BlueChip Technology

CASE STUDY

PC104+ embedded board controller for factory post Inspection laser device

Background

Renishaw plc is an established world leader in metrology, providing high performance, cost-effective solutions for measurement and increased productivity. The Group's products include an extensive range of probing, calibration, encoder, scanning and spectroscopy systems. Within an automated factory operation, the co-ordinate measuring machine (CMM) provides post-process inspection of machine components.

Typically, a CMM may interface with three or more different probes, each interface needing a unique computer controller device. Using Blue Chip Technology's embedded computer expertise, Renishaw developed a single universal controller to manage multiple probes, including third party ranges.

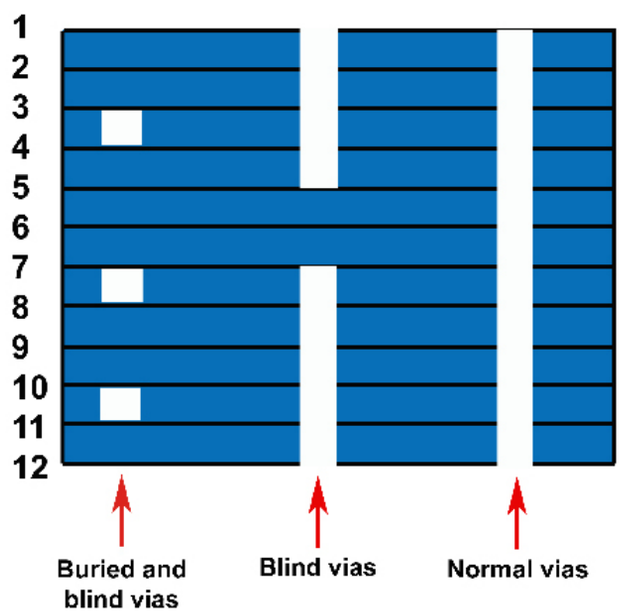
System Requirements

Bringing together multiple probe control into one system box required a step improvement in processing power. Renishaw specified a high speed PC104+ custom board, with QNX, I/O expansion and an operating temperature range of 0C to +70C.

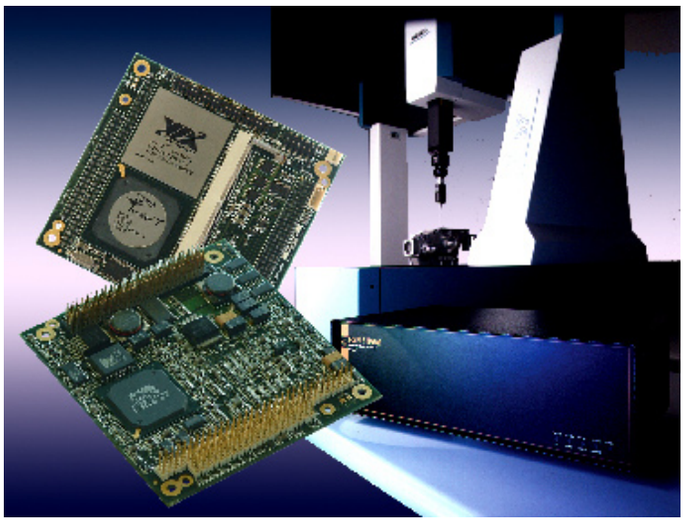
System Description

Blue Chip Technology delivered a prototype within a ten week development cycle. The custom PC104 plus design incorporates the new generation VIA C3™ 1GHz processor with Nehemiah core, a 2D/3D graphics rich PN133T Chipset, 133MHz Front Side Bus and 512 MB SDRAM support.

PCB Cross - section



Working within a small 90mm x 96mm footprint, Blue Chip utilised cutting-edge 'blind and buried' technology within a 12 layer PCB board design. The complex sub-routing of solder channels made it possible to have a BGA mounted on the same place on both board sides, packing performance into the PC104 plus factor.



Why Blue Chip Technology?

The Blue Chip team delivered a working prototype in ten weeks and offered a price competitive package which allowed Renishaw to standardise on a 1GHz processor option.

The module ultilises a number of peripheral interfaces including VGA controller with CRT, ATA-100 IDE , one serial port, real-time clock, keyboard and mouse (PS/2) controller. It drives up to four external PCI (PC/104plus) modules, three of which can perform Bus Mastering, further IO expansion is available through the 16-bit ISA bus. Renishaw specified the QNX real time operating system supporting Windows™ 9x, NT, 2000 & XP.

Product continuity and ongoing support were key to Renishaw, who can potentially have products in the field for 20+ years. Blue Chip Technology's design and manufacture in the UK, retaining complete control over product quality and life cycle management.

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