G & A Engineering – Company Profile

View

Background

G & A Engineering belongs to a group of private investors which works from over 30 years in the military and professional electronics.

The company promotes continuously innovation, to ensure maintaining the technological competences acquired and strengthened during time in equipments and electronic systems design and manufacturing.

The experiences, the standard knowledge, the continuous application of the best techniques and technologies have allowed G & A Engineering responding always positively to the customer expectations, both on job orders and in products supplying.

The company is equipped with all facilities, tools and staff necessary to ensure products supplying and to intervene in each “Life Cycle” phase.

The company is a SME structured in 2 departments: Industrial Dpt. and Research Center Dpt.; the last one is a Research Center for microelectronics and it is qualified by MIUR.

Memberships and Certifications

- Quality: UNI EN ISO9001
- Environment: UNI EN ISO14001 & EMAS
- Safety: D.Lgs. 626 & OHSAS18001
- Social Accountability: SA8000
- BEST FOUR
- Governative Plant Design Qualification: Law #46/1990
- National Research Center Registry Office: Nr. 50281PED
- Research Laboratory: MIUR Decree of April 24, 2002 G.U. No 112 of May 15, 2002

Offering

Research Department

It is structured to do applied research in microelectronic field for space and military applications. The department cooperates with the scientific community of different disciplines to integrate their own technological competences with the one from the base research.

Industrial Department

“Special Equipments” Development, Design, Engineering and Industrialization, according with our Customers requirements. From the Customer requirements, G & A Engineering is able to realize the technical proposal, the technical specification and the project specification, both for hardware and software, for systems and subsystems, to proceed into the development, design, engineering and industrialization activities, to arrive, therefore, to manufacturing. The manufacturing is done, for almost the totality of the Operative Phases, inside the company using its owns workshop, having, so, the total control of time and costs, useful for prototypal realizations, but allowing also series productions.

Competences

The company competences are all the necessary to do autonomously:

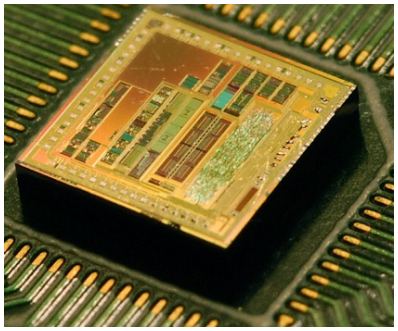
- Analog and Digital Electronic and Microelectronic Design and Manufacturing;
- Mechanic and Micromechanic Design and Manufacturing;
- Electromechanic Design and Manufacturing, using vacuum and pneumatic devices;
- Software Design and Production;
- Equipments Engineering, Industrialization and Manufacturing.

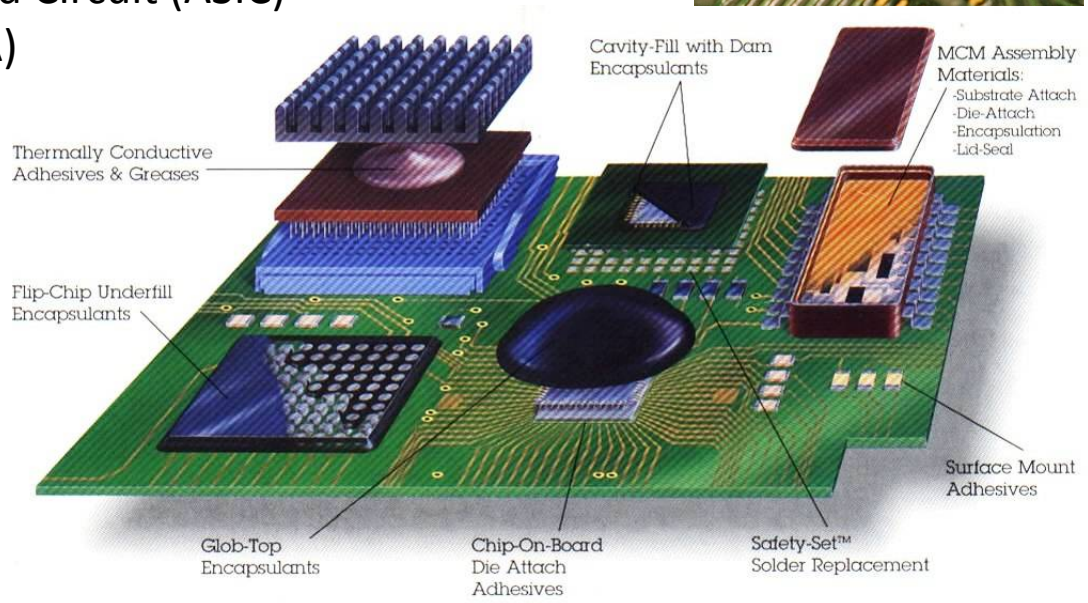
These competences have been developed using the most advanced CAE, CAD and CAM tools, available on the market and using the company workshop, both for manufacturing and metrology & control.

