4Links for technical help

PCI-1355-01
PCI-1355-02

PCI bus interface development boards for IEEE 1355 DS-DE links

Product Outline

PCI-1355-01/2 Description

The PCI-1355-01/2 provide a simple interface between the PCI bus and 1355 DS-Links. The PCI-1355-01 has one DS-Link, the PCI-1355-02 has two links. The links are buffered in accordance with the DS-DE specification of IEEE 1355 (and also to be ISO/IEC 14575CD).

1355 DS-Links provide an exceptionally light-weight Virtual Channel protocol for serial communication between processors, between I/O systems, or between I/O systems and processors.

The standard PCI form-factor allows PCs, PowerPCs, or DEC Alphas to use 1355 links.

Features

- Links may be used point-to-point, or may be connected via hubs based on routing switch chips such as the 32-port SGS-THOMSON C104.
- Packet payloads may be any multiple of 4 bytes. Examples include ATM payloads at 48 bytes, MPEG2 at 192 bytes, or T9000 transputer at 32 bytes. Packets of different sizes for different destinations may be interleaved on the same link
- The programmer has full control of packets, with a clean address mapping of the C101 registers.
- The PCI-1355-01/2 are slave interfaces and do not therefore sustain the full bi-directional bandwidth of two 100 Mbits/s DS-Links. A clock chip provides the clock for 100Mbit/s links.
- PCI's 32-bit access, however, offers much higher performance than ISA based interfaces, with close to 7 Mbytes/s transferred across the PCI bus for looped back 64-byte packets.
- 1355's remote power option is included on both links, to power remote devices from the board
- An option includes cables to connect the C101s to a Size2 HTRAM slot, with two link from the HTRAM connected to the 1355 DS_DE buffers.
- A further option is a socketed larger PLD, connected to 16 bits of the data bus and to signals which might offer enhanced performance from future revisions of the PLD equations
- All boards include a prototyping space with footprints for 100-pin and 208 pin QFPs, 20 pin QSOPs, PGAs and for a DIN 41612 connector, for development of 1355 applications.

Applications

- Development of 1355 systems
- IHDEN development (In-Home Digital Entertainment Network)
- PC clusters / Internet servers
- Video-on-Demand (VoD) servers
- Host interface for T9 systems
- FIFO between two computers
- Virtual transputers, particularly with "Occam for All"

Acknowledgements

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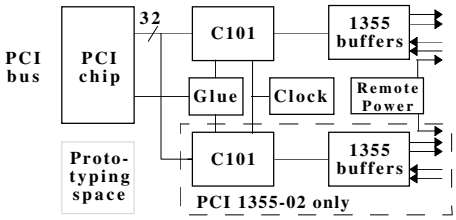
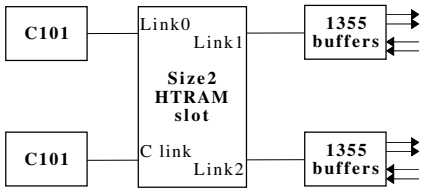
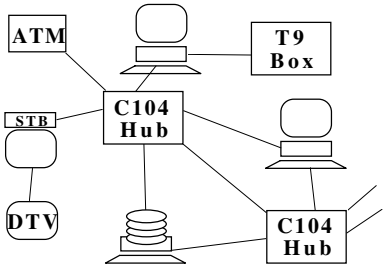
Block Diagram



Optional HTRAM links



Example network (which might be developed using IEEE 1355)



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PCI bus Base Address Registers (BARs):

BAR 0	Operation registers of S5933 PCI chip, reserved
BAR 1	64 words of 32 bits I/O space, C101 registers for Link 0
BAR 2	64 words of 32 bits I/O space, C101 registers for Link 1
BAR 3	I/O space, writing generates hard reset to both C101s
BAR 4	not used
BAR 5	not available

Software provided includes C routines for determining the base address registers set up by the BIOS, and for transmitting and receiving virtual channel packets.

EMC features on all boards include AT&T buffers with minimised output skew, common mode chokes on outputs, use of Harlink bracket and EMC gasket for 1355 connectors, and split 5V plane to minimise coupling to link signals.

Options:

HTRAM Option includes the HTRAM sockets, 5MHz clock oscillator, and four 15 cm ribbon cables to connect between the link jumper pins.

Upgradable PLD Option includes a socketed 84-pin PLD with 80 macrocells in place of the standard 44-pin PLD with 40 macrocells. The 84-pin PLD is connected to the bus mastering signals of the PCI chip, to the lower 16 bits of the address/data bus, and to the status flag pins of the C101 for Link 0. The spare capacity in the 84-pin PLD, and its connection to these signals, may make it possible to offer upgraded performance and/or functionality in future versions, and that such versions may be made available as a field upgrade. No commitment can, of course, be given concerning such upgrades.

1355 Cables can be provided at 2 metre length.

Ordering Details

Please photocopy the form below to use as an order form:

Part No.	Description	Unit Price	Qty	Total
PCI-1355-01	PCI board with one link to IEEE 1355	£750		
PCI-1355-02	PCI board with two links to IEEE 1355	£900		
OPT-HTRAM	HTRAM socket option on PCI-1355-2	£75		
OPT-UpAble	Upgradable 84-pin PLD option	£75		
Cab2m	Two metre 1355 DS-DE cable	£75		
SubTotal				
	Discount for cash with order	(£125)		
	Post & Packing (UK £15)			£30
	VAT: UK and outside EU 17.5% (EU except UK: please supply VAT no.)			
Total				

The information supplied in this Product Outline is believed to be accurate. The boards have been designed for low EMC emission and susceptibility but are not tested to the EU EMC Directive, and, as development boards, are not intended for "end users". 4Links for technical help reserves the right to change specifications or to discontinue products without notice. 4Links for technical help assumes no liability arising out of the application or use of any information or product, nor does it convey any licence under its patent rights or the rights of others. Products from 4Links for technical help are not designed, intended, authorised or warranted to be suitable for use in life-support devices or systems. 9603

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