

# ELECTRONICS

**VIVERIS**

Innovate. Simplify. Partner.



# Our expertise

Viveris relies on complementary skills to support its clients' projects, covering a wide range of areas including testing, telecommunications, artificial intelligence, cybersecurity, safety and mobility.

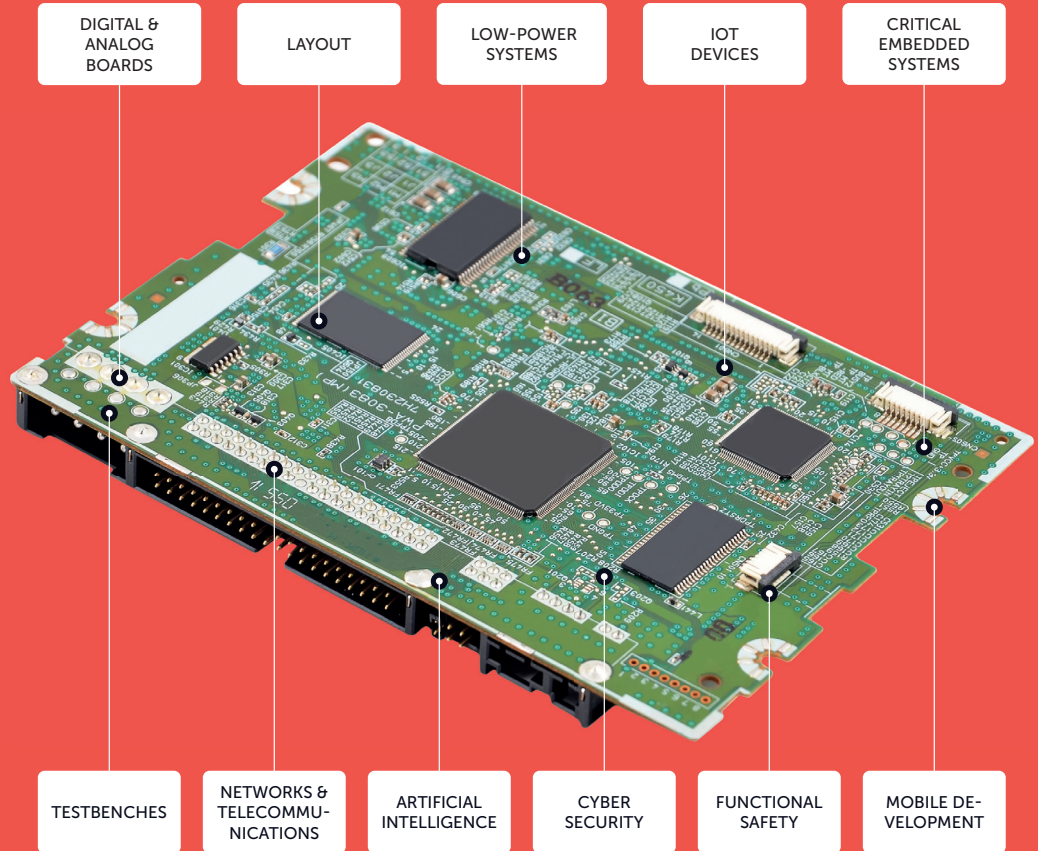
## SKILLS

### ELECTRONICS

Design For X • Board layout • FPGA • Industrialization • Qualification

### EMBEDDED SOFTWARE

Firmware • BSP • OS - RTOS • Framework • Business software



## EXPERTISES

# OUR OFFER

We assist our clients through **5 key stages** :

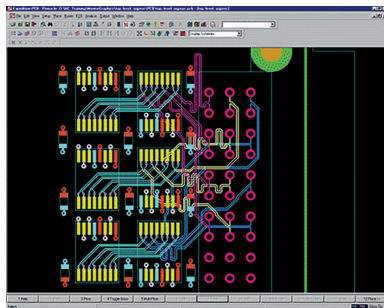
- 1 Innovation
- 2 Product Development

3 Integration and testing means

4 Expertise

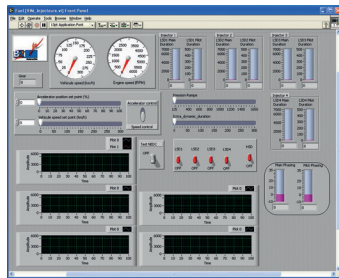
5 Obsolescence Management

# Our platform



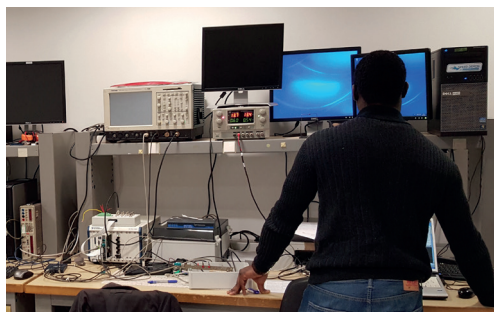
## CAD/PCB/PLM

- › Electronic CAD Software
  - OrCAD Capture, PCB Editor (Cadence, Altium)
  - Professional PCB Routing (Cadence, Altium)
- › Mechanical CAD Software: SolidWorks®
- › BSP (Buildroot, Yocto)
- › Boot loader (U-Boot, Grub)
- › OS /Real-Time (Linux, Linux RT, FreeRTOS, )
- › Tests (JTAG/Lauterbach TRACE32, BoundaryScan)
- › Analog Simulation: LTspice
- › Signal Integrity: HyperLinx®



