MIL-STD-1553B and parallel NTDS interfaces combined on a single PCI board

Versatile dual-function board saves slot space with full features and performance

The Falcon™ provides a MIL-STD-1553B Multiplex Data Bus and NTDS Parallel Type A/B/C/H on a single PCI board. This innovative design approach conserves slot space while providing full-featured performance. The Falcon™ allows for simultaneous and independent operation of both channels. It is supported by an extensive application programming interface (API) library and a device driver that integrates support for both the NTDS and 1553 channels. Device driver software is available for the most commonly-used operating systems.

MIL-STD-1397C NTDS Parallel A/B/C/H

The NTDS interface of the Falcon™ connects to military computers and peripherals with MIL-STD-1397C Type A, B, C or H interfaces. The Falcon’s™ NTDS interface is identical to the Sabtech Swift™ family of NTDS boards. Consequently it supports all applications developed for the Swift™ and it can reside in the same PCI backplane.

The Falcon’s™ NTDS interface is easy to program and offers a variety of input and output modes to support any NTDS protocol. Hardware-independent input and output channels allow the Falcon™ to perform simultaneous input and output (full duplex) operations.

The NTDS type is software-selectable allowing quick reconfiguration without the use of hardware jumpers or switch settings.

Falcon™ boards can be used for passive tap applications as well as normal NTDS I/O. An on-board time stamp generator tags individual input words with 125 ns resolution. Time stamping is software-selectable and can be used with active or passive communications.

MIL-STD-1553B Multiplex Data Bus

The Falcon™ also features an independent MIL-STD-1553B (Notice 2) interface. It supports dual redundant connections to bus A and B and can be configured as a bus controller (BC), remote terminal (RT), or monitor terminal (MT).

MIL-STD-1553B Multiplex Data Bus Features

- One dual-redundant MIL-STD-1553 channel supporting bus A & B
- 64K words (128K bytes) of RAM for message I/O buffering
- Supports highly autonomous bus controller operations with built-in message sequencer
- PCI interrupt generation for a flexible set of 1553 bus and hardware events
- Software controlled bus coupling
MIL-STD-1397C NTDS Features
- MIL-STD-1397C type A, B, C, and H compliant
- Full-duplex 8-, 16- or 32-bit NTDS transfers
- Independent NTDS input and output channels
- Separate word counters and timeouts for EI/EF words and data words on inputs and outputs
- Short circuit protected, tri-state drivers
- Internal loopback test without disconnecting NTDS cables
- Software-compatible with Swift PCI, PCIe, PMC, and cPCI boards

General Product Features
- PCI 2.2 compliant (supports plug and play)
- PCI master and slave operation
- Field Programmable Gate Array (FPGA) technology
- Interrupt, PIO & DMA operation
- 33 or 66 Mhz operation

Input Mode
- Separate or combined data and command word buffers
- Input command words, stop on data word
- Input data words, stop on command word
- Supports receipt of multiple forced EFs
- Passive tap mode
- Software-enabled time stamp on input words with 125ns resolution
- Synchronized time stamps across multiple interfaces

Output Mode
- Concurrent data and command buffer operation
- Normal and forced commands

Time-out Mode
- Time-out values in 10μs or 1 ms increments
- Time-out between words and/or total transfer times
- Start time-out at beginning of operation or upon transfer of the first word
- Separate time-out counters for data and command words

Software Drivers Available*
- Choice of driver included with board purchase:
  *Contact factory for new OS support

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**Falcon™ 1553/NTDS Type A,B,C,H Technical Specs**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Bus Interface</td>
<td>PCI 2.2 Compliant 32-Bit, 33/66 MHz, Universal Card (3.3V or 5V I/O signaling)</td>
</tr>
<tr>
<td>1553 Interface</td>
<td>MIL-STD-1553B Notice 2, Dual Redundant Bus</td>
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<tr>
<td>1553 I/O Connector</td>
<td>DB-9</td>
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<tr>
<td>NTDS Interface</td>
<td>MIL-STD-1397C Type A,B,C,H</td>
</tr>
<tr>
<td>NTDS I/O Connector</td>
<td>120 Pin Docking Connector (Molex 52755-1200) or Dual 80-pin Ribbon Latching Connectors (Optional)</td>
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<tr>
<td>Form Factor</td>
<td>6.875” x 4.2” (standard PCI short card)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>Average +5V current draw: 1.21A</td>
</tr>
<tr>
<td></td>
<td>Average +V I/O current draw: 5mA</td>
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<tr>
<td></td>
<td>Average Power Dissipated: 5.86W</td>
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<tr>
<td>Relative Humidity</td>
<td>0% to 90% (non-condensing)</td>
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<tr>
<td>Operating Temperature</td>
<td>0°C to +55°C</td>
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<tr>
<td>Weight</td>
<td>4.4 oz., 5.0 oz. (with populated top edge connectors)</td>
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</table>

**Model Numbers**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA-01102-01</td>
<td>Falcon™ PCI 1553/NTDS ABCH 64K NTDS Input FIFO w/o Internal Latching Connectors</td>
</tr>
<tr>
<td>FA-01112-01</td>
<td>Falcon™ PCI 1553/NTDS ABCH 256K NTDS Input FIFO w/o Internal Latching Connectors</td>
</tr>
<tr>
<td>FA-01102-06</td>
<td>Falcon™ PCI 1553/NTDS ABCH 64K NTDS Input FIFO with Internal Latching Connectors</td>
</tr>
<tr>
<td>FA-01112-06</td>
<td>Falcon™ PCI 1553/NTDS ABCH 256K NTDS Input FIFO with Internal Latching Connectors</td>
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