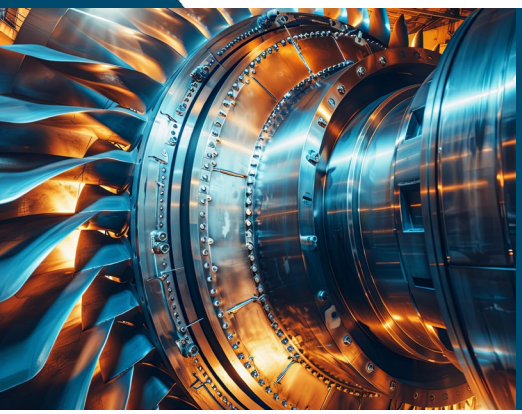
FROM PROOF OF CONCEPT TO INDUSTRIAL EMBEDDED SYSTEM: A FULL-CYCLE SoC FPGA PROJECT



THE CLIENT

A leading energy and equipment innovator, focused on power generation and Oil & Gas, aiming to industrialize a breakthrough sensing technology for heavy-duty gas turbines.

THE CHALLENGE

Our client started the development of a new dynamic pressure measurement solution based on an innovative Academic Research **Signal Processing Concept**.

Our client needed to scale up this prototype into a market-ready FPGA.

Key Technical Breakthroughs:

- Validated and optimized the core algorithm to ensure industrial-grade accuracy and robustness
- Engineered a high-performance signal processing chain seamlessly integrated into the SoC FPGA
- Delivered a full digital platform bridging embedded systems with PC-based monitoring and analysis
- Created a user-friendly interface for seamless control and real-time visualization
- Designed and produced the custom motherboard integrating FPGA and analog component

Project management needs:

- Coordinating digital part of the project with management of the different contributors
- Empowering the client team for future improvement

OUR APPROACH

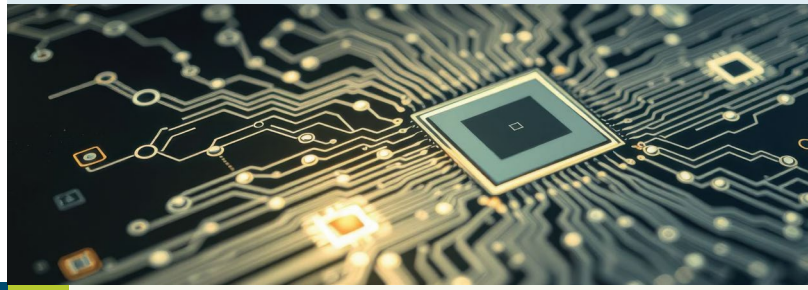
We started with an Audit of the FPGA prototype platform with the objective of **delivering a robust, reliable and industry-ready version of the FPGA by**:

- Performing reverse engineering
- Building a custom testbench to speed up an efficient debugging across evoluting hardware
- Developing the firmware for embedded ARM core to manage data flow and ethernet communication with the host PC
- Supplying electronic hardware and software for a full solution including SoC FPGA, PCB and PC interface.

RESULTS ACHIEVED

The client obtained **a market-ready version of the Digital platform** with:

- **A robust Signal Processing implementation**
- Delivery of databases and flows integration **for long term autonomy**
- **Fully integrated hardware/software embedded solution**



AEDVICES is specialized in Front-End digital design, development and verification of ICs and Programmable Logic for embedded systems.

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THE INITIAL SITUATION

- Misunderstandings between client and subcontractor
- No formal digital validation process
- Lack the internal expertise

WE ACT AS A TECHNICAL INTERFACE BETWEEN CLIENT AND SUBCONTRACTOR

THE RESULTS ACHIEVED

- Internal team and subcontractor ready to work together on the project
- Project confidence restored

Atteinte du niveau d’autonomie nécessaire