Technologies

To do design and manufacturing, the company is able to use the most advanced techniques and technologies, like:

- Multi Chip Module (MCM)
- Chip-On-Board (COB)
- Surface Mount Technology (SMT)
- True Hole (TH)
- Application-Specific Integrated Circuit (ASIC)
- Programmable Devices (FPGA)
- µcontrollers and µprocessors
- Digital Signal Processor (DSP)
- Rigid and Flexible Substrates





R&D Workshop

- Electronic CAE CAD : Allegro, Orcad, PADS
- Mechanical CAD : Catia, Inventor
- Analysis: Nastran, Femap, Matlab
- Aerospace: STK
- Simulation: Simulink, Pspice
- Development SW: Assembler, C++, Labview, Visual C
- for Microcontrollers and Processors: Intel, Microchip
- Digital Signal Processor: Analog Device, Texas Instruments
- Developmentand Design Systems CPLD and FPGA: Actel, Xilinx, Altera, Atmel
- Graphic: Adobe Illustrator

The company is able to use other development tools for the total compatibility with the customer requirements.

CLEAN ROOMS

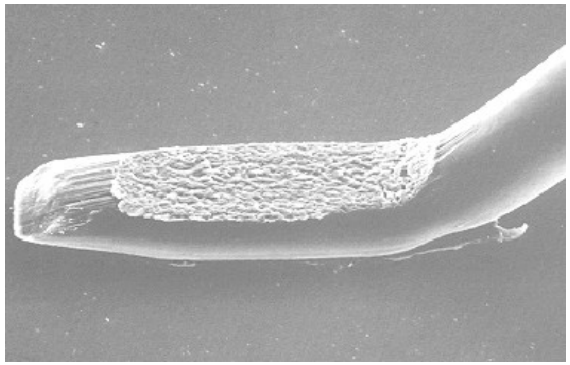
ISO 14644-1	FED STD-209E	FED STD-209E	AREA
Class 4	10	M2,5	12 sqm [work area]
Class 6	1000	M4,5	75 sqm [work area] 10 sqm [gown room]
Class 7	10.000	M5,5	18 sqm [work area] 10 sqm [service corridor]
Class 8	100.000	M6,5	17 sqm [work area]
Class 9	>100.000		278 sqm [work area]

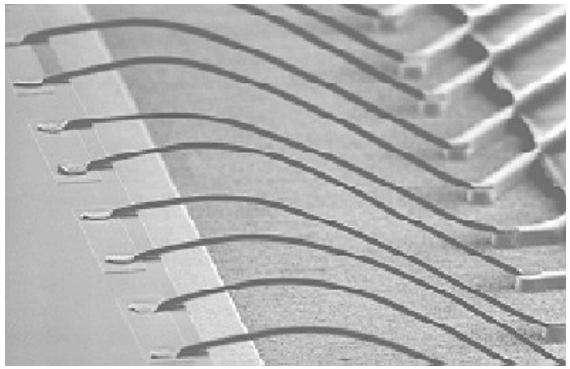
Standard Work Specs
T = 21°C ± 1°C
RH =50% ± 5%

