

Xgig[®] Fibre Channel Load Tester

Benefits

- Guarantees line rate traffic in most stressful test environments
- Integrates verification of Fibre Channel functionality with large-scale network performance testing
- Measures high-resolution latency with the utmost accuracy
- Enables automated testing
- Captures control frames and triggers Xgig Analyzer to analyze the root-causes of link issues
- Tests on FCoE to FC topology with Xgig FCoE Load Tester
- Affordable

Key Features

- Full line rate traffic generation and load testing at 1/2/4/8/16G Fibre Channel
- Supports FCoE topology (with FCoE Load Tester ports)
- Up to 255 NPIV
- Up to 64 time-sync ports for high resolution latency measurement 10 ns latency accuracy
- Flexible traffic patterns
- · Error generation
- C/C++/Tcl APIs for creating automated test scripts
- Extensive statistical reports with error counters
- Large capture buffer size of 256 MB per load tester port
- F_port emulation
- Ability to emulate fiber-pull and verify high availability feature (failover time measurement)

Applications

- Verify functional switch control planes
- Test switch interoperability
- Test switch performance
- · Stress-test the switch
- · Bring up ASIC

A key aspect of verifying the reliability of Fibre Channel equipment is to stress-test the network with traffic at and above the maximum legal data rate. The Xgig Fibre Channel Load Tester eliminates having to create complex test setups comprising multiple servers and storage arrays by enabling users to construct fully meshed data communication topologies, generate traffic loads, and monitor both transmitted and received data streams. With effortless comprehensive analysis and statistical capabilities, the Xgig Fibre Channel Load Tester is the ideal tool for testing Fibre Channel fabrics and switches for performance, data integrity, robustness, flexibility, and scalability.

Overview

The Xgig Fibre Channel Load Tester brings essential Fibre Channel traffic generation capabilities to the Xgig Unified Protocol Analysis and Test platform, the industry's only complete protocol testing suite that supports multiple protocols and test functions in one chassis. The Xgig Fibre Channel Load Tester is also the first generation tool with a high speed 14 Gbps Fibre Channel (16 GFC) protocol available on the market.

Eight powerful traffic profile engines assigned to each physical Xgig port enable the load tester to transmit various traffic patterns at and above the maximum legal data rate of as high as 14 Gbps (16 GFC) to simulate extreme traffic conditions. Optimal for testing and verifying switch and fabric scalability, flexibility, robustness, and performance, the Xgig Load Tester offers a cost-effective alternative for high-port-count switch testing scenarios that otherwise require many expensive servers and storage arrays.

By emulating N_Port and/or N_Port ID Virtualization (NPIV) behaviors, with up to 255 NPIV ports for each physical port, the Xgig Load Tester can conduct fabric and port login processes and can configure a variety of port topologies among ports in the same zone to also test fabric and switch virtualization features. While the load tester offers dramatic flexibility for complicated traffic topologies, configuring tests are simple and smooth using the intuitive graphical user interface (GUI).

The Xgig Load Tester monitors both transmitted and received traffic, provides comprehensive throughput statistics for each physical or virtual port, and alerts users to data stream errors. Users can view traffic statistics either per port or per stream in intuitive spreadsheet format to identify and resolve network issues. Also, users can automate complex testing processes using application programming interfaces (APIs). The statistics are automatically saved to a .csv file for easy data processing later.

The Xgig Load Tester is compatible with other Xgig functions, such as the analyzer, jammer, and bit error rate test (BERT), and automatically triggers the analyzer to capture problematic traces when it detects any out-of-order, dropped, or missing frame or any sequence error in any of the thousands of data streams being generated. Captures of this type are not easily set up with the analyzer alone because it does not track the frame sequence count. In addition, users can capture the control frames from the load tester directly and view the traces in the .CAP format that they can then view with the Xgig TraceView or Wireshark.

Load Tester Setup Example

The load tester, combined with other JDSU testing tools, offers a complete test solution for simulating a real Fibre Channel network without requiring expensive servers and storage arrays, thus providing significant savings in terms of rack space, power, cabling, and equipment cost.

Figure 1 shows an example setup with the Xgig Load Tester blasting Fibre Channel frames into the Fibre Channel fabric while at the same time, the Medusa Lab Test Tools (MLTT) drive real, high input/output operations per second (IOPS) traffic at the host side to the target across the fabric. Xgig Analyzer ports are positioned in line for debugging network problems that the load tester, MLTT, and/or the analyzer itself detect. The Xgig Jammer injects errors into traffic to emulate network "corner behavior" and performs functional tests that complement the load tester's load testing. (For more information about these other protocol test tools, please refer to the individual data sheets for these products.)

