SPC BENCHMARK 2™
FULL DISCLOSURE REPORT

SUN MICROSYSTEMS, INC.
SUN STORAGETEK® 2530 ARRAY *(MIRRORING)*

SPC-2™ V1.2.1

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Table of Contents

Audit Certification 9

Audit Certification *(cont.)* 10

Letter of Good Faith 11

Executive Summary 12

- **Test Sponsor and Contact Information** 12
- **Revision Information and Key Dates** 12
- **Tested Storage Product (TSP) Description** 13
- **SPC-2 Reported Data** 14
- **Storage Capacities and Relationships** 15
- **Tested Storage Configuration Pricing *(Priced Storage Configuration)*** 16
- **Differences between the Tested Storage Configuration (TSC) and Priced Storage Configuration** 16
- **Benchmark Configuration/Tested Storage Configuration Diagram** 17
- **Host System(s) and Tested Storage Configuration Components** 17

Configuration Information 18

- **Benchmark Configuration (BC)/Tested Storage Configuration (TSC) Diagram** 18
- **Storage Network Configuration** 18
- **Host System and Tested Storage Configuration Table** 18
- **Customer Tunable Parameters and Options** 19
- **Tested Storage Configuration (TSC) Description** 19
- **SPC-2 Workload Generator Storage Configuration** 19

SPC-2 Data Repository 20

- **SPC-2 Storage Capacities and Relationships** 20
  - SPC-2 Storage Capacities 20
  - SPC-2 Storage Hierarchy Ratios 21
  - SPC-2 Storage Capacities and Relationships Illustration 21
- **Logical Volume Capacity and ASU Mapping** 22

SPC-2 Test Execution Results 23

- **SPC-2 Tests, Test Phases, Test Run Sequences, and Test Runs** 23
- **Large File Processing Test** 26
  - SPC-2 Workload Generator Commands and Parameters 26
  - SPC-2 Test Results File 27
  - SPC-2 Large File Processing Average Data Rates (MB/s) 27
  - SPC-2 Large File Processing Average Data Rates Graph 28
  - SPC-2 Large File Processing Average Data Rate per Stream 29

SPC-2 Large File Processing Average Data Rate per Stream Graph 30
SPC-2 Large File Processing Average Response Time..... 31
SPC-2 Large File Processing Average Response Time Graph 32
Large File Processing Test – WRITE ONLY Test Phase 33
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period 34
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 35
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 36
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 36
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate per Stream Graph..... 37
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Response Time Graph..... 37
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period 38
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 39
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 40
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 40
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate per Stream Graph 41
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Response Time Graph..... 41
Large File Processing Test – READ-WRITE Test Phase 42
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period 43
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 44
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 45
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 45
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Average Data Rate per Stream Graph 46
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Average Response Time Graph..... 46
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period 47

SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 48
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 49
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 49
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate per Stream Graph 50
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Response Time Graph 50
Large File Processing Test – READ ONLY Test Phase 51
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period 52
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data 53
Measurement Interval, Run-Out, and Ramp-Down Periods 53
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 54
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 54
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate per Stream Graph 55
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Response Time Graph 55
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period 56
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 57
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 58
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 58
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate per Stream Graph 59
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Response Time Graph 59
Large Database Query Test 60
SPC-2 Workload Generator Commands and Parameters 60
SPC-2 Test Results File 60
SPC-2 Large Database Query Average Data Rates (MB/s) 61
SPC-2 Large Database Query Average Data Rates Graph 61
SPC-2 Large Database Query Average Data Rate per Stream 62
SPC-2 Large Database Query Average Data Rate per Stream Graph 62

SPC-2 Large Database Query Average Response Time 63
SPC-2 Large Database Query Average Response Time Graph 63
Large Database Query Test – 1024 KiB Transfer Size Test Phase 64
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period 65
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 66
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run 67
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only 67
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate per Stream Graph 68
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Response Time Graph 68
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period 69
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 70
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run 71
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only 71
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate per Stream Graph 72
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Response Time Graph 72
Large Database Query Test – 64 KiB Transfer Size Test Phase 73
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period 74
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 75
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run 76
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only 76
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate per Stream Graph 77
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Response Time Graph 77
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period 78

SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period 79
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run 80
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only 80
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate per Stream Graph 81
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Response Time Graph 81
Video on Demand Delivery Test 82
SPC-2 Workload Generator Commands and Parameters 82
SPC-2 Test Results File 83
SPC-2 Video on Demand Delivery Test Run Data 83
Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL 84
SPC-2 Video on Demand Delivery Average Data Rate Graph 85
SPC-2 Video on Demand Delivery Average Data Rate per Stream Graph 85
SPC-2 Video on Demand Delivery Average Response Time Graph 86
SPC-2 Video on Demand Delivery Maximum Response Time Graph 86
Data Persistence Test 87
SPC-2 Workload Generator Commands and Parameters 87
Data Persistence Test Results File 87
Data Persistence Test Results 88
Priced Storage Configuration Availability Date 89
Anomalies or Irregularities 89
Appendix A: SPC-2 Glossary 90
"Decimal" *(powers of ten)* Measurement Units 90
"Binary" *(powers of two)* Measurement Units 90
SPC-2 Data Repository Definitions 90
SPC-2 Data Protection Levels 91
SPC-2 Test Execution Definitions 91
I/O Completion Types 94
SPC-2 Test Run Components 94
Appendix B: Customer Tunable Parameters and Options 95
Appendix C: Tested Storage Configuration (TSC) Creation 96
Create RAID-1 Storage Groups 96
spc2-2530-R1-cfg.xml 96
Sun StoreEdge MPIO Multipathing 104
LUN discovery via Windows 2003 Server 104

Appendix D: SPC-2 Workload Generator Storage Commands and Parameters 105

Large File Processing Test *(LFP)* 105

Large Database Query Test *(LDQ)* 106

Video on Demand Delivery Test *(VOD)* 107

Persistence Test Run 1 *(write phase)* 107

Persistence Test Run 2 *(read phase)* 108

Appendix E: SPC-2 Workload Generator Execution Commands and Parameters 109

Video on Demand Delivery, Large File Processing Test, Large Database Query Tests, and Persistence Test Run 1 109

Persistence Test Run 1 109

Persistence Test Run 2 110

AUDIT CERTIFICATION

Leah Schoeb
Sun Microsystems, Inc.
5300 Riata Park Court AUS08
Austin, TX 78721

August 16, 2007

The SPC Benchmark 2™ results listed below for the Sun StorageTek® 2530 Array *(Mirroring)* were produced in compliance with the SPC Benchmark 2™ V1.2.1 Onsite Audit requirements.

SPC Benchmark 2™ V1.2.1 Results	
Tested Storage Product (TSP) Name: Sun StorageTek® 2530 Array *(Mirroring)*	
Metric	**Reported Result**
SPC-2 MBPS™	663.51
SPC-2 Price-Performance	$32.76/SPC-2 MBPS™
ASU Capacity	854.698 GB
Data Protection Level	Mirroring
Total Price (including three-year maintenance)	$21,737

The following SPC Benchmark 2™ Onsite Audit requirements were reviewed and found compliant with V1.2.1 of the SPC Benchmark 2™ specification:

- A Letter of Good Faith, signed by a senior executive.
- The following Data Repository storage items were verified by physical inspection documentation supplied by Sun Microsystems, Inc.:
  - ✓ Physical Storage Capacity and related requirements.
  - ✓ Configured Storage Capacity and related requirements.
  - ✓ Addressable Storage Capacity and related requirements.
  - ✓ Capacity of each Logical Volume and related requirements.
  - ✓ Capacity of the Application Storage Unit (ASU) and related requirements.
- An appropriate diagram of the Benchmark Configuration (BC)/Tested Storage Configuration (TSC).
- Physical verification of the components to match the above diagram.

Storage Performance Council
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Redwood City, CA 94062
AuditService@StoragePerformance.org
650.556.9384

AUDIT CERTIFICATION *(CONT.)*

- Listings and commands used to create and configure the Benchmark Configuration/Tested Storage Configuration.
- Documentation of each customer tunable parameter or option that was changed from its default value.
- The following Host System items were verified by physical inspection and documentation supplied by Sun Microsystems, Inc.:
  - ✓ Required Host System configuration information.
  - ✓ The TSC boundary within each Host System.
- The following SPC-2 Workload Generator information was verified by physical inspection and documentation supplied by Sun Microsystems, Inc.:
  - ✓ The presence and version number of the Workload Generator on each Host System.
  - ✓ Commands and parameters used to configure the SPC-2 Workload Generator.
- The execution of each Test, Test Phase, and Test Run was observed and found to be compliant with all of the requirements and constraints of Clauses 5 and 6 of the SPC-2 Benchmark Specification.
- The Test Results Files and resultant Summary Results Files generated for each of the following were authentic, accurate, and compliant with all of the requirements and constraints of Clauses 5 and 6 of the SPC-2 Benchmark Specification:
  - ✓ Data Persistence Test
  - ✓ Large File Processing Test
  - ✓ Large Database Query Test
  - ✓ Video on Demand Delivery Test
- There were no differences between the Tested Storage Configuration (TSC) used for the benchmark and Priced Storage Configuration.
- The final version of the pricing spreadsheet met all of the requirements and constraints of Clause 9 of the SPC-2 Benchmark Specification.
- The Full Disclosure Report (FDR) met all of the requirements in Clause 10 of the SPC-2 Benchmark Specification.

Audit Notes:

There were no additional audit notes or exceptions.

Respectfully,

Walter E. Baker

Walter E. Baker
SPC Auditor

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LETTER OF GOOD FAITH

Sun Microsystems, Inc.
500 Howard Street, Suite 300, San Francisco, CA 94105

15 June 2007

Walter E. Baker
Gradient Systems
643 Bair Island Rd. Suite 103
Redwood City, CA 94063-2755

To: Walter Baker

Subject: SPC-2 Letter of Good Faith for the Sun StorageTek® 2530

Sun Microsystems Inc. is the SPC-2 Test Sponsor for the above listed product. To the best of our knowledge and belief, the required SPC-2 benchmark results and materials we have submitted for that product are complete, accurate, and in full compliance with V1.2.1 of the SPC-2 benchmark specification.

In addition, we have reported any items in the Benchmark Configuration and execution of the benchmark that affected the reported results even if the items are not explicitly required to be disclosed by the SPC-2 benchmark specification.

Thank you,

Nigel Dessau
Senior Vice President
Storage Marketing and Business Operations

EXECUTIVE SUMMARY

Test Sponsor and Contact Information

Test Sponsor and Contact Information	
Test Sponsor Primary Contact	Sun Microsystems, Inc. – http://www.sun.com Leah Schoeb – leah.schoeb@sun.com 5300 Riata Park Court AUS08 Austin, TX 78721 Phone: (877) 319-0457 FAX: (512) 266-2523
Test Sponsor Alternate Contact	Sun Microsystems, Inc. – http://www.sun.com Jason Schaffer – jason.schaffer@sun.com 500 Eldorado Blvd. Broomfield, CO 80021 Phone: (303) 272-4743 FAX: (512) 266-2523
Auditor	Storage Performance Council – http://www.storageperformance.org Walter E. Baker – AuditService@StoragePerformance.org 643 Bair Island Road, Suite 103 Redwood City, CA 94063 Phone: (650) 556-9384 FAX: (650) 556-9385

Revision Information and Key Dates

Revision Information and Key Dates	
SPC-2 Specification revision number	V1.2.1
SPC-2 Workload Generator revision number	spc2rc9g
Date Results were first used publicly	August 16, 2007
Date FDR was submitted to the SPC	August 16, 2007
Date revised FDR was submitted to the SPC Revised pricing and SPC-2 Price-Performance	April 11, 2008
Date the TSC will be available for shipment to customers	July 1, 2007
Date the TSC completed audit certification	August 16, 2007

Tested Storage Product (TSP) Description

With up to six host-side three Gbps SAS interfaces, the Sun StorageTek 2530 array can provide support for up to three servers with redundant connections — enabling capacity-efficient storage consolidation without the need of a storage network.

The Sun StorageTek 2530 array's modular design creates an affordable entry point without sacrificing future scalability — enabling customers to start small and scale incrementally when they are ready to address data growth. Dual-active controllers and up to 12 drives combine to create a feature-rich and highly available storage system within a space-efficient 2U enclosure. When capacity or performance requirements change, the Sun StorageTek 2530 array supports up to a total of 36 drives, allowing further investment protection and flexibility without the need to move to another platform architecture.

The Sun StorageTek 2530 array is ideal for a server clustering environment. By utilizing up to two active/active RAID controllers with mirrored cache — redundant components including power and cooling, hot-spare drive that can be available as a spare to any virtual disk in any tray, and automated I/O path failover—the array is well suited for clusters where continuous application and data availability are key requirements.

SPC-2 Reported Data

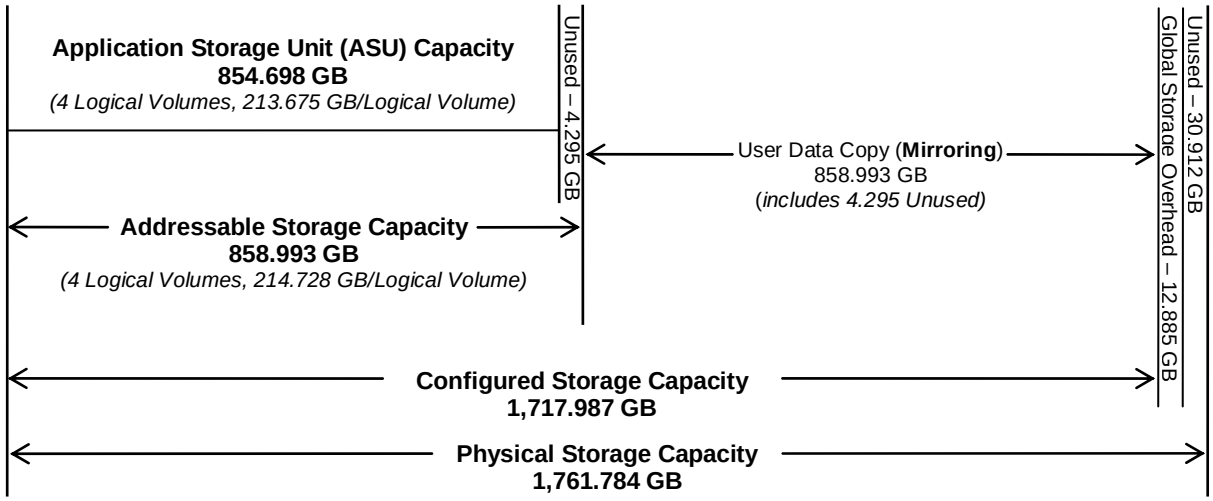
SPC-2 Reported Data consists of three groups of information:

- The following SPC-2 Primary Metrics, which characterize the overall benchmark result:
  - SPC-2 MBPS™
  - SPC-2 Price Performance
  - Application Storage Unit (ASU) Capacity
- Supplemental data to the SPC-2 Primary Metrics.
  - Total Price
  - Data Protection Level
- Reported Data for each SPC Test: Large File Processing (LFP), Large Database Query (LDQ), and Video on Demand Delivery (VOD) Test.

SPC-2 Reported Data				
Sun StorageTek® 2530 Array *(Mirroring)*				
SPC-2 MBPS™	**SPC-2 Price-Performance**	**ASU Capacity (GB)**	**Total Price**	**Data Protection Level**
663.51	$26.48	854.698	$17,572	Mirroring
The above SPC-2 MBPS™ value represents the aggregate data rate of all three SPC-2 workloads: Large File Processing (LFP), Large Database Query (LDQ), and Video On Demand (VOD)				
SPC-2 Large File Processing (LFP) Reported Data				
	Data Rate *(MB/second)*	**Number of Streams**	**Data Rate per Stream**	**Price-Performance**
LFP Composite	495.36			$35.47
Write Only:				
1024 KiB Transfer	284.83	10	28.48	
256 KiB Transfer	272.32	10	27.23	
Read-Write:				
1024 KiB Transfer	385.93	10	38.59	
256 KiB Transfer	396.66	10	39.67	
Read Only:				
1024 KiB Transfer	822.42	10	82.24	
256 KiB Transfer	810.01	10	81.00	
The above SPC-2 Data Rate value for LFP Composite represents the aggregate performance of all three LFP Test Phases: (Write Only, Read-Write, and Read Only).				
SPC-2 Large Database Query (LDQ) Reported Data				
	Data Rate *(MB/second)*	**Number of Streams**	**Data Rate per Stream**	**Price-Performance**
LDQ Composite	759.85			$23.13
1024 KiB Transfer Size				
4 I/Os Outstanding	816.66	10	81.67	
1 I/O Outstanding	811.96	10	81.20	
64 KiB Transfer Size				
4 I/Os Outstanding	708.34	10	70.83	
1 I/O Outstanding	702.45	10	70.24	
The above SPC-2 Data Rate value for LDQ Composite represents the aggregate performance of the two LDQ Test Phases: (1024 KiB and 64 KiB Transfer Sizes).				
SPC-2 Video On Demand (VOD) Reported Data				
	Data Rate *(MB/second)*	**Number of Streams**	**Data Rate per Stream**	**Price-Performance**
	735.32	935	0.79	$23.90

Storage Capacities and Relationships

The following diagram (not to scale) documents the various storage capacities and their relationships, used in this SPC-2 benchmark measurement.



Tested Storage Configuration Pricing *(Priced Storage Configuration)*

Part Number	Description	Quantity	US List	Total	discount	Ave. Price
XTA2530R01A2D876	Sun StorageTek(TM) 2530 SAS Array, Rack- Ready Controller Tray	1	$10,640	$10,640	22%	$8,299
	- 2 SAS Controllers w/ 512MB cache each					
	- 12 73GB 15Krpm SAS drives					
	- 2 redundant AC power supplies					
	- 2 redundant cooling fans					
	- 4 shortwave SFPs					
	- Common Array Management S/W					
	- RoHS-5					
	- All required cables included					
XTA2501R01A2D876	Sun StorageTek(TM) 2501 SAS Array, Rack-Ready Expansion Tray	1	$7,040.00	$7,040	22%	$5,491
	- 12 73GB 15Krpm SAS drives					
	- 2 SAS I/O Modules					
	- 2 redundant AC power supplies					
	- 2 redundant cooling fans					
	- Includes two 1m SAS host cables					
	- RoHS-5					
	- All required cables included					
SG-XPCI8SAS-E-Z	Sun StorageTek (TM) PCI-X SAS Host Bus Adapter, Eight Port, RoHS 6	2	$550	$1,100	22%	$858
XTA25X0-1.0M-SAS-Z	1m, Mini, shielded, SAS cable (to connect to host)	4	$110	$440	22%	$343
IWU-ST2530NW-24-3G	Controller unit upgrade 3 year Gold Service Maintenance	1	$3,096.00	$3,096	44%	$1,734
	- 7/24 coverage					
	- 4 hr response time					
	- 4 hour resolution					
IWU-ST2501NW-24-3G	Expansion unit upgrade 3 year Gold Service Maintenance	1	$1,512.00	$1,512	44%	$847
	- 7/24 coverage					
	- 4 hr response time					
	- 4 hour resolution					
Total			**$22,948**	**$23,828**		**$17,572**

Differences between the Tested Storage Configuration (TSC) and Priced Storage Configuration

There were no differences between the Tested Storage Configuration (TSC) and the Priced Storage Configuration.

Benchmark Configuration/Tested Storage Configuration Diagram

Host System(s) and Tested Storage Configuration Components

Host System:	Tested Storage Configuration (TSC):
UID=HS-1 **Sun Fire X4600**	2 – SAS PCI-X 8-lane 3Gb HBAs
	UID=SC-1: **Sun StorageTek® 2530 Array**
8 – 2.6 GHz dual core AMD Opteron™ Processor 885, 1 MB L2	1 Dual Controller 512 MB cache per controller *(1 GB total)* 12 – 73 GB, 15K RPM, Seagate SAS disk drives
4 GB main memory	6 host connections available, 4 used *(front end)*
Windows 2003 Server	2 drive connections to expansion tray *(backend)*
PCI-X	1 –Expansion Tray (12 drives/tray)
WG	24 – 73 GB, 15K RPM, Seagate SAS disk drives *(total)*

CONFIGURATION INFORMATION

This portion of the Full Disclosure Report documents and illustrates the detailed information necessary to recreate the Benchmark Configuration (BC), including the Tested Storage Configuration (TSC), so that the SPC-2 benchmark result produced by the BC may be independently reproduced.

In each of the following sections of this document, the appropriate Full Disclosure Report requirement, from the SPC-2 benchmark specification, is stated in italics followed by the information to fulfill the stated requirement.

Benchmark Configuration (BC)/Tested Storage Configuration (TSC) Diagram

Clause 10.6.5.7

The Executive Summary will contain a one page BC/TSC diagram that illustrates all major components of the BC/TSC.

The Benchmark Configuration (BC)/Tested Storage Configuration (TSC) is illustrated on page 17 *(Benchmark Configuration/Tested Storage Configuration Diagram).*

Storage Network Configuration

Clause 9.2.4.4.2

If a storage network was configured as a part of the Tested Storage Configuration and the Benchmark Configuration described in Clause 10.6.5.7 contains a high-level illustration of the network configuration, the Executive Summary will contain a one page topology diagram of the storage network as illustrated in Figure 10.8.

The Benchmark Configuration (BC)/Tested Storage Configuration (TSC) was configured with local storage and, as such, did not employ a storage network.

Host System and Tested Storage Configuration Table

Clause 10.6.5.9

The Executive Summary will contain a table that lists the major components of each Host System and the Tested Storage Configuration.

The components that comprise each Host System and the Tested Storage Configuration are listed in the table that appears on page 17 *(Host System(s) and Tested Storage Configuration Components).*

Customer Tunable Parameters and Options

Clause 10.6.6.1

All Benchmark Configuration (BC) components with customer tunable parameter and options that have been altered from their default values must be listed in the FDR. The FDR entry for each of those components must include both the name of the component and the altered value of the parameter or option. If the parameter name is not self-explanatory to a knowledgeable practitioner, a brief description of the parameter's use must also be included in the FDR entry.

"Appendix B: Customer Tunable Parameters and Options" on page 95 contains the customer tunable parameters and options that have been altered from their default values for this benchmark.

Tested Storage Configuration (TSC) Description

Clause 10.6.6.2

The Full Disclosure Report must include sufficient information to recreate the logical representation of the Tested Storage Configuration (TSC). In addition to customer tunable parameters and options (Clause10.6.6.1), that information must include, at a minimum:

- *A diagram and/or description of the following:*
  - *All physical components that comprise the TSC. Those components are also illustrated in the BC Configuration Diagram in Clause 10.6.5.7 and the Storage Network Configuration Diagram in Clause 10.6.5.8.*
  - *The logical representation of the TSC, configured from the above components that will be presented to the SPC-2 Workload Generator.*
- *Listings of scripts used to create the logical representation of the TSC.*
- *If scripts were not used, a description of the process used with sufficient detail to recreate the logical representation of the TSC.*

"Appendix C: Tested Storage Configuration (TSC) Creation" on page 96 contains the detailed information that describes how to create and configure the logical TSC.

SPC-2 Workload Generator Storage Configuration

Clause 10.6.6.3

The Full Disclosure Report will include all SPC-2 Workload Generator storage configuration commands and parameters used in the SPC-2 benchmark measurement.

The SPC-2 Workload Generator storage configuration commands and parameters for this measurement appear in "Appendix D: SPC-2 Workload Generator Storage Commands and Parameters" on page 96.

SPC-2 DATA REPOSITORY

This portion of the Full Disclosure Report presents the detailed information that fully documents the various SPC-2 storage capacities and mappings used in the Tested Storage Configuration. "SPC-2 Data Repository Definitions" on page 90 contains definitions of terms specific to the SPC-2 Data Repository.

In each of the following sections of this document, the appropriate Full Disclosure Report requirement, from the SPC-2 benchmark specification, is stated in italics followed by the information to fulfill the stated requirement.

SPC-2 Storage Capacities and Relationships

Two tables and an illustration documenting the storage capacities and relationships of the SPC-2 Storage Hierarchy (Clause 2.1) shall be included in the FDR.

