QCP-1553

High Density CompactPCI Interface

Features
- 1, 2 or 4 Independent MIL-STD-1553 Dual Redundant Channels
- Multi-function Features
  - Simultaneous Bus Controller, 31 Remote Terminals and Bus Monitor
- Single-function Features
  - Bus Controller or 31 Remote Terminals or Bus Monitor
- 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
  - Dynamic Bus Control
  - Automatic Mode Code and Status Bit responses
  - Programmable response time
  - RT Map Monitoring
- Bus Monitor - BM
  - Full error detection
  - Multiple monitoring methods
  - 45-bit time-tagging
  - Adv. interrupts and triggers
- Architecture
  - BC & RT error injection/detection
  - DYNAMIC architecture
  - BC & RT link list structures
  - 1 Mbyte RAM per channel
  - Direct & transformer coupling
  - Environmental options
- Software Support
  - Advanced, high-level API
  - Source code included
  - BusTools Analyzer optional

With the highest speed encoder/decoder in the industry, the QCP-1553 Bus Monitor provides unparalleled error detection and 100% monitoring of a fully loaded buses.

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

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

Software
GE provides our advanced 1553 API in source code, along with support for Windows® 7 (32 and 64bit), Windows Vista®, Windows XP, Windows 2000, Windows NT, VxWorks®, Linux®, Integrity, QNX, Solaris and other operating systems. To access 1553 functionality without software development, BusTools/1553, GE’s MIL-STD-1553 bus analyzer, LabVIEW and LabVIEW Real-Time support is optionally available.
QCP-1553 – High Density CompactPCI Interface

Specifications

Physical
• 3U Compact PCI card (6U faceplate available)
• Standard configuration has front bezel I/O

Environmental
• Standard operating temperature range: 0°C to +70°C
• Relative humidity: 5 to 90% (non-condensing)
• Optional ruggedized, extended temp and conductively cooled configurations

Software
• API - High-level libraries with source code included for Windows 7 (32 and 64bit), Vista, XP, 2000, NT, Linux, Integrity, QNX, Solaris and VWorks
• GUI - Optional BusTools/1553 GUI bus analyzer (multi-function boards only)
• Optional LabVIEW and LabVIEW Real-Time support

Connections
• Software-selectable direct or transformer coupling
• I/O triggers; 18 avionics-level discrete
• Front I/O standard P2 rear I/O optional.
• Transition cabling to 1553 cable jacks included on front panel configurations

Multi-functional Operational Modes
• Simultaneous BC, 31 RTs or BM

Single-function Operational Modes
• BC or 31 RTs or BM

Power (a channel at 75% duty cycle)
• 2CH, 87% duty cycle, 1100mA @ 5VDC
• 4CH, 87% duty cycle, 1700mA @ 5VDC

On-board Configurations
• 1, 2 or 4 dual-redundant channels
• Variable voltage transceivers
• Optional rear panel I/O
• Optional ruggedized, operating temperature range: -40°C to +85°C, 3U only, VITA compliant conductive cooling (max +71°C rail temp)
• Optional conformal coating
• Optional IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)

Warranty
• 2 year limited hardware warranty

Bus Controller
• Programmable control over:
  - Major and minor frame content and timing
  - Inter-message 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 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
• Extensive programmable error injections
  - In a per-word basis
• Programmable message content (linked message buffers)
• Interrupts can be generated on a per message basis upon End of Message and error conditions

Remote Terminal
• Multiple RT simulation (up to 31 RTs)
• Programmable error injection
• Modify data, status words or setup while card is running
• Programmable message content

Remote Monitor
• Capture 100% fully loaded bus traffic
  - Time-tagging - Error status
  - Word status - Message status
  - RT response time
• Interrupts can be selected by RT / SA / WC
  - By individual RT/SA/Word
  - Transmit, receive or broadcast mode
• 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

Available Configurations

QCP-1553C-1SA
MIL-STD-1553 Single-Function, Single Dual-Redundant Channel, 3U CompactPCI Interface Board

QCP-1553C-1MA
MIL-STD-1553 Single-Function, Single Dual-Redundant Channel, 3U CompactPCI interface board

QCP-1553C-2SA
MIL-STD-1553 Single-Function, Two Dual-Redundant Channel, 3U CompactPCI interface board

QCP-1553C-2MA
MIL-STD-1553 Multi-Function, Two Dual-Redundant Channel, 3U CompactPCI interface board

QCP-1553C-4SA
MIL-STD-1553 Multi-Function, Four Dual-Redundant Channel, 3U CompactPCI interface board

QCP-1553C-4MA
MIL-STD-1553 Multi-Function, Four Dual-Redundant Channel, 3U CompactPCI interface board

Options

-V (replaces A) Variable voltage
-F (replaces C after 1553) 6U front panel, transformer coupled only (single channel only if ordered with IRIG)
-D suffix Blank front panel, rear I/O
-R suffix Ruggedized, extended temperature, transformer coupled
-G suffix Blank front panel, rear I/O, ruggedized, extended temperature, transformer coupled
-C suffix Conductive cooled, blank front panel, rear I/O, Ruggedized, extended temperature, transformer coupled, conformal coated
-W suffix IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)
-K suffix Conformal coated

Optional Software

BusTools/1553 MIL-STD-1553 Bus Analysis, Simulation & Data Logging software for Windows (multi-function boards only)
LV-1553 LabVIEW support for MIL-STD-1553

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