IPSES S.r.l.

Scientific
Electronics

Founded in 2003 with offices and laboratories located in the industrial area of Milan, **IPSES** is specialized in integrated hardware design, firmware and software solutions for testing and measure, industrial automation and process control.

IPSES offers transversal services, which start from the definition of project requirements, preparing technical specifications, system architecture definition up to the development and installation of the final product.

IPSES also designs and manufactures complete electronic systems according customer specifications, dealing with hardware (digital, analog, and mixed), mechanics, and software.

Our Engineering team has an excellent technology expertise in the use of National Instruments hardware and software platforms, proven by the highest level of certifications obtained. Besides, **IPSES is a NI alliance partner company**

The innovative approach of **IPSES** is to design advanced systems in close contact with client, determining needs and requirements for truly effective and targeted solutions, ensuring high quality, design flexibility, customizable cost and development time.

CONCEIVING
PLANNING
DEVELOPMENT
IN SCIENTIFIC
ELECTRONICS

www.ipses.com

Flexible solutions for your electronics needs

OUR SERVICES AND SOLUTIONS

WIRELESS AND MEASURE SYSTEMS

RF (RADAR WiFi and WiMAX)

APPLICATION AND SYSTEM FOR TESTING

EMBEDDED SYSTEMS

FIRMWARE DEVELOPMENT

MICROCONTROLLER PROGRAMMING AND FPGA

HARDWARE AND PCB DESIGN

MIGRATION AND REENGINEERING SERVICES

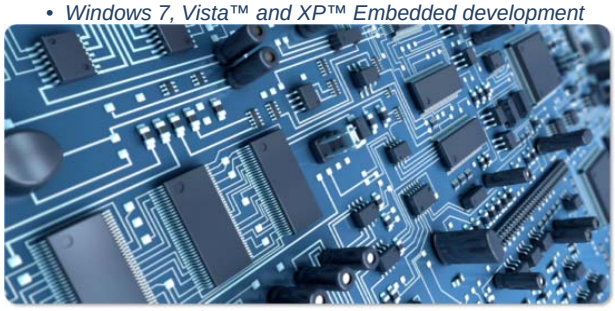
HARDWARE AND EMBEDDED PROJECTS

Our engineering team has an excellent technical and scientific expertise gained with many years of proven experience in the development of embedded technologies. We are therefore able to offer a wide range of services ranging from hardware design, firmware and software to complete turnkey solutions.
We design dedicated electronic systems capable of responding to customer specifications, making both prototypes and small series.
The skills of IPSES in electronics embedded cover a wide range of applications, ranging from development to digital signals, analog and mixed, both for scientific and industrial application, in realization of wireless, RF and measurement systems, design of PCB, re-engineering and migration services.
Besides:

- Solving and realizing PCB.
- Processing of technical documentation
- Development of managing drivers and user interface on PC
- Purchasing and installation of all the necessary equipment.
- Testing of the whole system.
- Conceiving and making mechanical devices.
- We can provide to the execution of the necessary electromagnetic compatibility tests for the CE certification.

FIRMWARE AND SOFTWARE

- *Real Time Embedded Software for a wide range of 8, 16, and 32 bit processors.*
- *Embedded C, Assembler and VHDL Programming*
- *Embedded firmware (Microcontroller, FPGA , CPLD,)*
- *Control System Software*
- *Embedded LabVIEW FPGA and Real Time development*
- *NI LabWindows/CVI development*
- *NI TestStand development*
- *System device drivers development*
- *Driver development and relevant WHQL certification. WHQL certification for FTDI driver*
- *GUI-based support software to allow in circuit reprogramming, data acquisition, and monitoring of the embedded application.*
- *Windows 7, Vista™ and XP™ Embedded development*



Programming languages

ANSI C e C++
Assembler
VHDL
Verilog
NI LabVIEW
NI LabWindows/CVI
NI TestStand
Basic and Visual Basic
Matlab
HTML, PHP, CGI, Java

Protocols and *Standard*

USB
Ethernet
CAN
RS232 e RS485
I2C
SPI
RFID

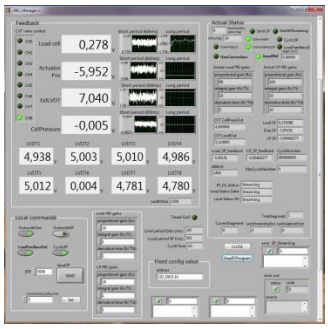
Microcontroller, CPU and FPGA

PIC Microchip
68HC Motorola (Freescale)
Fujitsu FMC16LX
Mitsubishi M16C
Infineon C167
MSP430 Texas Instruments
NXP 80C51 (ex Philips)
Ubicom IP2022
Intel 8051CPU
Intel XScale
TMS320 Texas Instruments DSP
Xilinx Spartan-3

HARDWARE NATIONAL INSTRUMENTS INTEGRATION

With its excellent knowledge of all National Instruments platforms and its wide experience in using and integrating NI hardware (**CompactRIO, PXI, CAN, DAQ**, etc.) and software (**LabWindows/CVI, LabView and TestStand**), **IPSES** offers its clients customized solutions and services, providing both technological and economic benefits.

Since several years, **IPSES** conceives projects and develops test and measurement systems based on **PC, CompactRIO** and **PXI**, especially oriented toward industrial and scientific applications. That makes IPSES the best partner choice for enterprises and research bodies which need to reduce times, costs and risks in developing and making their advanced technology solutions.



