SLC-A Test Report
Summary Report Page – All Tests

SNIA Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS 1.0**
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Device Under Test (DUT)	SLC-A	**SNIA SSS PTS Summary Report**	**Calypso Systems, Inc.**	CALYPSO Systems

DEVICE INFORMATION		**TEST HARDWARE PLATFORM**		**TEST SOFTWARE**		**REPORT DATE**	
SERIAL NO.	1111-0000-FFFF	**SYSTEM**	Calypso RTP 2.0	**SYS OS**	CENT OS 5.6	**Report**	06DEC11
0105	BFOA	**Motherboard/cpu**	Intel 5520HC / W5580	**SW TOOL**	Calypso CTS 6.5	**Test Run**	01NOV – 04DEC11
USER CAPACITY	SLC 100 GB	**RAM**	12GB ECC DDR3	**SW Rev**	1.19.10	**Test Sponsor**	Calypso
DEVICE INTERFACE	6 Gb/s SAS	**Device Interface**	LSA 9212-e 6Gb/s HBA	**Release**	Nov. 2011	**Auditor**	N/A

Testing Summary: Tests Run

PTS-C	**TEST**	**Purge**	**DP**	**OIO**	**WIPC**		**WDPC**		**STEADY STATE**	
					PC AR	**TEST AR**	**PC AR**	**TEST AR**	**WORKLOAD**	**TIME/GB**
7.0	**WSAT - REQUIRED**	**Format Unit**	**RND**	**TC 2 QD 16**	**100%**	**100%**	**100%**	**100%**	**RND 4KiB W**	**12 Hrs 2.9 TB**

PTS-C	**TEST**	**Purge**	**DP**	**OIO**	**WIPC**		**WDPC**		**STEADY STATE**	
					PC AR	**TEST AR**	**PC AR**	**TEST AR**	**WORKLOAD**	**ROUNDS**
8.0	**IOPS - REQUIRED**	**Format Unit**	**RND**	**TC 2 QD 16**	**100%**	**100%**	**100%**	**100%**	**IOPS LOOP**	**1 - 5**

PTS-C	**TEST**	**Purge**	**DP**	**OIO**	**WIPC**		**WDPC**		**STEADY STATE**	
					PC AR	**TEST AR**	**PC AR**	**TEST AR**	**WORKLOAD**	**ROUNDS**
9.0	**THROUGHPUT - REQUIRED**	**Format Unit**	**RND**	**TC 2 QD 16**	**100%**	**100%**	**100%**	**100%**	**SEQ 128KiB/ SEQ 1024KiB**	**5 - 9**

PTS-C	**TEST**	**Purge**	**DP**	**OIO**	**WIPC**		**WDPC**		**STEADY STATE**	
					PC AR	**TEST AR**	**PC AR**	**TEST AR**	**WORKLOAD**	**ROUNDS**
10.0	**LATENCY - REQUIRED**	**Format Unit**	**RND**	**TC 1 QD 1**	**100%**	**100%**	**100%**	**100%**	**LAT LOOP**	**3 – 7**

Test Sponsor – Special Notes

ITEM	**NOTATION**	**COMMENTS**

SLC-A Test Report
Summary Report Page - WSAT

SNIA Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS 1.0**
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Device Under Test (DUT)	SLC-A	**SNIA SSS PTS Summary Report**	**Calypso Systems, Inc.**	CALYPSO Systems

DEVICE INFORMATION		**TEST HARDWARE PLATFORM**		**TEST SOFTWARE**		**REPORT DATE**	
SERIAL NO.	1111-0000-FFFF	**SYSTEM**	Calypso RTP 2.0	**SYS OS**	CENT OS 5.6	**Report**	06DEC11
FIRMWARE REV.	BFOA	**Motherboard/cpu**	Intel 5520HC / W5580	**SW TOOL**	Calypso CTS 6.5	**Test Run**	01NOV – 04DEC11
USER CAPACITY	SLC 100 GB	**RAM**	12GB ECC DDR3	**SW Rev**	1.19.10	**Test Sponsor**	Calypso
DEVICE INTERFACE	6 Gb/s SAS	**Device Interface**	LSA 9212-e 6Gb/s HBA	**Release**	Nov. 2011	**Auditor**	N/A

Test Description

Purpose	To observe the drive's performance evolution from a PURGED state to that of SETTLED state
Test Outline	Uses total outstanding IO settings that maximizes RND 4KiB Writes, first PURGE the drive, followed by immediate continuous RND 4KiB (4K-aligned) writes for lesser of 4 x User Capacity or 24 Hours
Preconditioning	FOB - No Pre Conditioning - PURGE followed by Test (note: tests may be run longer for plotting clarity)

Test Set Up

PTS-C	**TEST**	**Purge**	**DP**	**OIO**	**WIPC**		**WDPC**		**STEADY STATE**	
					PC AR	**TEST AR**	**PC AR**	**TEST AR**	**WORKLOAD**	**TIME/GB**
7.0	**WSAT - REQUIRED**	**Format Unit**	**RND**	**TC 2 QD 16**	**100%**	**100%**	**100%**	**100%**	**RND 4KiB W**	**12 Hrs 2.9 TB**

Select Performance Data

FOB IOPS	**Steady State IOPS**	**Time**	**Total GB Written**
39,092	**16,305**	**12 Hours**	**2.9 TB**

Test Sponsor – Special Notes

ITEM	**NOTATION**	**COMMENTS**

Test Run Date:	11/07/11 08:40 AM	**Report Run Date:**	11/14/2011 08:45 AM

Enterprise WSAT (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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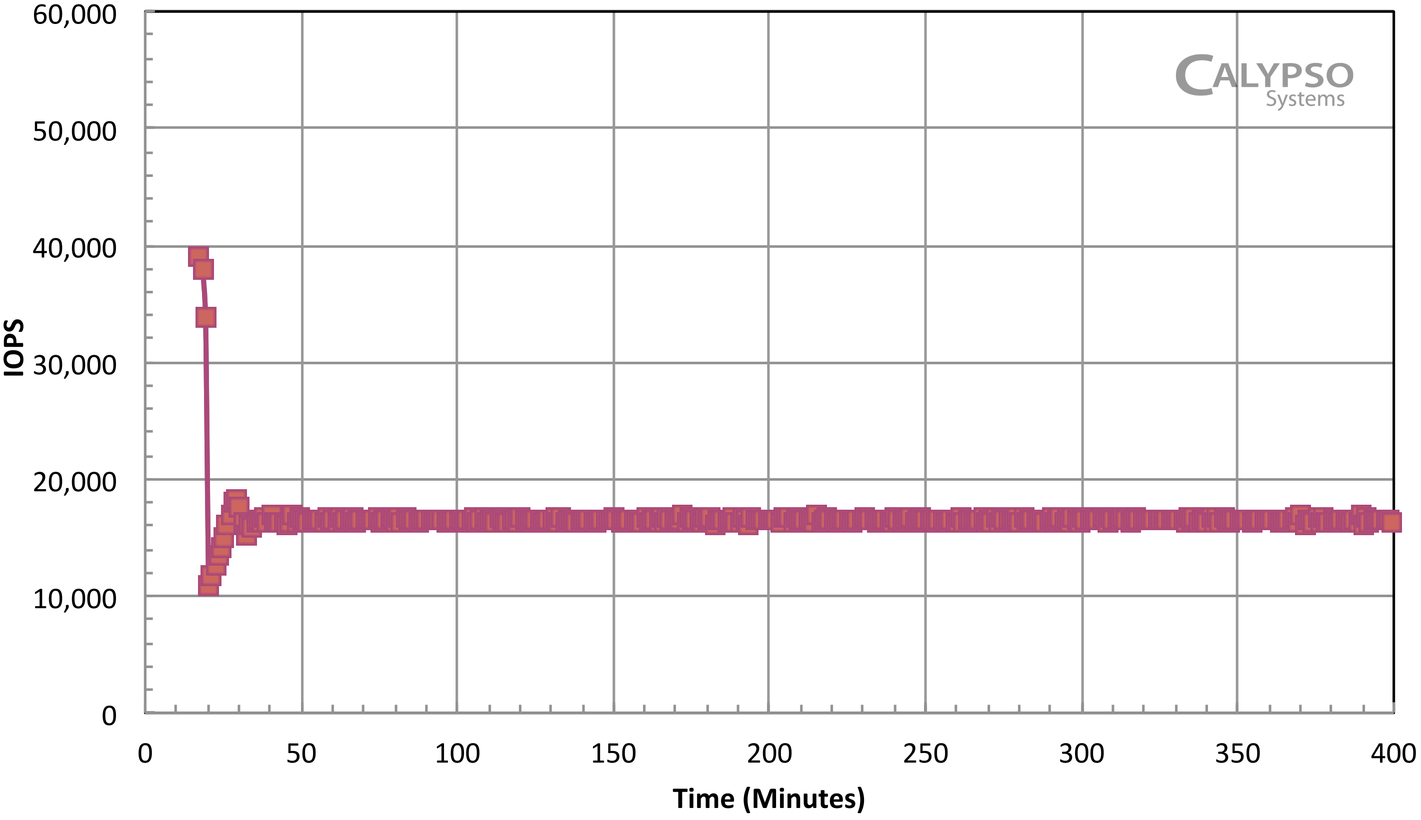
Device Under Test (DUT)	**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Convergence**	N/A
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Rounds**	N/A
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**PC AR**	100%
NAND Type	SLC	**Workload Independent**	None	**Tester's Choice:**		**AR AMOUNT**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR Segments**	N/A
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	RND 4KiB	**Thread Count (TC)**	2	**OPT:**	N/A

Enterprise IOPS (Linear) vs Time (Linear)



Test Run Date:	11/07/11 08:40 AM	**Report Run Date:**	11/14/2011 08:45 AM

Enterprise WSAT (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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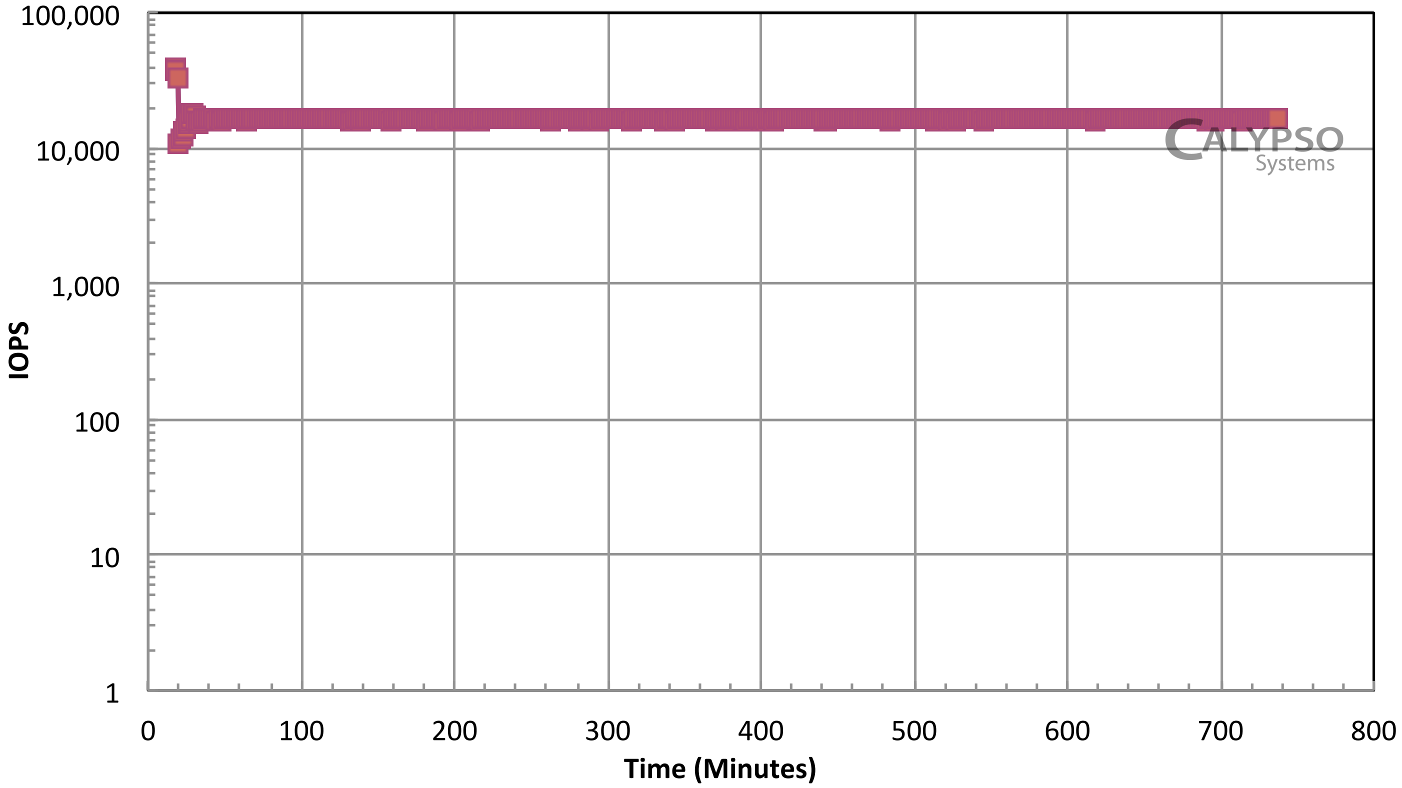
Device Under Test (DUT)		**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**		CALYPSO Systems	
Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Convergence**	N/A
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Rounds**	N/A
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**PC AR**	100%
NAND Type	SLC	**Workload Independent**	None	**Tester's Choice:**		**AR AMOUNT**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR Segments**	N/A
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	RND 4KiB	**Thread Count (TC)**	2	**OPT:**	N/A

