact that high tech activities are characterized by short time activity concentration that typically require bursts of intense engineering, development and production works periods followed by pauses for similar commitments.

Therefore, the solution was found by an agreement among some few excellent Italian SMEs to support the creation of a company, dedicated to such special projects, having a flexible amount of resources to be involved according to the workload and based on the SME capability for a COTS and SPIN-IN approach to Space developments.

Each SME part of the Group provides specific technologies and industrial capabilities contributing to special multidisciplinary projects through a mix of PSI Senior and Young specialists.

This approach provides PSI the ability to operate as the core of a Virtual Company of PSI Group with a 20 Million-euro turnover with about 200 employees, still maintaining the size of a small fraction of such a size.

In fact, the average specialized PSI employees consists of less than 20 persons generating a financial turnover of about 2 Million Euros.

The combination of high tech and multidisciplinary approach demonstrated to be successful in the competitive environments participated by PSI with Italian and Foreign Final Clients with dedicated development of High Performance Microsatellites and his payload for Dual Use Application for EO, SAR, ELINT and METEO mission.

- Mission Identification and System Analysis for Large, Micro and Cube satellites;
- Active Antenna design and development;
- RF analysis;
- Advanced TT&C apparatus in Ka and Q/V band;
- On Board Digital Architectures;
- On Board Supercomputer;
- On Board Modem Development for Space and UAV applications;
- Full Payload Space Test

Products | Services | Applications |Technologies

Progetti Speciali Italiani Srl is able with its organization to deliver a large set of products and technologies applied to the Space Sector but seamless to other applicative sectors in the new philosophy of COTS into Space and Spin In.

The Major Product capabilities consist on:

- Nano an Microsatellite for Dual Use Applications
- Elint and Optical Payload for Microsatellites
- Sensor Suite for UAV
- Ground TLC Satellite Stations
- Large Thermal Vacuum Simulators

The Major Technological capabilities consist in:

- Mission System Studies
- System Definition
- Thermo-Mechanical Analysis
- RF Analysis
- Deploying Mechanism
- Metal and Composite Structure design and fabrication
- Power Condition Unit design and fabrication
- Feed and Antenna design and fabrication
- Algorithm design and relevant SW development
- AOCS Analysis and relevant SW development
- AIT

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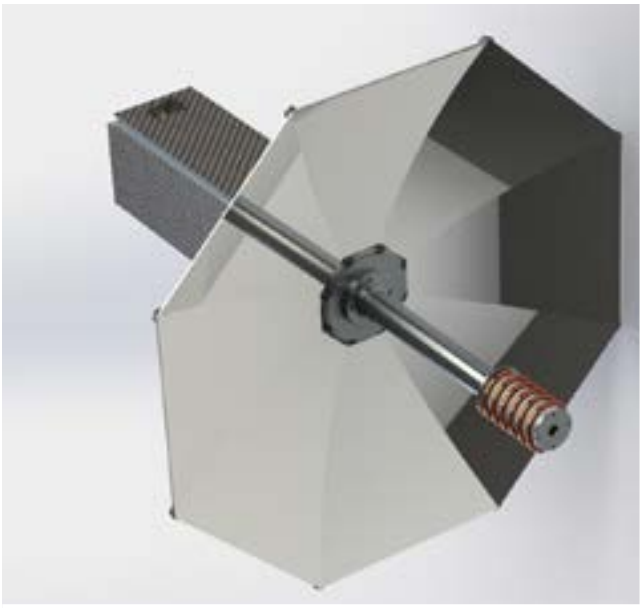

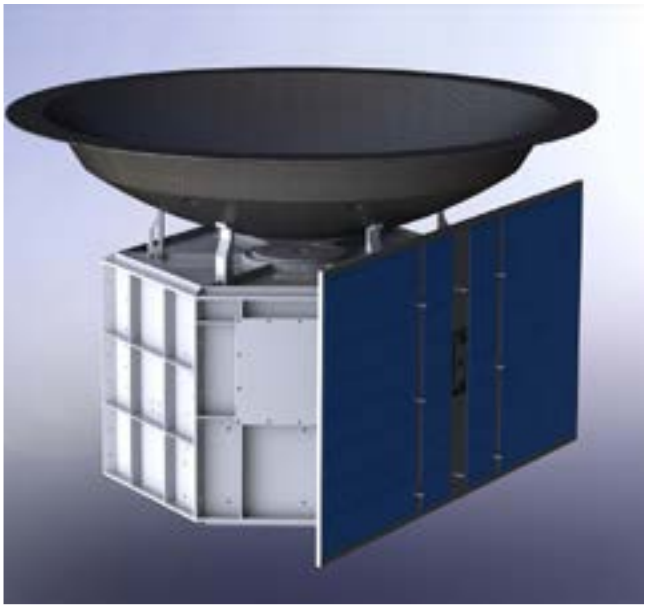

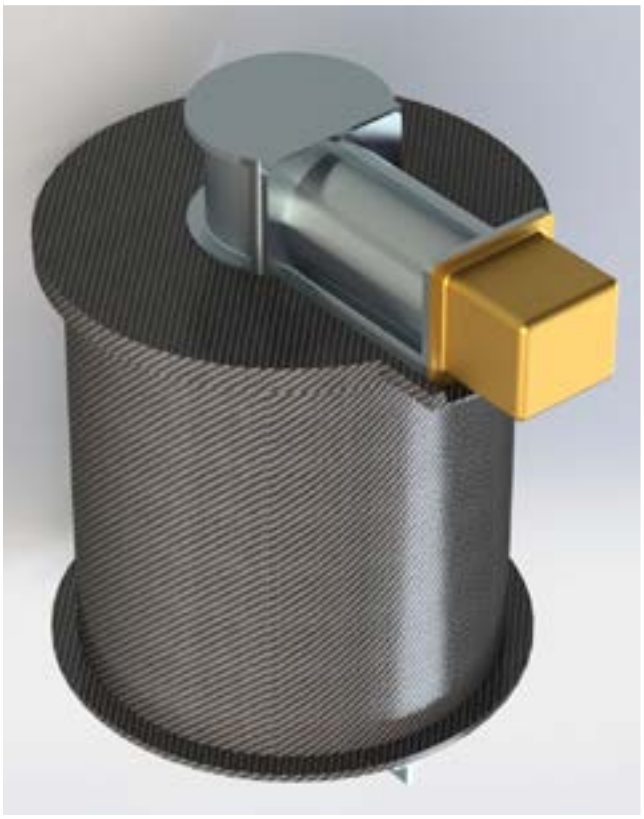

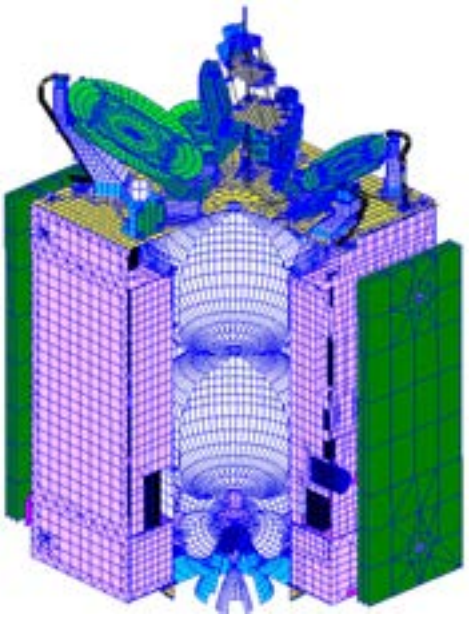

Progressive Systems

Company profile

Headquartered in Frascati, Italy, we are an Italian SME delivering solutions aimed at simplifying Earth Observation data exploitation since 2006. We provide solutions easing the management of complex processes related to the exploitation of Earth Observation data to research, industry and international institutions representatives. Such solutions cover several types of activities and/or services, spanning from the support to algorithms development, to their integration into processing environments; from the support to applications validation, to their transfer to operations; from the operations of exploitation environments and distributed ICT systems to education, outreach and communication support. For ESA we operate the Research and Service Support service and we are involved in the Mission Performance Centre of Sentinel-3 (MPC S3).

We also focus on research activities including environmental monitoring (e.g. land classification, agriculture and precision farming) and early warning and risk management support (e.g. fire detection, flood detection, ground deformation). We are also active in training initiatives to support universities, start-ups and SMEs interested in using Big Data.

Our experience is based on a long-lasting collaboration with the European Space Agency and on-site presence at ESRIN. Our customers can therefore benefit from:

- 15 years of experience in EO data processing for scientific exploitation, as well as EO data users (scientists and service industry) support, requirements and objectives, gained through the operation of the ESA Research and Service Support service;
- Strong expertise in quality assurance of EO products given our involvement in the ESA MPC S3 and QA4EO service;
- Sound knowledge and understanding of ESRIN in general and in particular of the EOP-G/EOP-S processes, stakeholders and infrastructures given the enduring collaboration with ESA and on-site presence at ESRIN;
- Established track record in R&D projects and products development aimed at mapping diverse environmental variables and providing early warning systems, in collaboration with recognized international partners

Products | Services | Applications |Technologies

Our activity lines are:

- Services
- Operations
- Testing, Verification and Validation
- Research Projects and Applications
- Education

1. Services

EarthConsole

EarthConsole is a cloud-based platform comprising a set of support services to assist researchers, innovators and service providers in optimizing the way in which they use Earth Observation data to analyse our planet. EarthConsole is a set of three complementary services: G-BOX (Integrated Algorithm Development and

Execution Environment), I-APP (Application Integration Service) and P-PRO (Parallel Processing Service) with the aim of facilitating Earth Observation data exploitation.

Website: www.earthconsole.eu

EOsuite

EOsuite is a set of services aiming at bridging Earth Observation with non-EO research and business domains. Four are the main services offered:

- Expert Support (feasibility studies, validation, consulting);
- EO services (ad-hoc developments; turn-key solutions; platform independence)
- Partnership (R&D projects, participation to call for bids)
- Training (basic, advanced, customized).

2. Operations

ESA Research and Service Support

Since 2006 we operate the ESA Research and Service Support whose mission is to support scientists, service developers such as SMEs, start-ups and businesses in the space industry, and institutions in exploiting Earth Observation data during the R&D phase. RSS supports its customers in developing and integrating new algorithms, elaborating on-demand processing campaigns and generating and delivering value-added information.

S3 ñ Mission Performance Centre

The ESA and EUMETSAT Sentinel-3 Mission Performance Centre (S-3 MPC) aims at ensuring the highest quality of products for Sentinel-3 mission. We are part of the Consortium led by ACRI-ST whose aim is control the quality of all generated products, from L0 to L2.

3. Testing, Verification and Validation

ESA Fast Prototyping

From 2014 to 2019 we were involved in the frame contract for social media and mobile applications development

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for Earth Observation ground segment and mission operations (Fast Prototyping). It aimed at filling the gap between the general public and ESA by promoting its EO missions and emergency and monitoring services, and by highlighting the importance of EO data for the scientific community. The main role of Progressive was to gather the requirements and perform independent testing of the software deliveries released by the industrial consortium.

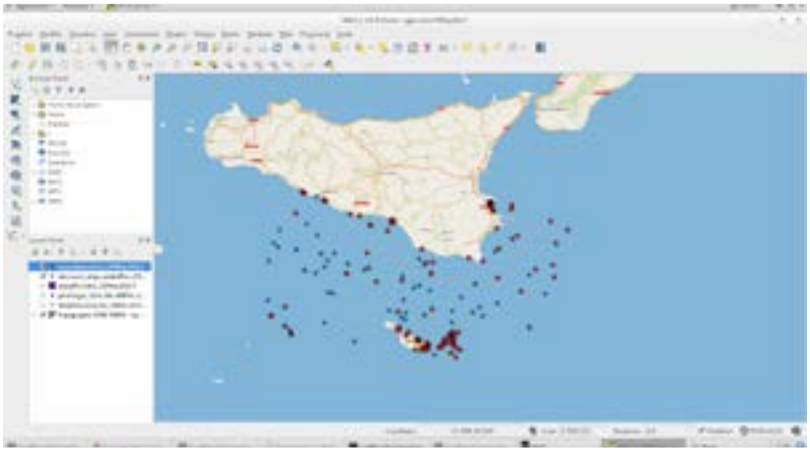
4. Research Projects and Applications

- Artificial Intelligence and Earth Observation data: innovative methods for monitoring West Nile Disease spread in Italy - AIDEO: we werea partner in the AIDEO project whose aim was to develop an innovative, scalable and accurate process to produce WND risk maps, using EO data and specific AI algorithms.
- Website: www.aideo.eu
- Fire and Burnt Areas Detection: we developed a fire detection service to detect fires in near- real time and assess derived burned areas mainly based on Meteosat Second Generation data. It allowed local authorities to warn citizens and monitor the identified fires in sensitive locations.
- Flooded Areas Detection: we arein the position to develop maps based on Synthetic Aperture Radar acquisitions, which indicate the areas affected by the floods to support decision making and disaster response.
- Ship Detection: we set-up a prototype ship detection chain based on SAR observations to support the Italian Coast Guard in increasing the efficiency of its surveillance activities.
- Coastline Detection and Monitoring Tool (CoDeMinT): wedeveloped a tool in support of coastal monitoring projects and activities. The tool enables the non-expert user to extract and analyse shorelines from Landsat and Sentinel-2 imagery. CoDeMinT can be provided as a Jupyter Notebook to allow users to automatically retrieve and download input data, configure the main parameters of the detection algorithm, and quickly visualise the analysis results. The detection algorithm implemented in CoDeMinT is based on Canny Edge method [Canny E. 1986] widely used in many applications. This technique is directly applicable on any type of shoreline regardless of the terrain characteristics (white/dark sand, cliff, rocks, port, Ö).

5. Education

Earth Observation Data Analysis Lab Programme

In the framework of the Masterís degree in Data Science of the University of Rome La Sapienza and within the RSS service, we are in charge of organizing the Earth Observation Data Analysis ñ EODA Lab Programme: a three-sessions laboratory providing an overview on the Copernicus Sentinels, the EUís constellation of satellites specifically dedicated to atmospheric, oceanic and land monitoring. The Lab offers its students the possibility of learning the most important techniques to process data and derive products for information retrieval on atmosphere, land and water.



RedCat Devices

Company profile

RedCat Devices (RCD), born as a start-up company in 2006, is a fabless semiconductor company devoted to design semiconductor memories and analog devices for aerospace and nuclear science taking the best from standard and well consolidated CMOS technologies and using Radiation Hardening By Design (RHBD) proprietary methodologies to enhance resistance both to total ionizing dose (TID) and single event effects (SEE). RedCat Devices volatile and non volatile memories are designed specifically to be used in very aggressive environmental conditions. RedCat Devices can count on seven people permanent staff team including founders and consultants. Its capability spreads from project management to physical simulation and layout design of complete silicon devices for customers who can also be helped on silicon process evaluation. Commercial Partnership

In november 2018, RedCat Devices signed an agreement for joint development and marketing of rad-hard processors for space applications with ARSULTRA (Argentina). The agreement aims to trigger common business opportunities in the space market and realize research activities for the development of new processors to be implemented firstly on ARSULTRA on-board computers.

Technological partners (Foundries)

X-FAB (Erfurt, Germany), TowerJazz (Israel), IHP (Frankfurt, Germany), LFoundry (Avezzano, Italy), TSMC (Taiwan), UMC (Taiwan).

Other partners:

University of Jyv‰skyl‰ (Jyv‰skyl‰, Finland), in particular with the RADiation Effects Facility, RADEF, an ESA-supported radiation effects test site.

University of Palermo (Italy), Dept. of Engineering for testing under irradiation (Cobalt 60) and development of rad-hard test-beds

Resellers:

Tecnode Solutions Pvt. Ltd. (India).

Research and Industrial projects

Running project:

Title: MORAL - Export-free Rad-hard Microcontroller for Space Applications

Funded under the Horizon 2020 Programme - SPACE-10-TEC-2018-2020, N52 action ìJTF-2018/20-11

Period: 01/01/2020 ñ 30/04/2023

Title: Development of rad-hard PROMs for Space Applications (RAD-PROM)

Funded under the Italian Space Agencyís Industrial

Period: 04/06/2018 - 04/06/2020

Title: Monitoraggio del Territorio e Agricoltura di precisione mediante sistemi a pilotaggio remoto (PIGNOLETTO)

Funded under Regione Lombardia (Call HUB) ñ POR 2014/2020 ñ INNOVAZIONE E COMPETITIVITAí

Period: 01/02/2020 ñ 01/08/2022

Title: ESA-NAVISP Anti Jammer SoC (AJS) ESA Contract EL2-004

Period: 18/09/2019 ñ 18/03/2022

Former projects:

Title: Radiation Hard 16Mbit MCM SRAM for Space Applications (EuroSRAM4Space)

Funded under the European Unionís Eureka Eurostars2 Programme.

Concluded

Title: Radiation Hard Resistive Random-Access Memory (R2RAM)

Funded under the European Unionís Horizon2020 Programme.

Concluded

Books

- C. Calligaro and U. Gatti, (2018). ìRad-Hard Mixed-Signal IC Design, Theory and Implementationî in A. Baschirotto, P. Harpe, K. Makinwa, ìNext-Generation ADCs, High-Performance Power Management, and Technology Considerations for Advanced Integrated Circuitsî, pp. 273-297, Springer, ISBN 978-3-030-25267-0, ISBN 978-3-030-25267-0 (eBook), https://doi.org/10.1007/978-3-030-25267-0
- Calligaro, C., and Gatti, U. (Eds.). (2019). Rad-hard semiconductor memories. River Publishers, Series in Electronic Materials and Devices. ISBN: 9788770220200.î

Products | Services | Applications |Technologies

iRedCat Devices proprietary methodology for rad-hard components has been proven both for space applications (TID up to 300 krad (Si) and SEL over 80 MeV*mg/cm2 (Si)) and high energy physics experiments (TID over 25 Mrad (Si)) pushing standard Bulk CMOS to the same level of reliability of SOI/SOS and Triple Well CMOS. RedCat Devices also manages irradiation testing campaigns by using proprietary methodologies and FPGA-based custom board implementing ATEequivalent functions for in-situ (under irradiation) testing.

Products

RAD-HARD components:

- RC7C1024RHS: a 1Mbit (128Kbit x8) SRAM for standard space applications (LEO, MEO, HEO, GEO). Foundry:

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TowerJazz.

- RC7C2048RHM: a 2Mbit (256kbit x8) SRAM device for low orbit (LEO) space applications. Foundry: TowerJazz.
- RC7C4096MCT is a 4Mbit (128kbit x8 x4) MCM SRAM device for low orbit (LEO) space applications. Foundry: TowerJazz.
- RC7C4096RHM: a 4Mbit (512kbit x8) SRAM device for low orbit (LEO). space applications. Foundry: TowerJazz.
- RC7C512RHH: a 512Kbit (64Kbit x8) SRAM for Deep Space and High Energy Physics Experiments. Foundry: TowerJazz.
- RC7C512RHM: a 512Kbit (64Kbit x8) SRAM device for low orbit (LEO) space applications. Foundry: TowerJazz.
- RC7C512RHS: a 512Kbit (64kbit x8) SRAM device for standard space applications (LEO, MEO, HEO, GEO). Foundry: TowerJazz.
- RC7C81092MCX: a 8Mbit (256kbit x8 x4) MCM SRAM device for low orbit (LEO) space applications. Foundry: X-FAB.

Rad-hard Libraries:

RedCat Devices rad-hard libraries are designed to be used in digital ASICs for space applications. All cells can be placed by using standard tools such as Cadence or Tanner.

Standard Cells:

RadLib18T. Rad-hard standard cell library (1.8V) for TowerJazz ts18sl CMOS process (RadLib18T_v3).

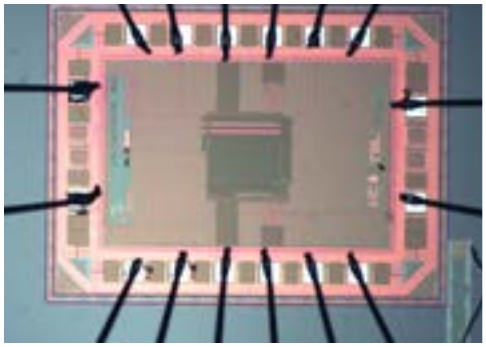
RadLib18XF. Rad-hard standard cell library (1.8V) for X-FAB xh018 CMOS process (RadLib18XF_v2).

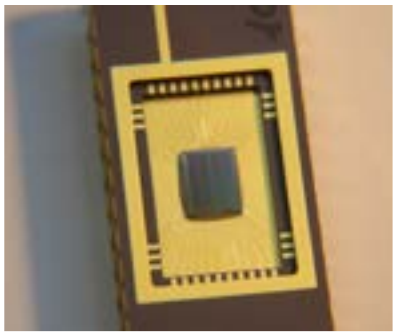
RadLib12I. Rad-hard standard cell library (1.2V) for IHP sg13s CMOS process.

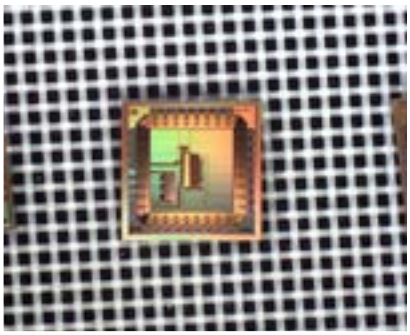
RadLib18LF. Rad-hard standard cell library (1.8V) for LFoundry lf15a CMOS process.

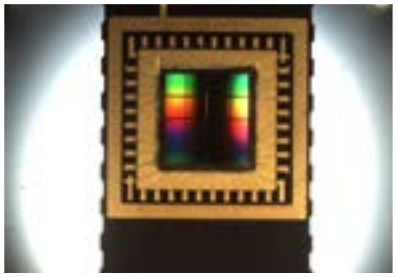
RadLib18TC. Rad-hard standard cell library (1.8V) for TSMC cm018 CMOS process.

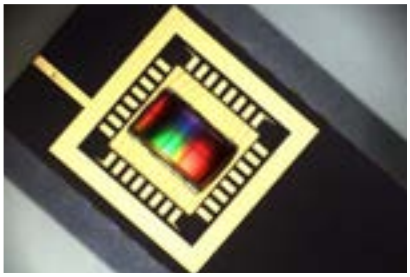
RadLib33T. Rad-hard standard cell library (3.3V) for TowerJazz ts18sl CMOS process.

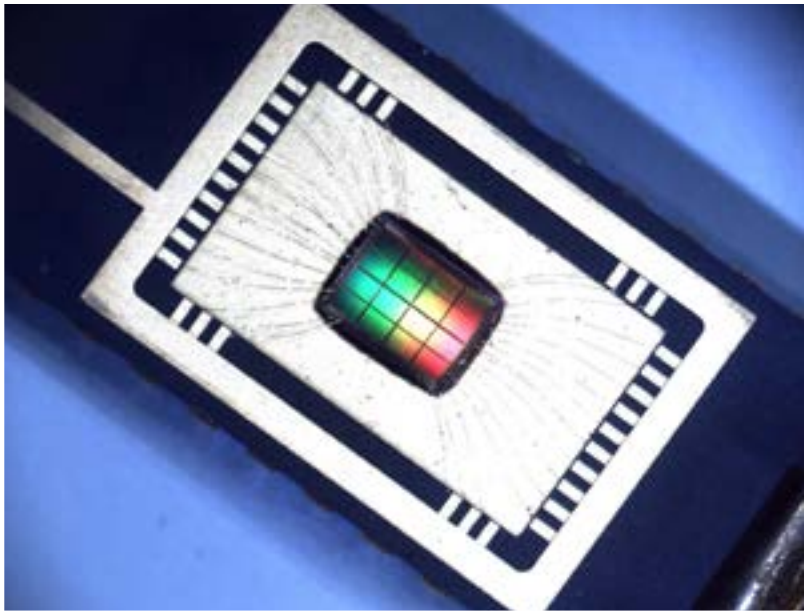


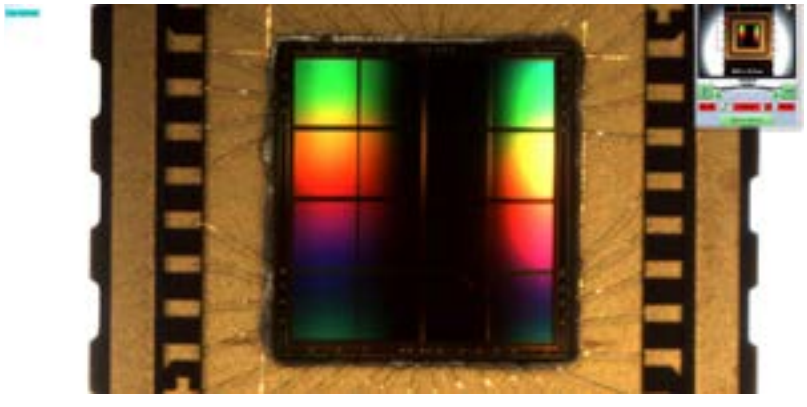












RF Microtech

Company profile

RF Microtech is a service company developing custom products and smart solutions for industries and system integrators operating in the field of Telecommunications, SatCom, Aerospace, Localization and Manufacturing Industry. RF Microtech offers innovative solutions in the area of antennas, beam forming networks, microwave filters and passive components, tunable devices, RF systems for satellite and terrestrial communications, radars for civil and military applications, sensors for real-time industrial processes control.

Founded into 2007 as a spin-off of the University of Perugia, RF Microtech can now rely on a high-qualified and creative team of 23 employees and 4 external collaborators, most of them engineers with PhD. The company is involved in different H2020 programs and is prime contractor in several European Space Agency projects. It is partner of international players such as Thales Alenia Space, SIAE Microelettronica, Elettronica and others. In 2017, the company moved into a larger premises, where a new and well-equipped laboratory for the manufacturing, assembly and test of antennas and microwave circuits has been set up, along with measurement facilities up to 67GHz

Products | Services | Applications |Technologies

The core business of the company consists of custom design and development of RF components and systems for industries, operating in the telecommunication field. Specifically, the main areas are:

- Antennas and phased arrays
- Microwave filters and passive devices
- Microwave Sensors and Systems

RF Microtech supports projects at different levels. In fact, the company provides Simulation and Technical Consultancy, System and Sub-system Design, Prototyping and Low-volume Manufacturing, RF Testing and Characterization, starting from a deep analysis of the customer requirements. The most advanced simulation tools are used: Ansys HFSS, AWR, CST microwave Studio and other in-house computational platforms for Antenna or Filter design. A well-equipped laboratory for the assembly of phased array antennas has been arranged, along with measurement facilities up to 67GHz for antenna and microwave equipment.

The enabling technologies provided by RF Microtech can be transversally applied in different markets, such as:

- Telecommunications and SatCom
- Space and Avionics
- Radio Link
- Real Time Control of Industrial Processes
- Localization and Sensing

Contact

Business Name

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Head quarters

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Point of Contact

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Marketing and Promotion Manager

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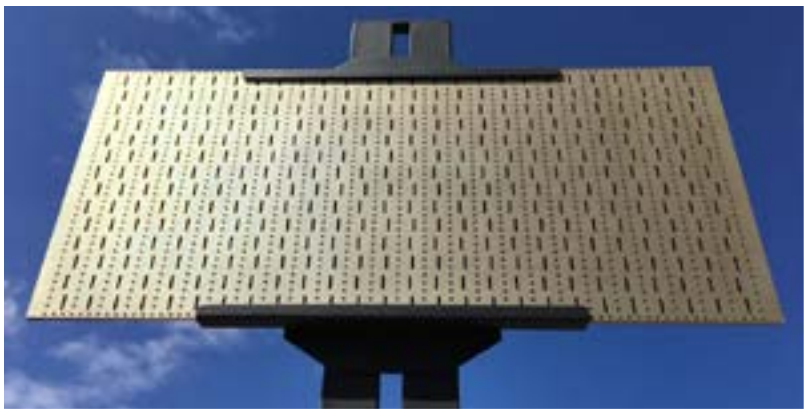
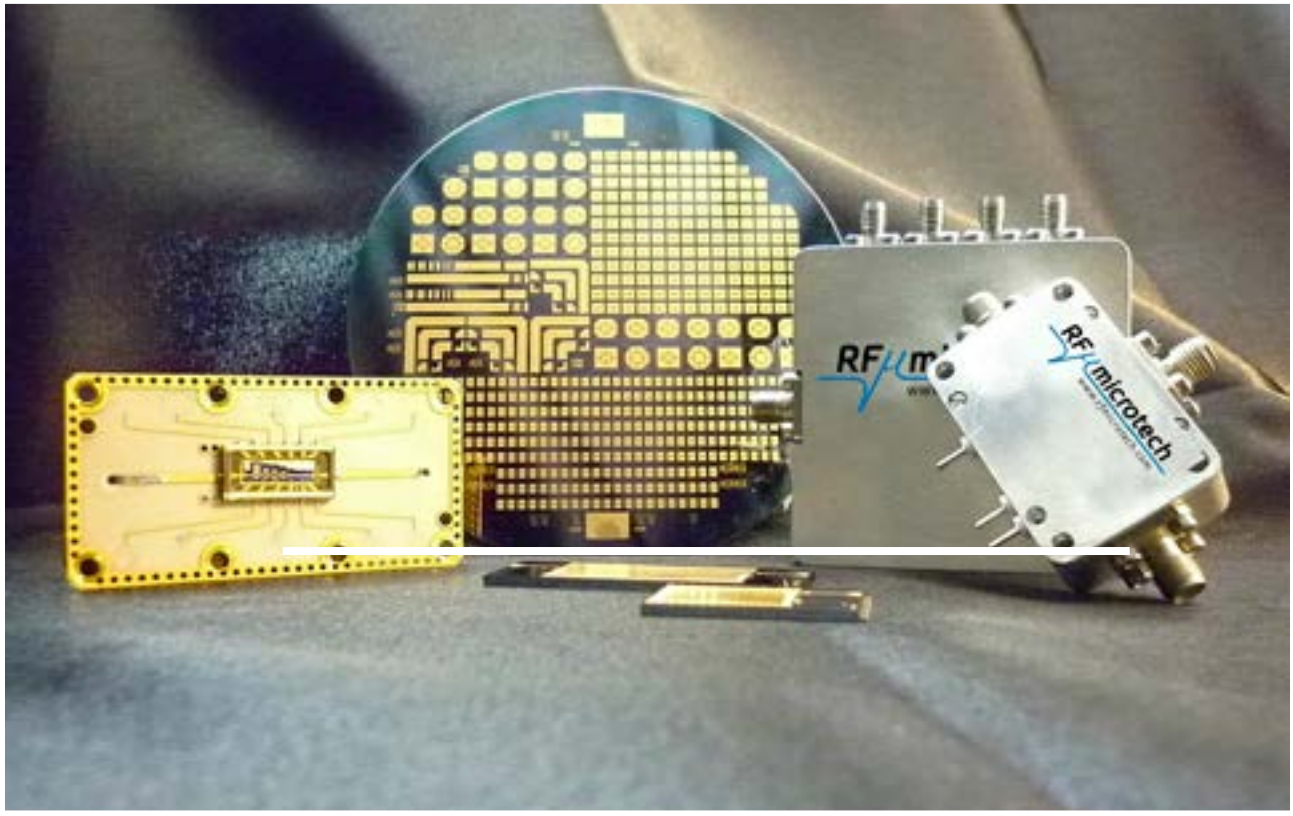



WITH OVER
10 YEARS
OF EXCELLENCE


RF microtech

RGM

Company profile

RGM is an Italian company founded in 1986 dedicated to the production of customer power supplies. During the years, RGM expanded its portfolio of products, specializing in the creation of complex custom systems for power conversion for a wide range of applications in transportation, hybrid systems and energy storage, industrial and medical markets.

RGM has an important Business Unit RGM SPACE based in Rome, focused on EEE parts procurement and testing of Hi-Rel components.

RGM SPACE is a EEE Parts Agency formed by Managers with large experience in Space Projects, Component Engineers in the field of Hi-Rel components and Technical Experts in Space components and related activities management.

RGM SPACE is continuously part of the main European Space Agency (ESA) and Italian Space Agency (ASI) Programs together with its customers based in Italy, Europe and Worldwide.

Our activities start from the analysis of part list and customer requirements to achieve the best qualitative, technical and economic definition of part numbers and related test activities, in order to provide turn-key solutions in terms of parts, testing and documentation.

RGM SPACE has special and direct agreements with a wide range of manufacturers and suppliers in order to provide to our customers the best solution, supporting them also in Parts Reductions, Standardisation and Cost Evaluation.

RGM SPACE also manages all the tests requested in a space program and all the procurement related documentation (CoC, PAD, DPA, NCR, RVT, Up-screening, Precap, Buy-off, Datapackage, etc.) available also online in a reserved area on our Web Procurement Documentation Management site.

All the processes in the Company are managed according to:

ISO 9001:2015 (Quality)

ISO 14001:2015 (Environment) for Genova site

EN 9120:2010 requirements for Aviation, Space and Defense distributor

EN ISO IEC 80079-34 (ATEX) for products to be used in explosive atmosphere

Products | Services | Applications |Technologies

The activities covered by RGM SPACE Division are:

EEE Parts Engineering & Quality:

- Parts Reduction and Standardization and Preparation of Consolidated Component List (CCL);
- Preparation of Detailed Specifications and PAD;
- Solutions for COTS, Radiation & specific tests for NewSpace applications and technologies as for Cubsats, Nanosatellites, etc.;
- Preparation Evaluation / Qualification Plan and Test Plan - Preparation Technical Interface with Manufacturer / Users;
- Technical and Radiation Data Base Management.

*EEE Parts Procurement:

- Procurement Schedule and Planning Definition;
- Monitoring Parts Procurement Status and Schedule Monitoring;
- Custom Operation / Ex ñImport / Export License management
- Parts in Stock Management;
- Solutions for Obsolensces;
- PRE-CAP & BUY-OFF;
- Management of NCRs;
- Web Procurement Documentation Management.

Testing of EEE Parts:

RGM SPACE Division perform all the tests requested in a Space Program:

- Destructive physical analysis (DPA)
- Failure analysis
- Counterfeit Detection , Autenticity Tests of Electronic Components
- Construction analysis
- Up-screening
- SEM Analysis & EDX
- Relife tests

Contact

Business Name

RGM SpA

Head quarters

RGM SPACE Division - Via Zoe Fontana, 220

Rome

RM | 131

Point of Contact

Fabrizio Orsi

Program Manager

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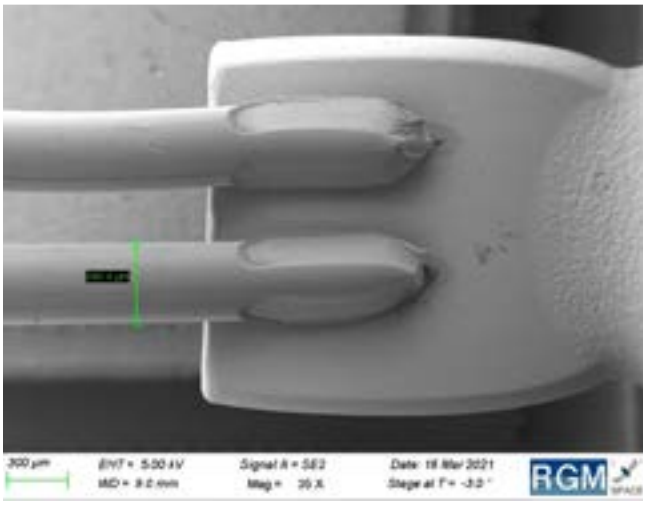
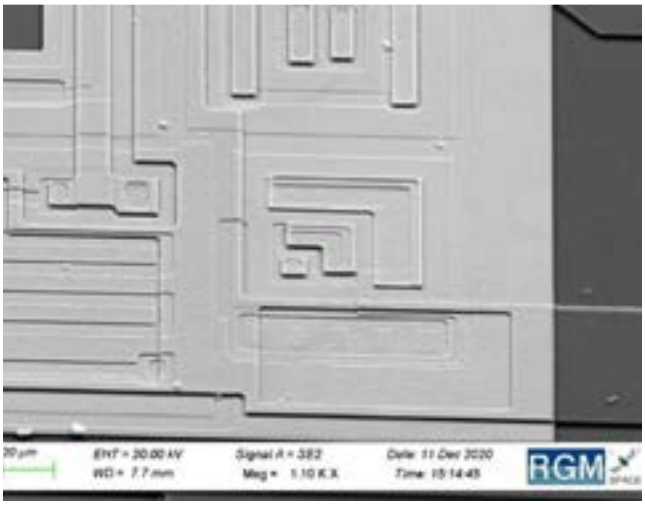
rgmspace@rgm.it

- Thermal Shock (air air / liquid liquid) and Thermal Cycle
- High Stabilization Bake
- Humidity Test 85 C/85%RH
- Highly Accelerated Temperature and Humidity Stress Test (HAST)
- Burn in
- Life test
- Electrical test characterization (also at RF up to 20GHz / 40GHz)
- PIND and Hermeticity Test
- Radiation test TID DD SEE
- Xrays and CSAM
- Shock & Vibrations

Our strenghts:

- provide all services related to EEE high reliability components (including procurement);
- provide the highest possible technical and professional competence;
- ensure that the customer requirements (technical / quality / schedule / cost) are fulfilled.





SAB Aerospace

Company profile

S.A.B. Aerospace S.r.l. (SAB-IT) is a company part of the SAB group, in the space business since 2004. The companyís core business is focused on the development of mechanical systems and subsystems for Launchers and Satellites. The internal facilities such as Manufacturing, Assembly, Integration and Testing, together with the heritage in ESA programs as responsible for small systems, put SAB-IT in the position of being a valuable alternative to large companies in different fields of activities.

Nowadays SAB-IT is recognized as one of the Italian players in the Launchers field, thanks to the collaboration with ESA and AVIO on the Small Spacecraft Mission Service project (SSMS).

The other main activities carried out by SAB-IT are related to satellites, mainly focused on the development of mechanical subsystems of satellites platforms as well as optical payloads and equipment.

In the frame of the internationalization process, a new company has been started in Czech Republic (S.A.B. Aerospace Sro), Poland (SAB Aerospace Spzoo) and for 2020 new operational headquarters are planned to start in Romania. The company is nowadays recognized as a small system company, with competences related to electronics, mechanical, thermal, software and system integration.

Products | Services | Applications |Technologies

PRODUCTS:

SPACEBATTERY: development of next generation battery packs, using lithium ion cells and an evolved Battery Management System with the possibility of telemetry and remote control;

Launchers, Adapters, Dispensers and Interface Rings;

UAV: unmanned Aerial Vehicle (UAV).

SERVICES:

MANUFACTURING

- Machined of Machined Parts (internal facility);
- Manufacturing of Composite Parts (outsourced)
- MWI Baseplate

ASSEMBLY/INTEGRATION: AIT activities performed by certified operators: ï

- Internally in clean room 100000 Class (e.g. Assembly Integration and test of Flight HW internally manufactured);
- By the customer (e.g. EDRS-C panel integration and alignment at OHB System premises);
- In Centre Spatial Guyanais (e.g. SSIS integration on VEGA for PROBAñV launch at CSG in Kourou);

TESTING

- VESTA (Vega Shock Test Apparatus): Shock Qualification Test for the Satellite embarked on VEGA launcher;
- Vibration and Shock Testing (internal facility);
- TVAC Testing (outsourced);
- SSMS Dispenser First Tower;
- VIS SDPU PFM Physical and Mechanical test;
- SA-4S PDR opening and drop test.

APPLICATIONS:

Conero-UAV: environmental monitoring services to the local communities and public Institutions through the Unmanned Aerial Vehicle (e.g. coast erosion, environmental pollution);

ARIANNA: platform that optimizes the tracking and management of goods within the intermodal logistics (vehicles tracking, traffic status monitoring, tracking of goods, Personal Protective Equipment RFID identification, Driver Rfid Identification, Communication interfaces towards National Telematic System);

TECHNOLOGIES:

Development of Material Technologies

- Advanced Ceramics: development of novel materials for TPS for re-entry vehicles and equipped with SHMS (in collaboration with CGS and CNR-ISTEC);
- Light Alloys: innovative application of magnesium alloys for aerospace systems.

Development of Processes Technologies:

- Friction Stir Welding/Laser Welding;
- Carbon Fiber Lamination;
- Honeycomb Sandwich Panel with CFRP skins Manufacturing.

Development of Technologies for Separation Systems

Development of Aeronautical System:

- UAV (unmanned air-vehicle);
- Flight Management System.

Contact

Business Name

SAB Aerospace srl

Head quarters

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Point of Contact

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Executive Assistant

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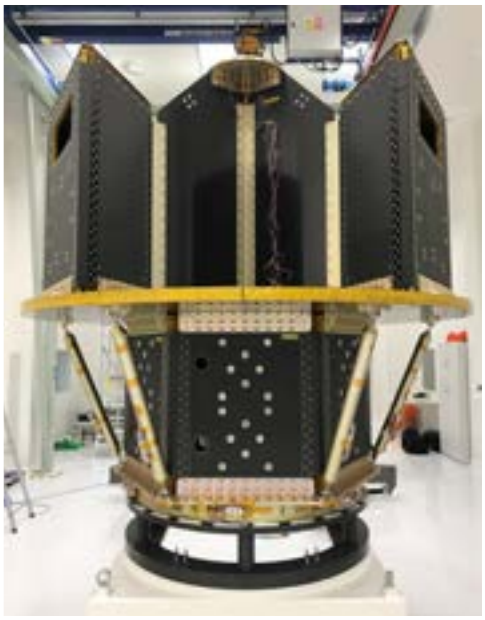
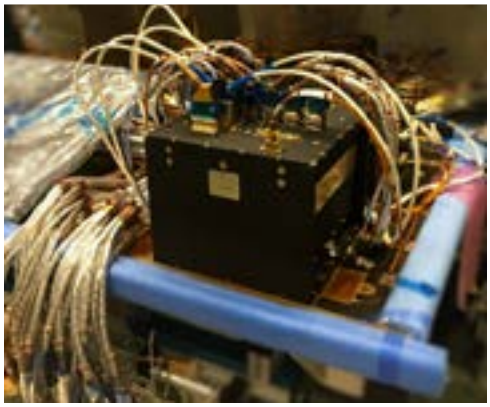
SAB
REGIONE MARCHE
CONERO UAV
LOGIN


SAB





SAB Launch Services

Company profile

SAB Launch Services S.r.l. (SAB-LS) is a company part of the SAB group offering launch services for Nano and Micro-satellites on European Rideshare and Piggy Back missions. SAB-LS offers ìend to endî services including launch procurement, support to the customer during development and qualification phase, integration activities of the satellite on the launch vehicle structure, pre and post launch support and full insurance at very competitive prices. SAB-LS focuses its activities on the VEGA and VEGA-C missions belonging to the Small Spacecraft Mission Service (SSMS) family. In the frame of the SSMS project a modular dispenser has been developed to enable the provision of a dedicated service to small satellites. Such modular structure can be flexibly configured in order to be adapted to the specific satellite aggregate.

The SSMS dispenser coupled with the VEGA AVUM (Attitude Vernier Upper Module) provides maximum flexibility for rideshare missions, allowing multiple satellite releases in different orbits with different altitudes and/or some inclination change.

The company operates from its headquarters of Benevento (Italy), while payload integration activities in Europe are carried out in the SAB Aerospace facility in Brno (The Czech Republic). Final Integration and Pre-Flight Operations are performed in the European Space Port in French Guiana.

