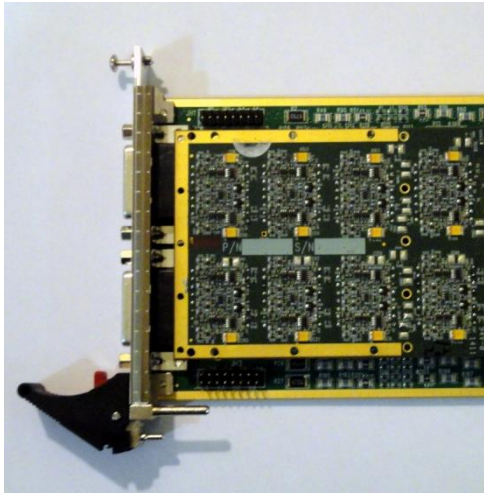# AVIONICS INTERFACE cPCI BOARD

cPCI HyperBoard™

Multi-Standard Avionics Interfaces CompactPCI Card, including Mil-Std-1553, H009, WB-194, ARINC 429, Avionics and Discrete I/Os, RS-485

Compact, Robust, Reliable, Low-Energy Consumption

Specifications

Compatibility
- MIL-STD-1553B Notice 2
- H009, WB194, ARINC 429
- RS-485, IRIG-B
- DDC® Enhanced MiniACE® software drivers
- PCI Bus Interface
- 3U cPCI Form Factor

Environmental
- Industrial grade: -40^0C to $+85^0$C
- 5% to 90% relative humidity (non-condensing)

Power
- 3.3 VDC, ±12VDC, 18W while all channels transmitting simultaneously

Available Configurations
- 8X dual-redundant Mil-Std-1553B (or other) channels with 64K word RAM per channel
- Can be configured for Mil-Std-1760, H009, WB194 applications
- Tester configuration for all protocols – 1553, H009, WB-194

Software Provided
- PCI Driver for Windows and Linux
- API high-level libraries with source code included for Windows and Linux
- GUI (Graphical User Interface) – Luthier™ or MuxSoft™ for 1553 bus simulation and analysis

More products from Sital
- MIL-STD-1553 IP Cores for FPGAs
- MIL-STD-1553 Discrete Components Transceiver
- Mil-Std-1553 Testers
- 2 channel 1553, PCI board

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Key Features and Benefits

- Board can be ordered in various configurations and bus interfaces
  - Supports Mil-Std-1553, H009, and WB-194
  - Up to 8 dual-redundant Mil-Std-1553B or 4 H009, and WB-194 channels
- Can be ordered in two configurations – standard and tester
- **Tester configuration:**
  - On-board coupler enables direct connection to Unit Under Test
  - Signal output levels reduced to test units in worst-case scenarios
  - available for all protocols supporting concurrent BC, Multi- RT and Monitor, error injection and enhanced monitoring
  - Provided with software GUI, API and drivers for Windows
- **Standard configuration**:
  - All channels are compatible with Mil-Std 1553B Notice 2, Mil-Std-1760, each channel can be configured as BC or RT+MT
  - Software-compatible with DDC® Enhanced MiniACE® architecture
  - Provided with drivers, software API for Windows and Linux
- 32K or 64K word RAM per channel
- 8X avionics discrete I/Os, 4 x RS-485 or ARINC-429 I/Os (factory set)
- External Time Tag Clock input and output (through IRIG B)
- 8X digital discrete I/Os
- 32-bit PCI 33/66MHz compatible
- Low power consumption and low heat dissipation

cPCI HyperBoard is a cPCI-compatible, multi-standard board that contains up to eight channels of Mil-Std-1553. It is compatible with Mil-Std-1553B and Mil-Std-1760 and its channels can be configured independently to work with H009 and WB194 in conjunction with 1553 (other protocols also available).

The board includes four channels that can be configured as RS-485/RS-422, IRIG-B or ARINC-429. It also includes eight avionics I/O ports and eight digital I/Os.

cPCI HyperBoard is software-compatible with DDC® Enhanced MiniACE® components and architecture and with 32K or 64K words of internal RAM per channel, enabling fast and easy integration with existing or new systems.

