

ATE Engineering Support

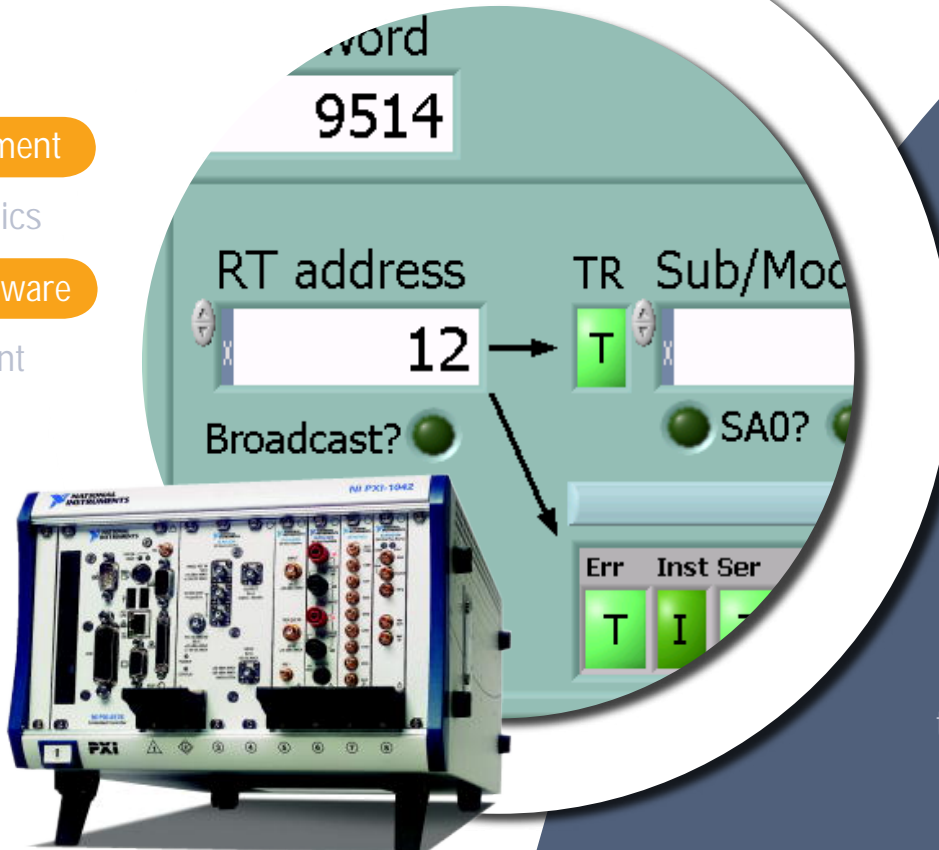
drop in replacement of EOL 1553 equipment

test & measurement

custom electronics

engineering software

data management



defence & aerospace

consumer goods

environment

mining

ICT

energy

agriculture

biotechnology

transport & automotive

Challenge

The Military Standard 1553 is utilised extensively in Aircraft communications. Mil-Std-1553 test equipment is found in many of the Automatic Test Equipment (ATE) used to repair Aircraft Avionics. Some of this legacy ATE utilise Commercial off the Shelf (COTS) Test Equipment. This equipment is becoming harder to support and maintain, thus requiring alternate solutions be sought.

The Mil-Std-1553 Circuit Card Assembly (CCA) used on the HILATS ATE in support of the Avionics for the F-111 RAAF Aircraft was unsupported and required replacement. The original equipment consisted of a 2 channel dual redundant 1553 bus and a direct replacement could not be sourced. There were 4 HILATS test stations without any spares for the obsolete DTI-2188 1553 system.

Solution

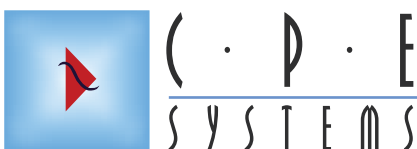
Incorporating an OEM PXI 1553 Mil-Std circuit card in a National Instrument PXI Chassis, CPE Systems designed and delivered 4 complete systems to BAE Systems. This included error injection tests on the 1553 bus, command word verification and error handling testing.

CPE Systems overcame a number of challenges including:

- The unavailability of HiLATS 1553 COTS CCA documentation and support files
- Interfacing to the existing GPIB Bus whilst maintaining the timing constraints
- Emulation of the HILATS internal 1553 synchronizing bus using a PXI DAQ card
- Development of a 1553 word parser for fault injection, analysis and verification

The replacement system was designed as a drop in replacement to the DTI-2188, without requiring any TPS changes.

All connectivity was designed to allow use of either system, allowing for the rapid verification of the replacement system.



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