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Find the *Abaco Systems 1553-PMC3-2SN00* at our website: *Click HERE*

GE
Intelligent Platforms



1553-PMC3

MIL-STD-1553 Interface

Features

- 1 to 4 dual redundant 1553 channel featuring 100% concurrent and independent operation as a:
  - Bus Controller
  - 31 Remote Terminals
  - Bus Monitor
- Bus Controller
  - Programmable Linked Lists
  - Minor/Major Framing
  - Dual Conditional Branching
  - Robust Scheduling Features
  - High/Low Priority Async
  - Built-In Monitoring
  - Full Error Injection/Detection
  - Optional Multiple DMAs/Block
- Remote Terminal
  - Programmable Linked Buffers
  - Programmable Response Time
  - Built-In Monitoring
  - Multiple DMAs/Message
  - Autorun/Autoload Feature
  - 1760 Busy Bit Operation
  - Full Error Injection/Detection
- Bus Monitor
  - Full Error Detection
  - Double Buffered Monitoring
  - 48-bit, 1-µsec Time Stamp
  - Definable/Filtered Monitoring
  - Multiple DMAs/Message
- Architecture
  - PCI 33/66 up to 266 MB/s
  - Multiple DMA Channels
  - FPGA Processing @ > 100 MHz
  - 1 MB RAM w/parity per channel
  - In-System Updates
  - Support for 3.3V PMC
  - Up to 32 TTL, and up to 8 RS-422 I/Os
  - Temperature Sensor
  - Conduction-cooled
- Software Support
  - Complimentary drivers for most operating systems
  - Integrated Avionics Library, including source code

1553-PMC3 is a flexible conduction-cooled interface providing a four channel, single or full function, dual redundant MIL-STD-1553 interface to the PMC mezzanine. The card's architecture provides independent operation as a Bus Controller (BC), Remote Terminal (RT), or dual function Bus Monitor (BM). The 1553-PMC3 interface equips the PMC bus system with a complete 1553 interface. This includes 1553A/1553B selections, pointer-driven transmit and receive buffers, extensive programmable event interrupts, and triggers. The DMA option provides you with the flexibility of using multiple DMAs per message.

BC simulation structures consist of linked lists of 1553 command messages: BC-to-RT, RT-to-BC, RT-to-RT, mode code, broadcast and time delay block transmissions.
RT simulation consists of a simple series of pointers to RT definition tables. The tables in turn point to control data buffers.

Bus activity can be monitored in both Map and Sequential modes, providing user defined linked lists of data buffers and sequential 1553 activity. 1553 activity can be time stamped and/or double buffered. Both monitoring modes perform broad error monitoring and provide a comprehensive error table that the host processor can read at any time.

Hardware Overview

GE bases the interface upon an advanced high speed Field Programmable Gate Array (FPGA) and dual port RAM. It delivers a highly reliable hardware platform that is feature rich and user friendly. Through the 1 MB of dual port RAM (with parity) per channel, the host processor has access to set up, monitor, and change the 1553 interface data structures at any time. Link-list memory architecture allows you to structure interface memory usage for maximum flexibility and usefulness.

The card supports the newest PCI-X specification at speeds ranging from 33 to 66 MHz with data transfer rates up to 266 MB/s. Using the optional DMA features of the data structures allows data buffers to automatically update to and from the system memory without host processor intervention. In addition, the 1553-PMC3 supports up to 32 TTL level I/O signals and up to 8 RS-422 Differential I/O signals. These signals can be controlled either via the user application or automatically via the data structures. Available upon request, GE offers customization of the I/O control.

Software Support Overview

GE distributed software includes host processor device drivers to the dual port control, along with data structures and an application layer to these structures. GE also provides low-level drivers for most operating systems, and the Integrated Avionics Library, with source code, at no additional cost.

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1553-PMC3 MIL-STD-1553 Interface

Specifications

PMC3 Functionality: Bus Controller (BC)
- BC retry
- Major and minor frame timing and message scheduling
- Programmable intermessage gap
- Programmable delay gaps and null BC blocks
- Multiple BC data buffers in a linked list structure
- Programmable RT no-response time-out
- Error injection/detection
- Multiple DMAs per block
- Dual Conditional Branching per block
- High and low priority asynchronous message
- Built-In monitoring of full message, including response, time stamping and gap
- Command and Error Counters
- Extensive interrupt events

Remote Terminals (RTs)
- 31 RTs and all subaddresses supported
- Transmit/Receive buffers for each subaddress
- Multiple RT data buffers in a linked list structure
- Programmable RT response time and no response selection
- Error injection/detection
- Multiple DMAs per message
- Built-In monitoring of full message, including response, time stamping and gaps
- External RT Address via I/O pins
- 1760 Busy bit operation
- Autorun/Autoload feature allows the card to automatically start operation from user pre-loaded data structures stored in Flash memory
- Data Wrapping feature
- Message and Error Counters by RT and Buffer Counter in each buffer
- Extensive interrupt events

Map Monitoring
- Multiple linked buffers for each transmit/receive subaddress
- Mapped buffers read by host processor as time permits
- Number of buffers per transmit/receive subaddress is programmable or user definable to account for various host speeds
- Multiple DMAs per message
- Extensive interrupt events

Sequential Monitoring
- Host driver selected messages are double buffered
- Messages time stamped with a 1 µs 48-bit clock or optional 48-bit IRIG-B clock
- Standard firmware performs broad error monitoring
- Comprehensive error table readable at any time by host processor
- Multiple DMAs per message
- Extensive interrupt events

Self Test
- Power-up test with status register report (Power-up BIT)
- Initiated Built-In-Test (IBIT)
- BIT-RAM and encoder/decoder test
- Run-time health status monitor/Continuous BIT (CBIT)
- Unit Test application for 1553 bus functionality

Inputs/Outputs
- Bi-directional external triggers/discretes: Up to 32
- External TTL/RS-422: Up to 8
- IRIG clock input
- Optional IRIG clock output

PCI Functionality
- PCI compliant 33/66 MHz
- Up to 266 MB per second maximum transfer rate
- 16-bit and 32-bit transfer modes
- Multiple Programmable DMA Controllers
- On-board firmware storage via Flash memory. User in-system upgradable.
- Support for 3.3 V PMC bus

Interface Connections
- P4 rear I/O connector
- Hardware configurable Transformer (Long) or Direct (Short) stub interfacing

Interface Card Specifications
- Mechanical - VITA 20-2001 PMC
- Maximum power consumption (98% bus activity) - single channel: TBD
- Standard conduction cooled temperature: -40°C to +85°C; <95% rH non-condensing

Software and Documentation Support
- Low-level drivers for most operating systems
- Integrated Avionics Library with source code
- Borland and Microsoft® C Compiler compatible
- Hardware and Integrated Avionics Library documentation included on CD. Hard copy documentation available upon request.

Customer Support
- Two-year warranty
- Extended warranties available
- Driver and library upgrades
- Many operating systems supported on various platforms

Configurations

Model Number	Configuration
1553-PMC3-(1-4)SN00	Single Function 1553 to PMC interface, 1 to 4 Channels
1553-PMC3-(1-4)FN00	Full Function 1553 to PMC interface, 1 to 4 Channels
IRIG B Output Option	(replace 00 with 01 in product number)

About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit www.ge-ip.com.

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