Products | Services | Applications |Technologies

Brokering of launch services including pre and post-launch activities;

Deployment Hardware Procurement;

Fit Check at Customer Premises;

Satellite integration on launch vehicle in European Premises;

Packaging and shipment to launch site;

Launch Insurance

Contact

Business Name

SAB Launch Services srl

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Megi Mali

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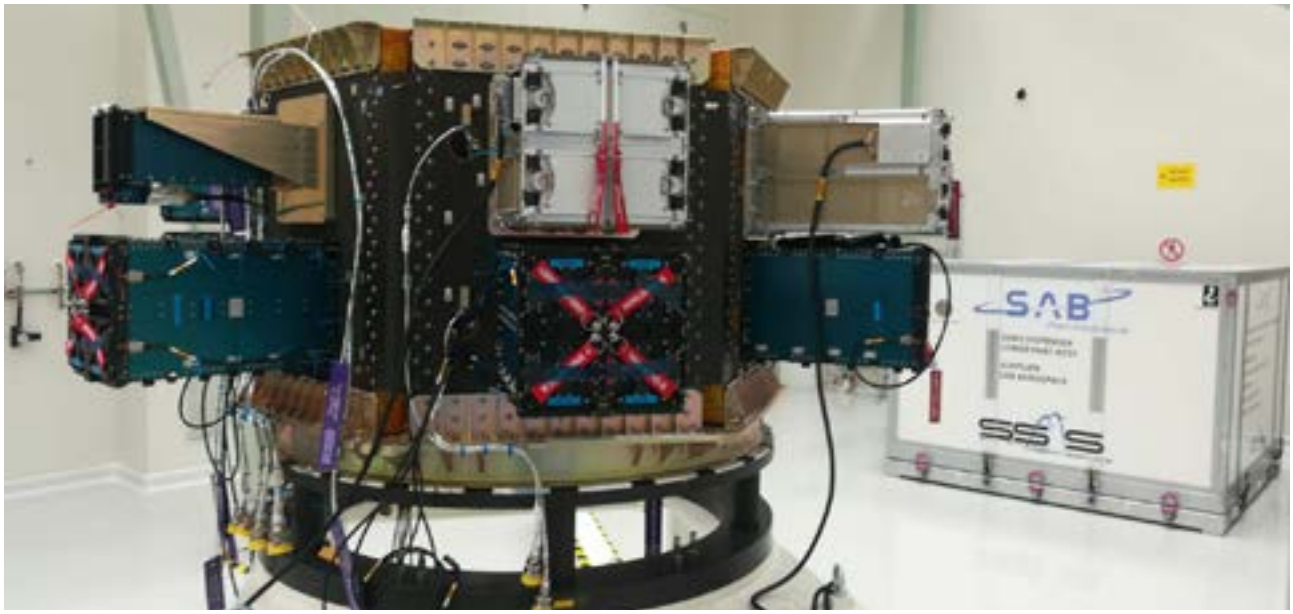
SAB

SATE - Systems and Advanced Technologies Engineering

Company profile

S.A.T.E. is an R&D and engineering company, founded in 1998, that performs services of advanced technology engineering in many different industrial fields, in particular in the energy industry (offshore, gas compression and processing industry), in the automotive and the space industries.

S.A.T.E. is specialized in the study and analysis of innovative systems, modelling, simulation, diagnostics and knowledge extraction from data, with the following key competences:

- Systems and software engineering
- Systems physical mathematical modelling
- Systems simulation
- Artificial Intelligence & Machine Learning for knowledge extraction from data, systems modelling, anomaly detection
- Model-based diagnostics
- Data-based characterisation of systems behaviour/ expected performance
- Control systems

S.A.T.E. operates in the following areas:

- SYSTEMS ENGINEERING, providing consultancy, study and design with regard to mechanical, underwater, marine and space systems for which design with a strongly interdisciplinary and inter-functional (isystems-engineeringî) approach is necessary.
- MODELLING AND SIMULATION, providing products and services for the dynamic simulation of systems operation and control, which is necessary to verify their design. To provide these services, S.A.T.E. uses its own proprietary advanced software products, developed in the MATLAB/SIMULINK environment, for both off-line and real-time simulation.
- ON-BOARD AND IN-FIELD SOFTWARE, providing customised software solutions deployed for on-board (embedded) and in-field applications implementing data processing, dynamic simulation and diagnostics.
- DIAGNOSTICS AND KNOWLEDGE EXTRACTION, providing software solutions and services for systems diagnostics, based on both model-based and data-driven approaches, and knowledge extraction from data, applying both State-of-the-Art and S.A.T.E. proprietary methods and algorithms.

S.A.T.E. is a qualified consultant and supplier of international OEM and engineering companies in the automotive sector, of CERN, ESA and Large System Integrators in the space sector, and of international OEM, IPC contractors and oil companies in the power and oil&gas sector.

S.A.T.E. quality system is certified according to ISO 9001-2015 standards.

Products | Services | Applications |Technologies

1. MODEL BASED DYNAMIC SIMULATION SERVICES AND PRODUCTS

Dynamic simulation and real-time simulators of processes and machines operation and control, such as for gas compression facilities, gas turbine power plants, refrigeration cycle compressors, vehicles components. Examples are:

- ACUSYS: Simulation of pressure pulsation in fluid plants. API 618 pressure pulsation analysis. API 674 pressure pulsation analysis. Calculation of shaking forces in piping. Design of pressure pulsation dampeners. FIV - Flow induced vibrations analysis.
- ACUSCOMP: Dynamic simulator of a reciprocating compressor interfaced either with a steady piping system (ideal interface) or with a reacting piping system.
- COMPSYS: Dynamic simulation of gas compression plants.
- HYDRODYN: A dynamic simulator for single-phase flow in piping & plants.
- TGSIM-Plus: A real-time dynamic simulator of full gas turbine plants.
- Telescope Dynamic Simulator: A software simulator of telescopes dynamics, to evaluate the dynamic oscillations of the mounting structure and optical parts an verify compliance with system specifications, considering wind disturbance, gravity, bearing friction, motors model and controls.
- TTYRE: An embedded software solution for vehicels sensorless tyre thread temperature and pressure estimation during the vehicle warm-up phase.
- CONDIZ-4HIL: A software for the real time simulation of automotive HVAC refrigeration cycles.
- BENCH: Dynamic simulator of car suspension test bench.

2. DIAGNOSTICS AND KNOWLEDGE EXTRACTION SERVICES AND PRODUCTS

- Diagnostic Kernel Modules (DKM): A library of software functionalities for the development and customisation of diagnostic models (also for on-board applications), performing normal behaviour characterisation, health status estimation and prediction, exploiting State-of-the-Art Neural Networks models integrated with

Contact

Business Name

SATE - Systems and Advanced Technologies Engineering srl

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Technincal Director Controls & Diagnostics

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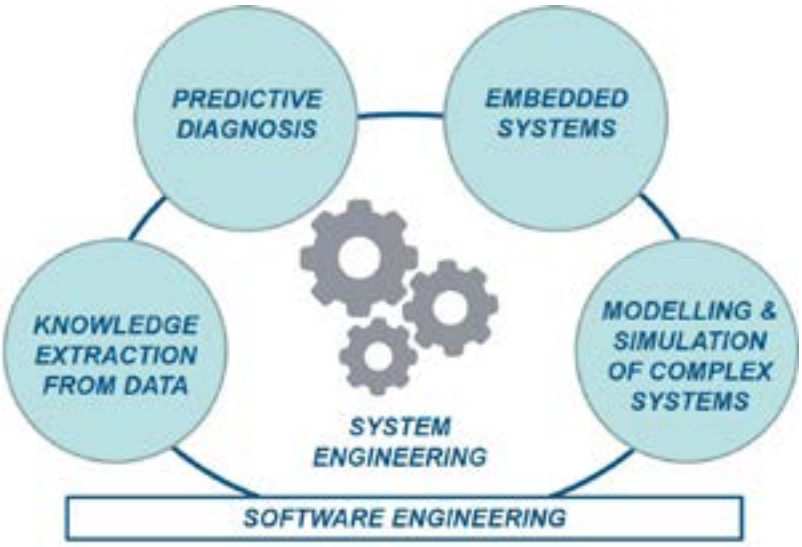
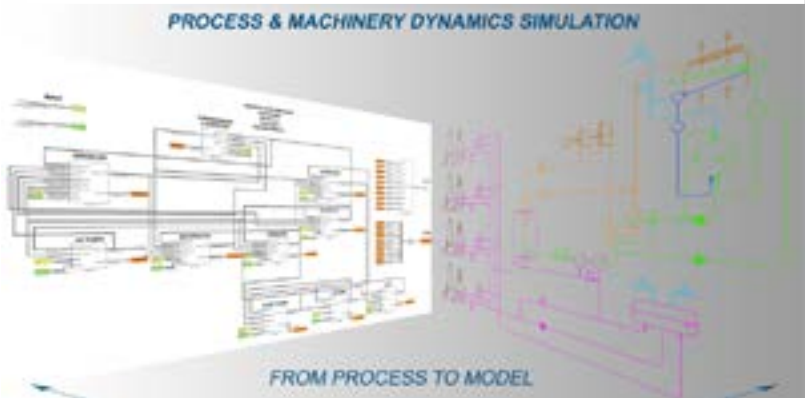
SATE proprietary diagnostics methods. DKM have been configured by S.A.T.E. to perform diagnosis of:

- Large internal combustion engines
- Vehicles powertrain components part of the air intake system, cooling system, injection system, aftertreatment system, temperature and pressure sensors
- Satellites reaction wheels
- Fault Isolation Module (FIM): A configurable software tool for the identification of the most probable causes of observed fault symptoms and evolving anomalies detected by DKM or other anomaly detection models, providing a list of root causes and their likelihood.
- Consistency Maps: A software tool for the training and use of consistency maps, aiming at extracting behavioural patterns of sets of monitored signals and detect deviations for the nominal patterns.
- CASTeC: Software-as-a-Service platform to enhance constellations monitoring and diagnostics, by means of SATE proprietary data-driven techniques, performing:
- Automation of spacecraft health monitoring and telemetry checking.
- Automatic identification of anomalous telemetries and relevant events that require investigation by SCs.
- Early detection of incipient faults and anomalous trends in the behaviour of the satellites/constellation.
- Automatic identification of correlated telemetries and events for quick events understanding.
- Improved visualisation of raw data and of check results providing synoptic views to better investigate data.
- KETTY: A desktop software tool to support Satellite Controllers in the analysis of S/Cs telemetries for anomaly detection and interpretation, implementing data pre-processing and synchronisation, normal behaviour characterisation through pattern extraction, anomaly detection, potential cause-effect relationship identification among telemetries.
- AIDA: An advanced web-based software solution based on Deep Learning algorithms for the diagnosis of antennas during tests, identifying the type of anomaly and its entity, with the purpose to allow test engineers to perform fast iterations to quickly identify the error sources and complete the diagnostic process.
- CLUE: An advanced software tool for the statistical and pattern analysis of data, originally developed for the analysis of clinical laboratory data and knowledge extraction without the use of a-priori medical knowledge aiming at the improvement of laboratory and medical practices and the support of physicians in the generation of diagnoses.
- TRA-Miner: An advanced software tool for the extraction of typical vessels trajectories from historical GNSS datasets, with space-time tolerances, based on ships characteristics and weather conditions, to enhance vessels traffic monitoring.

More products and details at http://www.sate-italy.com/en/portfolio/prodotti/





Sicilsat Communications

Company profile

Sicilsat Communications Æ operates in the area of satellite communication systems. The company was founded in 2010 by Concetto Squadrito which has more than thirty years of experience in the telecommunications sector. The main activities are design, manufacture, installation and testing of up-link and satellite system. Sicilsat Communications designs and manufactures fixed and mobile satellite systems, adapting them to the needs of its customers. This allows to obtain high reliability, a good standard realization, while maintaining a very competitive final price

Products | Services | Applications |Technologies

Our core business is the individual-customer-specific design of satellite communications solutions.

Sicilsat Communications specializes in the design and supply of highly reliable satellite communications solutions, both in the field of Space and Avio applications, and in the land segment.

The proposed solutions are able to satisfy every need of our customers.

Contact

Business Name

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Head quarters

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Point of Contact

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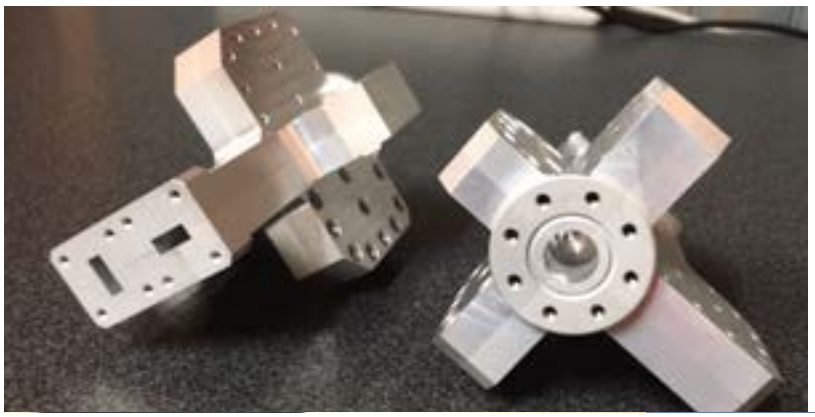
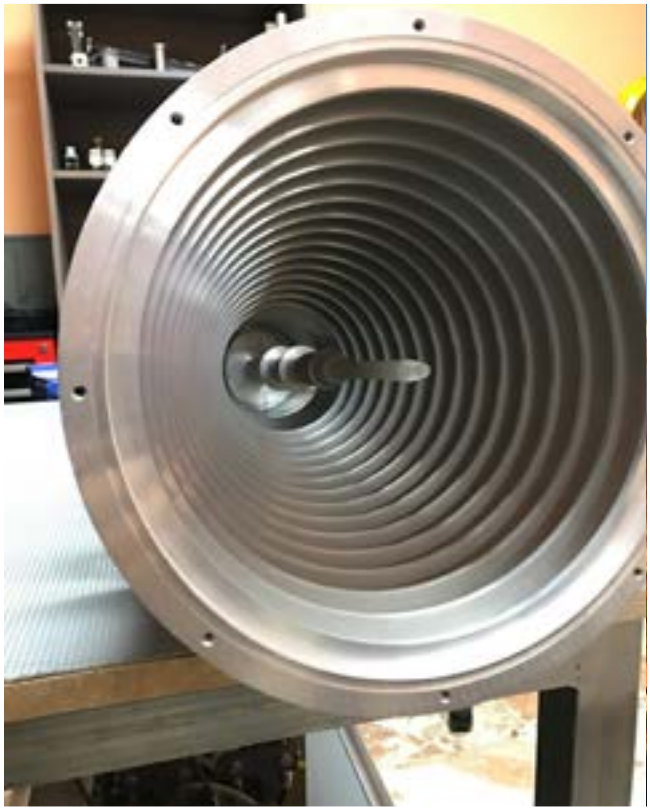
info@sicilsat.com

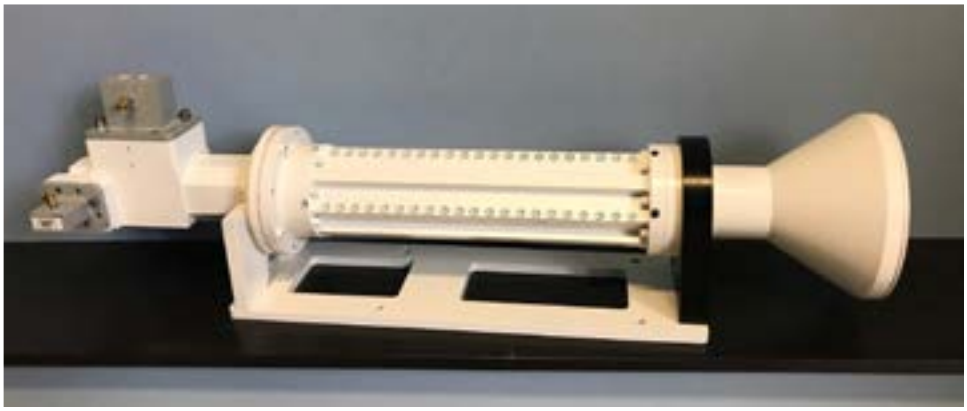


CERTIFIED QUALITY MANAGEMENT SYSTEM

CQY CERTIQUALITY

UNI EN ISO **9001:2015**





Società Aerospaziale Mediterranea - SAM

Company profile

The Mediterranean Aerospace Society (SAM) is composed by eleven Companies (large, small and medium) operating in the aeronautic and space sector.

SAM, a simultaneous engineering system, is one of the first Italian examples of companies aggregation in the aerospace sector. SAM has been founded in order to meet the market needs and to take advantage of all the development opportunities coming from national and international economic recovery.

SAM activities are focused on:

- INDUSTRY: design, manufacturing and aircraft maintenance activities, development and manufacturing of mechanical and electronic apparatus for aeronautic-space industry
- SERVICES: advanced technology services on earth observation implemented through satellites, avionic platforms and ground segment for monitoring and surveillance of territorial environment parameters
- ASTROPHISICS: SAM is member of the Dish Consortium (SKADC) led by CETC54 of JLRAT (China), and in particular is involved in the Structural Branch led by MT Mechatronics, Germany and in the Local Monitoring & Control, led by INAF (Italy).

SKA Dish Consortium (SKADC) The SKA Dish Consortium is responsible for the design and verification of the antenna structure, optics, feed suites, receivers, and all supporting systems and infrastructure for SKA1-mid and SKA1-survey

Products | Services | Applications |Technologies

INDUSTRY ñ Astrophisics & Big Science Projects

SAM is involved in some important iBig Science Projectsî. In the biggest world Astrophisics Project SKA (Square Kilometre Array), SAM is member of the Dish Consortium led by CETC54 of JLRAT (China), and in particular it is involved in the Structural Branch led by MT Mechatronics, Germany and in the Local Monitoring & Control, led by INAF (Italy).

APPLICATIONS & SERVICES Integrated earth observation system through satellite and avionic platforms using multisensor technologies and possessing operating characteristics enabling data acquisition via diverse sensors in a single mission. Ground segment which guarantees data in the field of Geographic Information 24/7 for environmental monitoring and surveillance services, mapping and value added information for GIS and DDS systems.

SPACE & GROUND SEGMENTS:

- Design and manufacturing of space infrastructures and payloads for scientific and commercial missions, environmental monitoring, and TLC applications
- Design, development and manufacturing of on board and ground electronic equipment
- Antennas and other ground mechanical equipment
- Prototyping and reverse engineering
- Precision machining
- Composite materials design and development

Contact

Business Name

Società Aerospaziale Mediterranea - SAM scrl

Head quarters

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Point of Contact

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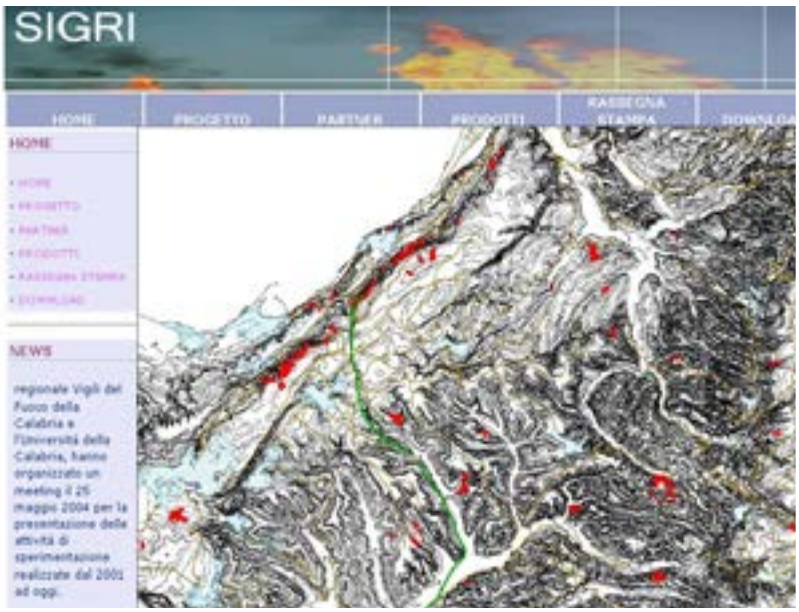
SIGRI
HOME
PROGETTO
PARTNER
PRODOTTI
RASSEGNA STAMPA
HOME
NEWS
regionale Vigili del Fuoco della Calabria e l'Università della Calabria, hanno organizzato un meeting il 25 maggio 2004 per la presentazione delle attività di sperimentazione realizzate dal 2001 ad oggi.

SÒPHIA HIGH TECH

Company profile

SÒPHIA HIGH TECH was born thanks to the deep vocation of product development. The Headquarters are in Italy, in Sant'Anastasia, and in Czech Republic in Plzen.

The Company, certified according to EN/AS/JISQ 9100 Aerospace Quality Standard, is focused on Design, Development and Manufacturing of Mechanical Parts and Assemblies in the Aerospace & Defense, Automotive & Railway fields:

- R&D and Engineering Dept. uses most innovative CAD/CAE Design Software, as well as equipments to carry out the Reverse Engineering, by Laser Scanning.
- Manufacturing Dept. is equipped with facilities for the production of metal alloy components. In particular, SÒPHIA works with ALM (Additive Layer Manufacturing) in order to realize complex shape components, with CNC Machining (3 Axis | 4 Axis | 5 Axis milling systems) and CNC Turning, fully compliance with Industry 4.0.
- Metrology Dept. is equipped with systems for the Dimensional and Geometrical checking, in Clean Room.

Our Stakeholders use to define us EXPERTS IN MECHANICS

Products | Services | Applications |Technologies

SÒPHIA HIGH TECH's core business is focused on product development and manufacturing. The Company has 3 main Business Units:

BU 1 | Prototyping & LRIP

Low Rate Industrial Production with high precision CNC machines and Additive Manufacturing (SLM - Selective Laser Melting) processes. SÒPHIA has a strong know-how related to product development, which has allowed the Company to become increasingly involved in the control of the production process. Using this "turnkey" approach, the Customer has the advantage of interfacing with a single company that assumes the complete responsibility for the project.

BU2 | Design & Simulation

Structural optimization, using CAD-CAD approach, allows SÒPHIA to design lightweight and performative parts using a simulation-driven design approach. Advances in manufacturing technology also allow these sometimes complex designs to be built using both traditional processes like CNC machining, but also through Additive Manufacturing (AM) or 3D printing. Structural optimization has great potential for the aerospace construction industry. The construction industry is responsible for a large share of the worldwide consumption of natural resources, and structural optimization can help to reduce this, so improving the sustainability of the sector.

BU 3 | Testing Equipments

In R&D materials and structures testing fixtures for the execution of tests are frequently required.

Sòphia High Tech designs and manufactures a wide range of test equipments for the testing of materials, made in accordance with UNI, EN, ISO, ASTM, DIN, BS, AF, standards and following custom specifications provided by Customers.

SÒPHIA HIGH TECH is qualified as primary supplier, for design, development and manufacturing field, to the major Constructors in the defense, aerospace and automotive sector:

- AVIO SPA (Italy, SPACE field, on VEGA C/E Program)
- LEONARDO SPA (Italy, AERONAUTIC field, LM C130 Program, C27J Program, C-Series)
- Italian Air Force (Italy, LM C130 Program)
- D-ORBIT (Italy, ION Space Satellites)
- T4I (Italy, REGULUS Program)
- METASENSING (Holland , DEFENSE field, GUARDIAN G-200 AIRBORNE SURVEILLANCE RADAR, QX Weather Radar & ECR)
- USACE – United States Army Corps of Engineers (Romania, DEFENSE field, Custom AntiBlast doors)
- ZF (Czech Republic, AUTOMOTIVE field, Gearboxes)
- CIRA S.C.p.A – Centro Italiano Ricerche Aerospaziali (Italy, SPACE field, VEGA C/E Program , SPACE RIDER Program)
- LAMBORGHINI SPA (Italy/Germany, AUTOMOTIVE field, SIAN Program)
- FCA – Fiat Chrysler Automobiles (Italy, AUTOMOTIVE field, Piatt. Giorgio)
- STRABAG (Austria, DEFENSE Field, Custom AntiBurglar doors)
- ENEL (Italy, Energy Field, ARLIA Plant)
- PORR (Romania, DEFENSE Field, Custom Shielding door)
- SAIPEM (Italy, DEFENSE field, Special Antiburglar door)
- MYNARIC (Germany , SPACE field)

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SOPHIA
ADDITIVE
MANUFACTURING


PHIA


"Like a Phoenix Rising from the Ashes"
SOPHIA
ADDITIVE MANUFACTURING


SOPHIA
VEGA - C
PROGRAM

Space Dynamics Services

Company profile

SpaceDyS is a Spin-Off company of the University of Pisa, founded in May 2011 by the researchers of the Celestial Mechanics Group (CMG) of the Department of Mathematics, led by Prof. Andrea Milani Comparetti. It provides software and services for Space applications to European and Italian Space Agencies and other public institutions and private companies.

SpaceDyS has gained a very well recognized leadership in the orbit determination field in Europe and worldwide for asteroids or artificial objects. It has a pool of young and experienced professionals in different fields: Mathematics, Astronomy and Engineering, and has built up experience in modern software development, using tools, architectures and standards such as: Gitlab, microservices, ECSS, CI/CD,&

SpaceDyS is continuously investing in vocational training for its employees, also participating to important international committees such as the Minor Planet Center User Group, the ONU IAWN working group. It is involved in research activities with peer-reviewed articles.

SpaceDyS Staff

We can summarize in these few words the spirit that animates all our staff. We work in harmony, in continuous comparison, in reciprocal incitement, in respect of the values that our Code of Business Ethics ens

Products | Services | Applications |Technologies

SpaceDyS Know-How

In many years of research, the Celestial Mechanics Group of the University of Pisa has developed advanced algorithms and software for different orbit determination purposes:

OrbFit

Asteroids → NEODyS web service since 1999 (NEOs OD and IM)

Space Debris → Architectural studies

Orbit14

ESA-BepiColombo mission

NASA - Juno mission - radio science

SpaceDyS developed its own software tools (libraries):

CEOD

Computational Engine for Orbit Determination of Solar System Objects - multi-purpose

Relevant Activities for ESA NEOCC

SpaceDyS has had a fundamental role in the development of the ESA NEO Coordination Centre in ESRIN (Frascati, Rome), since the beginning.

Migration of NEODyS Service and full Software System to the ESA - NEO Coordination Centre at ESRIN, Frascati, Italy. The migration has involved software development, engineering, standardization, documentation and training.

- Orbit Determination of Asteroids
- Database of asteroids management
- Impact monitoring
- Ephemeris generation
- Identification

NEODyS service maintenance

The NEODyS web service, operational since 1999 at UniPi, is now fully maintained by SpaceDyS in its servers.

In the framework of the ESA Space Situational Awareness (SSA) Programme, ESA wanted a tool to easily show the impact location of NEOs in route of collision with Earth to the decision makers.

SpaceDyS has used the NEODyS data as a starting point for the computation of the Impact Corridor.

H2020 NEOROCKS

SpaceDyS is participating to the EU H2020 funded project "NEOROCKS", with ASI, INAF and several other European research institutes and industries.

The project is dedicated to the rapid physical characterization and observation of NEOs:

The purpose is to improve the knowledge of NEOs population in order to prepare the appropriate mitigation actions in case of an imminent impact.

SpaceDyS is responsible of the Work Package related to the improvement of the asteroid orbit determination process, thanks to its well-known leadership in this field.

NEO Observations with Radar Systems

SpaceDyS is currently working as Prime Contractor for an ESA project entitled "P3-NEO-XXII NEO Observation Concepts for Radar Systems".

The project is dedicated to the analysis of the capabilities of the European radar sensors for the observation of NEOs, and to promote the development of such techniques.

ATIP – Advanced Tracklet Image Processing

SpaceDyS has developed a software capable to detect and process very faint (low S/N ratio) optical trails generated by high LEOs (1000-2000km), MEO, HEO, GEO.

LEO's re-entry predictions

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Within the framework of an ESA project called "Benchmarking re-entry prediction uncertainties", we have developed reliable software tools for the computation of re-entry predictions of LEO satellites in the atmosphere.

Our software for geocentric dynamics is capable to process accurate radar (range, range-rate, azimuth/elevation) measurements, as well as Two Line Elements which are the classic data source for re-entry predictions. Also optical and GPS measurements can be processed if available.

GPS-based Precise Orbit Determination

Within a ESA project, SpaceDyS validated its GPS-based Precise Orbit Determination software by processing the GPS GOCE data.

During the entire GOCE mission, since 2009 for the entire "drag-free" operational phase and up to the final orbits before re-entry, the spacecraft was working nominally and provided its position via GPS measurement down linked as telemetry.

GPS/GNSS-based On-board Orbit Determination

The experience gained from the GOCE GPS-based POD computations led us to consider a different topic in the orbit determination field: GPS/GNSS-based real time on-board applications. We are currently developing a real time on-board orbit determination software called PrOBOarD, to be implemented on a micro navigation computer.

SpaceDyS' Software for Geocentric Dynamics

During its eight years of activities in this field, SpaceDyS has now developed, tested and validated a Software for Geocentric Propagation and Orbit Determination with several options and different levels of accuracy from low to very high. A wide choice for reference systems, dynamical models, observation models and parameter estimation strategies are available for different purposes, along with strong and reliable numerical propagation algorithms. This is expected to be our starting point for more complex GNSS-based navigation applications in space.

Space Lab

Company profile

The company was founded in December 2000 by Avio and ASI (the Italian Space Agency) as "ELV S.p.A." and on 9 May 2018 it changed its name to "Spacelab S.p.A.", owned by Avio S.p.A. and the Italian Space Agency. Its aim is to carry out activities in Italy and internationally in the aerospace industry, and more specifically in the field of space transport systems, launchers and the associated components and equipment.

Spacelab S.p.A. focuses in particular on research and development of new technologies that can bring about product innovations, as well as on the design of cutting-edge infrastructures for experimenting with these technologies. The capacity to experiment plays an indispensable strategic part in putting new technologies into practice in industry.

Spacelab S.p.A. will take part in research, development and experimentation programmes funded by public and private clients and it will provide consulting services in the abovementioned areas.

Products | Services | Applications |Technologies

The company is supporting the development of new avionic architectures for future space transportation systems focusing its activity in the development of the control benches to allow real time simulation, acceptance and qualification of the above mentioned systems. The company is also developing test infrastructures to carry out firing tests of large solid rocket motors and liquid propulsion systems based on storable and cryogenic propellants. The company will be progressively also involved in the development of new technologies which are considered strategic in achieving/maintaining the state of the art in the aerospace propulsion as the developing of carbon-carbon components for the nozzle of solid rocket motors and the additive layer manufacturing to manufacture components for liquid propulsion systems.

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Space Technology for Innovation

Company profile

ST4I - "Space Technologies for Innovation s.r.l." is an Italian innovative SME recently established.

Credibility, Competence, Innovative Ideas as well as Enabling Technologies development and Detailed Design Control attitude are believed of paramount importance by ST4I. That is the main reason for the presence in the company of owners - individuals and SMEs - exhibiting deep knowledge of the European Space's Industry as well as excellent technical background gained through the participation to the most important Space R&D and Commercial European programs over last 40 years. ST4I is registered in ESA STAR.

ST4I's mission is to conceive and develop, in the field of satellite segment, products and related services based on added-value technologies, through applied research, technology transfer and engineering activities. Such effort is addressed to onboard satellite and on-ground at the level of component, equipment and sub-system in the domain of Telecom, Navigation, Earth Observation and Science at all operating bands and set of applications.

The embedded SMEs presence in ST4I permits to autonomously manage the whole set of the project development phases, being operational over the entire value chain, from the initial offer preparation to the product manufacturing process and test passing through all qualification processes. ST4I is therefore in the position to well manage and address all the necessary competences in terms of state-of-art electrical design, thermo-mechanical analysis, passive and active components and equipment, technology assessment and future needs as well as devices integration and test.

In addition to the above, fruitful interaction between research and industry is considered a must and therefore dedicated partnerships with Universities on specific R&D subjects have been already setup, enlarging the technical base at the same time providing short term opportunities for students and young engineers.

ST4I further goal is to create and consolidate the partnership with European SMEs and Primes aimed at innovative design and enabling technologies development, also in view of providing new services.

ST4I offices are placed in Rome Tiburtina - TECNOPOLO area

Products | Services | Applications |Technologies

Innovative enabling technologies development is considered the "key" to maintain appeal to market especially when on-board and on-ground market ask for product miniaturization and cost minimization. Typically, cost minimization asks for tolerant design and the necessary use of low-cost materials and consequently product manufacturing tolerances control is fundamental.

Several subjects and initiatives aimed at spatial technologies development are present over Europe. Among the others, ESA-ESTEC certainly represents one of the most attractive ways to maintain state-of-art competence on this subject in view of the product realization, either on-board or on-ground.

SME capabilities are considered of high value to Europe's space industry by ESA which encourages the large industrial group to involve SMEs on European Space programs creating opportunities for the SMEs to work more extensively with ESA and its space contractors.

The participation to the ASI and ESA world of opportunities is considered by ST4I the preferred approach to allow the growth of SMEs according to their own identified Products roadmap. ST4I intends is becoming an important partner for Italian and European SMEs trying to provide an answer to the before mentioned points in terms of adequate subjects for innovative design consolidation and enabling technologies development.

ST4I is mainly addressing its interest to technological opportunities characterized by low TRL recommending high innovation substantiated by credible solutions; their industrial validation could be carried out by either Technology Demonstration Payloads or the use of dedicated small satellite (micro, nano, CubeSat). Once validated, the developed product could be usefully considered also for Institutional programs providing the right Return of Investments spent in such development.

At the present, for on-board application, particular attention is devoted by ST4I to flexible and reconfigurable satellite payloads through analogue and/or digital configurations. The (V)HTS scenario is the one ST4I is investing at the end identifying innovative solutions where the active antenna and associated BFNs play an important enabling role. Next figure shows an example of the evaluated multi-beams Earth coverage (>1000 beams)."

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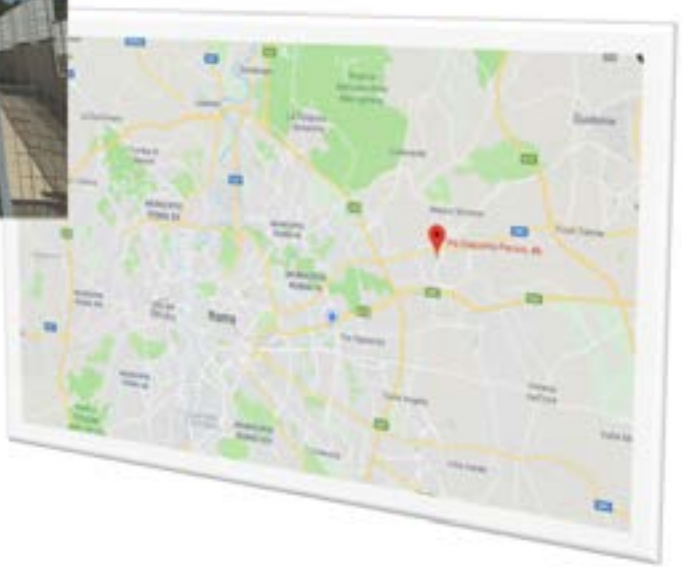

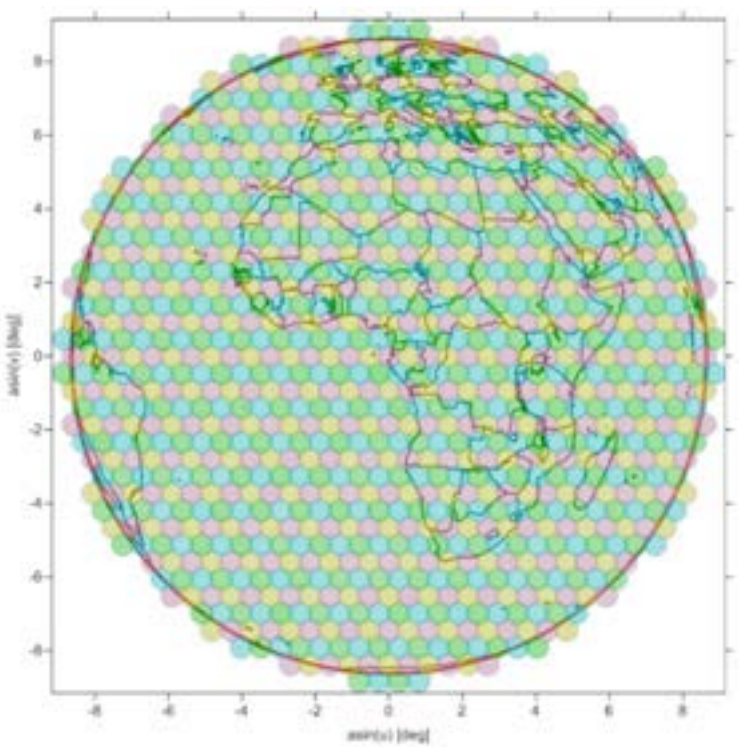

SpacEarth Technology

Company profile

SpacEarth Technology is a spin-off of the the Istituto Nazionale di Geofisica e Vulcanologia. We have a team of engineers, physicists and geologists with a long involvement in research and business management.

We design and develop applications, tools, software, hardware components and products for Aerospace, Maritime and Environment sectors in cooperation with the major European and Italian industries, organizations, universities and research centres.

It has long standing experience in the use of GNSS receivers and algorithms development for the monitoring, forecasting, mitigation and analysis of ionospheric disturbances and their effect on high-accuracy positioning. SpacEarth Technology is the owner of the international patent "Method for forecasting ionosphere total electron content and/or scintillation parameters" (2015) able to feed mitigation algorithms aiming at improving the accuracy of real-time GNSS precise positioning techniques (RTK, NRTK, and PPP) under harsh ionospheric conditions. This can contribute to improve the scenarios for the use of GNSS and SBAS (EGNOS) in several fields of application.

We also have remarkable experience in the use of optical and radar remote sensing and geodetic methods for the monitoring and analysis of geological and geophysical hazards. We provide advanced scientific products, as well as consultancy services, in these subjects. We provide tailored services and information products for geomorphological, structural and lithologic investigations, using optical and radar remote sensing data, from satellite and airborne (manned and unmanned) platforms.

Spacearth Technology has recently completed a feasibility study funded by the European Space Agency (ESA) for an innovative service offering a very accurate positioning service for the maritime market in the Arctic and sub-Arctic regions.

We are also involved in the BELS+ project, funded by the European GNSS Agency under the European Union's Horizon 2020 program, which aims to develop GNSS markets for EU companies and helps EU GNSS applications gain a foothold in Southeast Asia.

The company is involved in the mine seismology sector by performing the integration of tomographic (Local Earthquake Tomography) and geodetic (GNSS and SAR) data to obtain an all-embracing picture of the alteration of the state of the rock mass during mining operations, useful to safety planning of mining activities. Here we received funding from the European Institute of Innovation and Technology (EIT) – Raw Materials and have active contracts with major mining companies.

Products | Services | Applications |Technologies

GNSS high accuracy positioning service: a patented service able to forecast minutes in advance the ionospheric parameters and provide a mitigation solution. It provides high accuracy GNSS services and overcome economic losses due to large positioning errors under disturbed ionosphere for commercial applications such as precision agriculture, mining, dredging, constructions, offshore operations, aeronautics, land management and geodesy/land surveying.

Ground deformation monitoring and source analysis: we provide tailored services and information products for the monitoring of the ground motions and for the generation of models and scenarios, aiding in the deformation source analysis.

AIS ionosonde (Advanced Ionospheric Sounder): is an efficient and simple instrument capable to investigate Earth ionosphere. Designed and carried out employing the most advanced radar techniques, it allows to get an ionogram with only 250 W peak power, keeping dimensions and weight low with respect to similar instruments, and above all the reliability of the measurement due to the usage of coded pulses. Various specimens of AIS are currently working in ionospheric observatories placed in different continents.

IONOspheric Ray Tracing (IONORT): is an applicative software tool package for calculating a three-dimensional ray tracing of high frequency (HF) radio waves in the ionospheric medium.

Mines-In-Time: an automatic solution for monitoring in real time the stress alteration of the rock mass during mining operations, to be integrated in a traffic-light Decision Support System (DSS) and SAR-GNSS systems to avoid risks and cost related to mines collapse. The system is based on the innovative 4D LET algorithm (fourth dimension is time), able to analyze both natural and induced micro-seismicity (movements due to drilling or other mining operations).

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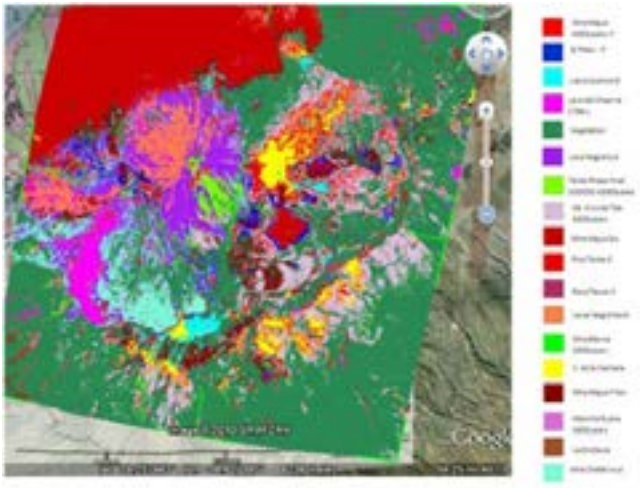
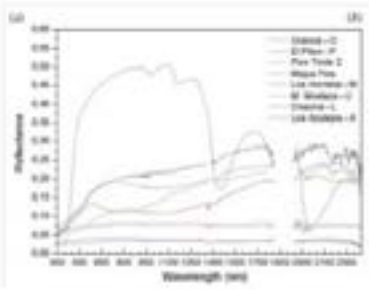
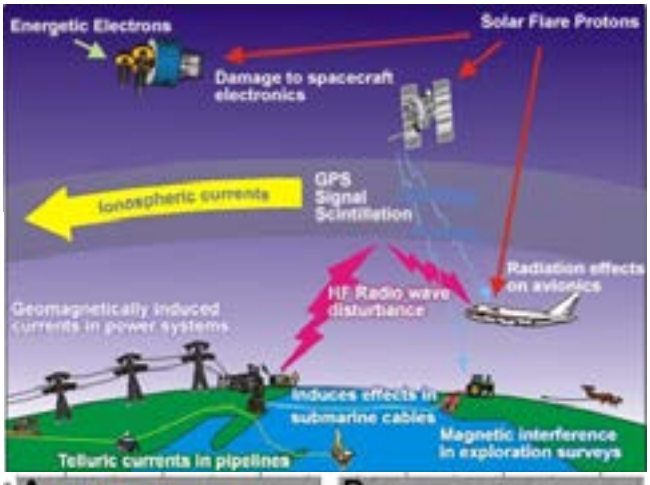
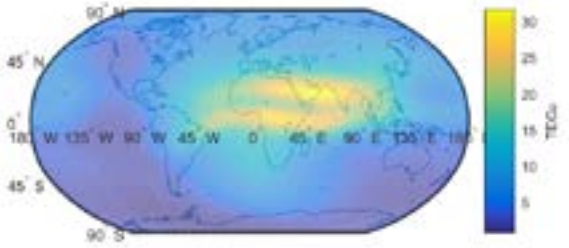





Energetic Electrons
Solar Flare Protons
Damage to spacecraft electronics
Ionospheric currents
GPS Signal Scintillation
Radiation effects on avionics
HF Radio wave disturbance
Geomagnetically induced currents in power systems
Induces effects in submarine cables
Magnetic interference in exploration surveys
Telluric currents in pipelines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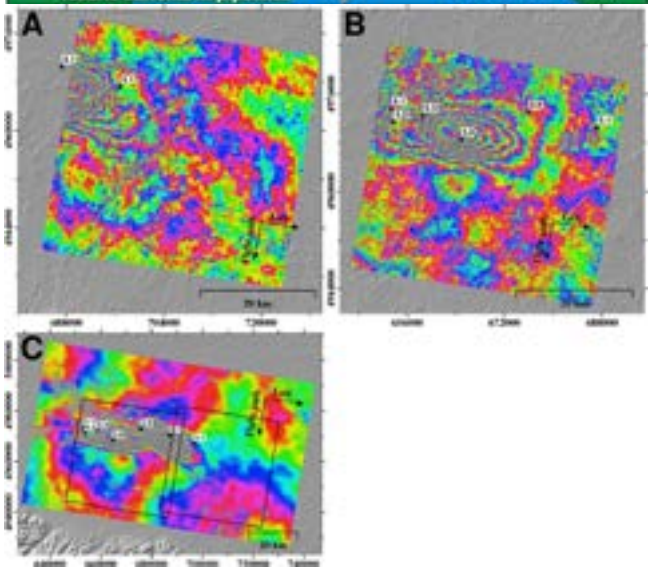
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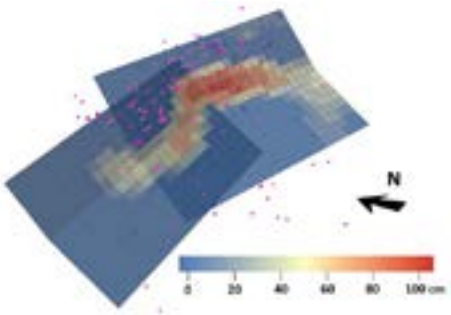
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Spaceexe

Company profile

Spaceexe is a technology company skilled in the design and development of IoT solutions based on GNSS and telecommunication devices. Spaceexe has a large experience in developing GNSS based products, focusing on critical infrastructure monitoring and football players tracking. Moreover is able to conceive and lead innovative R&D projects activities in satellite navigation, telco, firmware and electronics for the production of high-tech devices and services with international and national partners (ESA, GSA, ASI, Lazio Innova, etc.).

