

Analysis Without The Limitations

BusXpert Micro Series SAS/SATA Analyzers

UNPARALLELED PERFORMANCE

Upload and display traces using

- PCI Express > 550MB/s
- Gigabit Ethernet > 70MB/s
- Pre-Indexed Trace for faster searching and display
- InstaSearch technology

ACCURATE CAPTURE

- Native PHY
- Fast Data Re-Lock
- 2ns Timestamp Resolution
- Eye-Opener front end
- Tunable RX/TX signalling

CONVENIENT DESIGN

- 5V / 12V SW controllable external power connector
- Available as Micro and MicroLite
- Configurable SAS/SATA or SATA protocol support
- 1 or 2 port licensing options
- Up to 18GB of trace buffer
- Lightweight (< 3lbs) and Compact (6"x9"x1.75")
- Cascade up to 2 Micro platforms for capture of 4 ports simultaneously
- 7 unique Status LEDs per port



For today's SAS and SATA developers and integrators, getting to the root of a problem can be especially difficult when there isn't an obvious trigger condition. Troubleshooting is further complicated by ever-climbing storage capacities, data rates, and protocol complexity. Integrators and developers need faster and deeper analyzers to keep up. Traditionally, those needing to capture large amounts of traffic have been faced with limited trace buffers, long waits to view the data, slow searches, and slow saving. SerialTek has overcome the old limitations with the BusXpert Series of SAS/SATA Analyzers. The BusXpert uses advanced technologies such as the industry's first PCI Express x4 uplink to

- Record, upload and display SAS and SATA traffic in seconds with either Gigabit Ethernet or PCI Express
- Native PHY with fast Data Re-Lock, Eye-Opener front-end, Tunable RX/TX signalling, and 2ns timestamp resolution for industry's most accurate capture
- Lightweight and compact design for ultra-portability
- Available in 1-port or 2-ports with up to 18GB of trace buffer

the host (550 MB/s), up to 18GB of buffer, Hardware Accelerated Gigabit Ethernet, pre-indexed and compressed trace data, multiple analysis processors, and instant display of the captured data. The BusXpert also features easy to use triggering, pre/post-filtering, textual search and sequence search, and many different displays of the captured traffic. It's available in a variety of configurations to fit specific needs for buffer size, port-count, protocols, and budget. The BusXpert breaks free of past analyzer limitations and lets users spend more time on development and debug efforts. SerialTek delivers on it's promise of **"Analysis Without the Limitations"**.

Traffic Display

The BusXpert provides a variety of traffic displays, with some optimized for different protocol layers, some optimized for time relationships, some correlate directly with the SAS/SATA specification, and some provide just the user data. All of the views are exportable via CSV and XML. Additionally, some can be exported to HTML. Bookmarks make it easy to label and discuss specific events in the trace.

