GE Fanuc
Embedded Systems

QPM-1553
High Density PMC Module

Features

- 1, 2 or 4 dual-redundant MIL-STD-1553A/B Notice II channels
- 100% software and hardware compatibility with QPMC-1553
  - Less heat
  - Less power
  - Higher MTBF
- Simultaneous Bus Controller, 31 Remote Terminals and Bus Monitor
- High-level API for Windows XP, 2000, Me, NT, 98, 95, VxWorks, Linux, Integrity, LynxOS and Solaris included
- Multi-function and single-function versions
- Supports 66/33 MHz PCI bus
- Front panel or rear (P14) I/O available
- Optional IRIG-B receiver/generator
- 45-bit, microsecond time-tagging
- Complete message programmability
- Flexible message status/interrupt generation
- I/O triggering and error injection/detection
- Transition cabling to 1553 cable jacks included
- Optional extended temperature, variable voltage output, conductive cooling and differential discretes

GE Fanuc Embedded Systems' QPM-1553 is the latest generation of performance and flexibility for MIL-STD-1553A/B Notice II on a PMC (PCI Mezzanine Card) module. Available in commercial, ruggedized and conductively cooled versions with one, two or four dual-redundant channels, the QPM-1553 includes advanced API (Application Programming Interface) software that reduces application development time. Standard features include selectable transformer or direct coupling, 66 MHz, PCI bus support, 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. IRIG-B signal Receiver/Generator with GPS synchronization, variable voltage output and RS-485 differential discretes are optionally available. With the highest speed encoder/decoder in the industry, the QPM-1553 Bus Monitors provide unparalleled error detection and 100% monitoring of fully loaded buses.

Multi-function Interfaces

QPM-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 QPM-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.

Software

GE Fanuc Embedded Systems provides our advanced 1553 API in source code, along with support for Windows XP, 2000, Me, NT, 98, 95, VxWorks, Linux, Integrity, LynxOS, 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.

QPM-1553 High Density PMC Module

Specifications

Physical
- PMC Mezzanine Card (74mm x 149 mm without bezel)
- Standard configuration has front panel I/O

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

Software Support
- API – High-level libraries with source code included for Windows XP, 2000, Me, NT, 98, 95, VxWorks, Linux, Integrity, LynxOS and Solaris
- GUI – Optional BusTools/1553 GUI Bus Analysis, Simulation & Data Logging software (multi-function boards only)

Connections
- Direct or transformer coupling
- I/O triggers; 18 avionics-level discretes
- Front panel or P14 I/O connections
- Transition cabling to 1553 cable jacks included on front panel configurations
- Optional RS-485 differential discretes

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

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

Power (4 channels at 75% duty cycle)
- +5 VDC @ 1.01 A (typ.)
- +3.3 VDC @ 230mA (typ.)
- 5.9 W power dissipated on board

On-board Shared RAM
- 1 Mbyte (per dual-redundant channel)

PCI Signal Compatibility
- Universal (5V or 3.3V)
- Supports 66 or 33 MHz PCI bus operation

Optional Configurations
- 1, 2 or 4 dual-redundant channels
- Optional P14 I/O
- Optional ruggedized, -40 to +85° C operating temperature range
- Optional ruggedized, VITA compliant conductive cooling (max +71° C rail temp)
- Optional conformal coating
- Optional IRIG-B Receiver (AM or DC/TTL) and Generator (DC/TTL)

Descriptions

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
  - Word status
  - 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

Ordering Information

QPM-1553-1S:	MIL-STD-1553 single-function, single dual-redundant channel, fixed voltage PMC interface
QPM-1553-2S:	MIL-STD-1553 single-function, two dual-redundant channel, fixed voltage PMC interface
QPM-1553-4S:	MIL-STD-1553 single-function, four dual-redundant channel, fixed voltage PMC interface
QPM-1553-1M:	MIL-STD-1553 multi-function, single dual-redundant channel, fixed voltage PMC interface
QPM-1553-2M:	MIL-STD-1553 multi-function, two dual-redundant channel, fixed voltage PMC interface
QPM-1553-4M:	MIL-STD-1553 multi-function, four dual-redundant channel, fixed voltage PMC interface

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 head-quartered 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.

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Additional Resources

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

www.gefanucembedded.com