Spaceexe was founded in 2013. It was born as Startup, participating in the ESA BIC incubation program. In 2014, Spaceexe was incubated in Ericson through the EGO program. It has followed its path gaining participation in the FIWARE accelerate program and finally it took part in the acceleration program run by Telecom (#WCAP).

Spaceexe was awarded several and prestigious prizes such as ESNC (European Satellite Navigation Competition) in 2013, 2014, 2017 and 2018. In 2014, during the ESA Investment Forum, Spaceexe was awarded as "the most promising startup". In 2016, Spaceexe won the "Think4South" awarded by Groupama and the "Lazio Innovatore" as "best startup 2016".

Spaceexe has presented its solution and won the BELS + project for "Continuing Building European Links toward South East Asia in the field of EGNSS" and thus gaining participation in GNSS Demo Centre at the NAVIS in Hanoi, Vietnam.

In 2018, Spaceexe has become a member of GSA Raw Measurements Task Force

Products | Services | Applications |Technologies

- DEDALOS is a GNSS based completely autonomous system, dedicated to continuous monitoring of surface displacement to be used in areas subject to deformation, due to landslides of deep gravitational slopes or on critical infrastructures (dams, bridges, oil pipelines or buildings), subject to sinking, subsidence or more in general to external forces endangering their stability. DEDALOS has gone through a long R&D process. First it has been designed to bring to market a low-cost, lightweight and low energy consumption IoT solution for deformation monitoring and early-warning of hazards induced by geophysical phenomena (landsides, subsidence, sinking, etc.) or by manmade activities (excavations, injection/extraction of natural gases, etc.). After that, Spaceexe has developed a second version of DEDALOS named DEDALOS-SAT.
- DEDALOS SAT aimed at the improvement of the DEDALOS system providing a satellite data transmission interface as a backup for standard ground-based (mobile phone) network. Another objective of DEDALOS SAT project was to integrate GALILEO GNSS data (multi-constellation approach) to improve the reliability of service when visual impairment due to mountains or buildings may degrade the precision of GPS alone.
- WHEARE is an innovative technical and tactical live performance monitoring system for the professional football teams. Sport performance monitoring systems have become one of the main instruments for improvement of a professional football team. Rise the need for new technologies to have better performance analysis. WHEARE pushes forward the football analysis by combining physical and tactical performances analysis, all in real-time. Through the use of GALILEO, WHEARE reaches a high accuracy in positioning detection; LIVE technology enables performance analysis during an official match; finally, the extremely miniaturized device and its competitive price make WHEARE a unique and innovative performance monitoring system. Finally, Spaceexe has moved from a concept of GNSS integrated shin guard towards devices worn by football players as the primary source of data.
- EAGLE is an innovative device, which integrates an high precision GNSS receiver with the capability of authenticating the position through the GNSS satellite signal recording, the I.D. satellite tracked, and their position in orbit. EAGLE introduces the possibility of a "Fluid Limited Traffic Zone", in which fixed gates is no longer the standard method to regulate dynamically downtown access. Instead, Public Administration can manage traffic in a new smarter way, implementing differential access to the city centre, based for example to a political rally, block-based pollution data, urban air quality and commercial activities.

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SPAZIOFUTURO

Company profile

Scientific and industrial research in aerospace , specifically in TLC and Earth Observation satellites. Design, development , test and commercialization of innovative products/ services for applications in the General Aviation,Ultralight and UAV aircrafts and in aerospace transportation

Products | Services | Applications |Technologies

EMMA:Digital platform to support the flight of ultralight /General Aviation aircraft and UAV with high resolution weather forecasts and real-time weather observation via satellite connection.

GABBIANO:Mobile application based on EMMA platform for flight planning and navigation .This service is covering Italy and is expandable to Europe. The real-time weather data,coming from Earth Observation satellite (EUMETSAT,Copernicus,etc) ,are processed trough propretary algorithm .

AVS-NET: Regional weather network in support to national and foreign private touristic aviotravel.

GREEN METEO: Applications using satellite data in the fields of wind, photovoltaic and precision agricolture sector.

MULTITRACK: Service for geolocalization and tracking of mobile systems (terrestrial,marine,aeronautical) using the in-house technology developed for the proprietary airborne dual modem and antenna .

Engineering support to system feasibility and general design of a microlauncher into low-orbit using high-performance military aircrafts:

- ESA-ESTEC Feasibility study: Aircraft Launching system ALA-SCC assessing the possibility to embark the launch module on board of European fighters.
- Collaboration agreement among IAF, CNR, University and Industry Study for innovati

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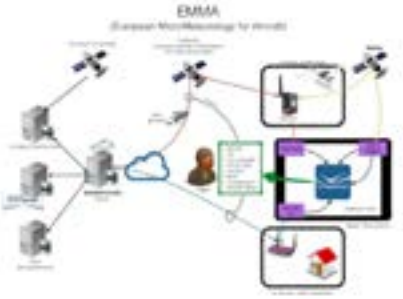

Stam

Company profile

Stam is an engineering company that supports private and public clients, leveraging on a multidisciplinary expertise and hands-on experience across four main industrial domains, namely Space & Defence, Robotics & Industry 4.0, Security & Transport, Sustainability & Bio-circular economy. The company collaborates with a wide network of partners in several large research and innovation projects supported by the European Commission.

The company was founded in 1997, thanks to the seed funding provided by the ESA Technology Transfer Programme to develop an innovative gearbox system. Since then the company has been successfully collaborating within ESA programmes in the development of devices for soil investigation, servo-actuators, hermetic sealing systems and test rigs. Mr Franco Malerba, first Italian astronaut, is our Scientific Advisor and Business Coach.

In particular, Stam was main subcontractor in the ESA Clean Space project ADRiNET "Net parametric characterisation and parabolic test", where the validation of the Active Debris Removal (ADR) technology was tested and validated in a parabolic flight campaign at the NRC-CNRC in Canada. The ADR technology was further developed within the H2020 project ADR1EN "First European System for Active Debris Removal with Nets", through upscaling activities, thermal-vacuum cycling tests at Thales Alenia Space Italy facilities, and full-scale free fall ground experiments, till the development of an ADR business plan. Finally, the technology has been recently transferred to Earth, to counter drones and protect both critical infrastructures and soft targets.

Stam was also prime contractor in the YGT feasibility study within ESA TEC-MSM "Hermetic Sealing for Rotating Shaft", focused on studying the feasibility of the mechanical sealing concept, through breadboard design, prototype and tests.

Stam is also a member of the OT4CLIMA project, aimed at developing new tools and EO methodologies to provide products, applications and services to improve mitigation capabilities of Climate Change effects.

Stam has established strong collaborations and partnerships with hundreds of international companies and research institutions. In particular Stam has collaborated with key players in the space field, ranging from large system integrators, to SMEs and research organizations.

Products | Services | Applications |Technologies

The main mission of Stam is to provide engineering services to industries. The company invests a significant part of its turnover in R&D, thus providing their customers with most qualified and edging competencies to drive development based on availability and affordability of technological trends.

Since its establishment in 1997, Stam has been specializing in the design and manufacturing of advanced mechanisms and mechatronic systems. The company can perform all stages of the product design cycle, from conception through validation, to component and subsystem design and specification, down to the definition of tools and production cycles.

Stam owns a laboratory equipped with a test bench to measure the performances of mechanisms and mechatronic systems developed either by Stam or by third-parties. Besides, the company has recently developed also a microalgae laboratory, to investigate bio-based solutions and life-support systems.

Finally, Stam owns the following patents, born and/or applied in the space field:

- ITSV20000049A1 "Nutating bevel gears based gearbox".
- ITRM20060609A1 "Equipment for the modeling of products in particular products that can be shaped to prevailing extension on a particular floor textile products and control system of the same".
- EP2975296A2 "Planetary Gearbox based on Tilted Bevel Gears with Two Reduction Stages for Very High Gear Ratios".
- EP3381637B1 "Apparatus for modelling products"

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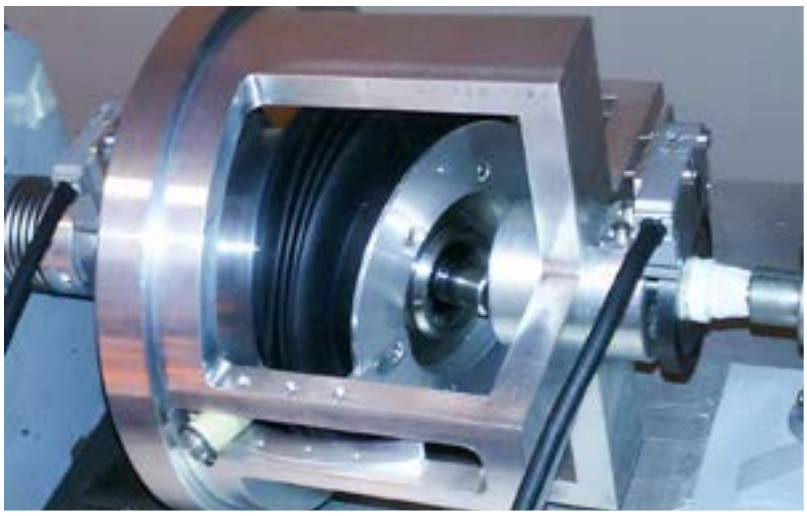


IRC-CNRC

Survey Lab

Company profile

Survey Lab was established in 2008 as a spin-off of Sapienza University of Rome. Survey Lab is currently focused on the development of geomatic monitoring systems by means of advanced surveying and mapping technologies, including remote sensing technology. It develops applications in many fields of civil and environmental engineering, with a focus on methods for monitoring natural hazards effects on the land and on the builtup environment. The expertise of the Company in the techniques for monitoring land, structure and infrastructure derives from the strict connection with researchers of the Area of Geomatics in the Department

Products | Services | Applications |Technologies

Survey Lab's services includes:

Geomatic monitoring of structure, infrastructure and cultural heritage - Survey Lab provides services to monitor historical-architectural, infrastructure, and facilities, based on the use of data acquired through SAR (Synthetic Aperture Radar) satellite methodology and its integration with ground-based measurements. The acquired data constitutes the basis for the development of numerical models that describe the behaviour of the investigated structures.

Land Monitoring - Survey Lab designs and implements systems for land monitoring at small and large scale through the integration of geomatics ground-based sensors and observation systems operating on aerial and satellite platforms.

Database for infrastructure management - Survey Lab takes a census of the infrastructure networks by means of GNSS survey methods, and constructs/populates georeferenced dynamic database usable and accessible in the most common GIS platforms, with precision techniques for real-time positioning and instrumentation for the acquisition of the ancillary parameters, based on the user requirements.

High precision surveying - Survey Lab designs, manufactures and surveys high-precision topographic networks through high-performance instrumentation to support large scale scientific installations and infrastructure that need to be placed into a reference frame with the greatest precision.

Three-dimensional modelling - Survey Lab provides a reverse engineering service using high-precision measurement methods via laser scanner and digital photogrammetry and takes advantage of its three-dimensional modelling experts.

The company's core service is I.MODI, an operational prevention and investigation tool, aimed at monitoring medium-long term buildings and infrastructures. This product was born during the incubation in the ESA-BIC Lazio from 2013 to 2015, but it was developed thanks the H2020 SME Instrument Phase II funding obtained from 2016 to 2018. Now it is in the commercialization phase.

I.MODI (Implemented MOnitoring system for structural DIsplacement) is a value added service, co-funded by the European programme H2020, that integrates Earth Observation technologies, ground based data and ICT to develop services for monitoring the stability of buildings in large urban areas and for controlling critical civil infrastructures. The aim of I.MODI project is the development of a service that fully employs Earth Observation (EO) data into standard procedures, devoted to structural damage assessment, thus contributing to implement mitigation and prevention actions for potential failures.

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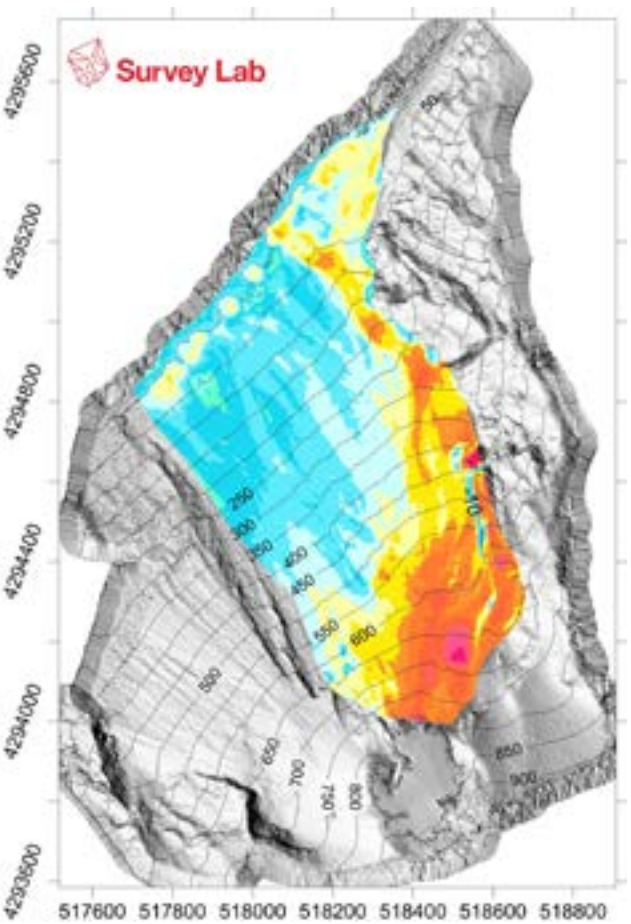
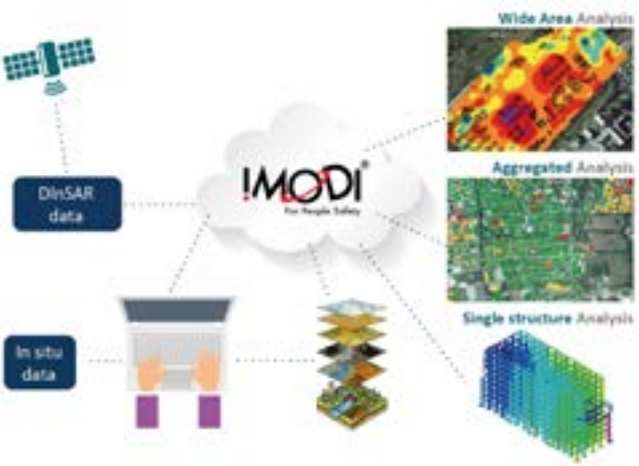
Spin off di

SAPIENZA
UNIVERSITÀ DI ROMA





T4i - Technology for Propulsion and Innovation

Company profile

Technology for Propulsion and Innovation (T4i) was born in 2014, as a Spin-Off of the University of Padua. T4i's aim is to revolutionize the in-space and access to space transportation, developing innovative engines able to open unexplored forms of mobility to small satellite platforms and unlimited windows to access space.

T4i develops both customized propulsion solutions based on customer's requirements and complete space products up to TRL9, focusing on electrical, chemical, and cold gas propulsion systems to cover different in-space applications (e.g., proximity manoeuvres, orbit raising, decommissioning, station keeping, and relative satellite position maintenance) and chemical propulsion systems for launchers applications.

These solutions are the actualization of a visi

Products | Services | Applications |Technologies

T4i's key products are small electric and chemical propulsion systems for in-space applications as nano and micro satellites and chemical rocket engines for micro launchers, small upper stages, sounding rockets and gas generators.

Our technologies are the result of 15 years of studies and tests and aim to revolutionize transportation in space and access to space.

ELECTRIC PROPULSION

Our electric propulsion module, REGULUS, is a complete and innovative 1.5U-2U electric propulsion system suitable for micro and nanosatellite platforms from 6U to 150kg and more.

REGULUS gives mobility to satellites to cover different mission manoeuvres as orbit raising and drag compensation, formation flying and decommissioning at the end of mission.

The system is currently performing its IOD mission onboard GAUSS Unisat-7 cubesat carrier. REGULUS is the first Italian propulsion system based on solid unpressurized propellant (i.e., Iodine) which combines high propulsive performances with compact design and plug & play integration, resulting into a drastically increased satellite versatility at a low cost.

REGULUS has one of the best thrust to power ratio and specific impulse to power ratio between the competitors, as well as the best k€/thrust and k€/total impulse ratios, making it the most convenient electric propulsion system in the market in terms of cost and performance.

CHEMICAL PROPULSION

T4i chemical propulsion systems are based on highly stabilized hydrogen peroxide (H2O2) that range from 1 N to 10 kN of thrust and are targeted to low cost platforms.

Highly Stabilized Hydrogen Peroxide allows the reduction of safety issues and costs during handling and operations. Thanks to our transportable concentration unit, it can be also concentrated in situ, eliminating any transportation issues related with propulsive grade hydrogen peroxide (>85% concentration).

Depending on the costumer needs, we offer mono-propellant, bi-propellant and hybrid motors to cover different in-space and access to space applications.

Common features are:

- Low cost: main target customers are small low-cost satellite platforms and nanosatellite deployers.
- Highly customizable: being internally developed at T4i, the motor can be fully reconfigured depending on specific needs of the platform.
- Green: all the combinations are green, non-toxic and non-carcinogenic, providing minimum environmental impact.
- Restartable / throttleable: all the systems provide these options to perfectly match with mission requirements.
- All-in-one system: sharing the same oxidizer, the monoprops can be combined with the other propulsion units to provide a comprehensive propulsion package

(e.g. ACS + main thruster).

Contact

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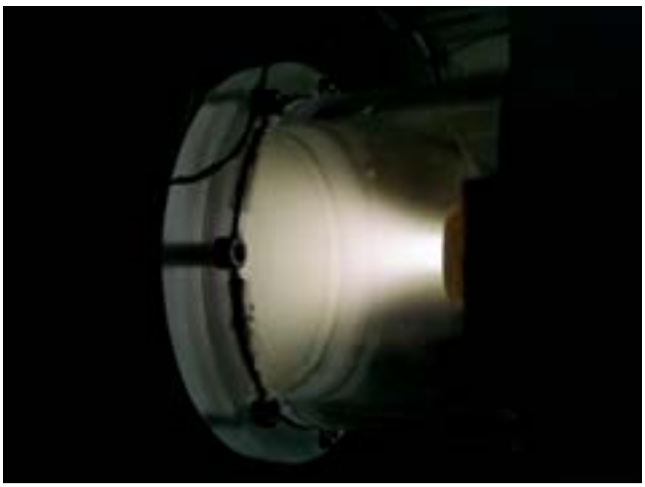

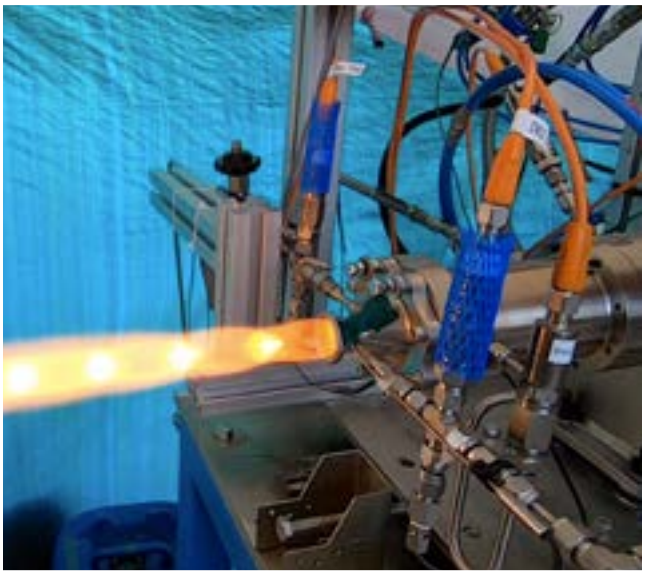

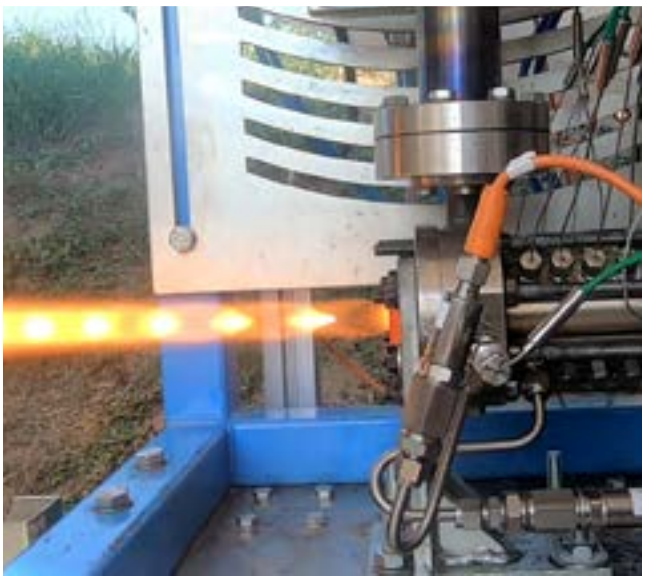

Taitus Software Italia

Company profile

Taitus was founded in 2004 by its Managing Director, Felipe Martín-Crespo, a former ESA staff for more than 15 years.

We are a software development company specialized in advanced mission analysis, planning and simulation tools for space and space-driven applications, with particular focus on Earth Observation and Remote Sensing services to improve the safety of persons and goods.

Taitus applications are powered by in-house-built technology that makes extensive use of modern 3D computer graphics, integrated with advanced user interfaces. All Taitus projects use the in-house developed components, GanttX and SatX, which greatly reduces the development cycle times and provides an enormous library of complex and continually tested functionalities.

Taitus develops applications, specialized libraries and development kits for the aerospace industry, using the latest programming techniques of general-purpose computing on GPUs to achieve breakthrough visualization, modelling and simulation power, with exceptional improvement in execution speeds.

Our technology led us to focus on the remote sensing and Earth observation services and allowed us to reach a very good market penetration with proven technology used by space agencies and key organizations (e.g., NASA, ESA, Airbus) in 30 countries.

Our commercial activities are currently structured around:

- our SDK (GanttX and SatX),
- our web-based satellite planning feasibility service (SatX Online), and
- our multi-satellite swath planner SaVoir, a leader in the industry with over 200 licenses sold worldwide.

We also develop bespoke applications and provide client support services. It has been precisely our success upon SaVoir that has made us realize the strong business opportunity coming from facilitating our customers the development of this type of applications for their specific needs.

Our own experience developing SaVoir has made our current basic libraries and services ready to be seamlessly integrated in more complex and specific products and we are taking this opportunity also to further transform our company from a bespoken software development company to a software services-oriented company, which will strongly boost our revenues and maximize the return of our investment in space research and innovation actions.

Products | Services | Applications |Technologies

Taitus produces software products for space-related activities specializing in remote sensing applications. The software products are available in four different formats: Applications, Plugins, Libraries, Web services. We have highly-configurable and powerful applications which are extremely user-friendly due to a highly intuitive and user-oriented interface. With the plug-in architecture available in some of our applications, we are able to offer extensions and customisations by creating plug-ins. We also provide libraries and software development kits (SDKs) so that our clients can develop their own customised applications.

Taitus applications are powered by in-house-built technology that makes extensive use of modern 3D computer graphics, integrated with advanced user interfaces. Taitus technology is based on careful optimization of data analysis according to its type, which determines if it will be best processed either by the CPU or the GPU. It is important to notice that the more multithreaded the data, the more advantageous GPU processing is over traditional CPU processing. All Taitus projects use the in-house built components, GanttX and SatX, which greatly reduces the development cycle times and provides an enormous library of complex and continually-tested functionalities.

The main product, SaVoir - Multisatellite Swath Planner, is a standard in the industry: it is a standalone application for fast planning of Earth observation Satellite sensing operations over selected Areas of Interest (AOI). By combining each satellite's orbit, sensor field of view geometry and the shape and location of a user-defined AOI, it can determine the exact times when a satellite would be capable of observing the specified area. SaVoir's functionalities can be expanded thanks to the addition of plugins, which can be customized according to the customer's needs.

HERMES is a software development ecosystem (HERMES SDK plus applications, plugins and services) that allows building quickly and efficiently software systems for the space industry, providing competitive advantages in terms of performance and visualization. It is focused on providing our customers, satellite service providers and end-users of satellite data, specifically those in the segment of Earth Observation, the perfect tool to precisely plan and design the right scheduling, the right amount of data and the right providers to cost-effectively achieve their mission goals. HERMES aims to incorporate into the space and satellite industries the latest technological innovations available in the hardware and software industries, in particular the use of GPUs to process visualization, simulation and similar data commonly used in space application.

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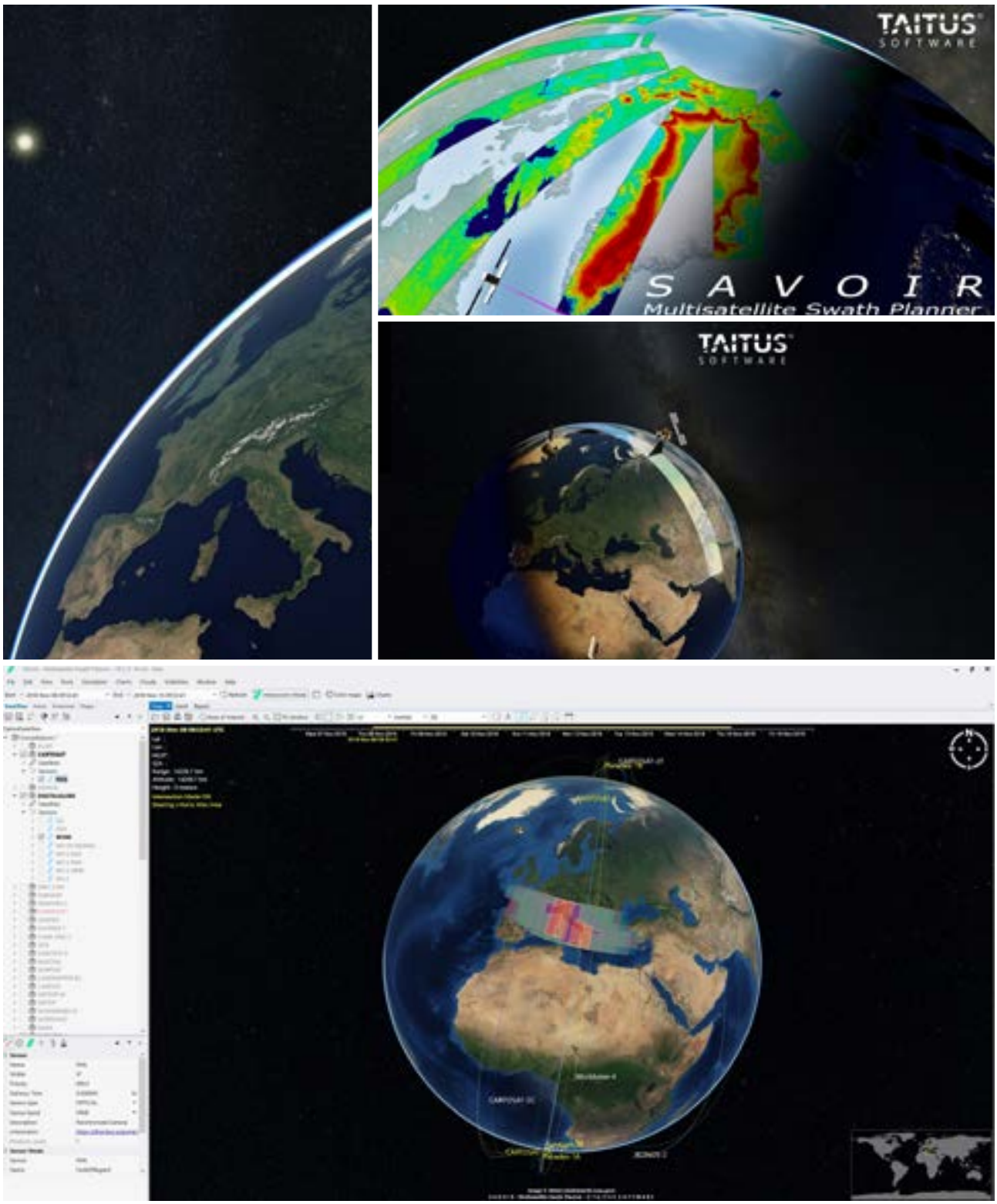
TAITUS
SOFTWARE
S A V O I R
Multisatellite Swath Planner
TAITUS
SOFTWARE

TEC Eurolab

Company profile

TEC Eurolab is a private laboratory incorporated in 1990 with the aim of providing destructive and non-destructive testing of materials used by manufacturing companies. Over these 30 years TEC Eurolab has grown following the technological evolution of materials, processes and their industrial applications, improving its testing and research capabilities. Today TEC Eurolab is a center of technical expertise and testing laboratories where critical issues related to materials and processes are addressed in cooperation with the customer, creating and transferring knowledge that enhance product reliability.

Products | Services | Applications |Technologies

Materials testing | Non destructive testing | Industrial computed tomographic center| Test engineering | Design for custom test| Certification | Inspection | Academy

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TEC Eurolab

Techno System developments

Company profile

TSD has a relevant experience in the development of Imaging Systems, Avionics and Scientific payload and Instruments for space applications on board several platforms like Satellites, ISS, Capsule, Re-entry vehicles Sounding Rockets, Balloons and UAV.

TSD technological strategy is based on:

- Focus on small platform and real time application
- Look for technological excellence and for primeship in small niches
- Technological independance
- Build strong core competence
- Develop proprietary solutions
- Adopt simple and replicable architectures
- Use of standard I/F
- Easy of customisation

TSD operates in the following space market segments:

- Institutional, in the frame of Agency (ESA, ASI) programs with direct contract and/or under Prime contractors in the field of Microgravity, Technological developments, Earth Observation, Exploration, Navigation
- Commercial, most in the field of Earth Observation, by providing Prime contractors with general Avionics (OBDH, GN&C, PMS, TT&C, CDMU), Digital Video systems and Optical payloads electronics
- R &D, by supporting research centers such as CIRA (Italian Center for Aerospace research), INAF, CNR insitutes and universities mostly for electronic developments in experimental/not recurrent applications

TSD also operates in non space markets such as Aerospace and Military

Products | Services | Applications |Technologies

ELECTRONICS FOR OPTICAL PAYLOADS AND VIDEO SYSTEMS

- Space Cameras
- Compression & Image Processing (visible/hyperspectral/multispectral)
- Payload Data Handling & Storage

SPACECRAFT AVIONICS

- Command and Data Handling Systems Processing Unit for Vision Based navigation
- On Board Computers
- Remote Terminal Units
- Power Systems

EQUIPMENT FOR SCIENTIFIC PAYLOADS & INSTRUMENTS

- Data Processing Unit
- Control and Data Management Systems
- High Accuracy Signal Conditioning and Data Acquisition
- Power Actuators Driving and Control

GROUND EQUIPMENT

- EGSE
- SCOE
- TELEMETRY/TELECOMMAND STATION

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TEMIS

Company profile

TEMIS is a company, part of ART S.p.A a medium sized company (200 resources), working in space domain for more than 10 years, establishing itself in the field of test system design, electromechanical actuators and avionics/space systems. TEMIS was founded in 2006 with the mission of developing electronic products for the Motorsport sector. In the following years the experience accumulated by the design of ECUs for F1 pushed TEMIS to face a market such as the aerospace one and it's from this challenge that a telemetry system was born to be integrated in the VEGA launcher for data and video acquisition, thus contributing to the validation of the first Italian launcher.

TEMIS is now constantly present on VEGA, and it will be also on VEGA-C, providing equipment like telemetry system, video-cameras , separation command units and heat flux sensors.

TEMIS has the headquarter located in Corbetta (close to Milan), distributed in 400 m^2 of offices and about 200 m^2 of laboratory for integration and test and a subsidiary office in Passignano sul trasimeno at ART headquarter.

The Corbetta office counts about 20 resources, mostly highly graduated engineers deeply experienced in:

- Project Management Office (including System Engineering and Product Assurance)
- Design & Manufacturing of Test Equipment & Simulators
- Design & Manufacturing of custom Embedded Systems
- Thermo-Mechanical Analysis and Design
- Control Systems Development and Simulation (including satellite AOCS) TEMIS premises in Umbria are equipped with state-of-the-art of the production tools in order to provide fast prototyping during design and high-quality production process.

Products | Services | Applications |Technologies

TEMIS is placed in the market as system provider, and it's capable to provide a turnkey solution for the customers, starting from the requirement analysis until the product realization/qualification.

Attention is given to quality assurance policy to design, produce and test products responding to a high quality and reliability level for professional and space applications.

Attitude Control System (AOCS) TEMIS supports Large systems Integrators in the design, implementation and validation of the satellite AOCS subsystem. The company can start from the system requirements and define the attitude control system specification providing also a first dimensioning and choosing sensors and actuators.

Test Systems (EGSE/SCOE)

TEMIS has been involved in some important space projects as subcontractor of Large system Integrators. The main effort has been spent in the definition, project and realization of Electrical Ground Support Equipment's (EGSE) with a special focus on the attitude and control subsystem and Payload SCOE.

In-flight telemetry systems

TEMIS, for the VEGA qualification launches, delivered the Avionic & Harness Subsystem (A&H).

The A&H has been conceived with the purpose of assisting the Launch Vehicle in the acquisition and monitoring of key parameters inside the launcher fairing and of providing separation of the payloads (satellites) inside the launcher.

In the frame of EXOMARS project TEMIS have developed and delivered the Central Electronics Unit (CEU) Boards in charge of:

- communication I/F with CTPU fotr TM/TC,
- Power conditioning
- Payload sensors acquisition
- housekeeping signals acquisition

Electromechanical Actuators

The current trend in aerospace is the replacement of hydraulic systems with electromechanical ones in order to simplify the architecture and to reduce and almost to zero the maintenance during long term storage. For this reason, in the last years, TEMIS has added a line of electromechanical actuators to its portfolio addressing the military market.cv

TEMIS has gained competencies in the electrical actuator field, and it's able to provide a qualified product for avionic purpose. Both the development of the actuator itself and of the HW/SW control parts are managed from the company engineers, allowing to deliver a turn-key system to the customers.

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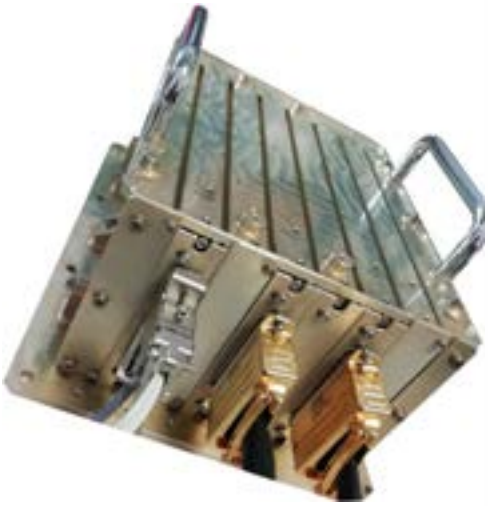

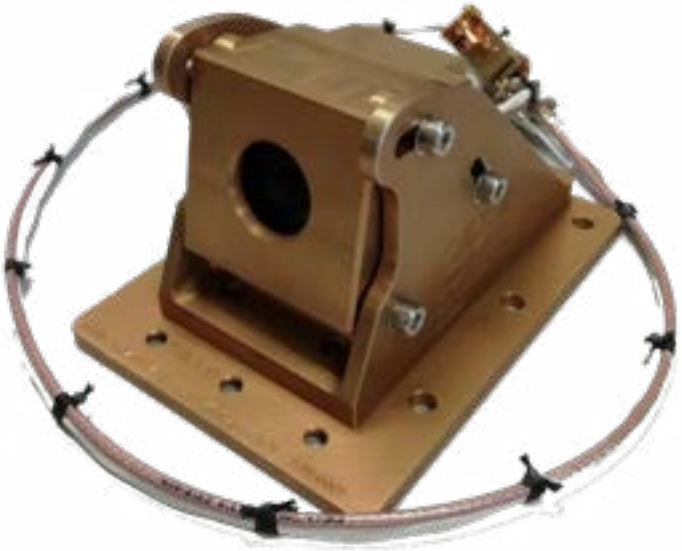

TESI Tecnologie E Servizi Innovativi

Company profile

TESI offers completely verticalized products starting from engineering processes and tools design to production, through raw material purchasing up to assembly and final delivery to the customer, fully non-destructive tests, heat and surface treatments.

NADCAP and EASA approved.

Involved in several SPACE projects.

Products | Services | Applications |Technologies

Main activities performed:

- Sheet metal forming up to 5.000 mm length
- Machining up to 10.000 mm length
- Heat treatments up to 3.000 mm length
- Surface treatments up to 5.500 mm length
- NDI up to 5.500 mm length
- Painting up to 7.000 mm length
- Assembling of small to large assy
- Tooling production

Applications in Aeronautical and Space fields.

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Tiberlab

Company profile

Tiberlab Srl is a spin-off of University of Rome "Tor Vergata". Our mission is to develop innovative software solutions aimed to the design and simulation of electronic and optoelectronic devices, focusing in particular on nanostructured devices. Modern nanostructure devices pose new challenges due to the wide range of length and time scale involved. We provide tools for multiscale simulation able to perform analysis and optimization at all the relevant length scales, through state of the art physical models ranging from continuous to atomistic level. Tiberlab offers consulting services and end user software. Our core product is TiberCAD, a software for modeling and design of innovative nanostructured devices. tiberCAD software has been and is presently used as a main simulation tool in several FP7 EU projects, for the design and the study of optoelectronic properties of quantum well and nanowire based LEDs and of advanced solar cells. Tiberlab is presently a partner in FP7 Project Deepen, aimed to the design of an open source multiscale simulation environment for electronics and optoelectronics modeling.

Products | Services | Applications |Technologies

Our software product TiberCAD is a multiscale CAE tool for design and simulation of electronic and optoelectronic nanostructured devices. This simulation software provides novel tools to accomplish the critical requirements imposed by the recent developments in Key Enabling Technologies such as micro-nanoelectronics, nanotechnology, photonics and advanced materials.

Among the applications of TiberCAD are LEDs based on quantum wells and quantum dots, nanowire FETs, III/V heterostructures, photovoltaic cells for space applications, organic solar cells (OPVs), Dye Solar Cells (DSCs), piezoelectric nanogenerators. TiberCAD is a multiscale tool, since it allows the simultaneous solution of physical models on different length scales, ranging from the continuous level of macroscopic device to the atomistic structure of the active region at the nanoscale. The multiscale approach can be employed in several fields such as particle transport, heat dissipation and mechanical deformation. In this way, quantum and classical descriptions can be used in different regions of a device/nanostructure within the same simulation; analysis and optimization may be performed at all the relevant length scales, possibly including selfconsistent coupling of different models, such as quantum, thermal and drift-diffusion ones.

TiberCAD is capable to couple the FEM-based continuous media physical models with simulation models based on quantum approaches in an atomistic framework, such as Empirical Tight-binding (ETB) and Density Functional Theory (DFT) for electronic properties and Non-equilibrium Green Function (NEGF) for quantum transport. Based on the FEM device description and crystallographic orientation, the needed atomistic structure is generated internally in TiberCAD. Then, the atomistic structure is deformed according to the strain obtained from the continuous media elasticity model or from an atomistic approach such as Valence Force Field (VFF). TiberCAD provides models to calculate particle transport and IV characteristics, including strain and piezoelectric effects in nitride materials; a fully 3D quantum model allows to calculate optoelectronic properties at operating bias. Atomistic models for strain and electronic calculations such as VFF and ETB, together with random alloy representations of the active region, allow to study realistic material nanostructures, where the fluctuation of alloy composition may affect in a critical way the properties and performances of a LED or a solar cell. Accurate models for the most important material systems for photonics and electronics applications are provided, such as GaAs/AlGaS and GaN/AlGaN/InGaN. Methods for parallelization of computationally heavy routines for atomistic calculations through Graphical Processing Units (GPU) and MPI techniques are implemented.

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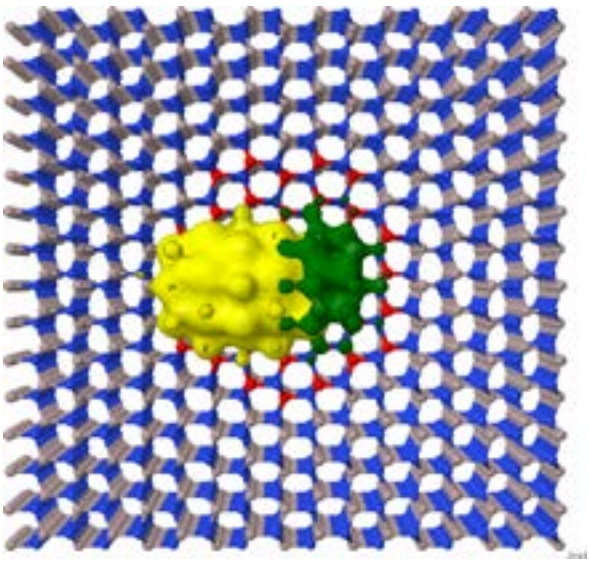

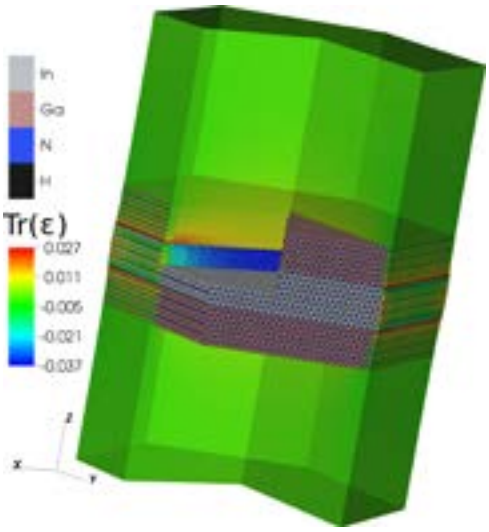
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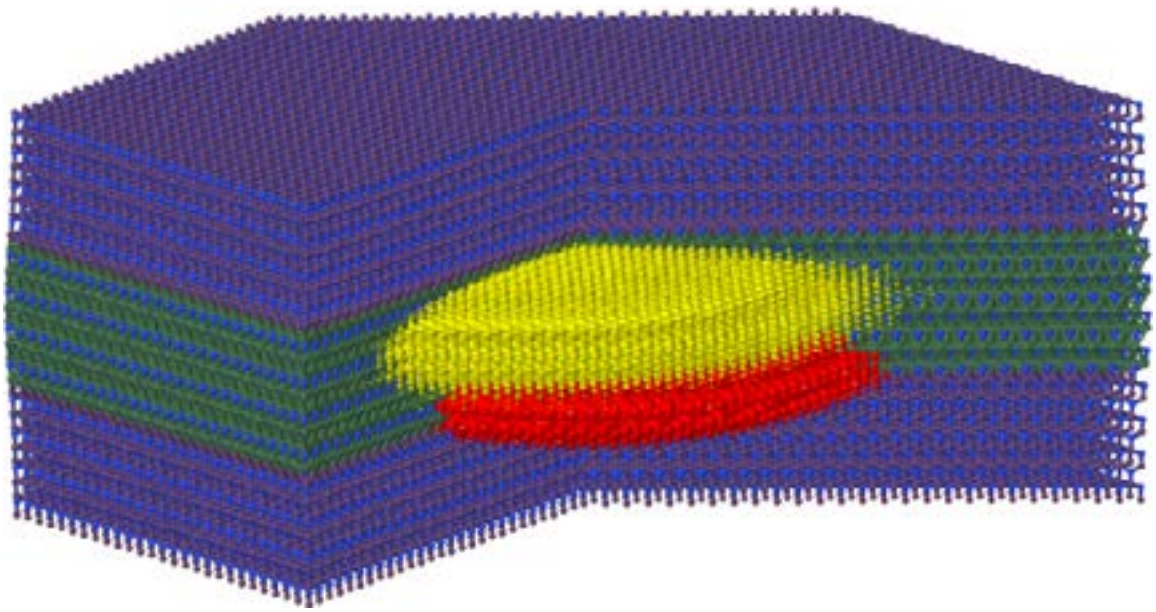

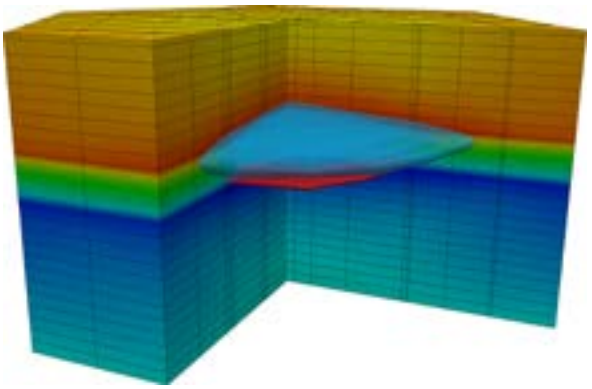

Trans-Tech

Company profile

Trans-Tech is an Italian company founded on a proven 30-year experience in the aerospace sectors. For us Technologies Transfer means pushing space solutions into the market.

