

DATASHEET

2500A PCI Express Protocol Analyzer - temp.cpa [not saved]

File Configuration Capture Help

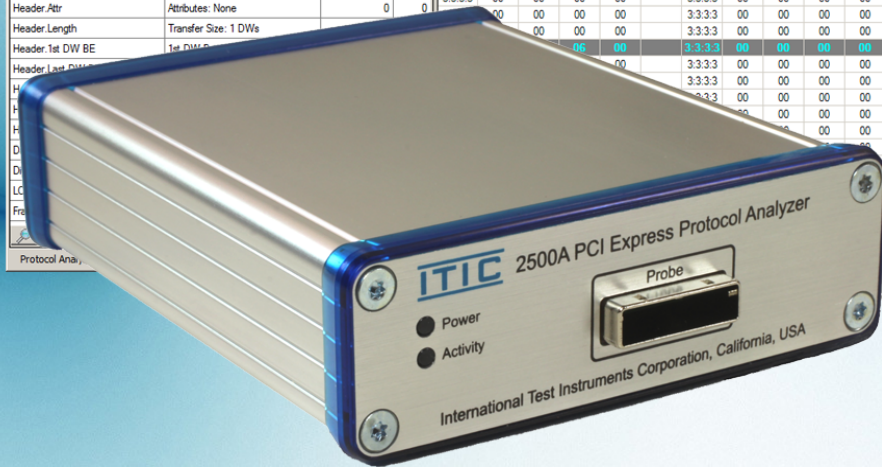
Open Save As Capture Trigger Start Stop Updates About

Item	Sequence #	Requester ID / Tag	Completer ID	Address	Data	Status	Time
Msg Transaction (Assert_INTA)	137	0A00 (Bus 0A Dev:00 Fnc:0) / 00				-327	
MR32 Transaction	518	0028 (Bus 00 Dev:05 Fnc:0) / 00	0A00 (Bus 0A Dev:00 Fnc:0)	FBFEC044	4 bytes (76 00 00 00)	0	
TLP (MR32)	518	0028 (Bus 00 Dev:05 Fnc:0) / 00		FBFEC044	4 bytes requested		
DLLP (Ack)	518						62
TLP (CplD)	138	0028 (Bus 00 Dev:05 Fnc:0) / 00	0A00 (Bus 0A Dev:00 Fnc:0)		4 bytes (76 00 00 00)		74
Msg Transaction (Deassert_INTA)	139	0A00 (Bus 0A Dev:00 Fnc:0) / 00					99
MR32 Transaction	519	0028 (Bus 00 Dev:05 Fnc:0) / 00	0A00 (Bus 0A Dev:00 Fnc:0)	FBFEC044	4 bytes (FF FF FF FF)		192
MsgD Transaction (Vendor_Defined Type 1)	520	0000 (Bus 00 Dev:00 Fnc:0) / 00			4 bytes (A4 00 00 00)		476
MR32 Transaction	521	0000 (Bus 00 Dev:00 Fnc:0) / 0A		FBFEC040	4 bytes (40 3C 21 00)		11,176
MR32 Transaction	141	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	00213C40	128 bytes (34 00 00 00 0A F...		11,376
TLP (MR32)	141	0A00 (Bus 0A Dev:00 Fnc:0) / 00		00213C40	128 bytes requested		11,376
DLLP (Ack)	141						11,452
TLP (CplD)	522	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)		64 bytes (34 00 00 00 0A F...		11,478
TLP (CplD)	523	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)		64 bytes (00 20 00 14 00 D...		11,500
DLLP (Ack)	522						11,556
DLLP (Ack)	523						11,578
MR32 Transaction	142	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	3C20B000	512 bytes (67 01 C7 5F 9B...		319,956
MR32 Transaction	143	0A00 (Bus 0A Dev:00 Fnc:0) / 01	0000 (Bus 00 Dev:00 Fnc:0)	3C20B200	512 bytes (F2 09 46 E1 F9...		319,963
MR32 Transaction	144	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	3C20B400	512 bytes (EF 0A A6 8A AD...		320,482
MR32 Transaction	145	0A00 (Bus 0A Dev:00 Fnc:0) / 01	0000 (Bus 00 Dev:00 Fnc:0)	3C20B600	512 bytes (C7 19 1B AA 7F...		320,489
MR32 Transaction	146	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	3C20B800	512 bytes (97 FD B9 31 2C...		321,008
MR32 Transaction	147	0A00 (Bus 0A Dev:00 Fnc:0) / 01	0000 (Bus 00 Dev:00 Fnc:0)	3C20BA00	512 bytes (BC 60 AE 48 5C...		321,015
MR32 Transaction	148	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	3C20BC00	512 bytes (50 F7 6A EF 92...		321,546
MR32 Transaction	149	0A00 (Bus 0A Dev:00 Fnc:0) / 01	0000 (Bus 00 Dev:00 Fnc:0)	3C20BE00	512 bytes (EA C0 D2 9C 1A...		321,553
MR32 Transaction	150	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	3C28C000	512 bytes (AD 29 74 D9 FD...		322,084
MR32 Transaction	151	0A00 (Bus 0A Dev:00 Fnc:0) / 01	0000 (Bus 00 Dev:00 Fnc:0)	3C28C200	512 bytes (46 C0 E0 F5...		322,091
MR32 Transaction	152	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	3C28C400	512 bytes (4F FD EF 38 5C...		322,610
MR32 Transaction	153	0A00 (Bus 0A Dev:00 Fnc:0) / 01	0000 (Bus 00 Dev:00 Fnc:0)	3C28C600	512 bytes (AB 41 D3 60 18...		322,617
MR32 Transaction	154	0A00 (Bus 0A Dev:00 Fnc:0) / 00	0000 (Bus 00 Dev:00 Fnc:0)	3C28C800	512 bytes (48 35 61 51 9E...		323,316
MR32 Transaction	155	0A00 (Bus 0A Dev:00 Fnc:0) / 01	0000 (Bus 00 Dev:00 Fnc:0)	3C28CA00	512 bytes (8E 65 39 34 B5...		323,323