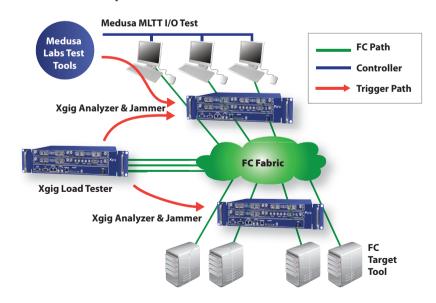


Figure 1: Example setup with the Xgig Load Tester and JDSU Medusa Labs $^{\mathtt{m}}$ Tools for testing Fibre Channel fabric performance.

Configuration

A simple, three-step process (shown in Figure 2) configures the Xgig Load Tester, even for the most complex topologies and traffic patterns.

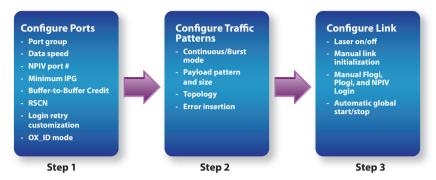


Figure 2: Configuring Xgig Load Tester with a simple three-step process



Figure 3: External trigger for connecting the Xgig Analyzer

Certane	[6	9 N N			To a line (y Based 00		ties			OP OP			III ve
ty B		-					0.00							
				1	7		-	-						
			* Takes Stots					a Corbo						
		Greflate V Ave.	age Load Moh V. I			Osedin V	Inner Tono	Medits this Part. V.	Degret Fian		indidn't	need W. Di		Paselie
W.AA.			150333		225130301.000			105.058.054		KS		000	MA	
		96990	1147131		223176.072.096			105,556,640		NA NA		1000 +	NA NA	
		9090	150 (0)		225.144.536.364			100,000,000		84		C00 W	NA NA	_
34.51	MI.	20.000	2547,522	120,000,007	22344306304	DEDECTOR		100,000,000]		Hall .		100	NA.	
- 65	T. Tele	200 SAN AU	THE STATE	na Cateron	Coox									
-	B.159 36			-	Control of									
						r Dar Dr Order France						_		_
man Ind	a. V. Angl.	descripting W. Hert.	ancytel Y Ha	Paper Carlo	Sudmining Ends.	P Duritt Cride Frame	Y Uraco	public/rates Y	Decree of	OCCUPATION OF	DOM:	Dati-3 Jane	* A AMERICA	Was Frames.
		7.17	2.83	766	_	_	0		040000	Overseen		10.0	. 16.6	1.102.5
	-4-	-C8F	280	7.0			- 0	- 9	0410500	0400400	0.000	100	NA.	1 100.5
	-1	2.12	472	366			-	- 3	363200	OATOAN		16.5	NA.	1.106.5
	-	730	437	- 50			-5-	- 3	26270	0400400	94009	10.5	NA.	1166
	-	7.07	450	7.0		-	-	- 1	2400000	OCCUPATION		NA.	100	1.109.50
	-7	7.12	430	2.0		-	-	7	040000	OUTSAN	OUT TO	No.	16.00	1,168.0
	-1	399	437	86		-	- 2	- 1	04/2000	0470400		166	100	1 100 5
		7.17	457	2.0			-	7	040700	0470400	0.1727	100	NA	1,168.0
	-3	3.07	430	7.0			-	- 3	0400000	040000	0.000	160	NA.	1,169.0
	-	7.10	487	9.0			-	- 1	04/2000	0470430		NA.	NA	1.106.51
	13	7.17	455	30.60			-	- 1	04325T	0400400		16/5	NA	1.10641
	13	7.01	435	- 22			-	- 2	34125	MODE	6393	165	16.0	1.166.5
	10	7.10	587	70			- 01	- 4	041700	0400400	D-TIPS*	10.0	250	1.508.51
	14	7.12	430	XX		5	6	04	04010500	04756400	0.0500	165	16.00	1.106.5
	14	7.00	437	944			- 1	- 4	MATTE	Outrown	529	100	10.0	1.166.6
	160	7.12	4.83	20.00		0	0	- 0	040707000	04010400	0-200	165	100	1,168.51
	10	2.32	430	X 60			61	0	040900	0,010400	6,270	NA	NA.	1,100.5
	100	7.37	437	8.60		0	61	- 0	0672931	0670400	94753	100	76.50	1,106.5
	130	7.17	4.87	30.00			2	0	04010100	0.610400		NA.	NA	1,100,00
	26	2.37	4.5	X40		0	0	- 4	04(9200)	04/9400	6-39	160	NA	1,166.5
	3	7.32	687	30.60			.0	0	04010000	0410430		.165	NA	3,500,50
	85	2.32	630	300			0	0	04010500	04710400		16/6	NA	1,506.5
	23	3.0	4.8	30.00			0	- 0	049300	0416400		96	NA	3,500.0
	24	2.32	4.37	XX			0	0	041000	0470430	0.007	10/0	3630	1,186,51
	3	7.30	430	X 60			4	0	04012500	04010400	0.240	NA.	NA	3,100,51
	25	3.30	437	30.60			0	- 0	0410500	04015400	96811	NA	NA	1,106.51
	27	7.37	437	30.60			0	0	04010000	04010400	BOXES	16/6	NA	1,10651

