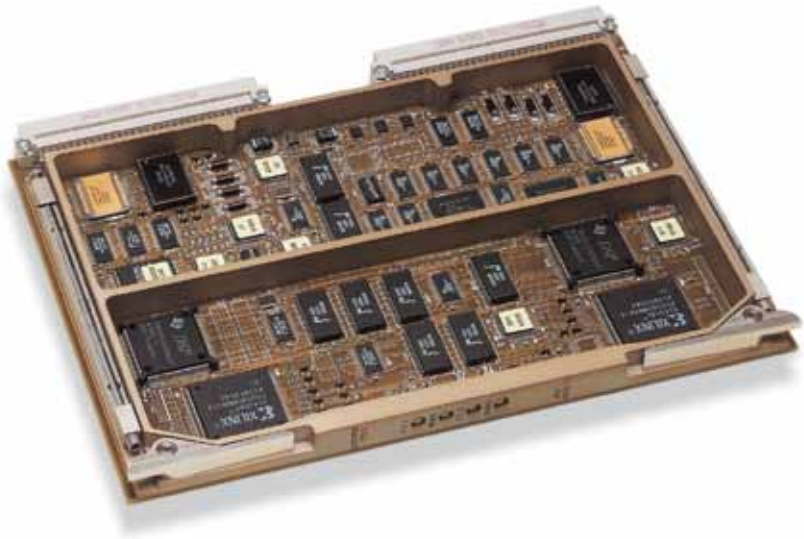
GE
Intelligent Platforms



ASF-V6CC

MIL-STD-1553 Interface

Features

- 1 or 2 dual redundant 1553 channels operating as one of the following:
  - 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-fly data structures
  - BC and RT linked lists
  - High-speed DSP
  - Flexible memory structure
  - Fixed voltage 1553 transceivers
- Software Support
  - Complimentary drivers for most operating systems
  - Integrated Avionics Library, including source code
- Specifications
  - Meets MIL-STD-810D
  - Meets IEEE 1101.2-1992
  - STANAG 3838 compliant

ASF-V6CC is a flexible interface providing a single function, one or two channel, dual redundant MIL-STD-1553 interface to the VMEbus system. This Advanced Single Function (ASF) architecture provides operation as a Bus Controller (BC), 31 Remote Terminals (RT), or dual function Bus Monitoring (BM). The ASF-V6CC interface equips the VMEbus system with a complete 1553 interface. This includes 1553A/1553B selections, pointer-driven transmit and receive buffers and extensive programmable event interrupts. A version supporting the F16 WMUX protocol is also available.

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. 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 ASF 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 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 the user to structure interface memory usage for the maximum in flexibility and usefulness. The ASF-V6CC provides storage for on-board firmware via Flash Memory.

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 low-level drivers for most operating systems, and the Integrated Avionics Library with source code, with the interface at no additional cost.

ASF-V6CC MIL-STD-1553 Interface

Specifications

ASF Functionality: Bus Controller (BC)
- BC retry
- 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 timeout
- BC dump feature

Remote Terminal (RT)
- RT 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)
- Fixed voltage 1553 outputs: (UT63M147 tranceivers)
- External TTL/RS-422 system clock input
- External trigger capability

VME Functionality
- VMEbus system
- D16/D32 single cycle transfers
- D32/D64 block transfers
- A24/A32 addressing
- D08 interrupts
- Memory mapped
- Selectable interrupt requests
- On-board firmware storage via Flash memory

Interface Connections
- VME P2 connector

Interface Card Specifications
- Maximum power consumption:
  - Single channel
  - 5 V @ 1.0 A, 12 V @ 250 mA
  - Dual channel
  - 5 V @ 1.5 A, 12 V @ 500 mA
- Standard operating temperature: -40°C to +70°C; ≤ 95% rH non-condensing; ≤100% rH condensing with conformal coating
- Design and test:
  - Meets requirements of MIL-STD-810D
- Mechanical - single or dual channel:
  - Standard 6u x 160 mm size
  - Meets requirements of IEEE 1101.2
- Weight - dual channel: 0.96 lbs (435g)

MTBF
- Method: MIL-HDBK-217F, parts count method, ground benign environment
- ABI-V6CC-2: 117,300 hours
- Data for other versions available upon request

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
ASF-V6CC-1	Single Channel 1553 to VME, Conductive Cooled
ASF-V6CC-2	Dual Channel 1553 to VME, Conductive Cooled
IRIG	IRIG B Time Receiver (add /I 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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