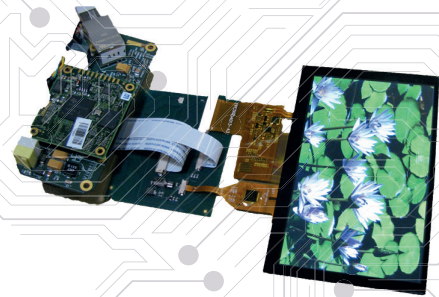
## FPGA SUITES

- › IDE Libero, Quartus, ISE Project Navigator
- › SYNTHESIS Synplify, Quartus, ISE
- › SOFTCORE NIOS, Microblaze
- › SIMULATION ModelSim



## INTEGRATION ENVIRONMENTS

- › Real-Time OS Linux, Linux RT, µCOSII, FreeRTOS, ...
- › Testing : JTAG, BoundaryScan



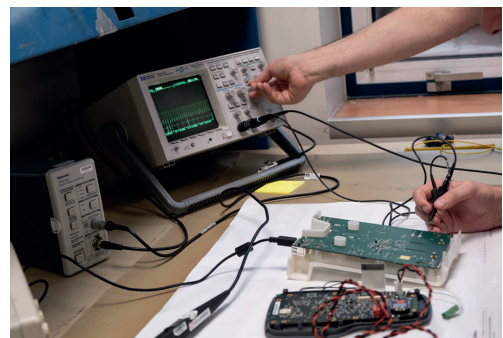
## OBSOLESCENCE MANAGEMENT

- › IHS/ACCURIS BOM Manager



## SOFTWARE TOOLS / QUALITY

- › Project Management (TULEAP, Jira)
  - Management of Technical Issues
  - Documentation Management
  - Planning
- › Requirement Management (Reqtify)
- › Code Quality Management (CodeSonar®, Sonar Qube®)
- › Configuration Management (Git, Gitlab)



## ELECTRONICS LABORATORIES

- › Instrumentation
- › EMC and climatic debugging
- › Prototyping and testing means
- › Test and simulation (LabView, TestStand)

# REFERENCES



## Defense



Our client, a systems integrator in defense, entrusted Viveris with the development of a board capable of saving and reading data at 10Gb/s via an Interlaken bus. This board is architected around the Cavium Networks 700BG324-G component.



### Technical environment

- Schematic and routing using CADENCE (ORCAD Capture/PCB Editor), Mplab C, Vivado VHDL, Cavium CNSP1620, NEURON,

## Aerospace



Our client, an aerospace equipment manufacturer, has entrusted Viveris with the study and development of a safety electronic board designed for controlling the opening and closing of relays for the electrical network's generators. It takes into account the constraints of overvoltage, overcurrent, and failures of external equipment.



### Technical environment

- 4,500 components
- Analog Electronics
- Mentor Expedition CAD, SPICE Simulation
- Safety System, D0254 / EN9100

## Railway



Viveris designed a security system operational on two lines, serving as a complement or replacement for platform doors



### Technical environment

- Generic Application SIL2 certified
- Embedded Software:  $\mu$ C/OSII, FPGA, Linux
- Embedded Software: .NET
- Digital and Analog Electronics: EN50126 / EN50128 / EN50129 Standards
- EMC and Environmental Qualification

## Space



Our client is a player in the testing of components subjected to harsh environments. They entrusted Viveris with the study and development of an electronic board, designed around an FPGA, dedicated to the qualification of processors



### Technical environment

- CADENCE OrCAD (Capture, PCB Editor)
- Libero (VHDL)
- Bootloader (Assembleur PowerPC)
- Linux (build tool : «Linux from scratch»)
- Linux Kernel Hardening (Assembler)

# REFERENCES



## Energy



Our client is a key player in maintaining the operational readiness of nuclear power plants. They entrusted Viveris with the study and implementation of a security system that monitors 4-20mA loops.



### Technical environment

- CADENCE OrCAD (Capture,PCB Editor)
- Digital and Analog Electronics
- FPGA ACTEL, VHDL, Modelsim
- Cenelec Standards: IEC 61508 / IEC 61514

## Medical



Our client, a medical equipment manufacturer, has entrusted Viveris with the study and development (both software and hardware) of an energy-autonomous nutrition pump. This equipment is certified as CE Medical and FDA Major level.