SPC-2 Storage Capacities

SPC-2 Storage Capacities		
Storage Hierarchy Component	**Units**	**Capacity**
Total ASU Capacity	Gigabytes (GB)	854.698
Addressable Storage Capacity	Gigabytes (GB)	858.993
Configured Storage Capacity	Gigabytes (GB)	1,717.987
Physical Storage Capacity	Gigabytes (GB)	1,761.784
Data Protection Overhead (Mirroring)	Gigabytes (GB)	858.993
Required Storage	Gigabytes (GB)	0.000
Global Storage Overhead	Gigabytes (GB)	12.885
Total Unused Storage	Gigabytes (GB)	39.502

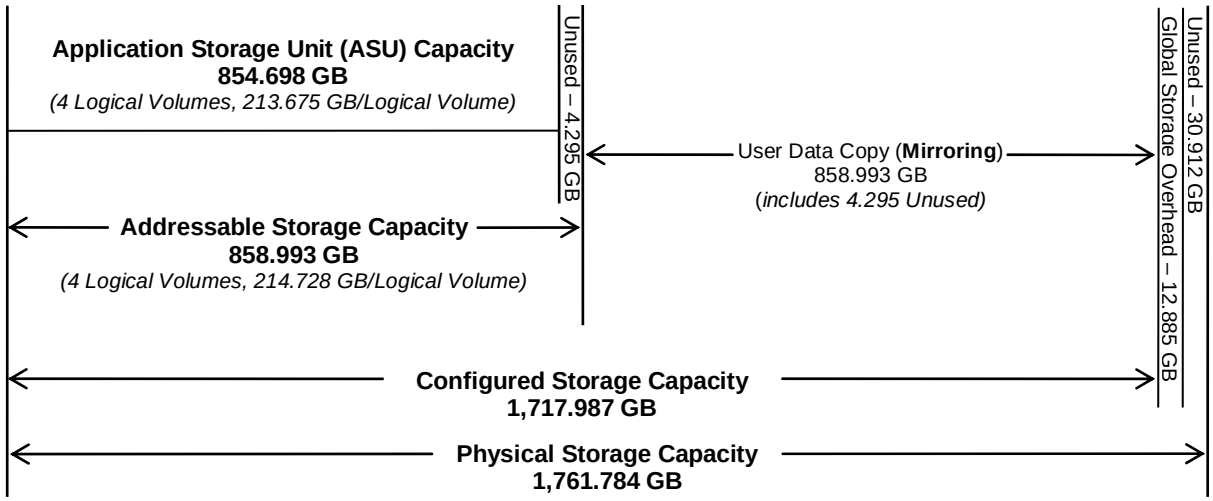
SPC-2 Storage Hierarchy Ratios

	Addressable Storage Capacity	Configured Storage Capacity	Physical Storage Capacity
Total ASU Capacity	99.50%	49.75%	48.51%
Required for Data Protection (Mirroring)		50.00%	48.76%
Addressable Storage Capacity		50.00%	48.76%
Required Storage		0.00%	0.00%
Configured Storage Capacity			97.51%
Global Storage Overhead			0.74%
Unused Storage:			
Addressable	1.00%		
Configured		0.00%	
Physical			1.75%

The Physical Storage Capacity consisted of 17,761.784 GB distributed over 24 disk drives each with a formatted capacity of 73.408 GB. There was 30.912 GB (1.75%) of Unused Storage within the Physical Storage Capacity. Global Storage Overhead consisted of 12.885 GB (0.73%) of Physical Storage Capacity. There was 0.000 GB (0.00%) of Unused Storage within the Configured Storage Capacity. The Total ASU Capacity utilized 99.50% of the Addressable Storage Capacity resulting in 4.295 GB (0.50%) of Unused Storage within the Addressable Storage Capacity.

SPC-2 Storage Capacities and Relationships Illustration

The various storage capacities configured in the benchmark result are illustrated below (not to scale).



Logical Volume Capacity and ASU Mapping

Clause 10.6.7.2

A table illustrating the capacity of the Application Storage Unit (ASU) and the mapping of Logical Volumes to ASU will be provided in the FDR. Capacity must be stated in gigabytes (GB) as a value with a minimum of two digits to the right of the decimal point. Each Logical Volume will be sequenced in the table from top to bottom per its position in the contiguous address space of the ASU. Each Logical Volume entry will list its total capacity, the portion of that capacity used for the ASU, and any unused capacity.

Logical Volume (LV) Capacity and Mapping			
ASU (854.698 GB)			
	Total Capacity *(GB)*	Capacity Used *(GB)*	Capacity Unused *(GB)*
Logical Volumes 1-4	214.748 per LV	213.674 per LV	1.073 per LV

See the Storage Definition (sd) entries in "Appendix D: SPC-2 Workload Generator Storage Commands and Parameters" on page 96 for more detailed configuration information.

SPC-2 TEST EXECUTION RESULTS

This portion of the Full Disclosure Report documents the results of the various SPC-2 Test, Test Phases, Test Run Sequences, and Test Runs. "SPC-2 Test Execution Definitions" on page 91 contains definitions of terms specific to the SPC-2 Data Repository.

In each of the following sections of this document, the appropriate Full Disclosure Report requirement, from the SPC-2 benchmark specification, is stated in italics followed by the information to fulfill the stated requirement.

SPC-2 Tests, Test Phases, Test Run Sequences, and Test Runs

The SPC-2 benchmark consists of the following Tests, Test Phases, Test Run Sequences, and Test Runs:

- **Data Persistence Test**
  - Data Persistence Test Run 1
  - Data Persistence Test Run 2
- **Large File Processing Test**
  - WRITE ONLY Test Phase
    - Test Run Sequence 1
      - ✓ Test Run 1 – 1024 KiB Transfer – maximum number of Streams
      - ✓ Test Run 2 – 1024 KiB Transfer – 50% of Test Run 1's Streams value
      - ✓ Test Run 3 – 1024 KiB Transfer – 25% of Test Run 1's Streams value
      - ✓ Test Run 4 – 1024 KiB Transfer – 12.5% of Test Run 1's Streams value
      - ✓ Test Run 5 – 1024 KiB Transfer – single (1) Stream
    - Test Run Sequence 2
      - ✓ Test Run 6 – 256 KiB Transfer – maximum number of Streams
      - ✓ Test Run 7 – 256 KiB Transfer – 50% of Test Run 6's Streams value
      - ✓ Test Run 8 – 256 KiB Transfer – 25% of Test Run 6's Streams value
      - ✓ Test Run 9 – 256 KiB Transfer – 12.5% of Test Run 6's Streams value
      - ✓ Test Run 10 – 256 KiB Transfer – single (1) Stream
  - READ-WRITE Test Phase
    - Test Run Sequence 3
      - ✓ Test Run 11 – 1024 KiB Transfer – maximum number of Streams
      - ✓ Test Run 12 – 1024 KiB Transfer – 50% of Test Run 11's Streams value
      - ✓ Test Run 13 – 1024 KiB Transfer – 25% of Test Run 11's Streams value
      - ✓ Test Run 14 – 1024 KiB Transfer – 12.5% of Test Run 11's Streams value
      - ✓ Test Run 15 – 1024 KiB Transfer – single (1) Stream
    - Test Run Sequence 4
      - ✓ Test Run 16 – 256 KiB Transfer – maximum number of Streams
      - ✓ Test Run 17 – 256 KiB Transfer – 50% of Test Run 16's Streams value
      - ✓ Test Run 18 – 256 KiB Transfer – 25% of Test Run 16's Streams value
      - ✓ Test Run 19 – 256 KiB Transfer – 12.5% of Test Run 16's Streams value
      - ✓ Test Run 20 – 256 KiB Transfer – single (1) Stream

- **Large File Processing Test *(continued)***
  - READ ONLY Test Phase
    - Test Run Sequence 5
      - ✓ Test Run 21 – 1024 KiB Transfer – maximum number of Streams
      - ✓ Test Run 22 – 1024 KiB Transfer – 50% of Test Run 21's Streams value
      - ✓ Test Run 23 – 1024 KiB Transfer – 25% of Test Run 21's Streams value
      - ✓ Test Run 24 – 1024 KiB Transfer – 12.5% of Test Run 21's Streams value
      - ✓ Test Run 25 – 1024 KiB Transfer – single (1) Stream
    - Test Run Sequence 6
      - ✓ Test Run 26 – 256 KiB Transfer – maximum number of Streams
      - ✓ Test Run 27 – 256 KiB Transfer – 50% of Test Run 26's Streams value
      - ✓ Test Run 28 – 256 KiB Transfer – 25% of Test Run 26's Streams value
      - ✓ Test Run 29 – 256 KiB Transfer – 12.5% of Test Run 26's Streams value
      - ✓ Test Run 30 – 256 KiB Transfer – single (1) Stream

- **Large Database Query Test**
  - 1024 KIB TRANSFER SIZE Test Phase
    - Test Run Sequence 1
      - ✓ Test Run 1 – 4 I/O Requests Outstanding – maximum number of Streams
      - ✓ Test Run 2 – 4 I/O Requests Outstanding – 50% of Test Run 1's Streams value
      - ✓ Test Run 3 – 4 I/O Requests Outstanding – 25% of Test Run 1's Streams value
      - ✓ Test Run 4 – 4 I/O Requests Outstanding – 12.5% of Test Run 1's Streams value
      - ✓ Test Run 5 – 4 I/O Requests Outstanding – single (1) Stream
    - Test Run Sequence 2
      - ✓ Test Run 6 – 1 I/O Request Outstanding – maximum number of Streams
      - ✓ Test Run 7 – 1 I/O Request Outstanding – 50% of Test Run 6's Streams value
      - ✓ Test Run 8 – 1 I/O Request Outstanding – 25% of Test Run 6's Streams value
      - ✓ Test Run 9 – 1 I/O Request Outstanding – 12.5% of Test Run 6's Streams value
      - ✓ Test Run 10 – 1 I/O Request Outstanding – single (1) Stream
  - 64 KIB TRANSFER SIZE Test Phase
    - Test Run Sequence 3
      - ✓ Test Run 11 – 4 I/O Requests Outstanding – maximum number of Streams
      - ✓ Test Run 12 – 4 I/O Requests Outstanding – 50% of Test Run 11's Streams value
      - ✓ Test Run 13 – 4 I/O Requests Outstanding – 25% of Test Run 11's Streams value
      - ✓ Test Run 14 – 4 I/O Requests Outstanding – 12.5% of Test Run 11's Streams value
      - ✓ Test Run 15 – 4 I/O Requests Outstanding – single (1) Stream
    - Test Run Sequence 4
      - ✓ Test Run 16 – 1 I/O Request Outstanding – maximum number of Streams
      - ✓ Test Run 17 – 1 I/O Request Outstanding – 50% of Test Run 16's Streams value
      - ✓ Test Run 18 – 1 I/O Request Outstanding – 25% of Test Run 16's Streams value
      - ✓ Test Run 19 – 1 I/O Request Outstanding – 12.5% of Test Run 16's Streams value
      - ✓ Test Run 20 – 1 I/O Request Outstanding – single (1) Stream

- **Video on Demand Delivery Test**
  - Video on Demand Delivery Test Run

Each Test is an atomic unit that must be executed from start to finish before any other Test, Test Phase, or Test Run may be executed. The Tests may be executed in any sequence.

The results from each Test, Test Phase, and Test Run are listed below along with a more detailed explanation of each component.

Large File Processing Test

Clause 6.4.2.1

The Large File Processing Test consists of the I/O operations associated with the type of applications, in a wide range of fields, which require simple sequential processing of one or more large files. Specific examples of those types of applications include scientific computing and large-scale financial processing

Clause 6.4.2.2

The Large File Processing Test has three Test Phases, which shall be executed in the following uninterrupted sequence:

1. *WRITE ONLY*
2. *READ-WRITE*
3. *READ ONLY*

The BC shall not be restarted or manually disturbed, altered, or adjusted during the execution of the Large File Processing Test. If power is lost to the BC during this Test all results shall be rendered invalid and the Test re-run in its entirety.

Clause 10.6.8.1

The Full Disclosure Report will contain the following content for the Large File Processing Test:

1. *A listing of the SPC-2 Workload Generator commands and parameters used to execute each of the Test Runs in the Large File Processing Test.*
2. *The human readable SPC-2 Test Results File for each of the Test Runs in the Large File Processing Test.*
3. *A table that contains the following information for each Test Run in all three Test Phases of the Large File Processing Test:*
    - *The number Streams specified.*
    - *The Ramp-Up duration in seconds.*
    - *The Measurement Interval duration in seconds.*
    - *The average data rate, in MB per second, for the Measurement Interval.*
    - *The average data rate, in MB per second, per Stream for the Measurement Interval.*
4. *Average Data Rate and Average Data Rate per Stream graphs as defined in Clauses 10.1.1 and 10.1.2.*

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Large File Processing Test Runs are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 109.

SPC-2 Test Results File

A link to the SPC-2 Test Results file generated from the Large File Processing Test Runs is listed below.

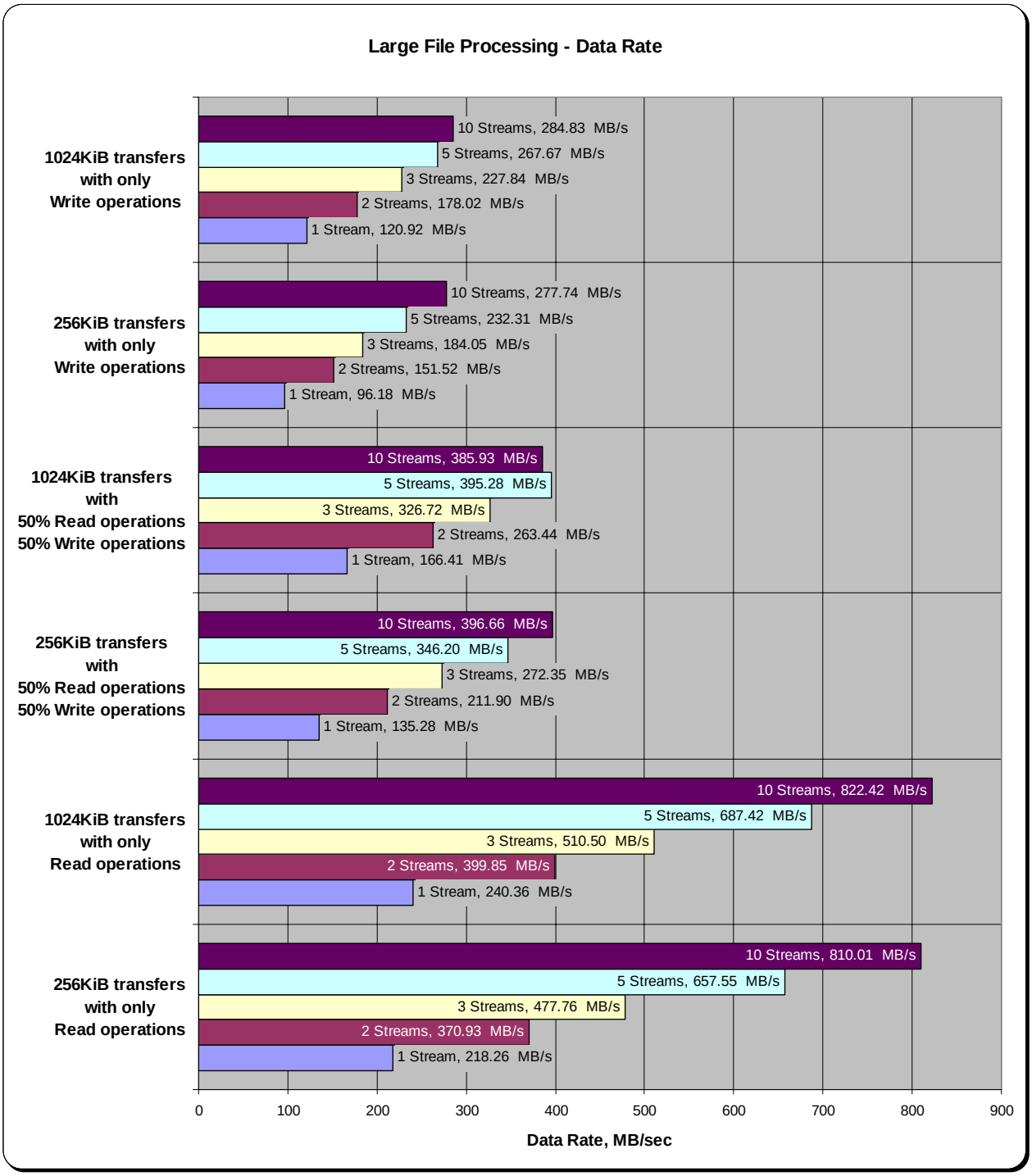
SPC-2 Large File Processing Test Results File

SPC-2 Large File Processing Average Data Rates (MB/s)

The average Data Rate (MB/s) for each Test Run in the three Test Phases of the SPC-2 Large File Processing Test is listed in the table below as well as illustrated in the following graph.

Test Run Sequence	1 Stream	2 Streams	3 Streams	5 Streams	10 Streams
Write 1024KiB	120.92	178.02	227.84	267.67	284.83
Write 256KiB	96.18	151.52	184.05	232.31	277.74
Read/Write 1024KiB	166.41	263.44	326.72	395.28	385.93
Read/Write 256KiB	135.28	211.90	272.35	346.20	396.66
Read 1024KiB	240.36	399.85	510.50	687.42	822.42
Read 256KiB	218.26	370.93	477.76	657.55	810.01

SPC-2 Large File Processing Average Data Rates Graph

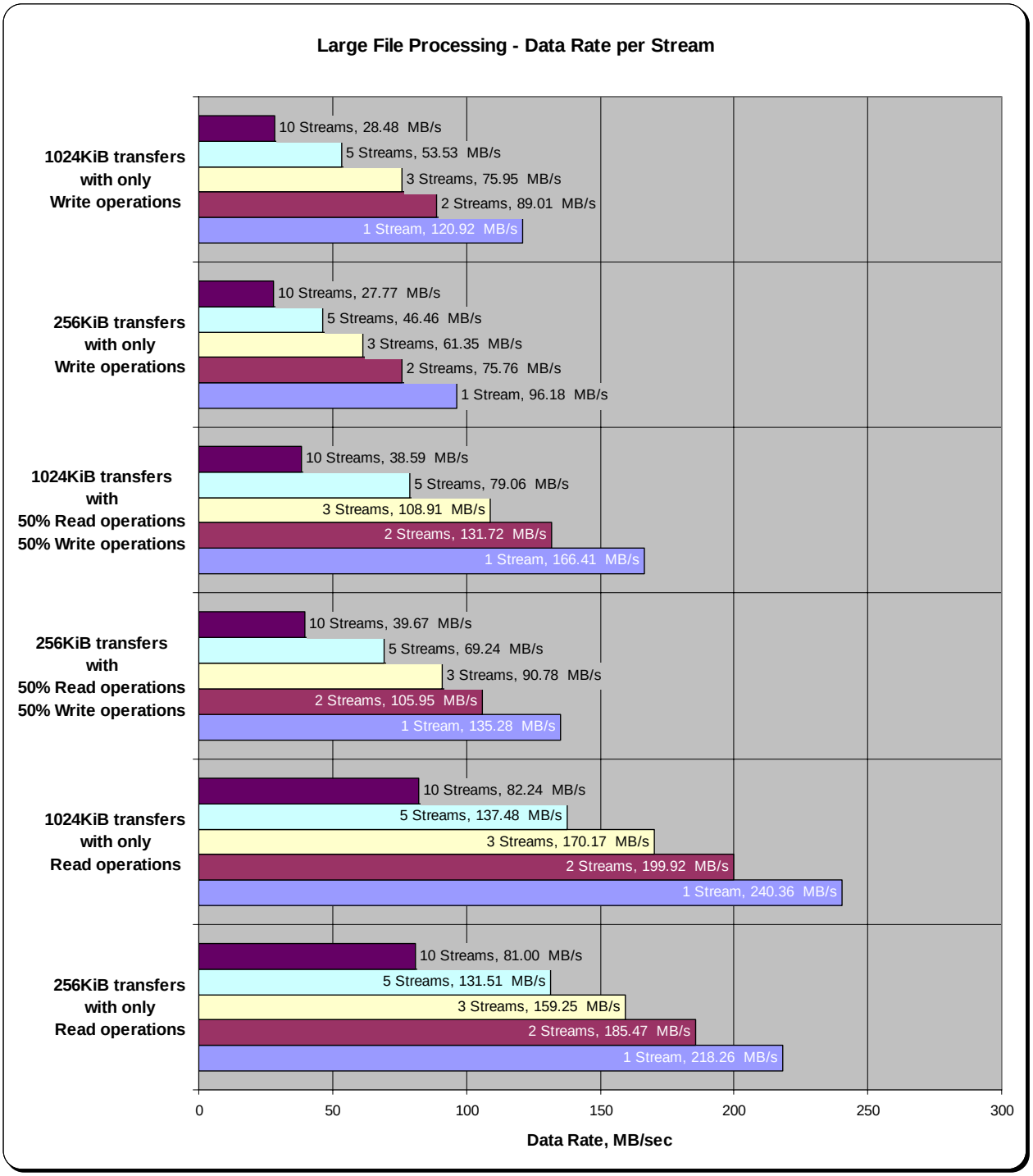


SPC-2 Large File Processing Average Data Rate per Stream

The average Data Rate per Stream for each Test Run in the three Test Phases of the SPC-2 Large File Processing Test is listed in the table below as well as illustrated in the following graph.

Test Run Sequence	1 Stream	2 Streams	3 Streams	5 Streams	10 Streams
Write 1024KiB	120.92	89.01	75.95	53.53	28.48
Write 256KiB	96.18	75.76	61.35	46.46	27.77
Read/Write 1024KiB	166.41	131.72	108.91	79.06	38.59
Read/Write 256KiB	135.28	105.95	90.78	69.24	39.67
Read 1024KiB	240.36	199.92	170.17	137.48	82.24
Read 256KiB	218.26	185.47	159.25	131.51	81.00

SPC-2 Large File Processing Average Data Rate per Stream Graph

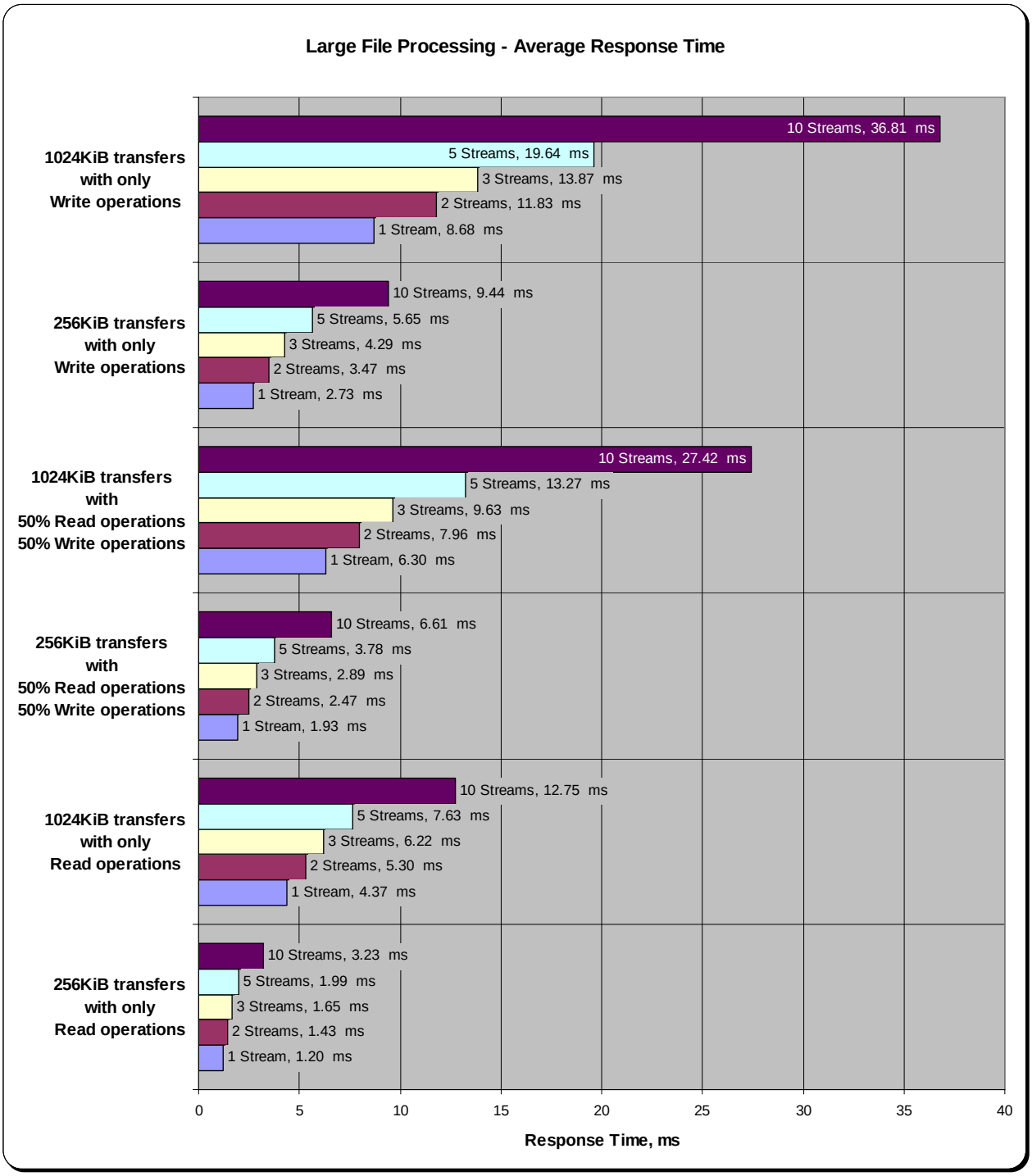


SPC-2 Large File Processing Average Response Time

The average Response Time, milliseconds (ms), for each Test Run in the three Test Phases of the SPC-2 Large File Processing Test is listed in the table below as well as illustrated in the following graph.