Trans-Tech provides requested technologies, methodologies and know-how to industry thanks to knowledge, experience and competence we've collected under a unique umbrella.

This highly valuable service is achieved also thanks to our business model: Trans-Tech embraces the Open-Enterprise concept, based on the synergic fusion of the best resources and capabilities coming from national and international companies linked each other by proper MOUs or contractual arrangements. Trans-Tech thus represents a singularity in the Italian engineering scenario: its mature and well developed experience together with the enlarged capabilities of our partners make Trans-Tech the best support for the development of innovative projects that require integration of comprehensive and differentiated technical competences. TransTech provides to the customers a single expert interlocutor able to intercept their needs and translate them into an efficient and effective answer, especially in a context of international and multi-national programs and collaboration

Products | Services | Applications |Technologies

Trans-Tech srl provides services and solutions such as:

- Advanced concepts, systems and special devices design and development
- Technology Transfer, Concepts Feasibility, Products Innovation advisoring services.
- Operative Support for R&D projects development (up to complete Management and team Coordination focusing on tangible results) and issuing of technical proposals for international and national funding opportunities.
- Training & Education.

The industrial sectors in which Trans-Tech naturally operates are: Space, Aeronautics and also Transport, Automotive and Energy as target for space technologies application and exploitation.

Trans-Tech develops technological concepts and turnkey solutions for industry , research centers and the scientific community.

The more recent example is the Autonomous Thermal Simulator (ATS), originally designed to support the ground calibration of "MicroMED", a scientific instrument for the study of Martian environment that will be integrated on the lander of the ExoMars 2020 mission led by the European and Russian space agencies.

The ATS not only meets the specific functional and operational requirements of the development / calibration / set up tests of equipment destined for space missions similar to that of MicroMED but introduces a significant change of the overall testing process: for setting up the instruments, for its calibration, and finally for the qualification and validation.

Trans-Tech is the conceiver, team coordinator and designer of several innovative projects (have a look to our website), the most known in the world is the Hypersonic Airplane the HYPLANE. It is a "triple-use" jet for fast business travel, suborbital space tourism and mother aircraft for microsatellite orbital launch. It is a new concept of hypersonic transportation system able to offer access to stratospheric and space flights as safe, convenient and commonplace as today commercial air transportation .

Around Hyplane project many technologies are being currently explored by Trans-Tech and its partners: High Thermal Exchange Leading edges, reconfigurable seats; innovative systems for Guidance, Navigations and Controls, On-Screen Display and many others.

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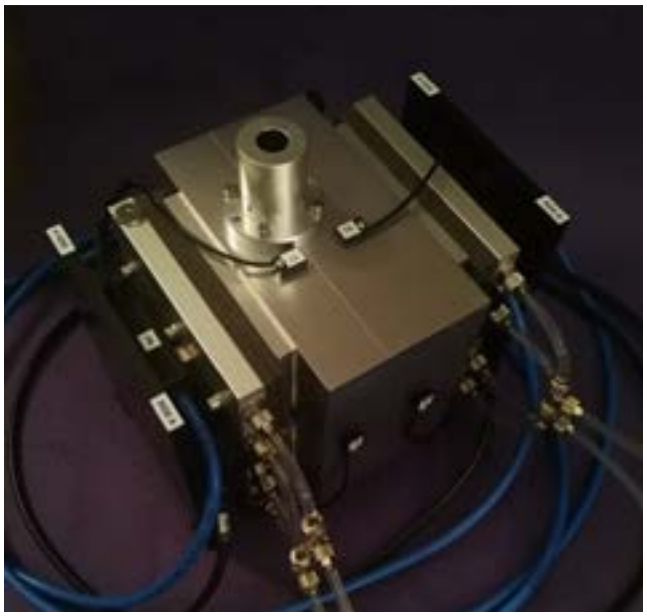
TRANS-TECH
TECHNOLOGY TRANSFER
TRASFERIMENTO TECNOLOGICO


MICROMED




TRANS-TECH

Tyvak International

Company profile

Tyvak International SRL is one of the operating groups and the first international branch of Terran Orbital Corporation. Terran Orbital teams are leading innovators and providers of nanosatellites and microsatellite space vehicle products that target advanced state-of-the-art capabilities for government and commercial customers to support operationally and scientifically relevant missions.

Tyvak International represents the most advanced and vertical integrated offer in the market of small space vehicle products and services. The proprietary technology and know-how, based upon the continuous progress in the miniaturization of semiconductors, enable to develop, design and commercialize small satellites platforms faster and cheaper with respect to traditional satellites systems. This also provides considerable opportunities to exploit the space more effectively and profitably.

Founded in 2015, Tyvak International has executed considerable space engineering projects, from mission concepts and feasibility studies to Nanosatellite development and integration, launch integration services and procurement of launch opportunities, on orbit operations for commercial and institutional customers at international level. The company has established partnerships with important stakeholders of the Aerospace Industry such as SMEs, Large System Integrators (LSI), Research centers and Universities. Tyvak International executes R&D programs with several of them focused on breakthrough technologies which will contribute in the next future to foster the company's growth.

Tyvak capabilities include mission & system design, software and hardware manufacturing, assembly, integration & verification, mission services, launch integration & insurance services, on orbit operations. The company's growth strategy included the partnership with local universities, research entities and advanced technology suppliers, in the Italian and European regional areas. Tyvak will maintain control of integration processes and will expand as needed in response to advanced space mission needs in the European framework.

Products | Services | Applications |Technologies

PRODUCTS - Tyvak Product Line includes Phoenix, Trestles and Mavericks satellite solutions meeting the needs of high performance nano- and micro-satellite missions. Tyvak designed its platforms to provide cutting-edge capabilities with inherent design flexibility to accommodate missions requiring S/Cs from 5 to 300Kg. All platforms offer: High Power, efficient electrical power distribution and management, custom and high-power solar array design; Advanced Thermal management; Precision attitude knowledge and control (next generation Star Tracker and reaction wheel assembly); Advanced fault handling and autonomous FDIR; Radiation-tolerant avionics; High communication data rates; Miniature Deployable Mechanisms and Structures; Reliable and hight throughput links (incl. high-gain X-band, S-band and UHF antennas); Configurable multi-mission components and bus; Custom mission operations design; Flawless integration with existing ground networks.

MISSION SERVICES Tyvak critical role in nanosats development-and-launch activities affords the ability to provide its customers with a robust portfolio of consulting services. Mission Development and Analysis: mission design, compatibility and feasibility analysis, system engineering support and industry/application market research; Spacecraft Analysis and Development at system and subsystem level, requirements development and analysis, system engineering support; Integration and Test Support including integration process and procedure development and analysis, test plan development and test services. In Orbit Operations, Ground station development and third-party integration, frequency management and filing.

The Launch Integration Services is a unique turn-key solution offered by Tyvak. Tyvak understands the unique challenges to get a customer satellite integrated with the right launch vehicle and mission to ensure success. To get the objective Tyvak provides its customer with System Engineering Support, including integration of complex s/c subsystems, vehicle ICD, safety and Mission Assurance; Assembly and Integration: custom deployment system design, fabrication and flight certification, s/c to-deployer integration, launch vehicle integration; System Testing of s/c system performance (environmental, shock, vibration, thermal, thermal vacuum) by aerospace test standards; Launch coordination and operations including selection of international launch opportunities, regulatory processes management and satellite on-orbit operations; Launch & Satellite Insurance characterized by competitive rates and favorable payment terms, simple process and contract, financial risks reduction analysis, to cover the full cost of launch/satellite in case of unexpected launch failure.

APPLICATIONS Tyvak small satellites provide an advantage over larger, more traditional and expensive satellites due

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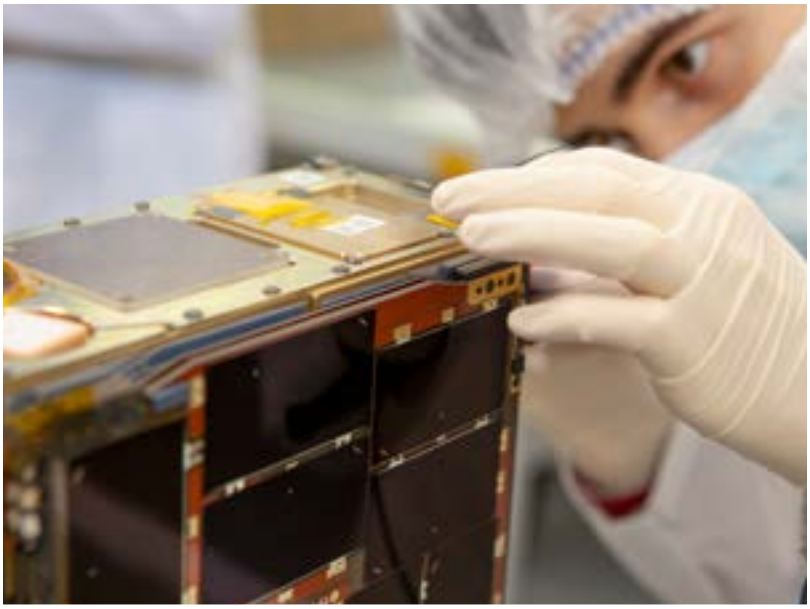
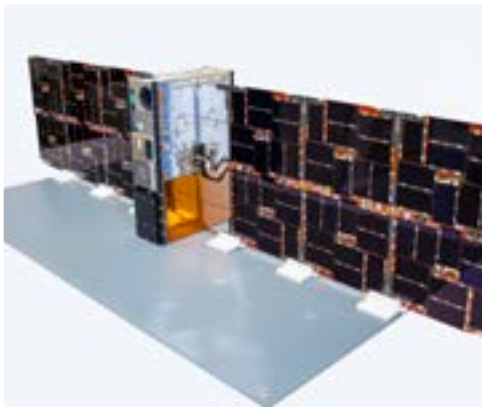
to built-in redundancy, lower cost and the ability to solve a myriad of challenges. Tyvak leadership team expertise supports Commercial, Government and Academic missions ranging from Technology Demonstration in LEO to Weather Data and Climate monitoring, Disaster Management, Advanced Telecommunication, Machine-To-Machine applications, Earth Observation and Maritime Security. Tyvak specialises in complex advanced mission and flown several spacecraft for Government agencies in the domain of Space Situational Awareness, precision LEO-to-Earth, LEO-toLEO and LEO-to-GEO surveillance, on-orbit inspection and proximity operations.





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LARGE COMPANIES

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Airbus Italia

Company profile

Airbus Italia, formerly known as Space Engineering, is the local industrial footprint of Airbus Defence and Space since 2015. The company changed its name in 2019 to fully integrate into the Airbus group.

It has a recognized expertise in satellite communication, covering space as well as ground segment, with focus on enabling technologies for SatCom on the move, Internet of Things (IoT), RF components and signal processing.

Since August 2017, Airbus Italia's Headquarters and Industrial Plant share the same industrial area in Rome, in Tiburtina area, thus ensuring a complete integration between Engineering and AIT effectively serving programs operations and products development. The 1.250 sqm plant has been mainly equipped for payload and electronic equipment assembly, integration and testing. Manifold facilities are available: Anechoic Chamber; Climatic Chamber; Clean Room; Motion and Attitude Simulator for mobile terminals; Digital, RF and Mechanical Laboratories.

Airbus Italia employs a highly skilled workforce of about 110 people, focusing on cutting edge solutions and technologies. It is EN 9100:2018 and ISO 9001:2015 certified. Its significant experience in design, integration and test is serving key European programs like METOP-Second Generation, QUANTUM, BIOMASS, Galileo, Pléiades NEO and LEO satellite equipment for EDRS ISL. Along its history, the Company also contributed to ARTEMIS, Radarsat 2, COSMO-SkyMed, Alphasat TDP#5 and has been actively involved in major Italian programs such as SICRAL, PLATiNO, ItalGovSatCom

Products | Services | Applications |Technologies

Over the past few years, Airbus Italia evolved to progressively meet its ambition of being a recognized industrial leader for selected products, including SatCom antennas for airborne and railways, passive and active RF components, ground modems. Airbus Italia is a leader in Airborne SatCom technology providing institutional customers with the most advanced state-of-the-art mobile terminals Janus Aero for ISR missions. The ATR P-72A aircraft of Italian Air Force is equipped with Airbus Italia's Janus antenna, which has also been indicated by Airbus Communication, Intelligence & Security as a powerful solution for "Network For The Sky" (NFTS), successfully integrated with Airbus MRTT aircraft in a flight demonstration of a connected airborne battlespace scenario. Furthermore, the Company can claim a long experience in SatCom terminals for railway applications, having delivered SatCom solutions for high-speed trains throughout Europe (e.g. French TGV trains).

Airbus Italia is a well-known Italian industrial leader, boasting several international patents related to antennas, radars, scientific software and digital signal processing. Its product portfolio also includes Inter-Satellite-Link and payload EO data transmission equipment for Low Earth Orbit satellites, passive and active RF components, antenna radiating elements, ground operational SW for configuration and spectrum monitoring of telecommunication flexible payloads, ground and flight firmware for digital signal processing and modems, key enablers for space-based architectures and secure spacecraft.

Leveraging on its distinctive heritage in Antennas, RF and Digital Equipment, Communication Protocol and System Design, Airbus Italia can offer a qualified portfolio of products and solutions:

Mobile multiband SatCom antennas for airborne applications. Airbus Italia invented the Janus line: very low profile dual-band (Ku/Ka, X/Ka) antennas for different kinds of aircrafts, including UAVs and helicopters. Janus is the unique broadband antenna concept patented by Airbus Italia (European Patent 2757632 A1) to enable remote switch between two frequencies. The switch is performed by mirror rotation with a dedicated RF chain for each frequency band. Thanks to Janus, the Janus Aero antennas can be provided in dual band configuration in Ku/Ka (X/Ka and Ka/QV also possible) with remote frequency switching. Janus Aero compact size and high throughput both in reception and transmission makes it the ideal solution for several types of Mission Patrol and UAV applications. Janus Aero product targets Institutional & Governmental Airborne. Starting from the first version Janus 1.0, Airbus Italia has been keeping on updating the antenna design considering always more advanced technical solutions and it is successfully developing the second version of the Satcom terminal named Janus 2.0.

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World leading supplier of Broadband SatCom terminals for trains, providing fully operational terminals in France, Turkey, Russia, Kazakhstan. Designers of the only Ka-band antenna for trains.

Onboard Communication Equipment for inter-satellite link, including those enabling LEO/LEO and LEO/GEO (Data Relay systems like Globenet) connectivity

Passive Onboard Antennas, RF components and Feed Chains, including high bands (Q/V/W)

Active and reconfigurable onboard antennas for High Throughput and Flexible Satellites, new tools for the operation of flexible payloads.

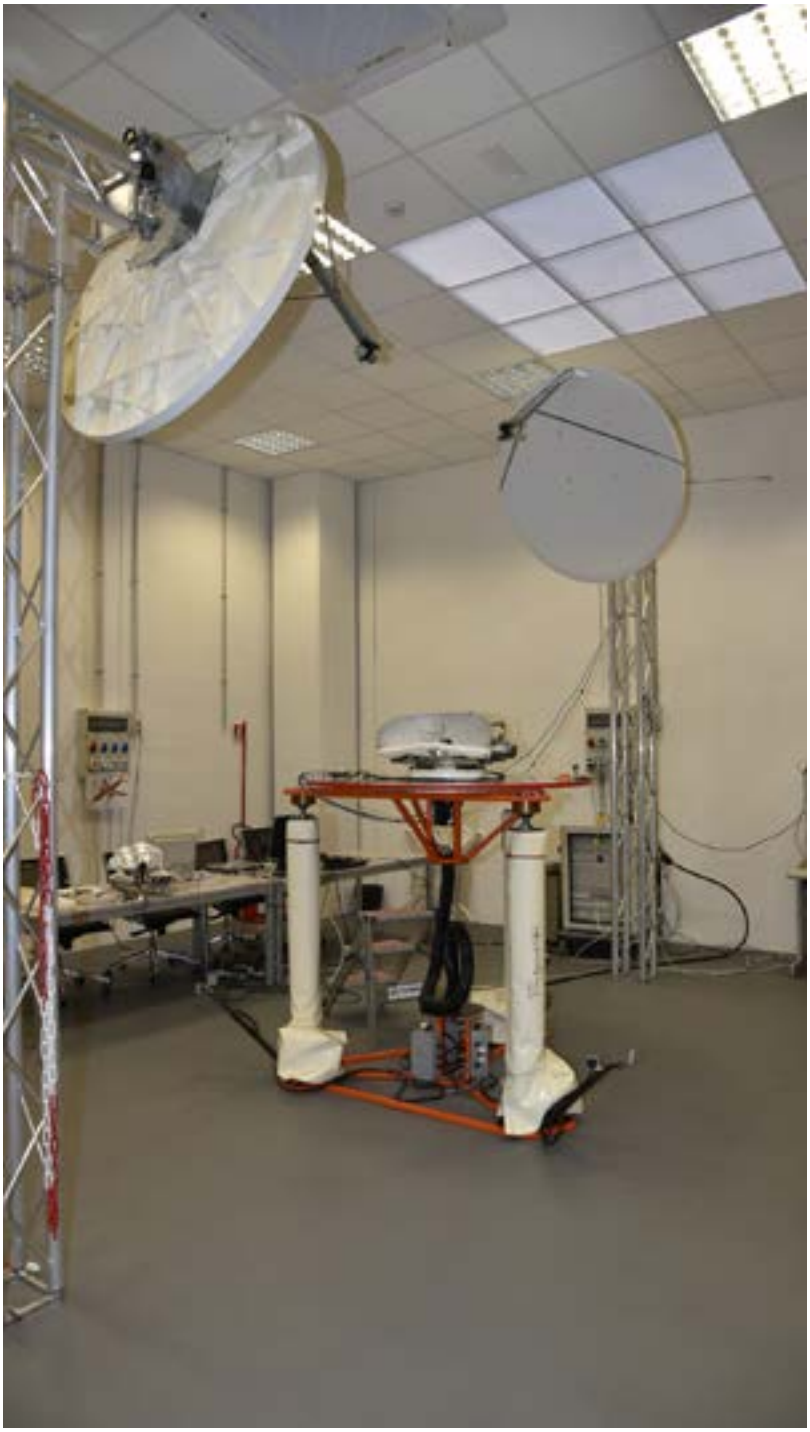
Flight FW for navigation/telecom applications

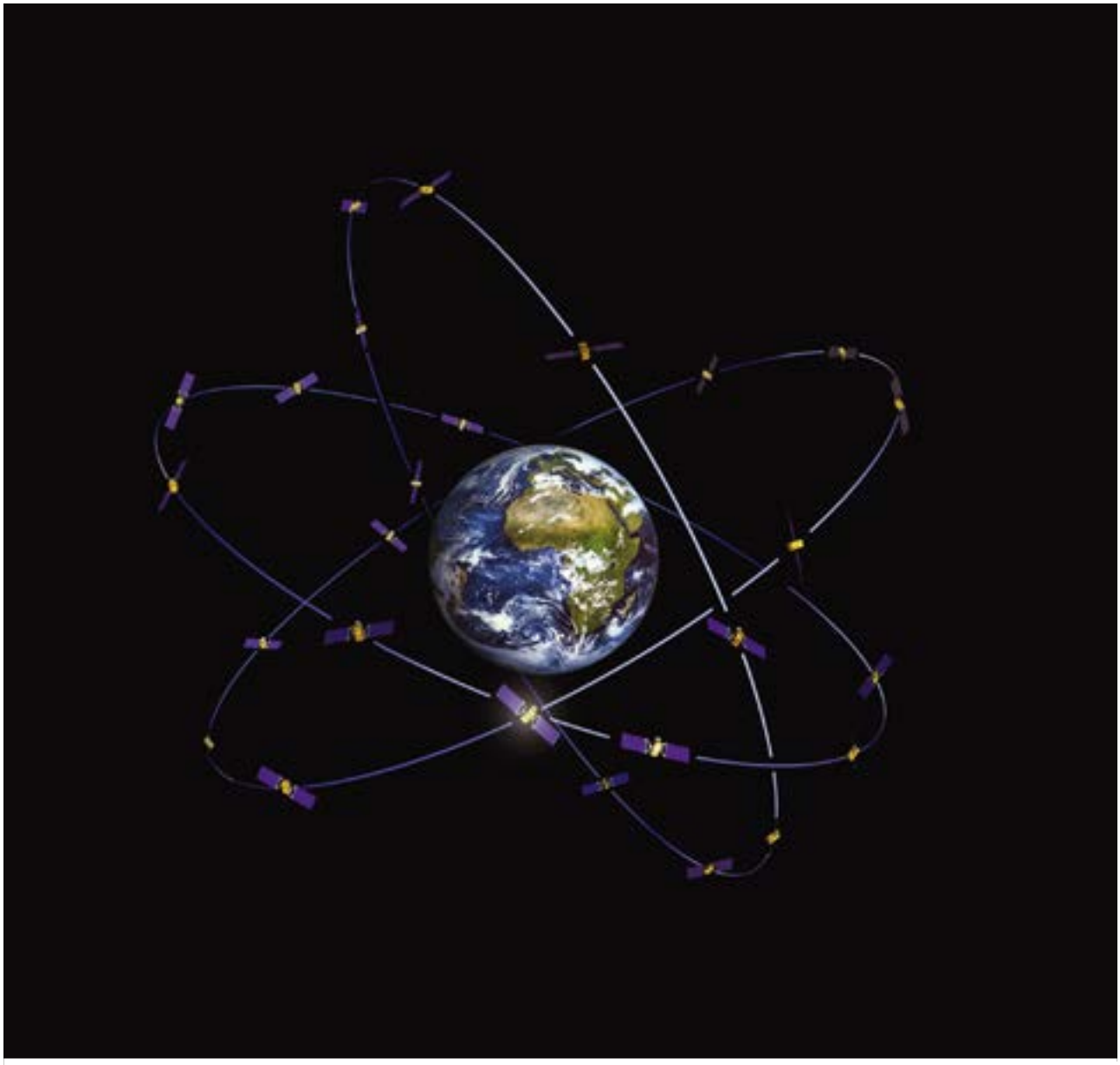
Modem, Gateway and Professional Terminals for TM/TC, Massive Data Download, Internet of Things (IoT)

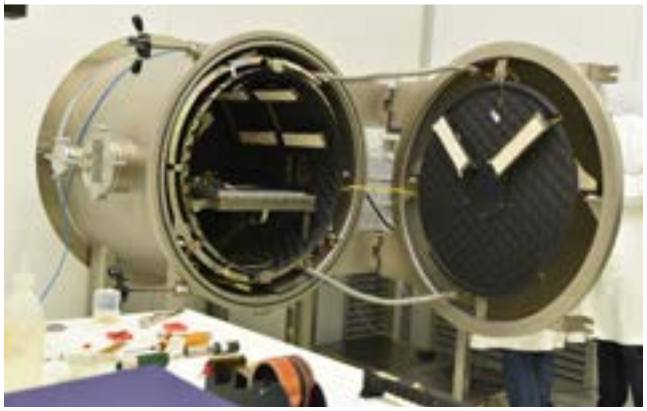
Ground Operational Subsystem/Software for Telecomm (communication Spectrum Monitoring, flexible Payload configuration) for new generation satellites

AIT services for subsystem/payload/satellite services

Ground Transponders and Calibrators for EO Optical and SAR satellites







ALTEC

Company profile

ALTEC (Aerospace Logistics Technology Engineering Company), a public-private company owned by Thales Alenia Space Italy (63,75%) and the Italian Space Agency (36,25%), is the Italian center of excellence for the provision of engineering and logistics services to support operations and utilization of the International Space Station and the development and implementation of planetary exploration missions. ALTEC is based in Turin and has liaison offices at NASA and ESA. ALTEC services include: engineering and logistics support, astronauts training, support to in orbit experiments, operations, processing of scientific data, development and management of the ground segment of space programs and the promotion of space culture. ALTEC collaborates on large international projects defined in the context of the programs of the Italian and European Space Agencies. Participation in the programs developed for the International Space Station is the core business of the company and indicates the strong commitment to promote the development of technological innovation and scientific knowledge. ALTEC, working closely with NASA centers in the exchange of sensitive data, as part of the bilateral agreement ASI-NASA, takes the value of a prestigious international showcase of Italian industrial excellence. ESA's designation of ALTEC as the Operations Control Center for the "EXOMARS Rover" acknowledges the company's operational capabilities in the context of European research and innovation.

Products | Services | Applications |Technologies

Human Space Flight support Services to the ISS

ALTEC, as Prime Contractor of ESA's ISS TLO, provides Engineering Services to support the exploitation of the ISS both at system and payload level. In particular ALTEC covers the role of ISS European Logistics Center and, through the industrial consortium that ALTEC leads, provides training to ESA assigned crewmembers and to other International Partners astronauts and cosmonauts, focusing on Columbus System and ESA Payloads operations. ALTEC performs required engineering services to Pressurized Multi-purpose Module thanks to the availability of the Mission Support Centre, part of the NASA ISS related Ground Segment, and the Columbus Engineering Support Center, part of the ESA ISS related Ground Segment

Planetary Mission Exploration

ALTEC is responsible for the design, development and operations of the ESA EXOMARS Rover Operations Control Center (ROCC).The ExoMars ROCC encompasses also Science Operation Center (SOC) functions and is equipped with the Mars Terrain Simulator (MTS). The MTS facility, a Martian analogue, supports engineering, training, rehearsal plus testing and verifications activities. The MTS is now hosting the ExoMars Ground Test Model, a 1:1 replica of Rover Flight Model, to perform testing and getting confidence with operations. The Rover Operations are conducted exploiting onboard high-level commanding elements that allow an event-based control of the system

Scientific Data Management and Processing

ALTEC is responsible for the design and operations of the ESA Gaia Data Processing Center (DPCT), located in Turin, part of the European ground segment dedicated to the processing of the Gaia data.The DPCT main activity is the Astrometric Verification of the scientific data performed using dedicated software products developed under ALTEC responsibility. ALTEC is also responsible for the design and definition of the Italian Scientific Ground Segment (SGS-IT) and Science Data Center (SDC-IT) for ASI, in the frame of the ESA EUCLID mission.The SDC-IT will support Italian PI in the processing of data coming from EUCLID mission up to a predefined level, so as to allow Italian scientific team to exploit the information gathered.The scientific data management and processing is performed according to up-to-date "Big Data" approaches, exploiting advanced data analytics and artificial intelligence techniques

Re-entry, Payload and Nano-Satellite Mission Control Center

Leveraging on the strong heritage gathered with ESA IXV mission, ALTEC has been awarded, in co-primership with Telespazio, a contract by ESA for the development and implementation of Ground Segment and Operations for ESA Space Rider mission. ALTEC is responsible for the management of the

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Payloads, as well as for the whole re-entry and landing phase. ALTEC has also been empowered by ESA as a SubAggregate integrator, meaning that ALTEC is entitled to provide commercial services and selling cargo spaces for the use of Space Rider.

The operations activities are conducted from within the Multi-Purpose Mission Control Center located at ALTEC premises. This asset enables the performance of broad and complex ensemble of tasks and operations, covering control and data management of various space systems class of platforms.

Space Commercialization

ALTEC, through its Spacegate initiative, is set to provide a turn-key service concept to offer customers flexible access to a wide range of platforms, through partnerships, and to end-to-end services for P/L & experiments. ALTEC offers support from early stage of payloads design phases up to full exploitation and retrieval/disposal.

Research & Development according to European and National Strategic guidelines

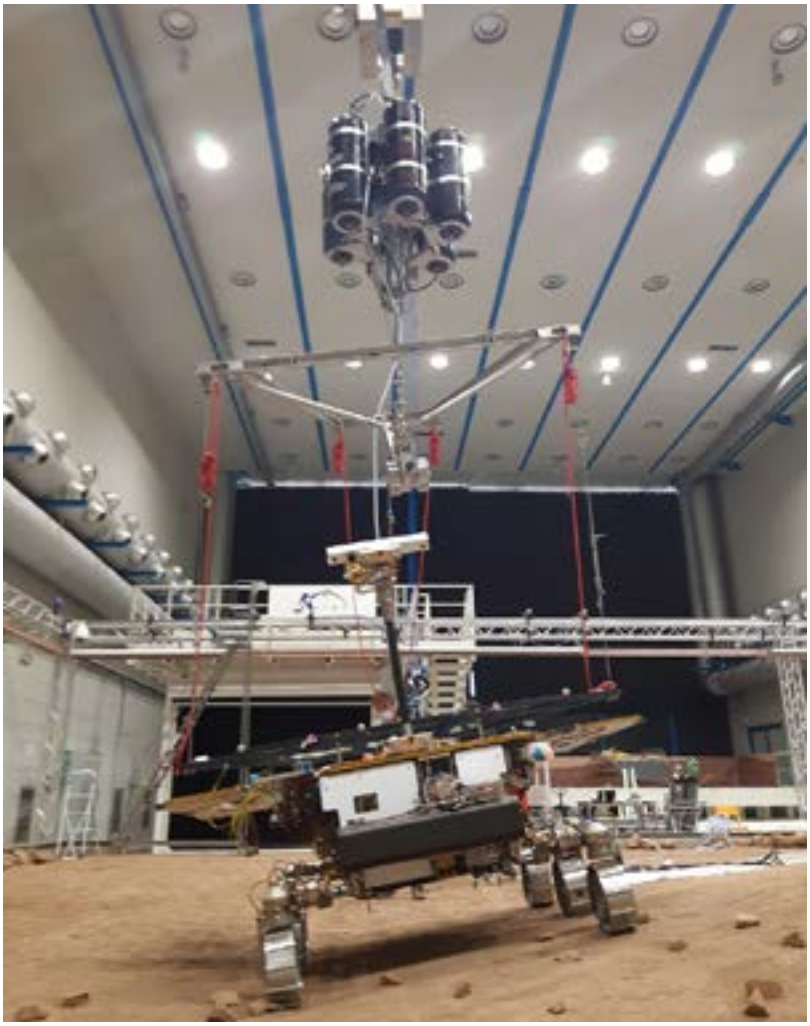
Big Data and Artificial Intelligence:Implementing big data systems to manage, process, analyze, visualize and preserve space data. ALTEC is interested in the definition of data exploitation platforms for users' communities using space data in their business, leveraging on the application of Machine and Deep Learning algorithms onto space data

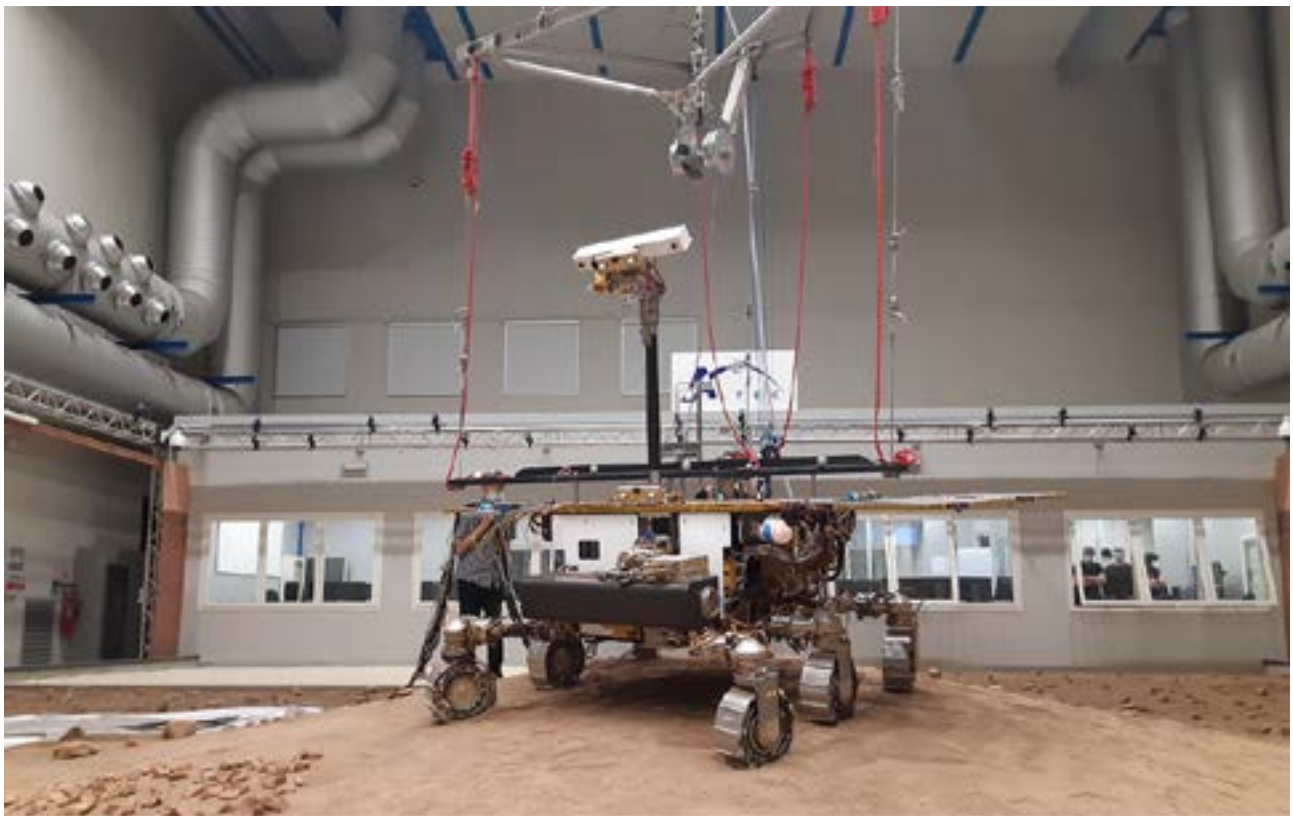
Advanced Space Data Processing:ASDP (ALTEC SPACE DATA PROCESSING) is a distributed data processing framework dedicated to the on-ground handling and transformation of any aircraft and spacecraft data

Smart Center:implementing a "Station of Supervision and Coordination" designed as a multi-mission, multi-sensors system able to operate in a broad range of scenarios, able to gather data from different platforms (satellite, airborne, balloons, RPAS, in-situ)

Bio- and Space-medicine: aimed to understand how to deal with the physiological changes and conditions that can occur when humans are exposed to extreme environments, as well as to support physiology researches on earth

Virtual and Augmented Reality: participating to important European R&D projects (in the frame of H2020 program) addressed to study and develop new applications






DPCT
INFRASTRUCTURE

AVIO

Company profile

Avio SpA, the Colleferro Rome-based leading Company in Space Transportation Systems, has been working in the space segment for more than 50 years.

Thanks to the Ariane and Vega programs, we have acquired knowledge and expertise to design, manufacture, test and integrate not only solid / liquid fuel propulsion engines for space and defense applications, but also a complete Launcher System, i.e. Vega and its upcoming evolutions Vega C / Vega E.

AVIO is a public Company listed on the Milan Stock Exchange since April 2017 (70% of free floating, 4% Management share), we are nearly 1000 people working in Italy, France and French Guiana, successfully running propellant, filament-wound structures and stage integration plants as well as operating the Vega launch pad at CSG, Kourou.

Products | Services | Applications |Technologies

SOLID ROCKET PROPULSION

Design, manufacturing, assembly and testing of Solid Rocket Motors (SRM) and their different sub-assembly (Inert Motor Case, Thermal Protections, Loaded Motor Case, Nozzle):

SRM P230 Solid Rocket Motors of about 240 tons of propellant and a Maximum Thrust of about 7000 kN, used as first stage booster of Ariane 5 launcher.

P80 1 Solid Rocket Motor of about 88 tons of propellant and a Maximum Thrust of about 3000 kN, used as first stage of Vega launcher.

P120C 1 Solid Rocket Motor of about 140 tons of propellant and a Maximum Thrust of about 4300 kN, to be used as first stage of Vega C launcher and booster of Ariane 6 launcher.

Z40 Solid Rocket Motor of about 36 tons of propellant and a Maximum Thrust of about 1300 kN, to be used as second stage of Vega C launcher.

LIQUID ROCKET PROPULSION

Design, manufacturing, integration and testing of Liquid Rocket Propulsive Systems and their different sub-assembly:

AVUM Liquid Propulsion System Vega launcher fourth stage main propulsion system; NTO/UDMH bipropellant pressure regulated system.

Vulcain 1/2 and Vinci Turbo Pump Oxygene1

Liquid Oxygen Turbo Pumps for Vulcain 1/2 engines used for the first core stage of Ariane 5 launcher & VINCI used for Ariane 6 upper cryogenic stage.

M10 Engine Cryogenic LOX/LCH4 10-tons class liquid rocket engine that will be the upper stage of the Vega E launcher. At the nominal point and steady-state M10 engine has to provide 98 kN thrust, with propellants mixture ratio 3.4

Satellites chemical liquid propulsion systems MON3/MMH bipropellant regulated chemical propulsion systems of the geostationary satellites Small GEO and EDRS-C.

Vega Launch Vehicle Vega is a 4-stage Launch Vehicle. It is composed by:

1st stage: P80 SRM (88 tons)

2nd stage: Z23 SRM (24 tons)

3rd stage: Z9 SRM (10,5 tons)

4th stage: AVUM liquid stage (including Liquid Propulsion System, Roll Attitude Control System, Avionics)

Flight Program Software

Upper Composite: Payload Adapter & Fairing for the satellite accommodation

Vega C Launch Vehicle is an upgrade of present launcher Vega configuration aimed to improve the launch system performance.

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Vega C is a 4-stage Launch Vehicle. It is composed by:

1st stage: P120C SRM (140 tons)

2nd stage: Z40 SRM (36 tons)

3rd stage: Z9 SRM (10,5 tons)

4th stage: AVUM+ (including enhanced Liquid Propulsion System, Roll Attitude and Control System, upgraded Avionics)

Flight Program Software

Upper Composite: Payload Adapter & Fairing (larger than the VEGA fairing) for the satellite accommodation.

SPACE RIDER (under development)

Space Rider is a reusable space transportation system to be launched by the VEGA-C launcher and able to perform experimentation and demonstration of multiple application missions in low Earth orbit and recovered.

The Space Rider System is managed in co-premiership with TAS-I. It is made of the AVUM Orbital Module (AOM), designed and developed by AVIO, and a Re-entry Module (RM) integrated in a single stack-up.

The AVUM Orbital Module is made by:

AVUM+

PLA1194-LEK: standard 1194mm conical adapter modified for Space Rider

ALEK: hosts the avionics dedicated to the orbital operations and the solar panels.

The AOM will start its operations as service module after the initial orbit acquisition at the end of the VegaC ascent phase and it is able to service the Space Rider System for more than 2 months supplying:

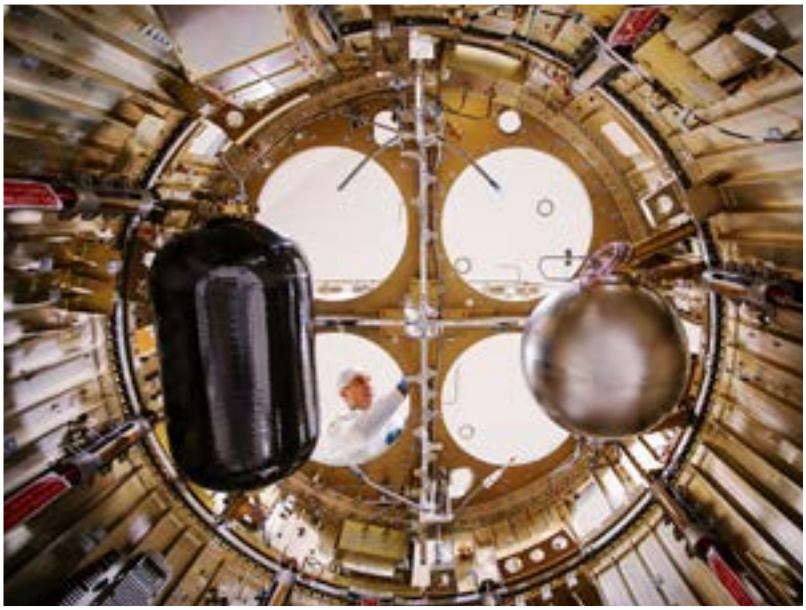
Power

Propulsion

Attitude Control

Guidance & Navigation


esa
esa



BEAMIT

Company profile

BEAMIT SpA (www.beam-it.eu) is a Highly Qualified Italian Company specialized in Additive Manufacturing (AM), established in two facilities: Fornovo di Taro and, since 2015, Rubbiano (both in Parma area, Italy). By July 2019, SANDVIK Machining Solutions, as minority shareholder, is entered in BEAMIT SpA.

BEAMIT has more than 20 years' experience in Rapid Prototyping before and Additive Manufacturing later on.

BEAMIT has a leading role, having installed an AM park of 33 (28 Metal dedicated) different technology machines at its headquarters: this made it possible for BEAMIT to become one of the largest European AM companies. BEAMIT is active in several highvalue markets and applications with several materials qualified and operative in various sectors as aeronautical, aerospace, racing, automotive and food domains.

In particular, for aeronautical and biomedical applications BEAMIT is strictly following several procedures qualified by main worldwide customers and certified in accordance to ISO9001, ISO9100 and NADCAP accreditation.

Products | Services | Applications |Technologies

BEAMIT has 14 different metallic materials and few new materials in R&D. Applications and products are several thanks to flexibility of the additive manufacturing technologies.

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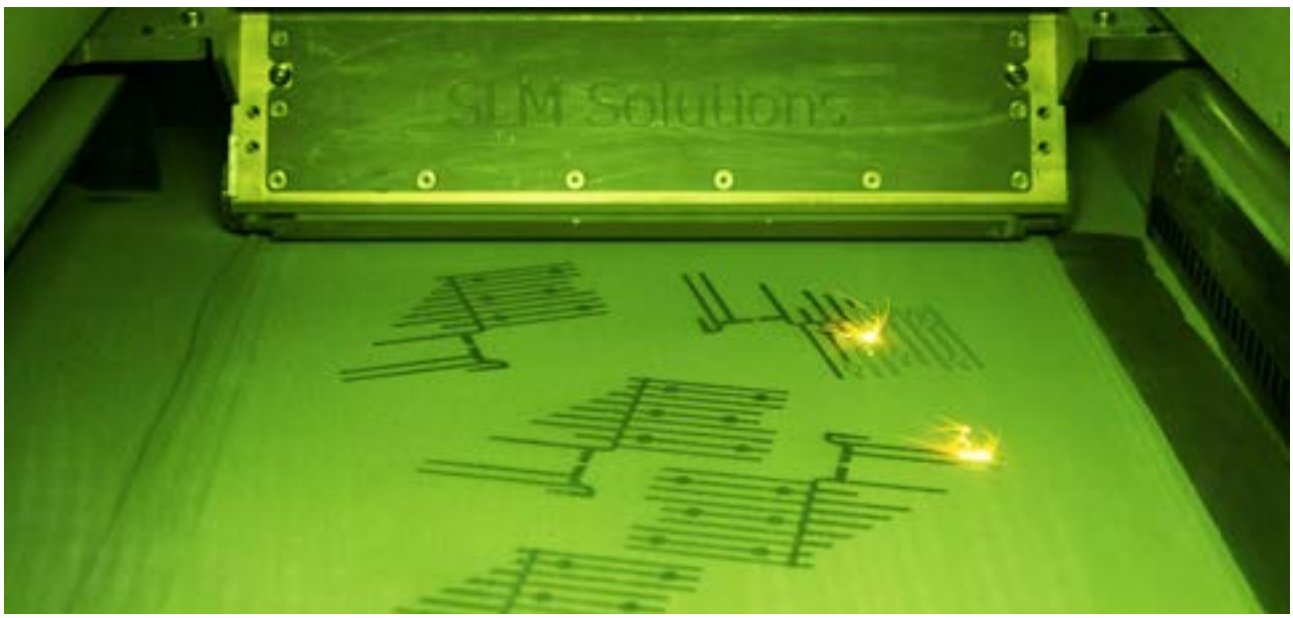
SLM Solutions

Blue Engineering

Company profile

BLUE Engineering, founded in 1993, provides engineering services in the areas of transport excellence, such as automotive, rail, aerospace and naval. The strong multisectoral know-how and the singular specialization in numerical analysis distinguish us on the market and allow us to develop innovative projects, at the highest quality level, during all phases of development: style, design, engineering, Virtual prototyping, testing and validation.