Time	Delta time	Channel	Type	Initiator	Type - Target	Decode	Command
0.002.344.706	5,642	I2	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.349.632	4,926	T4	OPEN		STP DMA SETUP (FIS 41); D:1; I:0; A:0; Offset:0h; 512 bytes		
0.002.373.930	24,298	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.377.598	3,668	T4	OPEN		STP DMA ACTIVATE (FIS 39)		
0.002.387.166	9,568	I4	Data	(FIS 46)	STP DATA (FIS 46); 512 bytes		
0.002.397.592	10,456	I4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.401.798	4,206	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED	61: WRITE FPDMA QUEUED	
0.002.450.036	48,238	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.453.810	3,774	T4	Register Dev->Host	(FIS 34)	STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h		
0.002.459.050	5,240	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.459.220	5,890	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED	60: READ FPDMA QUEUED	
0.002.462.130	2,810	T4	Set Device Bits	(FIS A1)	STP SET DEVICE BITS (FIS A1); Tags: 1 9 18; I:1; N:0; Status:...		
0.002.468.922	6,792	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); READ FPDMA QUEUED	60: READ FPDMA QUEUED	
0.002.491.528	22,606	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.495.222	3,694	T4	Register Dev->Host	(FIS 34)	STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h		
0.002.500.802	5,580	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED	60: READ FPDMA QUEUED	
0.002.504.950	4,148	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); READ FPDMA QUEUED	60: READ FPDMA QUEUED	
0.002.538.514	33,564	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.542.234	3,720	T4	Register Dev->Host	(FIS 34)	STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h		
0.002.547.758	5,594	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); READ FPDMA QUEUED	60: READ FPDMA QUEUED	
0.002.551.970	4,212	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); READ FPDMA QUEUED	60: READ FPDMA QUEUED	
0.002.555.016	3,046	I2	OPEN		ADDRESS OPEN; PROTOCOL1(SSP); Rate:A(6 Gbps)		
0.002.556.274	1,258	I2	COMMAND		SSP COMMAND; WRITE (10)	2a: WRITE (10)	
0.002.569.980	13,708	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.573.648	3,648	T4	Register Dev->Host	(FIS 34)	STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h		
0.002.578.758	5,110	T3	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.579.310	552	I4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.582.420	3,110	T4	DMA Setup	(FIS 41)	STP DMA SETUP (FIS 41); D:1; I:0; A:0; Offset:0h; 512 bytes		
0.002.601.740	19,320	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.605.486	3,746	T4	Data	(FIS 46)	STP DATA (FIS 46); 512 bytes		
0.002.616.094	10,608	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED	61: WRITE FPDMA QUEUED	
0.002.728.964	112,870	T4	OPEN		ADDRESS OPEN; PROTOCOL2(STP); Rate:8(1,5 Gbps)		
0.002.732.658	3,694	T4	Register Dev->Host	(FIS 34)	STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h		
0.002.738.228	5,570	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); READ FPDMA QUEUED	61: WRITE FPDMA QUEUED	
0.002.742.374	4,146	I4	Register Host->Dev	(FIS 27)	STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED	61: WRITE FPDMA QUEUED	
0.002.745.514	3,146	T3	ADDRESS		ADDRESS OPEN; PROTOCOL1(SSP); Rate:A(6 Gbps)		

Spreadsheet View provides extensive decoding of frames, primitives, and Out-of-Band events, and sorts them to show the order they occurred in. The displayed columns are chosen from an extensive list of fields and events.

Time	Channel	Command	Status	Source	Destination	Tag	LBA/Sector	Transfer Size	Duration
0.002.556.274	I2, T2, T4	WRITE (10) GOOD		102030405060708	5000CCA08019861	d336	000000009984	512	0.039.272.675
0.002.556.274	I2	COMMAND; WRITE (10)							
0.038.133.392	T2	XFER_RDY; 512 bytes							
0.038.139.358	I2	DATA; Offset:0h; 512 bytes							
0.041.828.848	T4	RESPONSE; STATUS:00(GOOD)							
0.002.616.094	I3, T3, H...	WRITE FP; Error:00h; Status:40h	102030405060708	500E004AAAAAAA...	0008	000000002527		512	0.002.311.655
0.002.616.094	I4	Register Host->Dev (FIS 27); WRITE FPDMA QUEUED							
0.002.732.658	T4	Register Dev->Host (FIS 34); I:0; Status:40h; Error:00h							
0.004.238.794	T4	DMA Setup (FIS 41); D:0; I:0; A:0; Offset:0h; 512 bytes							
0.004.259.510	T3	DMA Activate (FIS 39)							
0.004.259.636	I3	Data (FIS 46); 512 bytes							
0.004.927.636	T4	Set Device Bits (FIS A1); Tags: 1 8 9 14 15; I:1; N:0; Status:0; StatusH:4h; Error:00h							
0.002.742.374	I2, T2, H...	WRITE FP; Error:00h; Status:40h	102030405060708	500E004AAAAAAA...	000e	000000002528		512	0.002.185.375
0.002.742.374	I4	Register Host->Dev (FIS 27); WRITE FPDMA QUEUED							

Transaction View shows each command in the order it was initiated. Commands may be expanded to show the frames associated with them, or collapsed so that only a summary of the command is shown.