Figure 4: RX Traffic View

Took Window Help											
							_		1000		
Configuration *	D 00 00			ne C	(Davet 000	4.60	Speed 1255		& CIP		1 New
× 80											
	DiSut East New										
D 9- H	M T E tentre -		Fort Takes	Static Don	mic Droftle Falls	State Dynamic					
Post East Office						10000					
Park T.	Facefrage MAY MAY 2			C Date Boto T	Desits T	CCCode V rations C	hells V. Cure	alter T	God Steam V. D	Ode Kesp Klive France	Inscribed V. VII.
ATTRACTOR OF	E 2028 2021	95.035	14,757,64	1111,710,012	97364403	34	Section 1	a Propess	MATER	HLM:	
State of Sec.	on Respire Depart Throughput Mil	in sw dendered to		or hand the						M. Brown Brown Brown	on the Characteristics in
1		a real	100-000		3030	2147117 802		reneri	59	No.	No.
	Passellanes Mile V Mel V 3										
(unvanant)	a mnineri	SECOND V (SCHOOLS	200 V ANDONE		a Property	W/100	Man Total Assertation	Interest V. VV.
170/ 1013	2030 247	9105			55.3035444	59	City Tes		961000	NA NA	
USV 2018	1909(36)	9600			55 95 30 4	60		a Properti	95104	10.0	_
USV 20.3A	20,0 24/1	MESS	54,000,010	TEAL	35,95,003	010	SAVIJE 148	a Progett	367630	NA.	_
Control of	Option V To Traffic Pattern Laboration	Bx010400	0401000	840007	MA	AH 3030303030	R .	PER	30 30 50 00 00 CE	No.	
Steam (LESV.) team index 'P' Use C Sur U No.	Opening Y. Tx Traffic Pattern Label	Bx010400			NA.		R .				
Ingeligie V (ingeligie) i Se	Opening Y To Traffic Flatters Labor Minus Minus Minus Minus Minus	5-010400 5-010400 5-010400	3-0+3000 3-0+3000	500ss 500ss	NOA NOA NOA	N.H. 0030303030 N.H. 0030303030 N.H. 0030303030	00 00	NN NN	MEMORIAL CO.	10A	
Comment of United States of United State	Option V To hadic Patron Laboratorial School School School School School School	541500 541500 541500 541500	36+900 36+900 36+070 361700	Section Section Section	NA NA SOA	NA 0000000 NA 0000000 NA 00000000	04 04 04 00	NA NA NA NA	######################################	505 505 505	
Team India V Use I his I his	Update V Tx Traffic Patron Laboratoria delasti delasti delasti delasti delasti	540500 540500 540500 540500	340+300 340+370 340+370 340+300 340+300	0x00xx 0x00x 0x00x 0x00x 0x00x	No.	AH 00000000 AH 00000000 AH 00000000 AH 00000000 AH 00000000	66 66 68 88 88	NA NA NA NA	######################################	100 Miles 500 Miles 500 Miles	
Committee Y Use 6 No 1 No 2 No 3 No 4 No 5 No	Updated V. T. Fartic Parties Laboratory Gelouis Gelouis Gelouis Gelouis Gelouis Gelouis Gelouis Gelouis	540 900 540 900 540 900 540 900 540 900	MC1700 MC1070 MC1070 MC1700 MC1700 MC1700	5.004 5.007 5.007 5.007,4 6.015 5.0150	No.	AH 0000000 AH 0000000 AH 0000000 AH 0000000 AH 0000000	00 00 00 00 00	NN NN NN NN		\$60, \$60, \$60, \$60, \$60,	
Team Inches T. Uses	Updated V To Faste Patters Laboratorial defeat defeat defeat defeat defeat defeat defeat	841900 541900 541900 541900 541900 541900	3404000 3404000 3404000 3404000 3404000 3404000	54004 54007 54007 54007 54000 540100	Note Soft Soft Soft Soft Note	AH 0000000 AH 00000000 AH 00000000 AH 00000000 AH 00000000 AH 00000000	00 00 00 00 00 00 00 00 00 00 00 00 00	NA NA NA NA NA NA		\$65, \$65, \$65, \$65, \$65, \$65,	