BLUE Engineering develops its ' business ' beyond the technological and geographic frontiers. We work with important national and international customers, always looking towards new markets. We offer a full turnkey service, including vocational education, in order to transfer our skills to the customer team.

BLUE Engineering is a good partner for project development, thanks to the integration of competences in all their aspects: design, functionality and innovative features. Our team of designers and specialized technicians work in close collaboration, thus optimizing time planning and achieving results of high reliability. BLUE Engineering constantly invests in education and vocational training, to promote the development of the skills of its team.

BLUE Engineering PLUS

Innovation development.

Product quality optimization.

Processes and methodologies development.

Excellent knowledge of CAD/CAE computer systems.

Excellent TEAM of expertise and experience.

Flexibility

Provided Services:

Turnkey project development.

Management of engineering development platforms.

Contract management.

Technical specifications issue.

Technical documents.

ICT MES (Manufacturing Execution System) and SW of traceability

Products | Services | Applications |Technologies

BLUE Engineering has many years of experience in Engineering, Design, Software Development, Verification and Validation, Testing.

Our services are applied to space structures, payloads & subsystems, propulsion test bench and manufacturing tools. We collaborated to the development of several international space programmes such as:

ISS Cupola

ISS Nodo2

ATV

RADAR SAT Satellite

ALADIN Equipment

ASTR Equipment

IRES Equipment

CDP Equipment

VEGA Launcher

EXOMARS

GALILEO

Contact

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CYGNUS PCM

Main partners of our activities are Leonardo, ThalesAleniaSpace, Airbus Defence & Space and ESA.

For several programmes and payloads BLUE provides the following capabilities: Structural Analysis.

For the realization of Node2, ATV and Cupola, the interconnection elements between the various pressurized modules for the International Space Station, Blue has been responsible for the following activities:

Structural check of the overall structure.

Verification of the resistance to buckling of the single components.

Structural inspection of riveting and bolting.

Thermal Control.

Model Analysis

Model Reduction

Reporting

Model Correlation with thermal vacuum tests data.

Sensitivity Analysis

Requirements Checking.

Attitude simulation.

Fluid Mechanics

Re-Entry Aerodynamics.

Thermo-chemical non-equilibrium effects.

Unsteady Aerodynamics: damping derivative and dynamic stability.

Low-Gravity fluid dynamics and transport phenomena.

CFD in propulsion: combustor chamber, turbine stage, pump stage.

ECS System: Climate Control and Thermal Comfort.

Testing

Testing facility design

Structures

Instruments

Environment simulation (CO2, high temperatures)

Test procedures definition & Execution

Reporting.

Software Development

Since 2004 BLUE Engineering increased its experience on software development, we started a collaboration with ESA on the development of the Thermal Concept design tool, we participated actively in national programmes like STEPS, STEPS2 and CADET developing software tools for system modelling and advanced calculation methodologies such as GPGPU programming, IR image processing and recognition, MBSE.

BLUE is focused also on research and development in order to ensure the innovative contents of its projects and products. In particular main R&D activities and products can be summarised as follows: Research and Development. Participation to several research and development projects in different fields: aerospace, railway, automotive. The subjects of R&D projects are of very different type:

Application of advance materials

Application of advanced manufacturing methodologies (3D print for metal and plastic parts, Carbon Fiber grid panel technology)

Advanced design and verification methodology

New ground transportation vehicles (hybrid, unmanned, ...)

Development of system design tools

Some internal developments became products such as: P.ANA.MA

The Parametric Analysis Manager performs multidisciplinary sensitivity & optimization analyses with the stochastic method. It has the following features:

Definition of variations of parameters

Management of REMOTE ANALYSIS (structural, thermal ...)

Possibility of performing MULTIDISCIPLINARY ANALYSIS CASES

Data Processing

Stochastic sensitivity and optimisation.

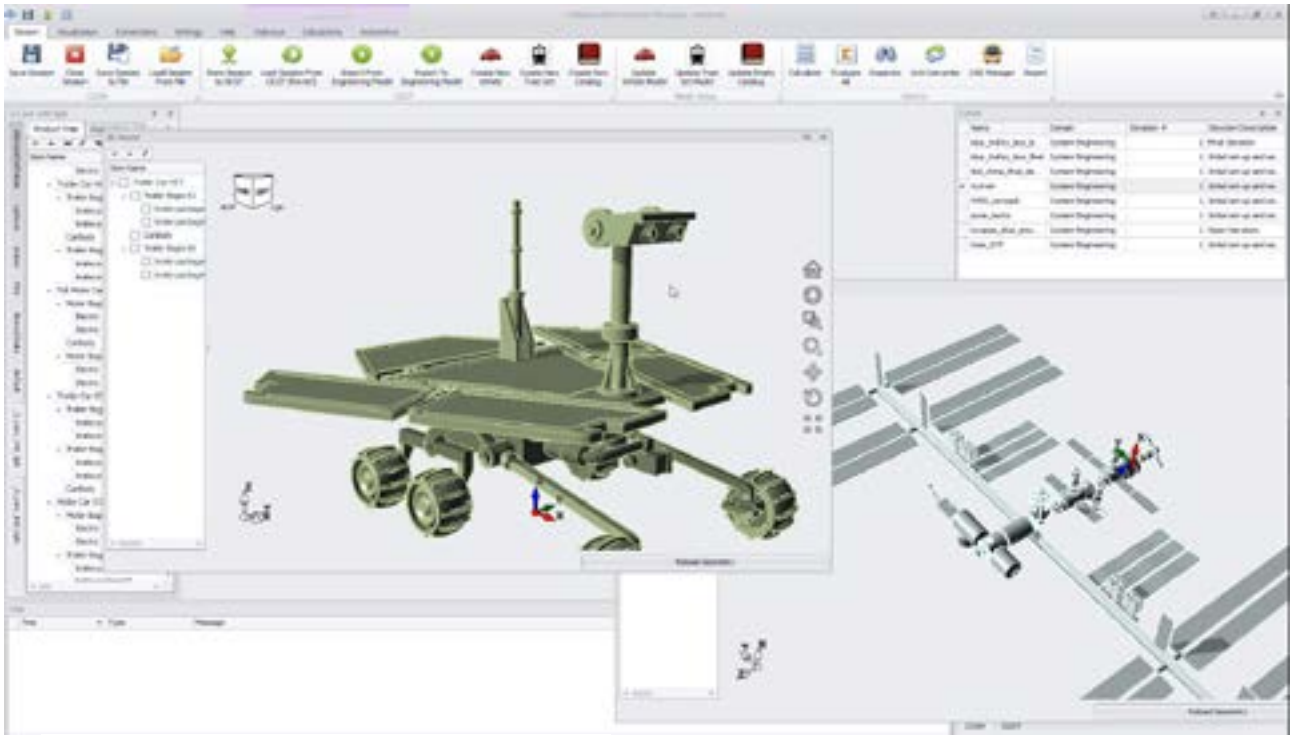
COSM

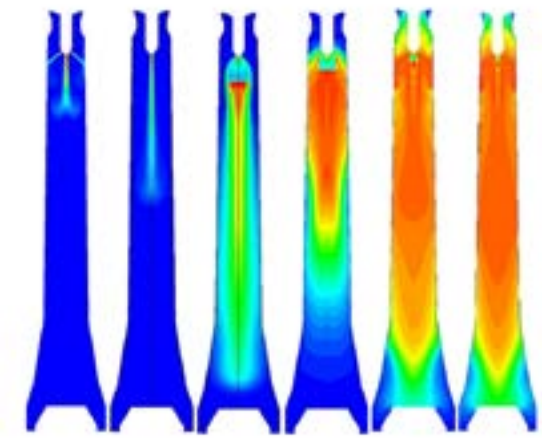
The Purpose of Collaborative System Manager is to support the calculation and analysis of several sector projects performed at discipline level through a common and user friendly environment with flexible degree of accuracy.

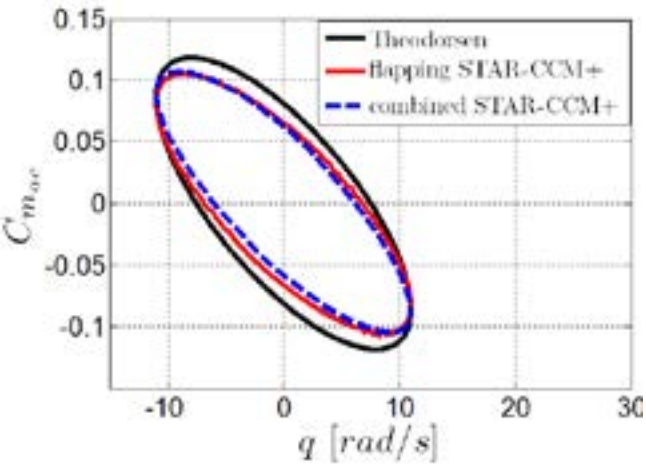
It shall describe space scenarios, run computation processes, analyse results with extended post-processing and easily build reports with curve, picture and animations. Each engineer is showed a well-defined and easy to use environment with a fast learning curve.

COSM was initially developed for the aerospace sector, and now collects features and can manage models relevant to automotive and railway sectors.

COSM is made in collaboration with ThalesAlenia Space Italia.



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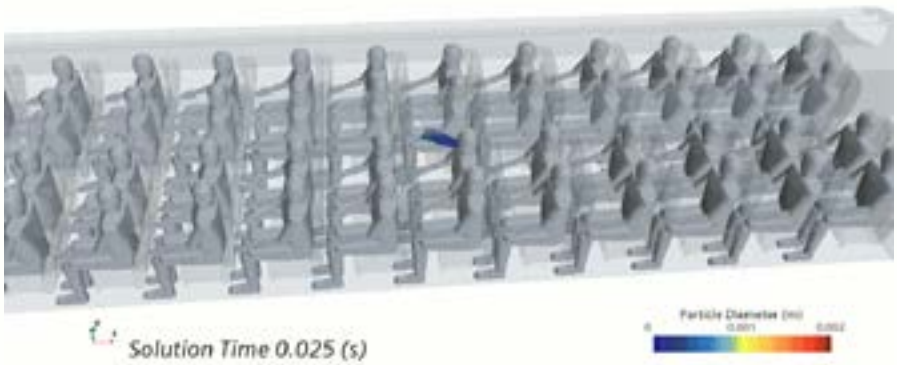
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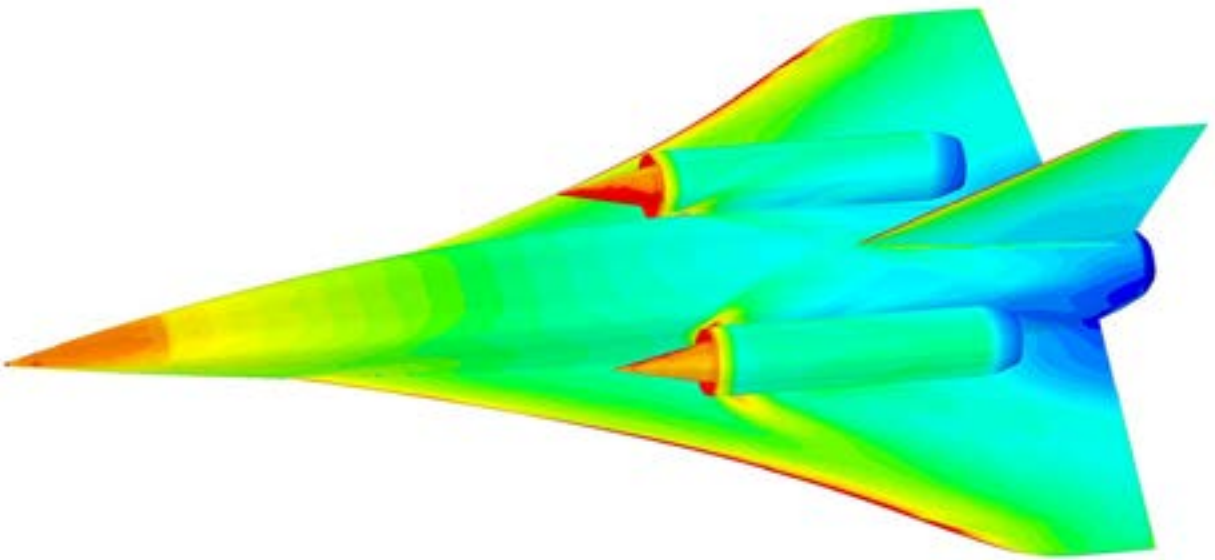
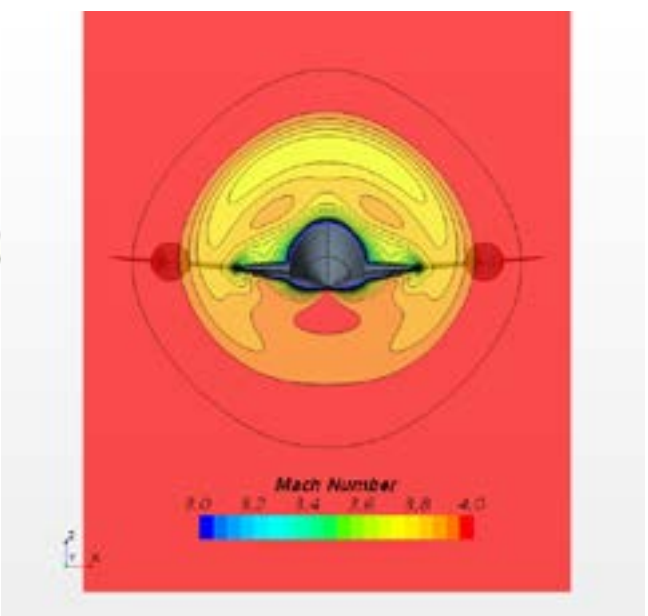
blue
Engineering & Design





Business Integration Partners

Company profile

Business Integration Partners (BIP) was founded in 2003 as a spin-off from one of the major consulting firms worldwide and today is recognised as one of the largest players in the European management consulting business.

Fifteen years after its foundation, with more than 3.500 professionals worldwide, and an annual consolidated turnover exceeding € 315 million, BIP is regarded as a true success story in European strategy and management consulting and as an ideal business advisor for its quality, innovation, efficiency, expertise in modernisation and development.

BIP has evolved in a large group and developed a major global network with several offices across Europe, North America, South America, Africa and Middle East, BIP can support its clients globally.

BIP can boast several successful projects of high complexity for European and International public bodies (European Commission, GSA, Eurocontrol, SESAR Deployment Manager, etc.) and industries, that confirm technical and professional skills that can be put into practice during the project execution phase.

In fact, BIP has a balanced mix of professionals belonging to the STEM category and of management/economic nature, with diverse seniority levels, enabling the possibility to select the most suitable team blend according to the project needs.

In the last few years, BIP is increasing its footprint in the Space domain, being awarded with an increasing number of projects and acquiring over time professional profiles and knowledge from the space sector, recognising the rising importance that this segment represents both for national and international institutions and for the quality of citizens' everyday life.

At the same time, BIP has developed a strong investment plan for the acquisition of specialists of the "digital world", becoming one of the major representatives of this domain in Europe. Witness to this process is the enrichment and growth of BIP's Centres of Excellence (CoE), both from the human resources and technical skills point of view, bringing wide knowledge of 4.0 industry topics and its applications, rising among the major exponents of the sector in Italy.

BIP represents a valuable link between upstream and downstream segments of the Space sector.

Products | Services | Applications |Technologies

BIP is a Consulting Company that is strongly investing in the space domain. During the past years BIP has played a major role in the acquisition of know how and management of key digitalization technologies for the public and private institutions and for the downstream sector, managing "digital enablers" through an agile approach and in line with the state of the art of international standards for project management.

Digital technologies, especially in combination with standardization approach and modularization, are considered transversal assets improving space systems flexibility, cost efficiency, reliability and safety allowing accessibility and sustainability of space infrastructure.

A paradigm shift is ongoing towards sustainable, highly automated, flexible and economical viable space infrastructure, to maximise commercial opportunities in space and on earth.

Being in the middle of a "virtuous circle" linking space to downstream industries and stakeholders, BIP offers consultancy support to space industries and public institutions for all the aspects related to innovation brought by digitalization, thanks to an extensive experience and successful use cases gained through the years.

More than 500 experts from the digital world from our Centres of Excellence (CoEs) and many more professionals in project management and system engineering from our industries, can support the innovation process of the inclusion of Big Data, Artificial Intelligence, Machine Learning, Block chain, Robotic Process Automation, BIM, Digital Twin, Virtual/Augmented Reality, Cybersecurity, Cloud Architectures, Industry 4.0 and Smart Factory, in the value chain of the space infrastructures for all the space domains (earth observation, navigation, SATCOM, access to space, space traffic management, space exploration).

The digital solutions including AI and industry 4.0 means offered by BIP to Space Community are strongly

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oriented to:

Smart Design Concept

Smart Training

Digital Operations

and are allowing to attain rapid development, production and assembly integration and testing (AIT) processes in space products life cycle.

Bip provides a complete offer spanning from strategy to project management, from engineering support to digital solutions implementation, from opportunity review to full tender management and from product life cycle innovation to downstream solution development.

In Synthesis: BIP clearly recognizes the space sector as an engine for the development of a «new economy».

We are in the position to provide a valuable support to industrial actors and European Institution leveraging on cutting-edge expertise and competencies.

Continuous investments in know how acquisition in space disciplines allow us to provide innovative consultancy services based on digital solutions.

Capgemini Engineering

Company profile

Capgemini Engineering combines, under one brand, a unique set of strengths from across the Capgemini Group: the world leading engineering and R&D services of Altran – acquired by Capgemini in 2020 - and Capgemini's digital manufacturing expertise. With broad industry knowledge and cutting-edge technologies in digital and software, Capgemini Engineering supports the convergence of the physical and digital worlds. Combined with the capabilities of the rest of the Group, it helps clients to accelerate their journey towards Intelligent Industry. Capgemini Engineering has more than 52,000 engineer and scientist team members in over 30 countries across sectors including aeronautics, automotive, railways, communications, energy, life sciences, semiconductors, software & internet, space & defence, and consumer products.

Capgemini Engineering is an integral part of the Capgemini Group, a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided every day by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 270,000 team members in nearly 50 countries. With its strong 50-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms.

Products | Services | Applications |Technologies

Capgemini Engineering combines, under one brand, a unique set of strengths from across the Capgemini Group: the world leading engineering and R&D services and digital manufacturing expertise. With broad industry knowledge and cutting-edge technologies in digital and software, Capgemini Engineering supports the convergence of the physical and digital worlds. Combined with the capabilities of the rest of the Group, it helps clients to accelerate their journey towards Intelligent Industry.

Capgemini is trusted by clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms.

System Engineering

- Project management
- Architecture Definition
- Requirement Management
- E2E Performance Analysis
- Test, Qualification & Operational support
- Reliability, Availability, Maintainability, Safety
- Integrated Logistic Support

Electronics Engineerin

- Electronics Design
- FPGA Design and Development
- Radio Frequency Testing
- Electrical, Electronic and Electromechanical (EEE) Parts Engineering
- Assembly, Integration and Test (AIT), MGSE & EGSE NCRs/ARS processing
- Tuning and Test of Devices
- Test, Validation and Acceptance
- Equipment Test Bench & Validation of new HW/SW
- PF & PL Functional & Performance Tests

Mechanical Engineering

- Mechanical System Engineering

Contact

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- Mechanical Configuration Management
- Mechanical Functional and Performance Test
- Integration & Systems Engineering
- Test, Qualification & Operational support
- Thermal analysis and design
- Fluid Dynamics
- Optics Analysis, Design and Validation
- Analysis and Design CAD/CAE Mechanical Configuration

Quality and Processes

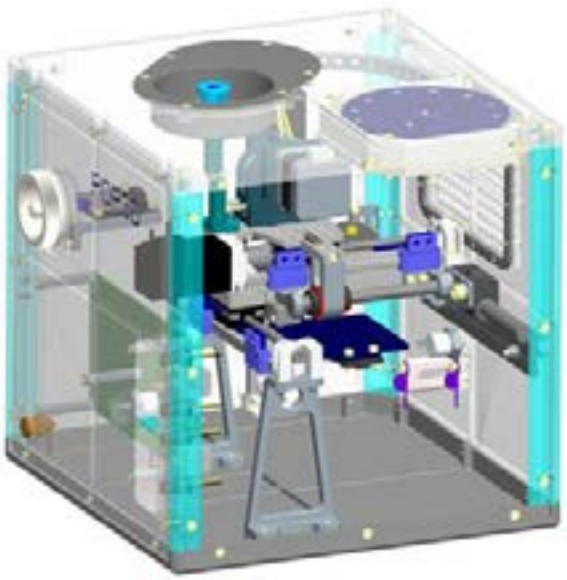
- Quality Control
- Quality Assurance
- Materials and Processes

Software Engineering

- SW Design
- SW Development
- SW Test and Validation

Satellite Operations Engineering

- Launch Campaign
- Mission Planning Schedule
- Monitoring & Control of Ground Segment
- High Quality of Service Maintenance
- Space Communication Technology Center Activitie (SCTC)
- Integration & Validation of Ground Equipment.



CESI

Company profile

CESI is a world-leading technical consulting and engineering company in the field of technology and innovation for the energy sector. Through its Division KEMA Labs, CESI is the world leader for the independent Testing, Inspection and Certification activities in the electricity industry. With a legacy of more than 60 years of experience, CESI operates in 70 countries around the world and supports its global clients in meeting the energy transition challenges. CESI also provides civil and environmental engineering services.

CESI is a fully independent joint-stock company headquartered in Milan and with facilities in Netherlands, Germany, Czech Republic, United Arab Emirates, Brazil, Chile, USA.

CESI has been involved since more than 30 years in the research and production of high efficiency space solar cells based on III-V semiconductors for civil applications and is one of the main international suppliers of space solar cells. CESI has strongly invested for decades in developing its own proprietary technology going through all the roadmap steps from single junction to multi-junctions, while being involved in the main space research and development programs at EU and international level.

CESI has cooperated in many significant projects for interplanetary missions (Mercury, Mars and Jupiter). The heritage of CESI includes more than 200,000 solar cells produced, powering more than 80 civil satellites for clients from over 25 different countries worldwide.

Solar cells are manufactured at our facility in Milan and can be provided either bare or SCA (aka CIC) to serve the civil application markets with the best cost versus quality mix. CESI is particularly proud of its distinctive positioning based on our attention and capability to shape and fine tune our solar cells for the specific needs and applications of our customers.

Our standard triple junction space cells are state of the art 30% typical efficiency, qualified for LEO and GEO missions according to ECSS-E-ST20-08C. In our continuous improvement efforts, we are already investing with effective results into 4-junction cells towards space efficiencies beyond 35%.

The CESI Management System complains and has been certified to the international Standards ISO-9001, BS-OHSAS-18001, ISO-14001. The Code of Ethics, adopted in 2002 was updated in 2009.

Products | Services | Applications |Technologies

CESI, among its energy businesses, has also over 30 years' experience in the research, development and production of high efficiency multi junction solar cells for civil space applications based on our own proprietary technology and our own manufacturing facility in Milan, Italy, being one of the four global suppliers of such class of space cells with a flight heritage of more than 80 satellites for clients from over 25 different countries worldwide .

Our triple junction cells, based on GaAs compound semiconductors, are characterized by high power conversion efficiency, radiation hardness and reliability in the harsh space environment.

Solar cells are manufactured at our own facilities in Italy and we can provide them at either bare or Solar Cell Assembly (SCA) also known as Coverglass Integrated Cells (CIC) level. CESI focuses on the manufacturing of cells only - which we then supply to the specialized integrators of space solar modules and/or whole satellites. We believe that our exclusive focus on the cell, which is a very peculiar high-technology component, provides more flexible collaboration opportunities with PVA/SA/Satellite integrators.

CESI is particularly proud of our distinctive positioning based on the capability to shape and fine-tune our solar cells with respect to the technology and to the cost vs performance mix to the precise application needs of a customer's specific space mission.

The current product portfolio of triple junction (InGaP/GaAs/Ge) for civil space applications is listed below:

1. Triple-Junction Solar Cell (CTJ30)

   The CESI Standard space Triple Junction solar cell named CTJ30 is qualified for LEO and GEO missions and have to date powered more than 60 satellites.

   Features & Characteristics (bare level)

CESI
Shaping a Better Energy Future

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29.5% efficiency at AM0

Very low solar cell mass (81-89 mg/cm2)

Thickness 150 µm

Fully qualified (bare and SCA) according to ECSS E ST20-08C for LEO and GEO orbit

High Radiation Resistance

2. Low Cost Triple-Junction Solar Cell (CTJ-LC)

The Low Cost solar cell named CTJ-LC is qualified for LEO and GEO and supports the achievement of costs/prices 30% lower than current commercial market levels, being especially suitable for the new mini/micro/cube satellite constellation emerging market where the costs are key. More than 24 satellites are powered with CTJ-LC-SCA gaining flight heritage since 2017 in LEO mission without any problem reported so far.

Features & Characteristics (bare level)

28% efficiency at AM0

High radiation resistance

Higher volume production capacity

Fully qualified (bare and SCA) according to ECSS E ST20-08C rev.1 for LEO and GEO orbit

The new CTJ-LC2 version (efficiency 27% @ AM0), with price towards 50% lower than current commercial market levels, is already available.

3. Thin Triple-Junction Solar Cell (CTJ-thin)

The Thin triple junction solar cell named CTJ30-Thin (bendable) maintains the high quality features and the electrical performances of CTJ30, while reducing of about one half the whole cell thickness. These cells are aimed at the New Generation Array (NGA) designs requiring flexibility features.

Features & Characteristics (bare level)

29% efficiency at AM0

High Radiation Resistance

Thickness 80 µm

50 mg/cm2 mass

>0.7 W/gr (power-to-mass ratio)

Qualified according to ECSS E ST20-08C rev. 1 for LEO and GEO orbit (qualification at SCA level pending).

4. Large Area Triple-Junction Solar Cell (CTJ-LA)

The Large Area space products (size 6 cm x 12cm, active area > 68cm2) comprise the CTJ30 (large area version named CTJ30-LA) and the CTJ-LC (large area version named CTJ-LA) maintaining their high quality features and the electrical performances.

The new CESI Product CTJ30-LA and CTJ-LC-LA are interesting for the space market in different applications:

CTJ30-LA are particularly suited for those missions in which a very high power is requested (both BOL and EOL) (typically GEO telecom satellites),

CTJ-LC-LA are interesting for the commercial market (Telecommunication, earth-observation, Internet, IoT, etc) where the competitiveness is more toward the cost,

and in general for all those missions in which the solar arrays are requested to be increasingly lighter and cheaper and more efficient, while maintaining their high reliability.

The CTJ30-LA and the CTJ-LC-LA are currently under qualification at bare and SCA level.

Features & Characteristics (bare level):

CTJ30-LA: Efficiency 29% at AM0, BOL; Thickness 160 µm ± 20µm

CTJ-LC-LA: Efficiency 28% at AM0, BOL; Thickness 180 µm ± 20µm

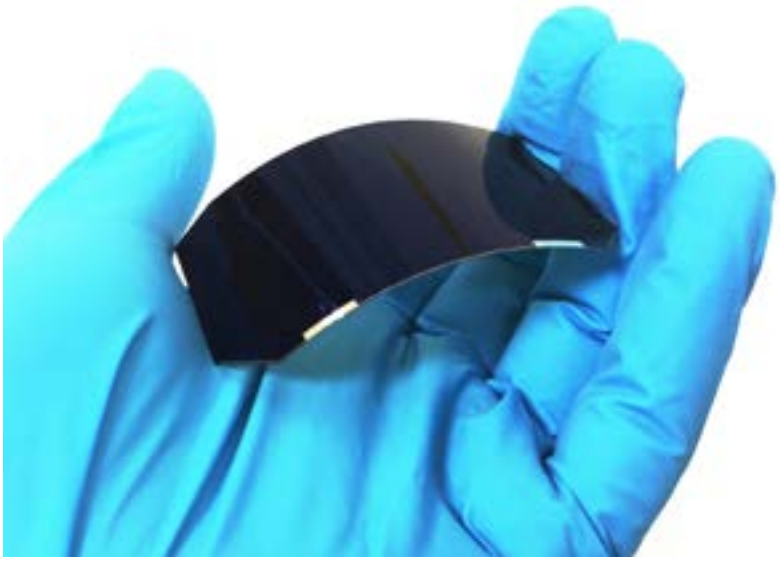
Qualification according to ECSS E ST20-08C rev. 1 ongoing

High Radiation Resistance

Lower manufacturing costs per cm^2 at cell level

Lower assembly costs at solar generator level

Space saving at solar generator level



CGI Italia

Company profile

Founded in 1976, CGI, with over 77,000 employees, CGI brings four decades of industry and domain knowledge, IT services and consulting expertise to our partnerships with clients. We combine innovative services and solutions with a disciplined delivery approach. Our business consulting, system integration and management services help clients leverage current investments while adopting technology and business strategies that achieve top and bottom line results. Clients give CGI high marks for the way in which we work - in close collaboration, as trusted partners and as great listeners committed to their success. Our average satisfaction score for the last 10 years has measured consistently higher than 9/10.

CGI delivers complex, mission critical space software systems and is a recognised thought leader in space security and space-enabled applications. CGI is a European leader in military satellite communications ground systems and supports civilian space agencies such as EUMETSAT, the European Space Agency (ESA), as well as Aerospace and Satcoms companies. CGI has a 40 year heritage of work with the European space industry from the UK, Germany, Netherlands, France, Finland, Estonia, Czech Republic and Italy.

As the figure below shows, CGI provides different range of services for space customers.

The CGI Italy office is located in Frascati (RM), near the European Space Agency and works in many space projects for ESA and EUMETSAT, particularly related to Copernicus, Big Data Exploitaiton platforms, application domains.

Products | Services | Applications |Technologies

"CGI Space delivers a range of products and technologies in the space domain.

CGI Italy is focussing in innovation, bringing the latest ICT technological trends with exploitation of EO data. Main products and applications are:

Big EO data exploitation platforms

Big EO data services

High scalable parallel processing using GPU and distributed processing

On-board processing using AI solutions

EO applications in numerous domains, including vegetation monitoring, change and anomaly detection, oil spill pollution response and many others"

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CGI Italia srl

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Point of Contact

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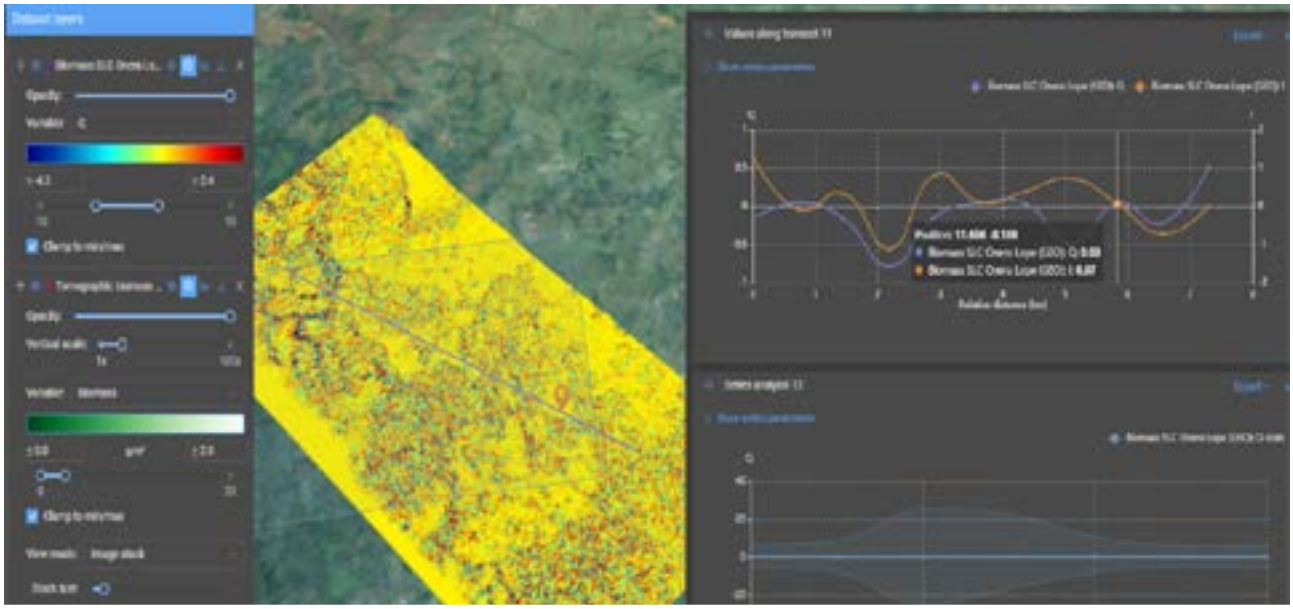

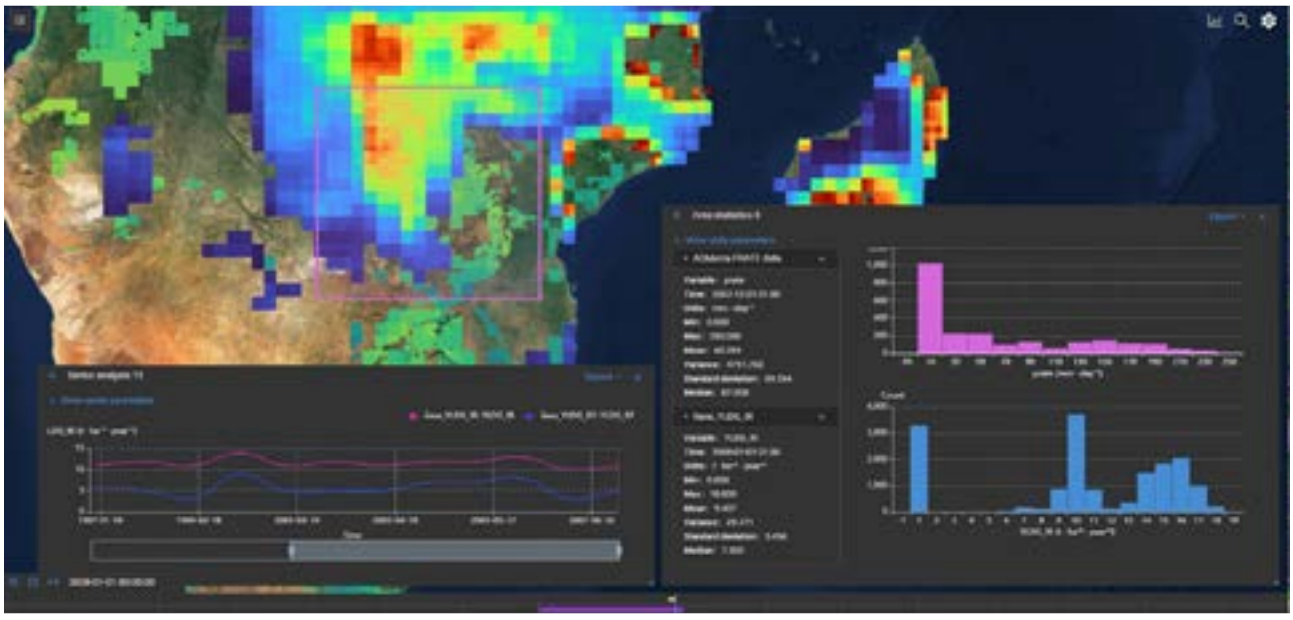


EUMETView

Cistelaier

Company profile

Cistelaier S.p.A. is a Printed Circuit Boards manufacturing company belonging to the Finmasi Group PCB Division, consisting of Cistelaier S.p.A. in Italy, Techci Rhône-Alpes in France and EPN Electroprint GmbH in Germany.

The task of the PCB Division is to enhance the specific competences of the three factories in order to offer customers excellent results thanks to their synergies in terms of technology, production and service.

The solution provider's vocation coupled with the long-standing skills of Cistelaier, Techci and EPN to support their partner since the early stage of a new project with codesign activities make Finmasi Group's PCB Division an ideal partner for supplying printed circuits boars of any typology and for any application.

Cistelaier S.p.A., established in 1998 merging the two industrial entities, Cistel S.r.l., established in Genoa in 1976 and Laier S.r.l., established in Modena in 1986, manufactures prototypes, small, medium and large series of a very wide range of printed circuit boards (up to 40 layers): double-sided, multilayer, rigid-flex, HDI (multilayer as well as flex-rigid) PCBs and boards realised with special materials.

Cistelaier S.p.A's mission is to become the main benchmark in Europe for companies seeking service, quality and know-how to make the PCB a strategic instrument for their business. With more than 40 years' experience, Cistelaier S.p.A. manufactured thousands of PCBs for businesses active in the Aerospace & Defence, Space, Rail, Automotive and Medical sectors. In order to continue to develop competences and know-how to meet all different and increasing market demands, Cistelaier S.p.A. is constantly investing in machineries, methods and research.

ACCREDITATION AND STANDARDS

What makes Cistelaier S.p.A. a unique interlocutor is to be homologated for:

Aerospace & Defence sector: UNI EN 9100:2016

Automotive sector: IATF:2016

Medical devices: ISO 13485

Railway sector: ISO/TS 22163.

Products are manufactured according to the following standards and specific control plans are agreed with customers when needed:

IPC-A-600, class 2, 3 or class 3DS(A)

IPC 6012 (Rigid), IPC 6013 (Rigid-Flex),

IPC 6016 (HDI) and IPC 6018 (Microwave)

MIL-P-55110 (Rigid) and MIL-P-50884 (Rigid-Flex)

ESA-ECSS - Q ST 70 10C / 11C / 12C

ESA-ECSS - Q ST 70 60C

Products | Services | Applications |Technologies

SERVICES

Cistelaier's processes have been designed in order to be fast and reliable from feasibility analysis to shipment of the finished printed circuit boards.

Cistelaier S.p.A. designed its factory and implemented the necessary organization in order to be able to deliver quick turnaround (QTA) service: this enable Cistelaier's customers to get prototypes with short lead time so to improve their time to market and their business performance. Cistelaier's Manufacturing System is managed according to Lean principles and this increase its capabilities to deliver quality and service to customers.

All information related to products coming from customers are systematically verified (Key Point Analysis) in order to identify any risk factors (Risk Analysis) with the use of DFM and FMEA type evaluation techniques.

Its valuable heritage in "all" market sectors enable Cistelaier S.p.A. to support customers since the early stage of their projects in order to implement the best practices for PCB design to increase effectiveness of the PCBs

IPC Member

Contact

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in each and every specific application.

MARKET SECTORS

Thanks to its know-how and accreditations, to its absolutely reliable products and to its extremely flexible service Cistelaier has been able to become a technological partner of customers performing in the following sectors:

Avionics

Aerospace & Defense

Space

Electronics for the Railway sector

Telecommunications

Vision technology systems

Automotive

Motorsport

Infotainment

Medical

Industrial Automation

Renewable energy sources

University and R&D

Up today more than 50% of the turnover of Cistelaier S.p.A. is related to Aerospace & Defense applications.

TECHNOLOGY

Cistelaier S.p.A. constantly invests in machineries and equipments at the state of the art of technology and suitable for QTA management and flexibility to produce for the whole of the market sectors/ applications where different and specific materials are needed.

Cistelaier S.p.A. validated its processes to produce with more than 100 different base materials.

Cistelaier S.p.A. is also partner of several of its suppliers for machineries, equipment, material and chemistry for R&D projects to develop new solutions for the PCB industry.

Technological capabilities are also assured by Cistelaier's highly skilled people in PCB industrialization, in PCB manufacturing and in Production and Quality methods.

PRODUCTS

Cistelaier S.p.A. produces all kind of PCBs

PCB families: rigid (up to 40 layers) and rigid flex (up to 12 flex layers) PCBs / rigid HDI and rigid flex HDI PCBs

Materials: standard and high performance materials (i.e. Hi Tg, Alogen Free, Hi speed, epoxy and polyimidic resin materials, copper/invar/copper, Hi frequency materials Teflon and not Teflon based, thick copper materials) / mixed materials

Power Management: busbars , heavy copper , copper inlay, different thickness on same layer and selective plating;

Heat Management: heat dissipator, paste dissipator application, metal back PCB, copper coin technology

Size: up to 860 mm length and 470 mm width

Thickness: up to 5.5 mm

Fine line/space: down to 75 m Finishes: Tin-Lead reflow; HASL with and without Lead;

Enig (Al bondable); Chemical Tin & Chemical Ag; ENIPIG (Au bondable); Galvanic hard and soft gold

SPACE SECTOR

Even if is producing PCBs for Space applications since more than 10 years, Cistelaier S.p.A. is more and more focusing in Space sector since year 2013.

In the last 5 years Cistelaier manufactured according to ECSS more than 50 part numbers and tested all PCBs manufactured for "fly purpose" through ECSS Group 6 qualification process.