TLP (MR32) Details				Host to Device Link Direction				Device to Host Link Direction				Time		
Name	Value	Dec	Hex	Status	Lane 0	Lane 1	Lane 2	Lane 3	Status	Lane 0	Lane 1		Lane 2	Lane 3
Framing	STP	251	FB	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-11
Sequence Number	518	518	0206	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-10
Header Fmt	3 DW Header, No Data	0	0	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-9
Header Type	MRd	0	00	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-8
Header TC	Traffic Class 0	0	0	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-6
Header TD	TLP Digest/ECRC Not Present	0	0	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-5
Header EP	TLP Not Poisoned	0	0	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-4
Header Attr	Attributes: None	0	0	3.3.3.3	00	00	00	00	3.3.3.3	00	00	00	00	-3
Header Length	Transfer Size: 1 DWs				00	00	00	00	3.3.3.3	00	00	00	00	-2
Header 1st DW BE	1st DW BE				00	00	00	00	3.3.3.3	00	00	00	00	-1
Header Last DW BE	Last DW BE				00	00	00	00	3.3.3.3	00	00	00	00	0
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	1
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	2
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	3
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	4
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	5
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	6
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	7
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	8
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	9
Header Last DW BE	Last DW BE								3.3.3.3	00	00	00	00	10

Protocol Analyzer

2500A PCI Express Protocol Analyzer



PCI EXPRESS 1.1 PROTOCOL ANALYZER 2500A

POCKET-SIZED PCI EXPRESS 1.1 PROTOCOL ANALYZER MODEL 2500A. SUPPORTS 2.5 GBPS WITH X1, X2 AND X4 LANE WIDTHS. FPGA-BASED, FULLY UPGRADEABLE DESIGN. REAL-TIME DATA CAPTURE AND DISPLAY. PC SOFTWARE INCLUDED. WORLD-WIDE SHIPPING.



