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IEEE-1394 a&b OHCI Boards

Mindready's SedNet™ 1394a and 1394b OHCI board family provides a complete range of industrial-grade interface communication adapters for the IEEE-1394/FireWire® bus. Various form factors are used in specific markets, and each has its unique characteristics. Mindready supplies a complete portfolio to enable all types of requirements for aerospace/defense, industrial, automotive/transport, and medical applications, including the new RoHS compliance for components that are free of lead and other harmful substances. Furthermore, these boards meet the requirements of mission-critical embedded systems applications that use 1394 serial bus components.

Hardware Specifications

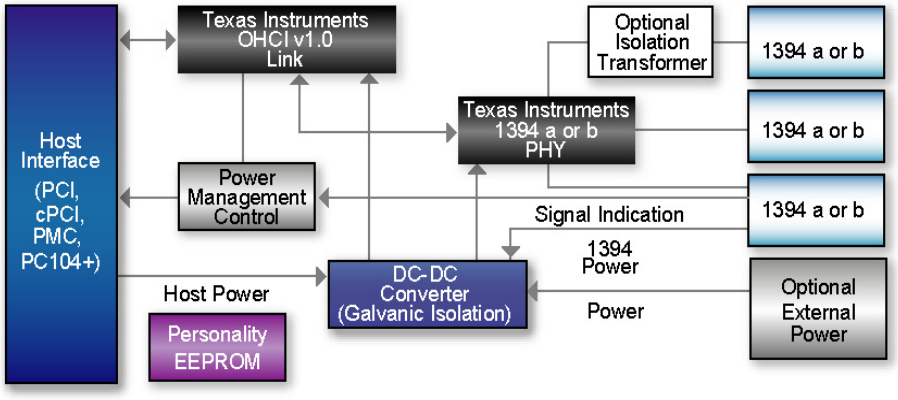
Form Factor	PCI, Compact PCI 3U and 6U, PMC single deck
Connector Type	• Standard IEEE-1394a 6-pin connector for IEEE-1394a units • Standard IEEE-1394b bilingual connectors for IEEE-1394b units
Connector Allocation for IEEE-1394a Devices	Three standard 1394a ports
Connector Allocation for IEEE-1394b	Device Bilingual, POF and GOF ports (see over for details)
Power Consumption	4.8 watts for the board, and up to 15 watts if power is fed to the bus
Optional External Power Feed	12 volts DC (when equipped with the external power option)
Host Power Feed	Support for +5 volt and +3.3 volt power supplies
Operating Temperature	0C to +70C (+32F to +158F)
Storage Temperature	-40C to +85C (-40F to +185F)
Host Interface Standard	OHCI v1.0
Link Layer Controller	Texas Instruments TSB12LV26, TSB82AA2
Physical Layer Controller	Texas Instruments TSB41AB3, TSB41BA3, TSB81BA3

Key Features

- Fully compliant with the OHCI v1.0 specification
- Available in popular PCI-based formats such as PCI, Compact PCI and PMC, with a 1394a or 1394b compliant interface
- Models provide either IEEE-1394a or IEEE-1394b serial bus support
- Transmission speed up to 400 Mbps with IEEE-1394a, and 800 Mbps with IEEE-1394b and suitable connections
- Support for S100, S200, S400 transfer rates standard with IEEE-1394a&b, plus S800 with IEEE-1394b
- PCI host and external power feed option (selected models only)
- Extensive protection through either galvanic isolation or via a special transformer isolation option
- Choice of electrical and optical interfaces, supporting various bit rates
- Fully tested for compatibility with Mindready's extensive SedNet 1394 stack and high-level protocol software suite
- Able to power external devices via the 1394 cable (up to 57 watts depending on model)
- Full real-time synchronization between all attached devices
- Support for asynchronous and isochronous data transfer
- Point-to-point, daisy chain or tree topologies; no cabling restrictions

RoHS 2002/95/EC

SedNet 1394 a&b OHCI Boards Generic Architecture



Q&A

Q: Why should I purchase my OHCI boards from Mindready?

A: Here are a few of the reasons why our communication adapters are sold at a premium:

- All Mindready OHCI boards have galvanic isolation, which prevents ground loops and enables you to provide power to the 1394 bus from an isolated source.
- All Mindready 1394b OHCI boards can be equipped with a transformer, which extends cable reach to up to 20m in addition to providing protection against electric discharges such as lightning strikes.
- Each adapter is individually and manually tested for defects in specific components, as well as for the board's overall performance. Other less expensive boards only test a certain percentage of each lot produced.
- We only select premium components and Texas Instruments Physical/Link Layer Controllers when designing our products.
- The purchase price of Mindready boards includes the hardware itself, a complete set of documentation and a three-month support and maintenance contract that includes board replacement in case of failure.
- Our drivers are thoroughly tested and used on Mindready boards.

Q: OHCI PXI boards can use an external power source to provide power on the IEEE-1394 bus. How does this work?