Cistelaier S.p.A. manufactured for Space sector PCBs with the following features

Multilayers PCBs up to 18 layers

Epoxy & Polyimide resin base material, glass or para-aramidic fiber support

Standard ML , Sequential Lamination and HDI build up

Laser drilled and copper filled vias

Mechanically drilled Filled & Capped vias

Minimum vias of 0.15 mm

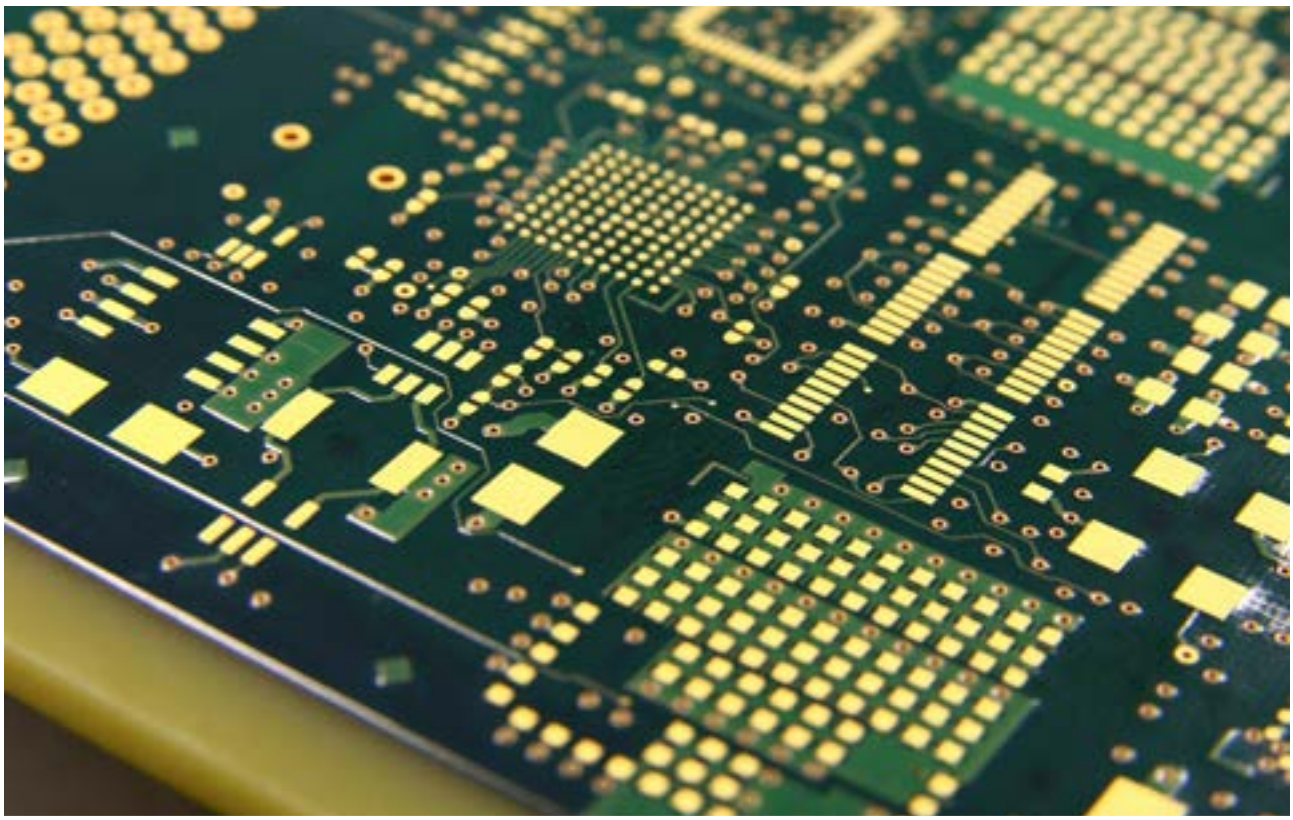
Thickness up to 2.80 mm

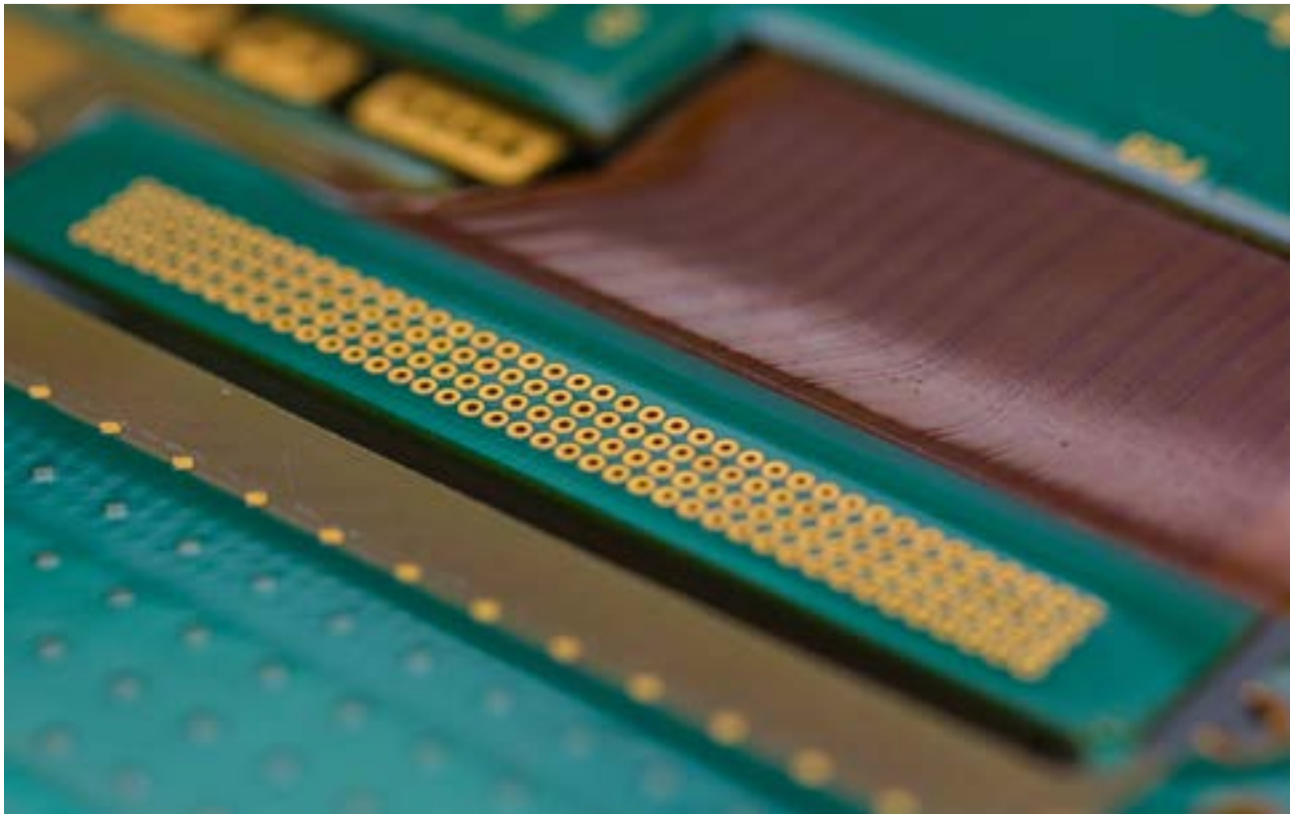
Aspect ratio up to 9.3:1

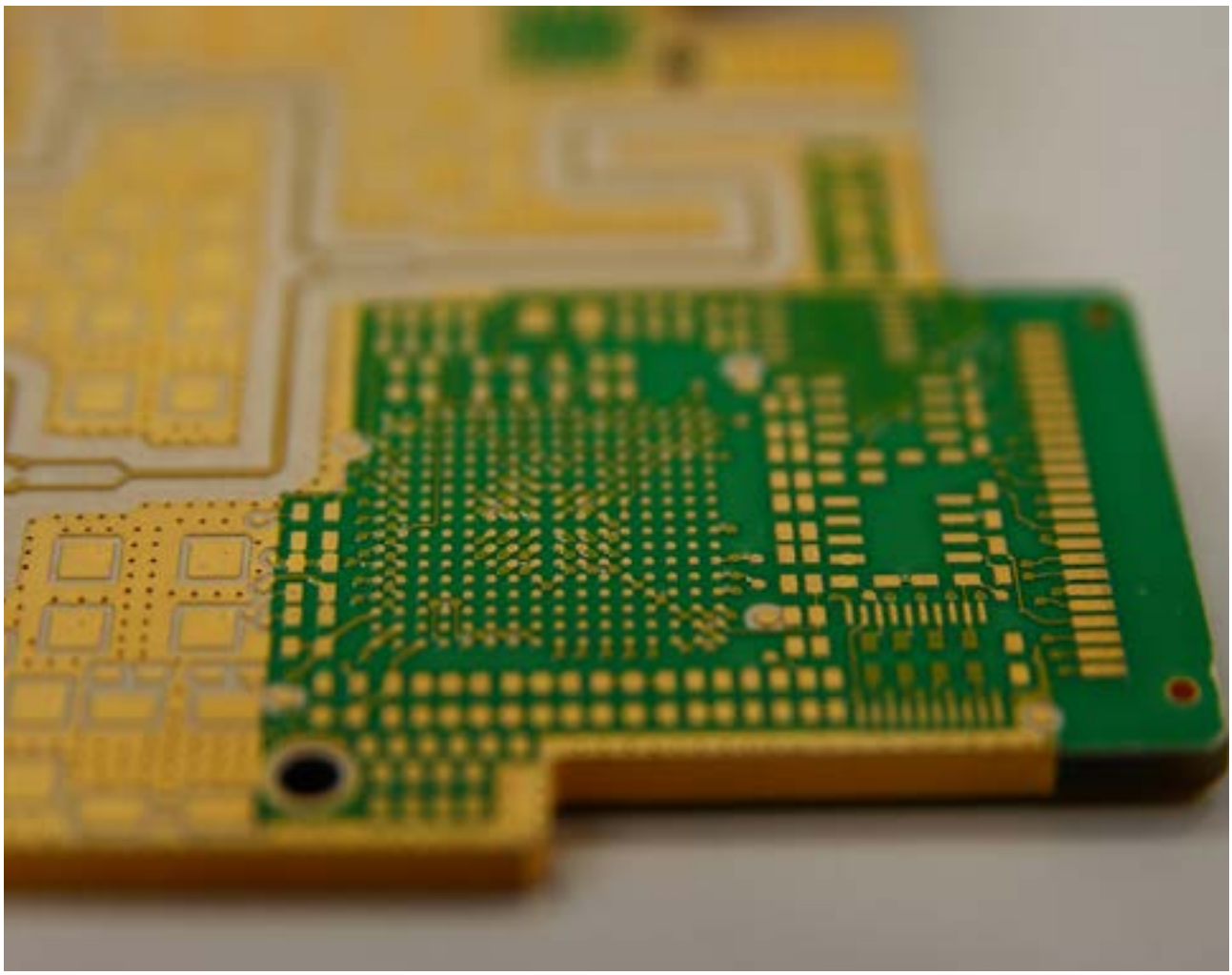
Tin-Lead Reflow finishing

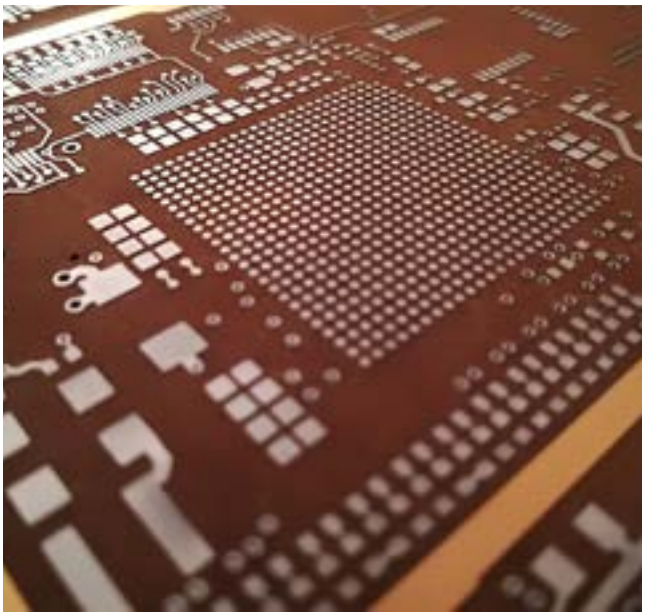
Selective Electolytic Nickel/Gold

Test results showed high reliability of the PCBs manufactured by Cistelaier S.p.A.









Dassault Systems Italia

Company profile

Dassault Systèmes, the 3DEXPERIENCE® Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our 3DEXPERIENCE® platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 290,000 customers of all sizes, in all industries, in more than 140 countries.

Products | Services | Applications |Technologies

Across the Space industry, rising customer expectations (lower costs, higher standards and increased capabilities) along with growing program complexity make it more challenging to compete.

As systems become more complex to design, build and deliver, OEMs and suppliers need to accelerate innovation, drive efficiencies and move to the factory of the future to allow for greater agility on production rate. This requires a new way to conceptualize, design, manufacture, test, certify and sustain new space vehicles.

Our portfolio is composed of 3D modeling applications, simulation applications creating virtual twins of products or production systems, social and collaborative applications, and information intelligence applications.

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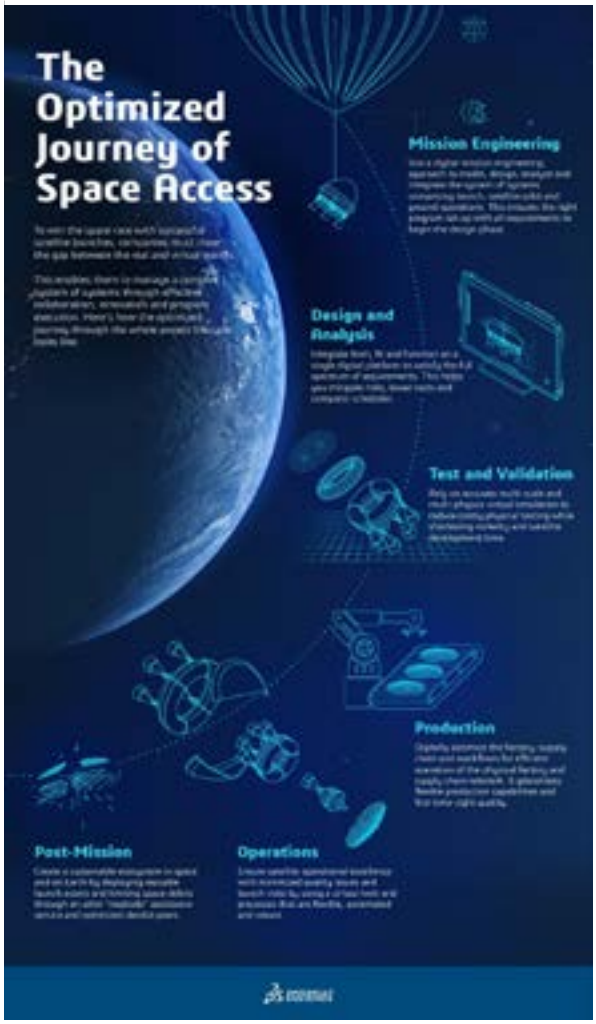
SPIRIT


The Optimized Journey of Space Access
Mission Engineering
Design and Analysis
Test and Validation
Production
Operations
Post-Mission

e-GEOS

Company profile

e-GEOS, an ASI (20%) / Telespazio (80%) company, is a leading AN ASI / TELESPAZIO COMPANY international player in the Earth Observation and Geo-Spatial Information business.

e-GEOS, an ASI (20%) / Telespazio (80%) company subject to the joint direction and coordination of Leonardo S.p.A and Thales S.A, is a leading international player in the Earth Observation (EO) and Geo-Spatial Information business offering a unique portfolio of application services. e-GEOS is the exclusive global distributor for the COSMO-SkyMed data of first and second generation, the most advanced and performing Radar Satellite constellation available today. Thanks to the superior monitoring capabilities of the COSMO-SkyMed constellation and the fusion with a broad range of EO and non-EO data, e-GEOS has become one of the global leaders in geospatial services and is leading the evolution to GeoInformation digital services through CLEOS, its digital market place, and the application platforms by verticals.

The Matera Space Centre is dedicated to Earth Observation and Space Geodesy. At the Centre e-GEOS acquires, processes, stores and distributes remote sensing data from the main Earth observation satellites, and produces images, products and services in near real-time for maritime surveillance. In 2012, the Matera Space Centre was included in the Core Ground Segment of the European Space Agency (ESA) within Copernicu.

e-GEOS runs a multi-purpose 24h Emergency Room and Mapping Centre that is able to work all-year-round with a 24 hour availability; Today these services are offered to both institutional and civilian customers like: European Copernicus Program (EMS) a main success cases, Copernicus SEA (Copernicus services in Support to EU External Action) the IMINT reports service for Defence and Intelligence.

From pixels to digital services – geoinformation into the platform economy:

- SEonSE for maritime surveillance , oil spill and ship tracking services
- Braint for defence and intelligence IMINT products
- AWARE for infrastructure monitoring and operation
- AgriGeo for thematic cartography, agriculture, forestry and precision farming
- mapcy for the provision of quick maps for natural disaster management

CLEOS is the digital infrastructure providing access to this whole spectrum of services, the new «digital market place»

Products | Services | Applications |Technologies

Covering the whole value chain, from data acquisition to the generation of analytics and insight reports, e-GEOS, thanks to proprietary assets, algorithms and AI based features, integrates data from all satellites with the IoT information gathered over different sources, creating a big data lake where all the e-GEOS platforms are able to extract signals and key indicators dedicated to different markets. This approach is one of the key assets of the new services and products offered by the company and it can be run both on premises and mainly on cloud.

AWARE

Aware is the platform designed by e-GEOS to support both Public Administrations and private companies along the whole lifecycle of an infrastructure. It provides a set of services to monitor linear infrastructures, buildings, urban areas, monuments. Using the most advanced radar data techniques combined with IoT, In Situ sensors and drones generated information AWARE provides information through standard GIS layers and a set of user customized data analytics workbench from the planning phase to the management and maintenance of complex infrastructures.

SEonSE

SEonSE (Smart Eyes on the SEas) is the e-GEOS new Maritime Surveillance Platform providing an innovative way to gain access to maritime domain awareness and tailored information, including early warning notifications, based on criteria established with the users. SEonSE to deliver Maritime Domain Awareness applications in Near Real Time, leverages on SEonSE-engine, the e-GEOS toolkit, for an advanced exploitation of Multimission and COSMO-SkyMed satellite data, integrating marine traffic data (e.g. SatAIS, AIS), meteo information and

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open-data satellites.

BRAINT

Image Intelligence analytical capability is continually improving as the technical performance of Earth Observation (EO) satellite missions evolve. In parallel to the proliferation of Open Source geospatial information, the intelligence community is set to experience a transformational sea change in capability, however as sources become more diverse and plentiful, so analysts need a platform to effectively and efficiently consolidate and synthesize it. braINT™ is the e-GEOS solution for imagery based actionable intelligence analysis, a modular environment for IMINT analysis and report generation. Based on a blended integration of proprietary algorithms braINT™ provides at its core a range of tailored operational workflows providing easy access to satellite imagery exploitation through simple steps to support analysts during each intelligence assessment phase.

AGRIGEO

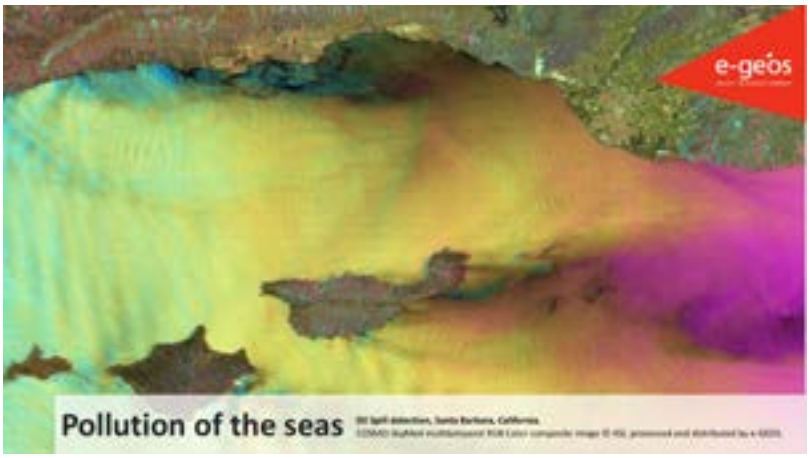
From precision farming to crop yield and damage estimation, the combined use of Earth observation data, Deep Learning and the supervision of photointerpreter create the usable feed for AGRIGEO the platform dedicated to the agricultural market segment. The innovation activities is an important asset of e-GEOS. Indeed, in this field, where Drones, smallsat and Sentinel are giving food for in-cloud processing and new algorithms allow unexpected analysis and new indicators suitable to support both public administration and farmers to better manage their own resources.

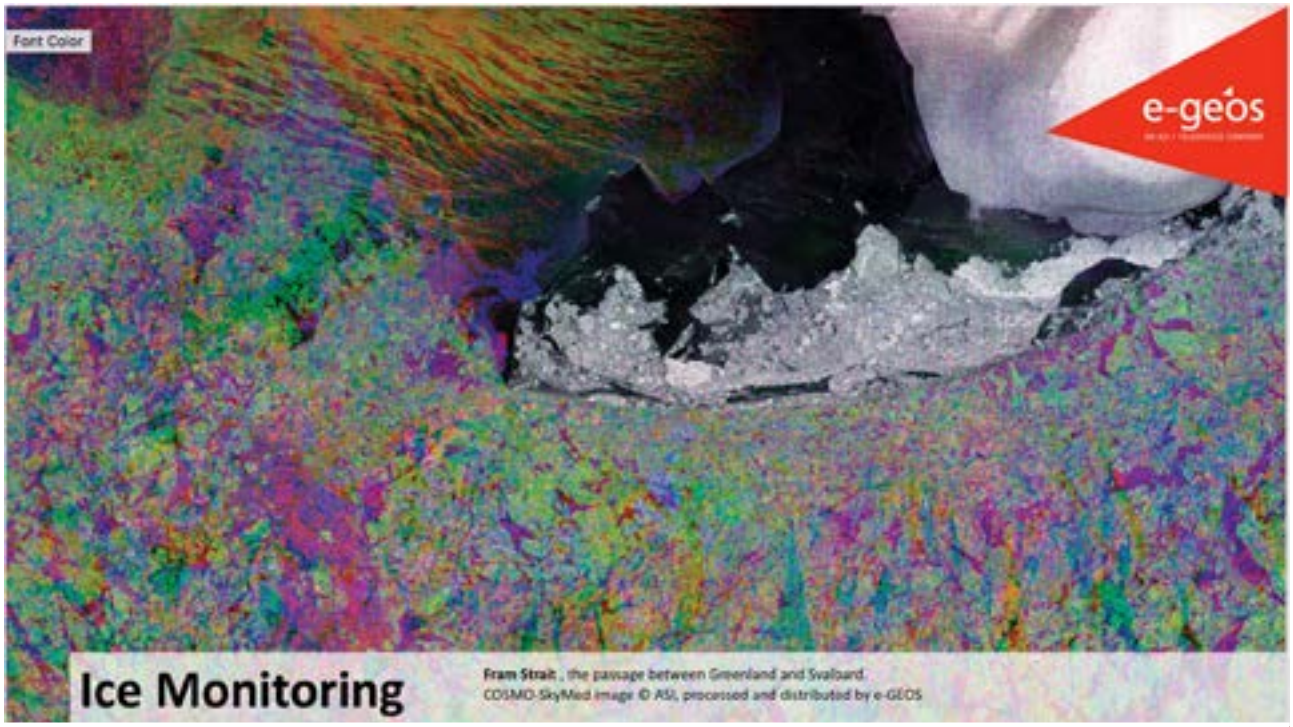
CLEOS

CLEOS, the digital infrastructure providing access to the whole spectrum of services, the new «digital market place», the tool for the transformation and digital use of the solutions of e-GEOS solutions and of our partners. CLEOS allows customers to take full advantage of the digital services of the platforms and developers to quickly define new workflows making use of the potential of advanced algorithms that implement innovative Artificial Intelligence techniques for information extraction.

Geodesy

Space Geodesy activities within e-GEOS date back to the beginning of 80's when a Satellite Laser Ranging (SLR) station was installed at the Italian Space Agency's Space Geodesy Center in Matera. We collect, analyze, interpret and archive data from the main space geodetic techniques: Satellite and Lunar Laser Ranging (SLR/LLR), Very Long Baseline Interferometry (VLBI) radio telescope, Global Navigation Satellite System (GNSS) receivers and absolute Gravimeter.




Font Color
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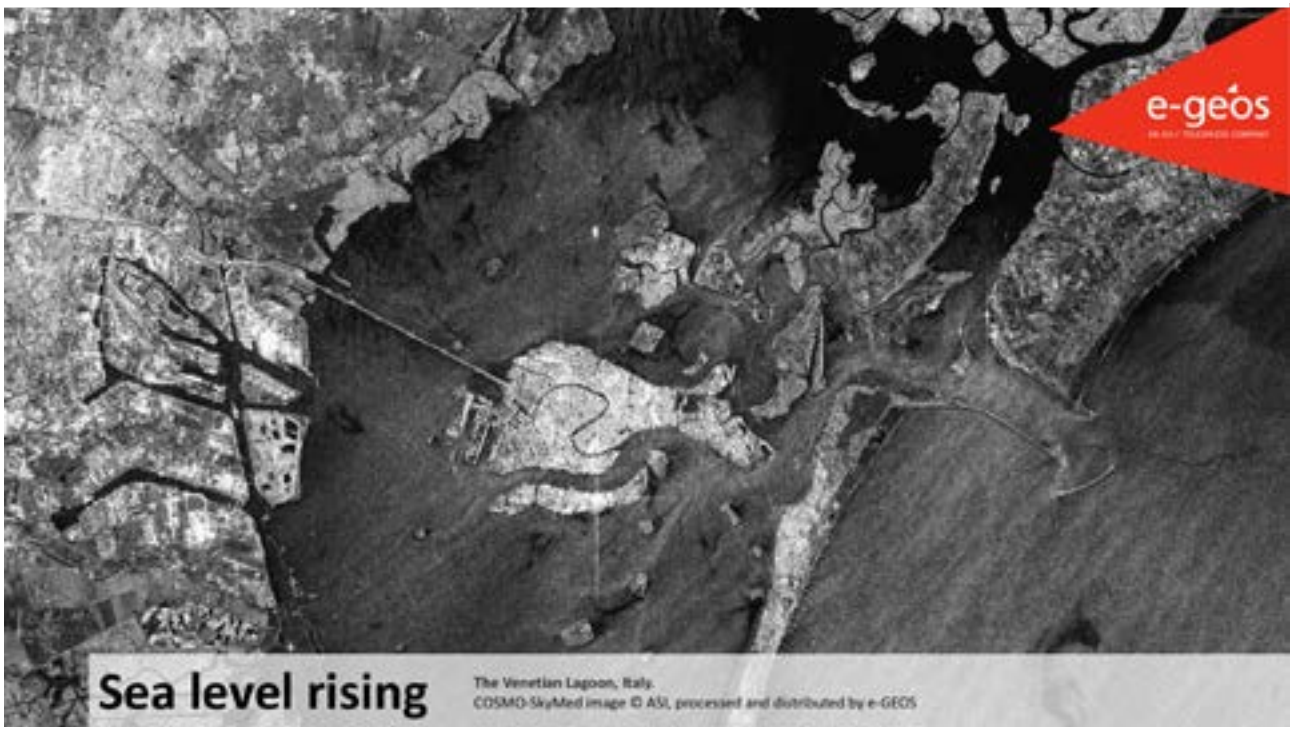
Ice Monitoring
Fram Strait , the passage between Greenland and Svalbard.
COSMO-SkyMed image © ASI, processed and distributed by e-GEOS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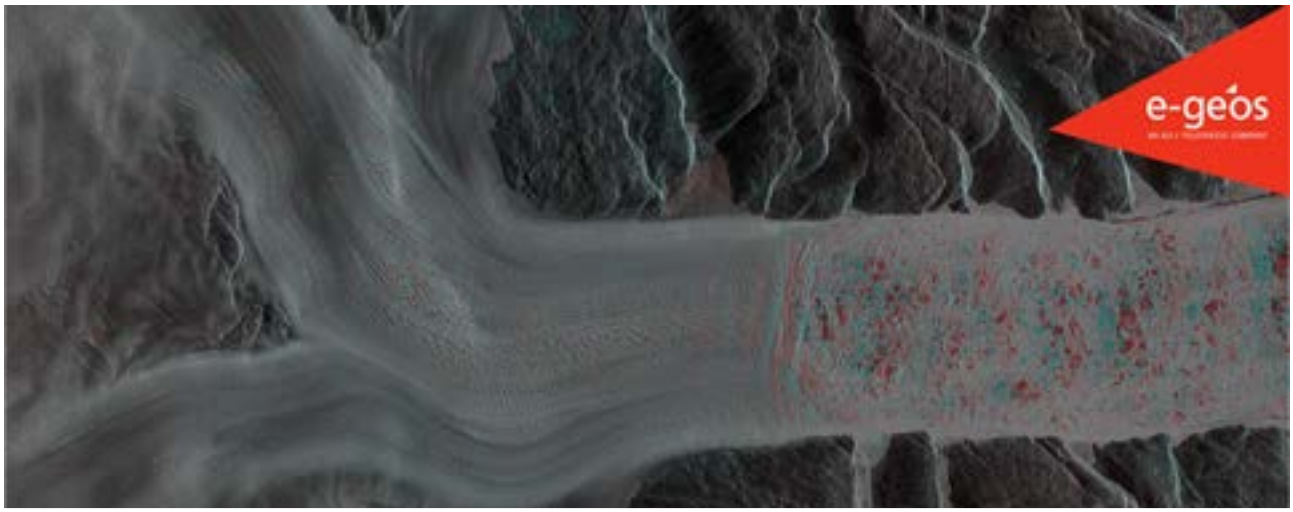
Sea level rising
The Venetian Lagoon, Italy.
COSMO-SkyMed image © ASI, processed and distributed by e-GEOS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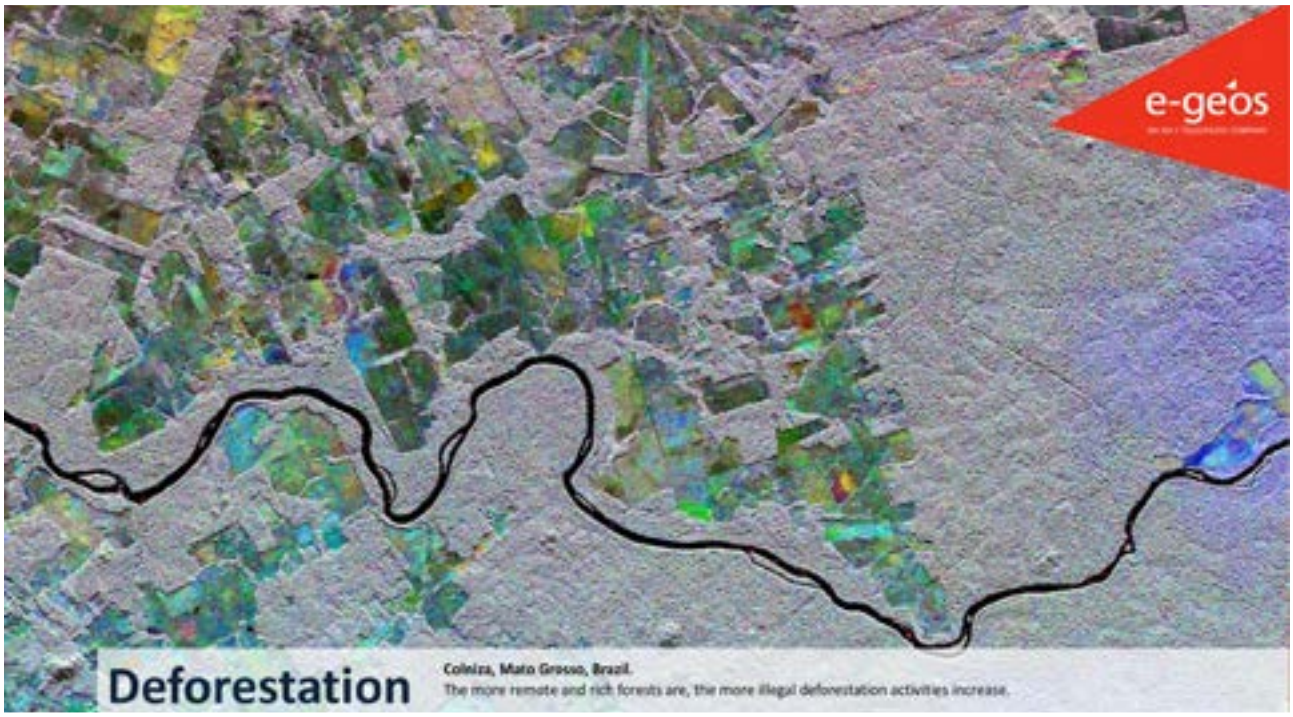
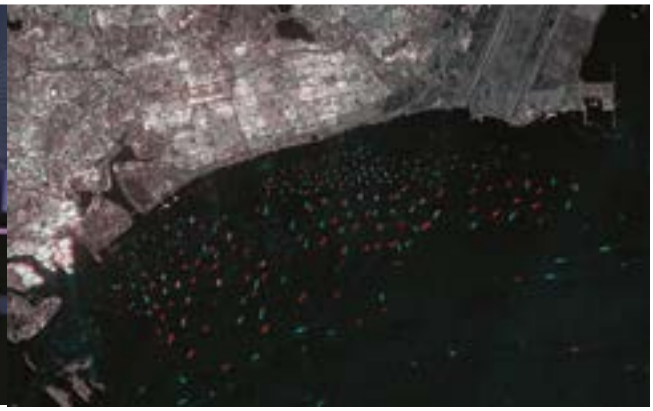

e-geos
Deforestation
Colniza, Mato Grosso, Brazil.
The more remote and rich forests are, the more illegal deforestation activities increase.



Exprivia

Company profile

Exprivia is an international group with 1800 professionals who enable digital transformation via solutions that involve the entire value chain. Exprivia team has experties in various technologies and domain areas, acquired knowledge and experience in more than 40 years of presence on the markets of Banking&Finance, Telco&Media, Energy&Utilities, Aerospace&Defence, Manufacturing&Distribution, Healthcare and Public Sector. The Exprivia sites are present at the locations in Italy, Europe, America and Asia. Exprivia implements an Integrated Management System meeting the requirements of the ISO 9001, ISO 13485, ISO/IEC 20000-1, ISO/IEC 27001 and ISO 22301.

In December 2018, Advanced Computer Systems ACS S.r.l. became one of the Exprivia units. Delivering custom tailored solutions to aerospace/defence industry the unit continued the legacy of the ACS as the PDGS specialist and innovative SW and system designer. A profound knowledge of and capabilities in handling different satellite data, metadata, sensors, products, facilities interactions, associated services delivery is concentrated today in the Exprivia Defense & Aerospace Digital Factory (DADF) unit. The unit offers integrated systems, SW, services and consultancy in:

- EO satellites PDGS
- Environment monitoring Applications development
- Advanced & Immersive data visualization

DADF manages challenging projects from requirements definition, through design, implementation/procurement, integration/validation up to operations and maintenance support. We develop ground segments, facilities and components for satellite data acquisition, dissemination, processing. Our technology serves customers are in 30 countries. We provide long-term maintenance services for our systems. The majority of these services are OME (Operation, Maintenance, Evolutions) and/or Framework contracts with the major Space Agencies (ESA, ASI, EMSA, EUMETSAT, CNES) under which we provide maintenance, engineering and enhancements support (including development of Test scenarios and TDS), systems performance monitoring and consulting. In addition to maintenance services for the in-house developed SW, we are specialized in maintenance for third parties developed SW (including procurement, corrective maintenance, evolutions, integration, testing and deployment into operational environments).

Products | Services | Applications |Technologies

Our core product is the PDGS SW infrastructure enabling mission specific data ingestion and processing. The modular and scalable Ground Segment features multimission acquisition, real time ingestion, data processing and dissemination. XPR participated to Core PDGS implementation of Sentinel 1, 2, and 3. XPR SW is running in all ESA Copernicus PDGS operating centers. We design and develop facilities and tools to support functions performed at ground segment. Exprivia has designed, developed, tested and certified different Processors (SAR, optical, meteorogical, altimetric, gravimetric) to consent both basic and value-added (L0, L1A, L1B and L2) products generation. Exprivia also realized related Quality Control and Calibration/Validation Facilities. We develop applications for both research (VR& AR for 3D models and scientific data visualization) and commercial/operational activities (e.g. EMSA IMDatE maritime surveillance system). Exprivia is implementing but also developing innovative technology. From large-scale industrial systems to Internet of Things, Exprivia has been driving forward innovation in Space, Cloud Computing and Healthcare.

In November 2020, Exprivia won ESA contract for LTA Service. It aims at the transformation of mission “”dedicated”” EO ground systems into “”multi-mission”” services with web architecture and cloud based services. Exprivia is the first Italian company working on a Long Term Data preservation of this importance (9 PB of data in 18 months). It is also the first European company and one of the few in the world to base the long-term IT data archiving on optical media. For the next 10-50 years, LTA service will archive data acquired by the Copernicus satellites. Daily, the service ingests about 1 TB of data per satellite mission from the acquisition and processing centres throughout Europe. It extracts and stores metadata on, near and off line, catalogues them, supply registered users with data for higher-level products.

In 2020, EUM outsourced an Integration and Verification (I&V) MM ground segment service to (Exprivia and GMV Prime) for:

- I&V Engineering preparation (technical I&V documentation)

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- I&V activities execution (integration and verification of testing campaigns)
- Validation activities contribution (validation test campaigns support)
- Contribution to management/programmatic activities

Usually, a specific GS is developed in already functioning EUM context, where to interface with the existing MM sub-segments. Commonly, an incremental lifecycle with different phases running in parallel is adopted. Starting with interface compatible version, through a refined version prior to launch and finally one with all functionalities integrated during commissioning. This requires continuous integration and testing of new/updated systems and/or CFI versions.

At the beginning of 2020, XPR won a contract for the provision of UMARF SW Maintenance Service. The UMARF 24/7 facility, responsible for the long-term preservation of data from EUMETSAT missions, is based on the OAIS model. Consequently, the UMARF is split into 2 fundamental functional chains: Ingestion and Retrieval. The service objective is a sustainable long-term maintenance of the UMARF SW components of these two chains. A Ramp-up phase enabled XPR to set-up necessary facilities, tools and procedures at its premises to support the service. The CORBA protocol, enabling communication between UMARF components written in different languages was replaced by REST paradigm to reduce SW complexity.

In September 2019, Exprivia headed consortium set-up Copernicus 'Space Component Worldwide Sentinels Data Access Benchmark' (CDAB) Service for testing and benchmarking ESA DIAS services from a user point of view. It offers a comprehensive and objective synopsis of the conditions experienced by users trying to discover, view, download and otherwise locally manipulate the Sentinels' data. CDAB main goals are to:

- Operate a benchmarking service for providing ESA with information to bridge the gap between the performance measured locally at hubs and DIAS/s and the one reported by different user communities
- Provide ESA with information to improve the services, address users' concerns and interpret the reported performances and anomalies

In 2019, XPR won EUM contract for the Requirements Engineering and Rational DOORS services. The decades' long experience in design, development and AIV of GS/Processing Facilities permit to address smoothly complete requirements life cycle process (elicitation, consolidation, specification, traceability and monitoring) following the [ECSS-E-ST-10] standard. Req. management tools capture and store requirements in a repository. DOORS (adopted in space industry) is a tool used at EUM.

Intecs Solutions

Company profile

Intecs core business is in the area software controlling advanced defence systems. Intecs extended its market areas to cover also the Space sector in the 80's. This led to the acquisition of expertise in key technological areas, ranging from earth observation infrastructures and applications to satellite navigation and on-board/ embedded systems. The close working relationship with the European and national space agencies, exposing Intecs to cutting-edge technologies and standards, has become the vehicle for technological innovation in Intecs itself. An important expansion into neighbouring sectors occurred in the 1990's, when Intecs was able to leverage upon own experience with standards-based, mission-critical Space systems, to enter into the railway sector, developing safety-critical railway systems and certifying them against stringent safety standards.

In the 2000's, Intecs was once again able to leverage upon its experience to make another strategic expansion into the Aerospace, Telecom, and Automotive sectors, expanding once again its portfolio of systems development and expert services of process and safety consulting.

Intecs Solutions currently delivers high-tech systems across a wide range of markets, spanning from Railway to Telecom, Automotive, traffic Control, Defence and Aerospace, and offers expert services of processes and safety consulting. It provides big national and international organizations with consultancy services on high-tech systems, as well as prototypes, products, and "turn-key" software systems developments.

Large and prestigious industries, such as ESA, Ansaldo STS, RFI, Leonardo Company, ASI, and Thales Alenia Space Italia, figure among Intecs' main customers.

Large emphasis is also placed on the study and experimentation of innovative technologies, aiming at maintaining its expertise updated with the state-of-the-art.

Intecs Solutions expertise in the Aerospace market covers the following areas:

Earth Observation Infrastructures and Applications;

Geographic Information Systems;

Satellite Navigation Applications;

Software Engineering and Software Quality;

Scientific Visualisation Architectures;

On-Board Software Systems;

Embedded and Control Systems;

Communications Software;

Operating Systems and Software Architectures;

Check-out Systems.

Products | Services | Applications |Technologies

The experiences of Intecs Solutions in advanced technological developments led to the identification and implementation of some products used in new applications and advanced systems productions.

The following products are carriers of experience and investment consolidated over the years in both research and industrial fields.

SOFT-REC: The SOFT-REC family includes two main product lines: a real-time software receiver and a software digital signal analysis tool. The first, called Softrec, supports GPS and EGNOS constellations. The second, called SoftrecG3, supports all GNSS Navigation signals.

gLab: is the result of INTECS's experience in GNSS signal analysis, particularly in GPS, Galileo and EGNOS performance and signal quality monitoring: its flexibility allows to analyze the Galileo signals currently under definition.

SIRIO-OD: SIRIO is an automatic system for the detection of targets along the railway lines. It consists of a remote-control system and many peripheral boards that are so-called SIRIO nodes.

DEJAMM-R: 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 signalling in high-speed rail systems.

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DLT Analyzer is a software tool designed to collect and analyze log and trace information from a vehicle ECU. The tool works in the Eclipse environment

SIMIS is a Sustainable and Intelligent Mobility Integrated System

Ethernet Repeater (TL): TL-ER TechnoLabs Ethernet Repeater is a new system that can be used on existing Ethernet cabling to transparently drive Ethernet communications beyond the maximum permissible IEEE 802.3 Ethernet distance. Traditional 10/100/1000 Base-T Ethernet Networks utilize CAT5e copper cabling which has a distance limitations of 100 meters between geographically separated LANs

DDF (TL): The DDF is a passive equipment used to minimize high density of the cables for distribution and communication from/to digital terminal equipment. All the transmission rate is based on 2Mbit/s.

EFAS (TL) is an innovative transport system designed for the next generation of access networks commonly known as Metro Ethernet.

HRT-UML: The Hard Real-Time Unified Modelling Language (HRT-UML) method, and the supporting toolset, aims at providing a comprehensive solution to the modelling of hard real-time and dependable systems and their early verification, according to rigorous techniques based on formal theories, such as schedulability analysis and simulation, formal verification and quantitative evaluation of dependability attributes.

Microsek is an INTECS Hard Real-Time and Networked Operating System compliant to the Osek/Vdx standard and suitable for the development of Embedded Real-Time Applications.

D.I.A.N.A. Intecs has developed the test bench, to automate the validation process of network layer of the control units, Digital Instrument for Automatic Network Analysis.

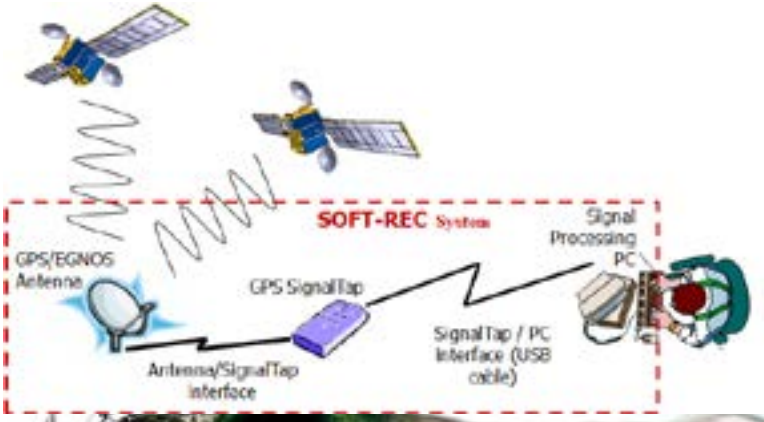
Sirio-LX is an automatic system for preventing trains from colliding with obstacles on the track at level crossings.

EMUSER is an innovative solution providing a satellite Broad Band link certified to be used in the Railway domain. The usage of satellite datalink introduces a change of perspective for addressing safety issues in the railway domain providing a fast and cost effective solution.

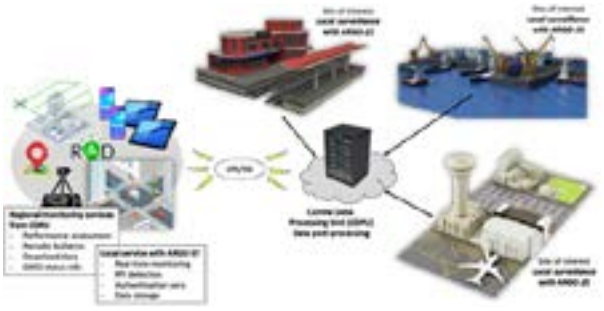
DEDALO is a Passive Anti Drone System for detection, classification and localization of commercial drones (micro and nano UAV) in order to protect airports, prisons, critical infrastructures and sensitive sites (in urban and suburban context), without interfering with public infrastructures.

