

AMC1553

Single or Dual Stream
MIL-STD-1553A/B
Test & Simulation Modules
for PMC



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product guide

General Features

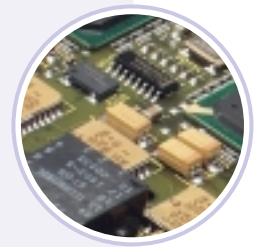
The AMC1553 family of PCI Mezzanine (PMC) modules offer full function Test, Simulation, Monitoring and databus analyser functions for MIL-STD-1553A/B applications. Two independent dual redundant MIL-STD-1553A/B databus streams are provided on the AMC1553-2 module and one single dual redundant MIL-STD-1553A/B databus stream are on the AMC1553-1 and on the AMC1553T module.

An on board IRIG-B time code decoder and generator allows users to accurately synchronise single or multiple AMC1553 modules to a common time source.

The AMC1553 modules use AIM's field proven "Common Core" hardware design utilising multiple RISC processors. For AMC1553T modules the Application Support Processor (ASP) executing the driver software is provided on-board whereas for the AMC1553-1/2 modules the ASP functions are handled by the Host Processor with an identical Application Interface.

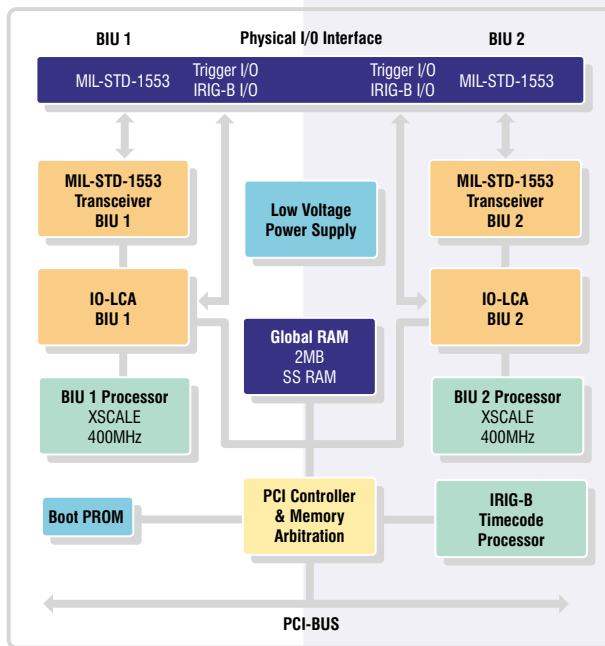
The AMC1553-1/2 modules offer both Transformer Coupling and Direct Coupling to the data buses. The AMC1553T module provides programmable Bus Coupling and an on-board Bus Network.

The AMC1553 modules operate with optional PBA-2000/-NET, MIL-STD-1553A/B Databus Analyser Software and with ParaView the Parameter Visualiser for Windows 98/NT/2000/XP.



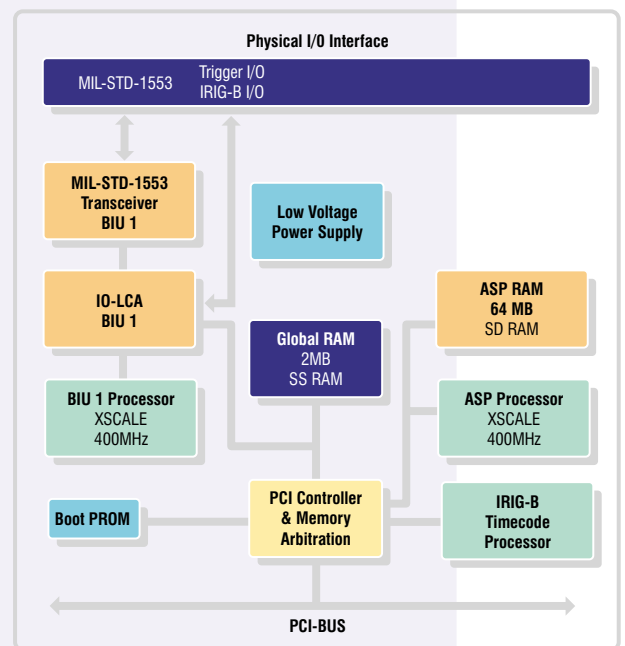
AMC1553-1/2

Block Diagram



AMC1553T

Block Diagram



Bus Controller

The AMC1553 modules provide real time Bus Controller functions on one or two dual redundant MIL-STD-1553A/B buses concurrently with Multiple RT and Chronological Monitor operation. A 400 MHz RISC Processor one for each bus interface provides true simulation of BC operations without host computer interaction.

- *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 inputs*
- *4 µsec Intermassage Gaps*

Multiple Remote Terminal

The AMC1553 modules simulate up to 31 Remote Terminals including all sub-addresses on one or two MIL-STD-1553A/B buses concurrently with BC and Chronological Monitor operation. Alternatively each of the 31 RT's can operate in a message oriented, Mailbox Monitor Mode“ to monitor non-simulated RT's.

