COMPLIANCE AND EMBEDDED SYSTEMS SERVICES

Since 2004, Skytechnology supplies compliance and embedded services to the Automotive, Telecom, Aerospace & Defense, Railway, Medical Devices and Energy & Automation industries.

Our turnkey product capability ranges from concept to tested and certified industrial prototypes ready for production. The Hardware and Software development can be carried out conforming to international standard (Cenelec, CE) and market specific directives (IEC61508, EN50128, DO254, etc.)

Moreover, Skytechnology realizes test and simulation systems, provides consulting services in the areas of Verificaton&Validation, and RAMS analysis.

Leveraging on Skytechnology services, Customers may concentrate resources and skills on developing value added and unique components of their products and applications.

Skytechnology, based in Turin, Milan and Rome, provides:

HW Services

Skytechnology has knowledge and experience to support the customer in the design of electronic boards, following in completely or in part the work cycle, the drafting of the requirements to delivery of the prototypes or series.
Offers to the Customers a complete set of hardware services:

- Requirements Specification.
- High complexity (FPGA, DSP, CPU, DDR2/3, PCIe, Multi-Gigabit Transceiver, fast ADC and DAC) digital boards design.
- I/O and signal conditioning (sensors interface, electric insulation, VME, MODBUS, etc.) boards design.
- Signal & Power Integrity.
- Analysis thermo-structural & Design thermo-mechanical
- Automatic Test Equipment for production.

FPGA Services

The FPGA development is one of the specialties of Skytechnology.
The following services are available:
- Development of FPGA turnkey
- Development of IP
- Development of FPGA approach with Fault Tolerance
- Verification according DO254

Software Services

Skytechnology designs, develops and tests Firmware and Software based on multiple HW/SW platforms. We cooperate with Customers applying the workflows close to the main sector standards like EN 50128 (Transportation), ECSS (Space), RTCA/DO-178B (Avionic) IEC 62304 (Medical), ISO 26262 (Automotive). According to the sector and customer needs the applied project workflow follows the classic Water-Fall scheme or the Agile scheme if it needs to apply an iterative and incremental method of managing the design and build activities

The **firmware** activities involve the lower layers of embedded software systems, where real time aspects are the main hints. The hardware — both microprocessors and DSPs, — is strictly tied to our packages, including BSP, O.S. customization, middleware and specific small applications.

The **software** activities involve the upper layers of embedded systems, often using cross-compilation techniques. Typically, we implements core applications, by using Graphical User Interface, Data Bases, Communication Stacks, application frameworks, etc.

As a software system grows more complex, the need to test it at every stage of the development lifecycle grows equally. Static and dynamic **testing** techniques (unit and integration testing) has repeatedly been shown to be highly effective in finding defects early in the lifecycle, minimizing the cost implications of faults. We use a wide range of environment suites, tools and protocols, depending by the application type, rules and constraints that apply to the specific test or integration project.

Test & Simulation Systems
Skytechnology designs and develops Testing and Simulation Systems for mission critical and safety critical sectors. Skytechnology masters all the competences (software, mechanics, electronics, electromechanics and hydraulics) needed to realize the Systems.
Skytechnology may provide, if requested, the validation of the System, accordingly the reference standards.
Skytechnology delegates to third party suppliers the manufacture and the assembly activities (PCB, boards, switchboards, mechanics, wirings, etc.)

Compliance
The Compliance practice provides the following services:

- **Product Compliance** related to reach the product certification (CE marking or successful assessment) to allow Customers to homologate/commission the product
- **Process Compliance** to help Customers to set up the organization necessary to manage technical standards or best practices (ISO IEC 15504 –Spice, A-SPICE, CMMI, ITIL, etc.) related to quality, safety, security, software, hardware issues.
- **Preparation of RAM** plans and Safety Plans and related RAMS analysis to support reliability/availability demonstration and system/device maintainability
- **Preparation of Safety Cases** accordingly to Functional Safety directives IEC 61508, EN 50128/6/9 (Transportation), RTCA/DO 178B and DO 254 directives
- **Reverse Compliance** to help Customers to reach compliance for existing products
- **Adoption and implementation of technical standards/models** and relevant updates (e.g. EN 50128: 2011, ISO 26262, ISO 27001, CMMI)
- Definition of processes not fully standardized (e.g. Programmable Devices)
- Support for **incoming audits** and/or **supplier audits**
- **Training** on standards, maturity models, techniques and tools
- **Verification and Validation** of software and hardware products in accordance with the applicable standards