Test Run Sequence	1 Stream	2 Streams	3 Streams	5 Streams	10 Streams
Write 1024KiB	8.68	11.83	13.87	19.64	36.81
Write 256KiB	2.73	3.47	4.29	5.65	9.44
Read/Write 1024KiB	6.30	7.96	9.63	13.27	27.42
Read/Write 256KiB	1.93	2.47	2.89	3.78	6.61
Read 1024KiB	4.37	5.30	6.22	7.63	12.75
Read 256KiB	1.20	1.43	1.65	1.99	3.23

SPC-2 Large File Processing Average Response Time Graph



Large File Processing Test – WRITE ONLY Test Phase

Clause 10.6.8.1.1

1. *A table that will contain the following information for each "WRITE ONLY, 1024 KiB Transfer Size" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
2. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "WRITE ONLY, 1024 KiB Transfer Size" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*
3. *A table that will contain the following information for each "WRITE ONLY, 256 KiB Transfer Size" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
4. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "WRITE ONLY, 256 KiB Transfer Size" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*

The SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate, average Data Rate per Stream, and average Response Time produced by the same Test Runs. The table and graphs present the data at five-second intervals.

Immediately following the SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" table and graphs will be the SPC-2 "Large File Processing/WRITE ONLY/64 KiB Transfer Size" table and graphs. The table contains the Test Run data and the graphs illustrate the average Data Rate, average Data Rate per Stream, and average Response Time produced by the Test Runs.

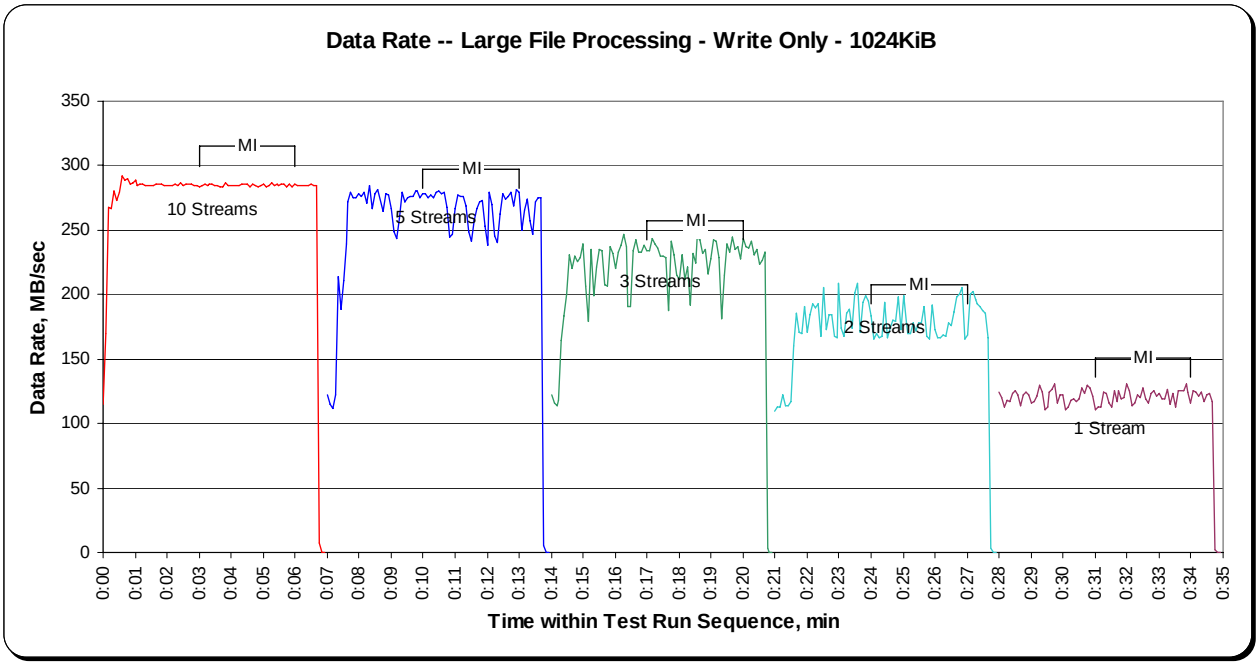
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR1	10 Streams			TR2	5 Streams			TR3	3 Streams			TR4	2 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	114.50	114.50	8.98	0:07:00	121.84	121.84	8.48	0:14:00	121.84	121.84	8.48	0:21:00	109.47	109.47	9.45	0:28:00	124.57	124.57	8.30
0:00:05	169.45	56.48	12.38	0:07:05	114.50	114.50	9.13	0:14:05	116.18	116.18	9.02	0:21:05	112.62	112.62	9.31	0:28:05	120.38	120.38	8.70
0:00:10	268.02	53.60	18.63	0:07:10	111.99	111.99	9.36	0:14:10	114.29	114.29	9.17	0:21:10	113.25	113.25	9.26	0:28:10	112.62	112.62	9.32
0:00:15	266.97	53.39	19.63	0:07:15	122.47	61.24	8.90	0:14:15	117.65	58.83	9.30	0:21:15	122.47	122.47	8.56	0:28:15	118.07	118.07	8.87
0:00:20	280.60	46.77	22.18	0:07:20	213.91	71.30	11.56	0:14:20	164.21	82.10	12.77	0:21:20	114.29	114.29	9.16	0:28:20	117.44	117.44	8.94
0:00:25	272.63	45.44	23.03	0:07:25	188.95	62.98	16.63	0:14:25	183.29	91.65	11.44	0:21:25	114.29	114.29	9.17	0:28:25	123.52	123.52	8.48
0:00:30	279.55	46.59	22.45	0:07:30	210.76	70.25	14.94	0:14:30	200.28	100.14	10.46	0:21:30	116.60	116.60	9.00	0:28:30	125.41	125.41	8.36
0:00:35	292.13	41.73	23.53	0:07:35	239.70	59.93	16.93	0:14:35	231.32	77.11	13.01	0:21:35	160.43	80.22	12.23	0:28:35	121.84	121.84	8.60
0:00:40	288.36	36.04	26.30	0:07:40	272.42	68.11	15.33	0:14:40	220.83	73.61	14.24	0:21:40	185.18	92.59	11.31	0:28:40	114.09	114.09	9.19
0:00:45	290.25	36.28	28.88	0:07:45	279.76	55.95	18.22	0:14:45	229.43	76.48	13.71	0:21:45	170.29	85.14	12.32	0:28:45	121.84	121.84	8.60
0:00:50	286.05	35.76	29.30	0:07:50	274.73	54.95	19.09	0:14:50	225.44	75.15	13.95	0:21:50	170.08	85.04	12.33	0:28:50	124.57	124.57	8.42
0:00:55	286.26	35.78	29.31	0:07:55	275.57	55.11	19.00	0:14:55	228.80	76.27	13.73	0:21:55	190.84	95.42	10.98	0:28:55	122.05	122.05	8.58
0:01:00	288.57	36.07	29.09	0:08:00	278.29	55.66	18.86	0:15:00	239.70	79.90	13.00	0:22:00	170.92	85.46	12.26	0:29:00	116.39	116.39	9.00
0:01:05	284.37	31.60	31.88	0:08:05	276.19	55.24	18.97	0:15:05	206.15	68.72	15.43	0:22:05	184.34	92.17	11.38	0:29:05	117.23	117.23	8.81
0:01:10	286.05	28.61	33.67	0:08:10	279.55	55.91	18.75	0:15:10	179.52	59.84	17.51	0:22:10	193.15	96.57	10.85	0:29:10	121.63	121.63	8.74
0:01:15	285.42	28.54	36.77	0:08:15	271.37	54.27	19.34	0:15:15	234.88	78.29	13.37	0:22:15	190.00	95.00	11.03	0:29:15	129.60	129.60	8.10
0:01:20	285.00	28.50	36.74	0:08:20	284.58	56.92	18.38	0:15:20	199.02	66.34	15.84	0:22:20	192.94	96.47	10.87	0:29:20	124.15	124.15	8.44
0:01:25	284.37	28.44	36.90	0:08:25	266.97	53.39	19.68	0:15:25	221.88	73.96	14.17	0:22:25	167.56	83.78	12.52	0:29:25	110.73	110.73	9.29
0:01:30	285.00	28.50	36.77	0:08:30	278.29	55.66	18.85	0:15:30	235.09	78.36	13.37	0:22:30	205.73	102.87	10.19	0:29:30	113.04	113.04	9.45
0:01:35	284.16	28.42	36.89	0:08:35	281.23	56.25	18.65	0:15:35	233.62	77.87	13.46	0:22:35	172.60	86.30	12.14	0:29:35	124.15	124.15	8.44
0:01:40	285.21	28.52	36.75	0:08:40	272.84	54.57	19.19	0:15:40	207.62	69.21	15.16	0:22:40	184.34	92.17	11.37	0:29:40	126.88	126.88	8.26
0:01:45	285.21	28.52	36.78	0:08:45	264.24	52.85	19.84	0:15:45	206.57	68.86	15.23	0:22:45	184.34	92.17	11.38	0:29:45	131.07	131.07	7.99
0:01:50	285.63	28.56	36.73	0:08:50	277.87	55.57	18.83	0:15:50	236.77	78.92	13.20	0:22:50	167.14	83.57	12.54	0:29:50	116.18	116.18	9.03
0:01:55	284.58	28.46	36.84	0:08:55	277.66	55.53	18.91	0:15:55	232.36	77.45	13.62	0:22:55	166.93	83.47	12.56	0:29:55	121.84	121.84	8.60
0:02:00	284.16	28.42	36.90	0:09:00	267.18	53.44	19.48	0:16:00	220.62	73.54	14.25	0:23:00	208.25	104.12	10.08	0:30:00	122.05	122.05	8.59
0:02:05	284.79	28.48	36.78	0:09:05	249.14	49.83	21.18	0:16:05	233.20	77.73	13.49	0:23:05	173.64	86.82	12.07	0:30:05	110.31	110.31	9.50
0:02:10	285.00	28.50	36.84	0:09:10	243.69	48.74	21.52	0:16:10	238.66	79.55	13.18	0:23:10	167.56	83.78	12.52	0:30:10	113.25	113.25	9.26
0:02:15	285.21	28.52	36.75	0:09:15	259.00	51.80	20.24	0:16:15	246.63	82.21	12.76	0:23:15	185.18	92.59	11.33	0:30:15	118.28	118.28	8.86
0:02:20	284.58	28.46	36.83	0:09:20	279.34	55.87	18.78	0:16:20	237.19	79.06	13.26	0:23:20	188.53	94.27	11.11	0:30:20	118.91	118.91	8.81
0:02:25	286.26	28.63	36.69	0:09:25	272.42	54.48	19.23	0:16:25	190.42	63.47	16.52	0:23:25	173.64	86.82	12.07	0:30:25	116.81	116.81	8.99
0:02:30	284.58	28.46	36.78	0:09:30	275.36	55.07	19.04	0:16:30	190.63	63.54	16.49	0:23:30	201.54	100.77	10.39	0:30:30	118.70	118.70	8.83
0:02:35	285.84	28.58	36.65	0:09:35	276.19	55.24	18.99	0:16:35	233.83	77.94	13.45	0:23:35	209.09	104.54	10.05	0:30:35	127.09	127.09	8.24
0:02:40	285.42	28.54	36.80	0:09:40	276.40	55.28	18.96	0:16:40	242.22	80.74	12.98	0:23:40	170.29	85.14	12.30	0:30:40	123.31	123.31	8.50
0:02:45	285.21	28.52	36.75	0:09:45	280.81	56.16	18.66	0:16:45	232.99	77.66	13.46	0:23:45	193.57	96.78	10.83	0:30:45	129.81	129.81	8.08
0:02:50	285.00	28.50	36.79	0:09:50	279.97	55.99	18.75	0:16:50	233.20	77.73	13.51	0:23:50	199.65	99.82	10.51	0:30:50	127.72	127.72	8.21
0:02:55	284.79	28.48	36.79	0:09:55	275.36	55.07	19.03	0:16:55	238.03	79.34	13.25	0:23:55	195.04	97.52	10.74	0:30:55	121.43	121.43	8.63

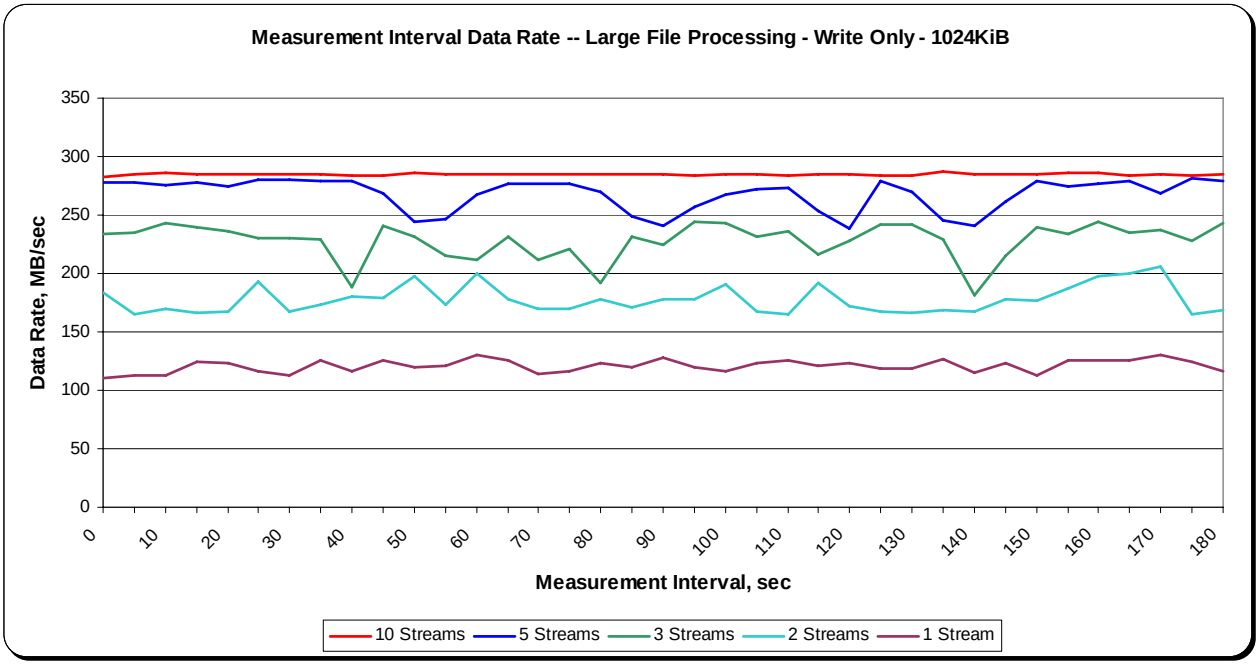
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data
Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	10 Streams			TR2	5 Streams			TR3	3 Streams			TR4	2 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	283.12	28.31	37.04	0:10:00	277.87	55.57	18.87	0:17:00	234.04	78.01	13.44	0:24:00	183.29	91.65	11.44	0:31:00	110.73	110.73	9.46
0:03:05	285.00	28.50	36.85	0:10:05	277.87	55.57	18.87	0:17:05	234.46	78.15	13.41	0:24:05	165.47	82.73	12.63	0:31:05	113.25	113.25	9.23
0:03:10	285.84	28.58	36.69	0:10:10	275.15	55.03	19.05	0:17:10	243.06	81.02	12.92	0:24:10	169.87	84.93	12.34	0:31:10	113.25	113.25	9.24
0:03:15	284.79	28.48	36.82	0:10:15	277.66	55.53	18.88	0:17:15	239.70	79.90	13.15	0:24:15	166.09	83.05	12.61	0:31:15	124.15	124.15	8.44
0:03:20	285.42	28.54	36.70	0:10:20	274.73	54.95	18.84	0:17:20	236.56	78.85	13.30	0:24:20	167.98	83.99	12.48	0:31:20	122.89	122.89	8.40
0:03:25	285.21	28.52	36.80	0:10:25	279.76	55.95	18.99	0:17:25	230.27	76.76	13.65	0:24:25	193.57	96.78	10.85	0:31:25	116.18	116.18	9.16
0:03:30	285.00	28.50	36.75	0:10:30	280.60	56.12	18.67	0:17:30	230.27	76.76	13.65	0:24:30	166.93	83.47	12.55	0:31:30	112.62	112.62	9.30
0:03:35	284.37	28.44	36.92	0:10:35	278.71	55.74	18.83	0:17:35	229.01	76.34	13.72	0:24:35	173.43	86.72	12.08	0:31:35	125.83	125.83	8.32
0:03:40	283.95	28.40	36.88	0:10:40	279.55	55.91	18.75	0:17:40	187.90	62.63	16.77	0:24:40	180.56	90.28	11.63	0:31:40	116.81	116.81	8.98
0:03:45	283.95	28.40	36.91	0:10:45	268.23	53.65	19.53	0:17:45	240.96	80.32	13.06	0:24:45	178.89	89.44	11.65	0:31:45	125.62	125.62	8.34
0:03:50	286.47	28.65	36.58	0:10:50	244.53	48.91	21.45	0:17:50	231.11	77.04	13.60	0:24:50	198.18	99.09	10.64	0:31:50	119.54	119.54	8.78
0:03:55	284.58	28.46	36.86	0:10:55	246.63	49.33	21.23	0:17:55	214.54	71.51	14.65	0:24:55	172.81	86.40	12.09	0:31:55	120.59	120.59	8.69
0:04:00	284.58	28.46	36.92	0:11:00	266.97	53.39	19.63	0:18:00	212.02	70.67	14.84	0:25:00	199.65	99.82	10.53	0:32:00	130.65	130.65	8.03
0:04:05	284.37	28.44	36.81	0:11:05	277.24	55.45	18.95	0:18:05	231.11	77.04	13.62	0:25:05	178.26	89.13	11.67	0:32:05	125.83	125.83	8.33
0:04:10	284.58	28.46	36.91	0:11:10	276.40	55.28	18.96	0:18:10	212.02	70.67	14.82	0:25:10	170.08	85.04	12.43	0:32:10	114.29	114.29	9.17
0:04:15	284.79	28.48	36.79	0:11:15	276.61	55.32	18.93	0:18:15	221.04	73.68	14.24	0:25:15	169.45	84.72	12.38	0:32:15	115.97	115.97	9.04
0:04:20	285.21	28.52	36.73	0:11:20	269.27	53.85	19.48	0:18:20	192.10	64.03	16.35	0:25:20	178.47	89.23	11.73	0:32:20	122.68	122.68	8.53
0:04:25	285.21	28.52	36.79	0:11:25	248.72	49.74	21.02	0:18:25	231.95	77.32	13.59	0:25:25	171.34	85.67	12.25	0:32:25	120.17	120.17	8.74
0:04:30	285.21	28.52	36.78	0:11:30	241.17	48.23	21.76	0:18:30	224.60	74.87	13.98	0:25:30	178.47	89.23	11.73	0:32:30	127.72	127.72	8.20
0:04:35	283.95	28.40	36.89	0:11:35	257.11	51.42	20.43	0:18:35	244.11	81.37	12.90	0:25:35	178.05	89.02	11.80	0:32:35	119.54	119.54	8.78
0:04:40	285.42	28.54	36.76	0:11:40	266.97	53.39	19.63	0:18:40	242.64	80.88	12.97	0:25:40	190.63	95.32	10.99	0:32:40	115.76	115.76	9.05
0:04:45	284.79	28.48	36.84	0:11:45	272.21	54.44	19.27	0:18:45	231.53	77.18	13.58	0:25:45	167.77	83.89	12.50	0:32:45	122.89	122.89	8.53
0:04:50	283.53	28.35	36.90	0:11:50	273.26	54.65	19.17	0:18:50	235.51	78.50	13.36	0:25:50	165.68	82.84	12.67	0:32:50	125.41	125.41	8.35
0:04:55	285.00	28.50	36.86	0:11:55	253.34	50.67	20.69	0:18:55	216.43	72.14	14.52	0:25:55	191.68	95.84	10.94	0:32:55	121.43	121.43	8.63
0:05:00	285.21	28.52	36.77	0:12:00	238.45	47.69	22.01	0:19:00	227.75	75.92	13.80	0:26:00	172.60	86.30	12.14	0:33:00	123.52	123.52	8.49
0:05:05	283.33	28.33	36.99	0:12:05	279.34	55.87	18.76	0:19:05	242.43	80.81	12.97	0:26:05	166.93	83.47	12.56	0:33:05	118.70	118.70	8.83
0:05:10	284.16	28.42	36.83	0:12:10	270.32	54.06	19.36	0:19:10	241.59	80.53	13.04	0:26:10	166.51	83.26	12.60	0:33:10	119.12	119.12	8.81
0:05:15	286.89	28.69	36.62	0:12:15	245.79	49.16	21.37	0:19:15	228.80	76.27	13.73	0:26:15	168.61	84.31	12.42	0:33:15	126.46	126.46	8.29
0:05:20	285.00	28.50	36.73	0:12:20	240.75	48.15	21.76	0:19:20	181.82	60.61	17.30	0:26:20	167.14	83.57	12.55	0:33:20	115.13	115.13	9.10
0:05:25	285.21	28.52	36.81	0:12:25	262.14	52.43	19.95	0:19:25	215.59	71.86	14.59	0:26:25	178.05	89.02	11.79	0:33:25	122.89	122.89	8.54
0:05:30	285.00	28.50	36.79	0:12:30	278.50	55.70	18.90	0:19:30	239.29	79.76	13.15	0:26:30	176.37	88.19	11.89	0:33:30	112.41	112.41	9.32
0:05:35	285.84	28.58	36.66	0:12:35	273.89	54.78	19.13	0:19:35	233.41	77.80	13.43	0:26:35	187.07	93.53	11.20	0:33:35	125.41	125.41	8.36
0:05:40	286.05	28.61	36.72	0:12:40	276.61	55.32	18.96	0:19:40	244.32	81.44	12.90	0:26:40	198.18	99.09	10.51	0:33:40	125.20	125.20	8.37
0:05:45	283.95	28.40	36.84	0:12:45	279.34	55.87	18.76	0:19:45	235.30	78.43	13.38	0:26:45	200.49	100.24	10.52	0:33:45	125.62	125.62	8.35
0:05:50	285.21	28.52	36.78	0:12:50	268.65	53.73	19.50	0:19:50	237.61	79.20	13.24	0:26:50	205.31	102.66	10.21	0:33:50	130.44	130.44	8.03
0:05:55	283.74	28.37	37.00	0:12:55	281.86	56.37	18.63	0:19:55	227.33	75.78	13.83	0:26:55	165.05	82.52	12.72	0:33:55	124.57	124.57	8.42
0:06:00	285.42	28.54	36.74	0:13:00	279.34	55.87	18.77	0:20:00	243.06	81.02	12.95	0:27:00	168.82	84.41	12.40	0:34:00	115.76	115.76	9.05
0:06:05	284.37	28.44	36.78	0:13:05	249.56	49.91	20.96	0:20:05	237.19	79.06	13.25	0:27:05	200.49	100.24	10.45	0:34:05	125.62	125.62	8.34
0:06:10	285.00	28.50	36.76	0:13:10	265.50	53.10	19.69	0:20:10	236.14	78.71	13.31	0:27:10	202.17	101.08	10.38	0:34:10	123.94	123.94	8.47
0:06:15	284.58	28.46	36.88	0:13:15	274.31	54.86	19.12	0:20:15	241.80	80.60	13.03	0:27:15	195.66	97.83	10.68	0:34:15	121.22	121.22	8.64
0:06:20	284.37	28.44	36.84	0:13:20	257.74	51.55	20.20	0:20:20	230.48	76.83	13.64	0:27:20	192.52	96.26	10.90	0:34:20	124.78	124.78	8.41
0:06:25	285.00	28.50	36.75	0:13:25	247.04	49.41	21.38	0:20:25	235.30	78.43	13.34	0:27:25	191.05	95.53	10.95	0:34:25	116.60	116.60	8.98
0:06:30	286.05	28.61	36.74	0:13:30	271.58	54.32	19.30	0:20:30	223.98	74.66	14.06	0:27:30	187.28	93.64	11.20	0:34:30	122.68	122.68	8.54
0:06:35	284.58	28.46	36.86	0:13:35	274.73	54.95	19.03	0:20:35	226.49	75.50	13.76	0:27:35	185.18	92.59	11.32	0:34:35	123.10	123.10	8.52
0:06:40	284.58	28.46	36.81	0:13:40	274.94	54.99	19.13	0:20:40	232.57	77.52	13.63	0:27:40	166.30	83.15	12.62	0:34:40	117.44	117.44	8.92
0:06:45	6.92	0.00	38.26	0:13:45	5.66	0.00	19.14	0:20:45	3.36	0.00	17.92	0:27:45	3.15	0.00	10.81	0:34:45	2.10	0.00	6.99
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

