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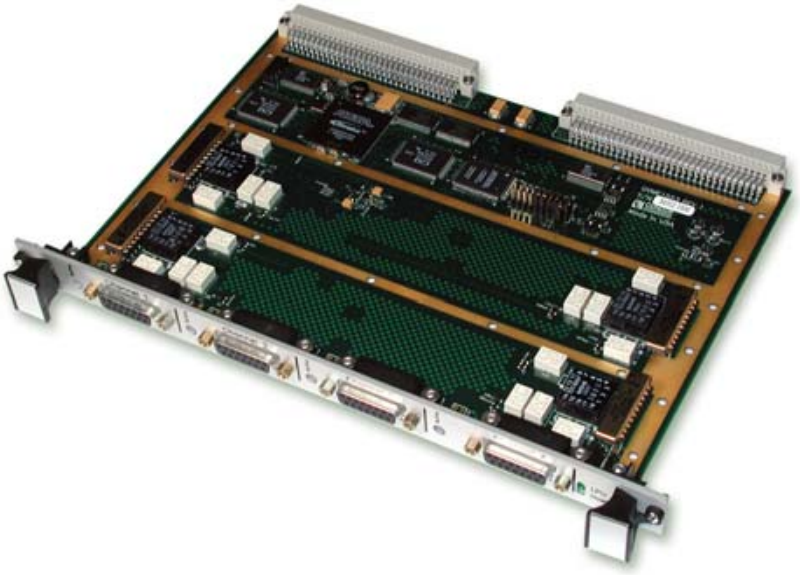
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# MIL-STD-1553 Interface for VMEbus QVME-1553

## Features

**1, 2 or 4 Independent MIL-STD-1553 Channels**

- **Multi-function Features**
  - Simultaneous Bus Controller, 31 Remote Terminals, or Bus Monitor
- **Single-function Features**
  - Bus Controller, 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**
  - 1 to 31 RT's
  - RT data wrapping
  - Multiple RT buffers
  - 1760 startup time w/busy bit set
  - Dynamic Bus Control
  - Automatic Mode Code and status bit responses
  - Programmable response time
  - Hardwired RT Address selection
- **Bus Monitor - BM**
  - Full error detection
  - Multiple monitoring methods
  - 45-bit time-tagging
  - Adv. interrupts and triggers
- **Architecture**
  - BC & RT error injection/detection
  - BC & RT link list structures
  - 1 Mbyte RAM per channel
  - Onboard diagnostic bus (non-ruggedized boards only)
  - Ruggedized industrial and conductively cooled options
  - IRIG B Receiver/Generator option



The QVME-1553 provides new levels of performance and flexibility for MIL-STD-1553A and B Notice II on the VMEbus. Available in commercial, industrial and conductively cooled versions with one, two or four dual-redundant channels, the QVME-1553 includes advanced API (Application Programming Interface) software that reduces application development time. Standard features include selectable transformer or direct coupling, 1 Mbyte of RAM per channel, 45-bit message time-tagging, triggers, extensive BC & RT link-list structures, error detection/injection, advanced BC functionality, automatic/manual RT Status Bit and Mode Code responses plus IRIG/GPS synchronization capabilities. Optional IRIG B signal Receiver/Generator, variable voltage outputs and environmental configurations are available. The QVME-1553 Bus Monitors provide unparalleled error detection and 100% monitoring of fully loaded buses.

### Multi-function Interfaces

QVME-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 QVME-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 independently emulate either a Bus Controller or 31 Remote Terminals or Bus Monitor.

### Software

Our high-level "abstract" 1553 API is provided in source code, along with support for VxWorks, LynxOS v4.0, Windows XP, 2000, Me, NT, 98 and 95. LabVIEW, Linux and Solaris support is available. Contact factory for other options. To access 1553 functionality without software development, ***BusTools***/1553, Condor's MIL-STD-1553 bus analysis, simulation and data logging/monitoring solution is available using our integrated PCI-MXI-2 support.

CONDOR ENGINEERING

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# MIL-STD-1553 Interface for VMEbus QVME-1553

## Specifications

**Physical**
- 6U VME card

**Environmental**
- Standard temperature range: 0° C to +70° C
- 5 to 90% relative humidity (non-condensing)
- Extended temperature range:-40° C to +85° C
- Conductively cooled & coated versions available

**Software Support**
- API - High-level libraries with source code included
  - VxWorks, LynxOS v4.0, Windows XP, 2000, Me, NT, 98, and 95 included
- GUI - Optional support for ***BusTools***/1553 GUI bus analyzer with PCI-MXI-2
- Contact factory for Linux, Solaris and other OS

**Connections**
- Programmable direct or transformer coupling
- Transition cabling for each channel
  - two CJ70 jacks for 1553
  - two BNC (male) for trigger in/out
  - two BNC (male) for IRIG in/out
- 4 bi-directional avionics-level dedicated discretes
- On-board diagnostic bus

**Multi-function Operational Modes**
- Simultaneous BC, 31 RTs and BM

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

**On-board Shared RAM**
- 1 Mbyte per dual-redundant channel

**Power (+5 VDC @ 87% 1553 bus duty cycle)**
- 2 channels: 1.4A typical
- 4 channels: 2.2A typical

**Interface**
- A16, A24, A32 addressing
- D16, D32 data transfer
- VXI MODID supported

**Options**
- Variable voltage transceivers
- IRIG B Receiver/Generator
- Ruggedized , conductive cooling, etc.
- Rear panel (P2) I/O

**Warranty**: 3 year limited hardware warranty
No cost library and driver upgrades

## Description

### 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
  - 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
- Harware RT addressing

### Bus Monitor
- Capture 100% fully loaded bus traffic with:
  - Time-tagging
  - Word status
  - RT response time
  - Error 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
- 45-bit, microsecond resolution timetagging
- IRIG/GPS synchronization

## Available Configurations

*See our on-line Configuration Guide for a complete list of available configurations*

| | |
|---|---|
| **QVME-1553-1M** | MIL-STD-1553 multi-function, single channel, variable voltage, 6U VME interface board |
| **QVME-1553-2M** | MIL-STD-1553 multi-function, two channel, variable voltage, 6U VME interface board |
| **QVME-1553-4M** | MIL-STD-1553 multi-function, four channel, variable voltage, 6U VME interface board |
| **QVME-1553-1SA** | MIL-STD-1553 single-function, single channel, fixed voltage, 6U VME interface board |
| **QVME-1553-2SA** | MIL-STD-1553 single-function, two channel, fixed voltage, 6U VME interface board |
| **QVME-1553-4SA** | MIL-STD-1553 single-function, four channel, fixed voltage, 6U VME interface board |
| **-W suffix** | IRIG B Receiver/Generator option |
| **-R suffix** | Ruggedized, extended operating temperature option (-40° C to +85° C) (Ruggedized versions do not include onboard diagnostic bus) |
| **-C suffix** | Ruggedized, extended operating temperature with conductive cooling option |

A channel is a dual-redundant A/B pair

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