Advanced Search

Search for 1 of those events:

- SCSI Command - READ (10)
 - Initiator: All initiators
 - Target: All targets
- Address Frame - Open
 - Any direction

Advanced Search provides a way to search for sequences of events, either within a frame, or across multiple frames or events. It is identical to the Trigger Sequencer in appearance.

Bit	7	6	5	4	3	2	1	0	
0	FRAME TYPE 01 (DATA)								
1	HASHED DESTINATION SAS ADDRESS 22E67C (Seagate Technology 6959A99)								
2	Reserved 00								
3	HASHED SOURCE SAS ADDRESS 1190C7								
4	Reserved 00								
5	Reserved 00								
6	TLR CONTROL 0								
7	RETRY DATA FRAMES 0								
8	RETRANSMIT 0								
9	CHANGING DATA POINTER 0								
10	NUMBER OF FILL BYTES 0								
11	Reserved 00000000								
12	TAG 0037								
13	Reserved 00000000								
14	Reserved 00000000								
15	Reserved 00000000								
16	Reserved 00000000								
17	Reserved 00000000								
18	TARGET PORT TRANSFER TAG 5FEC								
19	Reserved 00000000								
20	DATA OFFSET 00000000								
21	Reserved 00000000								
22	Reserved 00000000								
23	Reserved 00000000								

Frame Details shows each frame in the format used by the SAS or SATA specification.

Time	I2	T2	I4	T4
0.002.547.760				STP; 1,5 Gbps
0.002.551.968				STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED
0.002.551.972				READ FPDMA QUEUED
0.002.555.016				ADDRESS OPEN SSP; 6 Gbps
0.002.555.020				ADDRESS OPEN SSP; 6 Gbps
0.002.556.272				SSP COMMAND WRITE (10)
0.002.556.276				ADDRESS OPEN STP; 1,5 Gbps
0.002.569.980				ADDRESS OPEN STP; 1,5 Gbps
0.002.569.984				STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h
0.002.573.648				ADDRESS OPEN STP; 1,5 Gbps
0.002.573.652				STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h
0.002.579.308				ADDRESS OPEN STP; 1,5 Gbps
0.002.579.312				STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h
0.002.582.420				STP DMA SETUP (FIS 41); D:1; I:0; A:0; Offset:0h; 512 bytes
0.002.582.424				ADDRESS OPEN STP; 1,5 Gbps
0.002.601.740				ADDRESS OPEN STP; 1,5 Gbps
0.002.601.744				ADDRESS OPEN STP; 1,5 Gbps
0.002.605.484				STP DATA (FIS 46); 512 bytes
0.002.605.488				STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED
0.002.616.092				ADDRESS OPEN STP; 1,5 Gbps
0.002.616.096				STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED
0.002.728.964				ADDRESS OPEN STP; 1,5 Gbps
0.002.728.968				ADDRESS OPEN STP; 1,5 Gbps
0.002.732.656				STP REGISTER DEV->HOST (FIS 34); I:0; Status:40h; Error:00h
0.002.732.660				ADDRESS OPEN STP; 1,5 Gbps
0.002.738.228				ADDRESS OPEN STP; 1,5 Gbps
0.002.738.232				STP REGISTER HOST->DEV (FIS 27); WRITE FPDMA QUEUED
0.002.742.372				ADDRESS OPEN SSP; 6 Gbps
0.002.742.376				SSP COMMAND WRITE (10)
0.002.745.512				ADDRESS OPEN SSP; 6 Gbps
0.002.745.516				SSP COMMAND WRITE (10)
0.002.746.772				ADDRESS OPEN SSP; 6 Gbps

Protocol View shows the precise timing relationship of each D-Word in the trace. Useful for tracking the handshaking between products under test.