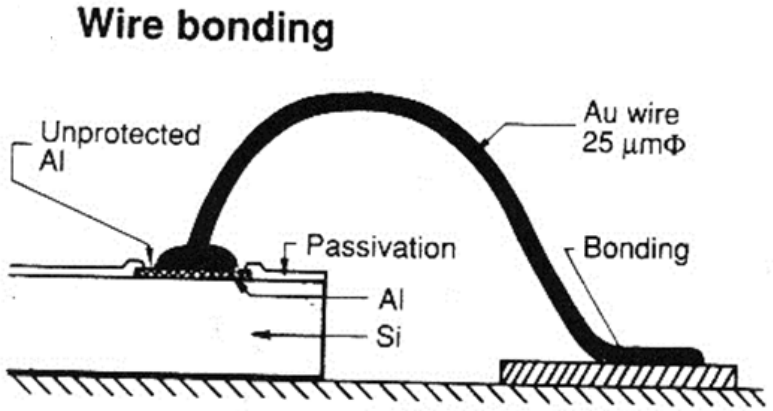
Operating Range
T = from 18°C to 24°C
RH = from 40% to 60%

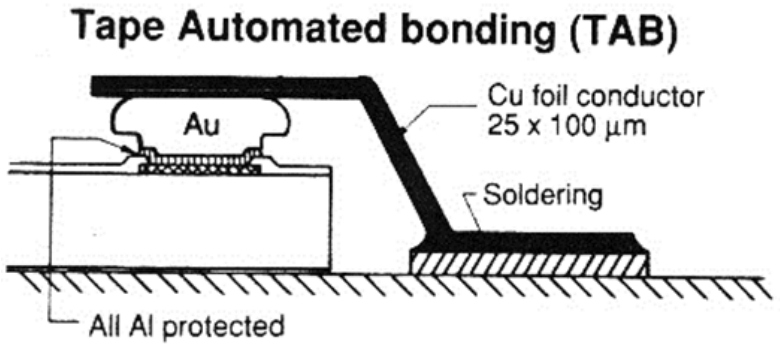
Microelectronic Technologies

Naked silicon chips can be mounted directly on the PCBs or other types of substrates, without encapsulation. This technology is called "Chip on board" (COB). The most used electrical connection methods between the chip and substrate are Wire Bonding (Chip & Wire) and TAB Bonding (Tape Automated Bonding).