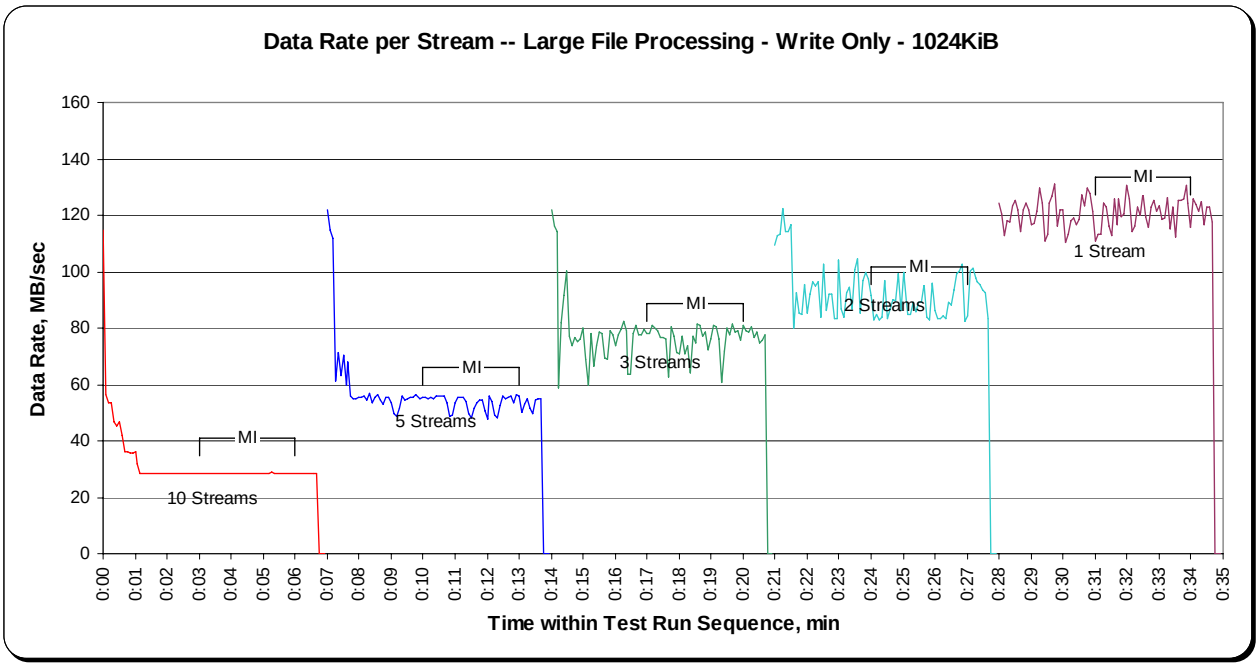
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



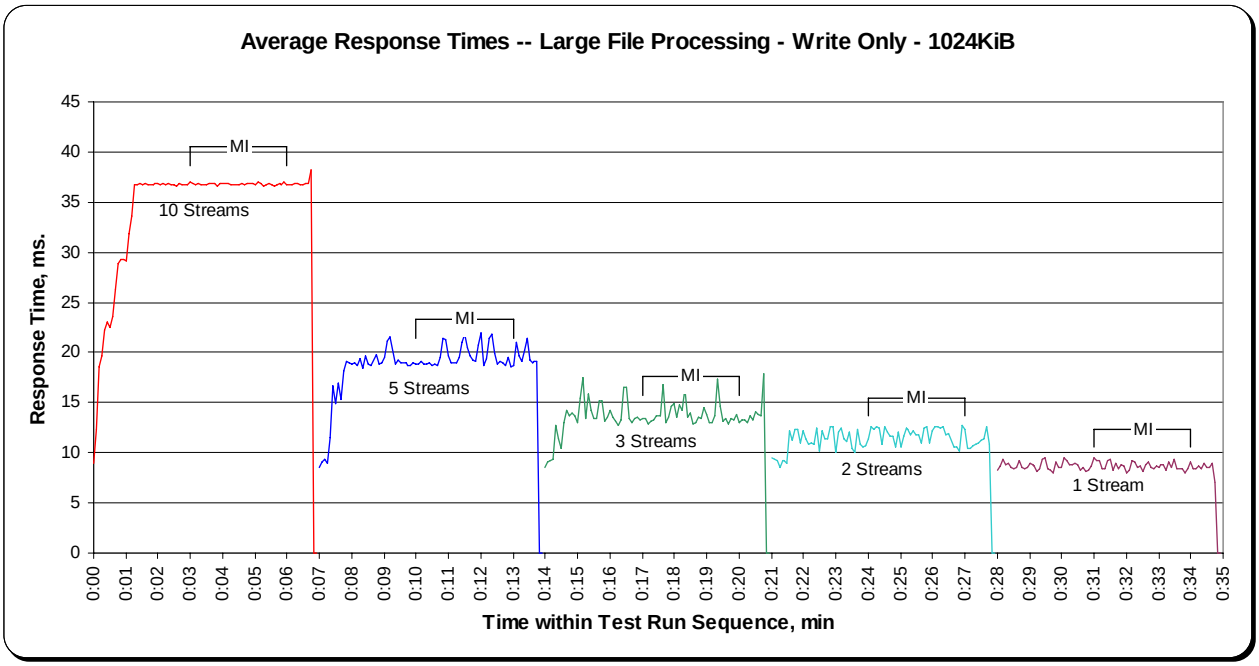
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate per Stream Graph



SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Response Time Graph



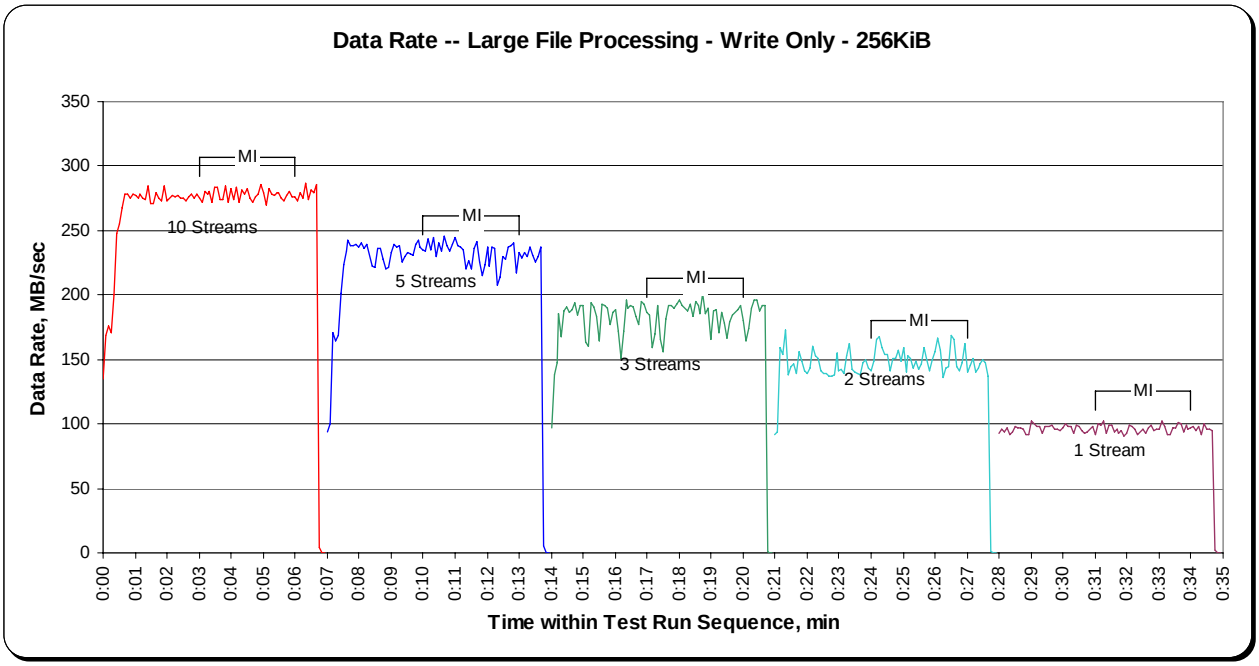
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR6	10 Streams			TR7	5 Streams			TR8	3 Streams			TR9	2 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	134.58	67.29	3.53	0:07:00	93.53	93.53	2.75	0:14:00	96.63	48.31	2.73	0:21:00	92.12	92.12	2.81	0:28:00	92.75	92.75	2.71
0:00:05	168.51	56.17	3.98	0:07:05	99.98	49.99	3.06	0:14:05	138.15	69.07	3.79	0:21:05	93.32	46.66	2.90	0:28:05	95.84	95.84	2.81
0:00:10	176.32	58.77	4.44	0:07:10	170.55	56.85	3.38	0:14:10	147.43	49.14	3.68	0:21:10	159.23	79.61	3.29	0:28:10	94.32	94.32	2.78
0:00:15	170.29	42.57	4.67	0:07:15	164.94	54.98	4.76	0:14:15	185.02	61.67	4.26	0:21:15	154.09	77.04	3.40	0:28:15	96.99	96.99	2.70
0:00:20	200.65	40.13	5.66	0:07:20	168.66	42.17	5.10	0:14:20	167.35	55.78	4.66	0:21:20	172.39	86.19	3.04	0:28:20	91.33	91.33	2.87
0:00:25	247.41	35.34	6.85	0:07:25	201.54	40.31	5.21	0:14:25	187.80	62.60	4.22	0:21:25	138.31	69.15	3.75	0:28:25	93.85	93.85	2.76
0:00:30	254.96	36.42	7.18	0:07:30	223.98	44.80	5.85	0:14:30	191.16	63.72	4.11	0:21:30	144.39	72.19	3.66	0:28:30	98.57	98.57	2.69
0:00:35	267.86	29.76	8.02	0:07:35	233.88	46.78	5.60	0:14:35	187.01	62.34	4.17	0:21:35	146.64	73.32	3.57	0:28:35	96.84	96.84	2.70
0:00:40	277.82	30.87	8.49	0:07:40	242.96	48.59	5.39	0:14:40	188.48	62.83	4.20	0:21:40	139.62	69.81	3.75	0:28:40	97.05	97.05	2.70
0:00:45	278.08	27.81	9.29	0:07:45	237.92	47.58	5.50	0:14:45	194.14	64.71	4.05	0:21:45	156.34	78.17	3.35	0:28:45	95.53	95.53	2.74
0:00:50	275.36	27.54	9.51	0:07:50	238.76	47.75	5.49	0:14:50	184.55	61.52	4.26	0:21:50	148.95	74.48	3.52	0:28:50	91.96	91.96	2.85
0:00:55	278.71	27.87	9.41	0:07:55	239.49	47.90	5.47	0:14:55	191.63	63.88	4.10	0:21:55	141.09	70.54	3.71	0:28:55	92.06	92.06	2.85
0:01:00	277.51	27.75	9.40	0:08:00	237.66	47.53	5.52	0:15:00	191.78	63.93	4.10	0:22:00	139.36	69.68	3.76	0:29:00	102.03	102.03	2.57
0:01:05	275.62	27.56	9.55	0:08:05	240.02	48.00	5.45	0:15:05	163.37	54.46	4.81	0:22:05	143.76	71.88	3.64	0:29:05	100.30	100.30	2.61
0:01:10	278.71	27.87	9.41	0:08:10	236.03	47.21	5.56	0:15:10	160.75	53.58	4.89	0:22:10	160.27	80.14	3.27	0:29:10	97.94	97.94	2.67
0:01:15	274.78	27.48	9.53	0:08:15	239.02	47.80	5.48	0:15:15	193.99	64.66	4.05	0:22:15	153.14	76.57	3.42	0:29:15	97.94	97.94	2.67
0:01:20	274.57	27.46	9.54	0:08:20	230.37	46.07	5.69	0:15:20	190.32	63.44	4.13	0:22:20	151.20	75.60	3.47	0:29:20	93.11	93.11	2.81
0:01:25	284.79	28.48	9.21	0:08:25	222.72	44.54	5.88	0:15:25	183.29	61.10	4.28	0:22:25	140.88	70.44	3.72	0:29:25	97.88	97.88	2.68
0:01:30	271.00	27.10	9.67	0:08:30	221.46	44.29	5.91	0:15:30	164.84	54.95	4.77	0:22:30	138.73	69.36	3.77	0:29:30	98.30	98.30	2.66
0:01:35	271.42	27.14	9.66	0:08:35	235.72	47.14	5.57	0:15:35	193.30	64.43	4.07	0:22:35	139.25	69.63	3.76	0:29:35	97.94	97.94	2.67
0:01:40	279.66	27.97	9.37	0:08:40	235.67	47.13	5.56	0:15:40	192.05	64.02	4.09	0:22:40	136.52	68.26	3.84	0:29:40	98.78	98.78	2.65
0:01:45	274.99	27.50	9.53	0:08:45	227.33	45.47	5.77	0:15:45	190.00	63.33	4.13	0:22:45	137.26	68.63	3.81	0:29:45	96.15	96.15	2.72
0:01:50	272.89	27.29	9.61	0:08:50	220.31	44.06	5.95	0:15:50	177.42	59.14	4.43	0:22:50	138.57	69.28	3.76	0:29:50	96.21	96.21	2.72
0:01:55	284.27	28.43	9.22	0:08:55	221.72	44.34	5.90	0:15:55	186.54	62.18	4.21	0:22:55	154.82	77.41	3.40	0:29:55	94.53	94.53	2.77
0:02:00	273.00	27.30	9.60	0:09:00	232.68	46.54	5.63	0:16:00	189.06	63.02	4.16	0:23:00	141.19	70.60	3.71	0:30:00	97.36	97.36	2.66
0:02:05	275.09	27.51	9.49	0:09:05	239.13	47.83	5.48	0:16:05	172.33	57.44	4.56	0:23:05	142.03	71.01	3.68	0:30:05	100.51	100.51	2.62
0:02:10	277.03	27.70	9.49	0:09:10	236.82	47.36	5.53	0:16:10	150.26	50.09	5.23	0:23:10	139.04	69.52	3.77	0:30:10	97.62	97.62	2.70
0:02:15	276.51	27.65	9.49	0:09:15	238.66	47.73	5.50	0:16:15	172.33	57.44	4.56	0:23:15	153.30	76.65	3.42	0:30:15	98.36	98.36	2.66
0:02:20	277.40	27.74	9.44	0:09:20	225.29	45.06	5.82	0:16:20	195.56	65.19	4.02	0:23:20	162.16	81.08	3.23	0:30:20	92.43	92.43	2.83
0:02:25	274.78	27.48	9.54	0:09:25	229.59	45.92	5.70	0:16:25	189.74	63.25	4.14	0:23:25	141.98	70.99	3.69	0:30:25	99.30	99.30	2.64
0:02:30	275.41	27.54	9.51	0:09:30	233.05	46.61	5.62	0:16:30	192.15	64.05	4.09	0:23:30	139.83	69.91	3.75	0:30:30	97.57	97.57	2.68
0:02:35	273.10	27.31	9.58	0:09:35	232.42	46.48	5.64	0:16:35	190.95	63.65	4.12	0:23:35	139.62	69.81	3.75	0:30:35	95.32	95.32	2.75
0:02:40	276.30	27.63	9.49	0:09:40	230.79	46.16	5.68	0:16:40	183.50	61.17	4.28	0:23:40	138.10	69.05	3.79	0:30:40	92.48	92.48	2.83
0:02:45	277.98	27.80	9.44	0:09:45	238.87	47.77	5.48	0:16:45	176.69	58.90	4.45	0:23:45	147.74	73.87	3.54	0:30:45	94.11	94.11	2.78
0:02:50	275.04	27.50	9.52	0:09:50	242.17	48.43	5.41	0:16:50	194.56	64.85	4.04	0:23:50	150.05	75.03	3.49	0:30:50	95.84	95.84	2.73
0:02:55	278.82	27.88	9.41	0:09:55	237.03	47.41	5.53	0:16:55	193.36	64.45	4.06	0:23:55	143.71	71.85	3.65	0:30:55	97.52	97.52	2.69

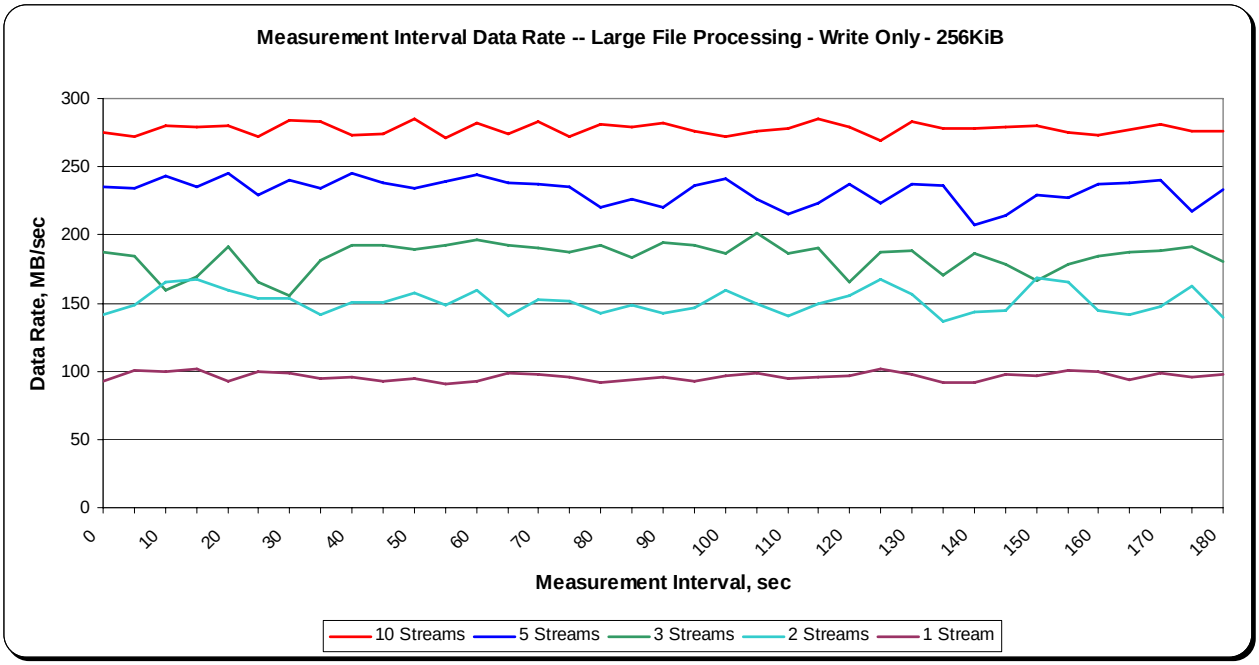
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	10 Streams			TR7	5 Streams			TR8	3 Streams			TR9	2 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	274.83	27.48	9.54	0:10:00	235.30	47.06	5.57	0:17:00	186.96	62.32	4.19	0:24:00	141.61	70.81	3.70	0:31:00	92.22	92.22	2.84
0:03:05	272.42	27.24	9.57	0:10:05	233.73	46.75	5.58	0:17:05	184.50	61.50	4.26	0:24:05	148.95	74.48	3.51	0:31:05	100.40	100.40	2.60
0:03:10	280.07	28.01	9.38	0:10:10	243.06	48.61	5.40	0:17:10	159.33	53.11	4.93	0:24:10	165.20	82.60	3.17	0:31:10	99.56	99.56	2.63
0:03:15	278.71	27.87	9.40	0:10:15	235.04	47.01	5.57	0:17:15	169.50	56.50	4.64	0:24:15	167.82	83.91	3.07	0:31:15	101.87	101.87	2.57
0:03:20	280.07	28.01	9.36	0:10:20	244.74	48.95	5.35	0:17:20	191.68	63.89	4.10	0:24:20	159.28	79.64	3.34	0:31:20	93.11	93.11	2.81
0:03:25	271.95	27.19	9.64	0:10:25	229.69	45.94	5.71	0:17:25	164.99	55.00	4.77	0:24:25	153.98	76.99	3.40	0:31:25	99.56	99.56	2.63
0:03:30	283.95	28.40	9.23	0:10:30	240.44	48.09	5.45	0:17:30	155.82	51.94	5.05	0:24:30	153.67	76.83	3.41	0:31:30	98.67	98.67	2.65
0:03:35	283.27	28.33	9.26	0:10:35	234.25	46.85	5.59	0:17:35	181.77	60.59	4.32	0:24:35	141.14	70.57	3.71	0:31:35	94.32	94.32	2.78
0:03:40	273.57	27.36	9.58	0:10:40	245.52	49.10	5.33	0:17:40	191.99	64.00	4.09	0:24:40	150.89	75.45	3.47	0:31:40	95.53	95.53	2.74
0:03:45	273.68	27.37	9.57	0:10:45	237.97	47.59	5.51	0:17:45	192.26	64.09	4.08	0:24:45	150.99	75.50	3.47	0:31:45	92.43	92.43	2.83
0:03:50	284.64	28.46	9.20	0:10:50	234.36	46.87	5.59	0:17:50	189.79	63.26	4.15	0:24:50	157.60	78.80	3.32	0:31:50	95.00	95.00	2.76
0:03:55	271.48	27.15	9.66	0:10:55	239.55	47.91	5.47	0:17:55	192.47	64.16	4.08	0:24:55	148.32	74.16	3.50	0:31:55	90.81	90.81	2.83
0:04:00	282.12	28.21	9.29	0:11:00	244.48	48.90	5.36	0:18:00	196.29	65.43	4.01	0:25:00	159.07	79.53	3.32	0:32:00	92.69	92.69	2.87
0:04:05	273.89	27.39	9.57	0:11:05	238.03	47.61	5.50	0:18:05	192.31	64.10	4.09	0:25:05	140.14	70.07	3.74	0:32:05	98.72	98.72	2.66
0:04:10	283.06	28.31	9.25	0:11:10	236.72	47.34	5.54	0:18:10	190.16	63.39	4.13	0:25:10	152.99	76.49	3.43	0:32:10	97.62	97.62	2.68
0:04:15	272.05	27.21	9.65	0:11:15	235.04	47.01	5.56	0:18:15	187.28	62.43	4.20	0:25:15	151.15	75.58	3.47	0:32:15	96.00	96.00	2.73
0:04:20	281.02	28.10	9.33	0:11:20	219.83	43.97	5.97	0:18:20	192.52	64.17	4.05	0:25:20	142.97	71.49	3.67	0:32:20	91.23	91.23	2.87
0:04:25	278.76	27.88	9.40	0:11:25	226.39	45.28	5.78	0:18:25	183.61	61.20	4.30	0:25:25	148.74	74.37	3.52	0:32:25	94.11	94.11	2.78
0:04:30	282.43	28.24	9.28	0:11:30	220.57	44.11	5.94	0:18:30	194.62	64.87	4.05	0:25:30	142.55	71.28	3.67	0:32:30	95.94	95.94	2.73
0:04:35	275.62	27.56	9.50	0:11:35	236.03	47.21	5.56	0:18:35	191.89	63.96	4.10	0:25:35	146.12	73.06	3.57	0:32:35	92.75	92.75	2.82
0:04:40	272.05	27.21	9.64	0:11:40	241.12	48.22	5.43	0:18:40	185.96	61.99	4.22	0:25:40	159.44	79.72	3.28	0:32:40	96.84	96.84	2.70
0:04:45	276.09	27.61	9.50	0:11:45	225.86	45.17	5.80	0:18:45	201.22	67.07	3.90	0:25:45	149.53	74.76	3.52	0:32:45	98.62	98.62	2.66
0:04:50	278.50	27.85	9.41	0:11:50	214.85	42.97	6.06	0:18:50	185.96	61.99	4.23	0:25:50	140.88	70.44	3.72	0:32:50	94.90	94.90	2.76
0:04:55	285.47	28.55	9.18	0:11:55	223.56	44.71	5.91	0:18:55	189.90	63.30	4.14	0:25:55	149.79	74.89	3.50	0:32:55	95.89	95.89	2.73
0:05:00	279.45	27.94	9.38	0:12:00	237.24	47.45	5.52	0:19:00	165.88	55.29	4.72	0:26:00	155.56	77.78	3.37	0:33:00	96.36	96.36	2.72
0:05:05	269.43	26.94	9.73	0:12:05	222.82	44.56	5.89	0:19:05	187.43	62.48	4.20	0:26:05	166.99	83.49	3.14	0:33:05	102.13	102.13	2.56
0:05:10	282.96	28.30	9.26	0:12:10	237.19	47.44	5.52	0:19:10	188.38	62.79	4.18	0:26:10	156.66	78.33	3.34	0:33:10	97.99	97.99	2.67
0:05:15	277.82	27.78	9.43	0:12:15	236.56	47.31	5.55	0:19:15	170.45	56.82	4.61	0:26:15	136.05	68.03	3.85	0:33:15	92.17	92.17	2.84
0:05:20	277.66	27.77	9.40	0:12:20	207.67	41.53	6.29	0:19:20	186.44	62.15	4.22	0:26:20	143.55	71.78	3.65	0:33:20	91.86	91.86	2.85
0:05:25	279.55	27.96	9.42	0:12:25	214.49	42.90	6.13	0:19:25	177.94	59.31	4.42	0:26:25	144.07	72.04	3.64	0:33:25	97.20	97.20	2.69
0:05:30	279.71	27.97	9.37	0:12:30	229.69	45.94	5.70	0:19:30	166.30	55.43	4.73	0:26:30	168.40	84.20	3.11	0:33:30	96.57	96.57	2.71
0:05:35	275.30	27.53	9.52	0:12:35	227.44	45.49	5.76	0:19:35	178.89	59.63	4.40	0:26:35	165.36	82.68	3.16	0:33:35	100.82	100.82	2.60
0:05:40	273.47	27.35	9.57	0:12:40	237.45	47.49	5.52	0:19:40	184.03	61.34	4.27	0:26:40	144.23	72.12	3.63	0:33:40	99.67	99.67	2.63
0:05:45	276.93	27.69	9.47	0:12:45	238.55	47.71	5.49	0:19:45	187.12	62.37	4.20	0:26:45	141.45	70.73	3.71	0:33:45	94.16	94.16	2.78
0:05:50	280.65	28.07	9.34	0:12:50	240.39	48.08	5.45	0:19:50	188.64	62.88	4.15	0:26:50	147.32	73.66	3.56	0:33:50	98.67	98.67	2.65
0:05:55	276.14	27.61	9.50	0:12:55	217.42	43.48	6.02	0:19:55	191.57	63.86	4.12	0:26:55	162.32	81.16	3.23	0:33:55	96.05	96.05	2.73
0:06:00	276.14	27.61	9.49	0:13:00	233.47	46.69	5.62	0:20:00	179.94	59.98	4.36	0:27:00	139.72	69.86	3.75	0:34:00	97.36	97.36	2.69
0:06:05	273.15	27.32	9.56	0:13:05	229.27	45.85	5.71	0:20:05	164.10	54.70	4.79	0:27:05	145.12	72.56	3.61	0:34:05	98.25	98.25	2.66
0:06:10	278.97	27.90	9.42	0:13:10	232.68	46.54	5.64	0:20:10	173.49	57.83	4.52	0:27:10	151.10	75.55	3.47	0:34:10	94.63	94.63	2.77
0:06:15	275.46	27.55	9.52	0:13:15	230.01	46.00	5.69	0:20:15	189.69	63.23	4.15	0:27:15	139.72	69.86	3.75	0:34:15	98.25	98.25	2.66
0:06:20	286.26	28.63	9.16	0:13:20	237.55	47.51	5.50	0:20:20	195.98	65.33	4.01	0:27:20	143.29	71.64	3.64	0:34:20	91.91	91.91	2.85
0:06:25	273.68	27.37	9.58	0:13:25	231.16	46.23	5.69	0:20:25	196.50	65.50	4.00	0:27:25	146.17	73.09	3.59	0:34:25	99.72	99.72	2.63
0:06:30	281.60	28.16	9.30	0:13:30	225.76	45.15	5.81	0:20:30	187.43	62.48	4.19	0:27:30	149.84	74.92	3.51	0:34:30	95.53	95.53	2.74
0:06:35	279.08	27.91	9.39	0:13:35	229.95	45.99	5.70	0:20:35	192.15	64.05	4.09	0:27:35	147.17	73.58	3.56	0:34:35	96.26	96.26	2.72
0:06:40	285.89	28.59	9.17	0:13:40	237.24	47.45	5.52	0:20:40	192.05	64.02	4.09	0:27:40	137.10	68.55	3.82	0:34:40	95.37	95.37	2.75
0:06:45	3.88	0.00	12.13	0:13:45	4.88	0.00	4.62	0:20:45	1.57	0.00	7.88	0:27:45	1.47	0.00	5.33	0:34:45	1.63	0.00	2.11
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