Searching for Data

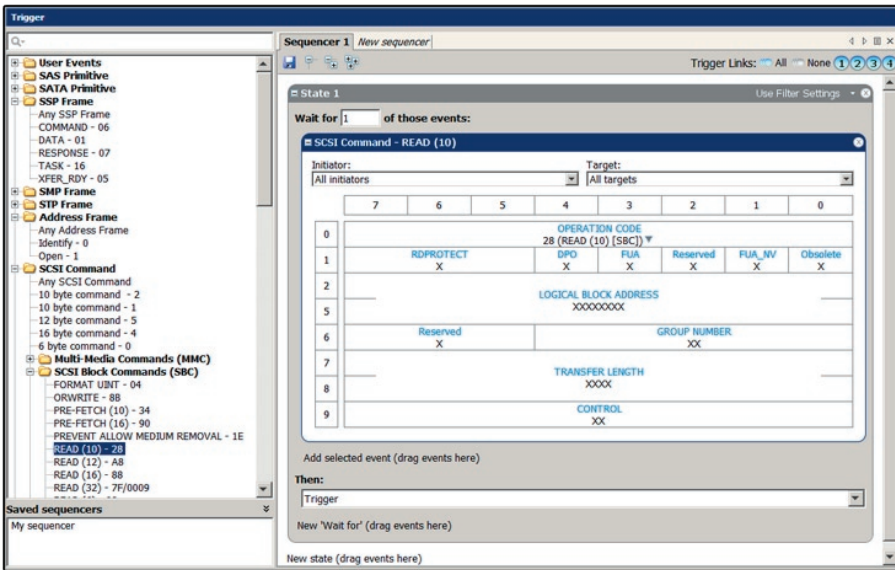
Easily search for specific frames, primitives, addresses or other events with the Quick Search and Advanced Search functions enhanced with InstaSearch technology.

Quick Search

SCSI Command=WRITE (10)

- SCSI Command=WRITE (10)
- SCSI Command=WRITE AND VERIFY (10)
- SCSI Command=WRITE LONG (10)
- SCSI Command=WRITE SAME (10)

Quick Search is a text search that fills in the rest of the search term as the user starts typing.



Triggering

BusXpert's triggering interface allows for quick definition of events with frame layouts matching the SAS2 and SATA specifications. Simple and complex triggers can be built with ease. BusXpert Micro's advanced triggering includes:

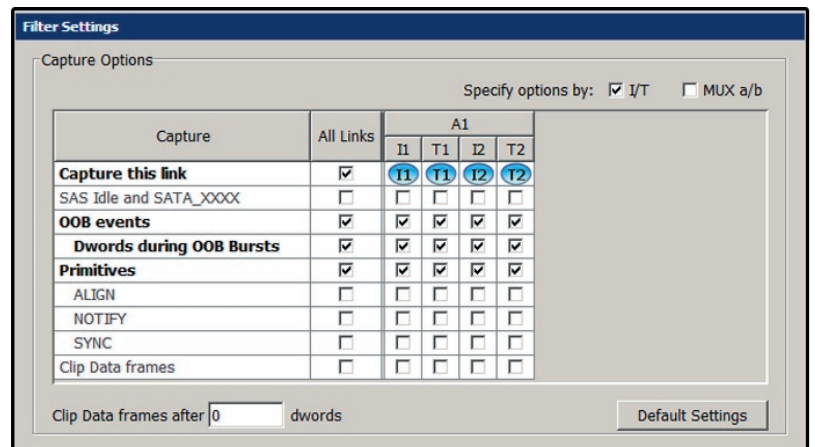
- Up to 3 sequencers
- Up to 16 states per sequencer
- Up to 32 counters and timers
- Multi-level branching
- User defined events
- External Trigger In/Out

BusXpert MicroLite can trigger on single events only.

Also featured is the ability to copy and paste frames and primitives from an open trace, saving additional time on defining events. Any of the events created can be saved off to the User Events folder for future use.

Pre-Filtering

Filtering out specific primitives, frames, data, and addresses is a snap. Easily specify which patterns to filter out during a capture to maximize buffer space, resulting in more meaningful data.