**SUPPORTS ALL WINDOWS VERSIONS
FROM XP TO 10 (32BIT/64BIT)**



INTERNATIONAL TEST INSTRUMENTS CORPORATION

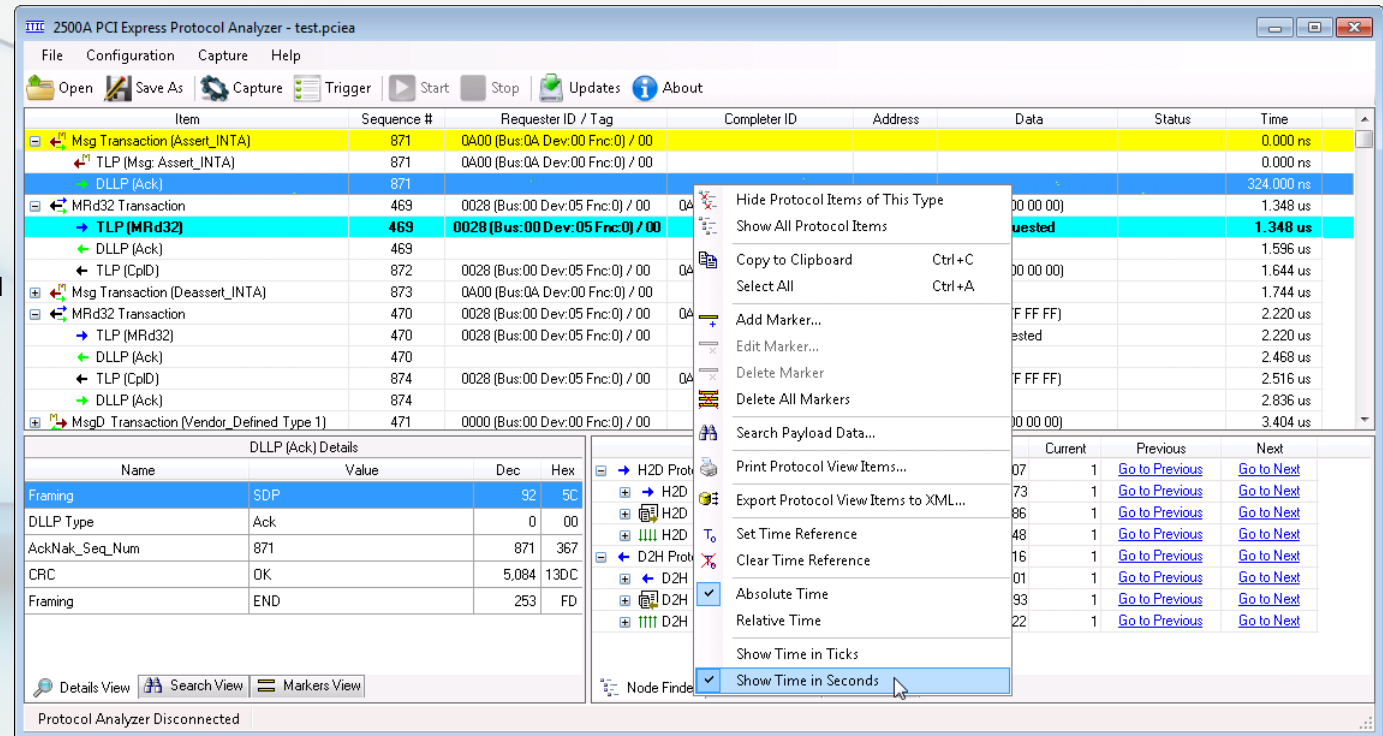
INTERNATIONALTESTINSTRUMENTS.COM

PCI EXPRESS 1.1 PROTOCOL ANALYZER 2500A

DESCRIPTION

The 2500A PCI Express Protocol Analyzer supports the following features:

