A-1553
MIL-STD-1553 BOARD

DESCRIPTION

The **1553** board offers full function test, simulation, monitoring and databus analyser functions for MIL-STD-1553A/B applications.
It provides an interface for 1, 2 or 4 dual redundant bus streams. It is designed to be installed on either a carrier board to adapt to buses like standard PCI/PCIe, VME/VPX or cPCIe or on an embedded host computer.
The **1553** board uses two high performance RISC processors, each supporting one Dual Channel Bus Interface Unit implementing two independent MIL-STD-1553A/B channels.
An onboard IRIG-B time encoder/ decoder is included with sinusoidal output and 'free wheeling' mode for time tag synchronization on system level using one or more 1**553** modules.

KEY FEATURES

- Real time Bus Controller functions on each independent, dual redundant MIL-STD-1553A/B Databus channel
- Simulation of up to 31 Remote Terminals including all sub-addresses on one or two MILSTD-1553A/B buses
- Full bus monitoring and analysis with time tagging of all bus traffic to 1µsec resolution
- On board IRIG-B time code decoder and generator allowing synchronised time tagging of multiple MIL-STD-1553A/B streams
- Magali driver interface

SPECIFICATIONS

Technical Data

System Interface	32 bits / 33MHz PCI bus (Rev. 2.2) compliant
Processors:	Two 400MHz RISC Processors
Memory	128MB Global RAM (DDR-RAM), 2x 8M-bit serial flash memory for BIU's, 64M-bit serial flash memory for LCA
Encoder/Decoder	Up to four MIL-STD-1553A/B Encoders/ Decoders with full error injection and detection
Time Tagging	Sinusoidal 46-bit absolute IRIG-B Time stamping with 1µs resolution
Trigger/ General Purpose Discretes	Full Trigger configuration on Rear-I/O PMC connector P14; one Trigger Input and Trigger Output for each channel available and two General Purpose Discrete I/O's (avionics level) on the front panel connector
Physical bus interface	Up to four MIL-STD-1553B Trapezoidal Transceivers; Transformer coupled Stubs, three Trigger-I/O's per channel and 8 General Purpose Discrete I/O's available at Rear-I/O connector: • Two 15-way (female) High Density D-Sub • Four independent MIL-STD-1553A/B channels • One Trigger Input and Output per channel • IRIG-B Time Code In/ Out • 3 x Standard PMC connectors • P11 and P12 for 32-bit PCI Bus • P14 for Rear-I/O
Size	149 x 74 mm Standard PMC format
Thermal Conduction Cooling	Enhanced thermal performance for Conduction Cooling in extended temperature range
Power Consumption	Min. Power: 2.8W (Idle Mode) Max. Power: 7.3W (100% Bus Operation)

Environmental

Operating Temp. Range	Standard 0°C ...+70°C ambient Extended temperature range -40°C...+85°C
Storage Temp.	-40°C ...+ 85°C ambient
Humidity	0 to 95% non-condensing

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Bus Controller

- Autonomous Operation including sequencing of Minor / Major Frames
- Support for acyclic message insertion/deletion
- Programmable BC Retry without host interaction
- Full Error Injection down to word and bit level (AS4112 Compliant)
- Multi-Buffering with Real Time Data Buffer Updates
- Synchronisation of BC operation to trigger input

Multiple Remote Terminal

- Programmable Response Time for each RT with fast RT
- Programmable & Intelligent Response to Mode Codes
- Full Error Injection down to word and bit level
- Multi-Buffering with Real Time Data Buffer Updates

Chronological Bus Monitor

- 100% Data Capture on each Channel
- Autonomous Message Synchronisation and Full Error Detection
- Two Dynamic Complex Triggers with Sequencing
- Message Filter and Selection Capture
- Bus Activity Recording independent from Trigger and Capture Mode
- External Trigger Outputs
- Programmable Response Timeout

Physical Bus Replay

The 1553 board can electrically reconstruct and replay previously recorded files and transmits them physically to the MIL-STD-1553A/B bus with excellent timing accuracy. Record files can be selected for Bus Replay.

Physical Bus Interface

The 1553 board provides Transformer Coupling Bus mode for connection to the MIL-STD-1553A/B Bus stub. The amplitude of the MIL-STD-1553A/B output voltage is fixed. All MIL-STD-1553A/B signals are provided at the Front Panel connectors or Rear-I/O connector.

Trigger/ General Purpose Discrete I/O Signals

The Front-I/O connectors provide one trigger input and one trigger output (shared between Bus Controller and Bus Monitor) for each MIL-STD-1553A/B channel. Additionally two user programmable Discrete I/O signals can be accessed via Front-I/O.

IRIG-B Time Code

The 1553 board includes an onboard IRIG-B time encoder/decoder with sinusoidal output and 'free wheeling' mode for time tag synchronization. This function allows synchronization of multiple 1553 modules.

ORDERING INFORMATION

MAG-300/A_1553/1	1x1553 stream - Dual redundant / BC, Multi RT simulator with Mailbox monitor and Chronological monitor
MAG-300/A_1553/2	2x1553 stream - Dual redundant / BC, Multi RT simulator with Mailbox monitor and Chronological monitor
MAG-300/A_1553/4	4x1553 stream - Dual redundant / BC, Multi RT simulator with Mailbox monitor and Chronological monitor
MAG-300/A_1553/USB/1	1x1553 stream - Dual redundant / BC, Multi RT simulator with Mailbox monitor and Chronological monitor
MAG-300/A_1553/USB/2	2x1553 stream - Dual redundant / BC, Multi RT simulator with Mailbox monitor and Chronological monitor

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