

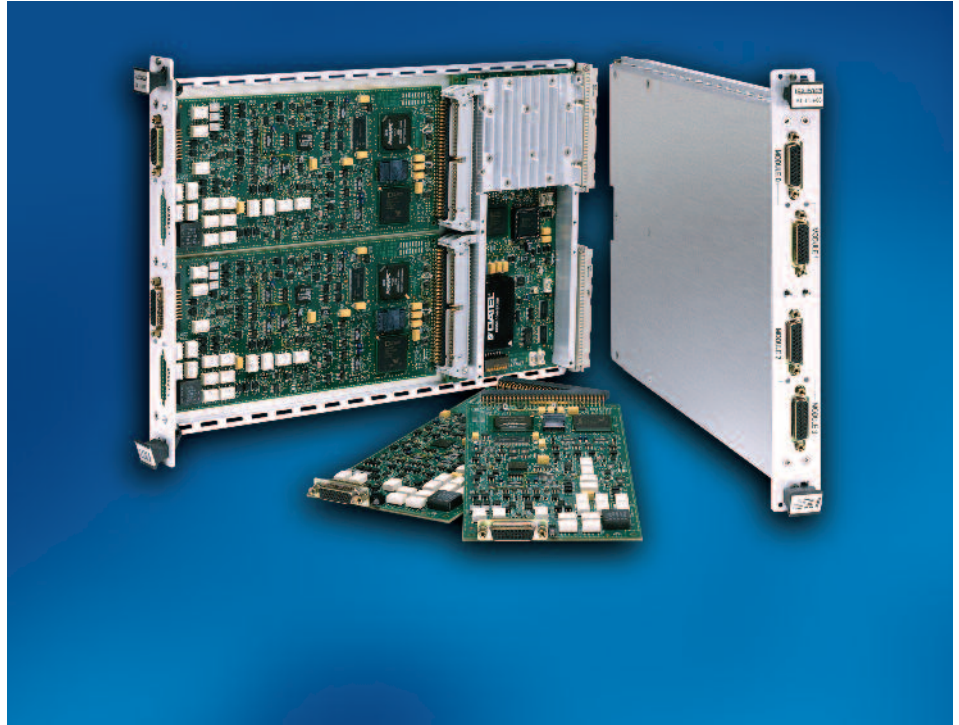


Bi-420 1394B Bus Test Instrument - 4 Modules

Bi4-Series Multiple Module Serial Bus Test Instrument

KEY FEATURES

- Four independent dual-node 1394B modules in one VXI C-size card
- Fully compliant with JSF 1394B protocol requirements
- Integrated self-test matrix and parametric test ports
- Micro-processor based real-time applications
- Integrated Ethernet interface for debug and control options



IEEE 1394B Bus Testing

Teradyne's Bi4-Series™ Bus Test Instrument (BTI) subsystem is the industry's first instrument designed specifically to address the unique requirements for real-time bus test and emulation for IEEE 1394B. The BTI is also the first instrument with complete support for the JSF 1394B interface requirements.

The Industry's First High Density Test Solution for 1394B

The 1394B BTI module introduces a new real-time test capability providing an innovative "load-and-forget" programming environment. Each 1394B bus module contains two nodes and six ports that can be combined to make 24-port support in a single VXI C-size slot.

Each module also provides an integrated self-test matrix and parametric test port for detailed communications analysis.

Four Independent Dual-Node 1394B Modules in One VXI C-Size Card

The 1394B BTI consists of two 1394B nodes in a single module. The BTI framework can support four modules, therefore it can accommodate from two to eight 1394B nodes in conjunction with some number of general-purpose bus modules. From the point of view of the user and the VXI Resource Manager, the BTI appears as four independent instruments that happen to occupy the same slot.

The Teradyne 1394B BTI software solution provides two ways of controlling the 1394B instruments: Using embedded applications that the user writes or using the Teradyne provided host API that transparently utilizes a Teradyne-provided embedded application and as a result requires no embedded development by the end user.

Fully Compliant with JSF 1394B Protocol Requirements

IEEE-1394B is much more than just another serial bus. It's a bus that supports isochronous and asynchronous communications and device control. It uses a peer-to-peer architecture allowing IEEE-1394B to be implemented as a stand-alone, extensible virtual backplane. With IEEE1394B, not only are bi-directional asynchronous and isochronous communications supported, but also IP and other packet switched protocols.

The Lockheed Martin Joint Strike Fighter (JSF) takes full advantage of these capabilities, providing the best possible solution for the future of communications within military aviation designs. The Teradyne 1394B BTI is uniquely designed to support the stringent requirements for bus test and emulation.

- Integrated self-test matrix and parametric test ports
- Integrated Ethernet interface for debug and control options



The high impedance probe matrix provides visibility to the signals on any one of six ports for debug purposes while the port is in use. High impedance buffers and a tree of relays exist to provide debug access to one of six 1394B ports. The buffers are carefully tapped off the actual output signals to provide insight into the waveforms with minimal impact. Access to the probe points is available through high-density output connector.

The output interface is formed using both a high-density connector and an Ethernet debug port. Both interfaces use readily available interface connectors to provide ease of integration and a wider variety in options for user interconnects.

Specifications:

General Specifications

1394 Nodes	2 independent nodes using TI's tsb81ba3 PHY chipset			
Ports per Node	3 each, 1394B JSF-compliant (6 ports per module)			
Isolation	Transformer coupled and direct out puts available			
Onboard Processor	PowerPC capable of 800 MIPS+			
Trigger Lines	2 open-collector TTL trigger lines in front-panel connector			
Ethernet	One 10/100 Ethernet port available for debugging, monitoring, and file download directly into the module			
Loop Back	An internal loop back is provided to support self-test			
Probe Port	High-impedance probe port allows software selectable monitoring of bus traffic on any one port			
Timestamp Resolution	30.3 ns			
Timestamp Accuracy	+/- 100 PPM over temperature range			

Output Conditions	Min	Typical	Max	Units
Data Transfer Rates	100	400	800+	Mbits/s
Transmit Differential Signal Level	1100	1400	1800	mV
Output Rise-fall Time (20%-80%)	-	275	375	ps

Microprocessor-Based Real-Time Applications

The Teradyne 1394B BTI provides local intelligence for the 1394B real-time applications using an embedded micro controller. The on-board micro controller is the highest performance embedded processor available that is designed for network applications. It controls data sequencing, determines responses to incoming data, and performs all dynamic activity such as generating and responding to triggers and other external events.

The use of this family of processors is ideal for demanding performance requirements such as those of the JSF bus interface designs.

Hardware Interface

- Each 1394B module has a high-density 68-pin connector that provides access to the ports of each node as well as Hi-Z test points and support for the UUT

Software

- Windows NT™ framework
- Host API support
- Embedded API support
- Full instrument self-test
- On-line documentation

Environment

- 0 to +45° C operating
- -20 to +60° C storage

Warranty

- 1 year with extensions available

Teradyne's Worldwide Service and Support

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ATD-06-30-09