



# QPCI-1553

## High-Density PCI Interface

### Features

- 1, 2 or 4 Independent MIL-STD-1553 Dual Redundant Channels
- Multi-function or Single-function Configurations
- Test and Simulation Features
  - On-board Test Bus
  - UUT transformer connection
  - Selective Real-time Playback
  - BC & RT error injection/detection
  - Adv. interrupts and triggers
  - Optional BusTools/1553 Analyzer (optional)
- Bus Controller – BC
  - BC->RT, RT->BC, RT->RT
  - Mode Codes, Broadcast and single-shot messaging
  - Programmable time delays
  - Major/Minor frames
  - Real-time conditional branching
  - Two aperiodic messaging methods
- Remote Terminal – RT
  - RT data wrapping
  - Multiple RT buffers
  - 1760 startup time
  - Programmable response time
  - RT Map Monitoring
- Bus Monitor – BM
  - Full error detection
  - Multiple monitoring methods
  - 45-bit time-tagging
  - IRIG-B Receiver/Generator included
- Architecture
  - BC & RT error injection/detection
  - 1 Mbyte RAM per channel
  - Transformer & direct coupling
  - Avionics-level discretes

GE Fanuc Embedded Systems' QPCI-1553 provides new levels of performance and flexibility for MILSTD1553A/B Notice II for PCI backplane form factors. Available in commercial and ruggedized versions with one, two or four dual-redundant channels, the QPCI-1553 includes an abstract API (Application Programming Interface) software that reduces application development time. Standard features include 1 Mbyte of RAM per channel, 45-bit message time-tagging, triggers, extensive BC & RT link-list structures, error injection/detection, automatic/manual RT Status Bit, Mode Code responses, advanced BC functionality, IRIG-B signal Receiver/Generator with GPS synchronization, on-board Test Bus, UUT transformer connection, 1760 startup time with Busy bit set and hard-wired RT address lines. With the highest speed encoder/decoder in the industry, the QPCI-1553 Bus Monitor provides unparalleled error detection and 100% monitoring of fully loaded buses.

### Multi-function Interfaces

QPCI-1553 multi-function interfaces are easily configured to operate with simultaneous Bus Controller, 31 Remote Terminals and Bus Monitor functionality and comes with variable voltage transceivers.

### Single-function Interfaces

Single-function QPCI-1553 interfaces have all the features and functionality of the multi-function versions, but with only one operational mode enabled at a time. Each interface can emulate either a Bus Controller or 31 Remote Terminals or Bus Monitor with fixed voltage transceivers.

### Software

Our high-level "abstract" 1553 API is provided in source code, along with integrated support for Windows XP, 2000, Me, NT, 98, 95, Linux, LabWindows/CVI, Visual Basic and other operating systems. To access 1553 functionality without software development, BusTools/1553, GE Fanuc Embedded Systems' MIL-STD-1553 bus analysis, simulation and data logging/monitoring solution is available.



# QPCI-1553 High-Density PCI Interface

## Specifications

### Physical

- PCI card (6.875" x 4.2")

### Environmental

- Standard operating temp. range: 0 to +55° C
- Optional extended temp. range available

### Software

- API – Includes high-level API libraries for Windows XP, 2000, Me, NT, 98, 95, Linux, LabWindows/CVI and Visual Basic
- Contact the factory about other OS support
- GUI – Optional BusTools/1553 GUI bus analyzer (multi-function boards only)
- LabVEW – Support optional

### Connections

- Transformer or direct coupling
- Programmable input and output triggers
- Ten programmable avionics level I/O discretes
- UUT transformer stub connection
- Hardwired RT Address Line option

### Multi-function Operational Modes

- Simultaneous BC, 31 RTs and BM
- Variable voltage transceivers

### Single-function Operational Modes

- BC or 31 RTs or BM
- Fixed voltage transceivers

### Power (4 channels, 50% duty cycle)

- +5 VDC @ 1695 mA
- +3.3 VDC @ 964 mA

### PCI Signaling Voltage Compatibility

- Universal (5V or 3.3V)
- Board compatible with PCI-X 1.0 and PCI slots

### On-board Shared RAM

- 1 Mbyte per dual-redundant channel

### No charge library updates

## Descriptions

### Bus Controller

- Programmable control over:
  - Major and minor frame content and timing
  - Intermessage gap times
  - Response time-out and late response
  - Multiple BC retry
- 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
  - Full range of system conditions
  - 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)
- Interrupts can be generated on a per message basis upon End of Message and error conditions
- RT Map Monitoring

### Bus Monitor

- Capture 100% fully loaded bus traffic with:
  - Time-tagging
  - Error status
  - Word status
  - Message status
  - RT response time
- 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
- 45-bit, microsecond resolution timetagging
- IRIG/GPS synchronization
- IRIG-B Receiver (AM or DC/TTL)/Generator (DC/TTL)

## About GE Fanuc Embedded Systems

GE Fanuc Embedded Systems is a leading global provider of embedded computing solutions for a wide range of industries and applications. Our comprehensive product offering includes many types of I/O, single board computers, high performance signal processors, fully integrated, rugged systems including flat panel displays, plus high speed networking and communications products. The company is headquartered in the U.S. and has design, manufacturing and support offices throughout the world. Whether you're looking for one of our standard products or a fully custom solution, GE Fanuc Embedded Systems has the breadth, experience and 24/7 support to deliver what you need. For more information, visit [www.gefanucembedded.com](http://www.gefanucembedded.com).

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## Additional Resources

For more information, please visit the GE Fanuc Embedded Systems web site at:

[www.gefanucembedded.com](http://www.gefanucembedded.com)