Enterprise IOPS (LOG) vs Time (Linear)



Test Run Date:	11/07/11 08:40 AM	**Report Run Date:**	11/14/2011 08:45 AM

Enterprise WSAT (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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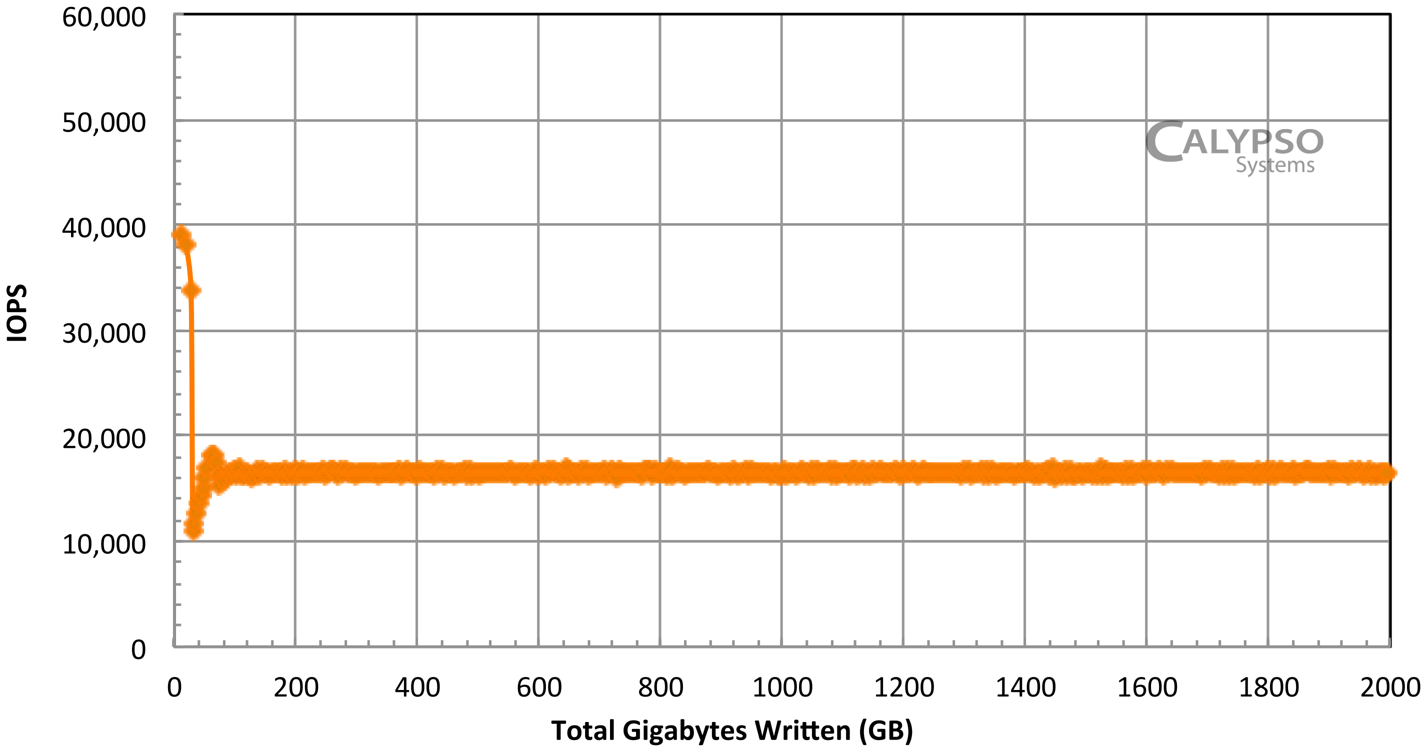
Device Under Test (DUT)	**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Convergence**	N/A
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Rounds**	N/A
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**PC AR**	100%
NAND Type	SLC	**Workload Independent**	None	**Tester's Choice:**		**AR AMOUNT**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR Segments**	N/A
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	RND 4KiB	**Thread Count (TC)**	2	**OPT:**	N/A

Enterprise IOPS (Linear) vs TGBW (Linear)



Test Run Date:	11/07/11 08:40 AM	**Report Run Date:**	11/14/2011 08:45 AM

Enterprise WSAT (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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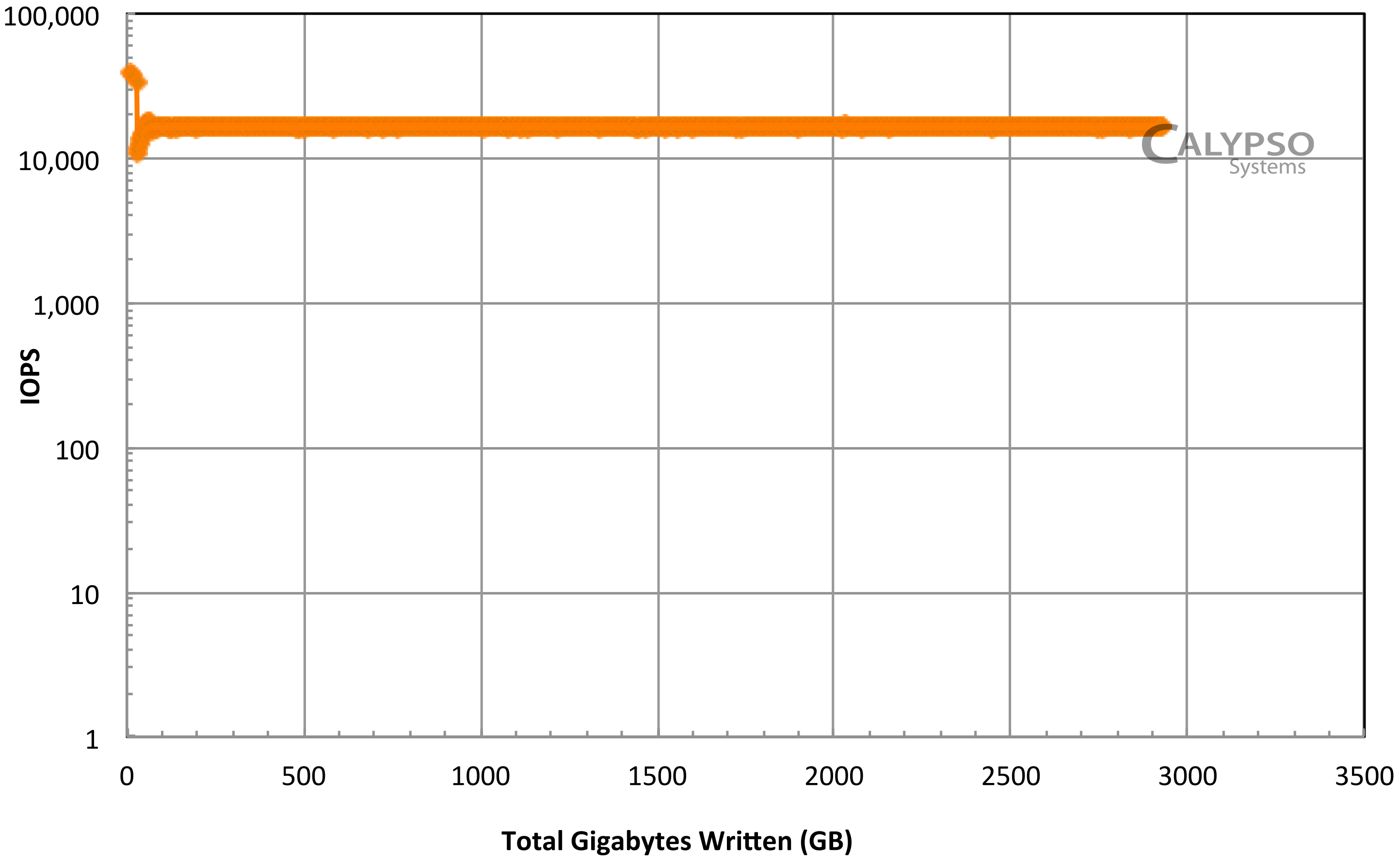
Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Convergence**	N/A
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Rounds**	N/A
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**PC AR**	100%
NAND Type	SLC	**Workload Independent**	None	**Tester's Choice:**		**AR AMOUNT**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR Segments**	N/A
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	RND 4KiB	**Thread Count (TC)**	2	**OPT:**	N/A

Enterprise IOPS (LOG) vs TGBW (Linear)



SLC-A Test Report
Summary Report Page - IOPS

SNIA Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS 1.0**
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Device Under Test (DUT)	SLC-A	**SNIA SSS PTS Summary Report**	**Calypso Systems, Inc.**

DEVICE INFORMATION		TEST HARDWARE PLATFORM		TEST SOFTWARE		REPORT DATE	
SERIAL NO.	1111-0000-FFFF	**SYSTEM**	Calypso RTP 2.0	**SYS OS**	CENT OS 5.6	**Report**	06DEC11
FIRMWARE REV.	BFOA	**Motherboard/cpu**	Intel 5520HC / W5580	**SW TOOL**	Calypso CTS 6.5	**Test Run**	01NOV – 04DEC11
USER CAPACITY	SLC 100 GB	**RAM**	12GB ECC DDR3	**SW Rev**	1.19.10	**Test Sponsor**	Calypso
DEVICE INTERFACE	6 Gb/s SAS	**Device Interface**	LSA 9212-e 6Gb/s HBA	**Release**	Nov. 2011	**Auditor**	N/A

Test Description

Purpose	**To measure RND IOPS matrix using different BS and R/W Mixes**
Test Outline	**PURGE, then apply preconditioning until Steady State is achieved according to the SNIA PTS**
Preconditioning	**PURGE followed by SNIA PTS prescribed WIPC & WDPC**

Test Set Up

PTS-C	TEST	Purge	DP	OIO	WIPC		WDPC		STEADY STATE	
					PC AR	TEST AR	PC AR	TEST AR	WORKLOAD	ROUNDS
8.0	IOPS - REQUIRED	Format Unit	RND	TC 2 QD 16	100%	100%	100%	100%	IOPS LOOP	1 - 5

Select Performance Data

RND 4KiB W	RND 4KiB R	RND 8KiB W	RND 8KiB R
16,887	93,707	9,560	50,301

Test Sponsor – Special Notes

ITEM	NOTATION	COMMENTS

Test Run Date:	11/02/2011 02:56 PM	**Report Run Date:**	11/14/2011 08:43 AM

Enterprise IOPS (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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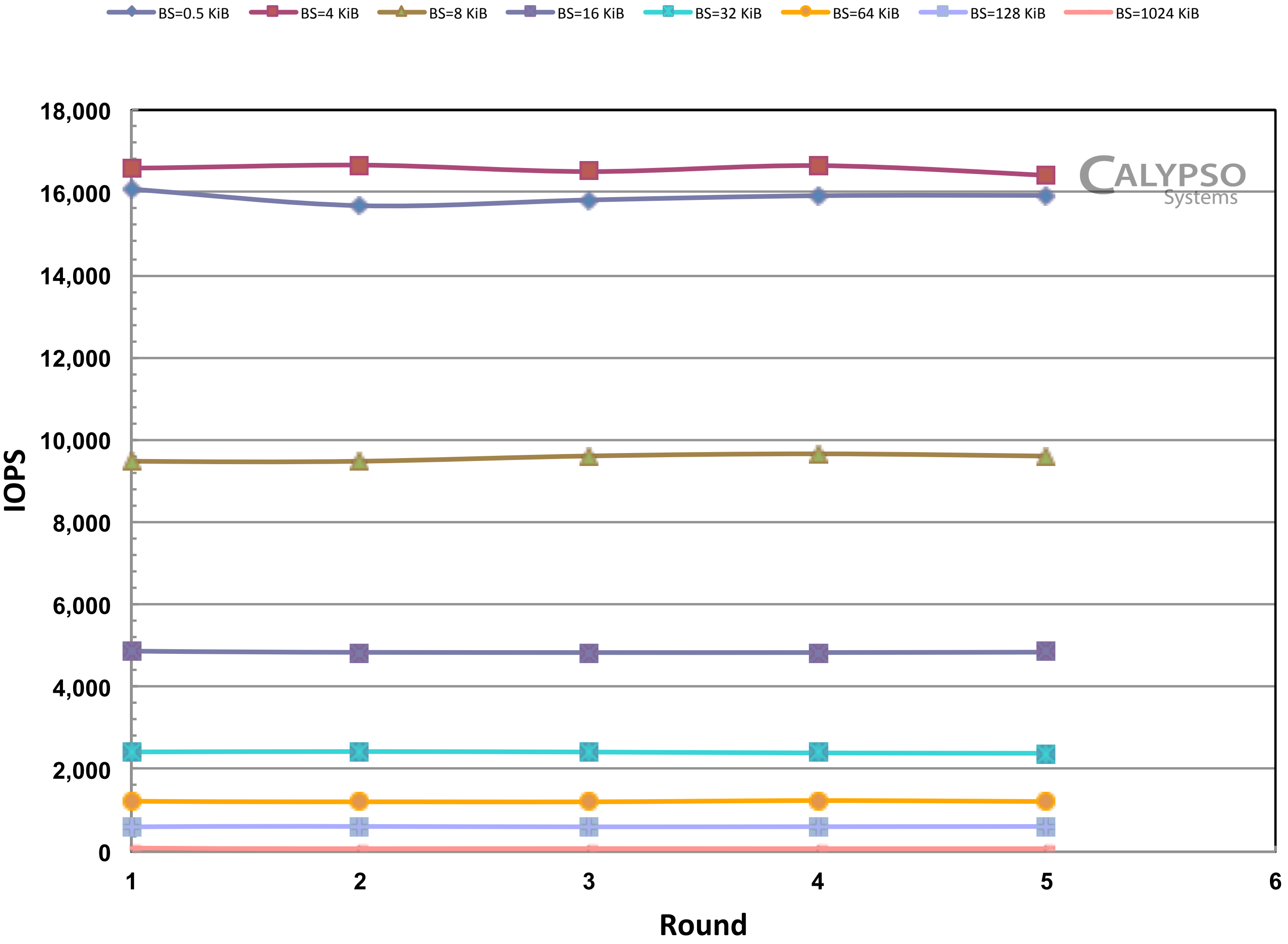
Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	1-5
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full IOPS Loop	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise Steady State Convergence Plot – All Block Sizes



