



# RPCIE-1553

## High Density PCI Express Interface

Abaco Systems' RPCIE-1553 is the latest generation of performance and flexibility for MIL-STD-1553A/B Notice II on a PCI Express module. Available in -40°C up to +70°C temperatures with one, two or four dual-redundant channels, the RPCIE-1553 includes advanced API (Application Programming Interface) software that reduces application development time.

Standard features include IRIG-B signal Receiver/Generator with GPS synchronization, transformer coupling, 4 lane PCI Express support, 1 Mbyte of RAM per channel, 64-bit, 25 nanosecond message timetagging, triggers, extensive BC & RT link-list structures, error injection/detection, avionics level discretes, automatic/manual RT Status Bit and Mode Code responses, along with advanced BC functionality. Variable voltage output is optionally available. The RPCIE-1553 Bus Monitors provide unparalleled error detection and 100% monitoring of fully loaded buses.

### Multi-function Interfaces

RPCIE-1553 multi-function interfaces are easily configured to operate with simultaneous Bus Controller, 31 Remote Terminals and Bus Monitor functionality.

### Dual-function Interfaces

Dual-function RPCIE-1553 interfaces have all the features and functionality of the multifunction versions, with either Bus Monitor and Bus Controller, or Bus monitor and up to 31 Remote terminals.

### Software

Abaco provides our advanced 1553 API in source code, along with support for Windows 7, 8, 8.1, 10, XP, Vista (32 and 64bit), Server 2012 R1/R2, VxWorks, Linux, LynxOS, QNX and other operating systems. To access 1553 functionality without software development, BusTools/1553, Abaco's MIL-STD-1553 bus analysis, simulation and data logging/monitoring solution is available.

### FEATURES:

- 1, 2 or 4 dual-redundant MIL-STD-1553A/B Notice II channels
- Native 4 lane PCI Express interface (no bridge)
- Simultaneous Bus Controller, 31 Remote Terminals and Bus Monitor
- High-level API for Microsoft® Windows® 7, 8, 8.1, 10, XP, Vista (32 and 64bit), Server 2012 R1/R2, VxWorks®, Linux, LynxOS, QNX and Solaris included
- Multi-function and dual-function versions
- Standard with IRIG-B receiver/generator
- 64 bit, 25ns message time tagging (virtually unlimited time stamping)
- 18 bi-directional Avionics discretes
- Complete message programmability
- Flexible message status/interrupt generation
- I/O triggering and error injection/detection
- Transition cabling to 1553 cable jacks included
- Optional conformal coating
- Supportable throughout program lifetime with Product Lifetime Management (PLM) program

## RPCIE-1553 High Density PCI Express Interface

### Specifications

#### Physical

- PCI Express Interface Card (4.376 x 6.60 inches)

#### Environmental

- Standard operating temperature range: -40°C up to +70°C
- Relative humidity: 5 to 95% (non-condensing)
- Optional conformal coating configurations

#### Software Support

- API - High-level libraries with source code included for Windows 7, 8, 8.1, 10, XP, Vista (32 and 64bit), Server 2012 R1/ R2, VxWorks, Linux, LynxOS and Solaris
- GUI - Optional BusTools/1553 GUI Bus Analysis, Simulation & Data Logging software (multi-function boards only)
- IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)

#### Connections

- Transformer coupling
- I/O triggers; 18 avionics-level discretes
- Transition cabling to 1553 cable jacks included

#### Multi-function Operational Modes

- Simultaneous BC, 31 RTs and BM

#### Dual-function Operational Modes

- BM and BC, or BM and 31RTs

#### Power (4 channels at 75% duty cycle)

- +12 VDC @ 200mA (typ.)
- +3.3 VDC @ 2A (typ.)
- 5.9 W power dissipated on board

#### On-board Shared RAM

- 1 Mbyte (per dual-redundant channel)

#### Optional Configurations

- 1, 2 or 4 dual-redundant channels
- 1, 2 or 4 Dual or Multi-function channels
- Optional conformal coating
- Optional Direct coupling

#### Contact factory for custom requirements

### Description

#### Bus Controller

- Programmable control over:
  - Major and minor frame content and timing intermessage gap times
  - Response time-out and late response
- Modify messages, data or setup while card is running
- Insert aperiodic messages into a running BC list
- "Oneshot" mode for simplified BC operation
- Conditional message sequencing based on real-time message data or status
- Selectable interrupt generation and status messages on full range of system conditions or all detected errors
- Full error detection
  - Invalid word
  - Bit count error
  - High word
  - Low word
  - Inverted sync
  - Manchester
  - Late response
  - Early response
  - No response
  - Incorrect RT address
  - Parity error
- Extensive programmable error injection (on a per word basis)
- Synchronize BC operation to external time source

#### Remote Terminal

- Multiple RT simulation (up to 31 RTs)
- Programmable error injection (on a per word basis)
- Modify data, status words or setup while card is running
- Programmable message content (linked message buffers)
- Selectable interrupts upon multiple conditions
- RT Map Monitoring

#### Bus Monitor

- Capture 100% fully loaded bus traffic with:
  - Time-tagging
  - Error status
  - Word status
  - Message status
- Interrupts can be selected by RT / SA / WC
- Extensive filtering and triggering options
  - By individual RT/subaddress
  - Transmit, receive or broadcast mode codes - Internal or external triggering
  - Trigger output on user specified data
- Real-time bus playback with RT edit mode
- IRIG/GPS synchronization

### Ordering information

RPCIE-1553-G2-1MW	MIL-STD-1553 multi-function, PCI Express interface, single dual-redundant channel, 32-bit FW, variable voltage, with IRIG-B/G
RPCIE-1553-G2-1DAW	MIL-STD-1553 dual-function, PCI Express interface, single dual-redundant channel, 32-bit FW, fixed voltage, with IRIG-B/G
RPCIE-1553-G2-2MW	MIL-STD-1553 multi-function, PCI Express interface, two dual-redundant channel, 32-bit FW, variable voltage, with IRIG-B/G
RPCIE-1553-G2-2DAW	MIL-STD-1553 dual-function, PCI Express interface, two dual-redundant channel, 32-bit FW, fixed voltage, with IRIG-B/G
RPCIE-1553-G2-4MW	MIL-STD-1553 multi-function, PCI Express interface, four dual-redundant channel, 32-bit FW, variable voltage, with IRIG-B/G
RPCIE-1553-G2-4DAW	MIL-STD-1553 dual-function, PCI Express interface, four dual-redundant channel, 32-bit FW, fixed voltage, with IRIG-B/G
-K suffix	Conformal coating

### Optional Software

BT-1553	MIL-STD-1553 Bus Analysis & Data Logging software for Windows
LV-1553	Lab/View support for MIL-STD-1553

For detailed information including systems options contact Abaco Systems

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Americas: 866-OK-ABACO or +1-866-652-2226      Asia & Oceania: +81-3-5544-3973

Europe, Africa, & Middle East: +44 (0) 1327-359444

Locate an Abaco Systems Sales Representative visit: [abaco.com/products/sales](http://abaco.com/products/sales)

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