- *Programmable Response Time for each RT with fast RT Response at 4 µsecs*
- *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*

Chronological Bus Monitor

The AMC1553 modules offer full bus monitoring and analysis with time tagging of all bus traffic to 1µsec resolution including response time and gap time measurements down to 250nsec concurrently with BC and Multiple RT operation.

- *100% Data Capture on two streams at full bus rates*
- *Autonomous message synchronisation 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*
- *External Trigger Outputs*
- *Programmable Response Time Out*



Physical Bus Interface

The AMC1553-1/2 modules provide Transformer Coupling and Direct Coupling for connection to the bus. Both coupling modes to the bus system are available at the output connector or at the back-panel connector. The AMC1553T module provides programmable Bus Coupling and an on-board Bus Network.

Physical Bus Replay

The AMC1553 modules are able to electrically reconstruct previously recorded MIL-STD-1553A/B databus traffic physically to the bus with excellent timing accuracy. Recorded data files can be selected for a physical bus replay to perform systems integration and test with the ability to disable any or all RT responses from the recorded files.

IRIG-B Time Code

An on board IRIG-B time code decoder and generator allows synchronised time tagging of multiple MIL-STD-1553A/B streams using single or multiple AMC1553 modules. AMC1553 cards can be synchronised to one common external IRIG-B time source or to the free wheeling on-board Time Code Generator of one AMC1553 module.

Driver Software

The AMC1553 modules are supplied with a BSP (Board Support Package) for Windows 98/NT/2000/XP and embedded VME systems (e.g.VxWorks) comprising system drivers, application interface libraries, sample code and manuals. The VME BSP is provided in source code for integration support to the most usual Operating Systems.

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Technical Data

System Interface: 32 Bit / 33MHz PCIbus (Rev. 2.2) compliant

Processors: 1 or 2 400MHz RISC Processor(s)

Memory: 1 or 2 MByte Global RAM (expandable)
64 MByte ASP RAM for AMC1553T

Encoder/Decoder: 1 or 2 MIL-STD-1553A/B Encoder/Decoder with full Error Injection and Detection

Time Tagging: 46 Bit absolute IRIG-B Time

Physical Bus Interface: 1 or 2 MIL-STD-1553B Trapezoidal Transceivers. Direct coupled Stubs and Transformer coupled Stubs available at output connector or backpanel connector. Programmable Bus Coupling and on-board Bus Network for AMC1553T

Connector: • 9 way (female) D-Sub for Bus Signals • 15 way (female) HD-Sub for Trigger and Time Code I/O • 3 x Standard PMC Connectors

Dimensions: 149 x 74 mm Standard PMC Format

Power Consumption: 5 Watts typical

Operating Temp. Range: Standard 0°C ... +60°C ambient
Extended -30°C... +70°C ambient
Conduction cooling available.

Storage Temp: -40°C ... + 85°C ambient

Humidity: 0 to 95% non-condensing

Ordering Information

AMC1553-1

Single Stream, Dual Redundant MIL-STD-1553A/B PMC card BC, Multi-RT Simulator & Chronological Monitor. IRIG-B Time Code. 1 MByte Global RAM

AMC1553S-1

Single Stream, Dual Redundant MIL-STD-1553A/B PMC card BC, Multi RT Simulator with Mailbox Monitor IRIG-B Time Code. 1 MByte Global RAM

AMC1553M-1

Single Stream, Dual Redundant MIL-STD-1553A/B PMC card Chronological Monitor and Mailbox Monitor or Bus Controller or Multi-RT and Mailbox Monitor IRIG-B Time Code. 1 MByte Global RAM

AMC1553-2

Dual Stream, Dual Redundant MIL-STD-1553A/B PMC card: BC, Multi-RT Simulator & Chronological Monitor. IRIG-B Time Code. 2 MByte Global RAM

AMC1553S-2

Dual Stream, Dual Redundant MIL-STD-1553A/B PMC card: BC, Multi RT Simulator with Mailbox Monitor IRIG-B Time Code. 2 MByte Global RAM

AMC1553M-2

Dual Stream, Dual Redundant MIL-STD-1553A/B PMC card: Chronological Monitor and Mailbox Monitor or Bus Controller or Multi-RT and Mailbox Monitor IRIG-B Time Code. 2 MByte Global RAM

AMC1553T

Single Stream, Dual Redundant MIL-STD-1553A/B Interface PMC Module: BC, Multi-RT Simulator & Chronological Monitor. including IRIG-B Time Decoder, Programmable Bus Coupling and On-board bus Network 2MByte Global RAM, 64MByte ASP RAM.

AVC-2

VME (6U) Carrier Module with two PMC slots

