

General Features

The AEC1553-x ExpressCard Module offers full function test, simulation, monitoring & recording for MIL-STD-1553 applications. The AEC1553-x Modules provide one or two dual redundant MIL-STD-1553 streams and concurrently act as Bus Controller, Multiple Remote Terminals (31) and Chronological/Mailbox Monitor. AEC1553-x supports up to 8 discrete input/output signals to be monitored or generated.

An onboard high-precision 'free wheeling' IRIG-B time encoder/ decoder allows users to accurately synchronize single or multiple AEC1553-x Modules to a common time source. The AEC1553-x offers Transformer Coupling to the databus. The optional PBA.pro™ Databus Test & Analysis Tool (for Windows & Linux) and legacy PBA-2000/ ParaView Databus Analyzer/Visualizer Software (for Windows) can also be purchased for use with AEC1553-x cards.

A common Application Programming Interface (API) supports all AIM MIL-STD-1553 Modules.



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AEC1553-x

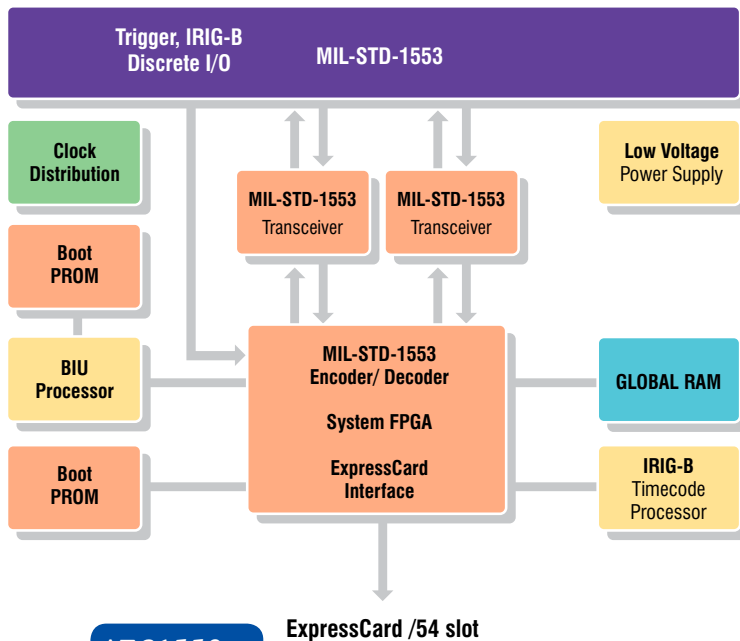


Single and Dual Stream ExpressCard for MIL-STD-1553 Test & Simulation

Key Features

- Robust and Low Power ExpressCard/54 Module for MIL-STD-1553
- Hot Plug Capability
- Standard Twinx Connectors on breakout Cable
- Single or Dual Stream, Dual Redundant Implementation
- Concurrent Bus Controller, 31 Remote Terminals and Bus Monitor
- Full Error Injection/ Detection Capability
- Multi Level Triggering for Capturing/ Filtering
- IRIG-B Time Encoder/ Decoder for Data Correlation
- Real Time Recording and Physical Bus Replay at 100% Bus Loads
- 8 bi-directional Discrete I/O Signals (Avionics Level)
- Trigger In- and Outputs, IRIG-B In- and Output
- Drivers for Windows XP/Vista/7 (other Operating Systems on request)
- Compatible with PBA.pro™, PBA-2000 and ParaView
- Software compatible with AIM's Family of PC/104-Plus, USB, PC-Card, PMC, PCI, CompactPCI/PXI, VME and VXI MIL-STD-1553 Cards

Physical I/O Interface



AEC1553-x
Block Diagram

Avionics Databus Solutions

product guide

data sheet

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Bus Controller

- Autonomous Operation including Sequencing of multiple Minor and Major Frames
- Support for Acyclic Message Insertion/ Deletion
- Support for Instructions for Synchronization to external Events and Timing Control
- 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
- Synchronization of BC Operation to external Trigger Inputs
- 4µs Intermessage Gaps
- Interrupt Generation on BC Transfer Events

Multiple Remote Terminal

- Programmable RT Response Time down to 4µs for each simulated RT
- Programmable & intelligent Response to Mode Codes
- Full Error Injection down to Word and Bit Level (AS4112 compliant)
- Multi-Buffering with Real Time Data Buffer Updates
- Mailbox Monitor Mode
- Interrupt Generation on RT Events

Chronological Bus Monitor

- 100% Data Capture on two Streams at full Bus Rates
- Single Shot, Continuous or Selective Capture Modes
- Autonomous Message Synchronization and Full Error Detection
- Two Static/ Dynamic Complex Triggers with Sequencing
- Message Filter and Selective Capture
- Bus Activity Recording independent from Trigger and Capture Mode
- Time Tagging:
- All Bus Traffic to 1µs
- Intermessage Gaps & Response Time to 250ns
- External Trigger Outputs
- Programmable Response Time-Out