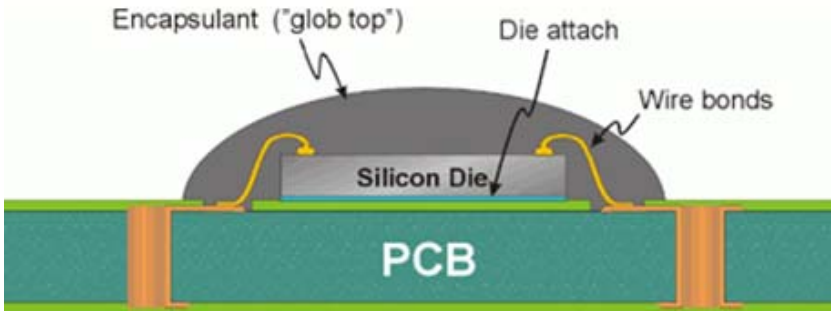






GLOB TOP

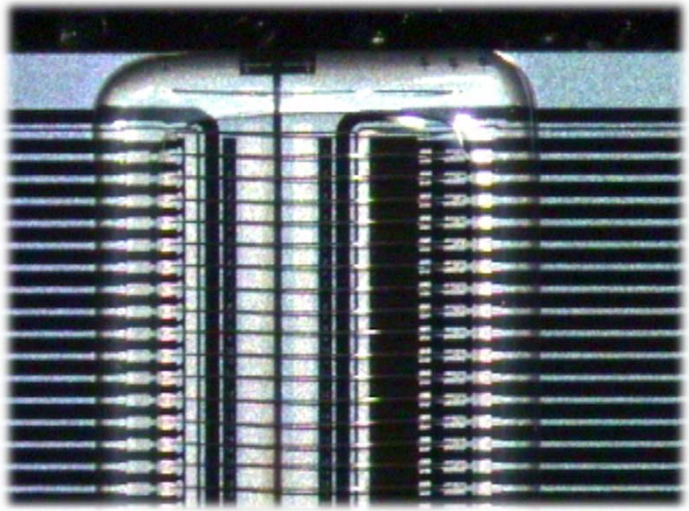
A high viscosity epoxy glue provides protection during fabrication, handling, test, integration of the COB or MCM assemblies.



DAM & FILL

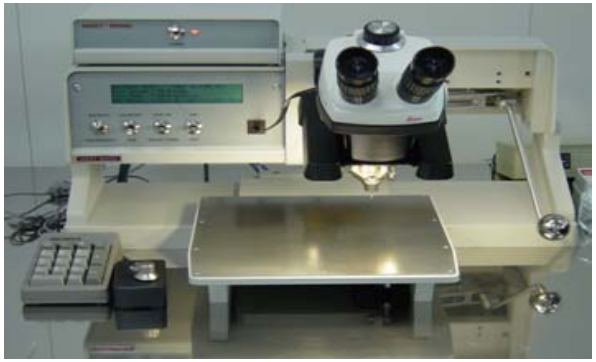
DAM: An high viscosity encapsulant is dispensed around the bonding area.

FILL: The dam is filled with a low viscosity encapsulant to create an elastic protection of wire bondings.



Microelectronic Workshop

- Die Tester
- Wire & Tab Bonder
- Pull Tester
- Liquid Dispensers
- Hot & Thermovacuum Oven



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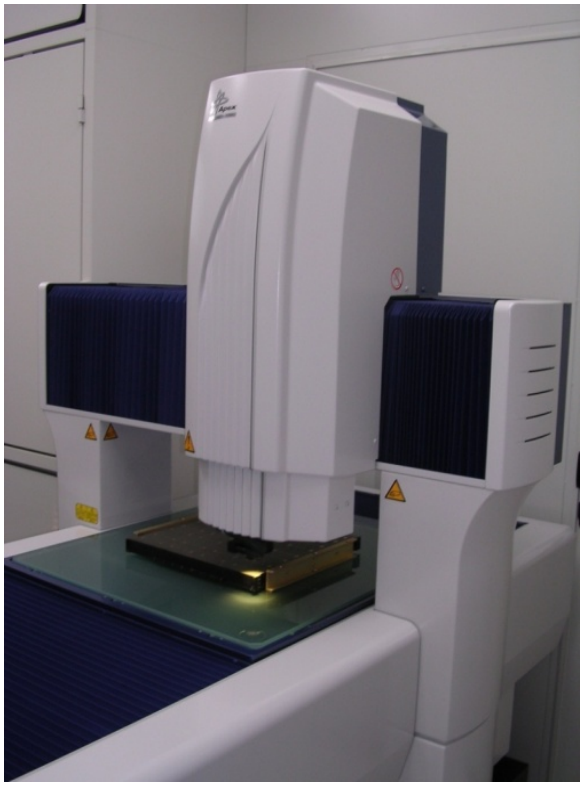
Metrology Workshop

- Automatic 3D Metrology machine, with optical head and toucher, Resolution 0.5µm, Measurement field 1205x1205x1005mm
- Automatic 3D Metrology machine, with triple optical illumination system, Resolution 0.1µm, Measurement field 600x650x250mm