No.	Opinion V. T. I halfo Flatton Laboratoria delical delical delical delical delical delical delical delical delical	561900 561900 561900 561900 561900 561900	M09000 M09000 M09000 M09000 M09000 M09000 M09000	5.004 5.007 5.007 5.000 5.010 5.010 5.010 5.010	No.A. No.A. Social Social No.A. No.A. No.A.	No. 00000000 No. 00000000 No. 00000000 No. 00000000 No. 00000000 No. 00000000 No. 000000000	00 00 00 00 00 00 00 00 00	NA NA NA NA NA NA NA NA		\$60, \$60, \$60, \$60, \$60, \$60, \$60,	
Command Comm	Option V 1x hark Paran Lide Minal Mi	541 5400 541 5400 541 5400 541 5400 541 5400 541 5400 541 5400	\$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000	5-004 5-008 5-000 5-000 5-010 5-	No.A. Social	A4 00000000 A4 000000000 A4 000000000 A4 000000000 A4 00000000 A4 00000000 A4 000000000 A4 000000000	00 00 00 00 00 00 00 00 00 00 00 00 00	NA NA NA NA NA NA NA NA NA NA NA NA NA N		\$65, \$65, \$65, \$65, \$65, \$65, \$65, \$65,	
County C	Optionic V. Ta harbs Patron Laboratory School	540 5400 540 5400 540 5400 540 5400 540 5400 540 5400 540 5400 540 5400	\$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000 \$69,000	5004 5004 5007 5007 5019 5019 5019 5019 5019 5019	No. 100. No.	All 00000000000000000000000000000000000	68 50 50 50 50 50 50 50 50 50 50 50 50 50	NA NA NA NA NA NA NA NA NA NA NA NA NA N		\$15, \$55, \$55, \$55, \$55, \$55, \$55, \$55,	
Commercial Com	Option V. To Table Patron Lein Schall	\$40500 \$40500 \$40500 \$40500 \$40500 \$40500 \$40500 \$40500 \$40500	\$60,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,000	500a 500a 5000 5000 5000 5000 5000 5000	NO.	AM 000000000000000000000000000000000000	68 50 50 50 50 50 50 50 50 50 50 50 50 50	NAN NAN NAN NAN NAN NAN NAN NAN NAN NAN		\$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0	
Comment E Comment	Option V. Ta Natio Paravo Lebe dinas	647900 647900 647900 647900 647900 647900 647900 647900	\$69,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,000 \$60,00	500a 500a 5000 5000 5000 5000 5000 5000	500, 500, 500, 500, 500, 500, 500, 500,	All 00000000000000000000000000000000000	60 60 60 60 60 60 60 60 60 60 60 60 60 6	NAME OF THE PARTY		\$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0 \$10,0	
Comment of Comment o	Option V To Tark Palmon Line Office	647900 647900 647900 647900 647900 647900 647900 647900 647900	\$49,000 \$41,00	5.004 5.007 5.007 5.007 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003	505, 506, 506, 506, 506, 506, 506, 506,	AM 000000000000000000000000000000000000	68 69 69 69 69 69 69 69 69 69 69 69 69 69	N. N	図 (\$10,0 \$10,0	
Comment E Comment	Opposed Y T 1 start Option Labor Market Control Contro	647 940 647 940	\$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000	50000 50000 50000 60000 60000 50000 50000 50000 50000 50000 50000	\$60, \$60, \$60, \$60, \$60, \$60, \$60, \$60,	NA 000000000000000000000000000000000000	(a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	No. 10 No. 10 No	日本のでは、 日本のでは、 日本のでは、 日本のでは 日本のでは 日本のでは 日本のでは 日本のでは 日本のでは 日本のでは 日本のでは 日本のでは 日本のでは 日本のでは	\$10,0 \$10,0	