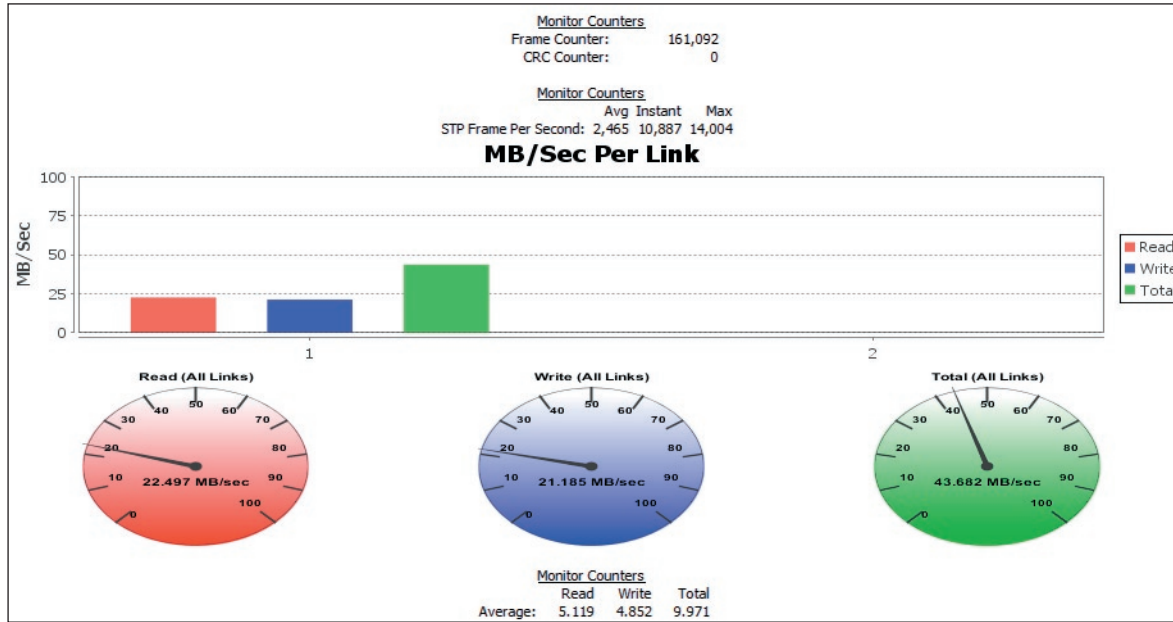


Line Status

The Status menu shows a visual representation of what is currently occurring on the bus and also a status of the capture. The Spd/OOB/Link/Frame/10b Err/Cmd/ and Err Sts LEDs match the activity on the front of the BusXpert. Status lights such as Frame, Cmd, Link, and OOB are useful in determining what is happening on the bus at any given time, while the error lights such as 10b Err and Err Sts let the user know that signal errors and command errors are occurring.

Real-Time Statistics

Simultaneously measure individual read and write, and IOPs performance statistics while the analyzer is recording bus traffic. Compare performance across all of the links to see performance differences. Use live counters to keep track user-definable events such as frame error rate counting, and average IOPs.



Post-Capture Statistics

After capturing a trace, the BusXpert provides a variety of statistical measurements. View statistics such as command performance (latency, throughput, etc), link utilization (frame turn-around rate, etc), SMP and connection management, and many more. Click on data within each report to go to the event in the trace. All of the reports are exportable to HTML, XML, and XLS formats for external data-mining and reports.