- ✓ PCI Express 1.1 (2.5 GBit/second) compliant
- ✓ User-selectable x4, x2 and x1 link width configurations.
- ✓ User-selectable 2 Gigabyte to 64 Kilobyte capture buffer. A selectable capture buffer size allows for smaller data files when saved to hard disk.
- ✓ A powerful 48 MHz Cypress FX2LP microprocessor implements on-demand upload of data via USB 2.0 after a completed capture. This allows you to immediately view data after the capture without having to wait for lengthy uploads of the full trace data.
- ✓ An Altera Arria II GX FPGA contains PCI Express x4 transceivers, a DDR2 Memory Controller and data upload interface to the microprocessor.
- ✓ Programmable Sequence Detectors allows the FPGA to detect the location of pre-defined as well as custom data sequences. This facilitates hardware-acceleration of PCI Express Protocol Item detection after capture. This, in turn, enables the software to display the data very quickly after a completed capture without a need for the software to locate the PCI Express Packets and Ordered Sets captured.
- ✓ An 8-level trigger with up to 2048 byte deep data detection per trigger level allows triggering on very long data sequences. In total, data sequences up to 16 Kbytes in length can be triggered upon.
- ✓ A TTL-compatible Trigger in / out port allows synchronization with external test instruments.
- ✓ A x4 slot probe with a 1 m (3.3ft) cable is included. 3rd party, custom probes can also be designed and connected to the 2500A unit.
- ✓ Microprocessor firmware and FPGA configuration are automatically updated with the PC application software. No separate and complex hardware re-programming is needed.
- ✓ Overall, the 2500A hardware and software has been designed for maximum efficiency and simplicity of use. The hardware is small enough to fit in your pocket, the software is very easy to use but yet the complete package is very flexible and powerful.