Comment of Comment o	Option V To Tark Palmon Line Office	647900 647900 647900 647900 647900 647900 647900 647900 647900	\$49,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000 \$47,000	5.004 5.007 5.007 5.007 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003 5.003	\$65, \$65, \$65, \$65, \$65, \$65, \$65, \$65,	AM 000000000000000000000000000000000000	(M)	N. N	図 (\$10,0 \$10,0	
Comment Comm	Opening Y In Tark Opinion Laboratory In Tark Opinion Laboratory In Tark Opinion Laboratory Indiana Ind	6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400	\$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000 \$49,000	50000 50000 50000 60000 50000 50000 50000 50000 50000 50000 50000 50000 50000 50000 50000 50000	\$100, \$100,	AN 0000000 AN 00000000 AN 00000000 AN 00000000 AN 0000000000 AN 00000000 AN 00000000 AN 00000000 AN 00000000 AN 000000000 AN 000000000000000000000000000000000000	68 50 50 50 50 50 50 50 50 50 50 50 50 50	160 160 160 160 160 160 160 160 160 160	日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日	\$1.50 \$1.00,0	
Course C	Operator Y 1 to the Operator Laborator V 1 to the Operator V 1 to	6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00 6/19/00	\$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000 \$69000	50000 50000 50000 60000 60000 60000 60000 60000 60000 60000 60000 60000 60000 60000 60000 60000	\$100, \$100,	No.	(6) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	750 NS NS NS NS NS NS NS NS NS NS NS NS NS	100 100 100 100 100 100 100 100 100 100	\$1.50 \$1.00,0	
Comment & S. C. Comment & C.	Opened Y - 1 and Opines Laborated American Communication C	6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400 6479400	\$40,000 \$40,00	5000 5000 5000 6000	\$10.00 \$1	NA 000000000000000000000000000000000000	(a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	16.00 16.00	日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日	\$1.50 \$1.00	
Second 1972 Second 197	Colonics V. I. I fair Province Laboratory Colonics V. I. I fair Province Laboratory Colonics	6/10/00 6/1	569000 569000	0004 0004 0000 0000 0000 0000 0000 000	\$55.50 \$10.00 \$1	NA 000000000000000000000000000000000000	日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日	150 150 150 150 150 150 150 150 150 150	日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日	\$10,000 \$10,00	
Second 1392	Chapter V 1.1 facts frames Laborated V 1.5 facts frames Laborated V 1.5 facts from Laborated V 1.5 fac	6/15/00 6/1	569000 569000	5004 5000 5000 5000 5000 5000 5000 5000	\$55, \$60, \$60, \$60, \$60, \$60, \$60, \$60, \$60	NA 000000000000000000000000000000000000	日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日	150 NS	日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日	\$10,000 \$10,00	
Comment 1 1 2 2 2 2 2 2 2 2	Colonies V. I. I fair Draw Labor School Scho	6/19/00 6/1	\$40,000 \$40,00	5-00a 5-0a 5-0a 5-0a	\$100, \$100,	N. 2000000000000000000000000000000000000	日	10.00 10.00		\$10.00 \$1	
Second 119/30 P Contract Co	Colonies V. I. I. Safe Paramo Lain Service Ser	6/10/00 6/1	\$40,000 \$40,00	600a 500a	500, 500, 500, 500, 500, 500, 500, 500,	NAME 000000000000000000000000000000000000	日本 日	15.50 16.50	THE REPORT OF THE PARTY OF THE	\$10.00 \$1	