Test Run Date:	11/02/2011 02:56 PM	**Report Run Date:**	11/14/2011 08:43 AM

Enterprise IOPS (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**E-1.0**
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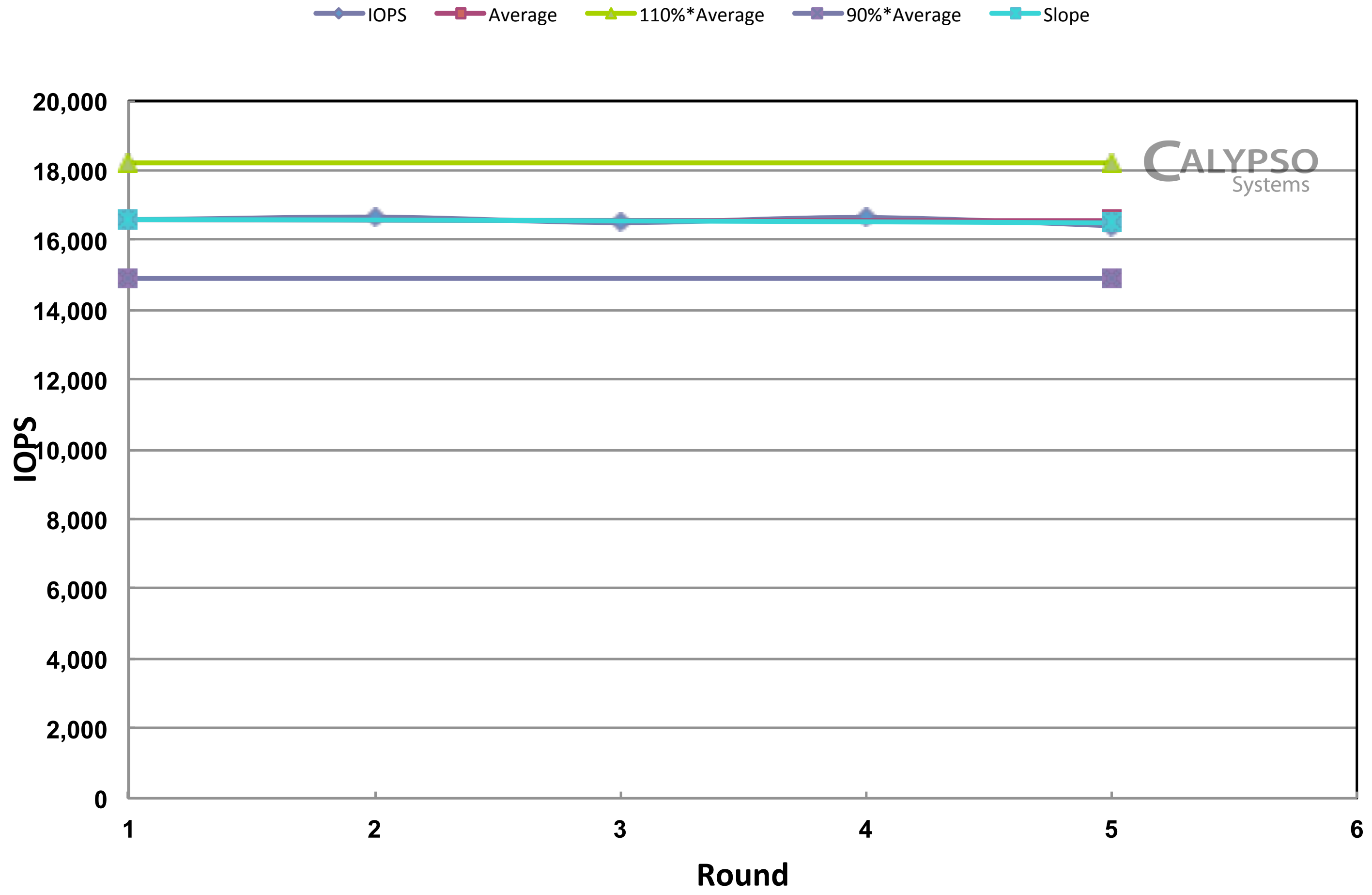
Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	1-5
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full IOPS Loop	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise Steady State Measurement Window



Test Run Date:	11/02/2011 02:56 PM	**Report Run Date:**	11/14/2011 08:43 AM

Enterprise IOPS (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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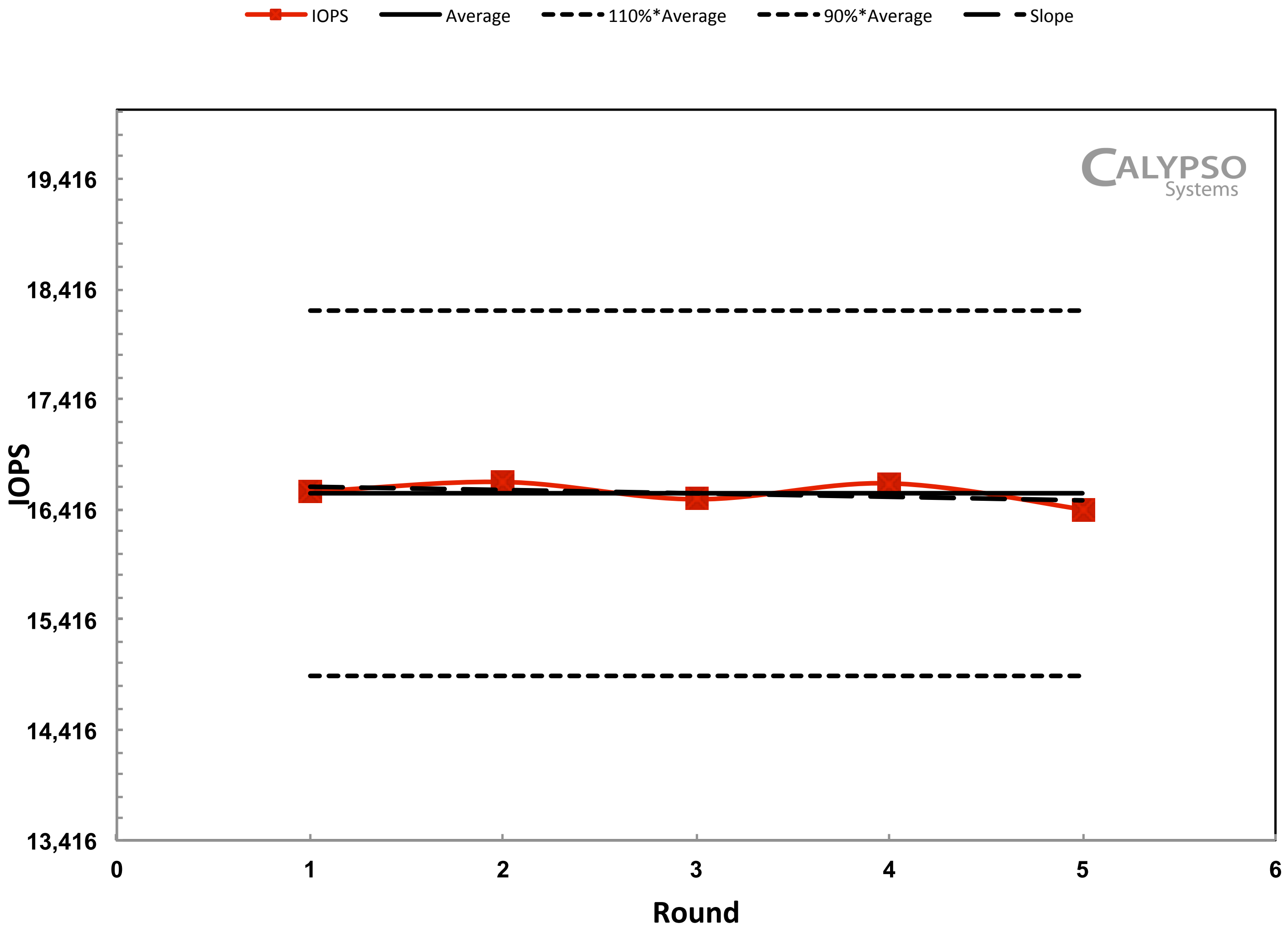
Device Under Test (DUT)		**VENDOR: ABC CO.**		**SSD MODEL NO: SLC-A 100 GB**		**TEST SPONSOR**	
Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	1-5
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full IOPS Loop	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise Steady State Measurement Window – RND/4KiB



Steady State Determination Data

Average IOPS:			16563.0
Allowed Maximum Data Excursion:	3312.6	Measured Maximum Data Excursion:	248.3
Allowed Maximum Slope Excursion:	1656.3	Measured Maximum Slope Excursion:	128.6
Least Squares Linear Fit Formula:			-32.143 * R + 16659.425

Test Run Date:	11/02/2011 02:56 PM	**Report Run Date:**	11/14/2011 08:43 AM

Enterprise IOPS (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	1-5
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full IOPS Loop	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise IOPS - ALL RW Mix & BS – Tabular Data

Block Size (KiB)	**Read / Write Mix %**						
	0/100	**5/95**	**35/65**	**50/50**	**65/35**	**95/5**	**100/0**
0.5	15,887.4	16,634.7	20,678.6	24,402.8	29,386.2	72,428.4	95,924.3
4	16,563.0	17,032.2	20,234.2	23,705.2	28,018.6	63,447.7	93,707.0
8	9,559.8	9,998.4	12,547.1	14,636.6	17,199.1	37,872.9	50,301.2
16	4,842.2	5,032.3	6,802.5	8,132.1	9,655.8	22,462.2	31,072.8
32	2,413.3	2,535.4	3,478.4	4,241.3	5,061.7	12,174.7	15,994.2
64	1,219.2	1,275.7	1,728.4	2,126.1	2,726.3	6,284.6	8,094.9
128	612.7	632.5	859.1	1,061.4	1,709.4	3,205.7	4,060.8
1024	74.8	78.0	103.6	126.7	202.7	398.8	514.6

Test Run Date:	11/02/2011 02:56 PM	**Report Run Date:**	11/14/2011 08:43 AM

Enterprise IOPS (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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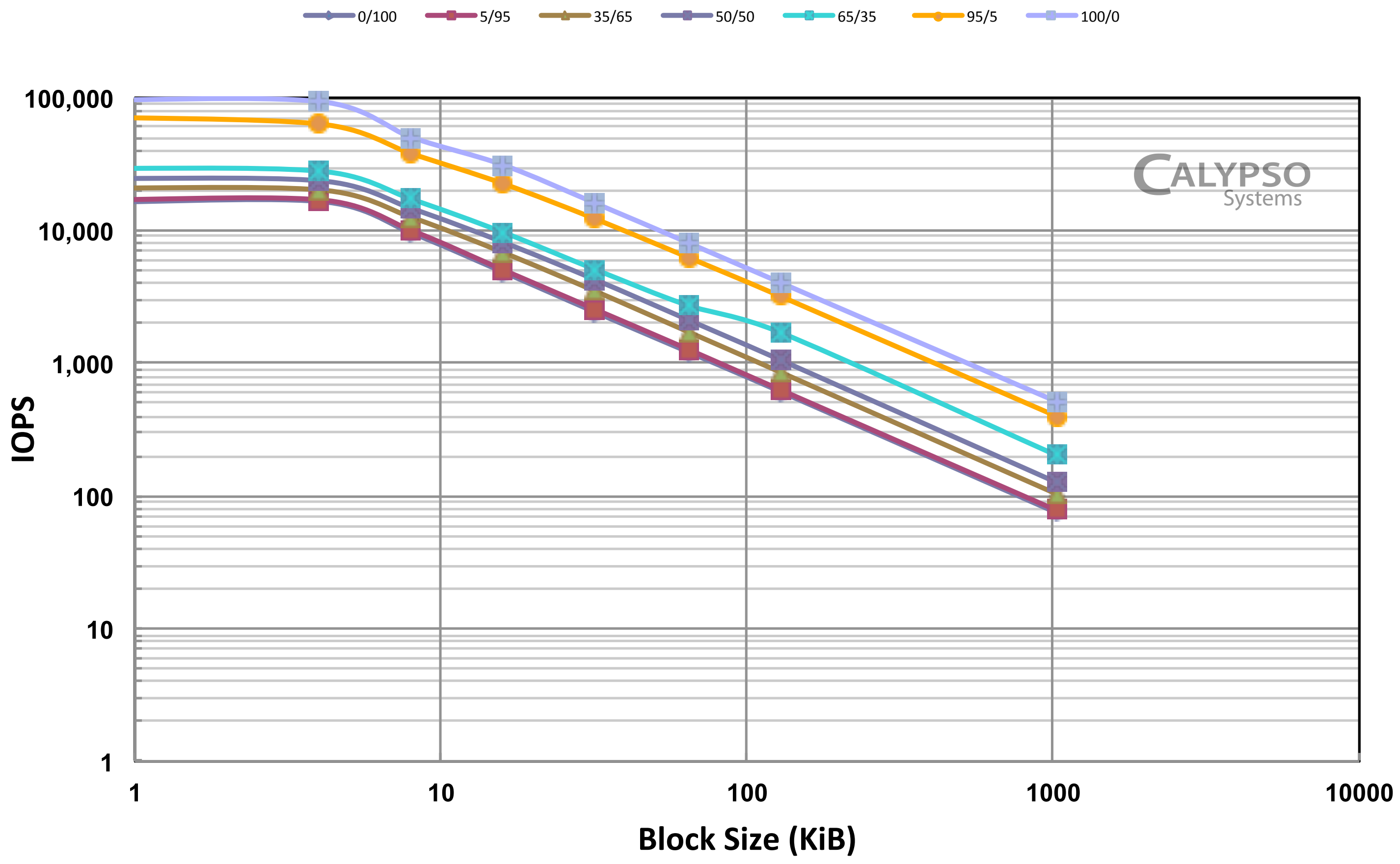
Device Under Test (DUT)	**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	1-5
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full IOPS Loop	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise IOPS - ALL RW Mix & BS - 2D Plot



