

IMPROVED PHYSIOTHERAPY SYSTEM

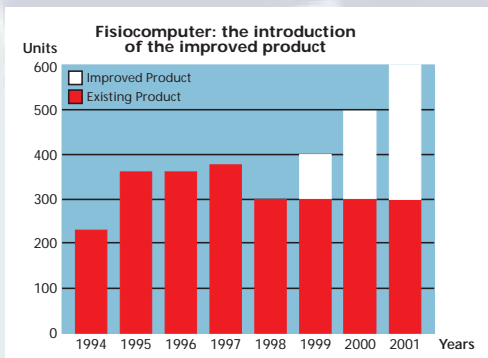
programmable logic achieves better performance at lower cost

By adopting a more advanced microelectronics technology, J&S s.r.l. has improved the features of its "Fisiocomputer" - a physiotherapy equipment for electro-therapy, IR laser-therapy, magnetic-therapy, ultrasound-therapy- and reduced its manufacturing costs by 25%. This has enabled the company to offer a product with higher reliability, enhanced performance and at the same cost for the end-user.

J&S s.r.l. designs, manufactures and sells medical equipment (Physiotherapy and pulmonary diagnostic systems) mainly for private medical centres. J&S also performs Software & Hardware design for external customers.

J&S s.r.l.	
Employees	6
Turnover	300 KECU/year
Industrial Sector	Medical equipment - PRODCOM code: 33
Technical expertise before the project	Microprocessor
Technical expertise at end of project	FPGA

SIGNIFICANT ECONOMIC BENEFITS



The company's sales of its existing product are stagnating and are expected to drop if its features are not improved. With the product improvements achieved in this project, the company will enhance its market position and achieve a significant sales growth as shown in the chart. The increase is mainly related to the new features obtained through the introduction of FPGA technology in the product. The development work, up to the prototype stage of the electronic part, was entirely funded under the FUSE programme at a cost of 57 KECU. The total cost of developing the product's prototype was 82 KECU. The increased sales and a reduction in manufacturing costs of 25% will enable the company to recover the development costs in 24 months.

PRODUCT IMPROVEMENTS

Using a Field Programmable Logic Array (FPGA), J&S s.r.l. has developed a new digital board replacing four original ones and has improved the product's performance. The main advantages of the new product:

- Improved functionality including generation of two simultaneous analogue signals for contemporary different therapies.
- More reliable, consumes less power and is cheaper to manufacture and to maintain.
- The reduced number of components has enabled the product to be tested more effectively.
- Simpler warehouse management process of only one component instead of more than 30.



How to go about it

CHOOSING THE RIGHT TECHNOLOGY

FPGA technology was selected to implement the improvements in the Fisiocomputer product because it offered the following benefits:

- Reduced product cost and complexity due to the integration of logic functions in a single device.
- Reduced time-to-market due to the simplified design process.
- Cost effectiveness for J&S production volume which is less than 1000 units per annum.
- Suitable technology step for J&S engineers.
- Simplified digital board manufacturing and test processes.
- The ability to apply the technology to future products.

PROJECT OVERVIEW	
Main Activity	FPFA
Duration	9 months
Effort	180 Person days
Overall prototype development costs	82 KEUCU

A PARTNERSHIP FOR SUCCESS

The project was conducted by the company as a FUSE application experiment with the active support of suitable subcontractors at all stages. The subcontractor provided support in:

- Defining specifications of the new product.
- Selecting suitable component for the application.
- Training and support for the company's personnel in FPGA design methods and computer aided design tools including the VHDL language.
- Prototyping and testing of the new digital board.

The project's effort and cost are listed in the adjacent table

EFFORT & COST		
Task	Company's effort (days)	Subcontractors' costs (KEUCU)
Management	15	
Training	45	6.2
Specification	30	0.7
Design	60	5
Testing and evaluation	30	1.3
Total	180	13.2

YOU CAN ALSO BENEFIT FROM MICROELECTRONICS

FPGA technology provided J&S s.r.l. with the means of improving its products and enhancing its market position. You can also achieve significant benefits by acquiring the right microelectronics technology and utilising it in your product or manufacturing process. You can get help from FUSE to realise this.

FUSE is a technology transfer programme, funded by the European Commission to stimulate the wider use of microelectronics technologies by European enterprises to increase their competitiveness and enhance their economic growth. The demonstrator described here is one of many examples in the public FUSE portfolio covering the whole spectrum of microelectronics technologies and spanning a wide range of applications and industry sectors.

FUSE provides you with:

- *Best practice in acquiring specific microelectronics technologies and conducting full development projects through the FUSE portfolio of real life demonstrator documents.*
- *Local training and expert support to plan your innovation realistically and help you conduct your project successfully.*

Further information and support relating to this and other demonstrators can be obtained from the addresses below.

The Technology Transfer Node

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