### Technical environment

- Lowpower system
- 2 CPU STM32, 1 Ecran LCD
- Motor Driver, Infrared Sensor
- Ultrasonic sensor
- SCADE Display, SCADE Suite
- EN62304, UL

## Telecommunications



Our client, a producer of special gases, commissioned Viveris for the study and industrialization of a local control unit for LoRa/Sigfox/GSM networks.



### Technical environment

- CADENCE OrCAD (Capture,PCB Editor)
- Low Power
- ARM CORTEX processor
- LoRa, GSM/2G/3G, Bluetooth BLE, GPS
- LCD screen
- Lithium Phosphate Battery, Solar Panel
- CE/FCC Part 15/UL/IP67 and Equivalent NEMA/RoHS/Reach Certifications

## Transportation



Our client, a bus manufacturer, has entrusted Viveris with the design and series production of a communication gateway between the CAN network and the IP network. This CAN/IP communication gateway provides access to the information from the vehicle's CAN bus to operational



### Technical environment

- Low Power
- ARM9
- 2 bus CAN, 1 bus Ethernet , Pile IPV6
- Bootloader UBOOT
- BSP Linux
- Automotive power supply
- « e » certification

# REFERENCES



## Medical



Our client is an emerging player in molecular diagnostics, providing high-precision PCR without an external power source for pathogen detection.



### Project stages

- System interaction analysis
- Creative solution research
- Design UX/UI
- Mechatronic design
- Functional prototype manufacturing

## Medical



Our client is a company specialized in the controlled distribution of liquid medications in hospitals, developing technological solutions to ensure the precise and secure administration of drug treatments to hospitalized patients..



### Project stages

- Study of use cases in hospital settings
- Definition of pain points
- Product architecture design
- Design
- Development and manufacturing of the functional prototype

## Agriculture



Our client is a French Deeptech and Greentech company specializing in robotic weeding for complex terrains, particularly in sports fields such as golf, soccer, and rugby.



### Project stages

- System Interaction Analysis
- Overall Robot Architecture
- Product Design
- Mechatronic Design
- Development of the Functional Prototype
- Real-World Testing
- Support for Pre-Industrialization

## Agriculture



Our client is a company specialized in vineyard and orchard spraying. The company designs, manufactures, and markets a comprehensive range of towed sprayers for wide vineyards and orchards, combining quality, precision, and efficiency.



### Project stages

- Innovation assessment
- Innovation strategy and diversification
- Product creativity

# REFERENCES



## Environment



Our client develops eco-friendly solutions and equipment for hotels. They advocate for a positive ecology that inspires rather than constrains the customer. This product naturally reduces water consumption in the shower by 30%.



### Project stages

- Analysis and Definitions of User Experience
- Connected and Low-Power Product Architecture
- UX/UI Design
- IP65 Mechatronic Design
- Development of the Functional Prototype
- First Series Production for Pilot Site (10 Products)

## Telecommunications



Our client is an emerging player in the telecommunications sector. They offer phones with simple features that allow only calls and SMS. Their product is aimed at a younger audience to help limit screen addiction.



### Project stages

- Strategy & B2C Product Marketing Positioning
- Product Design & UX/UI Design
- Development of a Desirable Prototype
- Development of an Android Mobile App
- Support for Pre-Industrialization

## Automotive



Our client is an automotive manufacturer looking to develop a new truck concept. They are undertaking the development of an electric laboratory vehicle. The goal is to assess the potential for technological innovations in energy and environmental optimization, safety, ergonomics, and onboard comfort.



### Project stages

- Usage Analysis
- Creative Solutions Research
- UX/UI Design
- Design of Lighting Modules
- Development of Functional Prototypes for Integration into the Concept Car Usage Analysis

## Construction



Our client specializes in developing solutions dedicated to the detection of underground networks, aiming to prevent incidents related to these networks (such as gas explosions and large-scale power outages).



### Project stages

- System Interaction Analysis
- Creative Solution Research
- UX/UI Design
- Mechatronic Design
- Development of the Desirable Prototype

# VIVERIS

Innovate. Simplify. Share.

## Viveris Group



Viveris is committed to providing engineering and consulting services across major domains including IT, telecommunications, and embedded systems. We support leading operators and equipment manufacturers in the most demanding sectors



## Key figures



**35** YEARS  
OF EXPERIENCE



**900**  
EMPLOYEES



## 4 Development centers

- > ISO 9001 Certified
- > Approved for Research Tax Credits
- > 300 engineers specialized in embedded systems



## 2 Electronics Laboratories

- > Electronic instrumentation
- > Integration benches
- > Prototyping means
- > Pre-qualifications resources (EMC, climatic)

## Your contact



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