Command	Total	Failed	Incomplete	Min Latency (s)	Max Latency (s)	Avg Latency (s)	Min Transfer (B)	Max Transfer (B)	Avg Transfer (B)	Min Throughput (MB/s)	Max Throughput (MB/s)	Avg Throughput (MB/s)	Min Response Time (s)	Max Response Time (s)	Avg Response Time (s)
XEROX 100 : XEROX FF00	32	0	4	0.000.008.526	0.033.192.682	0.008.139.603	32,768	32,768	32,768	0.936	436.941	57.840	0.000.071.520	0.033.382.208	0.008.252.474
READ (10)	12	0	1	0.004.952.308	0.033.192.682	0.014.831.014	32,768	32,768	32,768	0.936	6.113	3.057	0.005.111.990	0.033.382.208	0.015.020.854
WRITE (10)	20	0	3	0.000.008.526	0.029.794.238	0.003.809.866	32,768	32,768	32,768	1.047	436.941	93.287	0.000.071.520	0.029.857.242	0.003.872.819
XEROX 100 : XEROX FF01	32	0	5	0.000.008.526	0.028.417.472	0.007.679.634	32,768	32,768	32,768	1.097	438.375	58.914	0.000.071.286	0.028.480.553	0.007.791.053
READ (10)	12	0	2	0.000.317.746	0.025.921.387	0.012.581.667	32,768	32,768	32,768	1.193	60.798	13.959	0.000.513.995	0.026.205.452	0.012.775.598
WRITE (10)	20	0	3	0.000.008.526	0.028.417.472	0.004.796.085	32,768	32,768	32,768	1.097	438.375	85.358	0.000.071.286	0.028.480.553	0.004.888.967
XEROX 100 : XEROX FF02	45	0	19	0.000.240.780	0.115.242.789	0.032.904.689	32,768	32,768	32,768	0.253	6.605	1.916	0.004.731.559	0.123.475.839	0.035.693.577
READ (10)	20	0	8	0.004.508.523	0.113.660.983	0.029.196.232	32,768	32,768	32,768	0.275	6.605	2.523	0.004.731.559	0.123.475.839	0.029.381.356
WRITE (10)	25	0	11	0.000.240.780	0.115.242.789	0.036.083.368	32,768	32,768	32,768	0.253	3.905	1.395	0.008.003.038	0.123.475.839	0.041.104.053
XEROX 100 : XEROX FF03	17	0	5	0.005.740.056	0.055.189.546	0.023.206.887	32,768	32,768	32,768	0.565	5.361	2.059	0.005.829.524	0.055.287.656	0.023.299.637
READ (10)	12	0	5	0.013.864.270	0.055.189.546	0.031.745.272	32,768	32,768	32,768	0.565	2.239	1.262	0.013.957.139	0.055.287.656	0.031.839.599
WRITE (10)	5	0	0	0.005.740.056	0.016.370.078	0.011.253.147	32,768	32,768	32,768	1.898	5.361	3.174	0.005.829.524	0.016.461.854	0.011.343.691
XEROX 100 : XEROX FF04	1	0	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
XEROX 100 : XEROX FF05	33	0	17	0.004.605.234	0.088.533.867	0.040.339.471	32,768	32,768	32,768	0.353	3.195	1.198	0.009.781.840	0.088.591.720	0.043.362.043
Total	160	0	51	0.000.008.526	0.115.242.789	0.020.338.304	32,768	32,768	32,768	0.253	438.375	30.311	0.000.071.286	0.123.475.839	0.021.494.010