Test Run Date:	11/02/2011 02:56 PM	**Report Run Date:**	11/14/2011 08:43 AM

Enterprise IOPS (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)						Rev.	**PTS-E 1.0**
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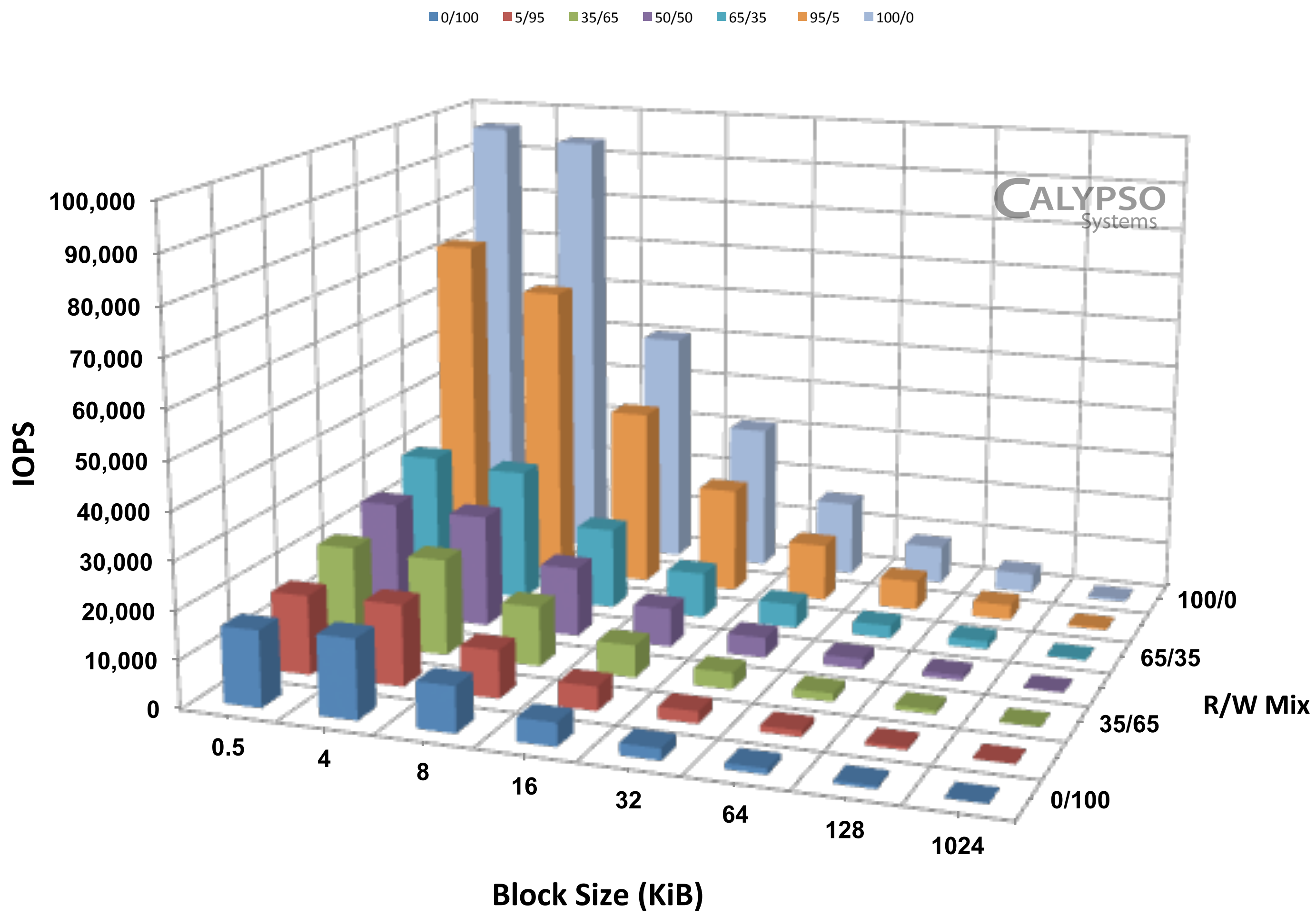
Device Under Test (DUT)		**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**		**TEST SPONSOR**	CALYPSO Systems	
Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	1-5
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full IOPS Loop	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise IOPS - ALL RW Mix & BS – 3D Columns



SLC-A Test Report
Summary Report Page - THROUGHPUT

SNIA Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS 1.0**
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Device Under Test (DUT)	SLC-A	**SNIA SSS PTS Summary Report**	**Calypso Systems, Inc.**	CALYPSO Systems

DEVICE INFORMATION		TEST HARDWARE PLATFORM		TEST SOFTWARE		REPORT DATE	
SERIAL NO.	1111-0000-FFFF	**SYSTEM**	Calypso RTP 2.0	**SYS OS**	CENT OS 5.6	**Report**	06DEC11
FIRMWARE REV.	BFOA	**Motherboard/cpu**	Intel 5520HC / W5580	**SW TOOL**	Calypso CTS 6.5	**Test Run**	01NOV – 04DEC11
USER CAPACITY	SLC 100 GB	**RAM**	12GB ECC DDR3	**SW Rev**	1.19.10	**Test Sponsor**	Calypso
DEVICE INTERFACE	6 Gb/s SAS	**Device Interface**	LSA 9212-e 6Gb/s HBA	**Release**	Nov. 2011	**Auditor**	N/A

Test Description

Purpose	**To measure Large Block SEQ TP using different BS and R/W Mixes**
Test Outline	**PURGE, then apply preconditioning until Steady State is achieved according to the SNIA PTS**
Preconditioning	**PURGE followed by SNIA PTS prescribed WIPC & WDPC**

Test Set Up

PTS-C	TEST	Purge	DP	OIO	WIPC		WDPC		STEADY STATE	
					PC AR	TEST AR	PC AR	TEST AR	WORKLOAD	ROUNDS
9.0	THROUGHPUT - REQUIRED	Format Unit	RND	TC 2 QD 16	100%	100%	100%	100%	SEQ 128KiB/ SEQ 1024KiB	5 - 9

Select Performance Data

SEQ 128KiB R	SEQ 128KiB W	SEQ 1024KiB R	SEQ 1024KiB W
409 MB/S	145 MB/S	514 MB/S	157 MB/S

Test Sponsor – Special Notes

ITEM	NOTATION	COMMENTS

Test Run Date:	12/03/2011 04:32 PM	**Report Run Date:**	12/04/2011 10:04 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)			Rev.	**PTS-E 1.0**
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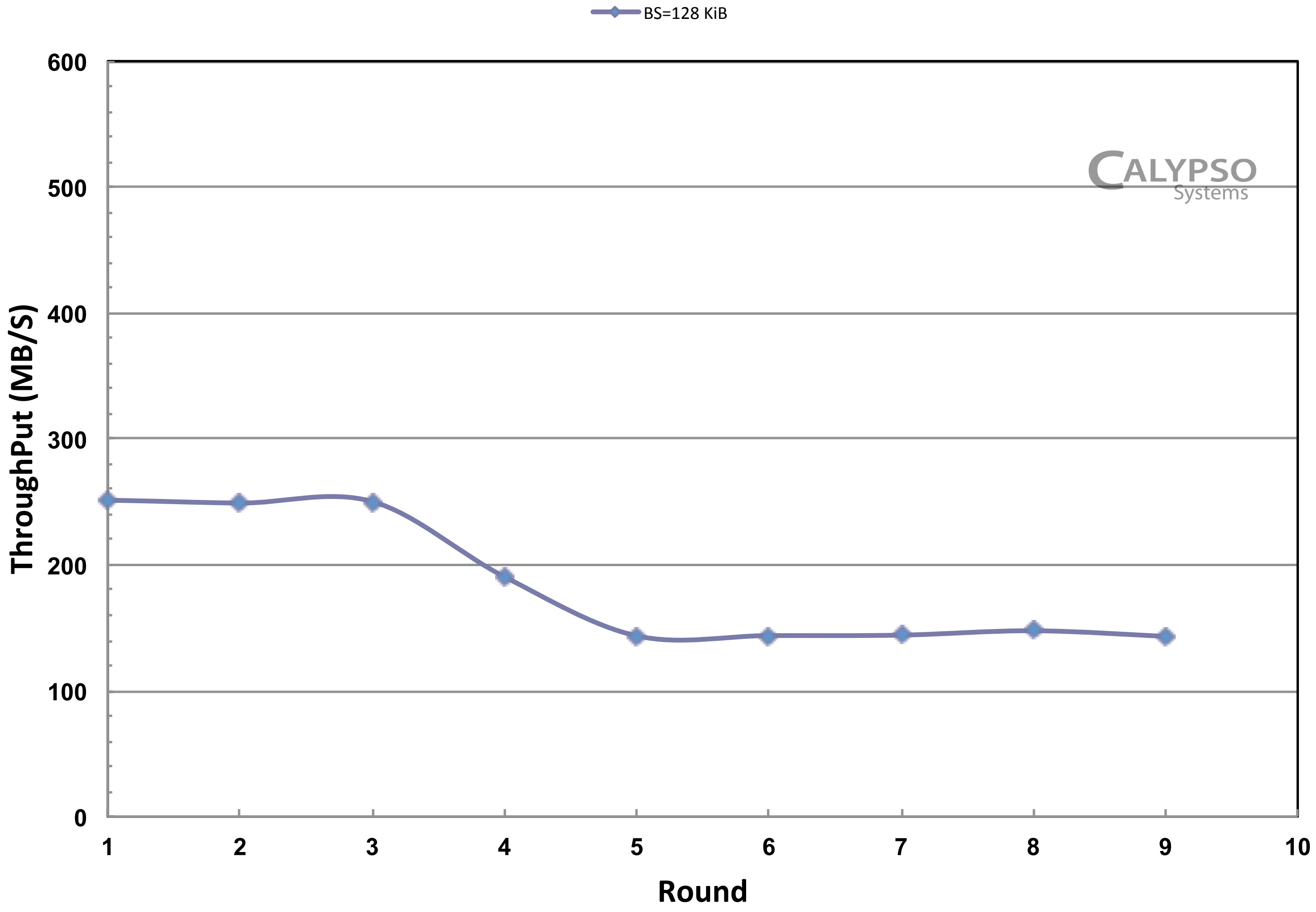
Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	4-8
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	SEQ 128KiB	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise 128KiB Throughput Test - SS Convergence - Write