Physical Bus Replay

- Electrically reconstruct previously recorded MIL-STD-1553 Databus Traffic
- Disable any or all RT Responses from the recorded Files

Physical Bus Interface

- One or two dual redundant MIL-STD-1553 Bus Interfaces
- Transformer Coupling
- Direct Coupling

IRIG-B Time Encoder/ Decoder

- Onboard, free wheeling IRIG-B Time Encoder/ Decoder with amplitude modulated sinusoidal Output
- Synchronize with multiple AIM Modules or any IRIG-B compatible Module

Discrete I/O

- 8 bi-directional Discrete I/O Signals (Avionics Level)

Driver Software Support

- Common Application Programming Interface (API)
- Drivers for Windows XP/Vista/7 (other Operating Systems on request)

AIM Office Contacts:

AIM-USA

Seven Neshaminy Interplex
Suite 211
Trevose, PA 19053
USA
Tel: 267-982-2600
Toll Free: 877-520-1553
Fax: 215-645-1580
email: salesusa@aim-online.com

AIM UK

Cressex Enterprise Centre
Lincoln Road
High Wycombe
Bucks, HP12 3RB
UK
Tel: +44 1494 446844
Fax: +44 1494 449324
email: salesuk@aim-online.com

Technical Data

ExpressCard/54 Interface: 1x Lane, 2.5Gbit/s PCI Express V1.1 compliant; compatible to higher Versions

Memory: 128MB Global RAM

Processor: One 400MHz RISC Processor

Time Tagging: 46-bit absolute IRIG-B Time

Discrete I/O: 8 bi-directional Discrete I/O Signals (Avionics Level)

Trigger I/O: One BC/RT/BM Trigger Input and Output Line per Channel; TTL compatible

Encoder/ Decoder: One MIL-STD-1553 Encoder/ Decoder per Channel with full Error Injection/ Detection

Physical Bus Interface: MIL-STD-1553B Trapezoidal Transceiver; Transformer or direct coupled

Connector: MDR (SCSI); 50-pin

Dimensions: 123mm x 54mm x 21mm

Supply Voltage: +3.3V

Power Consumption: 2.5W typical (AEC1553-1)
3.0W typical (AEC1553-2)

Operating Temp. Range: Standard 0°C... + 50°C ambient
Extended -15°C... + 60°C

Storage Temp. Range: -40°C... + 85°C

Humidity: 5 up to 95% (non-condensing)

Ordering Information

AEC1553-1

Single Stream, Dual Redundant ExpressCard/54 to MIL-STD-1553 Interface: BC, Multi RT Simulator with Mailbox & Chronological Monitor; IRIG-B Time Encoder/ Decoder and 8 General Purpose Discrete I/O's; 128MB Global RAM One Trigger Input and one Trigger Output
Includes Driver Software for Windows XP/Vista/7 (other Operating Systems on request)

AEC1553-2

Dual Stream, Dual Redundant ExpressCard/54 to MIL-STD-1553 Interface: BC, Multi RT Simulator with Mailbox & Chronological Monitor; IRIG-B Time Encoder/ Decoder and 8 General Purpose Discrete I/O's; 128MB Global RAM One Trigger Input and one Trigger Output per Stream
Includes Driver Software for Windows XP/Vista/7 (other Operating Systems on request)

Simulator Only Versions available

BC, Multi-RT Simulator with Mailbox Monitor

Single Function Versions available

Chronological Monitor and Mailbox Monitor OR Bus Controller OR Multi-RT and Mailbox Monitor

Breakout cables for AEC1553-1

ACB-E-N-T-1

Cable (2.0m) with 2x Twinax Connectors PL-75 for MIL-STD-1553 Bus, Transformer Coupled
ACB-E-F-T-1

Cable (2.0m) with 2x Twinax Connectors PL-75 for MIL-STD-1553 Bus, Transformer Coupled and 15-pin D-Sub Connector for Trigger I/O, IRIG-B, Discretes

Breakout cables for AEC1553-2

ACB-E-N-T-2

Cable (2.0m) with 4x Twinax Connectors PL-75 for MIL-STD-1553 Bus, Transformer Coupled
ACB-E-F-T-2

Cable (2.0m) with 4x Twinax Connectors PL-75 for MIL-STD-1553 Bus, Transformer Coupled and 15-pin D-Sub Connector for Trigger I/O, IRIG-B, Discretes

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AIM GmbH

Sasbacher Str.2
79111 Freiburg
Germany

Tel: +49 761 45 22 90
Fax: +49 761 45 22 93 3
email: sales@aim-online.com

UNITRONIX Pty Ltd

PO Box 486, Morisset NSW 2264
NSW: Tel: 61 2 4977 3511 Fax: 61 2 4977 3522
WA: Tel: 61 8 9455 2424 Fax: 61 8 9455 2458
unitsyd@unitronix.com.au www.unitronix.com.au

Tel: +49 89 70 92 92 92
Fax: +49 89 70 92 92 94
email: salesgermany@aim-online.com