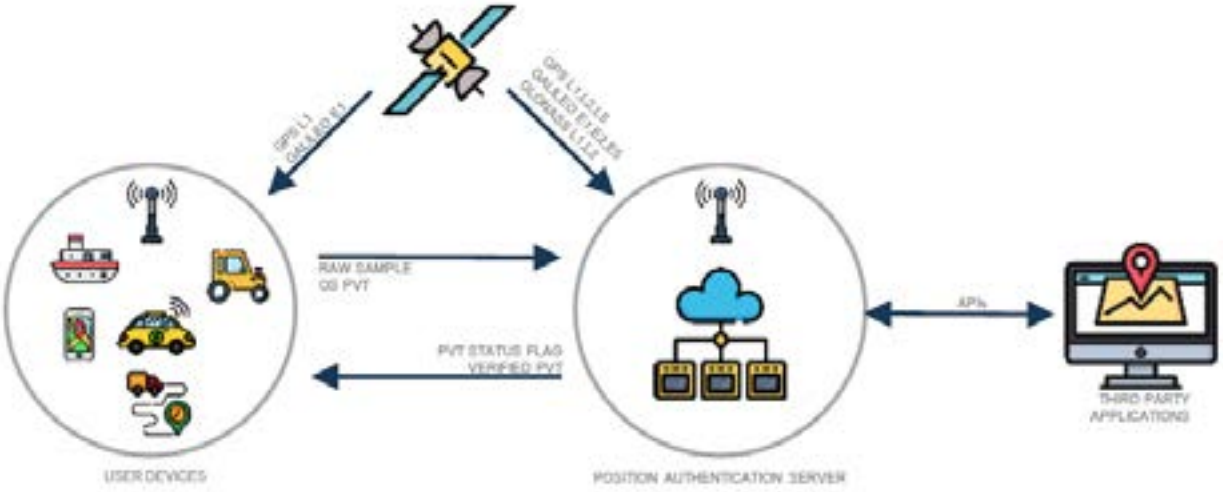
ADRANO is a passive Acoustic Detection system which is able to recognize and localize the sound of sniper or drones, providing real time alert of sniper attack or unauthorized drone, enabling a rapid and coordinated response.

G-PASSION project is an innovative and competitive system in the Satellite Navigation and in the wider Positioning Navigation and Timing (PNT) domain. The system provides a GNSS server-based position authentication service using the full spectrum of the Galileo signal in the air, exploiting cross-correlation techniques between E1A signals recorded at different locations.

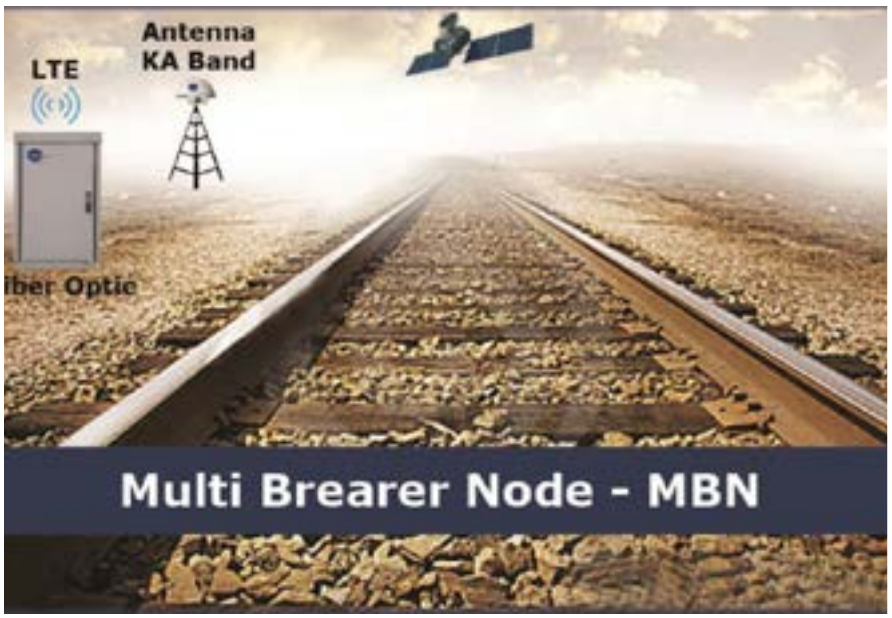


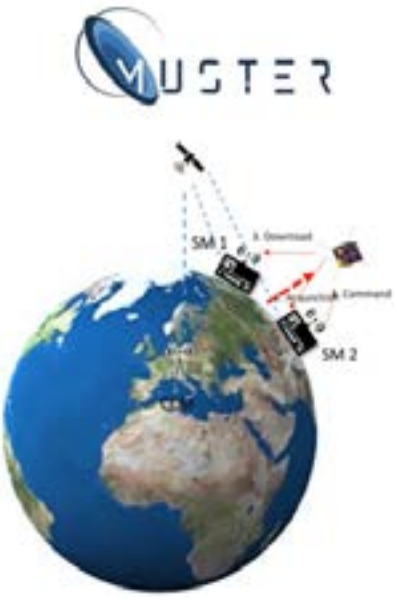

EMUSER




RAW SAMPLE
OS PVT
PVT STATUS FLAG
VERIFIED PVT
APIs
USER DEVICES
POSITION AUTHENTICATION SERVER
THIRD PARTY
APPLICATIONS

EMUSER


Antenna
KA Band
LTE
iber Optic
Multi Brearer Node - MBN


MUSTER
SM 1
SM 2

Leonardo

Company profile

Leonardo is a global high-tech Aerospace, Defence and Security company. Our consolidated industrial capabilities, together with our outstanding human capital and constant attention to innovation, have led us to become one of the top ten players in the world in Aerospace, Defence and Security, with revenues of € 12.2 billion, 85% of which deriving from international markets. Leonardo - headquartered in Italy - has a strong industrial presence in four domestic markets: Italy, the United Kingdom, the United States and Poland.

We are a partner of choice for governments, institutions and Armed Forces, as well as for private customers and entities. We deliver products and integrated solutions based on cutting-edge technologies with dual-use applications, to strengthen global security; protect people, the territories, infrastructures and information networks; contribute to the sustainable management of the environment, urban spaces and climate.

Air, land, sea, space and cyberspace: wherever defence and security are needed, our customers find in Leonardo effective solutions for their requirements in each of these areas through a complete and integrated offer in strategic sectors such as helicopters, aeronautics, unmanned systems, defence and security electronics, defence systems, and satellite systems and services.

Leonardo's activities in Space date back to the mid-60s when Officine Galileo and FIAR participated to the first European programs promoted by the European Agencies ELDO (European Launcher Development Organisation) and ESRO (European Space Research Organisation). Since then, Leonardo has designed and produced qualified instrumentation for space activities implementing optical systems, star trackers, radio frequency devices, photovoltaic assembly, distribution and power control systems and robotic devices. At present, the products are used on-board the most important European space missions such as Rosetta, Exomars, Galileo, Copernicus, Cosmo-Skymed, METOP, MeteoSat Third Generation, Earth Explorer, within other ESA and NASA missions as well as for other international customers.

Products | Services | Applications |Technologies

E/O OPTICAL PAYLOADS

PRISMA hyperspectral payload (ASI)

Thermal-InfraRed payload for PLATiNO (ASI)

Sea Land and Surface Temperature Radiometer

Lightning Imager for MTG

Multi-viewing Multi-channel Multi-polarization Imager for MetOp-SG

FLEX on Earth Explorer 7

PLANETARY EXPLORATION OPTICAL PAYLOADS

Visible InfraRed Thermal Imaging Spectrometer flown on Venus Express, Rosetta and DAWN

Spectrometer and Imager SIMBIO-SYS in flight on BepiColombo.

Jovian Infrared Auroral Mapper - Camera and Spectrometer for the Juno mission to Jupiter

MAJIS and JANUS optical instruments for JUICE mission to Jupiter

ATTITUDE SENSORS

Over 100 Automonous Star Trackers sold

SPACESTAR Star Tracker for Iridium NEXT constellation

Over 500 Earth Sensors delivered

POWER CONDITIONING AND DISTRIBUTION

Electrical Power Systems & Equipment - up to 6 kW

Specific Application High Voltage Power Supply, EPC for TWTA and Converters for Electric Propulsion

ATOMIC CLOCKS

Passive Hydrogen MASER (PHM), the master clock developed for Galileo Navigation Satellite System (more than

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Business Name

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50 units delivered). The PHM is the most stable clock: frequency drift < 10-14.

Rb POP atomic clock: under dev. in ESA program GSTP - smaller, lighter and more stable than the PHM.

PVA

PhotoVoltaic Assemblies for Scientific missions (Exomars, etc.), LEO missions (ATVs, etc.), MEO/GEO missions (MTG, etc.)

Small satellite applications (AGILE, PRISMA, PROBA, DUBAISAT)

> 200,000 solar cells integrated on PVA and operating on orbit.

GROUND SEGMENT

Complete solution, from Master/Anchor Station to set of Terminals for Military and Civil Applications:

Commercial and Military GEO Earth Terminals for telecom and LEO Earth Station for Earth Observation systems.

Satellite network Management Solution providing a complete FCAPS model services

GALILEO PRS

Galileo PRS receivers: P3RS-2, the first operational "unclassified when keyed"; PR2C (Prototipo Ricevitore Dual-Constellation), combining navigation data acquired from Galileo and GPS constellations

Galileo Security Monitoring Center, part of the Galileo Ground Segment, for managing Galileo PRS users/ user-access to the PRS service

ON ORBIT PROPULSION

Cold Gas Micropropulsion subsystem: ON/OFF Propulsion Micro thruster (1-500mN)

Linear control Micro-thruster (LISA Pathfinder, Microscope, Euclid) up to 2mN, Low thrust noise

Micropropulsion Components: Pressure Regulation, Propellant Flow Regulation/Gauging

Hollow Cathodes and Thermionic Neutralizers

ROBOTICS AND DRILLING

Dextrous Robot System: 7 degrees-of-freedom manipulator for exploration and servicing

DELIAN: lightweight robotic arm

Rosetta SD2: drilling, sampling and sample distribution system (operated in 2014 on the comet CG 67P)

ExoMars Drill system (up to 2 meters depth) with embedded spectrometer and control system

Lunar driller for icy soil sampling

Bio-containment system for Mars Sample Return.

RF EQUIPMENT

Solid State Power Amplifiers (SSPA)

UHF SSPA cover the bands from 200 to 1000MHz and deliver up to 200 W of output RF power

ATV, SkyNet V, Sicral missions

BIOMASS PAS (Power Amplifier System)

Vacuum Tube Power Amplifiers (pulsed and continuous TWT and Klystron)

Vacuum Tube Amplifiers are integrated with high voltage Electronic Power Conditioning units and cover the bands from 1 to 40 GHz (EarthCare, Cloud Profiling Radar)

Ka and EHF satellite transceivers providing high integrated solution for Vsat Terminals operating in enhanced High Frequencies 30..50GHz

LASER transmitters

High Power Laser TxA for atmospheric LIDAR

ALADIN on board ADM-Aeolus since 2018 and to be flown on Earth-CARE, the two ESA "Earth Explorer" missions to the study Earth atmosphere.

Laser High Power Transmitter (TxA), with an optical output power of 120mJ @ 355 nm with very high frequency stability.

ALADIN is the most powerful laser source ever built in the UV band.

SPACE COATINGS

Center of Excellence for Thin Film Coatings (optical and functional) for space, aeronautics, defense and industrial applications.

Coating systems: n.6 EB-PVD, n. 1 new Plasma and Ion Assisted Deposition (PIAD), n.5 Sputtering, n.3 PE-CVD.

Testing: Spectrophotometers and Climatic chambers. Clean room area class 1000 (class 100 in loading zones). 20k coated surfaces per year, over 70 qualified optical coatings.

GaAs/GaN foundry

Development and Production of GaAs/ GaN devices (LNA, HPA, ...) and T/R modules from L band to X band.

Microelectronics Technologies for RF Sub-systems

900 m2 ISO 5 clean room: from wafer to packaged device processing.

SPACE SOFTWARE

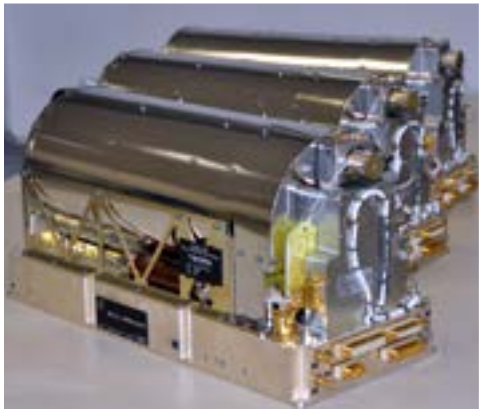
On-board s/w (OBDH for Cosmo-Skymed, SICRAL, PICS, Sentinel 1 and PRIMA; SAR payload s/w), Mission planning for remote sensing (CSK) and telecom (SICRAL, Athena-FIDUS).

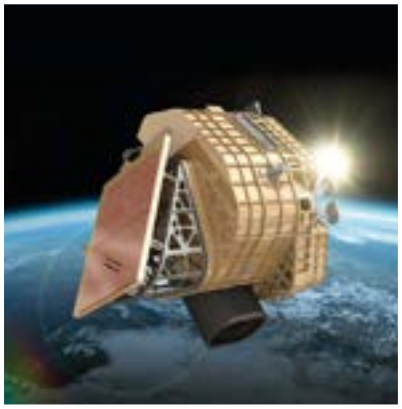
Network management/monitoring and control (SICRAL, CSK)









Loccioni

Company profile

Loccioni integrates "Ideas, people and technology" in the development of automatic measure and quality control systems to improve the quality, the efficiency and the sustainability of products, processes and buildings. The commitment is measuring to improve, helping the industry and service providers to operate in the best way possible, saving time and money, and respecting the environment. Clients and partners are worldwide leaders in sectors ranging from Automotive to Home Appliances, from Environment Monitoring to Healthcare, from Energy to Aerospace. Among the most important there are Daimler, Ferrari, Ford, Bosch, Whirlpool, Airbus, RFI, Enel, Leonardo, Eni, Eon, Pfizer, General Electric. To improve their processes and products quality and to develop joint innovative projects, local offices are established in Germany, US, China, Japan, India.

From the world sites and from the headquarter in Italy, the young researchers, professionals and scientists in Loccioni are dedicated to the development of bespoke measure and testing solutions by integrating innovative technologies: artificial intelligence, collaborative robotics, sensor fusion, data science, edge computing, for the continuous improvement of quality. Wellness, Energy, Environment, and Mobility: these are the topics upon which high level networks are created, community of researchers oriented to open innovation.

Openness and a network approach are at the base of the knowledge enterprise development. From the very beginning, Loccioni starts the collaboration with schools, institutions and the territorial community. The wealth of the enterprise is linked to the wealth of its surroundings and the profit of the enterprise is used for projects in and for the territory.

Products | Services | Applications |Technologies

Our expertise includes the design and implementation of:

Automatic testing line

Automatic assembly line

Test Benches for laboratories

Test Rigs

Robotic cells

Instruments •

Feasibility studies

Test Campaigns (to host in-house in our testing laboratories)

Energy efficiency and sustainability

In the Aerospace domain we already developed turn-key solutions in the frame of:

Propulsion systems and components testing

Avionics testing

Satellite Solar Panels manufacturing and testing

Each solution is created from scratch starting from customer specifications then covering its full life cycle spanning from design, implementation and commissioning up to maintenance and continuous upgrade services.

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NPC Spacemind

Company profile

NPC Spacemind is the aerospace division of the company NPC New Production Concept, providing nanosatellite platforms and ground equipment for civil and defence applications.

The space business unit has been created in 2013 with the mission focus targeted to become leader in nano satellite platform procurement and space related applications offering complete package solutions to bring a scientific research to a commercial industrialized product and service.

The streght of the company a is to offer qualified space engineering know-how and technology exploiting automotive and WCM methodology and lean production strategy to shift the paradigm in space business scenario.

Nowadays NPC Spacemind can count on more then 6000m2 of assembly facility and wharehouse, including clean-room for satellite integration.

In the space segment the company is experienced in nanosatellites platform design, manufacturing and AIT, by means of a portfolio of proprietary nanosatellite products including structures, nanosat deployers, power management system. NPC Spacemind always pursued a strong focus on space debris related issues, having developed and launched in orbit a deployable cubesat deorbiting devices named ARTICA.

SPACEMIND operates in the ground equipment business sector by designing and producing high performant tracking mount for meter class telescopes for astronomy, electro optical applications and SSA, for which the company led multiple survey observation campaign.

In 2018 the Spacemind was mentioned as one the first able to perform a complete tracking of the space station Tiangong-1 during uncontrolled reentry thanks to the performances of the tracking mounts.

NPC Spacemind target customers are companies providing space-based services (earth observation, communication, etc), Universities and national/european institutions. The experience of NPC Spacemind includes participation in 6 nanosatellite missions both as platform responsible and payload provider.

The experience of NPC Spacemind includes more then 6 nanosatellite missions both as platform responsible and payload providers.

Products | Services | Applications |Technologies

SPACE SEGMENT

Design and procurement of nano-satellite platform ranging from 1U to 16U satellites.

Tailor-made platform on Customer payload requirements

Design and production of cubesat hardware:

Cubesat Structure – SM Cubesat structure

Solar Panels – SM Solar Panels

Electrical power system – SM-EPS

Deployable device

Design and production Cubesat deployer SMPOD:

Short lead time (<3m)

extreme flexibility in the configuration choice (1m before delivery)

High performance

Design and production of ARTICA deorbiting module consisting in a deployable drag sail for cubesat (up to 2.1 m2)

GROUND SEGMENT

NPC Spacemind has developed MORAL, a family of high performance tracking mount dedicated to SSA, SST, Astronomy, Laser ranging and aerial tracking applications. The systems are compatible with a wide range of optical instruments, up to 1,5 m diameter optics.

Combining the technology with a strong and efficient manufacturing capability, the scope of the system is to provide modular open platform for civil and defence applications allowing the user to explore the level of customization of the mount operating at different levels with its proper tool and ease the integration of the system in an existing network. Thanks to consolidated partnership with optics and payload producers, SPACEMIND provides complete package with required telescope integrated which can be designed and produced according to specific user needs.

SPACE MISSIONS

SPACEMIND is able to provide end to end nanosatellite based missions and solutions for different applications. Thanks to its consolidated network of partners and qualified suppliers, SPACEMIND can cover all the aspects of a space missions from

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preliminary feasibility studies and design to in orbit operations.

Feasibility study & Mission requirements definition

Mission profile trade-off and system requirement definition;

Platform design and production of subsystems

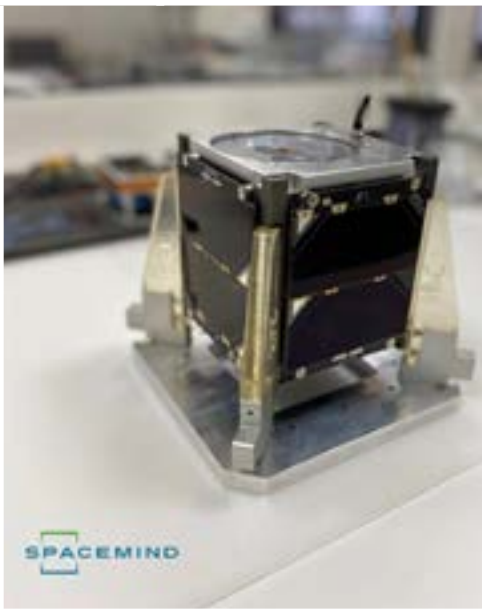
Satellite integration

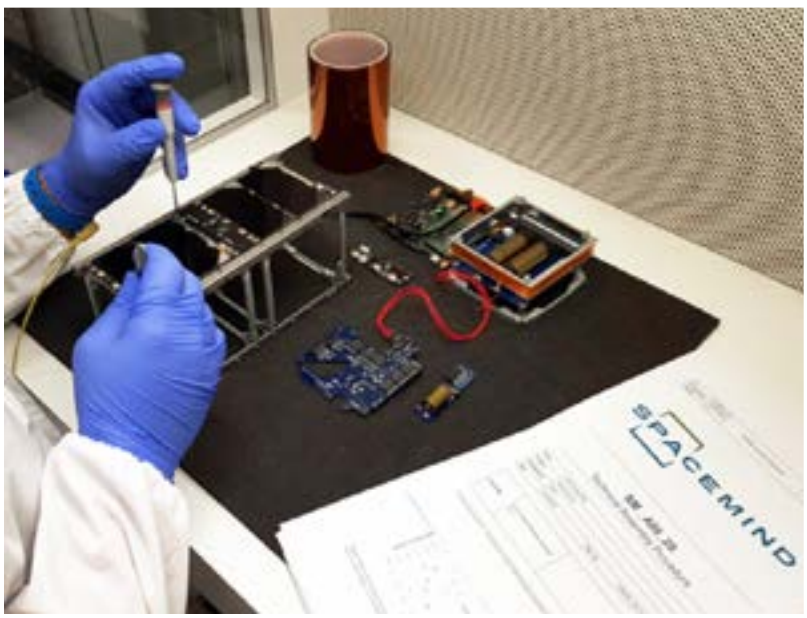
Management of test campaign

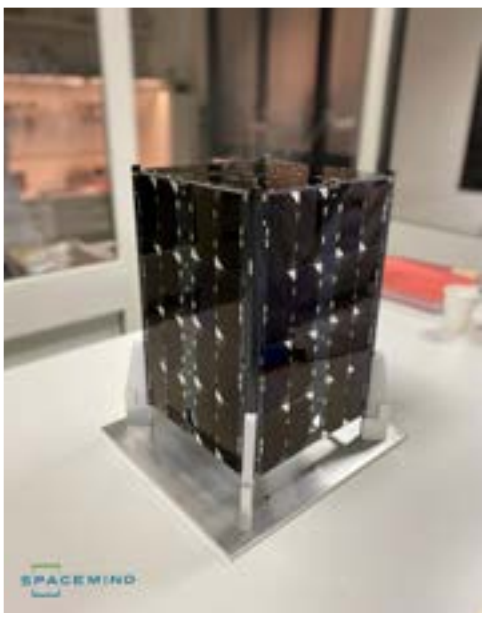
Documentation management

Launch integration and in-orbit operations;

Ground system design and production;







OHB ITALIA

Company profile

OHB Italia S.p.A. is part of the European Space and Technology Group OHB SE (Orbitale Hochtechnologie Bremen), listed on the Frankfurt Stock Exchange.

It is one of the three top space companies in Europe with 3.000 employees worldwide and total revenues for EUR 901 Mio. in 2020.

OHB Italia S.p.A. was founded in 1981, nowadays in Italy it is one of the two major satellite system integrators with more than EUR 150 Mio backlog and EUR 104 Mio revenues in 2020.

It is a recognised national leader in the fields of Satellite&Missions, Earth Observation, Space Situational Awareness, Electronics&Mechanisms, Scientific&Planetary Instruments, with Headquarters and Clean Room facilities (730 sqm) in Milan and offices in Rome and Benevento. OHB Italia S.p.A. provides innovative solutions combined with development/integration of complex equipment and a strong focus on customer satisfaction. The company employs 210 people between staff and collaborators, with a high percentage of graduates (78,5%) whose degrees are mainly in Aerospace Engineering, Math, Physics, Electronic Engineering and IT.

OHB Italia S.p.A. is Prime Contractor for important missions of Italian Space Agency (ASI) and European Space Agency (ESA), which are the main customers together with Research Institutes, Universities and all the industrial key players in the space market, with special attention to export domain.

Products | Services | Applications |Technologies

Satellites & Mission

PRISMA (PRecursore IperSpettrale della Missione Applicativa) - It is the first European Satellite with hyperspectral instrument and panchromatic camera on board. It was realised for the Italian Space Agency (ASI) through a consortium led by OHB Italia S.p.A. as Prime Contractor. It is acquiring, downloading, processing, delivering fundamental images for monitoring our Planet.

NAOS - Earth Observation mission for Luxembourg Government. Very-high-resolution optical satellite system developed by OHB Italia as Prime Contractor under an end-to-end contract including the realisation of the satellite and its ground segment.

CONSTELLATION with short revisit timing - OHB Italia is developing a constellation of 57 Eaglet II Mini-Satellites, with global coverage and very short revisit timing (every 30 min.). In this context OHB Italia is proposing: development, launch, in-orbit management, innovative space asset, which offers an unprecedented persistent surveillance capability.

COMET INTERCEPTOR - ESA's new fast-class mission, for which OHB Italia is in charge of Phase A-B: the first to visit a pristine comet or other interstellar object that has just begun its journey into the inner solar system.

HERA - Hera is the European contribution to an international double-spacecraft collaboration NASA/ESA for planetary defence. Target: a binary asteroid system, the Didymos pair of near-Earth asteroids. OHB Italia is responsible for System Engineering.

BIOMASS - Earth Explorer Mission of ESA for Biomass and Tropical Forest Observation (distribution, annual changes, links with Earth climate). Essential support to UN treaties on the reduction of emissions from deforestation and forest degradation. It will carry the first P-band synthetic aperture radar, able to deliver accurate maps of tropical, temperate and boreal forest biomass.

Earth Observation Instruments

METOP SG - MICROWAVE IMAGER (MWI) - It is a project of ESA and Eumetsat (EPS) and it is the most accurate weather forecasts ever had before. OHB Italia is responsible for the MWI instrument that will be on board of three satellites. MWI is a conical-scanning microwave radiometer that provides measurements of precipitation, observations of clouds, snow, sea ice coverage, water vapour, temperature and surface images.

CIMR - Earth Observation programme co-funded by ESA and EU member states in the frame of the 'High Priority Copernicus Missions'. OHB Italia is responsible, as subcontractor of Thales Alenia Space Italia, for the development and production of the CIMR instrument in relation to the two satellites. The CIMR instrument is a conical scan multi-frequency microwave radiometer featuring multi-beam architecture, the largest antenna of

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its kind and it will ensure global daily observations of a wide range of sea-ice parameters.

Space Situational Awareness (SSA) & Space Surveillance Tracking (SST)

FLYEYE - The Flyeye is a telescope with a state-of-the-art optical sensor for Space Situational Awareness (SSA) and Space Surveillance Tracking (SST).

Electronics & Mechanisms

MWI LLDs - OHB Italia realized MWI LLDs that will fly on the MetOp-SG. They are four not standard Launch Locking Devices, the main structural load path for the Instrument Rotating Part (IRP) in locked configuration.

Scientific and Planetary Instruments

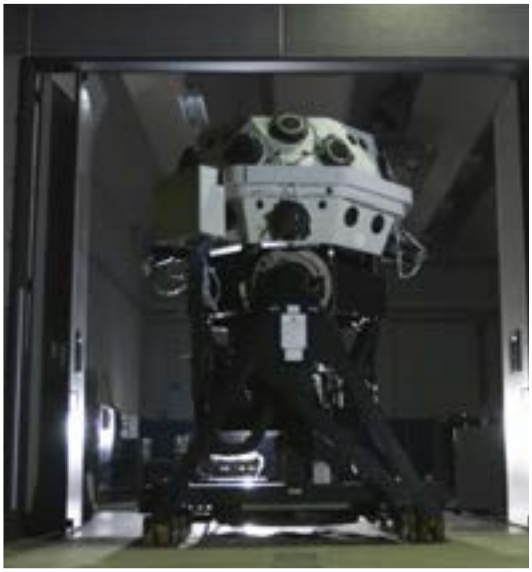
ISRU - It is a Demonstrator Payload aims to extract oxygen from lunar regolith. Oxygen is an essential resource for human exploration of the Moon and this project has created an enabling technology for successful space exploration.

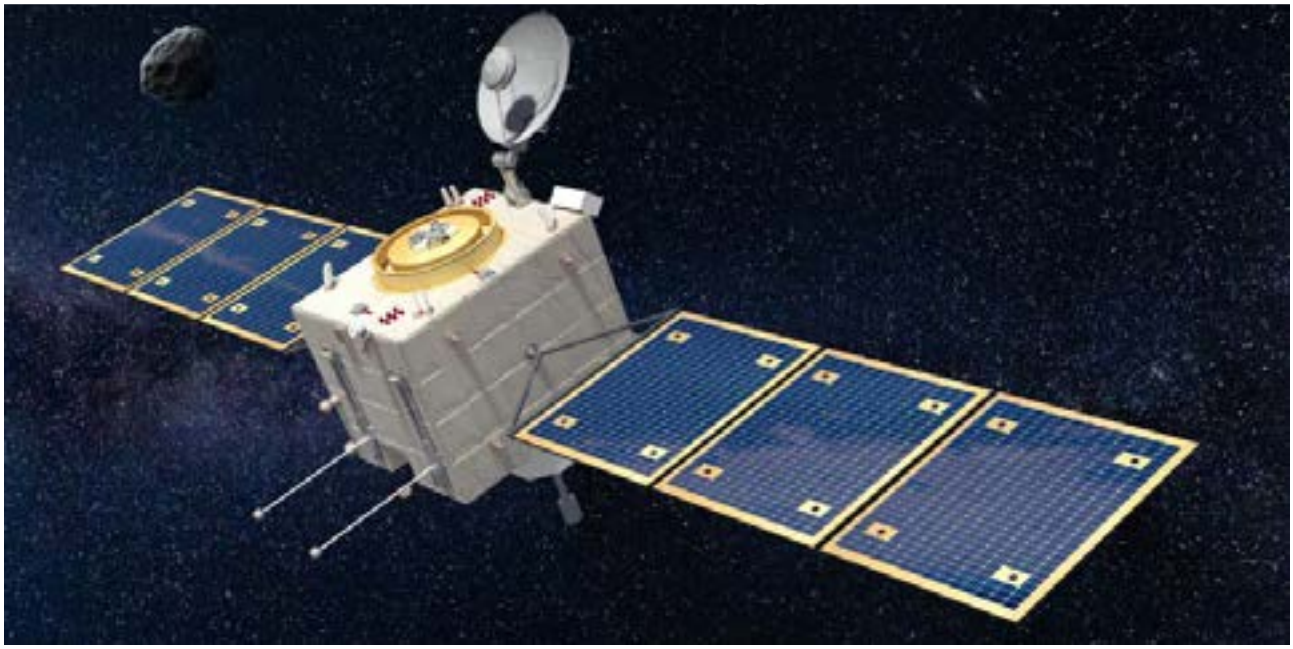
LARES2 - The massive "sphere" to verify Einstein's Relativity Theory, was developed by OHB Italia under the ASI flag and it will be the payload of VEGA C launcher qualification flight scheduled within 2021.

LISA PATHFINDER - An ESA Mission to detect one of the most elusive phenomena in astronomy: gravitational waves. LISA Pathfinder developed by RUAG (Zurich) as subcontractor to OHB Italia in the frame of Inertial Sensor Development. The mission successfully paved the way for the LISA mission by demonstrating the key technologies for a large gravitational wave observatory in space. LISA Pathfinder mission was launched on 3rd December 2015 and ended in July 2017.

EUCLID - Electronic unit for ESA/NASA Mission. Main target: to map the geometry of the Universe and better understand the mysterious dark matter and dark energy.

IXPE - The Imaging X-ray Polarimetry Explorer (IXPE) exploits the polarization state of light from astrophysical sources to provide insight into our understanding of X-ray production in objects such as neutron stars and pulsar wind nebulae, as well as stellar black holes.






OHB
ITALIA

Rhienmetall Italia

Company profile

Located in Rome, Rheinmetall Italia S.p.A., previously known as Oerlikon Contraves S.p.A, is a member of the Rheinmetall Defence Group.

Leader in Air Defense and Radar technology the Company has almost seventy years' experience in the design, development and manufacturing of air surveillance and tracking radars in the frequency band from L up to W (millimeter waves) and it has been designated as "Radar House" of the Rheinmetall Group.

Since the 80's, the Company actively operate in the Space and Civil fields, acquiring extensive experience and know-how in Composite materials, primary Structures for Launcher and Satellites, Solar Panels, large Ground Infrastructures for Launchers, precision Mechanisms, Radar technology and Telecommunications.

Rheinmetall Italia participate to important national and international space programs, serving as prime contractor or subcontractor and collaborate with the Italian Space Agency, the European Space Agency, universities, research centers and global space industries.

Among the many facilities, instrumentation and capabilities in the mechanical and electronics domains there are:

Design and manufacturing (autoclave technology) of composite structures, components and antennas with carbon, glass and Kevlar materials;

Design and manufacturing of primary and secondary structures for payloads, satellite, launchers, solar array and launch towers;

Testing facilities for thermal and mechanical environment (temperature, humidity, solar radiation, shock, vibration, rain, salt fog, etc..);

Three Anechoic chambers (far field, near field and compact range in addition to a shielded room) for Antennas, Radars and EMI/EMC testing;

Clean rooms for mechanical and electronics assembly;

Dimensional control and metrology laboratories for mechanics and electronics;

Laboratories for non destructive (NDI) and destructive controls and measurements (mechanical loading, die penetrant, X-ray, magnetic particle, endoscopic, metallography and microscopy).

Products | Services | Applications |Technologies

In the space sector, Rheinmetall Italia has collaborated with leading space agencies such as NASA, ESA, ASI, DRL and CONAE:

CPD (Coarse Pointing Device), external pointing mechanism for the International Space Station;

Interstage 2/3 of the European small launcher (VEGA) still in production;

Small satellite structures, thermal control, solar panels, and launch campaign management (MITA, AGILE);

Launch bases for the VEGA and SOYUZ vectors at the ESA Space Centre in Kourou, French Guiana;

Precision mechanisms and restraint / release devices for payloads and solar panels (LARES, SAC-B, SAC-C);

MGSE Design and manufacturing;

Satellite and Payload AIT including Environmental Qualification Campaign;

Launch Campaign acquisition and Management;

High Power Amplifiers, in X and Ka Band, for all ESA DSS in Malargue (AR), Cebreros (SP), New Norcia (AU).

X-Band Frequency Conversion Unit and Processing Unit for X-SAR;

MMW Technologies, Q-W Band Oscillator and Amplifier for ASI.

RHEINMETALL

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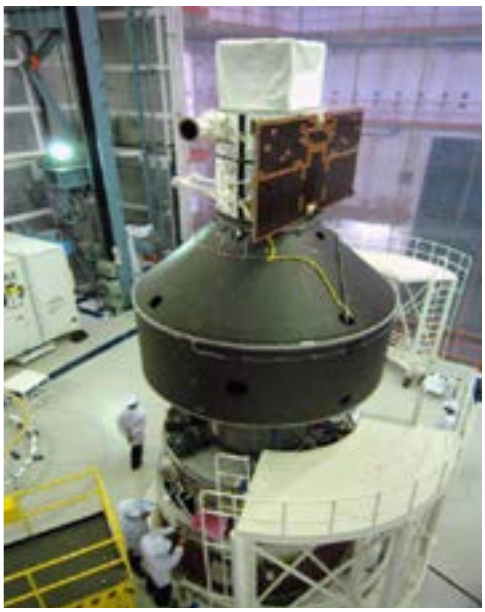


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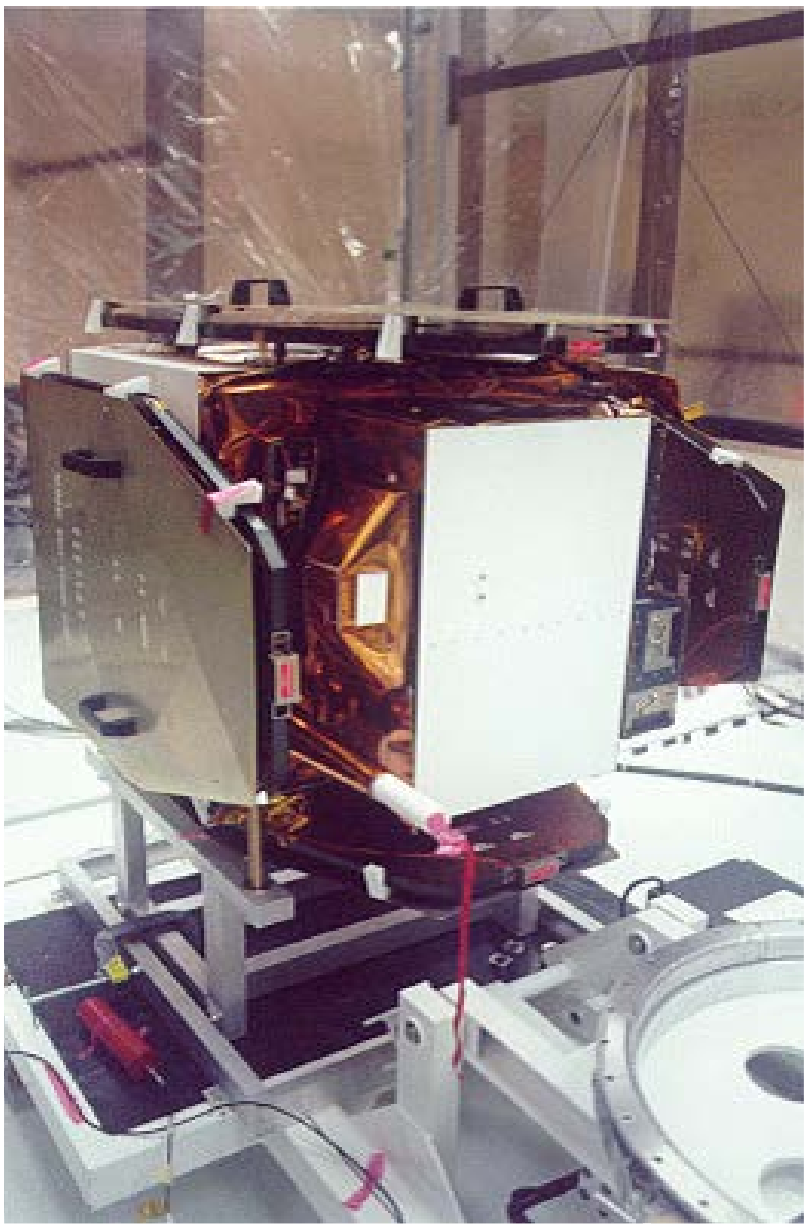

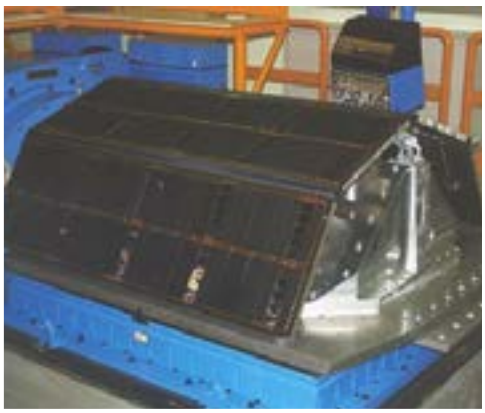

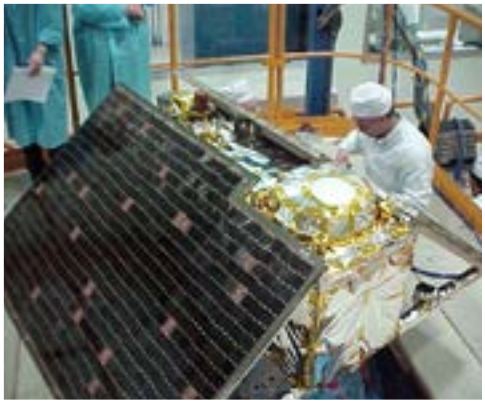

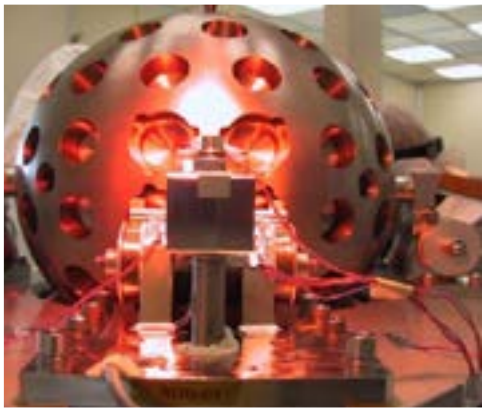

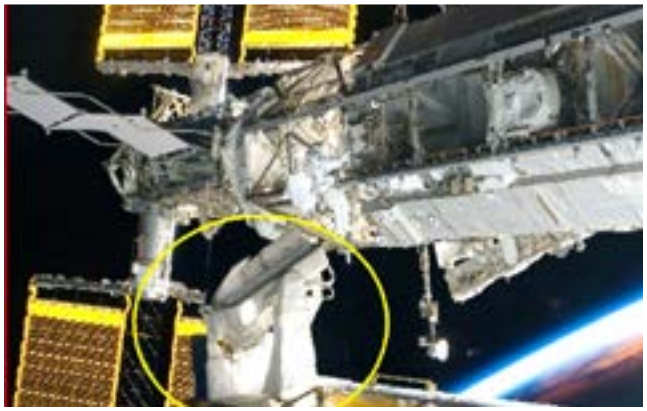

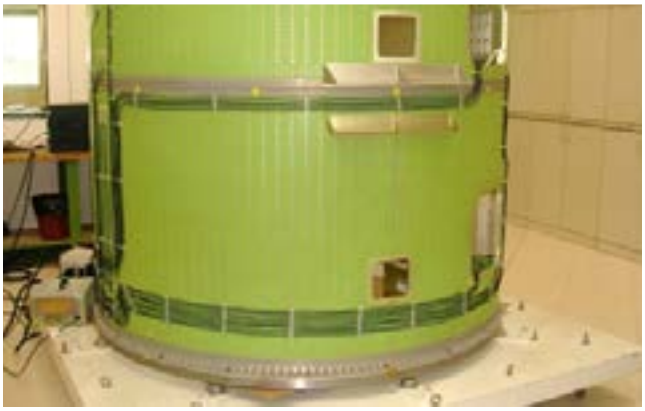


Elevating
Platform
Interstage 2/3

RINA Consulting

Company profile

RINA provides a wide range of high quality tailored solutions in the Energy, Marine, Certification, Transport & Infrastructure, Industry sectors. Multiple assets for a unique purpose: to build mutual trust with customers and to be recognized as the right choice in any step of a project lifecycle.

Our activities contribute to develope the qualitative level of the market by adopting measures to protect health and safety.

RINA believes in the value of visionary ideas and the importance of protecting life and environment. For this reason, innovation and sustainability run through our business and increase the reputation of both RINA and the customers who care for the planet, look ahead and want to lead the way in the market.

RINA's commitment to excellence is full and fuelled by our people's work and competences, essential to bring the best solutions on the stage where the market leaders play.

RINA vision on strategic growth is to progress with the changing world, turning challenges into opportunities and visionary ideas into excellent solutions.

RINA's ambition is to be identified as the smartest partner to work with: extraordinary promptness, the value of teamwork, courage in making choices, out-of-the-box thinking and innovative mindset are the values we believe in.

The very same approach is in our focus for the services offered to the Space Economy: no boundaries and limits to the services we want to offer providing top performing project support to ranges of stakeholders operating in space.

Services to the space assets are offered through two legal entities: RINA Consulting SPA and RINA Consulting CSM: the former focused on the consulting services and on-premises applications, the latter with deep specialization and competences on laboratories, materials testing, development of new materials for extreme applications.

