PCIe Economic MIL-STD-1553 Interface Card

Device Technology / DTB-107e

Key Features

Data Device Corp. AceXtreme ASIC on board
Software compatible with AceXtreme SDK
1 Dual Redundant 1553 Channel
BC/MT or mRT/MT Operation
Comprehensive Built-In Self Test
BC or Multi-RT with Concurrent Bus Monitor
Supports MIL-STD-1760
2 Mb (64K x 36) RAM
48-bit/100ns Time Stamp
IRIG-106 Chapter 10 MT Support
IRIG-B Input
8 Digital Discrete I/O

Benefits

Save Time and Reduce Costs:
Common Software API for Test/Embedded Boards and Components
Program in Minutes with Automated Source Code Generation
Test and Simulation Toolkit for Advanced Testing
On-Board Programmable Coupling/Termination Reduces Cable Setup Time
Enhanced Performance
On-Board DMA Engine for Low CPU Utilization
Bridgeless PCI-E Design Reduces Access Time
MSI Interrupts Reduce Interrupt Latency
(x1) PCIe = Flexibility

Applications

Mission Computers
Digital Data Recorders
Radios/Modems
Displays and LRUs
Ground Vehicles
Radar Systems/Situational Awareness
Small Form Factor Boards
Commercial Aerospace

DTB-107e MIL-STD-1553 PCI-Express Card is designed based on DDC's AceXtreme protocol core as its communication engine interface with PCIe slots in standard desktop computers. The combination of 1553 with digital Discrete I/Os offers flexibility that makes the PCI Express Card ideal for most test applications. Support DDC's common test/embedded software API increases productivity. allowing your test and embedded designs to be generated from a common source.

Product Description

The DTB-107e offers a dual redundant MIL-STD-1553 channel, eight user programmable Digital Discrete I/Os, The card is a perfect fit for lab environments.

MIL-STD-1553 Channel

DTB-107e 1553 channel can emulate a Bus Controller (BC), or multiple Remote Terminals (mRTs), and a Bus Monitor (MT), independently.

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 engine allows emulation of up to 31 RT addresses per channel. Each RT address/subaddress can be individually controlled via Interrupt.

The Bus Monitor can record all or selective 1553 traffic on the bus. It has advanced error detection to isolate any fault found. All data is recorded in the industry starndard IRIG-106 Chapter 10 format.

Test and Simulation Toolkit

The DTB-107e supports Data Device Corp. powerful toolkit of features for in-depth MIL-STD-1553 Testing, Simulation, and Integration. For extreme system stress testing, the card can send 1553 message gaps or respond as an RT as low as 3.5 µs.

All on-board Digital I/Os can be reconfigured as powerful trigger controls. Events such as starting/stopping the BC can now be controlled externally. Alternatively, external equipment can be triggered on a particular event directly from the 1553 device.

Replay mode allows the card to recreate data for an entire 1553 bus from any recorded monitor file. Numerous errors can be injected into any Word/Message in BC or RT Modes, simplifying 1553 compliance testing.

Intermessage routines allow specific actions or data modifications to happen in real-time without having to stop the 1553 engine.

Digital/Avionics Discrete I/O

Digital Discrete I/O's pins are individually programmable to be either an output with wraparound or input-only digital discrete. Digital discrete inputs are +5V tolerant and outputs are +3.3V.

IRIG-B Time Code Support

The card includes an analog IRIG-B input, and digital IRIG-B input and output. IRIG-B Time Codes can be accessed in a convenient Time Data Packet format.

Product Specifications

MIL-STD-1553

- 1 Dual Redundant MIL-STD-1553 Channels
- User Selectable Transformer or Direct Coupled 1553 I/O
- 2 MB RAM with Parity
- MIL-STD-1553A/B and MIL-STD-1760 Support
- Software Programmable or External Jumper RT Addresses

Built-In Self-Test Capability

- Ram Self Test
- Register Self Test
- Online Loopback Test

Capabilities

1553 Bus Monitor (MT)
-IRIG-106 Chapter 10 Compatibility
-Filter Based on RT Address, T/R bit, Sub-Address
-Advanced Bus Error Detection to Isolate Bus Failures
-DMA Engine for Low CPU/PCI Utilization
1553 Bus Controller (BC)
-Streaming or Minor/Major Frame Scheduling to Control Timing of 1553 Messages
-High and Low Priority Asynchronous Message Insertion
-Modify Messages or Data while BC is running
-Concurrent Bus Monitor
1553 Remote Terminal (RT)
-Emulate up to 31 RT Addresses Simultaneously
-Multiple Buffering Techniques
-Programmable Command Illegalization
-Programmable Busy by Sub-address
-Concurrent Bus Monitor
1553 Mode Concurrency
(BC/MT or Multi-RT/MT)*
-Extremely Low Intermessage Gap and Response Time (3.5 µs and higher)
-External Input/Output Triggering
-Real Time Intermessage Data Modification

Parameter			Min	Typ	Max
Memory Per Chanel		Mb	2		
PCI Express interface		PCI-Express x1 Host Interface / 2.5Gbps			
Power supply					
PCIe Supply Voltage	+3.3	V	3.0	3.3	3.6
	+12		11.04	12.00	12.7
I/O Logic	+3.3		3.0	3.3	3.6
1553 Transmitters					
Transformer coupled		Vp-p	-	20.0	-
Direct coupled			-	28.0	-
Thermal					
Operating Termperature		°C	0	-	+55
Storage Temperature			-45	-	+85

ORDERING INFORMATION

DTB-107e – PCIe MIL-STD-1553 interface card

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