A: Some of the Mindready OHCI boards have a dedicated power supply to feed power to the IEEE-1394 bus. Depending on the form factor, it is possible to provide the IEEE-1394 bus with up to 11 watts.

Q: Can I connect an IEEE-1394b port with a transformer to another IEEE-1394b port without a transformer?

A: Yes, as long as both devices are IEEE-1394b only devices (*i.e.*, not bilingual).

Q: Can I connect an IEEE-1394b port with a transformer to an IEEE-1394a port?

A: No, ports with a transformer are only compatible with IEEE-1394b (Beta mode).

Q: Does your OHCI boards act as a repeater on the 1394 bus even if it is unpowered?

A: Yes, as long as the 1394 network can provide enough power.

Q: Do Mindready's boards work with the Windows driver?

A: Yes, Mindready's boards are recognized by Windows as a standard Texas Instruments OHCI device. At the current time, however, Windows XP does not fully support IEEE-1394b regarding data transmission/reception speed. For details, refer to http://support.microsoft.com/default.aspx?scid=kb;en-us;885222.

Why Choose Mindready?

- World leader in mission-critical 1394 embedded systems
- Integrated offering: 1394 boards, 1394 software, 1394 engineering services, 1394 training
- Provider of 1394 systems to key players in the aerospace/defense, automotive/transport, industrial and medical markets
- All 1394 boards can be used with Mindready's software suite as part of a fully-functional application
- Mindready's engineering services can design final products from the ground up or supply the expertise to quickly deliver a complete product, including hardware, software drivers, stack and audio, video or IP implementation, and porting to popular RTOS and processors used in the embedded industry
- Operations centers located in the United States, Canada and Europe
- ISO-9001 certified
- Some form factors offer *Restriction of Hazardous Substances* (RoHS) compliance

Applications

- Designs involving the SAE AS-1A-3 Protocol (JSF, J-UCAS, etc.)
- Galvanically isolated for industrial use (not extended temperature range)
- General-purpose FireWire communication adapter
- Ideal for production tests

Q&A

Q: Which options are available?

Product #	Form Factor	Compatible With	Impedance-Matching Transformer	Power Provider
2027-010	PCI	1394a: S100, S200, S400	No	3W, Int.
2027-010-R	RoHS PCI	1394a: S100, S200, S400	No	3W, Int.
2027-011	PCI	1394a: S100, S200, S400	No	13W, Ext.
2027-011-R	RoHS PCI	1394a: S100, S200, S400	No	13W, Ext.
2123-010-3	cPCI 3U	1394a: S100, S200, S400	No	4W, Int.
2123-011-3	cPCI 3U	1394a: S100, S200, S400	No	15W, Ext.
2123-010-6	cPCI 6U	1394a: S100, S200, S400	No	4W, Int.
2123-011-6	cPCI 6U	1394a: S100, S200, S400	No	15W, Ext.
2023-910	PCI	1394a: S100, S200, S400 1394b: B400	No	4W, Int.
2023-910-R	RoHS PCI	1394a: S100, S200, S400 1394b: B400	No	4W, Int.
2023-911	PCI	1394a: S100, S200, S400 1394b: B400	No	11W, Ext.
2023-914	PCI	1394b: B100, B200, B400	Yes	3W, Int.
2023-915	PCI	1394b: B100, B200, B400	Yes	10W, Ext.
2123-914-3	cPCI 3U	1394b: B100, B200, B400	Yes	3W, Int.
2123-915-3	cPCI 3U	1394b: B100, B200, B400	Yes	15W, Ext.
2123-910-3	cPCI 3U	1394a: S100, S200, S400 1394b: B400	No	4W, Int.
2123-911-3	cPCI 3U	1394a: S100, S200, S400 1394b: B400	No	15W, Ext.
2123-914-6	cPCI 6U	1394b: B100, B200, B400	Yes	3W, Int.
2123-915-6	cPCI 6U	1394b: B100, B200, B400	Yes	15W, Ext.
2123-910-6	cPCI 6U	1394a: S100, S200, S400 1394b: B400	No	4W, Int.
2123-911-6	cPCI 6U	1394a: S100, S200, S400 1394b: B400	No	15W, Ext.
2217-R	RoHS PMC (1394a PHY)	1394a: S100, S200, S400	No	-
2216-901	PMC (1394b PHY)	1394a: S100, S200, S400 (*Must use Mindready's driver under Windows*)	No	-
2216-910	PMC	1394b: B100, B200, B400	Yes	-
2216-913	PMC	1394b: B100, B200, B400 1394a: S100, S200, S400	No	-

Q: Can Mindready's OHCI boards be customized to allow other (custom) configurations?

A: Yes, please call us for details.

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Operations Centers

For more information:

www.mindready.com
Toll Free: (877) 636-1394
Tel: (514) 339-1394
Fax: (514) 339-1376

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