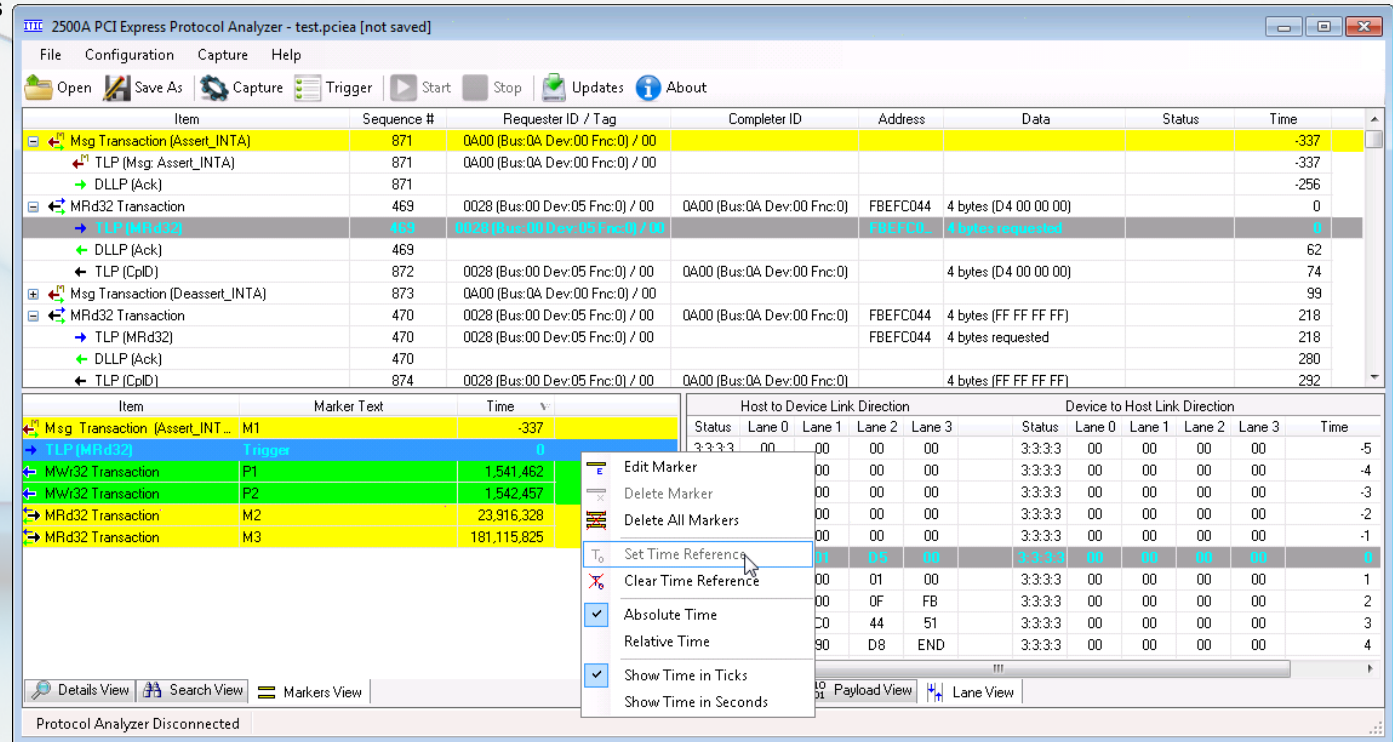
INTERNATIONAL TEST INSTRUMENTS CORPORATION

INTERNATIONALTTESTINSTRUMENTS.COM

PCI EXPRESS 1.1 PROTOCOL ANALYZER 2500A

UNIQUE ADVANCED FEATURES

- ✓ The Hierarchical Protocol Tree View organizes the captured PCI Express protocol data into a format that exactly reflects the nesting of the actual protocol items on the bus. This greatly eases understanding of the PCI Express protocol. Other PCI Express Protocol Analyzers use a primitive block-type display which makes it very hard to see the overall hierarchy of the complex data being communicated.
- ✓ FPGA hardware acceleration (indexing) of protocol items allows instantaneous Protocol View display after custom filtering, even for a full 2 gigabyte capture. Other Protocol Analyzers use the computer's CPU to parse the captured data which is orders of magnitude slower.
- ✓ Idle Data Hardware Filtering allows capture of minutes worth of link data, allowing tens of millions of protocol items to be captured. This will allow you to capture rare or unknown events that are otherwise impossible to set up trigger conditions for.
- ✓ Dynamic on-demand data upload from the hardware allows effortless access to and browsing of gigabyte sized trace data without a need to first upload the complete data to the PC. Only the part of the Protocol View that is actually visible will result in data fragments being uploaded from the 2500A unit.
- ✓ Extremely deep Trigger Sequence Detectors allow detection of eight trigger levels of up to 2,048 bytes per level or in total 16 kilobytes. Other Protocol Analyzers normally only allow you to trigger on a few DWords of packet payload data.
- ✓ Multiple time-correlated views of the data are simultaneously available, allowing you to easily see transaction, packet and lane details from the highest to lowest abstraction levels at a glance. Some other PCI Express Protocol Analyzers require you to change the protocol view to view the data at a different abstraction level, resulting in lengthy reparsing of the data as well as loss of situational awareness of your location within the overall trace.
- ✓ Hardware acceleration of Protocol Item detection allows immediate display of the number of each type of protocol item in the trace as well as immediate jump to or filtering of any protocol item type.
- ✓ The 2500A unit is significantly smaller than competing PCI Express Protocol Analyzers, allowing it to be easily transported in your pocket or laptop bag (dimensions/weight is only 4.90" x 4.10" x 1.4" / 16oz or 125 x 105 x 35 mm / 450g).