Test Run Date:	12/03/2011 04:32 PM	**Report Run Date:**	12/04/2011 10:04 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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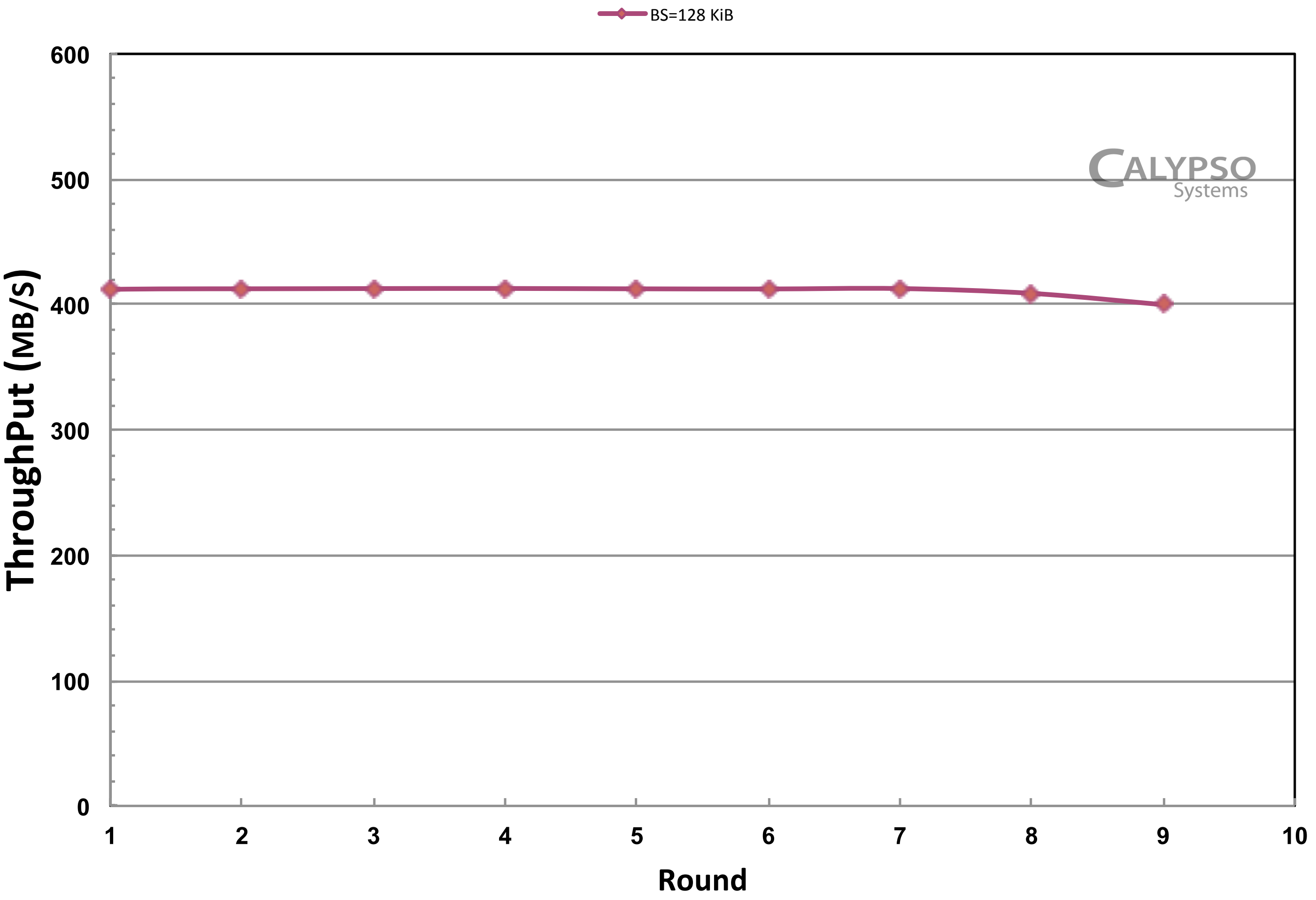
Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	4-8
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	SEQ 128KiB	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise 128KiB Throughput Test - SS Convergence - Read



Test Run Date:	12/03/2011 04:32 PM	**Report Run Date:**	12/04/2011 10:04 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**

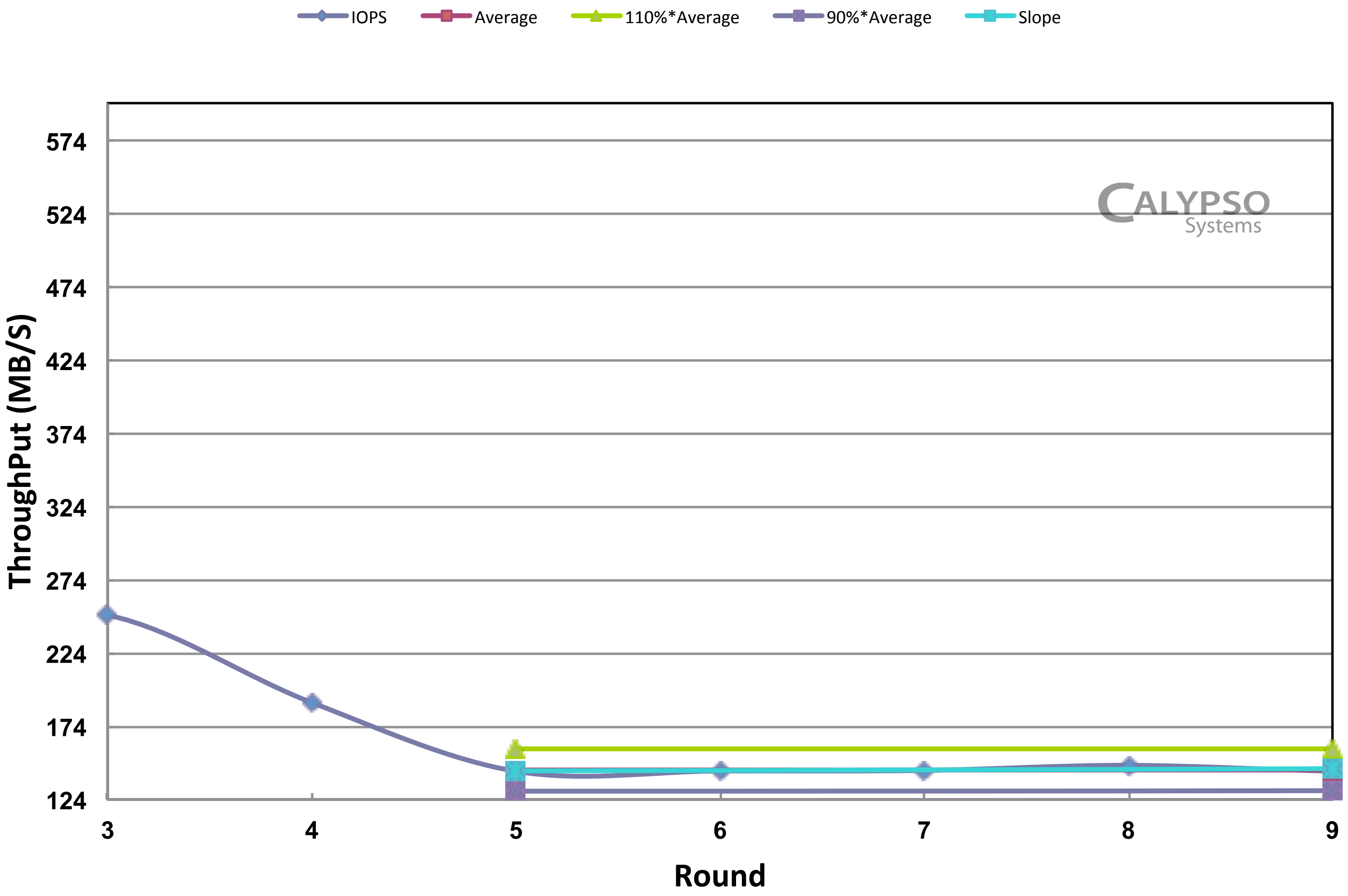
Serial No.	1111-0000-FFFF
Firmware Rev	BFOA
Capacity	100 GB
NAND Type	SLC
Device I/F	6 Gb/s SAS
Test Platform	RTP 2.0 CTS 6.5

DUT Preparation	
Purge	Format Unit
Pre-Conditioning	
Workload Independent	2X SEQ/128KiB
Workload Dep.	SEQ 128KiB

Test Loop Parameters	
REQUIRED:	
Data Pattern	RND
Tester's Choice:	
OIO/Thread (QD)	16
Thread Count (TC)	2

Steady State	
Convergence	YES
Rounds	4-8
PC AR	100%
AR AMOUNT	100%
AR Segments	N/A

Enterprise Steady State Measurement Window – SEQ/128 KiB



Steady State Determination Data

Average ThroughPut:			144.5
Allowed Maximum Data Excursion:	28.9	Measured Maximum Data Excursion:	4.5
Allowed Maximum Slope Excursion:	14.4	Measured Maximum Slope Excursion:	1.2
Least Squares Linear Fit Formula:			0.2931 * R + 142.43

Test Run Date:	12/03/2011 04:32 PM	**Report Run Date:**	12/04/2011 10:04 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)		Rev.	**PTS-E 1.0**
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Device Under Test (DUT)		**VENDOR:** **ABC CO.**		**SSD MODEL NO:** **SLC-A 100 GB**		**TEST SPONSOR**	
Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	4-8
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	SEQ 128KiB	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise 128KiB Throughput - ALL RW Mix & BS – Tabular Data

Block Size (KiB)	**Read / Write Mix %**	
	0/100	**100/0**
128	144.5	409.3

Test Run Date:	12/03/2011 04:32 PM	**Report Run Date:**	12/04/2011 10:04 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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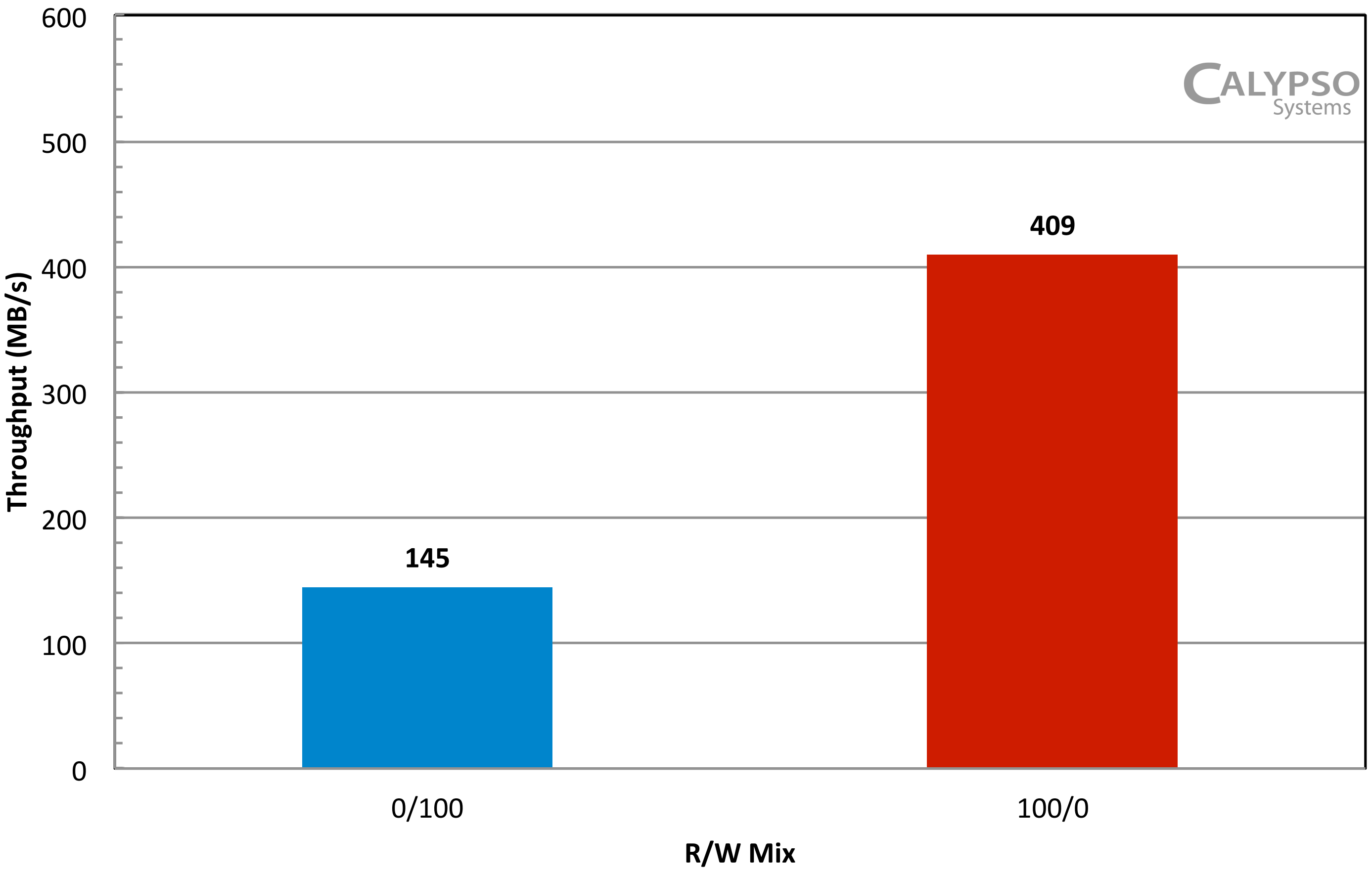
Device Under Test (DUT)		**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**		CALYPSO Systems	
Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	4-8
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	SEQ 128KiB	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise 128KiB Throughput - ALL RW Mix & BS - 2D Plot