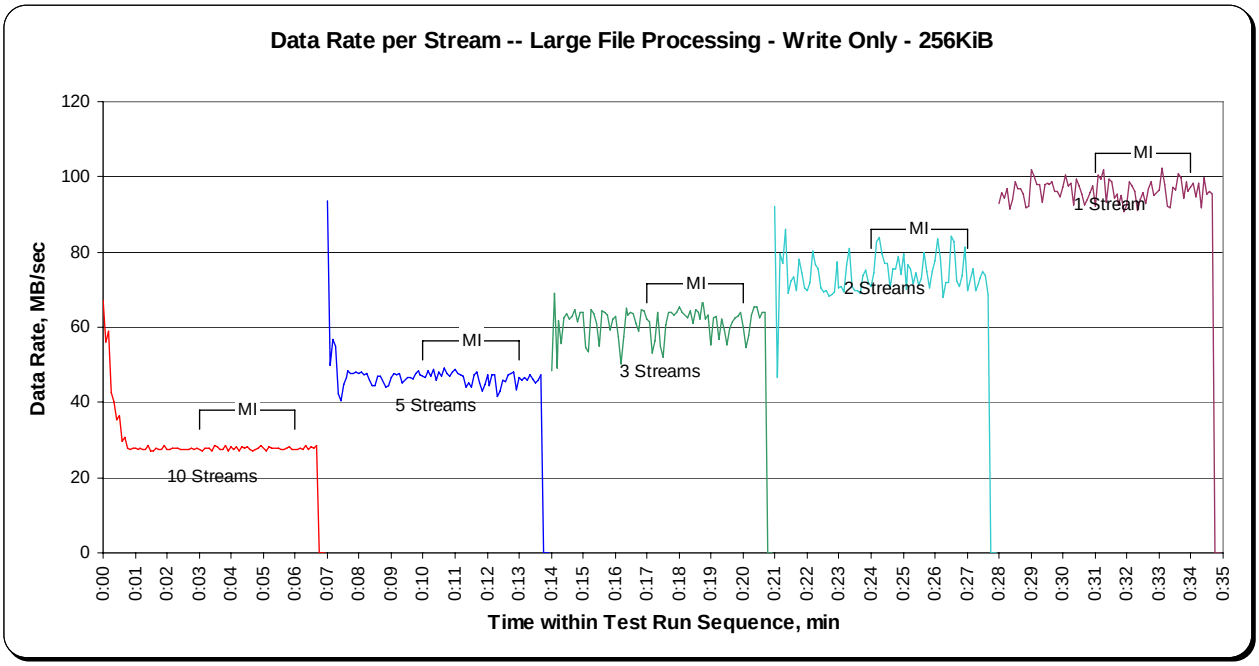
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



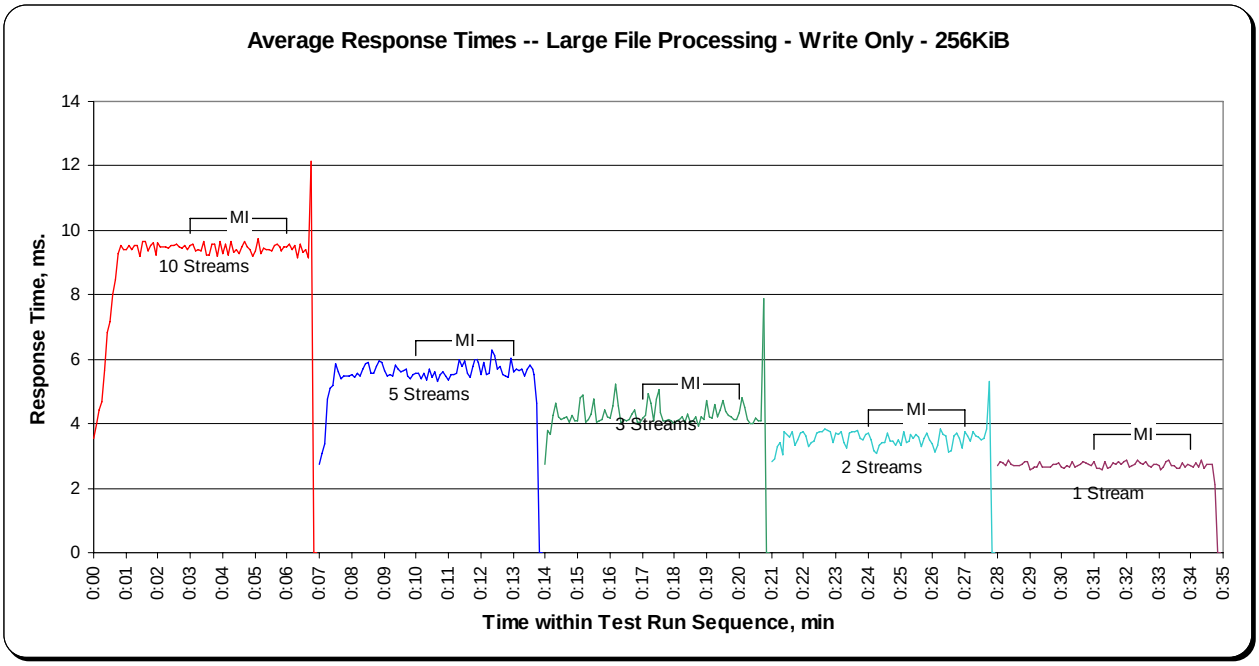
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate per Stream Graph



SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Response Time Graph



Large File Processing Test – READ-WRITE Test Phase

Clause 10.6.8.1.2

1. *A table that will contain the following information for each "READ-WRITE, 1024 KiB Transfer Size" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
2. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "READ-WRITE, 1024 KiB Transfer Size" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*
3. *A table that will contain the following information for each " READ-WRITE, 256 KiB Transfer Size" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
4. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "READ-WRITE, 256 KiB Transfer Size" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*

The SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate, average Data Rate per Stream, and average Response Time produced by the same Test Runs. The table and graphs present the data at five-second intervals.

Immediately following the SPC-2 "Large File Processing/ READ-WRITE /1024 KiB Transfer Size" table and graphs will be the SPC-2 "Large File Processing/ READ-WRITE /64 KiB Transfer Size" table and graphs. The table contains the Test Run data and the graphs illustrate the average Data Rate, average Data Rate per Stream, and average Response Time produced by the Test Runs.

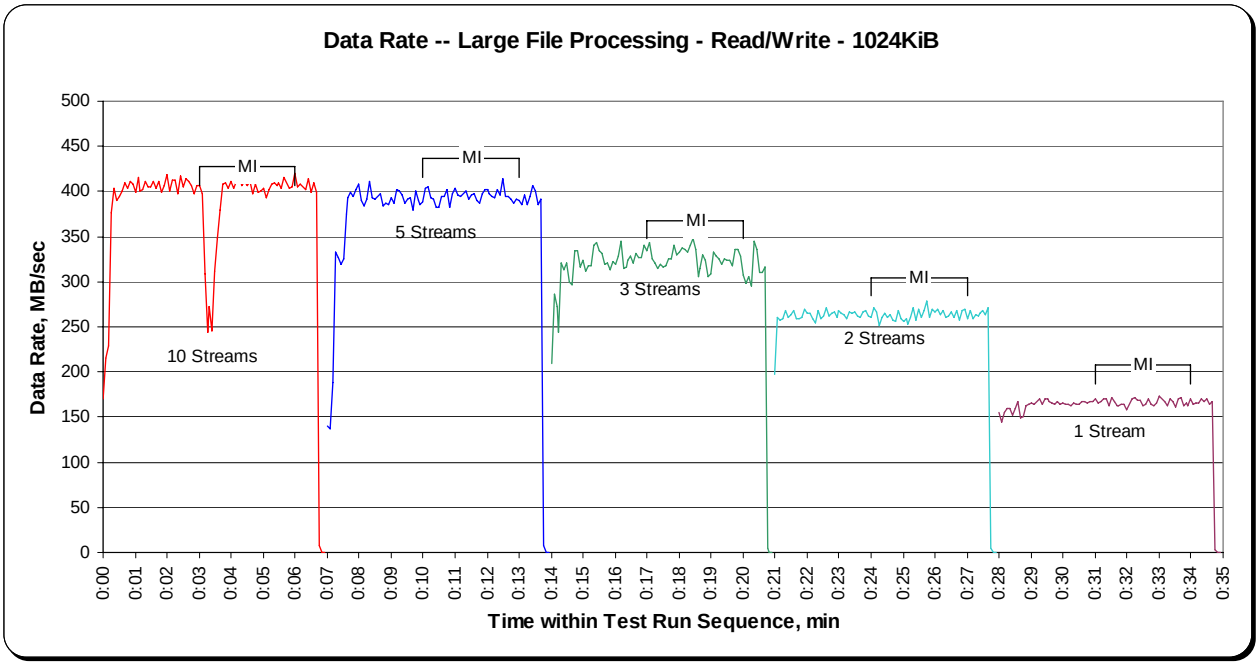
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR11	10 Streams			TR12	5 Streams			TR13	3 Streams			TR14	2 Streams			TR15	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	170.50	85.25	8.46	0:07:00	140.30	140.30	7.39	0:14:00	208.88	104.44	7.69	0:21:00	197.76	98.88	8.12	0:28:00	154.98	154.98	6.66
0:00:05	215.59	107.79	9.73	0:07:05	136.52	136.52	7.68	0:14:05	286.05	143.03	7.34	0:21:05	259.84	129.92	8.04	0:28:05	144.70	144.70	7.24
0:00:10	229.64	57.41	10.42	0:07:10	187.70	62.57	8.07	0:14:10	273.26	136.63	7.68	0:21:10	257.11	128.56	8.14	0:28:10	155.61	155.61	6.73
0:00:15	376.44	75.29	12.04	0:07:15	332.19	110.73	9.51	0:14:15	244.11	122.05	8.59	0:21:15	258.79	129.39	8.10	0:28:15	159.38	159.38	6.58
0:00:20	403.28	67.21	13.88	0:07:20	326.95	108.98	9.61	0:14:20	320.44	106.81	9.37	0:21:20	267.39	133.69	7.84	0:28:20	159.80	159.80	6.55
0:00:25	389.86	48.73	18.41	0:07:25	319.40	106.47	9.85	0:14:25	313.52	104.51	10.03	0:21:25	259.84	129.92	7.98	0:28:25	152.46	152.46	6.88
0:00:30	394.68	49.34	21.19	0:07:30	325.69	81.42	10.76	0:14:30	320.24	106.75	9.81	0:21:30	262.98	131.49	8.06	0:28:30	160.01	160.01	6.42
0:00:35	400.14	44.46	22.11	0:07:35	374.34	74.87	12.48	0:14:35	299.05	99.68	10.51	0:21:35	268.02	134.01	7.81	0:28:35	167.56	167.56	6.38
0:00:40	409.78	40.98	23.53	0:07:40	392.80	78.56	13.33	0:14:40	296.75	98.92	10.58	0:21:40	259.21	129.60	8.10	0:28:40	149.53	149.53	7.01
0:00:45	403.70	40.37	25.06	0:07:45	398.46	79.69	13.15	0:14:45	334.08	111.36	9.35	0:21:45	259.63	129.81	8.07	0:28:45	150.16	150.16	6.97
0:00:50	411.88	41.19	26.18	0:07:50	394.68	78.94	13.27	0:14:50	333.87	111.29	9.45	0:21:50	260.05	130.02	8.07	0:28:50	163.16	163.16	6.41
0:00:55	407.48	40.75	25.73	0:07:55	402.65	80.53	13.02	0:14:55	316.04	105.35	10.02	0:21:55	269.06	134.53	7.79	0:28:55	164.84	164.84	6.38
0:01:00	399.72	39.97	26.13	0:08:00	408.73	81.75	12.82	0:15:00	324.01	108.00	9.64	0:22:00	265.71	132.85	7.89	0:29:00	165.05	165.05	6.36
0:01:05	416.07	41.61	25.52	0:08:05	389.65	77.93	13.48	0:15:05	311.85	103.95	10.10	0:22:05	265.50	132.75	7.89	0:29:05	163.58	163.58	6.41
0:01:10	400.77	40.08	26.05	0:08:10	384.62	76.92	13.30	0:15:10	318.14	106.05	9.94	0:22:10	259.63	129.81	8.07	0:29:10	167.35	167.35	6.26
0:01:15	401.81	40.18	26.10	0:08:15	391.33	78.27	13.72	0:15:15	318.35	106.12	9.76	0:22:15	255.22	127.61	8.22	0:29:15	170.92	170.92	6.13
0:01:20	411.67	41.17	25.43	0:08:20	411.46	82.29	12.73	0:15:20	340.16	113.39	9.36	0:22:20	267.60	133.80	7.83	0:29:20	164.42	164.42	6.37
0:01:25	404.96	40.50	25.57	0:08:25	392.80	78.56	13.35	0:15:25	342.88	114.29	9.17	0:22:25	258.58	129.29	8.10	0:29:25	169.45	169.45	6.18
0:01:30	404.75	40.48	26.10	0:08:30	391.54	78.31	13.40	0:15:30	334.08	111.36	9.40	0:22:30	261.72	130.86	8.01	0:29:30	170.92	170.92	6.14
0:01:35	411.25	41.13	25.52	0:08:35	394.47	78.89	13.12	0:15:35	331.77	110.59	9.49	0:22:35	270.95	135.48	7.74	0:29:35	167.14	167.14	6.27
0:01:40	402.86	40.29	25.99	0:08:40	398.04	79.61	13.27	0:15:40	319.40	106.47	9.85	0:22:40	262.56	131.28	7.98	0:29:40	166.09	166.09	6.31
0:01:45	411.46	41.15	25.77	0:08:45	383.99	76.80	13.72	0:15:45	321.28	107.09	9.73	0:22:45	265.71	132.85	7.84	0:29:45	164.84	164.84	6.36
0:01:50	398.88	39.89	26.02	0:08:50	386.71	77.34	13.45	0:15:50	313.94	104.65	10.00	0:22:50	266.97	133.48	7.91	0:29:50	167.14	167.14	6.28
0:01:55	406.43	40.64	25.74	0:08:55	385.46	77.09	13.49	0:15:55	322.54	107.51	9.81	0:22:55	261.10	130.55	8.03	0:29:55	164.00	164.00	6.39
0:02:00	418.80	41.88	25.37	0:09:00	393.64	78.73	13.29	0:16:00	319.40	106.47	9.86	0:23:00	268.23	134.11	7.81	0:30:00	165.88	165.88	6.32
0:02:05	401.19	40.12	25.90	0:09:05	387.76	77.55	13.62	0:16:05	328.62	109.54	9.56	0:23:05	265.29	132.64	7.90	0:30:05	164.00	164.00	6.39
0:02:10	413.35	41.33	25.27	0:09:10	401.39	80.28	13.19	0:16:10	345.61	115.20	9.10	0:23:10	262.98	131.49	7.97	0:30:10	164.00	164.00	6.40
0:02:15	412.30	41.23	25.63	0:09:15	401.19	80.24	12.94	0:16:15	315.41	105.14	9.88	0:23:15	259.21	129.60	8.08	0:30:15	163.16	163.16	6.42
0:02:20	398.04	39.80	26.48	0:09:20	395.94	79.19	13.24	0:16:20	316.25	105.42	9.91	0:23:20	266.97	133.48	7.82	0:30:20	166.09	166.09	6.31
0:02:25	416.49	41.65	25.12	0:09:25	387.76	77.55	13.47	0:16:25	324.43	108.14	9.76	0:23:25	264.87	132.44	7.95	0:30:25	164.42	164.42	6.38
0:02:30	404.54	40.45	25.75	0:09:30	391.54	78.31	13.51	0:16:30	327.78	109.26	9.65	0:23:30	266.97	133.48	7.85	0:30:30	164.84	164.84	6.36
0:02:35	414.19	41.42	25.48	0:09:35	392.59	78.52	13.21	0:16:35	321.49	107.16	9.79	0:23:35	262.35	131.18	7.99	0:30:35	167.14	167.14	6.27
0:02:40	411.04	41.10	25.30	0:09:40	380.00	76.00	13.99	0:16:40	331.56	110.52	9.49	0:23:40	261.10	130.55	8.03	0:30:40	167.56	167.56	6.25
0:02:45	406.43	40.64	25.86	0:09:45	400.56	80.11	13.06	0:16:45	327.37	109.12	9.60	0:23:45	265.92	132.96	7.88	0:30:45	166.09	166.09	6.23
0:02:50	397.20	39.72	26.56	0:09:50	390.49	78.10	13.32	0:16:50	326.32	108.77	9.59	0:23:50	268.65	134.32	7.81	0:30:50	166.93	166.93	6.36
0:02:55	407.27	40.73	25.62	0:09:55	385.88	77.18	13.68	0:16:55	340.79	113.60	9.26	0:23:55	261.31	130.65	8.02	0:30:55	166.93	166.93	6.28