INTERNATIONAL TEST INSTRUMENTS CORPORATION

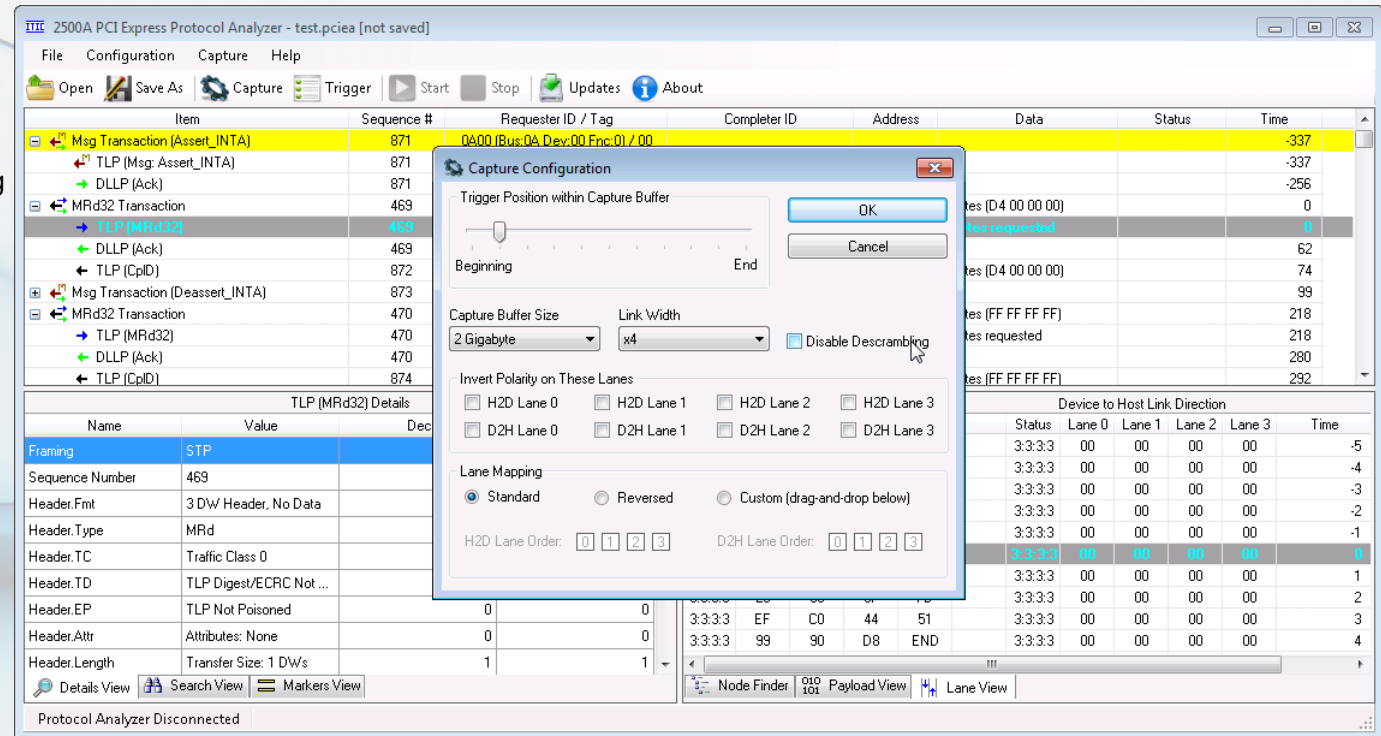
INTERNATIONALTTESTINSTRUMENTS.COM

PCI EXPRESS 1.1 PROTOCOL ANALYZER 2500A

SOFTWARE OVERVIEW

The 2500A software supports the following features:

- ✓ The trigger position can be adjusted within the capture buffer (i.e. pre or post trigger).
- ✓ Lane Polarity, Lane Mapping and Descrambling can be adjusted / disabled as needed.
- ✓ The software dynamically acquires the data required to display the visible part of the trace as the data is browsed. This results in very quick and effortless browsing of the captured data regardless of the capture buffer size used.
- ✓ Multiple Views of the data are time-correlated; the Protocol View displays a hierarchical view of all Transactions as well as the Packets included within the transactions; the Lane View displays the raw data and control characters as they were received on the link under test; finally, the Detail View decodes details of the packet selected in the Protocol View. Together, these views give you a quick and easy way to browse the captured data from the highest to lowest information level.
- ✓ All Protocol Items in the trace are displayed in the 'Node Finder' View. This view allows direct jump to any protocol item in the trace. The Node Finder can also be used to hide / show packets of a particular type.
- ✓ The 'Search View' allows you to search for binary or string data in packet payload. Multiple searches can be started and run in the background as you continue working with the software. The Search View allows direct jumps to the search result locations.
- ✓ The 'Markers View' displays the trigger position as well as any markers you have added to the capture. Markers are saved with the project and allow you to quickly locate interesting areas in the trace at a later time.
- ✓ Protocol Item Filtering allows you to instantly hide any given Protocol Item Type from the Protocol View. Due to the dynamic data access of the Protocol View, filtering is very quick, even for a full 2 Giga-byte capture.
- ✓ The Protocol View and Lane View data can be exported to file in XML format and to the clipboard in CSV format. This allows easy post-processing of the captured data via your own or 3rd party software.
- ✓ Time can be shown in absolute (measured from capture start) or relative (measured from prior protocol item) mode.