Test Run Date:	12/04/2011 08:21 AM	Report Run Date:	12/04/2011 10:03 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	PTS-E 1.0
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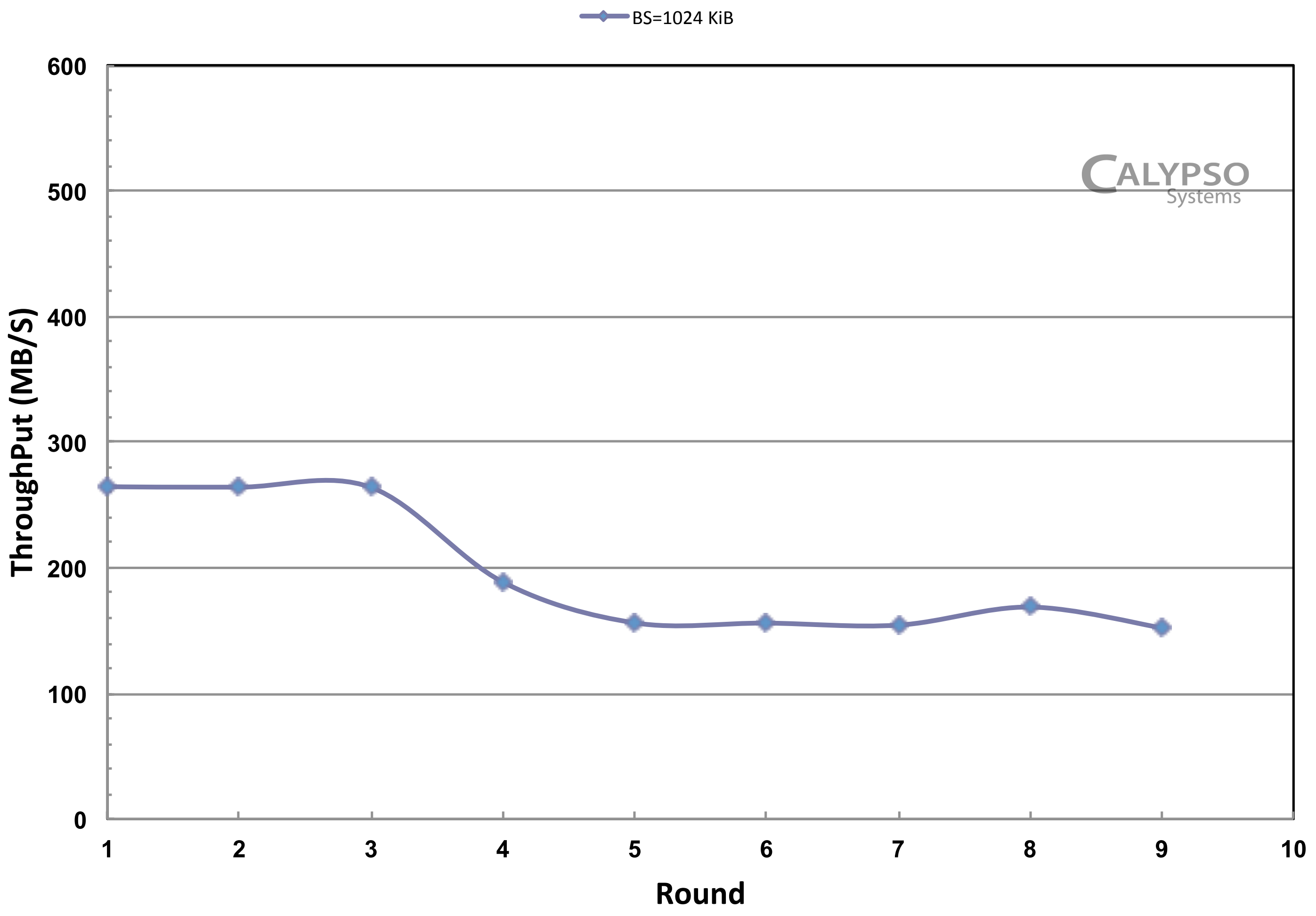
Device Under Test (DUT)		VENDOR: ABC CO.	SSD MODEL NO: SLC-A 100 GB	TEST SPONSOR			
Serial No.	1111-0000-FFFF	DUT Preparation		Test Loop Parameters		Steady State	
Firmware Rev	BFOA	Purge	Format Unit	REQUIRED:		Convergence	YES
Capacity	100 GB	Pre-Conditioning		Data Pattern	RND	Rounds	4-8
NAND Type	SLC	Workload Independent	2X SEQ/128KiB	Tester's Choice:		PC AR	100%
Device I/F	6 Gb/s SAS			OIO/Thread (QD)	16	AR AMOUNT	100%
Test Platform	RTP 2.0 CTS 6.5	Workload Dep.	SEQ 1024KiB	Thread Count (TC)	2	AR Segments	N/A

Enterprise 1024KiB Throughput Test - SS Convergence - Write



Test Run Date:	12/04/2011 08:21 AM	**Report Run Date:**	12/04/2011 10:03 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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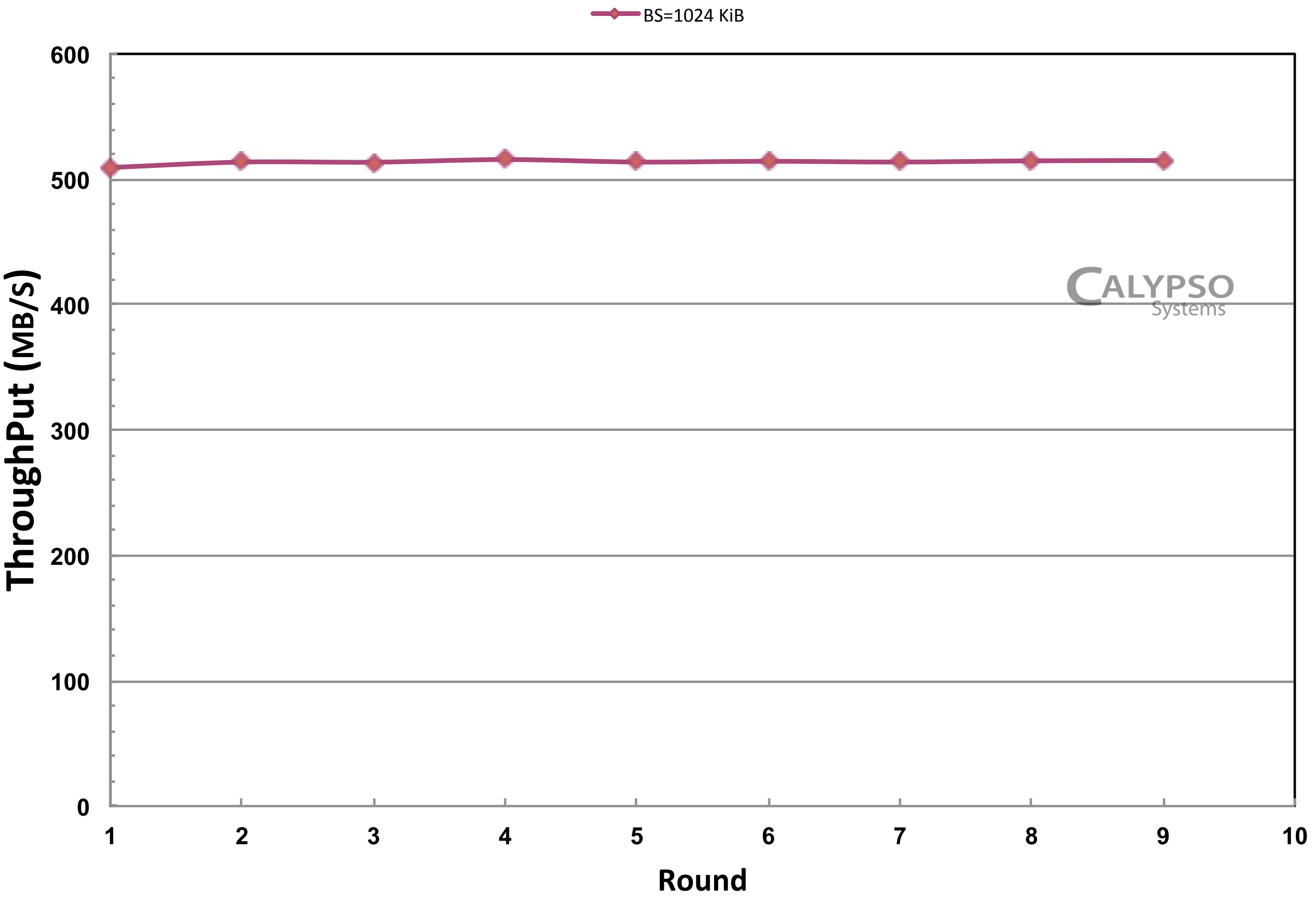
Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	4-8
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	SEQ 1024KiB	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise 1024KiB Throughput Test - SS Convergence - Read



Test Run Date:	12/04/2011 08:21 AM	**Report Run Date:**	12/04/2011 10:03 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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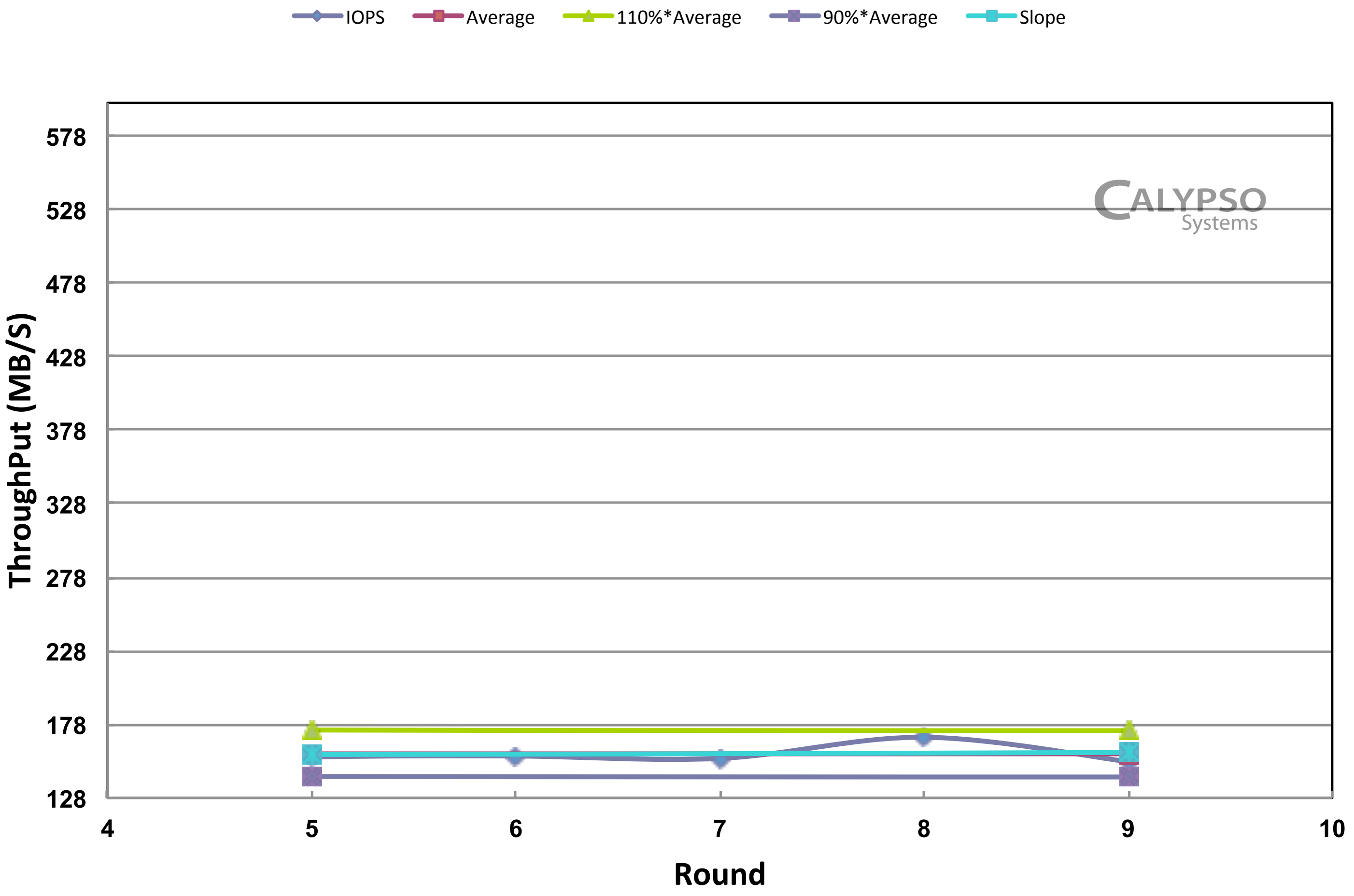
Device Under Test (DUT)		**VENDOR:** **ABC CO.**		**SSD MODEL NO:** **SLC-A 100 GB**		**TEST** **SPONSOR**	
Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	4-8
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	SEQ 1024KiB	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise Steady State Measurement Window – SEQ/1024 KiB



Steady State Determination Data

Average ThroughPut:			157.5
Allowed Maximum Data Excursion:	31.5	Measured Maximum Data Excursion:	16.6
Allowed Maximum Slope Excursion:	15.7	Measured Maximum Slope Excursion:	1.9
Least Squares Linear Fit Formula:			0.470 * R + 154.165

Test Run Date:	12/04/2011 08:21 AM	**Report Run Date:**	12/04/2011 10:03 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	4-8
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	16	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	SEQ 1024KiB	**Thread Count (TC)**	2	**AR Segments**	N/A