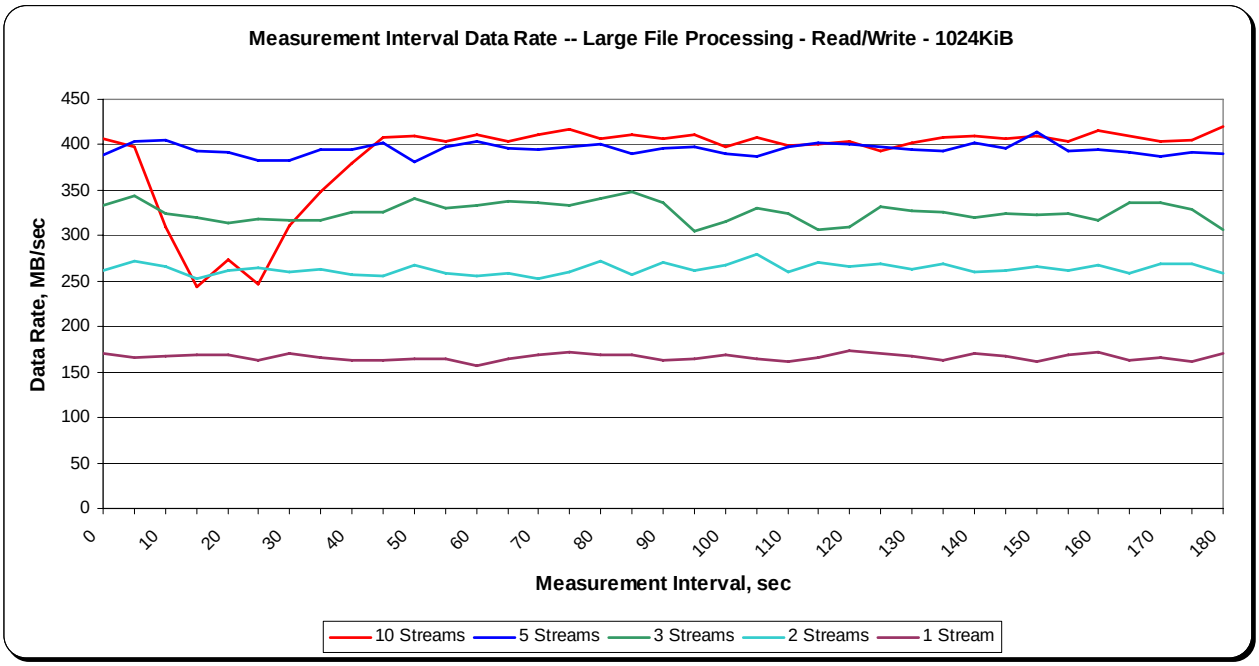
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	10 Streams			TR12	5 Streams			TR13	3 Streams			TR14	2 Streams			TR15	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	406.22	40.62	25.64	0:10:00	388.81	77.76	13.52	0:17:00	333.66	111.22	9.38	0:24:00	261.10	130.55	8.03	0:31:00	170.71	170.71	6.13
0:03:05	398.25	39.82	25.67	0:10:05	403.28	80.66	13.01	0:17:05	343.72	114.57	9.18	0:24:05	271.58	135.79	7.72	0:31:05	166.09	166.09	6.19
0:03:10	309.12	30.91	20.15	0:10:10	405.38	81.08	12.85	0:17:10	324.64	108.21	9.69	0:24:10	266.55	133.27	7.79	0:31:10	166.93	166.93	6.40
0:03:15	243.69	24.37	17.10	0:10:15	392.59	78.52	13.44	0:17:15	320.65	106.88	9.82	0:24:15	252.08	126.04	8.40	0:31:15	169.45	169.45	6.18
0:03:20	273.05	27.30	65.09	0:10:20	391.75	78.35	13.39	0:17:20	314.57	104.86	10.00	0:24:20	260.89	130.44	8.04	0:31:20	169.66	169.66	6.18
0:03:25	246.00	24.60	16.95	0:10:25	382.10	76.42	13.69	0:17:25	318.98	106.33	9.86	0:24:25	265.29	132.64	7.90	0:31:25	162.53	162.53	6.45
0:03:30	311.01	31.10	53.19	0:10:30	383.15	76.63	13.73	0:17:30	316.46	105.49	9.76	0:24:30	260.05	130.02	8.06	0:31:30	171.13	171.13	6.13
0:03:35	348.13	34.81	18.08	0:10:35	394.26	78.85	13.24	0:17:35	317.30	105.77	10.07	0:24:35	263.40	131.70	7.97	0:31:35	166.51	166.51	6.29
0:03:40	380.21	38.02	48.79	0:10:40	394.47	78.89	13.33	0:17:40	325.90	108.63	9.66	0:24:40	256.90	128.45	8.15	0:31:40	162.95	162.95	6.43
0:03:45	407.48	40.75	25.59	0:10:45	401.60	80.32	13.03	0:17:45	325.69	108.56	9.67	0:24:45	255.43	127.72	8.10	0:31:45	162.53	162.53	6.45
0:03:50	410.20	41.02	25.58	0:10:50	381.89	76.38	13.67	0:17:50	340.79	113.60	9.23	0:24:50	268.23	134.11	7.93	0:31:50	164.84	164.84	6.36
0:03:55	403.07	40.31	26.07	0:10:55	397.41	79.48	13.12	0:17:55	329.67	109.89	9.53	0:24:55	258.79	129.39	8.10	0:31:55	164.42	164.42	6.37
0:04:00	411.67	41.17	25.50	0:11:00	403.49	80.70	13.13	0:18:00	333.24	111.08	9.44	0:25:00	255.64	127.82	8.19	0:32:00	157.71	157.71	6.65
0:04:05	404.33	40.43	25.62	0:11:05	395.94	79.19	13.22	0:18:05	337.64	112.55	9.32	0:25:05	258.79	129.39	8.10	0:32:05	164.84	164.84	6.36
0:04:10	410.41	41.04	25.81	0:11:10	395.31	79.06	13.21	0:18:10	335.75	111.92	9.37	0:25:10	252.29	126.14	8.31	0:32:10	169.45	169.45	6.19
0:04:15	416.70	41.67	25.19	0:11:15	398.04	79.61	13.12	0:18:15	333.45	111.15	9.39	0:25:15	260.05	130.02	8.07	0:32:15	171.76	171.76	6.11
0:04:20	407.27	40.73	25.40	0:11:20	401.19	80.24	13.13	0:18:20	340.37	113.46	9.27	0:25:20	271.37	135.69	7.73	0:32:20	168.40	168.40	6.22
0:04:25	410.62	41.06	25.92	0:11:25	390.91	78.18	13.44	0:18:25	347.71	115.90	9.05	0:25:25	257.74	128.87	8.13	0:32:25	168.40	168.40	6.23
0:04:30	407.27	40.73	25.59	0:11:30	395.94	79.19	13.26	0:18:30	335.96	111.99	9.37	0:25:30	270.11	135.06	7.76	0:32:30	162.53	162.53	6.44
0:04:35	410.83	41.08	25.22	0:11:35	397.62	79.52	13.07	0:18:35	305.35	101.78	10.31	0:25:35	261.10	130.55	8.04	0:32:35	164.42	164.42	6.37
0:04:40	396.99	39.70	26.64	0:11:40	390.49	78.10	13.44	0:18:40	315.20	105.07	9.97	0:25:40	267.39	133.69	7.84	0:32:40	169.45	169.45	6.19
0:04:45	408.73	40.87	25.67	0:11:45	386.92	77.38	13.53	0:18:45	329.88	109.96	9.53	0:25:45	278.92	139.46	7.51	0:32:45	163.79	163.79	6.40
0:04:50	399.72	39.97	26.29	0:11:50	397.20	79.44	13.35	0:18:50	324.01	108.00	9.65	0:25:50	260.47	130.23	8.05	0:32:50	161.90	161.90	6.48
0:04:55	400.56	40.06	26.13	0:11:55	402.02	80.40	12.90	0:18:55	305.97	101.99	10.34	0:25:55	270.11	135.06	7.77	0:32:55	166.30	166.30	6.30
0:05:00	403.70	40.37	26.27	0:12:00	401.39	80.28	13.19	0:19:00	308.91	102.97	10.19	0:26:00	266.34	133.17	7.87	0:33:00	173.22	173.22	6.05
0:05:05	393.01	39.30	26.60	0:12:05	397.83	79.57	12.98	0:19:05	332.40	110.80	9.46	0:26:05	268.85	134.43	7.80	0:33:05	170.71	170.71	6.14
0:05:10	402.65	40.27	25.92	0:12:10	395.10	79.02	13.47	0:19:10	327.78	109.26	9.56	0:26:10	263.19	131.60	7.96	0:33:10	166.72	166.72	6.29
0:05:15	407.90	40.79	25.91	0:12:15	393.64	78.73	13.20	0:19:15	325.69	108.56	9.69	0:26:15	268.65	134.32	7.81	0:33:15	162.32	162.32	6.45
0:05:20	408.94	40.89	25.70	0:12:20	402.02	80.40	13.08	0:19:20	319.82	106.61	9.84	0:26:20	260.47	130.23	8.05	0:33:20	170.08	170.08	6.16
0:05:25	406.64	40.66	25.21	0:12:25	396.15	79.23	13.27	0:19:25	325.06	108.35	9.66	0:26:25	261.93	130.97	8.00	0:33:25	167.77	167.77	6.25
0:05:30	410.20	41.02	26.06	0:12:30	413.56	82.71	12.70	0:19:30	323.17	107.72	9.74	0:26:30	265.92	132.96	7.88	0:33:30	161.06	161.06	6.51
0:05:35	404.12	40.41	25.71	0:12:35	393.85	78.77	13.26	0:19:35	324.01	108.00	9.71	0:26:35	261.10	130.55	8.03	0:33:35	169.45	169.45	6.18
0:05:40	416.07	41.61	25.50	0:12:40	394.05	78.81	13.24	0:19:40	317.30	105.77	9.92	0:26:40	267.60	133.80	7.83	0:33:40	171.97	171.97	6.10
0:05:45	410.20	41.02	24.75	0:12:45	391.12	78.22	13.52	0:19:45	336.38	112.13	9.35	0:26:45	257.95	128.97	8.13	0:33:45	163.37	163.37	6.42
0:05:50	403.07	40.31	26.77	0:12:50	387.76	77.55	13.50	0:19:50	335.96	111.99	9.36	0:26:50	268.65	134.32	7.81	0:33:50	165.47	165.47	6.33
0:05:55	405.59	40.56	25.90	0:12:55	391.75	78.35	13.39	0:19:55	329.04	109.68	9.56	0:26:55	268.85	134.43	7.79	0:33:55	162.11	162.11	6.46
0:06:00	420.48	42.05	24.53	0:13:00	389.86	77.97	13.44	0:20:00	307.02	102.34	10.23	0:27:00	258.58	129.29	8.10	0:34:00	170.92	170.92	6.12
0:06:05	405.17	40.52	26.27	0:13:05	386.09	77.22	13.55	0:20:05	298.42	99.47	10.55	0:27:05	267.60	133.80	7.84	0:34:05	164.84	164.84	6.36
0:06:10	408.11	40.81	25.72	0:13:10	396.36	79.27	13.11	0:20:10	306.39	102.13	10.26	0:27:10	258.79	129.39	8.09	0:34:10	165.88	165.88	6.32
0:06:15	404.96	40.50	25.53	0:13:15	385.25	77.05	13.55	0:20:15	295.91	98.64	10.63	0:27:15	264.03	132.02	7.95	0:34:15	166.30	166.30	6.30
0:06:20	402.23	40.22	26.00	0:13:20	394.05	78.81	13.37	0:20:20	344.35	114.78	9.14	0:27:20	261.31	130.65	8.02	0:34:20	170.29	170.29	6.15
0:06:25	414.40	41.44	25.40	0:13:25	406.01	81.20	13.00	0:20:25	336.38	112.13	9.35	0:27:25	265.71	132.85	7.90	0:34:25	167.35	167.35	6.27
0:06:30	399.30	39.93	26.46	0:13:30	400.56	80.11	13.02	0:20:30	310.59	103.53	10.13	0:27:30	267.60	133.80	7.83	0:34:30	170.08	170.08	6.16
0:06:35	409.78	40.98	25.59	0:13:35	385.46	77.09	13.48	0:20:35	309.54	103.18	10.04	0:27:35	263.19	131.60	7.97	0:34:35	163.79	163.79	6.40
0:06:40	399.72	39.97	26.15	0:13:40	391.54	78.31	13.48	0:20:40	315.83	105.28	10.07	0:27:40	270.74	135.37	7.74	0:34:40	166.93	166.93	6.27
0:06:45	7.55	0.00	46.51	0:13:45	7.76	0.00	17.70	0:20:45	5.24	0.00	12.16	0:27:45	4.40	0.00	7.43	0:34:45	2.31	0.00	6.62
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

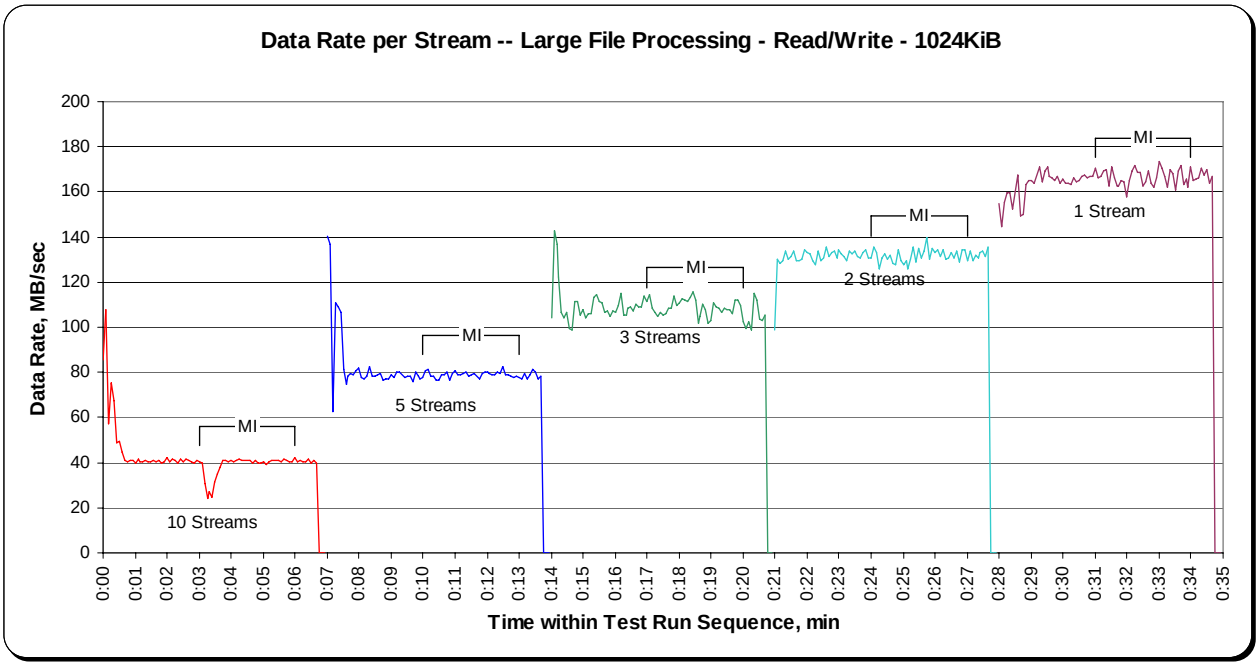
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



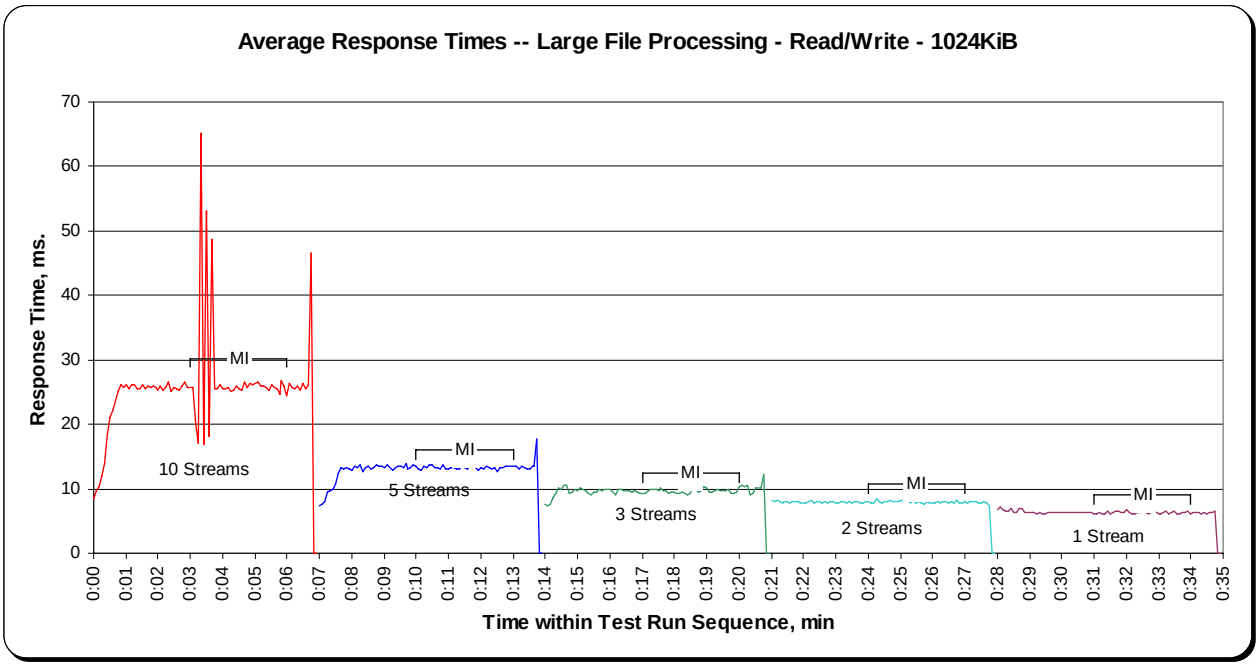
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Average Data Rate per Stream Graph



SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Average Response Time Graph



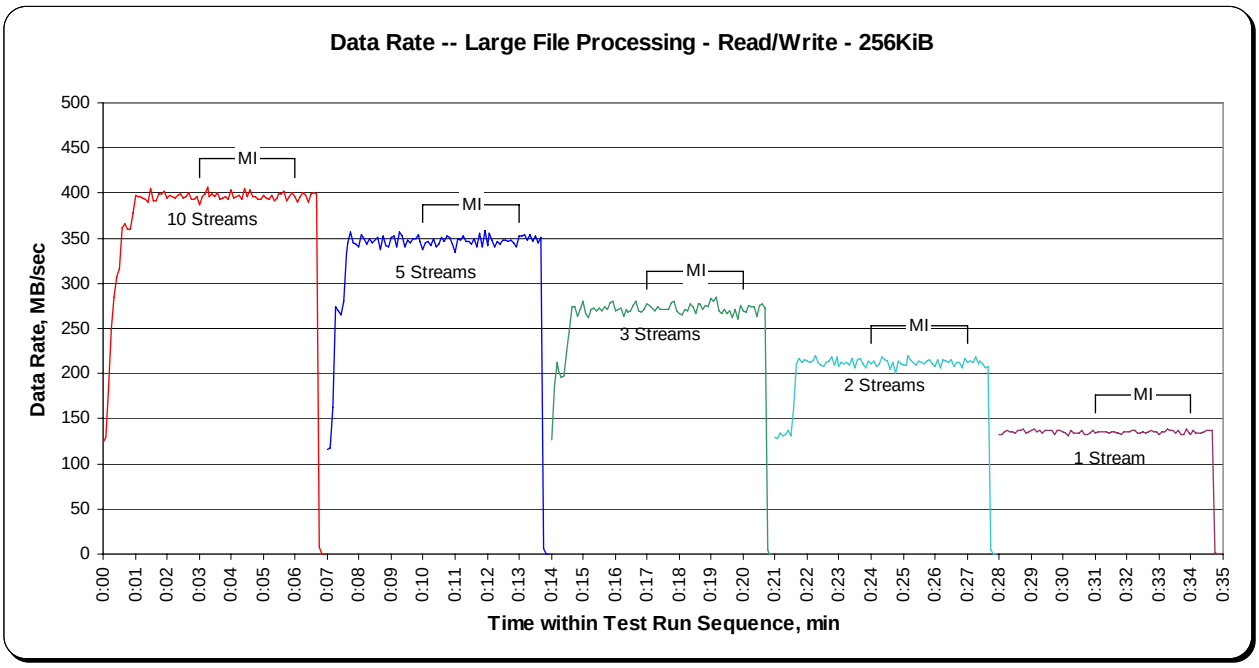
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR16	10 Streams			TR17	5 Streams			TR18	3 Streams			TR19	2 Streams			TR20	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	123.10	123.10	2.09	0:07:00	116.29	116.29	2.22	0:14:00	126.93	126.93	2.03	0:21:00	129.97	129.97	1.99	0:28:00	132.70	132.70	1.94
0:00:05	130.23	65.12	2.19	0:07:05	117.70	117.70	2.22	0:14:05	186.17	93.09	2.41	0:21:05	127.30	127.30	2.06	0:28:05	132.49	132.49	1.98
0:00:10	184.18	61.39	3.05	0:07:10	162.95	54.32	2.37	0:14:10	212.65	106.33	2.46	0:21:10	133.33	133.33	1.96	0:28:10	135.95	135.95	1.93
0:00:15	249.04	83.01	3.16	0:07:15	274.05	91.35	2.87	0:14:15	202.74	101.37	2.58	0:21:15	130.39	130.39	2.01	0:28:15	137.21	137.21	1.91
0:00:20	284.58	71.15	3.37	0:07:20	270.11	90.04	2.91	0:14:20	196.50	98.25	2.67	0:21:20	133.06	133.06	1.97	0:28:20	135.79	135.79	1.93
0:00:25	307.39	76.85	3.42	0:07:25	264.50	88.17	2.97	0:14:25	196.87	98.44	2.66	0:21:25	136.37	136.37	1.92	0:28:25	135.79	135.79	1.93
0:00:30	316.77	63.35	3.46	0:07:30	280.76	70.19	3.13	0:14:30	224.71	112.35	2.33	0:21:30	130.81	130.81	2.00	0:28:30	134.38	134.38	1.95
0:00:35	362.07	51.72	4.36	0:07:35	332.29	66.46	3.51	0:14:35	248.72	82.91	2.54	0:21:35	162.90	81.45	2.27	0:28:35	136.63	136.63	1.92
0:00:40	366.58	52.37	5.00	0:07:40	344.40	68.88	3.81	0:14:40	273.68	91.23	2.87	0:21:40	211.39	105.70	2.47	0:28:40	136.63	136.63	1.92
0:00:45	360.03	51.43	5.10	0:07:45	356.31	71.26	3.67	0:14:45	274.73	91.58	2.86	0:21:45	216.95	108.48	2.41	0:28:45	137.89	137.89	1.90
0:00:50	359.50	44.94	5.07	0:07:50	344.67	68.93	3.81	0:14:50	263.45	87.82	2.98	0:21:50	212.07	106.04	2.47	0:28:50	134.74	134.74	1.94
0:00:55	377.49	41.94	5.74	0:07:55	344.04	68.81	3.80	0:14:55	270.38	90.13	2.91	0:21:55	215.06	107.53	2.44	0:28:55	134.95	134.95	1.94
0:01:00	396.99	39.70	6.32	0:08:00	341.10	68.22	3.81	0:15:00	279.81	93.27	2.80	0:22:00	213.54	106.77	2.45	0:29:00	136.52	136.52	1.92
0:01:05	395.99	39.60	6.65	0:08:05	354.16	70.83	3.71	0:15:05	265.92	88.64	2.96	0:22:05	211.92	105.96	2.47	0:29:05	138.83	138.83	1.89
0:01:10	396.57	39.66	6.57	0:08:10	349.33	69.87	3.77	0:15:10	261.31	87.10	3.01	0:22:10	214.33	107.16	2.44	0:29:10	135.16	135.16	1.94
0:01:15	394.05	39.41	6.66	0:08:15	343.30	68.66	3.79	0:15:15	271.79	90.60	2.89	0:22:15	220.57	110.28	2.37	0:29:15	136.42	136.42	1.92
0:01:20	392.69	39.27	6.69	0:08:20	349.65	69.93	3.78	0:15:20	273.31	91.10	2.88	0:22:20	211.81	105.91	2.47	0:29:20	134.58	134.58	1.95
0:01:25	390.49	39.05	6.73	0:08:25	344.98	69.00	3.80	0:15:25	270.11	90.04	2.91	0:22:25	208.72	104.36	2.51	0:29:25	136.47	136.47	1.92
0:01:30	405.01	40.50	6.41	0:08:30	348.60	69.72	3.76	0:15:30	271.90	90.63	2.89	0:22:30	207.62	103.81	2.52	0:29:30	136.84	136.84	1.91
0:01:35	391.64	39.16	6.72	0:08:35	350.80	70.16	3.72	0:15:35	270.22	90.07	2.91	0:22:35	213.07	106.54	2.45	0:29:35	136.94	136.94	1.91
0:01:40	391.54	39.15	6.71	0:08:40	337.90	67.58	3.89	0:15:40	273.42	91.14	2.87	0:22:40	213.96	106.98	2.46	0:29:40	137.15	137.15	1.91
0:01:45	398.56	39.86	6.56	0:08:45	353.06	70.61	3.71	0:15:45	271.79	90.60	2.89	0:22:45	217.74	108.87	2.41	0:29:45	133.27	133.27	1.96
0:01:50	399.35	39.94	6.57	0:08:50	342.26	68.45	3.81	0:15:50	278.34	92.78	2.82	0:22:50	208.72	104.36	2.51	0:29:50	137.15	137.15	1.91
0:01:55	401.76	40.18	6.51	0:08:55	340.94	68.19	3.84	0:15:55	280.86	93.62	2.80	0:22:55	218.16	109.08	2.40	0:29:55	136.63	136.63	1.92
0:02:00	394.74	39.47	6.68	0:09:00	350.96	70.19	3.74	0:16:00	269.33	89.78	2.92	0:23:00	207.93	103.97	2.52	0:30:00	135.74	135.74	1.93
0:02:05	396.89	39.69	6.60	0:09:05	352.11	70.42	3.72	0:16:05	270.59	90.20	2.89	0:23:05	211.71	105.85	2.47	0:30:05	134.58	134.58	1.95
0:02:10	396.15	39.62	6.62	0:09:10	340.47	68.09	3.86	0:16:10	271.95	90.65	2.90	0:23:10	210.66	105.33	2.49	0:30:10	130.34	130.34	2.01
0:02:15	395.21	39.52	6.59	0:09:15	356.20	71.24	3.68	0:16:15	263.30	87.77	2.99	0:23:15	211.92	105.96	2.47	0:30:15	137.26	137.26	1.91
0:02:20	397.15	39.71	6.60	0:09:20	351.69	70.34	3.72	0:16:20	270.90	90.30	2.90	0:23:20	209.40	104.70	2.50	0:30:20	134.53	134.53	1.93
0:02:25	398.41	39.84	6.56	0:09:25	341.00	68.20	3.84	0:16:25	267.91	89.30	2.93	0:23:25	216.53	108.27	2.42	0:30:25	134.64	134.64	1.96
0:02:30	394.42	39.44	6.69	0:09:30	348.28	69.66	3.76	0:16:30	270.32	90.11	2.89	0:23:30	205.68	102.84	2.55	0:30:30	133.38	133.38	1.96
0:02:35	395.73	39.57	6.65	0:09:35	344.61	68.92	3.81	0:16:35	275.88	91.96	2.87	0:23:35	215.06	107.53	2.43	0:30:35	137.26	137.26	1.91
0:02:40	401.03	40.10	6.53	0:09:40	349.39	69.88	3.75	0:16:40	280.07	93.36	2.81	0:23:40	216.64	108.32	2.42	0:30:40	133.27	133.27	1.96
0:02:45	393.79	39.38	6.64	0:09:45	349.07	69.81	3.73	0:16:45	269.64	89.88	2.90	0:23:45	210.55	105.28	2.49	0:30:45	133.01	133.01	1.97
0:02:50	393.79	39.38	6.61	0:09:50	353.21	70.64	3.73	0:16:50	267.49	89.16	2.95	0:23:50	206.41	103.21	2.54	0:30:50	133.96	133.96	1.95
0:02:55	396.31	39.63	6.67	0:09:55	346.24	69.25	3.76	0:16:55	271.32	90.44	2.90	0:23:55	213.23	106.61	2.46	0:30:55	137.00	137.00	1.91