Type/Channel	Total	Accepted	Rejected	Closed	Broken	Incomplete	Min PBC	Max PBC	Avg PBC	Min AWT (s)	Max AWT (s)	Avg AWT (s)	Min Response time (s)	Max Response time (s)	Avg Response time (s)	Min AIP count	Max AIP count	Avg AIP count
SSP	569	567	1	0	567	0	2	0	0.000	0.000.000.000	0.000.038.000	0.000.000.328	0.000.000.322	0.000.001.508	0.000.000.668	0	3	0.895
I2	192	191	0	0	191	0	1	0	0.000	0.000.000.000	0.000.022.000	0.000.000.250	0.000.000.848	0.000.001.172	0.000.000.945	2	3	2.036
T2	2	2	0	0	2	0	0	0	0.000	0.000.000.000	0.000.000.000	0.000.000.000	0.000.000.322	0.000.000.325	0.000.000.322	0	0	0.000
I3	7	7	0	0	7	0	0	0	0.000	0.000.000.000	0.000.001.000	0.000.000.142	0.000.000.720	0.000.001.016	0.000.000.824	2	2	2.000
T3	31	30	1	0	30	1	0	0	0.000	0.000.000.000	0.000.001.000	0.000.000.096	0.000.000.444	0.000.000.462	0.000.000.450	0	0	0.000
I4	52	52	0	0	52	0	0	0	0.000	0.000.000.000	0.000.038.000	0.000.001.807	0.000.000.730	0.000.001.508	0.000.000.983	2	2	2.000
T4	285	285	0	0	285	0	0	0	0.000	0.000.000.000	0.000.003.000	0.000.000.143	0.000.000.438	0.000.000.470	0.000.000.597	0	0	0.000
STP	259	246	13	0	246	13	0	0	0.000	0.000.000.000	0.000.003.000	0.000.000.324	0.000.000.324	0.000.002.344	0.000.000.584	0	10	0.757
I2	43	43	0	0	43	0	0	0	0.000	0.000.000.000	0.000.003.000	0.000.000.488	0.000.000.598	0.000.002.286	0.000.000.997	1	9	2.860
T2	1	1	0	0	1	0	0	0	0.000	0.000.000.000	0.000.000.000	0.000.000.000	0.000.000.324	0.000.000.324	0.000.000.324	0	0	0.000
I3	3	3	0	0	3	0	0	0	0.000	0.000.000.000	0.000.001.000	0.000.000.666	0.000.000.466	0.000.001.294	0.000.000.744	1	5	2.333
T3	40	37	3	0	37	3	0	0	0.000	0.000.000.000	0.000.001.000	0.000.000.250	0.000.000.424	0.000.000.464	0.000.000.443	0	0	0.000
I4	21	21	0	0	21	0	0	0	0.000	0.000.000.000	0.000.002.000	0.000.000.809	0.000.000.466	0.000.002.344	0.000.000.921	1	10	3.143
T4	151	141	10	0	141	10	0	0	0.000	0.000.000.000	0.000.001.000	0.000.000.225	0.000.000.418	0.000.000.466	0.000.000.443	0	0	0.000

ADDITIONAL FEATURES

- XML based decoding
- Easy definition of custom decodes
- Primitive Compression
- Status LEDs for
 - SPD
 - OOB
 - Link
 - Frame
 - 10b Err
 - Command
 - Err Sts
- Java-based application
- Post Filtering / Hiding
- Trace Export to CSV, HTML, XML
- Live SAS Address Table
- API

SPECIFICATIONS

- 12VDC
- 90W Max Power
- 40 Deg C Max Ambient Temperature
- 6" x 9" x 1.75"
- CE/FCC Approved

System Requirements

To get the best performance out of your BusXpert Analyzer, we recommend the following systems:

- Minimum configuration: 1.5Ghz Celeron or AMD equivalent processor, 1GB of Memory, Gigabit Ethernet and/or USB, Graphics capable of supporting 1024x768
- Recommended Configuration: 2.8Ghz or greater processor, 3GB or greater of 1.3Ghz FSB memory, PCIe x4 or ExpressCard slot, Graphics capable of supporting 1920x1200 or greater

BusXpert software is compatible with Windows XP and Windows Vista 32 and 64-bit platforms. BusXpert requires 60MB for installation. Additional disk space is recommended for storing traces.

BusXpert is also compatible with Linux: Ubuntu 9.10, RedHat/CentOs 5.4, Fedora 12, OpenSUSE 11.2, and SUSE Enterprise Server 11.

About SerialTek

SerialTek's experienced team shares a common goal: Design and build the ultimate analyzer platform to eliminate the bottlenecks that keep developers waiting. With the BusXpert, they celebrate their first victory. SerialTek is committed to raising customer expectations with each successive year of innovation.

For additional information or questions regarding SerialTek products, including quotes, product demonstrations, software and technical assistance please contact us at:

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