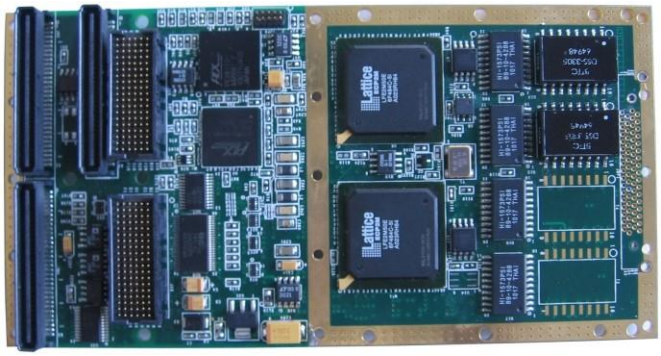
AT-XMC/PMC-1553

Multichannel High Performance 1553 Mezzanine Card



- **Choice of Bus Interface**
  > XMC - x1 Lane PCIe, 2.5Gbps
  > PMC - PCI bus 32-bit, 33MHz
- **IPC1553 - Next generation 1553 core**
- **Up to 4 independent dual-redundant MIL-STD-1553B channels**
- **Each channel independently programmable as either Bus Controller, Remote Terminal or Bus Monitor**
- **Rear P16 or Rear P14 or Front I/O available**
- **IRIG-B Time Code Input (Digital/Analog)**
- **IRIG-B Time Code Generator/Output (Digital)**
- **48-bit, microsecond time tagging**
- **Complete message programmability**
- **Flexible message status/interrupt generation**
- **External trigger for each channel**
- **Rich compliment of I/O options including programmable I/O and avionics discrete**
- **Six Discrete Inputs & six Discrete Outputs**
- **Direct or Transformer Coupled Bus Interface**
- **Available in two variants -Air Cooled, Conduction Cooled**
- **High-level API for Windows XP and Linux**

OVERVIEW

The AT-XMC/PMC-1553 is the latest generation of high performance, multichannel Mezzanine card for MIL-STD-1553B, with a choice of either PCIe or PCI as the Bus interface. The card provides up to four flexible single functions, dual redundant MIL-STD-1553B channels. It provides the highest level of performance & flexibility for MIL-STD-1553B protocol on the PCIe bus. The AT-XMC/PMC-1553 card includes advanced API (Application Programming Interface) software that reduces application development time. Standard features include 64K Words of RAM per channel, 48-bit message time tagging, up to four independent dual redundant MILSTD- 1553 channels, Six Discrete Inputs & Six Discrete Outputs, IRIG-B Time Code Input/Output. An onboard IRIG-B time code decoder and generator allow users to accurately synchronize single or multiple XMC/PMC1553 cards to a common time source. The card is available in either Air-cooled and Conduction cooled versions. Conduction cooled versions for rugged on-board systems.

HARDWARE

The AT-XMC/PMC-1553 card offers full-function test, simulation, monitoring, and data-bus analyzer functions for MIL-STD-1553B applications. These high-density high-performance cards are suitable for applications ranging from test equipment to rugged deployable systems. The card comes integrated with powerful software that reduces application development time. All data bus functionality is supported by our advanced API (Application Programming Interface). The card's single function architecture emulates a Bus Controller or 31 Remote Terminals or Monitor Terminal, BC/MT, or Multi-RT/MT modes independently per channel. Standard features include Programmable coupling and bus termination, extensive BC frame structures, error detection, RT Status Bit and Mode Code responses along with advanced BC functionality, Polling and interrupt generation. The advanced BC architecture provides a high degree of flexibility and autonomy by providing Major and Minor frame schedule control, streaming data interface, asynchronous message insertion, bulk data transfers, double buffering, message retry, bus switching strategies, data logging, and fault reporting. The RT architecture provides flexibility in meeting all common MIL-STD-1553 protocols while emulating up to 31RT addresses on one 1553 channel. The card includes a message monitor mode and a combined Multi-RT/ MT mode where the MT can monitor all 1553 communications on the bus, including the 1553 channel's assigned RT addresses. The Bus Monitor mode provides complete error detection on100% fully loaded buses, advanced error detection to isolate faults at a particular word within a 1553 message.