Electronic Workshop

- Solder Paste Dispenser (28.000 points/hr)
- Pick-Test-Place (6.000 chip/hr)
- Oven for Reflow Soldering (14 zones)
- SMT & TH Rework Station
- Conformal Coating
- Functional Automatic Test Station
- RF Test Set untill 26.5GHz
- Climatic Chamber from -75°C to +180°C

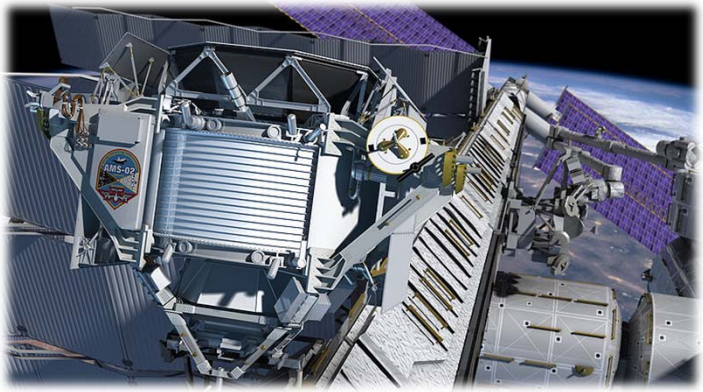
Mechanical Workshop

- Vertical Milling Machine
- Horizontal Milling Machines
- Turning Machine
- Welding Stations
- Cutting Machine
- Punching Machine
- Bending Machine

Space Heritage

AMS 02 Experiment

The 90% of the silicon detectors have been manufactured. A Million bond without 1 failure!

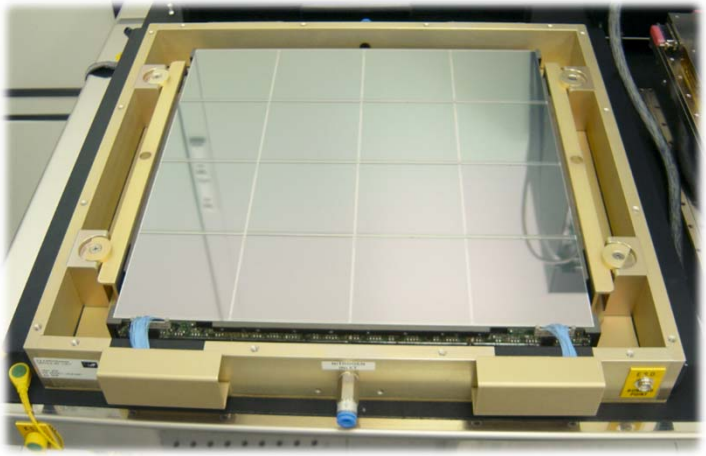


GLAST or Fermi Experiment

The 90% of the Silicon detectors have been manufactured.

CMS Experiment

More than 1500 opto-hybrids have been manufactured to interconnect the LHC (Large Hadron Collider) at Cern – Geneve (Switzerland).



PAMELA

We manufacture some components and parts.

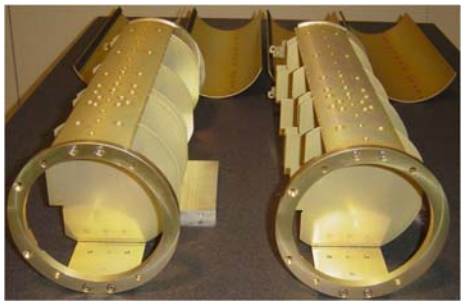
TOTEM

With INFN.

Space Programs and Projects

ANTARES

We were involved for mechanical constructions.



Gran Sasso Ladders

Particle detectors made of glass for the INFN.

GEA SAT 01

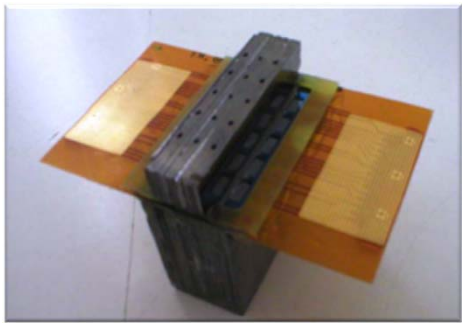
Microsatellite co-financed by the Italian MAP.

