ABI - V6
1553 Interface

Features:

1 to 4 Dual Redundant 1553 Channels Featuring 100% Concurrent and Independent Operation:
- **Bus Controller**
- **31 Remote Terminals**
- **Dual Function Bus Monitor**

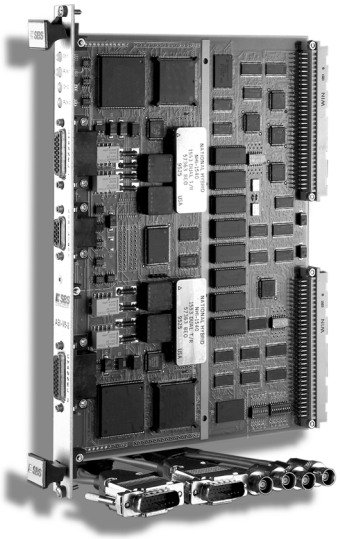
- **Bus Controller**
  Programmable Frame Lists
  BC - RT, RT - BC, RT - RT
  Mode Codes, Broadcasts, Time Delays

- **RT Functionality**
  RT Level Protocol Selection
  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 & RT Link Lists
  High Speed DSP
  Flexible Memory Structure
  Variable Voltage 1553 Transceivers

- **Software Support**
  No Cost Drivers & Libraries
  Including Source Code



The ABI-V6 interface provides a flexible, full function, one to four channel, dual redundant MIL-STD-1553 interface to the VMEbus system. 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-V6 interface equips the VMEbus system with a complete 1553 interface, including 1553A and/or 1553B selections, programmable BC frame lists, BC scheduling capabilities, RT response tables, pointer driven transmit and receive buffers, Map Monitoring, 100% Independent Sequential Bus Monitoring and extensive programmable event interrupts.

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 is defined by a simple series of pointers to RT definition tables which subsequently point to control data buffers. Bus activity to be monitored is definable in both the Map and Sequential monitoring modes, providing user defined linked lists of data buffers and sequential, time stamped and double buffered 1553 activity respectively. Both monitoring modes perform broad error monitoring, and provide a comprehensive error table that can be read at any time by the host processor.

Hardware Overview

The ABI interface is based upon an advanced high speed DSP, programmable logic and dual port RAM to deliver a highly reliable hardware platform that is feature rich and user friendly. Through the 128K bytes 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 ABI-V6 provides storage for on-board firmware via Flash Memory.

Software Support Overview

SBS distributed software includes host processor device drivers to the dual port control and data structures, as well as, an application layer to these structures. Low level drivers and C libraries with source code are provided with the interface, at no cost.

Avionics and Telemetry Products, 2400 Louisiana Boulevard NE, #5-600, Albuquerque, NM 87110
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ABI - V6
Interface Specifications

ABI 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 Link-List Structure
- Programmable RT No-Response Time-Out
- BC Dump Feature

Remote Terminals (RTs)

- 31 RTs and All Subaddresses Supported
- Transmit/Receive Buffers for Each Subaddress
- Multiple RT Data Buffers in a Link-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 Timed Stamped
  1µSec 32 bit Clock or
  48 bit IRIG-B Clock *(optional)*
- 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" Program for 1553 Bus Functionality

Inputs/Outputs:

- Bi-directional External Trigger
- IRIG Clock Input *(optional)*
- Variable Voltage 1553 Outputs: 0-22V p-p
- External TTL/RS-422 System Clock Input

SBS guarantees a successful integration which includes no-cost phone, e-mail and ftp support, with on-site customer visits as necessary.

VME Functionality:

- VMEbus System
- D16/D32 Single Cycle Transfers
- D32/D64 BLT
- A24/A32 Addressing
- D08 Interrupts
- Memory Mapped
- Selectable Interrupt Requests
- Onboard Firmware Storage via Flash Memory

Interface Connections:

- $DB26_F$ to Coupling Harness -
  Cable Assembly: CA-2097
- Coupling Harness to Bus and I/O Connectors
- $DB15_F$ I/O Connector
- $BJ77_F$ Triax Connector to 1553 Bus

Interface Card Specifications:

- Maximum Power Consumption - Single Channel:
  5V @ 1.0 Amps
  12V @ 250 mAmps
- Maximum Power Consumption - Dual Channel:
  5V @ 1.5 Amps
  12V @ 500 mAmps
- Standard Commercial Operating Temperature:
  0° C to +60° C
  Designed to ≤ 95% rH non-condensing
- Optional Extended Operating Temperature:
  -40° C to +85° C
  Designed to ≤ 95% rH non-condensing
- Mechanical - Single Channel or Dual Channel:
  Standard 6u x 160mm Size

Software & Documentation Support:

- Low Level Drivers & C Library Sets with Source Code
- Borland and Microsoft C Compiler Compatible
- Hardware and Library Manual Set

Customer Support:

- Two Year Warranty
- Extended Warranties Available
- Driver and Library Upgrades
- Over 18 Operating Systems Supported on Various Platforms

Interface Model Numbers:

ABI-V6-1	Single Channel 1553 to VME Interface
ABI-V6-2	Dual Channel 1553 to VME Interface
ABI-V6-3	Triple Channel 1553 to VME Interface
ABI-V6-4	Quadruple Channel 1553 to VME Interface
ABI-V6XT-1	Single Channel 1553 to VME, Extended Temp.
ABI-V6XT-2	Dual Channel 1553 to VME, Extended Temp.
ABI-V6XT-3	Triple Channel 1553 to VME, Extended Temp.
ABI-V6XT-4	Quadruple Channel 1553 to VME, Extended Temp.
IRIG	IRIG B Time Receiver (Add "/IRIG" to Product Number)

- **Option Conformal Coat**

SBS Technologies, Inc.

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Specifications subject to change without notice. Rev. 01/08/01