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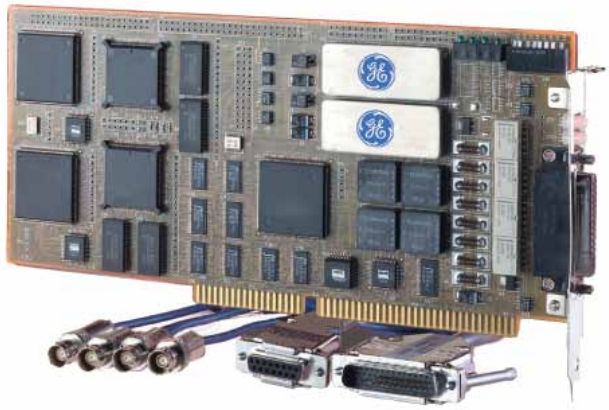
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GE
Intelligent Platforms



ABI-PC3

MIL-STD-1553 Interface

Features

- 1 or 2 dual redundant 1553 channels featuring 100% concurrent and independent operation as a:
  - Bus Controller
  - 31 Remote Terminals
  - Dual Function Bus Monitor
- Bus Controller
  - Programmable frame lists
  - BC-RT, RT-BC, RT-RT
  - Mode codes, broadcasts, and time delays
- RT Functionality
  - RT level protocol selection
  - RT definition tables
  - Programmable response time
- Bus Monitor
  - Map monitoring
  - Sequential monitoring
  - Time stamped
  - Double buffered
  - Error tables
  - Definable monitoring
- Architecture
  - On-the-fl y data structures
  - BC and RT linked lists
  - High-speed DSP
  - Flexible memory structure
  - Variable voltage 1553 transceivers
- Software Support
  - Complimentary drivers for most operating systems
  - Integrated Avionics Library, including source code

ABI-PC3 interface provides a flexible, full function, one or two channel, dual redundant MIL-STD-1553 interface to the ISA backplane. This Advanced Bus Interface (ABI) architecture provides concurrent and independent operation of a Bus Controller (BC), 31 Remote Terminals (RT), and dual function Bus Monitoring (BM). The ABI-PC3 interface equips the ISA bus system with a complete 1553 interface. This includes 1553A/1553B selections, pointer-driven transmit and receive buffers and extensive programmable event interrupts.

BC simulation structures consist of linked lists of 1553 command messages: BC-to-RT, RTto- BC, RT-to-RT, mode code, broadcast and time delay block transmissions. We define RT simulation as a simple series of pointers to RT definition tables. The RT definition tables in turn point to control data buffers. We define the bus activity we want to monitor in both the Map and Sequential monitoring modes. This provides user defined linked lists of data buffers and sequential 1553 activity. The user can time stamp and/or double buffer the 1553 activity. Both monitoring modes perform broad error monitoring. They also provide a comprehensive error table that the host processor can read at any time.

Hardware Overview

GE bases the ABI interface upon an advanced high speed DSP, programmable logic and dual port RAM. It delivers a highly reliable hardware platform that is feature rich and user friendly. Through the 128 kB of dual port RAM, the host processor has access to set up, monitor, and change the 1553 interface data structures at any time. Link-list memory architecture allows the user to structure interface memory usage for the maximum in flexibility and usefulness.

Software Support Overview

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

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ABI-PC3 MIL-STD-1553 Interface

Specifications

ABI Functionality: Bus Controller (BC)
- BC retry
- Minor frame timing and message scheduling
- Intermessage gap selectable
- Programmable delay gaps and null BC blocks
- Multiple BC data buffers in a linked list structure
- Programmable RT no-response timeout
- BC dump feature

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

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

Sequential Monitoring
- Host driver selected messages are double buffered
- Messages time stamped with a 1 µs 32-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

Self Test
- Power-up test with status register report
- BIT-RAM and encoder/decoder test
- Run-time health status register
- Unit Test application for 1553 bus functionality

Inputs/Outputs
- Bi-directional external trigger
- IRIG clock input (optional)
- Variable voltage 1553 outputs: 0-22 V p-p
- External TTL/RS-422 system clock input

ISA Functionality
- PCAT bus
- D16 transfer modes
- Memory mapped
- Port addressing
- Selectable interrupt requests

Interface Connections
- DB44F to coupling harness - Single: CA-2088 Dual: CA-2087
- Coupling harness to bus and I/O connectors
- DB15F I/O connector
- BJ77F Triax connector to 1553 bus

Interface Card Specifications
- Mechanical - single channel: 1/2 length ISA bus card Length: 6.875" Height: 4.2"
- Mechanical - dual channel: 3/4 length ISA bus card Length: 9.5" Height: 4.2"
- Maximum power consumption - single channel: 5 V @ 1.0 A, 12 V @ 250 mA
- Maximum power consumption - dual channel: 5 V @ 1.5 A, 12 V @ 500 mA
- Standard commercial temperature: 0°C to +60°C; ≤ 95% rH non-condensing
- Optional extended operating temperature: -40°C to +71°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 copies of the documentation are available upon request.

Customer Support
- Two-year warranty
- Extended warranties available
- Driver and library upgrades
- Over 18 operating systems supported on various platforms

Configurations

Model Number	Configuration
ABI-PC3-1	Single Channel 1553 to ISA interface
ABI-PC3-2	Dual Channel 1553 to ISA interface
ABI-PC3XT-1	Single Channel 1553 to ISA interface, Extended Temp.
ABI-PC3XT-2	Dual Channel 1553 to ISA interface, Extended Temp.
IRIG	IRIG B Time Receiver (add /IRIG to 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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