INTERNATIONAL TEST INSTRUMENTS CORPORATION

INTERNATIONALTTESTINSTRUMENTS.COM

PCI EXPRESS 1.1 PROTOCOL ANALYZER 2500A

Australia

Emona Instruments Pty Ltd
78 Parramatta Rd, Camperdown NSW 2050, Australia
<http://www.emona.com.au>

Austria

Meilhaus Electronic GmbH
Am Sonnenlicht 2, 82239 Alling, Germany
<http://www.meilhaus.de>

China

Full Wise Technology Co., Ltd.
No.620, 6F, Block C. Tsinghua University Building, Hi-Tech South
Seventh Road, Nanshan District, Shenzhen, China
<http://www.fullwisetech.com>

Hongke Technology Co., Ltd
Wushan South China University National Science Park 2-504,
510640 Guangzhou, China
<http://www.hkaco.com>
<http://www.hkmaton.com>

France

I.S.I.T.
7 rue André-Marie Ampere, Za La Ménude, 31830 Plaisance du
Touch, France
<http://www.isit.fr>

Germany

Meilhaus Electronic GmbH
Am Sonnenlicht 2, 82239 Alling, Germany
<http://www.meilhaus.de>

Hong Kong

Amazing Tech Co., Ltd.
Rm1905, Nan Fung Centre, 264-298 Castle Peak Road, Tsuen
Wan, NT, Hong Kong
<http://www.amazingtech.com.cn>

Flash Technology (HK) Limited
Room 1906, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan,
Kowloon, Hong Kong
<http://www.flashtech.com.hk>

Full Wise Technology Co., Ltd
Unit 2305, Apec Plaza, 49, Hoi Yuen Road, Kwun Tong, Kowloon,
Hongkong
<http://www.fullwisetech.com>

India

Innovate Software Solutions Pvt. Ltd.
#54, 2nd Floor, 2nd Main, 1st Block, Koramangala, Bangalore -
560034, India
<https://www.innovatesolutions.net>

VIGVEN TECH MARK Pvt Ltd.
#26, RBI Colony, 2nd Main, Ananda Nagar, Bangalore 560 024.
<http://www.vigven.com>

Japan

SolitonWave Co., Ltd.
AkihabaraSaikaihatsu Bldg.603,
2-22 KandaSakuma-cho,
Chiyoda-Ku Tokyo, 101-0025, Japan
<http://www.solitonwave.co.jp>

Philippines

Full Wise Technology Co., Ltd
11/88 Meisic Mall Stall 1C-16 Reina Reg Ente St. Cor Felipe St.
Tondo Manila.
<http://www.fullwisetech.com>

Russian Federation

Aktakom-Siberia
630049, Russian Federation, Novosibirsk, ul. Linear, 28, of. 515
<http://aktakom-siberia.ru>

Singapore

Full Wise Technology Co., Ltd
2 Petir Road, # 19-12 Singapore 678265
<http://www.fullwisetech.com>

South Africa

K Measure
Block B, 1166 Francis Baard / Schoeman Street, Hatfield, Pretoria,
South Africa
<http://www.kmeasure.co.za>

South Korea

Protocol Master Co. Ltd.
#T-6041 Garden Five Life
66 Choongmin-Ro Songpa-Gu
Seoul, 138-960, South Korea
<http://protocolmaster.co.kr>

Switzerland

Meilhaus Electronic GmbH
Am Sonnenlicht 2, 82239 Alling, Germany
<http://www.meilhaus.de>

Taiwan

Ready Telecom and Electric Intl Inc.
Rm. 612, 6F., No.53, Minquan Rd., Yonghe Dist., New Taipei
City 234, Taiwan
<http://www.ritii.com>

USA

International Test Instruments Corporation
26895 Aliso Creek Road, Suite B504, Aliso Viejo, California
92656, United States of America
<http://www.internationaltestinstruments.com>

TeraComm, LLC
190 Haverhill Street #133, Methuen, MA 01844, United States
of America
<http://teracomm.com>

XSoptix, LLC
800 Village Walk, Suite# 316 Guilford, CT 06437, United
States of America
<http://www.xsoptix.com>

INTERNATIONAL TEST INSTRUMENTS CORPORATION

INTERNATIONALTESTINSTRUMENTS.COM