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QCP-1553 SERIES

MARVIN TEST SOLUTIONS

1553 AVIONICS INTERFACE 3U CPCI CARD

- One, two, or four MIL-STD-1553A/B Interfaces with full Error Injection and Detection
- IRIG-B Time Code Receiver / Generator
- Selectable direct or transformer coupling
- Single or multi-function configurations
- 3U cPCI Instrument (3U PXI compatible)



DESCRIPTION

The QCP-1553 module is a rugged, reliable, full featured, Compact PCI module designed to provide a stand-alone, MIL-STD-1553A/B interface for avionics applications. Up to four independent dual redundant MIL-STD-1553 databus streams are supported by the 3U QCP-1553 module. Additionally, the module offers full functional test, simulation, monitoring and databus analyzer functions for MILSTD-1553A/B applications. An onboard IRIG-B time code decoder and generator allows users to accurately synchronize single or multiple QCP-1553 modules to a common time source. The QCP-1553 module is available in dual or full function (RT simulation, monitoring, and bus controller) configurations.

FEATURES

The QCP-1553's standard features include selectable transformer or direct coupling, 1 Mbyte of RAM per channel, 45-bit 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. An IRIG-B signal Receiver/Generator supports DC / TTL signaling for the generator and AM or DC/TTL signaling for the receiver. 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.

QCP-1553 multi-function interfaces are easily configured to operate as a simultaneously as a Bus Controller, 31 Remote Terminals and as a Bus Monitor. 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 a Bus Monitor.

BUS CONTROLLER FEATURES

- 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 on a full range of system conditions or all detected errors
- Full error detection:
  - Invalid word
  - Late response
  - Bit count error
  - Early response
  - High word
  - No response
  - Low word
  - Incorrect RT address
  - Inverted sync
  - Parity error
  - Manchester error
- Extensive programmable error injections (on a per word basis)
- Synchronize BC operation to an external time source

REMOTE TERMINAL FEATURES

- 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 INTERFACES

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BUS MONITOR FEATURES

- 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

SOFTWARE

The QCP-1553 module is supplied with an API for Windows 9x-Windows 7, Linux, VxWorks. An ATEasy driver, sample code, high level C and C++ interface libraries, and documentation is also provided.

APPLICATIONS

- Automatic Test Equipment (ATE)
- LRU and SRU test
- System level test

SPECIFICATIONS

GENERAL	
System Interface	32-bit 33/66 MHz PCIbus (Rev 2.2) compliant
Processor	Embedded PowerPC (250 MHz)
Memory	1 MB per dual redundant channel
Encoder/Decoder	One, two, or four MIL-STD-1553A/B Encoder/Decoder with full Error Injection and Detection
Time Tagging	45 bit, 1 usec resolution
Physical Bus Interface	One, two, or four MIL-STD-1553B Trapeziodal Transceivers Direct coupled or transformer coupled, software selectable
Connector	68-pin male SCSI; module is supplied with an adapter cable, terminated with CJ70 twinax connectors and a DB50 female connector for accessing 1553 interfaces, discrete I/Os, IRIGB in/out signals
Avionics I/O	18 software programmable I/O lines. Open drain output & TTL compatible input. 28V maximum, 1A for open drain output. Input is protected to 50 volts with a logic threshold of 2.7 volts.
Size	3U cPCI
Power Consumption	1.1 A @ 5 VDC (2 channel) 1.7 A @ 5 VDC (4 channel)
Operating Temperature Range	Standard -0 °C to +70 °C ambient
Humidity	5 to 90% non-condensing

Note: Specifications are subject to change without notice

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QCP-1553 SERIES

ORDERING INFORMATION

QCP-1553-1D	3U cPCI 1553 Interface, Single Channel, Dual function w/IRIG, includes I/F cable
QCP-1553-2D	3U cPCI 1553 Interface, Dual Channel, Dual function w/ IRIG, includes I/F cable
QCP-1553-1M	3U cPCI 1553 Interface, Single Channel, Dual Redundant, Multi-Function (BC, RT & Monitor) w/ IRIG, includes I/F cable
QCP-1553-2M	3U cPCI 1553 Interface, Two Channel, Dual Redundant, Multi-Function (BC, RT & Monitor) w/ IRIG, includes I/F cable
QCP-1553-4M	3U cPCI 1553 Interface, Four Channel, Dual Redundant, Multi-Function (BC, RT & Monitor) w/ IRIG, includes I/F cable
CONQPMC-1	Single Channel 1553 Cable Assy, Triax & 50 Pin Connectors
CONQPMC-2	Dual Channel 1553 Cable Assy, Triax & 50 Pin Connectors
CONQPMC-4	Four Channel 1553 Cable Assy, Triax & 50 Pin Connectors

Note: The QCP-1553 Series is supplied by a 3rd party and resold by Marvin Test Solutions.

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