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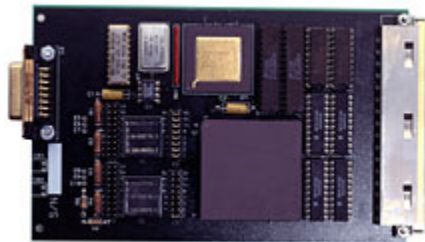
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# MS1553VMX

## MIL-STD-1553

### Interface for VMEbus

The second generation Condor Engineering MS1553VMX board provides a powerful and cost-effective solution for interfacing VMEbus computers to MIL-STD-1553B data buses in almost application environments. The new MS1553VMX family of products is available with Commercial, Industrial or Military temperature range parts, and with ruggedized conductively-cooled options available. These boards provide the highest value for embedded operational environments. The newly added programmable timer / comparator feature provides unique additional system functionality.



## FEATURES:

- Fully compliant with MIL-STD-1553B Notice II
- Bus Controller, Remote Terminal or Bus Monitor functionality
- Dual redundant bus support
- Flexible timer / comparator
- Available with Commercial, Industrial or Military temperature range components
- Two Built-in-Test modes
- Low power consumption
- Ruggedized and Conductively-cooled versions available
- Powerful on-board controller
- Extensive C utility library (in source code) eases software development
- 32K words of dual-ported RAM provides large message storage capacity

The MS1553VMX can operate as either a Bus Controller (BC), a single Remote Terminal (RT), or as a passive Bus Monitor (BM). A powerful, on-board controller manages all critical protocol functions and reduces overhead on the VME bus master. The interface is available in either 3U or 6U VMEbus formats.

This product has been redesigned for flight applications, while still providing users with an economic platform to quickly develop applications, simulate equipment, monitor data buses or test MIL-STD-1553B avionics hardware and software. Full MIL-STD-1553B dual redundant operation is supported, and an extensive C utility library is provided in source code format.

## Hardware Architecture

The powerful BCRTM controller from United Technologies Microelectronics Center provides the on-board intelligence for this dual redundant MIL-STD-1553B interface product. This field-proven, CMOS controller provides support for all dual redundant mode codes and message formats, while maintaining throughput under maximum data bus traffic conditions. Time-critical functions do not require cycles from the host processor, because they are executed locally from the on-board, dual-ported RAM. Powerful state machines minimize host overhead by automatically executing message transfers, providing interrupts, and generating status information.

With 32K words of dual-ported RAM, the MS1553VMX provides easy access to large, on-board data buffers through a high performance and versatile interface. Internal and external wraparound BIT testing is supported. Jumpers control selection of the board interrupt level, VME address and type of bus coupling. Front panel indicators monitor MIL-STD-1553B bus activity.

## Programmable Features

In Bus Controller mode, features include automatic polling, auto retry, programmable intermessage delays, and message chaining via linked-list messages. In Bus Monitor mode, all monitored messages are checked for errors. Data, status and time tags are available at 100% bandwidth for display or storage. As a Remote Terminal, time-tagging and message history functions, buffering up to 128 messages, and variable length messages to any subaddress are supported.

Programmable control over interrupts allows interrupt conditions to be selectively enabled and cleared. Interrupts can be generated at the end of a message, at the end of a block of messages, or when MIL-STD-1553B error conditions exist. All interrupt-causing events are chronologically recorded in an internally generated interrupt history list.

## SPECIFICATIONS

### Physical Card Formats

3U or 6U

### Environmental

Standard Operating Temperature range: 0 deg C to +70 deg C

Optional Operating Temperature range: -40 deg C to +85 deg C

Optional Operating Temperature range: -55 deg C to +125 deg C

0 to 90% Relative Humidity (Non-condensing)

Ruggedized and Conductively-cooled versions optional

### Electrical

+5 VDC (+/- 0.5) at 1.2 A typical

+12 VDC (+/- 0.5) at 10 ma quiescent, 10 ma at 50% duty cycle

-12 VDC (+/-0.5) at 40 ma quiescent, 140 ma at 50% duty cycle

### Connectors

Standard front-panel: 1553 Data Bus: Two BJ-77 Twinax

Conductively-cooled version: 1553 Data Bus: DB-15  
VMEbus: One VME P1

## Built-In-Test

Internal wraparound BIT and external wraparound testing supported

## MIL-STD-1553 Bus Coupling

Each of the two MIL-STD-1553 buses can be either direct coupled  
or transformer coupled

## VME Interface

A24 Addressing  
D16 DTB slave Data Transfer  
D08 RORA Interrupter  
IRQ 1-7 available  
Address Space: 64 KB window, switch programmable in 64 KB increments

## Documentation

MS1553 User's Manual  
BCRTM Data Sheet  
MIL-STD-1553 Tutorial

## Error Detection

Word count  
Long words  
Short words  
Zero crossing deviation  
Parity  
Data discontinuity

## Software

C utility library with over 70 routines supplied in source code

## Available Configurations

**MS1554VMX-3** 3U form factor MIL-STD-1553 Interface Board  
**MS1553VMX-6** 6U form factor MIL-STD-1553 Interface Board

The following options are available(add suffix to the part number):

- **R** Ruggedized construction with Industrial temperature components
- **RC** Ruggedized construction with Industrial temperature components and conductive cooling
- **M** Ruggedized construction with Military temperature components

- **MC** Ruggedized construction, Military temperature components and conductive cooling

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