Transformer And Direct Coupling

The card can be configured to work either in transformer-coupled mode or direct-coupled mode. Jumpers are provided on the card to select the mode. It is configured to work in the transformer-coupled mode by default.

SOFTWARE

The AT-XMC/PMC-1553 software includes Drivers & APIs. The card comes with a powerful set of library functions to access the entire MIL-STD-1553B functionality. The drivers are designed in a modular fashion consisting of component functions and application functions. The user's test program can be developed with few calls to the driver by using the set of application functions provided.

PRODUCT SPECIFICATIONS

Bus Interface

- XMC - x1 lane PCIe, 2.5Gbps (PCIe base specification 1.0a) or PMC - 32-bit, 33/66 MHz (PCI 2.2)

MIL-STD-1553

- IPC1553 is AT'S next generation 1553 Core, with BC, RT, MT, RT/MT operating modes
- Full MIL-STD-1553 functionality
- Upto 4 independent dual redundant MIL-STD-1553B channels
- Message formats BC-RT, RT-BC, RT-RT, Broadcast, System Control
- Direct or Transformer coupled
- Hardware and Software Programmable RT Address
- External Trigger for each Channel

AT-XMC/PMC-1553

Multichannel High Performance 1553 Mezzanine Card

Bus Controller (BC)

- 64K words of Memory per channel
- Automatic retries on alternate bus
- Inter-message gap times up to 65.5ms
- Programmable response timeout up to 130µs
- Minor/Major Frame Scheduling to Control timing of 1553 messages
- Modify Messages or Data while BC is running
- Detects and Reports 1553 Errors
- Synchronize BC operation to external time source
- Programmable BC timeout values
- Flexible support for data streaming or bulk data transfer

Remote Terminal (RT)

- 31 Remote Terminal Control
- Programmable response time and status word bits
- Programmable command illegalization
- Modify data, status words or setup while card is running
- Selectable interrupts upon multiple conditions
- Support for all 1553B mode codes
- Programmable single message or double buffering or circular buffering
- BUSY Bit programmable by sub address
- Alphanumeric message ID

Monitor Terminal (MT)

- Word monitor per word basis
- Selective message monitor & time stamping
- Dynamic data update
- Message Periodicity
- Bus error status
- Busload
- Unique Message identifier
- Record and Replay option
- Message identifier
- Advanced Bus Error Detection to Isolate Bus Failures
- 100% data capture at full bus rates
- Programmable data logging to file
- Sequential record includes: command/status/data words, time-tag, errors, bus, and response time(s)

Diagnostics

- Testing of Memory Elements
- Internal Loop back Test for each channel
- Interrupt Function Testing

Discrete I/O

- Optional Six Discrete Inputs & six Discrete Outputs
- TTL outputs and inputs

IO Configurations

- IO available on both Front Panel 68 pin VHDCI Connector and Rear Connectors (P14 - PMC or P16 - XMC)
- Standard configuration is P16 rear panel I/O

Software Support

- Driver and high-level API libraries for Windows XP and Linux
- Sample applications provided

Physical

- Standard Singlewide Mezzanine Card form factor confirming to IEEE 1386.1 (74 mm x 149 mm)
- Conduction Cooled XMC/PMC Card without Bezel.

Environmental

	Air-Cooled	Conduction-Cooled
Operating temperature	0° C to +60° C	-40° C to +85° C

Power

- Primary Supply +5V from PMC Connectors when configured as a PMC Card, +3.3V and all other voltages internally derived
- Primary Supply +3.3V from XMC Connectors when configured as XMC Card, all other voltages internally derived

Warranty

- 1 year limited warranty

ORDERING INFORMATION

Hardware Selection

AT-XMC/PMC -1553- Controller - Channels - DIO - IRIG - Ruggedization

- A = Air-Cooled, R = Conduction-Cooled
- 0 = Without IRIG, 1 = With IRIG
- 0 = Without DIO, 1 = With DIO
- 1 = 1 Dual Redundant 1553B Channel, 2 = 2 Dual Redundant 1553B Channels, 3 = 3 Dual Redundant 1553B Channels, 4 = 4 Dual Redundant 1553B Channels
- 3 = IPC1553
- XMC - XMC Configuration, PMC - PMC Configuration

- Contact sales for support for other Operating Systems
- Contact sales for configuration of front and rear I/O configuration
- Contact sales for environmental options

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