

Custom Electronics

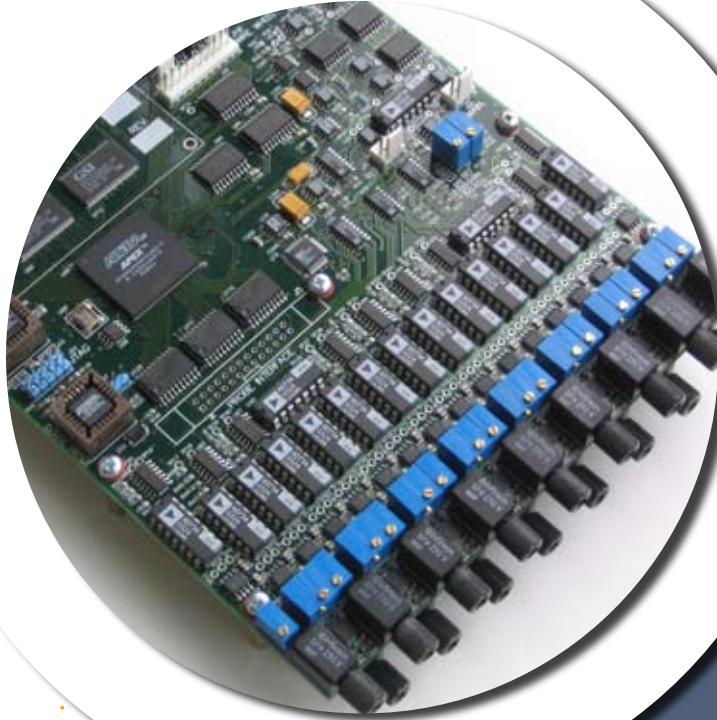
streamlines the process for laserscan

test & measurement

custom electronics

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Challenge

CPE was commissioned by AWTA to upgrade its Laserscan technology, the primary method for certifying the fineness and quality of Australian wool fibres. The existing Sirolan™ Laserscan electronics occupied 10 separate printed circuit boards, with a primitive software application running in the DOS OS.

CPE proposed a design that would reduce the 10 PCBs down to a single board. Additionally, most of the existing software would be replaced by onboard technology to improve the speed and sensitivity of the instrument. The fundamental reason for the upgrade was to allow for faster, lower cost manufacture and maintenance of the system. The measurement technique and principles were unchanged, however the upgrade needed to be flexible enough to allow for ongoing R&D without requiring a complete PCB redesign.

Solution

CPE's design was based on an Altera SOPC solution, which integrates a soft-core Nios processor with application specific logic into a single FPGA, providing maximum flexibility by offering complete system integration on a single device. A key advantage for the customer was that for ongoing support and maintenance, all necessary development tools were provided in a single Altera Nios subscription, which included the FPGA logic design (with VHDL support), the SOPC Builder tool, the GNUPro Toolkit, and a JTAG programmer for in circuit configuration of FPGA Proms.

The design offered some substantial improvements, such as:

- ⦿ Automatic baseline correction
- ⦿ TCP/IP communications, allowing for remote operation and diagnostics
- ⦿ Remote flash upgrade capability
- ⦿ Significant increase in I/O, allowing for automation of peripheral devices into the measurement system
- ⦿ Substantial reduction in price of development tools

For more CPE user solutions, visit our website.



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