Thanks to flexibility and customizable interventions, our clients can choice the technical support and the assistance level better fitting their needs and requirements. So, they can decide to outsource the whole project or selected parts of it to our staff, entrusting the support of experts working strictly in contact with them for an effective no-problem implementation with their systems.

According the complexity of our client's solution and project documentation such as project architecture, product engineering and business processes, **IPSES** can:

- Overhaul its client's solution, especially concerning its reliability, feasibility and testability
- Advice and suggest how to optimize the architecture and design project
- Project, design and define the whole system architecture
- Develop, optimize and debug the required applications
- Evaluate, plan and organize the required activities
- Integrate the hardware and the software, including third party products
- Make the prototype
- Develop testing criteria and carry out acceptance tests
- Manage certification processes, such as the immunity to electromagnetic disturbances, for customized solutions.

SERVCES AND PRODUCTS FOR FUNCTIONAL AND BOUNDARY SCAN TESTING

IPSES has a wide experience especially designing and developing test system devices, above all for functionality, automotive and boundary scan tests. We developed and installed many test systems in Italy and abroad, dealing with customization of software at the clients' firm and fixing and upgrading the hardware. With its strong background in firmware, software and hardware development, **IPSES** can furnish extremely reliable and flexible solutions, developing whole test sequences and designing hardware and firmware.

We offer:

- Integration of National Instruments hardware
- Development of customized user software interface
- Processing of technical documentation
- Development of test sequences using NI TestStand.
- Boundary scan development using XJTAG tools.
- Testing of the whole system.
- Installation and integration in client's production lines of test devices
- Service assistance on site

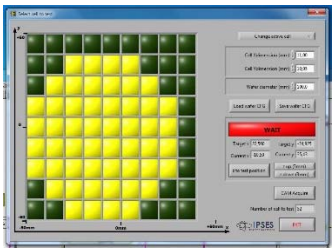
Besides, thanks to our **partnership with 6tl engineering** and **XJTAG**, we can provide complete turn-key solutions for your testing needs and test platforms with integrated functional and boundary scan test

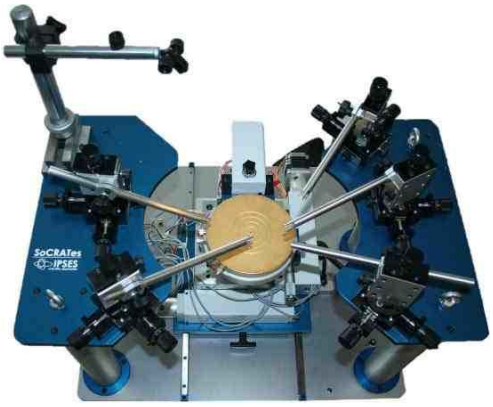
6tl official representative for Italy and Switzerland – sales and technical support

XJTAG exclusive Italian reseller

AUTOMATION AND PROCESS CONTROL SYSTEMS

IPSES provides complex solutions for process control, metrology and industrial automation systems, supporting the customer starting from the feasibility study and also guiding the procedures for CE certification.





SOME Products. For further information and full product catalog, visit our web site www.ipses.com.

Input/output cards with digital and/or analogical inputs and outputs and USB, Ethernet, WiFi, CAN or RS232 interface

IPSES input/output cards are the right answer to acquire digital and analogical signals and to control digital or analogical outputs from a PC in an industrial environment.
IPSES I/O cards allows to monitor and to control in real-time the status of each input and output which can be read at any time from PC and, in case of digital I/O, it also shows by LEDs mounted directly on the board.
All the analogical I/O are calibrated one by one, so to guarantee the maximum of precision and resolution. Beside, to improve their reliability and quality, the cards have all the digital inputs and outputs galvanically isolated to protect them and to reduce electromagnetic noises that may arrive.
Through the use of USB, Ethernet, WiFi, CAN or RS232 interfaces, our **I/O cards** can be integrated into any environment, using the client's resources already available and guaranteeing high speed, hardware independence and maximum of flexibility in the number of connected cards.
The boards are low or standard European Format card size (100 x 160 mm - 3,94 x 6,30 inches) so that they can be easily integrated and, on request, can be furnished mounted on a DIN rail.
All IPSES I/O cards are provided with a driver and a software for Windows environment (XP, Vista and 7).
On request, IPSES develops fully customized I/O cards and control software based on client's specifications.

MT systems – stepper motor control units with serial, USB or Ethernet interface

Our **motion cards** are the perfect solution to manage stepper one axis or multi-axes motors with nominal current up to 3A.
The position commands are directly sent to the motor by personal computer through **USB**, **RS232** or **Ethernet** interface, so to answer to the best all customers' needs.
MT-series cards are small size low power control devices which allow to control both bipolar and unipolar stepper motors (i.e. 8 and 4 lead motors, and 6 lead center tapped motors) and their respective limit/home detection sensors (with programmable polarity).
Although MT-series cards were conceived mainly to control finite rotation movements, they can also work with direct cycle motors and, for instance, they can also be used as speed control device. Cards are provided with driver and demo software for Windows environment.

CONTACTS

Research and development office:

via Lazzarotto, 10
20020 Cesate (MI) Italy

tel. +39 02 39449519
fax +39 02 700403170
e-mail: info@ipses.com
http://www.ipses.com

Technical support:

Tel.: +39 02 320629547
Email: support@ipses.com