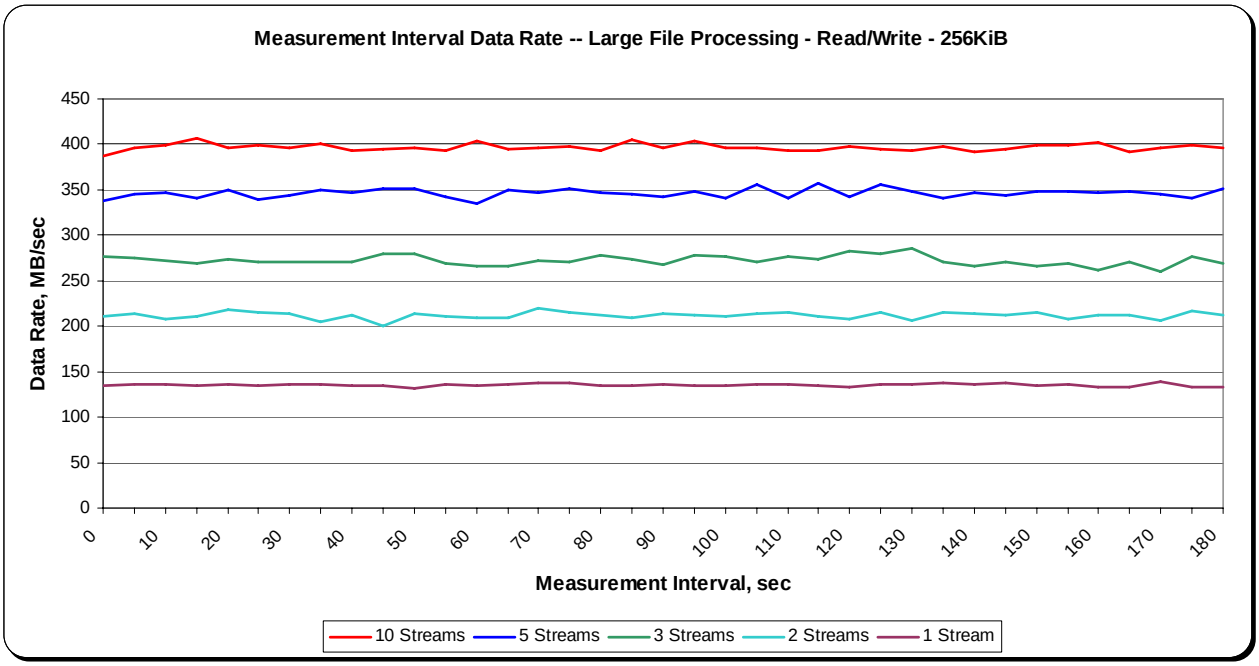
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR16	10 Streams			TR17	5 Streams			TR18	3 Streams			TR19	2 Streams			TR20	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	386.71	38.67	6.73	0:10:00	337.90	67.58	3.90	0:17:00	276.61	92.20	2.83	0:24:00	210.61	105.30	2.48	0:31:00	134.48	134.48	1.94
0:03:05	396.73	39.67	6.64	0:10:05	345.24	69.05	3.79	0:17:05	275.57	91.86	2.85	0:24:05	213.70	106.85	2.45	0:31:05	136.05	136.05	1.92
0:03:10	398.88	39.89	6.57	0:10:10	346.97	69.39	3.78	0:17:10	271.84	90.61	2.89	0:24:10	207.57	103.78	2.53	0:31:10	135.63	135.63	1.93
0:03:15	406.38	40.64	6.45	0:10:15	341.47	68.29	3.84	0:17:15	269.22	89.74	2.92	0:24:15	210.71	105.36	2.49	0:31:15	134.95	134.95	1.94
0:03:20	396.20	39.62	6.56	0:10:20	349.33	69.87	3.75	0:17:20	273.52	91.17	2.87	0:24:20	218.47	109.24	2.40	0:31:20	135.37	135.37	1.93
0:03:25	398.62	39.86	6.58	0:10:25	339.69	67.94	3.85	0:17:25	270.48	90.16	2.90	0:24:25	215.01	107.51	2.43	0:31:25	134.74	134.74	1.94
0:03:30	396.78	39.68	6.62	0:10:30	343.25	68.65	3.82	0:17:30	270.74	90.25	2.90	0:24:30	214.28	107.14	2.45	0:31:30	135.58	135.58	1.93
0:03:35	401.13	40.11	6.55	0:10:35	350.22	70.04	3.74	0:17:35	270.69	90.23	2.90	0:24:35	205.47	102.73	2.53	0:31:35	136.11	136.11	1.92
0:03:40	392.74	39.27	6.64	0:10:40	346.92	69.38	3.78	0:17:40	271.21	90.40	2.90	0:24:40	212.28	106.14	2.49	0:31:40	134.53	134.53	1.95
0:03:45	394.00	39.40	6.70	0:10:45	352.01	70.40	3.72	0:17:45	279.13	93.04	2.81	0:24:45	200.91	100.45	2.60	0:31:45	134.01	134.01	1.93
0:03:50	395.84	39.58	6.63	0:10:50	351.17	70.23	3.73	0:17:50	279.60	93.20	2.81	0:24:50	213.96	106.98	2.46	0:31:50	131.91	131.91	2.00
0:03:55	393.22	39.32	6.63	0:10:55	342.62	68.52	3.82	0:17:55	269.75	89.92	2.91	0:24:55	211.50	105.75	2.47	0:31:55	135.90	135.90	1.94
0:04:00	403.33	40.33	6.51	0:11:00	334.81	66.96	3.92	0:18:00	266.55	88.85	2.95	0:25:00	209.09	104.54	2.51	0:32:00	134.79	134.79	1.94
0:04:05	394.11	39.41	6.66	0:11:05	349.86	69.97	3.74	0:18:05	265.45	88.48	2.96	0:25:05	209.24	104.62	2.50	0:32:05	135.63	135.63	1.93
0:04:10	396.57	39.66	6.61	0:11:10	347.34	69.47	3.77	0:18:10	271.58	90.53	2.88	0:25:10	219.26	109.63	2.39	0:32:10	137.68	137.68	1.90
0:04:15	397.52	39.75	6.53	0:11:15	351.95	70.39	3.72	0:18:15	270.22	90.07	2.90	0:25:15	214.80	107.40	2.44	0:32:15	136.84	136.84	1.91
0:04:20	392.80	39.28	6.72	0:11:20	346.87	69.37	3.75	0:18:20	277.40	92.47	2.85	0:25:20	212.02	106.01	2.47	0:32:20	134.69	134.69	1.94
0:04:25	405.06	40.51	6.48	0:11:25	345.87	69.17	3.81	0:18:25	273.36	91.12	2.87	0:25:25	209.92	104.96	2.50	0:32:25	134.48	134.48	1.95
0:04:30	395.63	39.56	6.56	0:11:30	342.99	68.60	3.82	0:18:30	267.07	89.02	2.94	0:25:30	214.17	107.09	2.45	0:32:30	135.37	135.37	1.94
0:04:35	403.23	40.32	6.55	0:11:35	348.70	69.74	3.76	0:18:35	277.45	92.48	2.83	0:25:35	211.76	105.88	2.47	0:32:35	134.01	134.01	1.95
0:04:40	395.73	39.57	6.63	0:11:40	340.21	68.04	3.84	0:18:40	276.72	92.24	2.84	0:25:40	211.34	105.67	2.48	0:32:40	134.95	134.95	1.94
0:04:45	395.58	39.56	6.59	0:11:45	355.47	71.09	3.69	0:18:45	271.11	90.37	2.90	0:25:45	213.96	106.98	2.44	0:32:45	136.73	136.73	1.92
0:04:50	393.58	39.36	6.66	0:11:50	340.16	68.03	3.81	0:18:50	276.14	92.05	2.84	0:25:50	215.90	107.95	2.43	0:32:50	135.79	135.79	1.93
0:04:55	392.80	39.28	6.68	0:11:55	357.98	71.60	3.71	0:18:55	273.84	91.28	2.87	0:25:55	211.39	105.70	2.48	0:32:55	135.06	135.06	1.94
0:05:00	397.15	39.71	6.63	0:12:00	341.73	68.35	3.83	0:19:00	282.64	94.21	2.78	0:26:00	207.20	103.60	2.52	0:33:00	132.85	132.85	1.97
0:05:05	395.21	39.52	6.61	0:12:05	355.15	71.03	3.69	0:19:05	279.81	93.27	2.81	0:26:05	214.91	107.45	2.45	0:33:05	135.58	135.58	1.93
0:05:10	392.90	39.29	6.69	0:12:10	348.60	69.72	3.76	0:19:10	285.27	95.09	2.75	0:26:10	206.15	103.08	2.54	0:33:10	135.69	135.69	1.93
0:05:15	397.41	39.74	6.57	0:12:15	340.42	68.08	3.85	0:19:15	270.01	90.00	2.91	0:26:15	214.80	107.40	2.43	0:33:15	138.05	138.05	1.90
0:05:20	391.01	39.10	6.71	0:12:20	346.92	69.38	3.78	0:19:20	266.50	88.83	2.93	0:26:20	213.18	106.59	2.46	0:33:20	136.68	136.68	1.92
0:05:25	394.79	39.48	6.63	0:12:25	343.78	68.76	3.81	0:19:25	270.69	90.23	2.92	0:26:25	212.55	106.27	2.46	0:33:25	137.05	137.05	1.91
0:05:30	399.51	39.95	6.57	0:12:30	348.60	69.72	3.75	0:19:30	266.65	88.88	2.95	0:26:30	215.06	107.53	2.44	0:33:30	134.06	134.06	1.95
0:05:35	399.46	39.95	6.55	0:12:35	348.60	69.72	3.77	0:19:35	269.33	89.78	2.91	0:26:35	208.46	104.23	2.51	0:33:35	136.37	136.37	1.92
0:05:40	402.13	40.21	6.54	0:12:40	346.34	69.27	3.78	0:19:40	261.67	87.22	3.01	0:26:40	212.65	106.33	2.46	0:33:40	132.91	132.91	1.97
0:05:45	391.49	39.15	6.68	0:12:45	347.71	69.54	3.77	0:19:45	270.69	90.23	2.90	0:26:45	212.28	106.14	2.47	0:33:45	132.75	132.75	1.97
0:05:50	395.79	39.58	6.63	0:12:50	345.56	69.11	3.79	0:19:50	260.15	86.72	3.02	0:26:50	206.88	103.44	2.51	0:33:50	138.88	138.88	1.88
0:05:55	399.87	39.99	6.53	0:12:55	340.84	68.17	3.84	0:19:55	276.04	92.01	2.85	0:26:55	217.06	108.53	2.44	0:33:55	133.80	133.80	1.96
0:06:00	396.73	39.67	6.64	0:13:00	352.06	70.41	3.72	0:20:00	269.38	89.79	2.91	0:27:00	211.66	105.83	2.46	0:34:00	132.44	132.44	1.97
0:06:05	389.86	38.99	6.69	0:13:05	352.85	70.57	3.71	0:20:05	268.75	89.58	2.92	0:27:05	214.12	107.06	2.45	0:34:05	136.63	136.63	1.92
0:06:10	395.58	39.56	6.63	0:13:10	353.89	70.78	3.70	0:20:10	275.41	91.80	2.85	0:27:10	211.60	105.80	2.47	0:34:10	133.96	133.96	1.95
0:06:15	401.08	40.11	6.50	0:13:15	347.81	69.56	3.77	0:20:15	273.94	91.31	2.87	0:27:15	217.95	108.97	2.40	0:34:15	134.64	134.64	1.95
0:06:20	398.09	39.81	6.58	0:13:20	354.31	70.86	3.69	0:20:20	274.46	91.49	2.86	0:27:20	210.87	105.43	2.48	0:34:20	134.69	134.69	1.94
0:06:25	390.65	39.06	6.73	0:13:25	346.40	69.28	3.78	0:20:25	264.14	88.05	2.97	0:27:25	214.17	107.09	2.44	0:34:25	135.00	135.00	1.94
0:06:30	398.35	39.84	6.57	0:13:30	352.85	70.57	3.72	0:20:30	275.83	91.94	2.85	0:27:30	210.13	105.07	2.49	0:34:30	137.10	137.10	1.91
0:06:35	400.45	40.05	6.55	0:13:35	345.24	69.05	3.80	0:20:35	277.19	92.40	2.82	0:27:35	205.99	103.00	2.54	0:34:35	137.05	137.05	1.91
0:06:40	399.25	39.92	6.55	0:13:40	350.38	70.08	3.74	0:20:40	272.26	90.75	2.90	0:27:40	208.25	104.12	2.52	0:34:40	136.47	136.47	1.92
0:06:45	6.87	0.00	9.00	0:13:45	6.19	0.00	3.44	0:20:45	4.19	0.00	2.96	0:27:45	4.04	0.00	1.88	0:34:45	2.04	0.00	1.65
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

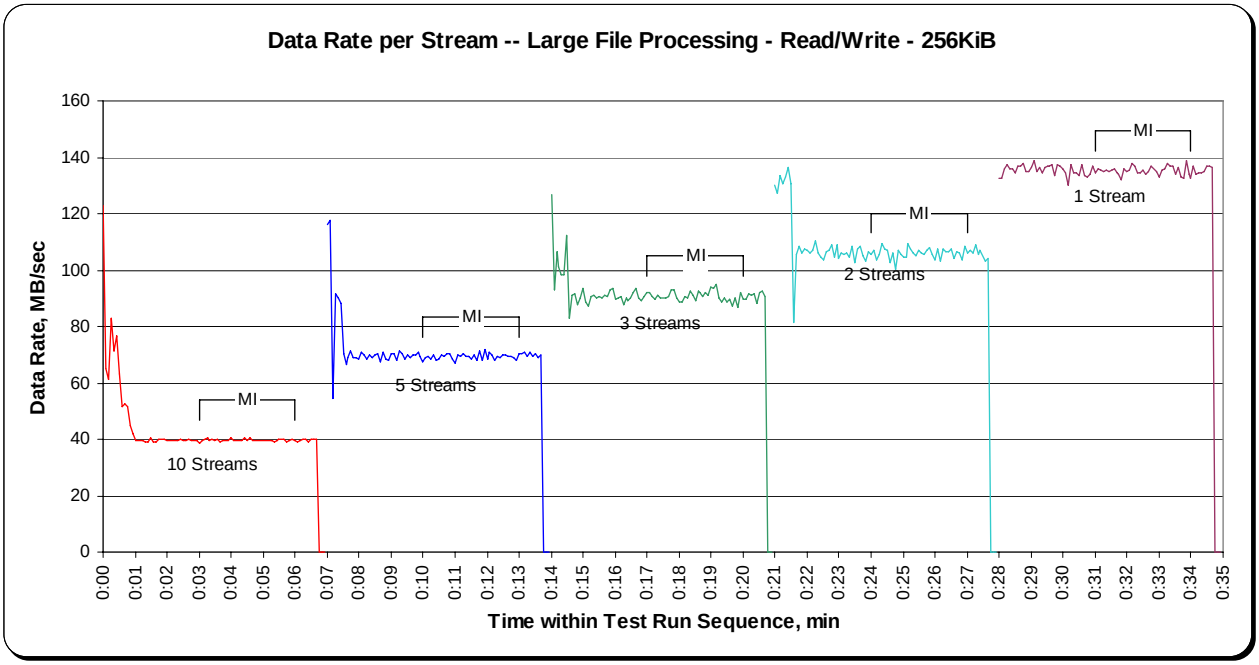
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



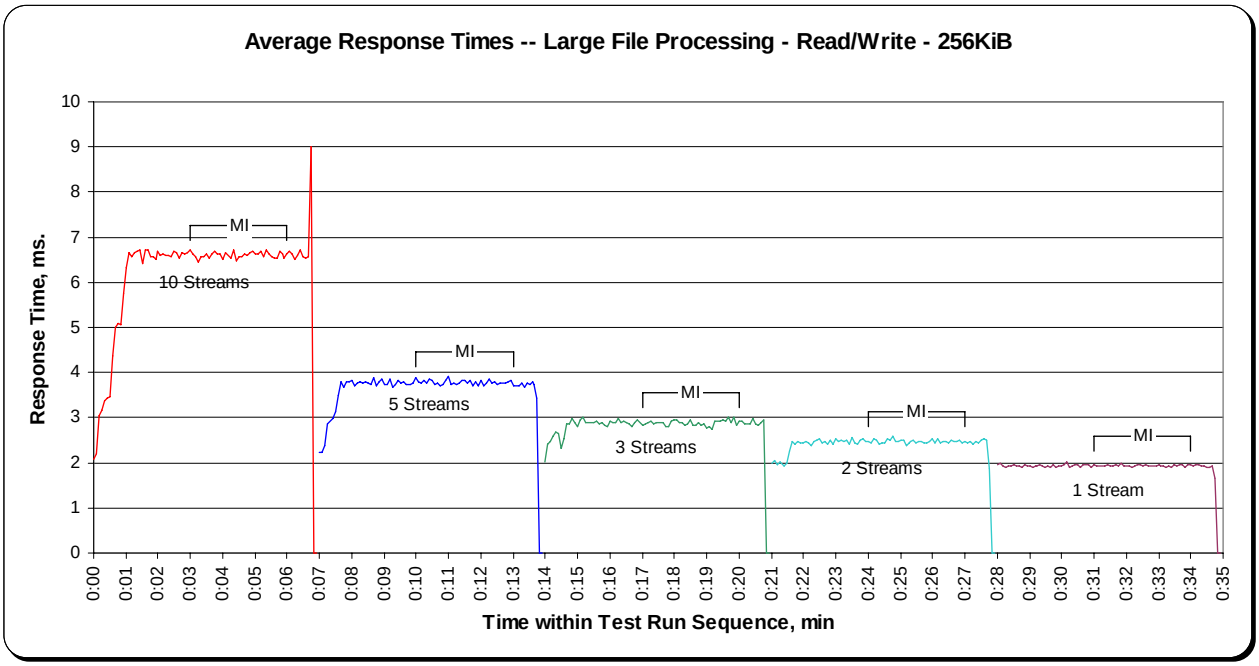
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate per Stream Graph



SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Response Time Graph



Large File Processing Test – READ ONLY Test Phase

Clause 10.6.8.1.3

1. *A table that will contain the following information for each "READ ONLY, 1024 KiB Transfer Size" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
2. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "READ ONLY, 1024 KiB Transfer Size" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*
3. *A table that will contain the following information for each "READ ONLY, 256 KiB Transfer Size" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
4. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "READ ONLY, 256 KiB Transfer Size" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*

The SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate, average Data Rate per Stream, and average Response Time produced by the same Test Runs. The table and graphs present the data at five-second intervals.

Immediately following the SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" table and graphs will be the SPC-2 "Large File Processing/READ ONLY/64 KiB Transfer Size" table and graphs. The table contains the Test Run data and the graphs illustrate the average Data Rate, average Data Rate per Stream, and average Response Time produced by the Test Runs.

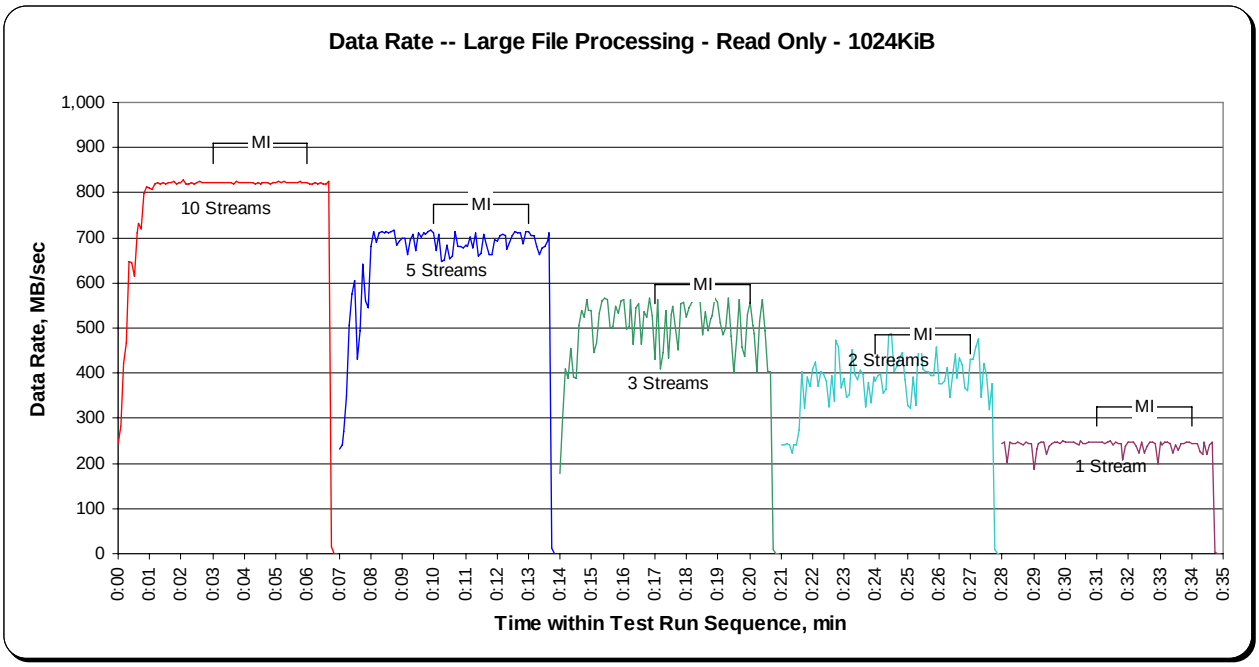
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period

TR21	10 Streams			TR22	5 Streams			TR23	3 Streams			TR24	2 Streams			TR25	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	244.11	244.11	4.23	0:07:00	231.53	231.53	4.47	0:14:00	176.37	176.37	5.87	0:21:00	239.91	239.91	4.31	0:28:00	243.06	243.06	4.26
0:00:05	284.37	142.19	5.72	0:07:05	241.17	241.17	4.35	0:14:05	301.78	150.89	5.85	0:21:05	241.80	241.80	4.33	0:28:05	247.46	247.46	4.24
0:00:10	422.58	140.86	6.07	0:07:10	269.90	134.95	4.34	0:14:10	411.04	205.52	5.11	0:21:10	244.32	244.32	4.29	0:28:10	202.17	202.17	5.18
0:00:15	466.83	116.71	8.20	0:07:15	348.13	174.06	5.99	0:14:15	388.18	194.09	5.39	0:21:15	241.80	241.80	4.33	0:28:15	247.67	247.67	4.23
0:00:20	647.60	161.90	6.48	0:07:20	507.51	169.17	5.63	0:14:20	454.45	227.23	4.61	0:21:20	223.14	223.14	4.70	0:28:20	244.53	244.53	4.28
0:00:25	644.87	161.22	6.50	0:07:25	575.25	143.81	6.28	0:14:25	390.70	195.35	5.36	0:21:25	240.33	240.33	4.36	0:28:25	244.74	244.74	4.28
0:00:30	614.05	102.34	8.18	0:07:30	604.82	151.20	6.92	0:14:30	389.23	194.62	5.38	0:21:30	241.80	241.80	4.33	0:28:30	246.83	246.83	4.24
0:00:35	710.31	101.47	9.47	0:07:35	431.17	107.79	9.74	0:14:35	505.20	168.40	5.01	0:21:35	273.47	136.73	5.43	0:28:35	244.95	244.95	4.28
0:00:40	733.37	91.67	10.20	0:07:40	495.35	123.84	8.46	0:14:40	538.13	179.38	5.84	0:21:40	402.86	201.43	5.20	0:28:40	242.43	242.43	4.32
0:00:45	719.95	89.99	11.62	0:07:45	642.78	160.69	6.52	0:14:45	525.34	175.11	5.98	0:21:45	321.70	160.85	6.51	0:28:45	246.42	246.42	4.25
0:00:50	798.39	99.80	10.54	0:07:50	560.15	140.04	7.48	0:14:50	562.25	187.42	5.59	0:21:50	392.80	196.40	5.35	0:28:50	245.16	245.16	4.27
0:00:55	811.81	101.48	10.33	0:07:55	544.84	108.97	7.96	0:14:55	539.18	179.73	5.83	0:21:55	371.20	185.60	5.64	0:28:55	243.90	243.90	4.28
0:01:00	809.29	101.16	10.36	0:08:00	679.90	135.98	7.71	0:15:00	538.55	179.52	5.82	0:22:00	409.15	204.58	5.12	0:29:00	186.23	186.23	5.64
0:01:05	805.94	100.74	10.42	0:08:05	713.87	142.77	7.34	0:15:05	444.60	148.20	7.09	0:22:05	425.51	212.76	4.93	0:29:05	230.90	230.90	4.54
0:01:10	817.89	90.88	11.23	0:08:10	688.29	137.66	7.62	0:15:10	465.99	155.33	6.74	0:22:10	369.31	184.65	5.67	0:29:10	243.27	243.27	4.31
0:01:15	821.45	82.15	12.57	0:08:15	711.56	142.31	7.36	0:15:15	532.89	177.63	5.90	0:22:15	403.28	201.64	5.20	0:29:15	246.63	246.63	4.25
0:01:20	818.31	81.83	12.77	0:08:20	714.08	142.82	7.34	0:15:20	559.94	186.65	5.61	0:22:20	396.36	198.18	5.29	0:29:20	246.63	246.63	4.25
0:01:25	822.29	82.23	12.72	0:08:25	711.77	142.35	7.36	0:15:25	565.18	188.39	5.56	0:22:25	383.57	191.78	5.46	0:29:25	221.25	221.25	4.74
0:01:30	819.57	81.96	12.80	0:08:30	712.40	142.48	7.36	0:15:30	563.09	187.70	5.58	0:22:30	325.69	162.84	6.43	0:29:30	238.87	238.87	4.38
0:01:35	821.66	82.17	12.76	0:08:35	711.35	142.27	7.36	0:15:35	500.38	166.79	6.29	0:22:35	394.68	197.34	5.31	0:29:35	244.95	244.95	4.28
0:01:40	822.08	82.21	12.75	0:08:40	714.08	142.82	7.35	0:15:40	503.95	167.98	6.23	0:22:40	338.69	169.35	6.19	0:29:40	246.00	246.00	4.26
0:01:45	825.23	82.52	12.69	0:08:45	715.55	143.11	7.33	0:15:45	547.57	182.52	5.75	0:22:45	473.12	236.56	4.42	0:29:45	246.83	246.83	4.25
0:01:50	820.20	82.02	12.80	0:08:50	684.72	136.94	7.65	0:15:50	532.68	177.56	5.90	0:22:50	457.60	228.80	4.59	0:29:50	243.48	243.48	4.30
0:01:55	822.92	82.29	12.74	0:08:55	693.95	138.79	7.56	0:15:55	560.78	186.93	5.61	0:22:55	368.05	184.03	5.69	0:29:55	249.35	249.35	4.21
0:02:00	823.13	82.31	12.73	0:09:00	698.77	139.75	7.50	0:16:00	563.30	187.77	5.57	0:23:00	388.18	194.09	5.40	0:30:00	248.09	248.09	4.22
0:02:05	827.96	82.80	12.65	0:09:05	698.98	139.80	7.50	0:16:05	496.19	165.40	6.32	0:23:05	346.03	173.02	6.06	0:30:05	246.42	246.42	4.25
0:02:10	819.57	81.96	12.81	0:09:10	661.23	132.25	7.93	0:16:10	501.64	167.21	6.28	0:23:10	353.37	176.69	5.94	0:30:10	246.42	246.42	4.25
0:02:15	820.20	82.02	12.77	0:09:15	695.63	139.13	7.54	0:16:15	563.30	187.77	5.58	0:23:15	452.15	226.07	4.63	0:30:15	246.21	246.21	4.26
0:02:20	821.66	82.17	12.76	0:09:20	707.58	141.52	7.41	0:16:20	463.05	154.35	6.78	0:23:20	398.46	199.23	5.26	0:30:20	245.37	245.37	4.27
0:02:25	820.62	82.06	12.77	0:09:25	671.30	134.26	7.80	0:16:25	544.63	181.54	5.78	0:23:25	385.46	192.73	5.44	0:30:25	240.54	240.54	4.35
0:02:30	821.04	82.10	12.79	0:09:30	711.77	142.35	7.37	0:16:30	554.07	184.69	5.66	0:23:30	406.85	203.42	5.15	0:30:30	249.35	249.35	4.21
0:02:35	823.97	82.40	12.70	0:09:35	701.71	140.34	7.47	0:16:35	464.94	154.98	6.77	0:23:35	397.62	198.81	5.28	0:30:35	244.95	244.95	4.28
0:02:40	821.87	82.19	12.77	0:09:40	709.68	141.94	7.39	0:16:40	536.24	178.75	5.86	0:23:40	326.11	163.05	6.43	0:30:40	243.90	243.90	4.30
0:02:45	823.76	82.38	12.73	0:09:45	707.58	141.52	7.40	0:16:45	525.55	175.18	5.98	0:23:45	380.42	190.21	5.51	0:30:45	245.79	245.79	4.26
0:02:50	822.29	82.23	12.73	0:09:50	712.40	142.48	7.36	0:16:50	567.28	189.09	5.54	0:23:50	335.75	167.88	6.24	0:30:50	247.46	247.46	4.23
0:02:55	822.29	82.23	12.76	0:09:55	716.18	143.24	7.31	0:16:55	528.06	176.02	5.96	0:23:55	392.17	196.08	5.35	0:30:55	247.67	247.67	4.23