LNA

Low noise amplifier for cryogenic application with INAF.

SMART

Solid-state µ-Thruster for space application, co-financed by ASI.



NISBA

In cooperation with INAF-OAR.

Space Programs and Projects

EST – Electronic Space Test

ENEIDE Mission in 2005.

LAZIO–Sirad

ENEIDE Mission: Industrialization, space manufacturing and documentation of a seismic precursors catcher for University of Perugia.

e-NOSE

ENEIDE Mission: Industrialization, space manufacturing and documentation of an electronic nose for the University of Rome Tor Vergata.

HBM – Hearth Beat Monitoring

ENEIDE Mission: Industrialization, space manufacturing and documentation of a hearth beat monitoring belt for the University of Rome Tor Vergata.

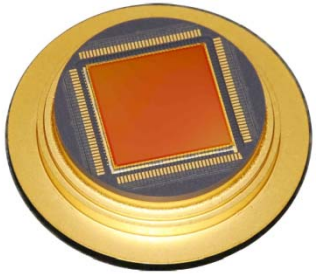
Space Programs and Projects

APE – Astronaut Personal Eye

It is a small vehicle with 1 axis control, which flew during STS-134 Mission. It was co-financed by ASI.

MAP – Multi Asics Pixel Imager

In cooperation with INFN Pisa and co-financed by ASI, it is an electronic sensor to “see” the single photon, usable in Visible, UV ed X bands.



TILE Second Generation

In cooperation with Thales Italia Space and co-financed by ASI, it is an optical link at 2,5GB, for the new generation of antennas.

ETRUSCO-2

In cooperation with INFN Frascati and co-financed by ASI, it is a cryostat with thermal control and fine motion.

Awards

- CMS Collaboration Gold Award 2009 for CMS Experiment
- NASA Certificate of Appreciation for GLAST Experiment
- ESA Team Achievement Award for Eneide Mission
- ASI Acknowledge for the DAMA Mission (STS-134)
- Confindustria L'Aquila achievement for space activities
- Innovalazio 2005 Trademark

innovaLazio

Research Projects

Industria 2015 –Sustainable Mobility

PBI Innovative Bus Platform is a project that foreseen design and manufacturing of an 8 meters long electric vehicle and a 12 meters long hybrid vehicle. The buses are equipped with hi-tech system and functions and are commanded and controlled by new generation operative center.

Polo ICT Abruzzo

INDUSTRIA 2015

ICT Pole

The company is member of the Abruzzi Information & Communication Technology association and has submitted a tender to be financed by the Abruzzi Region for UBICARE, a project of health care and telemedicine to help Alzheimer patients.

Products

- Special Equipments
- Telescopes & Domes (an installation is @ Monte Rufeno)
- Small Seismographs (Operating Range > +/- 1,7g, Shock: 100g or Operating Range > +/- 3,0g, Shock: 500g)
- Battery Unit e Battery Packs with a new generation Battery Management System in order to equalized and manage the charge and discharge phases
- CPU, Ethernet Switch, Videoenconder, I/O Units
- Wi-Fi, GPS and UMTS Modules

Products

- Electrical switchboards
- Advertising Totem, LCD Monitor also sunlight readable, Dashboard, Cockpit devices & components, Pushbutton with LED lighting
- Safety and Security Equipments
- Video surveillance systems with color IR cameras, thermal cameras and recorders
- Command and Control Systems for Fleet Management
- Command & Control systems for single phase, three phase and DC electrical systems
- Energy Analyzer Unit
- Building Automation systems
- Black-box for vehicles

Contacts

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The company has branch in New York, USA and a branch in Nánjīng, China R.P.