Products | Services | Applications |Technologies

Products: Whole range of materials, components and design of parts suited to be exposed to extreme space conditions and environments. Verification of the performances and modelling suites permitting the virtual verification of the performances under e.g. extreme temperatures, radiations, thermal or mechanical stresses (typical in space conditions)

Services: Security & cyber-security (secuirty by design for systems and HW/SW, support to accreditation, support to certifcation, vulnerability assessment/penetration testing, governance, PRS, ecc. SW/FW Engineering services to design, develop, prototype and test applications and tools (e.g. command and controls, simulators/emulators, validation tools, interface management, TM/TC data analysis), mission and safety critical software development. System Safety (Hazard Analysis, Qualitative and Quantitative Risk Assessments and Risk Acceptance, Safety Requirements and SIL Assessments, Software Assurance and V&V, Design Validation through Simulation. Independent Safety Assessment. Safety Audits. Electromagnetic Compatibility (EMC testing and specialist measurements, Support of E3 protection & mitigation measures, EMC management & control, EMC design consultancy, EMC risk analysis & mitigation, EM Modelling & simulation, EMC qualification & validation). Technology Transfer: mapping, promotion, support to exploitation and effective implementation of space technologies in terrestrial domain (RINA is since 1992 the Broker for Italy of the Technology Trasnfer programme of ESA). Advanced modelling services: modelling of different physical phenomena: thermal, mechanical, chemical and coupled events, Finite Elements and Computational Fluid dynamic models. Aero-elastic modelling, Reduced Order Methods (ROMs), Impact models and large deformations modelling. System Engineering (telecommunication systems integration, data management, 5G data security and data access; satellite communication). Coupling of satellite communication capabilities, terrestrial 5G and NTN-5g IOT to the benefit of industrial processes. Enterprise Architecture definition; Capture, analysis and management of requirements; Stakeholder identification and management; Functional & physical integration management and support; Acceptance Testing and evaluation. Management Services Definition of requirements and preparation of System documents, Management of industrial activities, acceptance tests & trials, Cost, Schedule and Risks

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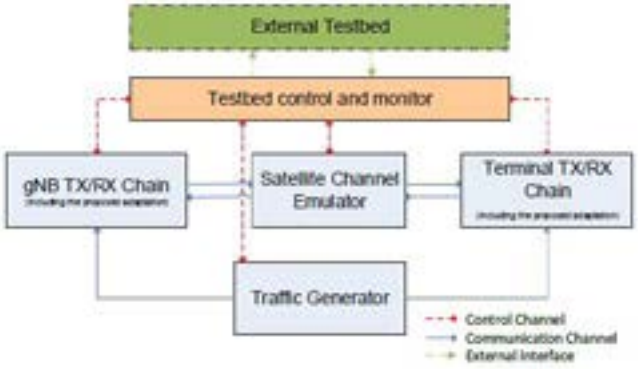
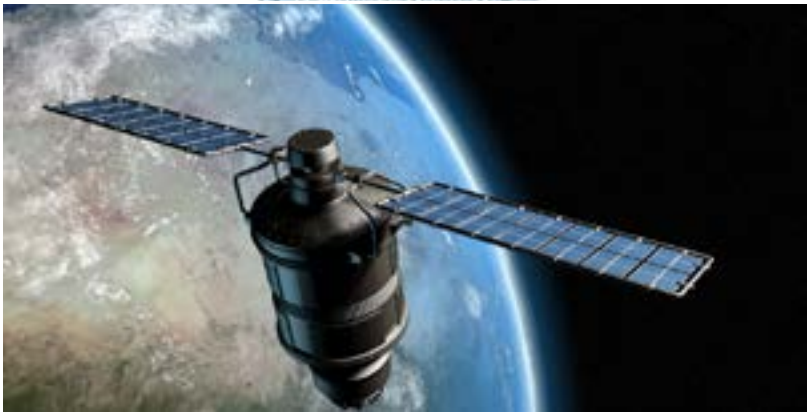
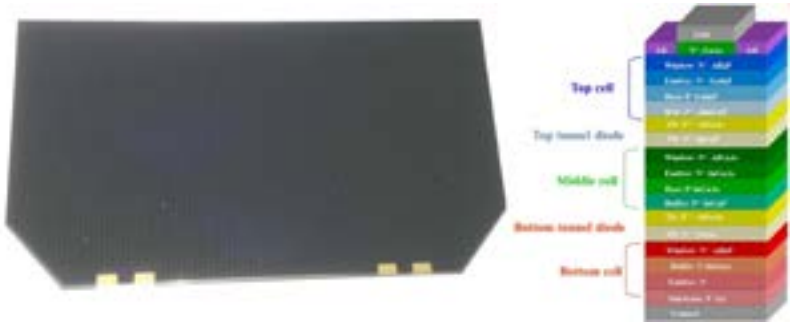
Management. Integrated Logistics Support (RAM&T Configuration Management, System Reliability and Maintainability, Maintenance planningand Level of Repair Analysis, Systems' Availability & Life Cycle Cost, Failure Report Analysis and Corrective Action System, Technical Publications development (S1000D), ILS Data Management, Maintenance Management & Monitoring System). Training & Learning (Training consultancy, Training analysis including the application of SAT ADDIE, Learning and development research studies, Training design and development, Human factors integration, Multi media learning solutions, Delivery and evaluation of training, Competence management, Trainer development. Supply Chain and Quality (Suppliers Technical Assessment, Supplier delivery management and coordination, Planning, tracking and production processes mapping for costs optimization, Supply monitoring and definition of key indicators (KPI), Product testing and verifications. Advanced Materials: integral materials engineering and consultancy; materials composition (metallic, ceramic, polymeric), processing, special testing design and execution. Advanced Coatings: design and development of advanced coatings for specific space applications (e.g. thermal barriers, oxidation protection, optical coatings). Manufacturing of prototypes for testing in operative conditions. Modelling of coating composition evolution in service conditions.

Advanced characterization and testing: characterization of materials, components and systems according to standard testing procedures or tailored testing procedures developed for specific environments and operating conditions. Measure and analysis of material properties: microstructure physical properties, chemical properties, mechanical properties. Standard test facilities include: mechanical testing, oxidation and corrosion testing, tribological testing, electric, electronic and magnetic testing. Capability to develop specific test rigs to test materials subject to multiple and combined sources of stress. Full scale testing. Advanced materials formulation to model the performance of lunar regolith. Additive Manufacturing: design, development and manufacturing of standard and special alloys taylored for Additive manufacturing process. Production of gas atomized powders for AM, material characterization (powders and products) and process parameters optimization. Development of light alloys for space application.







Sabelt

Company profile

Sabelt, founded in 1972, is a global leader in development and manufacturing of original equipment car seats, motorsport products and special applications including cargo retaining systems.

The quality of Sabelt products is the result of intensive Research and Development, which allows to achieve the highest levels of performance and safety.

Sabelt yearly invests 8% of its resources in this department and is the only company of its kind to have an internal dynamic test lab to perform ECE and FIA tests, verifying strength and effectiveness of its products. Thanks to its long-lasting experience in safety, it has been able to reduce the mass of the retaining systems for the space cargo module up to 40% of its' original weight (around 100 kg mass reduction achieved thanks to high tech materials and new geometry design). It extended also the product portfolio for space with new fireproof EPP bag support used in the space cargo operations to optimize load storage

Products | Services | Applications |Technologies

Cygnus Cargo Modul retaining systems

Sabelt retain systems have been studied to improve the cygnus module maximum cargo load.

100kg mass reduction has been achieved thanks to high tech materials and new geometry design.

New components make the on-orbit operation easier and quicker for full astronauts' satisfaction.

Volume reduction thanks to flexible webbing straps instead of metal structure.

Latest geometry development gave more storage flexibility in dimension and shape for both bags and experiment.

Ultralight Aircraft Seat Belts

A three points seat belts designed for aircraft cockpit where the weight is the major issue. Two inches webbing able to resist up to 26kN, hardware tested at 15kN and a complete flight configuration for 700g only. All components are competition parts carry over to guarantee the maximum safety level. Fully adjustable for shoulder straps and lap belt, it is easy to fit and dress while the two inches webbing give the maximum comfort on the body. These harnesses are produced mainly with polyester webbing to achieve the common market positioning but Sabelt is the only company able to replicate this geometries with different ultralight material (Zylon two inches webbing is 24g per meter).

Cargo Module Foam Support

Sabelt supplies cargo module foam supports used for building a regular floor to fit bags and instruments. Foams are made by EPP material produced by mold with a specific shape, rounded to match the module primary structure and flat to permit bags positioning.

The EPP material is flame retardant with good performance at compression, rigidity and with good characteristics of thermal and acoustic isolation. They can be designed in order to create space for additional bags, with holes to reach the primary structure. It is also possible to co-mold fixing and create boxes and cover to protect the payload..

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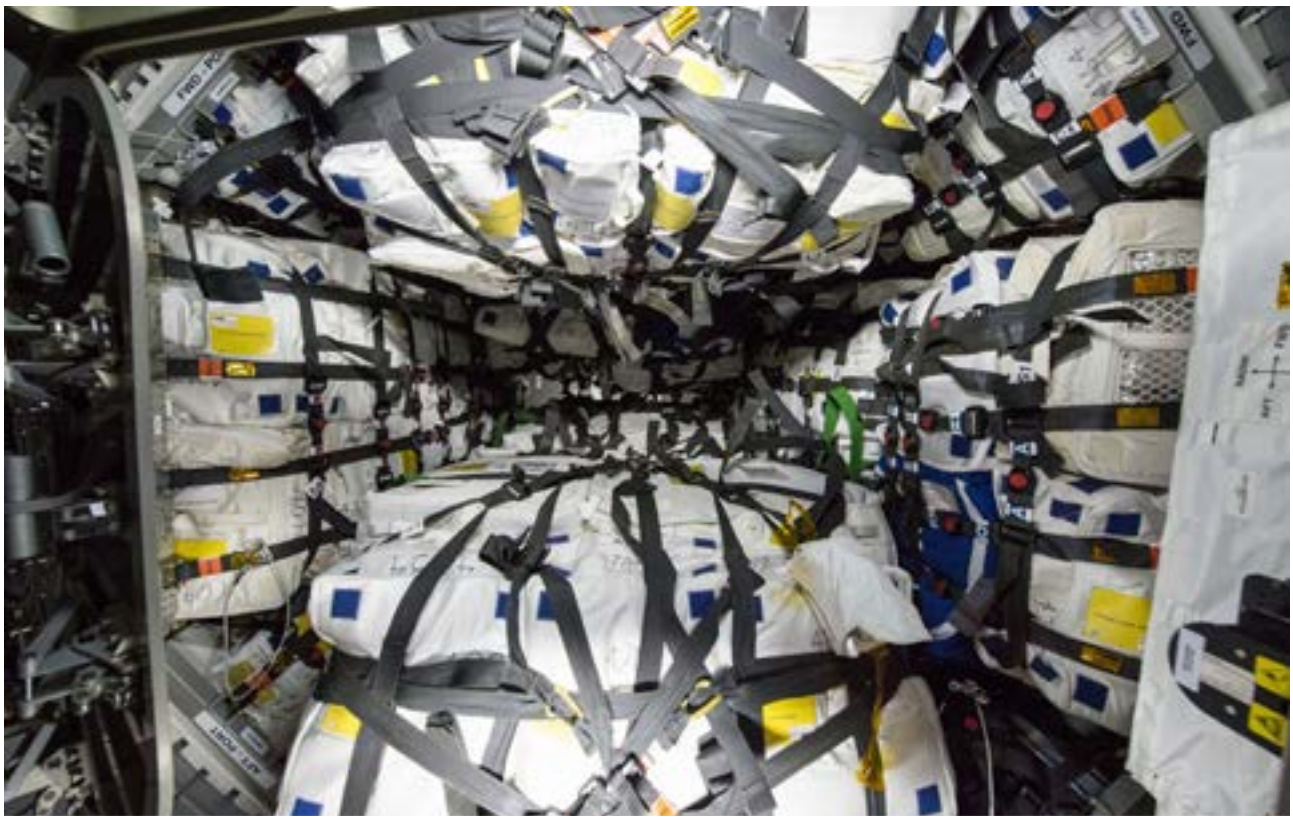

Serco Italia

Company profile

Serco Italia is an Italian company belonging to Serco Group, the public services expert specialising in the delivery of essential public services and managing over 500 contracts worldwide.

In Italy our core business sector is Space, and in particular the Earth observation (EO) domain: we have been providing a wide range of services to the European Space Agency (ESA), national space agencies, institutional governments and the European Commission (EC) for the past 30 years.

Serco's teams of engineers, technicians and operations specialists support a wide range of space and ground activities: from data archiving and exploitation, data processing; to systems design, operation and maintenance; data production quality control; and the scientific and technical support for EO satellite data exploitation projects.

In addition, as part of our user-facing functions, we provide specialised EO Helpdesk and Service desk as well as 24/7 operations for critical services (e.g.: to manage incoming requests for the International Charter for Disasters).

Our employees also play an important role in supporting prestigious European programmes, such as the EU Copernicus programme, where Serco Italia provides key services for the Sentinels Core Ground Segment and Data Access and for the data dissemination operations to final users.

Serco is also participating in a number of EC H2020 Calls, such as EOPEN (opEn interOperable Platform for unified access and analysis of Earth observatioN data), which aims to fuse Copernicus Sentinel data with heterogeneous big data sources, and MOSES (Managing crOp water Saving with Enterprise Services), which proposes an integrated and innovative water management solution.

Products | Services | Applications |Technologies

Space:

Systems Engineering

Service Operations

Scientific Support for data exploitation

Satellite Data processing

Satellite Data Archiving

Quality Control Services

CAL/VAL

Satellite Data Dissemination

Ground Segment Operations

Earth Observation Help Desk

Front-end User Services

Project Management

Training Services

Information Technology:

IT Infrastructure Maintenance and Operations

System and Database Administration

Web design and operations

Cloud Solutions

Defence:

Programme/Project management support services

ONDA DIAS:

Serco Italia leads one of the Copernicus Data and Information Access Service (DIAS) foreseen by the European Commission and operated by ESA.

ONDA is a cloud-based platform providing direct access to one of the largest archives ever built for geospatial data (including full availability of all Copernicus Sentinel Missions data, information products from the Copernicus Services, and data from additional missions like Landsat-8 and Envisat).

ONDA's aim is to support the development of Copernicusbased user applications and also to enable research and business by providing custom solutions.

www.onda-dias.eu

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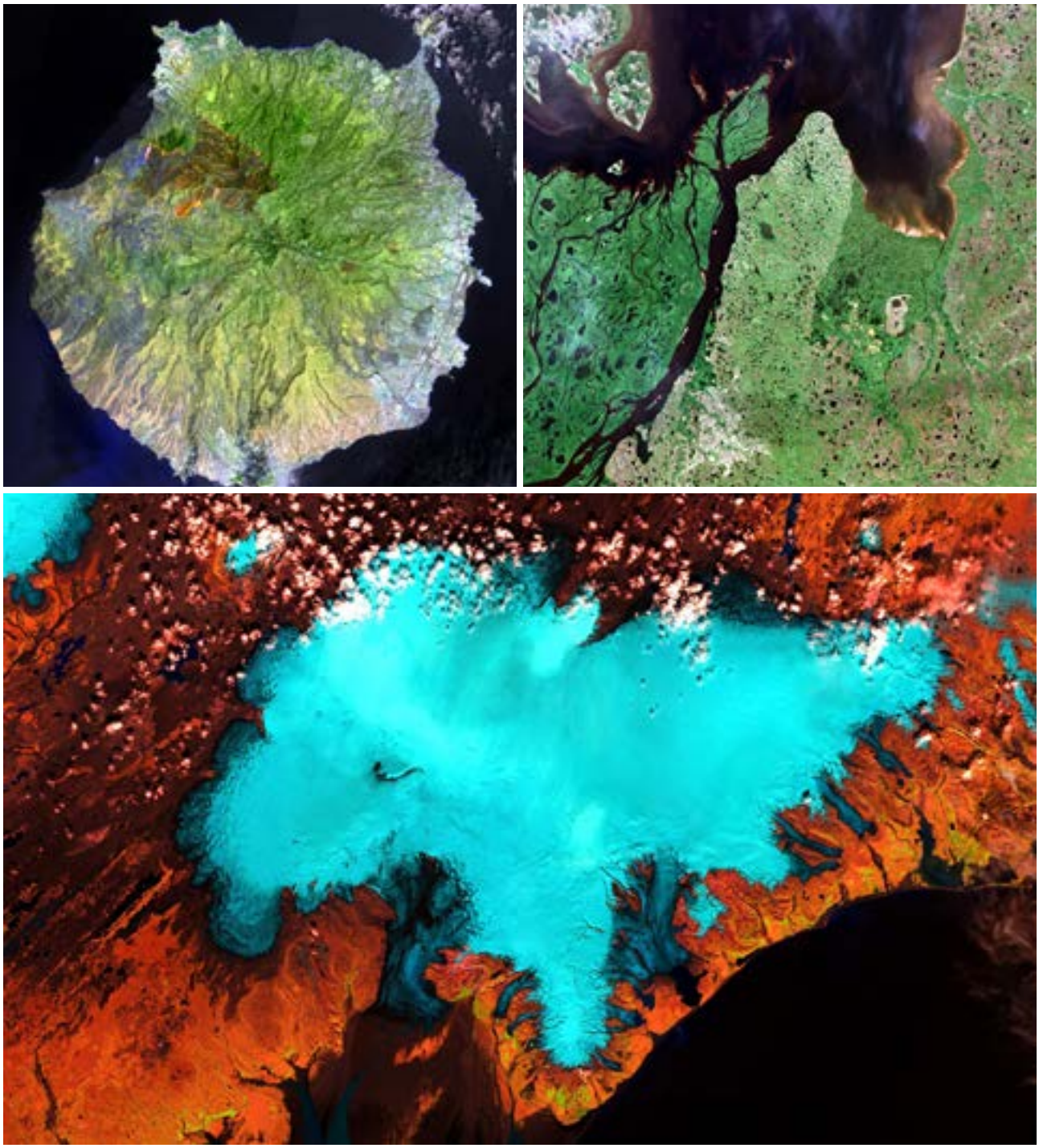

ONDA

SITAEL

Company profile

SITAEL is the largest privately-owned Space Company in Italy and worldwide leader in the Small Satellites sector. With highly qualified employees and state-of-the-art facilities, SITAEL covers a wide range of activities in development of small satellite platforms, advanced propulsion systems and on board avionics, providing turn-key solutions for Earth observation, telecom and science.

Being one of the main players of the Space Economy, SITAEL is changing the way to conceive space products, both in the upstream and downstream segments, providing, thanks to its IoT capabilities, competitive smart services for a wide range of applications.

SITAEL belongs to Angel Group, an Italian holding world leader in Railway, Aerospace and Aeronautics markets.

Products | Services | Applications |Technologies

SMALL SATELLITES

SITAEL offers a complete new generation Small Satellites Product Line, based on smart, modular, scalable all-electric platform solutions in the class range from 50 kg to 450 kg. SITAEL platforms are designed to host multiple payload technologies, covering applications from LEO Earth Observation (PAN-VIS, NIR/SWIR/TIR, Multi/Hyperspectral, small SAR) to Telecom (i.e. LEO/MEO small constellations, Internet-Of-Things, MachineTo-Machine), IoD/IoV and Science missions.

SMALL SATELLITE BASED TURN-KEY SERVICES

SITAEL is able to provide Small Satellites based "Turn-Key" services to meet customer's needs, taking care of the complete chain from Mission Concept to Small Satellites Production up to Ground Infrastructure services.

SITAEL Earth Observation services exploit the benefits of constellations, with very low revisit times, high reliability and strong redundancy. The combination of data from Small Satellites, Institutional and Commercial Satellites, Airborne and In-situ sensors, through an innovative and efficient Data Integration Centre, is able to provide useful services for Environmental Monitoring, Humanitarian Aid & Civil Protection, Industrial & Home activities and Security, Surveillance and Defence applications.

In addition, through the STRIVING service, SITAEL offers affordable and effective access to space for IoD/IoV missions to both private and public entities that want to validate in orbit their innovative technologies. STRIVING is a one-stop-shop commercial service in which SITAEL, the Space Mission Provider (SMP), acts as a single interface to customers and offers an end-to-end service including small satellite platforms from 3U-class cubesats to 300kg-class minisats, AIT/AIV, ground segment and launch.

ELECTRIC PROPULSION

SITAEL has a long heritage in development of Advanced Propulsion Systems based on innovative proprietary technologies.

SITAEL is one of the worldwide leading companies in designing, manufacturing and testing of Hall Effect Thrusters ranging from the very low power HT100 (100W operating power) suitable for small satellites up to the high power HT20K (20 kW) designed for interplanetary missions. Moreover, SITAEL's electric propulsion systems include Electrothermal Thrusters and micro-Newton Field Emission Electric Propulsion Systems. The Electric Propulsion team successfully developed the proprietary air-breathing technology (ram-EP) demonstrating, for the first time in the world, the feasibility of creating thrust in orbit using residual gases of the atmosphere instead of onboard propellant.

SPACE AVIONICS

SITAEL provides reliable equipment and sub-systems for space missions. In order to assure the best product quality, the highest level system design techniques are used to provide flight equipment and components for satellite data processing, handling, storage and communications. With more than 20 years of space heritage, SITAEL portfolio includes small satellite specific products based on COTS components, such as OBC, TT&C, PCDU, Solar Arrays, Battery Packs and AOCS, but also several reliable and high efficiency spaceborn electronic products, ranging from power supplies, drive and control equipment to satellite data processing, handling, storage and communications. Moreover, SITAEL Microelectronics Design Center has been pioneering radiation hardening techniques for the design of Integrated Circuits suitable for space environment.

TEST SERVICES AND PRODUCTS

SITAEL is equipped with a unique set of test facilities, covering all phases of advanced Space technology development and qualification. Besides the extensive test services offered, SITAEL can manufacture custom turn-key test infrastructures, such as vacuum and thermal-vacuum facilities fully equipped with diagnostics, control and feeding systems.

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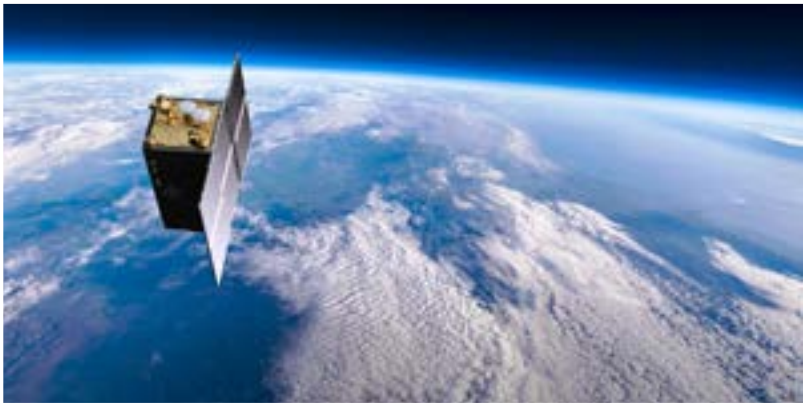

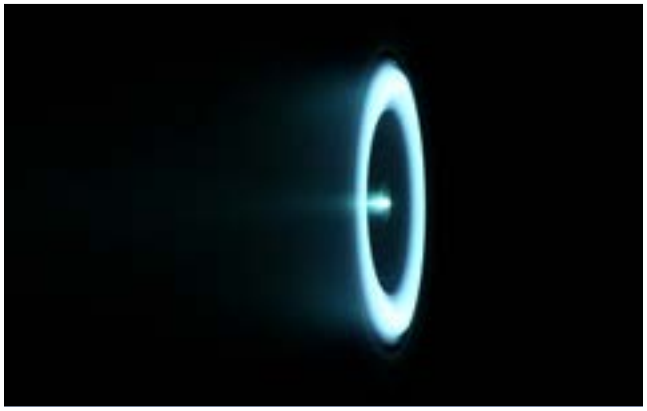

STMicroelectronics

Company profile

STMicroelectronics is a world leader in providing the semiconductor solutions that make a positive contribution to people's lives, today and into the future.

Among the world's largest semiconductor companies

A leading Integrated Device Manufacturer delivering solutions that are key to Smart Driving and the Internet of Things

A leading technology innovator: ~7,800 people working in R&D, ~18,500 patents, ~9,600 patent families and ~ 590 new patent filings in 2019

An unwavering commitment to sustainability

Corporate Headquarters: Geneva, Switzerland

President and CEO: Jean-Marc Chery

2019 revenue: $9.56 billion

~46,000 employees worldwide

80 sales & marketing offices in 35 countries

More than 100,000 customers worldwide

11 main manufacturing sites

Public since 1994: shares traded on the New York Stock Exchange (NYSE: STM), Euronext Paris, and Borsa Italiana

Created as SGS-THOMSON Microelectronics in June 1987, from merger of SGS Microelettronica (Italy) and Thomson Semiconducteurs (France). Renamed STMicroelectronics in May 1998.

Products | Services | Applications |Technologies

In the Space Domain ST proposes a large portfolio of products specifically designed, packaged, tested and qualified to comply with the standard defined by the Space agencies and to meet the customer needs.

ST has supported European space applications for long time, being qualified by ESA (European Space Agency) since 1977 and enlarging to the American QML-V certification since 2000, in accordance with RHA certification (Radiation Hardness Assurance).

ST is present at world-wide level and recognized by the biggest accounts, it offers a wide Space product range from Diodes, Power MOSFET and Transistors to Sub-micron technologies digital ASICs, through Smart Power ICs, Logic and Analog components. It is actively working to enlarge its product portfolio pursuing innovation, application coverage, top-level service and quality.

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Telespazio

Company profile

Telespazio works to bring Space closer to Earth, benefitting citizens, institutions and companies in a variety of sectors ranging from design and development of space systems to management of launch services and in orbit satellite control; from Earth observation to integrated satellite communication, navigation and localisation services, and through to scientific programmes.

Its open innovation approach, together with the cross-contamination of different operational domains and a constant focus on issues of environmental sustainability, allow Telespazio to operate in sectors that will become increasingly important in the years to come: from communication and positioning services for the Moon to management and monitoring of satellites and other orbiting objects (Space Domain Awareness), and creation of advanced in orbit services and satellite operation of drones and unmanned vehicles.

Moreover, using innovations such as artificial intelligence and machine learning to process big data from satellites, Telespazio is in the front lines of development of space applications capable of improving people's lives on our planet and helping to win the great challenges of our times, such as the effects of climate change.

Telespazio is a joint venture between Leonardo (67%) and Thales (33%) and one of the world's biggest suppliers of satellite solutions and services. Telespazio is based in Rome and counts 3000 employees in nine countries through its various subsidiaries and joint ventures. Telespazio is present in France - Telespazio France; in Belgium - Vitrociset Belgium; in Germany - Telespazio Germany, GAF and Spaceopal (a joint venture with the German Space Agency DLR), in the United Kingdom - Telespazio UK; in Spain - Telespazio Ibérica; and in Romania - Rartel. The company operates in South America - Telespazio Brasil and Telespazio Argentina. In Italy, it can count on e-GEOS, a leader in geoinformation services 20% owned by the Italian Space Agency.

With know-how acquired over 60 years in the business, an international network of space centres and teleports, the participation in space programmes such as Galileo, EGNOS, Copernicus and COSMO-SkyMed, Telespazio serves the market as service provider and large mission integrator, offering services for the upstream, midstream and downstream segments to help space missions achieve their goals.

Products | Services | Applications |Technologies

SATELLITE COMMUNICATIONS

With its long track record in the satellite telecommunication and television sectors and thanks to a portfolio of cutting-edge products and services, Telespazio offers its clients secure, reliable and globally available solutions. Telespazio is the Italian leader and a major European player in radio and television broadcasting, thanks to its facilities at the Fucino and Lario Space Centres and to the equipment installed and managed at clients' premises. The company manages communications networks capable of integrating satellite and ground-based infrastructure, responding effectively to the requirements of business and institutional markets, media and broadcast sectors and global telecommunications operators. In the business market Telespazio offers dedicated services for the oil &gas, utilities, maritime and telco sectors, implementing fixed-line, mobile broadband satellite services in Italy and abroad. In tactical military satellite communications (Milsatcom), Telespazio provides telecommunications services to the armed forces of NATO countries, through its involvement in the Italian defence programme SICRAL. In non-tactical military communications (Comsatcom), the company offers telemedicine, distance learning and wideband connectivity services. As part of the institutional satellite communications, Telespazio participates with a strategic role in the ATHENA-FIDUS programme and delivers innovative applications and services in the field of civil protection, security and e-government. Finally, in its Fucino and Scanzano Space Centers, Telespazio hosts ground segment equipment dedicated to telecommunications satellite systems managed by leading international operators (Inmarsat, Eutelsat).

GEOINFORMATION

Telespazio is one of the major global suppliers of geospatial application solutions and services. Through its subsidiaries - mainly through e-GEOS in Italy and GAF in Germany - Telespazio is active in all areas relating to the Earth observation market: from acquiring and processing satellite data to develop and sell software and products. The company provides application services such as environmental protection monitoring, rush mapping in support to natural disaster management, specialized products for defense and intelligence, oil

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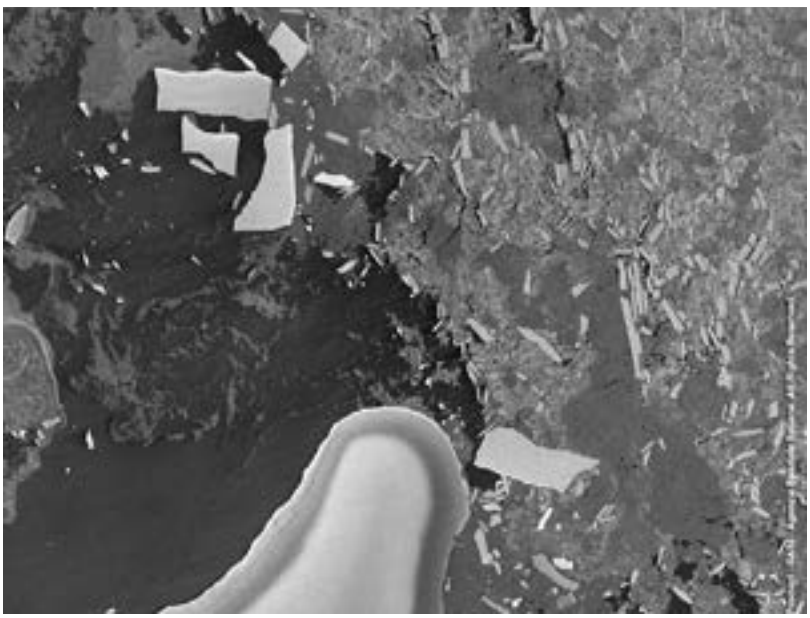
spill and ship detection for maritime surveillance, interferometric measurements for landslides and ground subsidence analysis, thematic mapping for agriculture and forestry. Telespazio is involved in the major Earth Observation programmes including the European Copernicus and the Italian COSMO-SkyMed. Lastly, in the geoinformation sector, Telespazio offers GIS solutions and applications for the control of vehicle fleets, the monitoring of dangerous sites and e-tourism services. In support to its operational applications, e-GEOS - a joint venture between Telespazio (80%) and ASI (20%) - operates the Matera Space Centre for acquisition, archiving and processing of multimission satellite data including COSMO-SkyMed and ESA Sentinels. e-GEOS is the exclusive distributors of COSMOSkyMed data worldwide.

SATELLITE SYSTEM AND OPERATIONS

Telespazio is one of the world leaders in the design, development and qualification of Integrated Satellite Systems and in the supply of In Orbit Control services for launch, early orbit phase and routine operations (LEOP, IOT, relocation, mission operations) during the working life of satellites in low, medium Earth and geostationary orbits. These services are provided by means of proprietary ground elements:

satellite control center, flight dynamics systems and ground stations, together with all the necessary teleport facilities (aux systems, communications, logistic and security facilities). Telespazio employs highly skilled staff, with internationally recognized know-how, to operate via the proprietary Space Centres in Italy (Fucino, Lario and Scanzano), as well as through customer infrastructures throughout the world.Based on 50 years' experience supporting the majority of National and European agencies, Telespazio provides engineering, operations and logistic services for large and complex institutional Earth Observation programmes (COSMOSkyMed, Copernicus), Navigation (Galileo, EGNOS) and the relevant downstream applications.In this field Telespazio is a key innovator in the development of systems, applications and services providing:

in Earth Observation missions, the user ground segment elements and processor applications that properly handle and elaborate the optical or radar images; for Navigation and Aviation missions, the capability - thanks to proprietary laboratory, simulators and facilities - to develop and provide applications and qualify new services for the downstream market. The most important customers are the main satellite operators and satellite manufacturers, the main National and European space agencies and defence administrations.



Thales Alenia Space Italia

Company profile

THALES ALENIA SPACE, joint venture between Thales (67%) and Leonardo (33%), is a key European industrial player in Space Telecommunications, Earth Observation, Navigation, Science, Exploration of the Solar System and beyond. With over 40 years of unrivaled experience, the Company is the natural partner to countries willing to expand their Space programs and invest in the Space Economy. Governments, Space Agencies, private companies count on THALES ALENIA SPACE as global system integrator to design, test, manufacture cost-effective Space-based systems and technological solutions. Our spacecrafts and payloads are a worldwide benchmark for: civil, military and dual use missions, telecom constellations, high-resolution radar and optical sensors, connections and positioning, environmental monitoring, human spaceflight, planetary robotics, scientific probes, space transportation vehicles, flexible payloads, altimetry, meteorology. THALES ALENIA SPACE also teams up with TELESPAZIO to form the parent companies' SPACE ALLIANCE, which offers a complete range of systems, services and space data.

THALES ALENIA SPACE ITALIA SpA is the Italian component of THALES ALENIA SPACE operating on four sites: Roma, Torino, L'Aquila, Milano. Since 1970s the Company has designed, manufactured, integrated, tested, operated and delivered over 200 satellites and innovative space systems, fundamental applications for sustainability of Earth: Remote sensing, Telecommunication, Navigation, Space Science and Exploration. THALES ALENIA SPACE ITALIA SpA as one of the top historical players worldwide, collaborates with the leading international space industries and the most prestigious agencies, as: NASA, ESA, ASI. It offers cutting-edge space technology to commercial and institutional customers around the world: Systems design for Human Spaceflight and Robotic Exploration, Pressurized living compartments, Earth Reentry Vehicles, Scientific Probes, Spacecrafts and Constellations assembly, integration and testing; Earth observation radar, Navigation systems, Telecoms Defence Satellites; High revisit small sat Constellations; Digital payloads and Equipments for platforms and payloads of all the above applications. THALES ALENIA SPACE ITALIA SpA acts as catalyst of the national Space Economy supporting win-win collaborations with SMEs and StartUps.

Products | Services | Applications |Technologies

SPACE FOR EARTH CARE

COSMO-SkyMed Italian radar-based Earth Observation system developed for ASI and MoD, provides worldwide high resolution images. Constellation of four satellites with X-band radar, can operate day and night under any weather or visibility conditions with high revisit. Conceived dual purpose (civil and military) is top of precision, features and image quality for: risk management and damage assessment within natural or man-made disasters, strategic infrastructures management. Responsible of 1st and 2nd generation entire system. COSMO-SkyMed enables strategic and tactical Image Intelligence helping Armed Forces and Governments in decision making for people security.

EOS20 Radar Constellation compact, lightweight, high performance imaging platform with high revisit time to satisfy military and civil purposes. Innovative technologies: Payload Data Handling & Transmission, Control Moment Gyro, Very High Resolution Radar reflector and radar sensor , Integrated Processing, data-handling and AOCS Controller. The product won the Korean Defense bid for space radar surveillance.

COPERNICUS-SENTINEL EU'program for environmental monitoring, sustainable agriculture, maritime surveillance, natural and anthropogenic threats. Provides ESA with timely, easily accessible high resolution images. In Copernicus Extension: new generation C- band Sentinel for service continuity; in Copernicus Expansion extends the scope with: ROSE-L for Land Monitoring and Emergency Management by L-band; CIMR multifrequency microwave radiometer for sea and Artic monitoring.

SPACE FOR SMART MOBILITY

GALILEO Europe's Global Navigation Satellite System, key where extreme accuracy and reliability are critical: railways, maritime and air traffic management, Smart Cities'services. Prime contractor for 6 Second Generation's satellites, leveraging on serial manufacturing of wide constellations and the heritage on IOV and 1st generation: ESA Engineering System and Calibration support; signal generation units and antennas supplier for the first 22 satellites.

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SPACE FOR SECURITY

SICRAL Italian MoD communications system of 3 satellites, it improves capacity for strategic and tactical links in Italy and for out-of-area operations with terrestrial, naval and air platforms assured until 2030 with the launch of 2 new satellites. Geostationary satellite operating in UHF and SHF band, allows interoperability between the networks of defence, law enforcement, civil emergency agencies and those responsible for strategic assets. Seamless integration with infrastructure of NATO allied countries.

SPACE TO LIVE IN

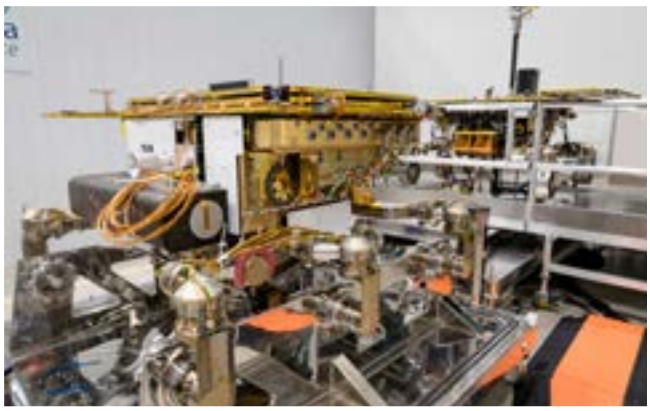
SpaceHOME Product Line of any Human Life' support System for institutional and commercial customers. Responsible for decades for most of the International Space Station pressurized living spaces (as Columbus Lab, Nodes, CUPOLA observation deck) and its logistic resupply: Multi-Purpose Logistic Modules, Automated Transfer Vehicle and Cygnus at its 15th visit to the ISS.

ARTEMIS, returning humans on the Moon by 2024. Habitable element provided for NASA's HALO and ESA Prime Contractor for two elements of the Lunar Gateway, next space station in Moon vicinity: International Habitat iHAB and ESPRIT (crew quarters, panoramic view, communication/refueling services). Mission enabling studies: human lander, surface shelter, logistic carriers. In the frame of ISS commercialization, collaborates with: Northrop Grumman, Axiom, Nanoracks for LEO private exploitation.

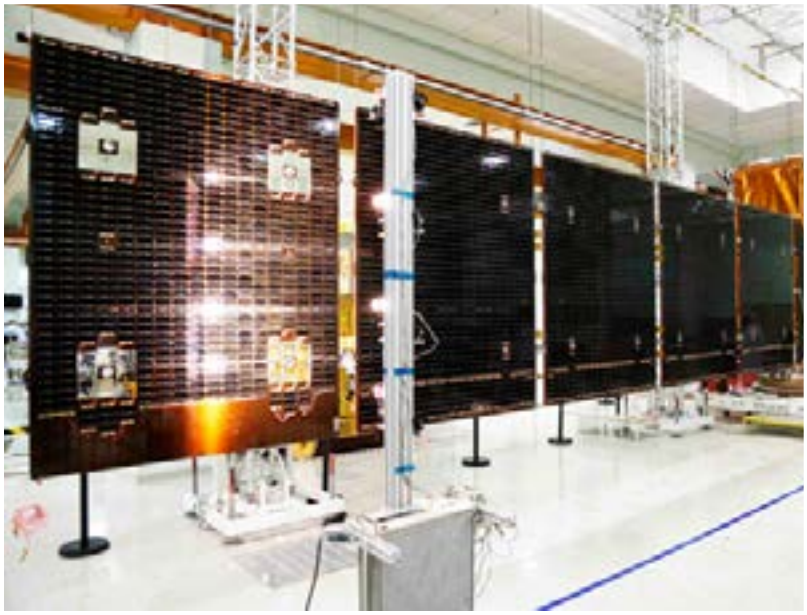
After Trace Gas Orbiter, that gathered valuable information orbiting Mars since 2016, Prime contractor to ESA/Roscosmos for ExoMars 2022 and integrator of Mars Sample Return Earth Return Orbiter, Missions aimed to find evidence of life on Mars.

Integrator and Spacecraft/Payload developer for Deep Space Exploration: BEPICOLOMBO first European mission to Mercury; EUCLID a near-infrared space telescope to study dark matter. Leader for reentry vehicles in Earth atmosphere (IXV), is now developing SpaceRider: launch to LEO, execute up to 2 months experiments before softly land on Earth. SpaceSTART Product Line for On Orbit Servicing and debris management.


ThalesAlenia




esa
IXV



VITROCISET

Company profile

More than fifty years of experience in logistics to support operations in mission critical areas, expertise in integrating complex systems, consolidated presence all over Europe and in several other countries in the world, the substantial investments in Research & Development, the high skilled staff with young graduates coordinated by experienced professionals, make VITROCISET, a LEONARDO Company, the ideal technology partner for Companies and Public Administrations. The areas of intervention of VITROCISET range from systems for the Defense to those for Air Traffic Control, from Satellite Technologies to Telecommunications, from Transportation to Integrated Logistics. In particular, VITROCISET's activity in Space business area dates back to 1982 with the awarding of a turnkey contract for the ESA Redu tracking station. The gradual and constant expansion of its offer to the key players of the sector (ESA, ASI, CNES, Arianespace, Space Systems Manufacturers and Satellite Operators) has required the diversification of its products and services, such as the design and development of mission-critical systems.

Products | Services | Applications |Technologies

Ground Data Systems

VITROCISET is involved as a key partner of the Italian MoD, from the early stage of the project, providing engineering support to establish Space Situational Awareness capacity. In this context, VITROCISET has developed for the Italian Space Operation Centre, located in Pratica di Mare Air Force Base, the software platform to support SST (Space Surveillance and Tracking) activities, fully integrated with SATCEN and EU-SST database and national sensors. Main capabilities of VITROCISET software platform are the following:

Providing a full view of space objects and relevant orbits (with related events) thorough the Space Picture;

Activities planning;

Catalogue management;

SST Services: Conjunction Analysis, Re-entry event and Fragmentation events

Integration.

Currently, VITROCISET is in charge for the study and development of the Test Bed realization of the Joint Operation Centre of the ITA MoD for the integration of the Space Domain Information.

Command and control systems are among the core competences of the Company, that is providing turnkey solutions for several applications, from aerospace to civil and defence markets. Among these programs, there is the Command and Control Bench developed for European Launcher VEGA, for which Vitrociset has been involved since its preliminary design phase (2004) till the maiden flight in 2012 and the following upgrades, with the implementation of VEGA evolution programs and the new powerful version named VEGA-C.

Space G/S ILS & Operations

Working at the PISQ (Poligono Interforze Salto di Quirra) VITROCISET actively participated in the realization of the bi-static radar BILARES, consisting of a receiving unit (owned by INAF) located near Bologna and a transmitting unit, entirely developed by Vitrociset and located at PISQ. In addition VITROCISET has been awarded for the maintenance of the sensors belonging to the nation SST infrastructure.

VITROCISET is deeply involved into SST Operations, in accordance with Italian Air Force procedures, the company is in charge for the following tasks:

Execution of the analysis procedures of Conjunction Analysis, Fragmentation, Re-Entry and related report generations;

Execution of the task generation and sensor planning procedures;

Execution of the orbital determination;

Catalog updating.

Ground Sensors

VITROCISET is supporting the Italian Consortium for the implementation of SST operations based on radar technologies. UHF transmitter has been provided and installed by VITROCISET and it is currently operated with the support of VITROCISET team, working in bi-static configuration with other Italian assets provided by the Italian National Institute for Astrophysics, granting the capability to discover objects with an area less than 10 cm, at a distance up to 2,000 km. The UHF transmitter is also able to operate in coordination with the receiving site SRT (Sardinia Radio Telescope), creating the BIRALET (BIstatic Radar for LEO tracking), sensor used to track LEO orbit objects.

The company has designed and delivered for the Italian National Institute for Astrophysics two systems for the ranging and synchronization of the bi-static radar system. These kits are used to the extraction of the bi-static distance of objects in LEO orbit as part of the SSASST operations.

In parallel VITROCISET is in charge for the realization of a debris tracking radar for the ITA MoD in Vigna di Valle Space Center. The system is composed by an advanced high performance monostatic radar, working in C band,

Contact

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that allows very high level of accuracy.

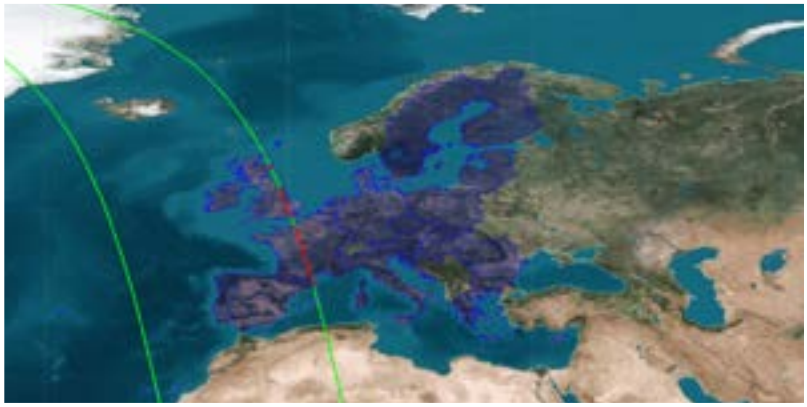
Big Science

Building on its experience in the space market and on its capabilities in critical system management, and command & control systems development, VITROCISET works on different international projects, supporting the implementation of large experimental physical facilities, providing highly specialized systems engineering services and developing ad-hoc systems.

VITROCISET is involved in ITER program (International Thermonuclear Experimental Reactor project), working in command&control (CODAC), diagnostic systems and remote handling domains, being one of the few authorized CODAC Core System development center worldwide. VITROCISET is also working at Fusion For Energy (F4E), the European Agency supporting the ITER program, in the Instrumentation and Control department.

At European Spallation Source (ESS) program in Sweden, VITROCISET has been awarded with three framework contracts for electronics, SW development and mechanical consultancies services.

The Company has also provided the complete command and control system for STAR Materia, a linear accelerator developed for University of Calabria, in South of Italy and is currently developing for the ITER Program the control system for the remote handing in operation maintenance activities.



ITALIAN SPACE INDUSTRY

PRODUCTS - SERVICES - APPLICATIONS - TECHNOLOGIES CATALOGUE 2021-2022