GE Intelligent Platforms

RXMC1553
High Density 1553 XMC Module

Features
- 1 or 2 dual-redundant MIL-STD-1553A/B Notice II channels
- XMC.3 (1x PCIe) host interface
- Simultaneous Bus Controller, up to 31 Remote Terminals and Bus Monitor
- High-level API for Microsoft® Windows® XP, Windows 2000, Windows NT, and VxWorks®, included. Contact factory for additional operating system support.
- Multi- and Dual-function versions
- Rear P16 or Rear P14 or Front I/O available
- 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 with front I/O configurations
- Rich compliment of I/O options including programmable I/O, differential discretes and avionics discretes
- RoHS compliant

GE Intelligent Platforms’ RXMC1553 is the latest generation of performance and flexibility for MIL-STD-1553A/B Notice II on a XMC.0 Mezzanine Card. With one or two dual-redundant channels, the RXMC1553 includes advanced API (Application Programming Interface) software that reduces application development time. Conductively cooled with conformal coating versions available.

Standard features include 1 Mbyte of RAM per channel, 45-bit message timetagging, triggers, extensive BC & RT link-list structures, error injection/detection, IRIG-B signal Receiver/Generator with GPS synchronization, automatic/manual RT Status Bit and Mode Code responses, along with advanced BC functionality. Avionics low and high side discretes, RS-485 differential discretes, or programmable I/O are factory configurable options. The RXMC1553 Bus Monitors provide unparalleled error detection and 100% monitoring of fully loaded buses.

Multi-function Interfaces
RXMC1553 multi-function interfaces are easily configured to operate with simultaneous Bus Controller, up to 31 Remote Terminals and Bus Monitor functionality.

Dual-function Interfaces
Dual-function RXMC1553 interfaces have all the features and functionality of the multi-function versions, with either a Bus Monitor and a Bus Controller or a Bus Monitor and up to 31 Remote Terminals.

Software
The RXMC1553 includes our advanced 1553 API in source code, along with support for Windows XP, 2000, NT, VxWorks. Contact factory for additional operating system support. To access 1553 functionality without software development, GE Intelligent Platforms’ BusTools/1553 MIL-STD-1553 bus analysis, simulation and data logging/monitoring solution is available.
RXMC1553 High Density 1553 XMC Module

Specifications

Physical
- XMC Mezzanine Card (74mm x 149 mm without bezel)
- Standard configuration is P16 rear panel I/O

Environmental
- Standard operating temperature range: -40° to +85°C
- Relative humidity: 5 to 90% (non-condensing)
- Optional conductively cooled with conformal coating configurations

Software Support
- API - High-level libraries with source code included for Windows NT, XP, 2000, Vista, and VisualWorks
- GUI - Optional BusTools/1553 GUI Bus Analysis, Simulation & Data Logging software (multi-function boards only)

Connections
- Transformer coupling standard, contact factory for direct coupling configurations
- One dedicated trigger per 1553 channel
- RT addressing and MIL-STD-1760 compliant
- Orderable I/O options:
  - Discrete I/O
    - 4 Low-Side I/O
    - 4 High-Side I/O
  - Avionics Discrete
    - 4 Low-Side I/O
    - 4 High-Side I/O
    - I/O orderable as P16, P14 or Front panel connections
    - Transition cabling to 1553 cable jacks included on front panel configurations
- Multi-function Operational Modes
  - Simultaneous BC, 31 RTs and BM
- Dual-function Operational Modes
  - BC and 31 RTs or BC and BM
- Power (2 channels at 75% duty cycle)
  - +3.3 VDC @ TBD mA (typ.)
  - TBD - 5.9 W power dissipated on board
- On-board Shared RAM
  - 1 Mbyte (per dual-redundant channel)
- Optional Configurations
  - 1 or 2 dual-redundant channels
  - I/O orderable as P16, P14 or Front panel connections
  - Optional conductively cooled with conformal coating configurations

Descriptions

Bus Controller
- Programmable control over:
  - Major and minor frame content and timing
  - Inter-message gap times
  - Response time-out and late response
  - Modify messages, data or setup while card is running
  - Insert periodic 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 - Late response
  - Bit count error - Early response
  - High word - No response
  - Low word - Incorrect RT address
  - Inverted sync - Parity error
  - Manchester
- Extensive programmable error injection on a per word basis
- Synchronize BC operation to external time source

Ordering Information

RXMC1553-1D-41  MIL-STD-1553, XMC Interface, Dual-Function, Single Dual-redundant channel, Front I/O, Ext temp, with IRIG, 8x GP I/O discrete CMOS Level, 4x Low side avionics discrete
RXMC1553-1DC-41 MIL-STD-1553, XMC Interface, Dual-Function, Single Dual-redundant channel, Ext temp, Conductive cooled, Conformal coated, Fixed volt, with IRIG, P16 Rear I/O, No discretes
RXMC1553-1M-41 MIL-STD-1553, XMC Interface, Dual-Function, Single Dual-redundant channel, Front I/O, Ext temp, with IRIG, 8x GP I/O discrete CMOS Level, 4x Low side avionics discrete
RXMC1553-1MC-41 MIL-STD-1553, XMC Interface, Multi-Function, Single Dual-redundant channel, P16 Rear I/O, Ext temp, Conductive cooled, Conformal coated, Fixed volt, with IRIG, No discretes
RXMC1553-2D-41 MIL-STD-1553, XMC Interface, Dual-Function, Single Dual-redundant channel, Front I/O, Ext temp, with IRIG, 8x GP I/O discrete CMOS Level, 4x Low side avionics discrete
RXMC1553-2DC-41 MIL-STD-1553, XMC Interface, Dual-Function, Two Dual-redundant channel, Ext temp, Conductive cooled, Conformal coated, Fixed volt, with IRIG, P16 Rear I/O, No discretes
RXMC1553-2M-41 MIL-STD-1553, XMC Interface, Dual-Function, Single Dual-redundant channel, Front I/O, Ext temp, with IRIG, 8x GP I/O discrete CMOS Level, 4x Low side avionics discrete
RXMC1553-2MC-41 MIL-STD-1553, XMC Interface, Multi-Function, Two Dual-redundant channel, Ext temp, Conductive cooled, Conformal coated, Fixed volt, with IRIG, P16 Rear I/O, No discretes

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 - Error status
  - Word 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 time tagging
- IRIG/GPS synchronization

About GE Intelligent Platforms

GE Intelligent Platforms is a division of GE that offers software, control systems, services, and expertise in automation and embedded computing. We offer a unique foundation of agile and reliable technology providing customers a sustainable competitive advantage in the industries they serve, including energy, water, consumer packaged goods, oil and gas, government and defense, and telecommunications. GE Intelligent Platforms is headquartered in Charlottesville, VA. For more information, visit www.ge-ip.com.

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