The board is provided with software drivers for Windows and Linux along with high-level API to ease application development.
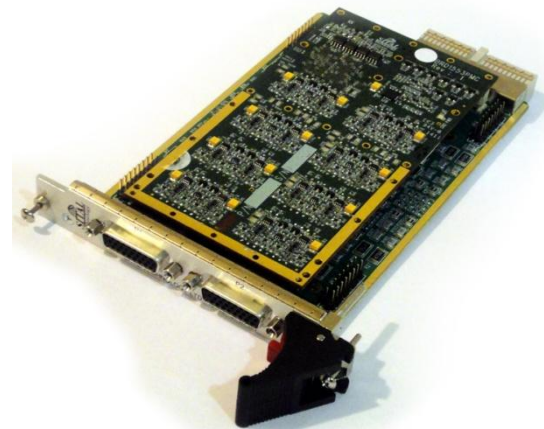
More information is available at **www.sitaltech.com**
Email: **info@sitaltech.com**

SITAL Technology

Deliverables:

cPCI HyperBoard™

- **PN: BRD1553cPCI-STD-8**
  Standard Configuration
  o cPCI conduction-cooled
  o 8X 1553, 1760 channels(*)
  o 8X avionics discrete I/Os
  o 8X digital discrete I/Os

- **PN: BRD1553cPCI-TST-8**
  Tester Configuration
  o 8X 1553
  o 4X H009 channels
  o 4X WB-194 channels
  o 2X TX+RX ARINC 429

- Other configurations and protocols are available. Please contact Sital

Connections

- Standard cPCI connection for PCI bus
- All other signals via 2 x 26 pins D-type connectors

Software

- Software **drivers and API** for Windows and Linux. Consult Sital for other OS
- *Luthier* Com Builder software for scenario definition and test
- *MuxSIM, MuxMonitor, MCXSim for Tester Configuration*

Warranty and Support

- 3 year limited hardware warranty
- 1 year technical support including free software upgrades

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cPCI HyperBoard™ Functionality

The cPCI HyperBoard is based on Sital's proven 1553, H009 and WB-194 IP cores, loaded into an FPGA (Field Programmable Gate Array) component, and discrete components transceivers, which can be programmed by Sital, allowing the flexibility to support various configurations and protocols using the exact same hardware.

The board can be used for on-board avionics systems or for lab testing equipment.

Customers can select the appropriate configuration for their specific requirement, for example – all channels are configured as Mil-Std-1553, or another configuration can be 4 channels of 1553 and 2 channels of H009, or all channels of 1553, with 4 channels working concurrently as WB-194 channels.

Other configurations and protocols are available upon request.

The board can also serve as a fully-functional 8-channel tester for the various protocols supporting concurrent BC, Multi-RT and enhanced monitoring. In such cases, Sital provides MuxSim™, MuxMonitor™ and MCXSim™ software tools for simulation, testing and analysis of avionics bus traffic.

In addition to avionics protocols, the board also includes 8 avionics discrete I/Os, supporting up to 35V inputs connected via opto-couplers, as well as 8 discrete digital I/Os for other applications.

IRIG-B input and output are supported for external time-tag. These ports can also be used as RS-485 I/O or can otherwise be configured to support up to four ARINC-429 channels, 2 for TX and 2 for RX.

Software Drivers, API

All Sital boards are provided with drivers for Windows and Linux and include a high-level API that is provided as source code.

Luthier™

Luthier™ software is a Windows® application that enables testing and verification of basic operation of the board and its 1553 connections. It allows the user to configure the channels as BC, RT or Monitor, define 1553 messages and frames, monitor the traffic on the bus and validate the correct operation of the board.

It enables Sital's users to set-up a working environment for their Mil-Std-1553 application quickly and easily.

Each channel is independently controlled and configured, so customers can create a complete test scenario without the need for any additional test equipment.
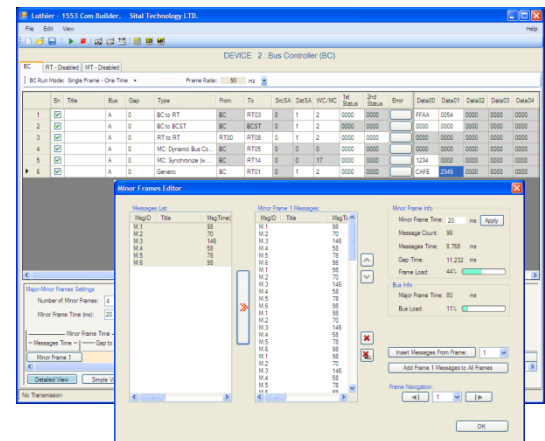
About Sital

Sital Technology provides world-class products and expertise for communication bus applications in the avionics, aerospace and automotive industries. Sital embeds its vast experience and proficiency in its products which include Mil-Std-1553 and other avionics IP cores, components, boards and testers, as well as CAN bus devices and applications. With its highly-experienced staff of experts, the company's Projects Division undertakes design, integration and turn-key engagements on behalf of the world's leading commercial and military avionics companies, space agencies, and automobile designers and manufacturers. Sital's bus technologies and expertise improve robustness and efficiency as they lower cost, space and resource utilization.

Sital's formidable customer list includes leading military and commercial organizations throughout the world among them: NASA, Boeing, Lockheed-Martin, Honeywell, Raytheon, General Motors, British Aerospace, Orbital Science, Thales, ECIL(India), Aselsan, Elbit, Rafael and IAI.

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- Sital may change the specifications and functionality of the board without notice.