Enterprise 1024KiB Throughput - ALL RW Mix & BS – Tabular Data

Block Size (KiB)	**Read / Write Mix %**	
	0/100	**100/0**
1024	157.5	514.3

Test Run Date:	12/04/2011 08:21 AM	Report Run Date:	12/04/2011 10:03 AM

Enterprise Throughput Test (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	PTS-E 1.0
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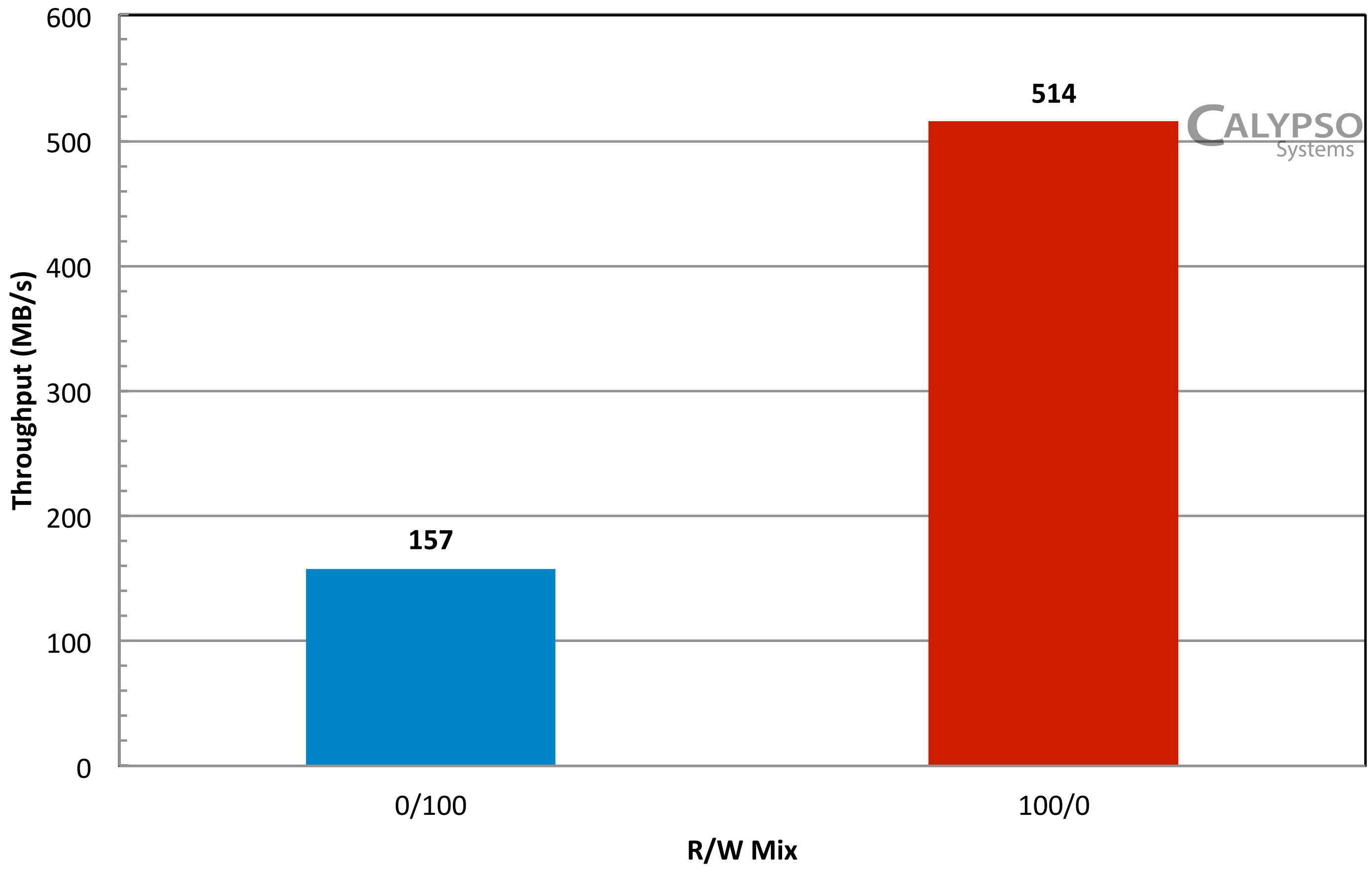
Device Under Test (DUT)		VENDOR: ABC CO.	SSD MODEL NO: SLC-A 100 GB		TEST SPONSOR		
Serial No.	1111-0000-FFFF	DUT Preparation		Test Loop Parameters		Steady State	
Firmware Rev	BFOA	Purge	Format Unit	REQUIRED:		Convergence	YES
Capacity	100 GB	Pre-Conditioning		Data Pattern	RND	Rounds	4-8
NAND Type	SLC	Workload Independent	2X SEQ/128KiB	Tester's Choice:		PC AR	100%
Device I/F	6 Gb/s SAS			OIO/Thread (QD)	16	AR AMOUNT	100%
Test Platform	RTP 2.0 CTS 6.5	Workload Dep.	SEQ 1024KiB	Thread Count (TC)	2	AR Segments	N/A

Enterprise 1024KiB Throughput - ALL RW Mix & BS - 2D Plot



SLC-A Test Report
Summary Report Page - LATENCY

SNIA Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS 1.0**
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Device Under Test (DUT)	SLC-A	**SNIA SSS PTS Summary Report**	**Calypso Systems, Inc.**	CALYPSO Systems

DEVICE INFORMATION		**TEST HARDWARE PLATFORM**		**TEST SOFTWARE**		**REPORT DATE**	
SERIAL NO.	1111-0000-FFFF	**SYSTEM**	Calypso RTP 2.0	**SYS OS**	CENT OS 5.6	**Report**	06DEC11
FIRMWARE REV.	BFOA	**Motherboard/cpu**	Intel 5520HC / W5580	**SW TOOL**	Calypso CTS 6.5	**Test Run**	01NOV – 04DEC11
USER CAPACITY	SLC 100 GB	**RAM**	12GB ECC DDR3	**SW Rev**	1.19.10	**Test Sponsor**	Calypso
DEVICE INTERFACE	6 Gb/s SATAII	**Device Interface**	LSA 9212-e 6Gb/s HBA	**Release**	Nov. 2011	**Auditor**	N/A

Test Description

Purpose	**To measure AVE & MAX Response times at selected BS & RW Mixes measured in mSec**
Test Outline	**PURGE, then apply preconditioning until Steady State is achieved according to the SNIA PTS**
Preconditioning	**PURGE followed by SNIA PTS prescribed WIPC & WDPC**

Test Set Up

PTS-C	**TEST**	**Purge**	**DP**	**OIO**	**WIPC**		**WDPC**		**STEADY STATE**	
					PC AR	**TEST AR**	**PC AR**	**TEST AR**	**WORKLOAD**	**ROUNDS**
10.0	**LATENCY - REQUIRED**	**Format Unit**	**RND**	**TC 1 QD 1**	**100%**	**100%**	**100%**	**100%**	**LAT LOOP**	**3 – 7**

Select Performance Data

RND 4KiB R AVE	**RND 4KiB W AVE**	**RND 4KiB R MAX**	**RND 4KiB W MAX**
0.160 mSec	**0.090 mSec**	**6.26 mSec**	**32.63 mSec**

Test Sponsor – Special Notes

ITEM	**NOTATION**	**COMMENTS**

Test Run Date:	11/10/2011 05:07 AM	Report Run Date:	11/14/2011 08:47 AM

Enterprise Latency (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	PTS-E 1.0
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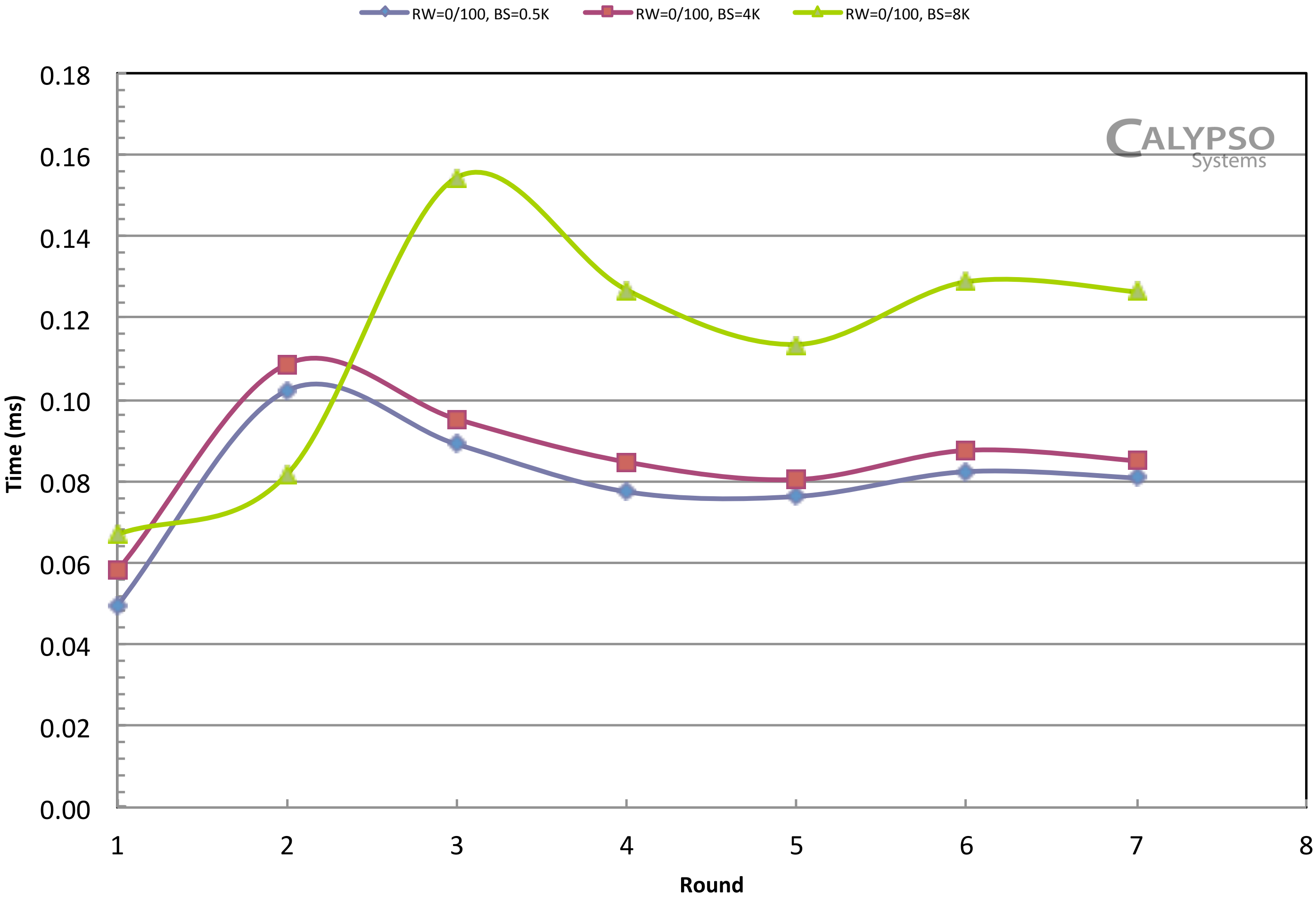
Device Under Test (DUT)	VENDOR: ABC CO.	SSD MODEL NO: SLC-A 100 GB	TEST SPONSOR	CALYPSO Systems

		DUT Preparation		Test Loop Parameters		Steady State	
Serial No.	1111-0000-FFFF	DUT Preparation		Test Loop Parameters		Steady State	
Firmware Rev	BFOA	Purge	Format Unit	REQUIRED:		Convergence	YES
Capacity	100 GB	Pre-Conditioning		Data Pattern	RND	Rounds	3-7
NAND Type	SLC	Workload Independent	2X SEQ/128KiB	Tester's Choice:		PC AR	100%
Device I/F	6 Gb/s SAS			OIO/Thread (QD)	1	AR AMOUNT	100%
Test Platform	RTP 2.0 CTS 6.5	Workload Dep.	Full LAT Loop	Thread Count (TC)	1	AR Segments	N/A