Figure 5: TX Traffic View

Using the Load Tester to Trigger Xgig Functions

The Xgig Load Tester shares the same hardware, therefore, it is fully compatible with other Xgig functions—analyzer, jammer, and BERT. The Xgig Load Tester can trigger analyzer ports that are connected to the load tester through the trigger port on the Xgig chassis, as shown in Figure 3, which is extremely useful to users because even when the analyzer is positioned in line to monitor and capture traffic, it does not know what sequences to expect and cannot detect mismatches. The load tester generates the traffic; therefore, it can accurately detect missing frames and trigger the analyzer to begin or to stop filling the trace buffer.

This distinctive feature also enables the ports of the load tester to further separate the events of dropped, out-of-order, and misdirected frames, providing more thorough and accurate measurements of switch performance.

To facilitate user debugging of error events in the captured trace, the Xgig Load Tester lists key information, such as the S_ID, D_ID, SEQ_CNT, and OX_ID. Additionally, any information in the trigger frame can be used to set up the search/filter in the analyzer TraceView to quickly locate trigger events, such as out-of-order, dropped, and misdirected frame errors, as well as CRC (cyclic redundancy check) errors.

Traffic Statistics

The Xgig Load Tester monitors received (RX) (see Figure 4) and transmitted (TX) traffic (see Figure 5) to provide comprehensive statistical information through a variety of spreadsheet pane views. On the TX side, port-based and traffic-pattern-based views show statistics such as TX data frames (byte, frame), actual/average bandwidth (MBps), actual/average data rate, and login frame count. On the RX side, port-based and stream-based views show statistics such as min/average/max latency, RX data frames (byte, frame), max/actual data rate, S_ID/D_ID, OX_ID, and error counters for code violations, CRCs, disparity errors, and dropped, out-of-order, and misdirected frames, as well as sequencing errors.



Automating Testing

All load tester functions and configurations can be configured through APIs to customize and automate testing using scripts written in C/C++ and TCL/TK. Automated testing eliminates time-consuming configuration and management of tests, enabling users to easily repeat tests or perform regression testing, an especially critical capability for manufacturing test setups.

Maestro Software

Users can configure the Xgig Load Tester with JDSU Maestro Software using the same GUI they use to manage other Xgig functions, thus eliminating having to switch between different GUIs when using multiple tools. Other Xgig functions that Maestro supports include the protocol-based Fibre Channel and Gigabit Ethernet BERT, the Fibre Channel and 10G Ethernet Load Tester, the 10G Ethernet Delay Emulator, the SAS/SATA Jammer (error injection), and the SAS/SATA Generator. Xgig Maestro operates under Windows 2000, Windows XP, Windows Server 2003, Windows Vista (Business and Ultimate version), and Windows 7 (Business and Ultimate version).

Specifications

Features	Specification
Line rate	1.0625, 2.125, 4.25 Gbps Fibre Channel on the 4G Fibre Channel blade; 1.0625, 2.125, 4.25 or 8.50 Gbps Fibre Channel on the 8G Fibre Channel blade; 14.025 Gbps Fibre Channel on the 16G Fibre Channel blade
Class of services	Class 3
Port type	N_Port; NPIV port (Up to 255 virtual ports with each physical port) F_Port;
Inter-packet-gap (IPG)	Adjustable from 3 to 65535 (64K) Adjustable from 4 to 65535 (64K) for 16G speed
Data rate adjustment	Adjustable from 0 to over 100% of theoretical line rate (IPG=6) Data rate dynamically adjustable per each traffic configuration
Link service configuration	Automatic login process; Customized login re-try count/frequency
FCP Session	Name Server Registration RFT_ID Discovery GID_PT LISM, automatic and user control (OLS, LR) Error recovery procedure RSCN
Stream mode	Continuous

	Burst
Stream capacity	1024 TX streams with S_ID and D_ID variations per load tester port
	8 different traffic patterns per load tester port
Data frame payload	8+ fixed payload patterns (e.g., CJTPAT, CRPAT)
	FLOGI frame blasting (Error mode)
	Fixed/random payload size within definable range
Port topology	Point-to-point
(per traffic pattern)	Partially meshed
	Fully meshed
Flow control	Configurable buffer-to-buffer credits from 0 to 256
OX_ID	Fixed and unique per stream on each port (ISL Test Mode)
(Single/Multi-Exchange)	Random within definable range
	Incrementing within definable range
Error injection	CRC errors; SOF/EOF errors; zero payload; oversized payload
Measurement	TX frames, MBytes, data rate, utilization
	RX frames, MBytes, data rate, min/max/average latency
Error counters	Sequence errors
	Out-of-order frame errors
	Dropped frame errors
	Misdirected frame errors
	Code violations
	CRC errors
	Running disparity errors
Trigger	TTL trigger output on detected errors
Capture buffer	256 MB per load tester port
Automation	C/C++,TCL

Test & Measurement Regional Sales

NORTH AMERICA TEL: 1 888 746 6484 sales-snt@jdsu.com	ASIA PACIFIC apacsales-snt@jdsu.com	EMEA emeasales-snt@jdsu.com	WEBSITE: www.jdsu.com/snt