Enterprise Steady State Convergence Plot – AVE Latency - 100% Writes



Test Run Date:	11/10/2011 05:07 AM	**Report Run Date:**	11/14/2011 08:47 AM

Enterprise Latency (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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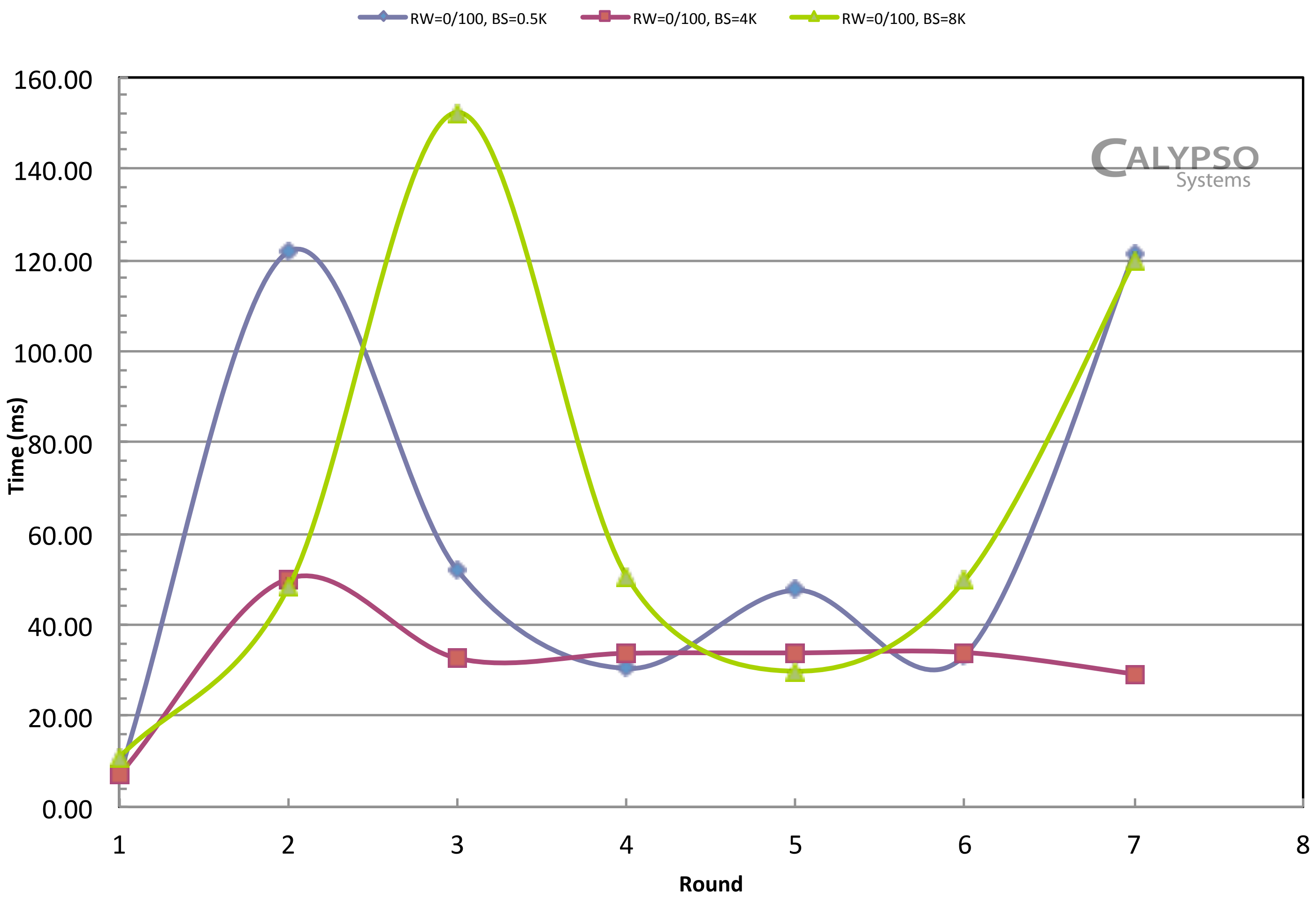
Device Under Test (DUT)	**VENDOR: ABC CO.**	**SSD MODEL NO: SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	3-7
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	1	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full LAT Loop	**Thread Count (TC)**	1	**AR Segments**	N/A

Enterprise Steady State Convergence Plot – MAX Latency - 100% Writes



Test Run Date:	11/10/2011 05:07 AM	**Report Run Date:**	11/14/2011 08:47 AM

Enterprise Latency (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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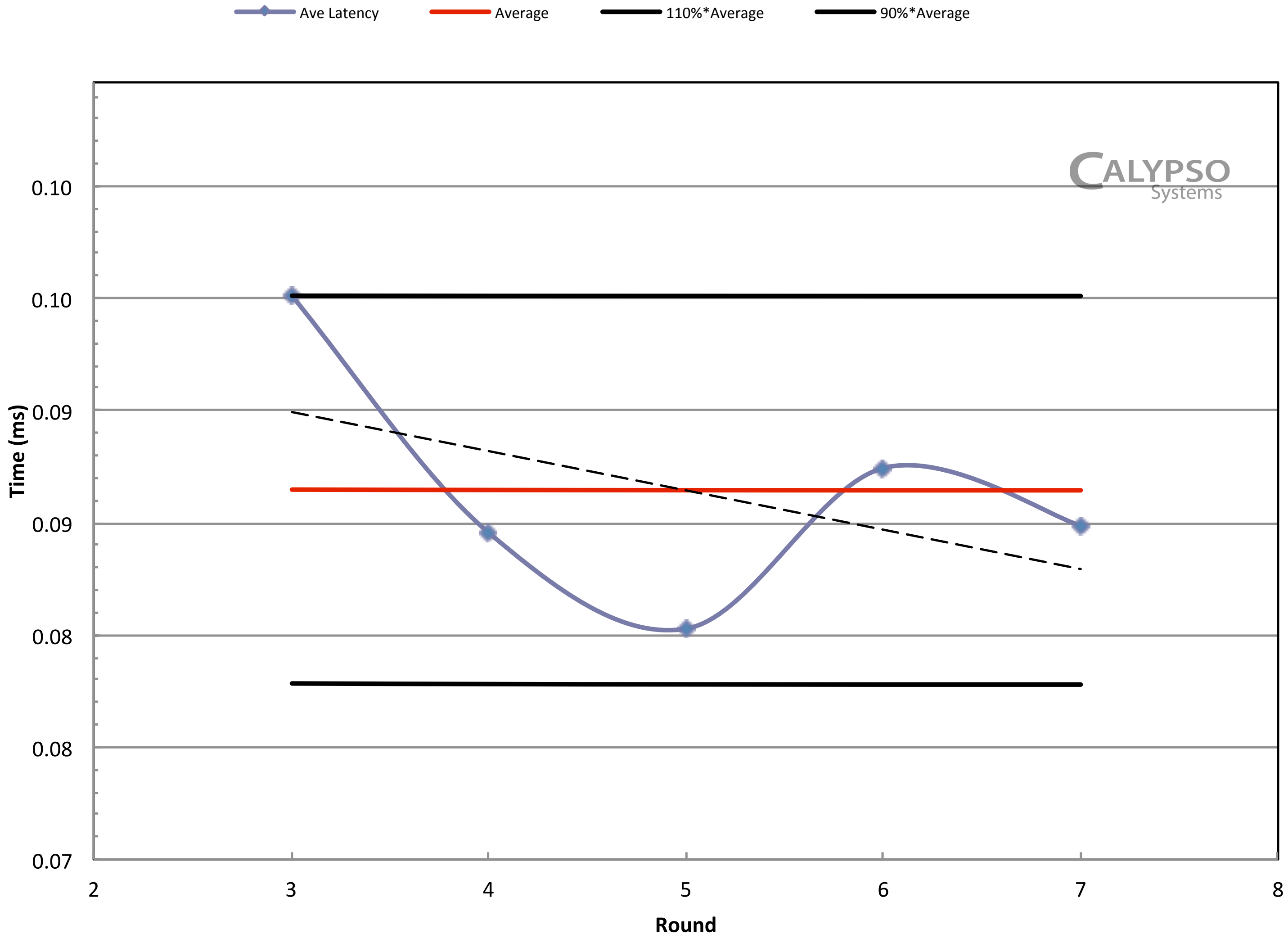
Device Under Test (DUT)	**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	3-7
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	1	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full LAT Loop	**Thread Count (TC)**	1	**AR Segments**	N/A

Enterprise Steady State Measurement Window – RND/4KiB



Steady State Determination Data

Average Latency (ms):			0.087
Allowed Maximum Data Excursion:	0.017	Measured Maximum Data Excursion:	0.015
Allowed Maximum Slope Excursion:	0.009	Measured Maximum Slope Excursion:	0.007
Least Squares Linear Fit Formula:			-0.002 * R + 0.095

Test Run Date:	11/10/2011 05:07 AM	**Report Run Date:**	11/14/2011 08:47 AM

Enterprise Latency (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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Device Under Test (DUT)	**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	3-7
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	1	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full LAT Loop	**Thread Count (TC)**	1	**AR Segments**	N/A

Enterprise AVE and MAX Response Time - ALL RW Mix & BS – Tabular Data

Average Response Time (ms)

	Read / Write Mix %		
Block Size (KiB)	**0/100**	**65/35**	**100/0**
0.5	0.08	0.13	0.15
4	0.09	0.14	0.16
8	0.13	0.17	0.17

Maximum Response Time (ms)

	Read / Write Mix %		
Block Size (KiB)	**0/100**	**65/35**	**100/0**
0.5	56.87	39.46	5.80
4	32.63	46.78	6.26
8	80.43	39.38	12.99

Test Run Date:	11/10/2011 05:07 AM	**Report Run Date:**	11/14/2011 08:47 AM

Enterprise Latency (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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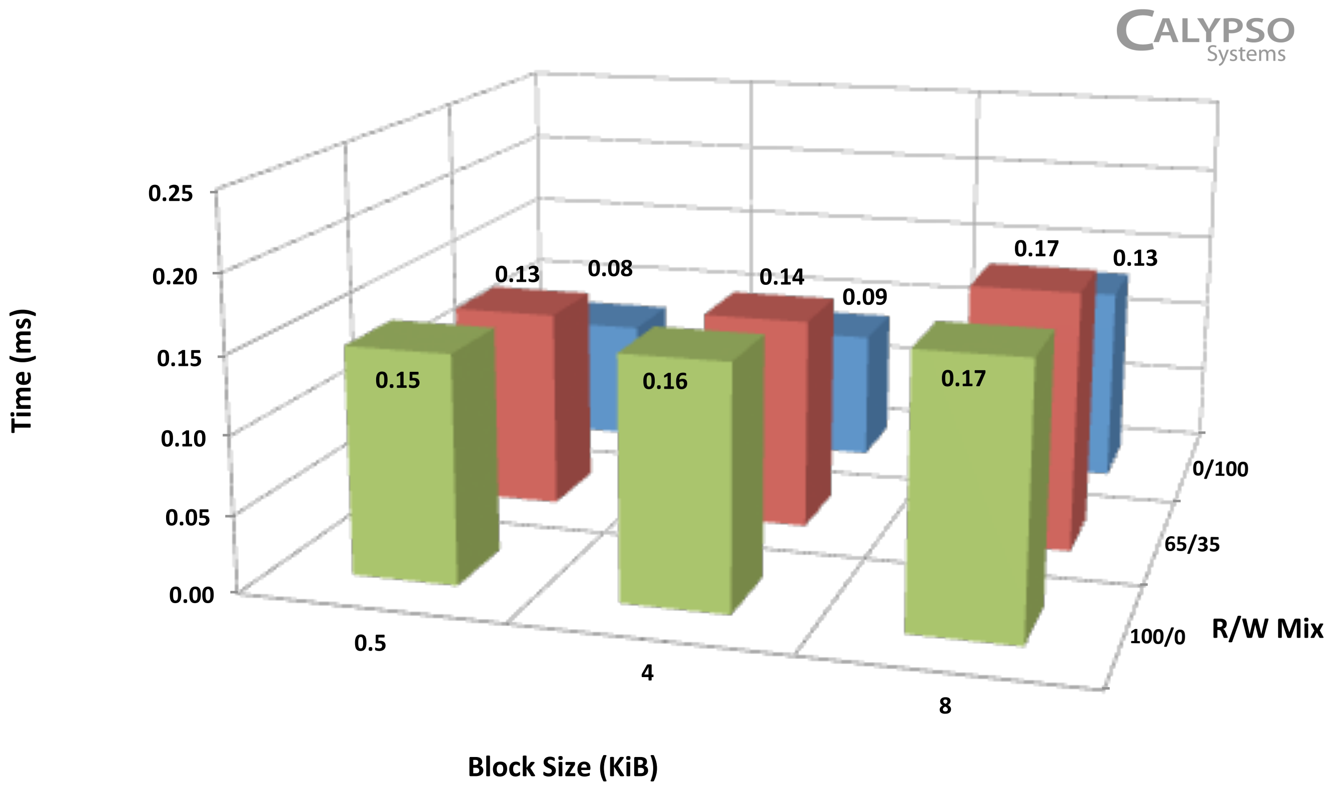
Device Under Test (DUT)	**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

		DUT Preparation		**Test Loop Parameters**		**Steady State**	
Serial No.	1111-0000-FFFF						
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	3-7
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SAS			**OIO/Thread (QD)**	1	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full LAT Loop	**Thread Count (TC)**	1	**AR Segments**	N/A

Enterprise AVE Latency vs BS and R/W Mix - 3D Plot



Test Run Date:	11/10/2011 05:07 AM	**Report Run Date:**	11/14/2011 08:47 AM

Enterprise Latency (REQUIRED) - Report Page

SNIA SSS TWG: Solid State Storage Performance Test Specification (PTS)	Rev.	**PTS-E 1.0**
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Device Under Test (DUT)	**VENDOR:** **ABC CO.**	**SSD MODEL NO:** **SLC-A 100 GB**	**TEST SPONSOR**	CALYPSO Systems

Serial No.	1111-0000-FFFF	**DUT Preparation**		**Test Loop Parameters**		**Steady State**	
Firmware Rev	BFOA	**Purge**	Format Unit	**REQUIRED:**		**Convergence**	YES
Capacity	100 GB	**Pre-Conditioning**		**Data Pattern**	RND	**Rounds**	3-7
NAND Type	SLC	**Workload Independent**	2X SEQ/128KiB	**Tester's Choice:**		**PC AR**	100%
Device I/F	6 Gb/s SATA			**OIO/Thread (QD)**	1	**AR AMOUNT**	100%
Test Platform	RTP 2.0 CTS 6.5	**Workload Dep.**	Full LAT Loop	**Thread Count (TC)**	1	**AR Segments**	N/A

Enterprise MAX Latency vs BS and R/W Mix - 3D Plot