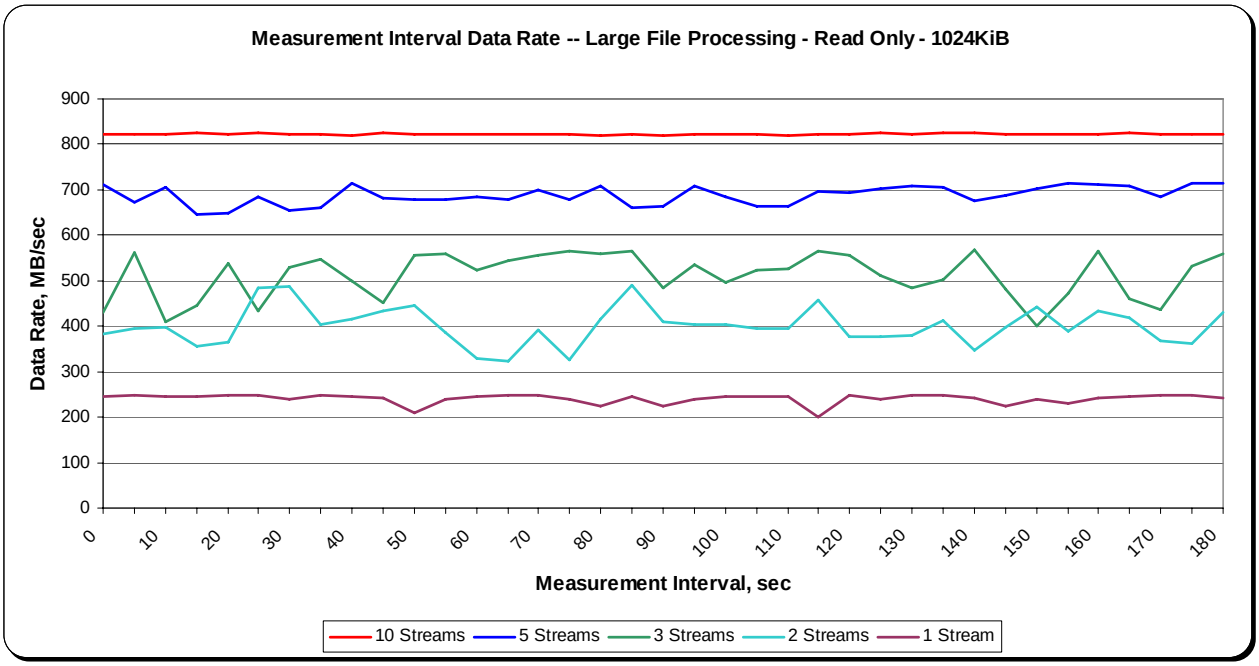
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR21	10 Streams			TR22	5 Streams			TR23	3 Streams			TR24	2 Streams			TR25	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	821.66	82.17	12.74	0:10:00	710.31	142.06	7.39	0:17:00	430.34	143.45	7.30	0:24:00	381.26	190.63	5.50	0:31:00	246.00	246.00	4.26
0:03:05	821.04	82.10	12.78	0:10:05	671.93	134.39	7.80	0:17:05	561.83	187.28	5.59	0:24:05	395.52	197.76	5.29	0:31:05	248.09	248.09	4.22
0:03:10	823.34	82.33	12.74	0:10:10	706.95	141.39	7.41	0:17:10	410.20	136.73	7.66	0:24:10	397.20	198.60	5.28	0:31:10	245.79	245.79	4.26
0:03:15	823.76	82.38	12.72	0:10:15	646.34	129.27	8.11	0:17:15	445.44	148.48	7.05	0:24:15	356.52	178.26	5.88	0:31:15	245.16	245.16	4.27
0:03:20	821.04	82.10	12.77	0:10:20	649.28	129.86	8.08	0:17:20	537.92	179.31	5.85	0:24:20	365.32	182.66	5.74	0:31:20	247.25	247.25	4.24
0:03:25	823.76	82.38	12.75	0:10:25	683.88	136.78	7.66	0:17:25	433.90	144.63	7.25	0:24:25	484.65	242.33	4.32	0:31:25	248.93	248.93	4.21
0:03:30	822.29	82.23	12.74	0:10:30	654.52	130.90	8.00	0:17:30	529.74	176.58	5.93	0:24:30	488.43	244.21	4.29	0:31:30	240.54	240.54	4.36
0:03:35	821.87	82.19	12.74	0:10:35	659.55	131.91	7.95	0:17:35	548.20	182.73	5.73	0:24:35	404.75	202.38	5.17	0:31:35	246.83	246.83	4.24
0:03:40	820.20	82.02	12.79	0:10:40	714.92	142.98	7.33	0:17:40	500.80	166.93	6.28	0:24:40	415.24	207.62	5.05	0:31:40	243.69	243.69	4.30
0:03:45	825.23	82.52	12.71	0:10:45	680.53	136.11	7.70	0:17:45	451.94	150.65	6.96	0:24:45	432.64	216.32	4.85	0:31:45	243.48	243.48	4.30
0:03:50	822.29	82.23	12.74	0:10:50	680.11	136.02	7.71	0:17:50	554.70	184.90	5.66	0:24:50	445.23	222.61	4.70	0:31:50	209.09	209.09	5.01
0:03:55	822.71	82.27	12.75	0:10:55	679.06	135.81	7.72	0:17:55	558.68	186.23	5.62	0:24:55	385.67	192.83	5.44	0:31:55	238.24	238.24	4.40
0:04:00	823.13	82.31	12.74	0:11:00	684.72	136.94	7.65	0:18:00	523.66	174.55	6.00	0:25:00	328.20	164.10	6.39	0:32:00	246.63	246.63	4.25
0:04:05	822.08	82.21	12.73	0:11:05	679.48	135.90	7.71	0:18:05	545.26	181.75	5.76	0:25:05	321.70	160.85	6.51	0:32:05	247.67	247.67	4.23
0:04:10	823.13	82.31	12.75	0:11:10	700.66	140.13	7.49	0:18:10	557.21	185.74	5.64	0:25:10	392.17	196.08	5.34	0:32:10	247.88	247.88	4.23
0:04:15	821.04	82.10	12.78	0:11:15	678.85	135.77	7.72	0:18:15	564.97	188.32	5.56	0:25:15	326.95	163.47	6.41	0:32:15	238.45	238.45	4.40
0:04:20	819.15	81.91	12.78	0:11:20	709.47	141.89	7.39	0:18:20	560.57	186.86	5.61	0:25:20	415.03	207.51	5.05	0:32:20	223.14	223.14	4.70
0:04:25	822.29	82.23	12.75	0:11:25	659.97	131.99	7.94	0:18:25	564.13	188.04	5.57	0:25:25	489.68	244.84	4.28	0:32:25	246.63	246.63	4.25
0:04:30	820.62	82.06	12.78	0:11:30	665.22	133.04	7.88	0:18:30	484.86	161.62	6.48	0:25:30	410.41	205.21	5.10	0:32:30	224.19	224.19	4.67
0:04:35	822.29	82.23	12.74	0:11:35	707.79	141.56	7.41	0:18:35	535.61	178.54	5.86	0:25:35	403.91	201.96	5.19	0:32:35	238.03	238.03	4.40
0:04:40	821.45	82.15	12.76	0:11:40	685.14	137.03	7.64	0:18:40	495.35	165.12	6.35	0:25:40	402.23	201.12	5.21	0:32:40	246.00	246.00	4.26
0:04:45	822.50	82.25	12.75	0:11:45	663.96	132.79	7.90	0:18:45	521.77	173.92	6.02	0:25:45	395.10	197.55	5.31	0:32:45	246.42	246.42	4.25
0:04:50	819.15	81.91	12.81	0:11:50	663.54	132.71	7.90	0:18:50	526.59	175.53	5.98	0:25:50	393.22	196.61	5.33	0:32:50	244.11	244.11	4.29
0:04:55	821.66	82.17	12.76	0:11:55	696.88	139.38	7.52	0:18:55	564.76	188.25	5.56	0:25:55	458.44	229.22	4.57	0:32:55	199.86	199.86	5.24
0:05:00	822.08	82.21	12.75	0:12:00	693.32	138.66	7.55	0:19:00	557.42	185.81	5.64	0:26:00	377.28	188.64	5.54	0:33:00	248.30	248.30	4.22
0:05:05	826.49	82.65	12.69	0:12:05	703.80	140.76	7.46	0:19:05	512.54	170.85	6.13	0:26:05	377.28	188.64	5.57	0:33:05	239.91	239.91	4.36
0:05:10	823.13	82.31	12.73	0:12:10	709.26	141.85	7.39	0:19:10	485.28	161.76	6.48	0:26:10	381.05	190.53	5.50	0:33:10	247.88	247.88	4.23
0:05:15	824.18	82.42	12.72	0:12:15	706.32	141.26	7.42	0:19:15	501.01	167.00	6.27	0:26:15	411.88	205.94	5.09	0:33:15	247.67	247.67	4.23
0:05:20	823.76	82.38	12.74	0:12:20	674.65	134.93	7.76	0:19:20	566.65	188.88	5.54	0:26:20	345.61	172.81	6.07	0:33:20	242.64	242.64	4.32
0:05:25	822.71	82.27	12.73	0:12:25	689.12	137.82	7.60	0:19:25	481.09	160.36	6.52	0:26:25	397.62	198.81	5.27	0:33:25	223.98	223.98	4.68
0:05:30	822.50	82.25	12.75	0:12:30	703.59	140.72	7.46	0:19:30	400.56	133.52	7.87	0:26:30	443.34	221.67	4.73	0:33:30	239.70	239.70	4.37
0:05:35	821.24	82.12	12.77	0:12:35	713.45	142.69	7.34	0:19:35	473.54	157.85	6.64	0:26:35	387.97	193.99	5.40	0:33:35	229.43	229.43	4.57
0:05:40	822.92	82.29	12.72	0:12:40	710.72	142.14	7.38	0:19:40	563.92	187.97	5.57	0:26:40	433.27	216.64	4.84	0:33:40	243.06	243.06	4.31
0:05:45	826.07	82.61	12.70	0:12:45	709.68	141.94	7.38	0:19:45	459.28	153.09	6.84	0:26:45	419.43	209.72	5.00	0:33:45	243.90	243.90	4.29
0:05:50	822.71	82.27	12.75	0:12:50	685.35	137.07	7.65	0:19:50	437.47	145.82	7.19	0:26:50	368.89	184.44	5.68	0:33:50	246.83	246.83	4.25
0:05:55	821.45	82.15	12.76	0:12:55	714.71	142.94	7.34	0:19:55	530.79	176.93	5.93	0:26:55	361.34	180.67	5.80	0:33:55	247.46	247.46	4.24
0:06:00	823.34	82.33	12.72	0:13:00	713.24	142.65	7.34	0:20:00	558.68	186.23	5.62	0:27:00	430.34	215.17	4.87	0:34:00	242.64	242.64	4.32
0:06:05	819.15	81.91	12.78	0:13:05	704.22	140.84	7.42	0:20:05	506.04	168.68	6.21	0:27:05	431.59	215.80	4.86	0:34:05	244.95	244.95	4.28
0:06:10	818.94	81.89	12.79	0:13:10	703.59	140.72	7.44	0:20:10	486.54	162.18	6.46	0:27:10	458.02	229.01	4.58	0:34:10	244.74	244.74	4.28
0:06:15	821.24	82.12	12.75	0:13:15	680.74	136.15	7.71	0:20:15	403.91	134.64	7.78	0:27:15	476.89	238.45	4.39	0:34:15	225.02	225.02	4.65
0:06:20	819.57	81.96	12.79	0:13:20	662.28	132.46	7.90	0:20:20	515.27	171.76	6.10	0:27:20	346.66	173.33	6.05	0:34:20	221.25	221.25	4.74
0:06:25	823.76	82.38	12.72	0:13:25	678.85	135.77	7.73	0:20:25	563.92	187.97	5.57	0:27:25	420.90	210.45	4.98	0:34:25	246.21	246.21	4.26
0:06:30	820.20	82.02	12.79	0:13:30	681.15	136.23	7.70	0:20:30	495.35	165.12	6.35	0:27:30	393.43	196.71	5.32	0:34:30	219.36	219.36	4.78
0:06:35	820.62	82.06	12.79	0:13:35	693.53	138.71	7.56	0:20:35	404.33	134.78	7.78	0:27:35	320.44	160.22	6.55	0:34:35	241.38	241.38	4.34
0:06:40	824.60	82.46	12.70	0:13:40	711.35	142.27	7.36	0:20:40	404.33	134.78	7.77	0:27:40	375.18	187.59	5.59	0:34:40	247.04	247.04	4.24
0:06:45	15.73	0.00	12.47	0:13:45	13.42	0.00	7.05	0:20:45	8.81	0.00	5.61	0:27:45	7.55	0.00	4.23	0:34:45	3.36	0.00	4.21
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

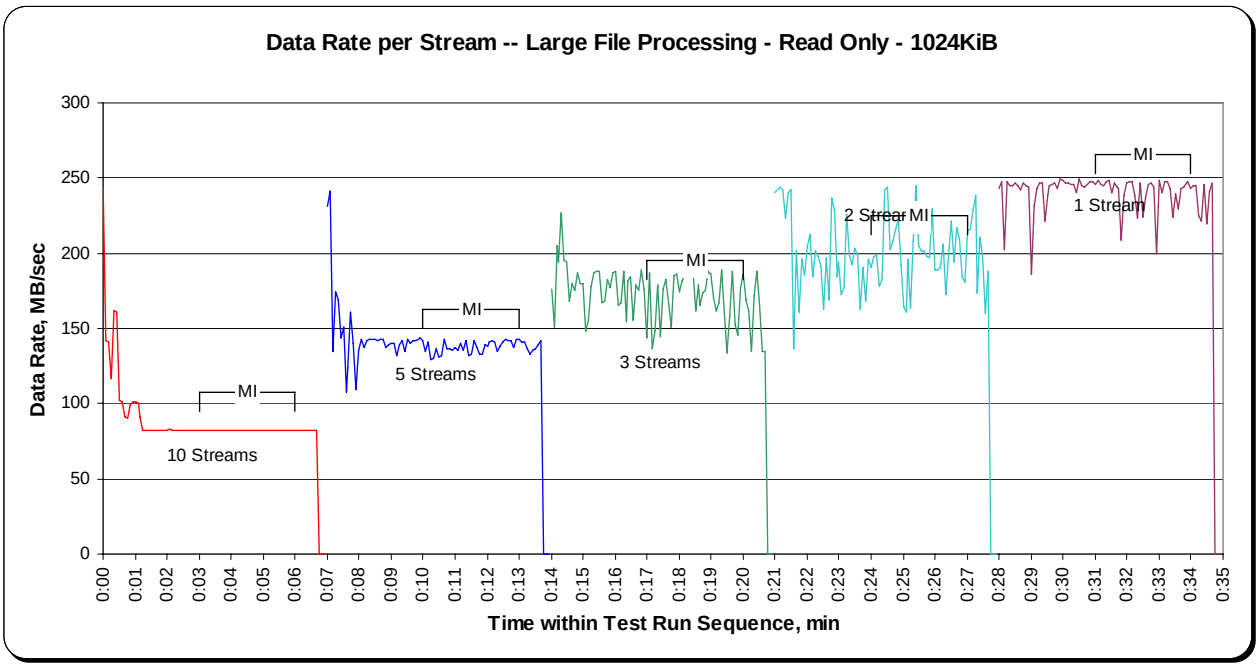
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



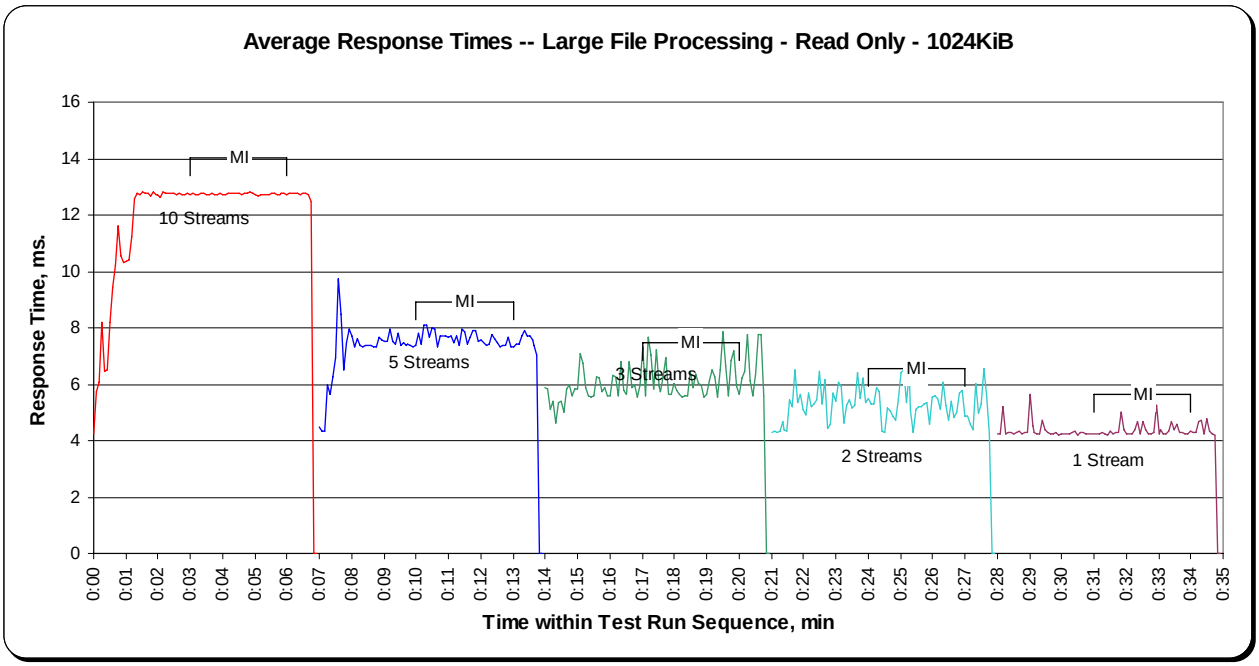
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate per Stream Graph



SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Response Time Graph



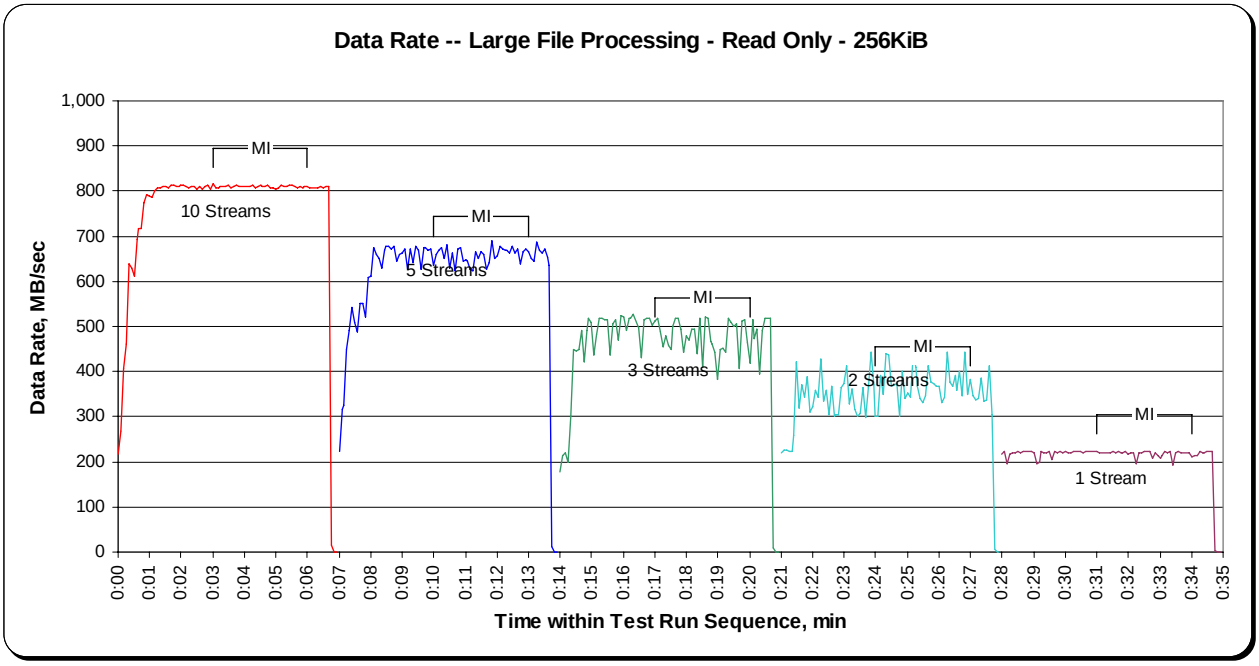
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR26	10 Streams			TR27	5 Streams			TR28	3 Streams			TR29	2 Streams			TR30	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	216.43	216.43	1.19	0:07:00	221.98	221.98	1.16	0:14:00	178.36	178.36	1.44	0:21:00	218.68	218.68	1.18	0:28:00	216.74	216.74	1.19
0:00:05	267.49	133.75	1.53	0:07:05	316.62	158.31	1.16	0:14:05	214.49	214.49	1.22	0:21:05	224.55	224.55	1.16	0:28:05	221.67	221.67	1.18
0:00:10	407.42	135.81	1.57	0:07:10	324.06	162.03	1.61	0:14:10	220.57	220.57	1.19	0:21:10	226.18	226.18	1.16	0:28:10	195.04	195.04	1.34
0:00:15	461.16	115.29	2.07	0:07:15	449.16	224.58	1.16	0:14:15	199.70	199.70	1.31	0:21:15	221.62	221.62	1.18	0:28:15	218.05	218.05	1.20
0:00:20	637.64	159.41	1.64	0:07:20	489.58	163.19	1.37	0:14:20	301.83	150.92	1.35	0:21:20	221.51	221.51	1.18	0:28:20	221.20	221.20	1.18
0:00:25	629.93	157.48	1.66	0:07:25	541.54	135.38	1.71	0:14:25	448.00	149.33	1.48	0:21:25	259.73	129.87	1.55	0:28:25	219.62	219.62	1.19
0:00:30	612.53	102.09	2.05	0:07:30	510.18	127.55	2.05	0:14:30	447.22	149.07	1.76	0:21:30	420.37	210.19	1.24	0:28:30	221.41	221.41	1.18
0:00:35	691.64	98.81	2.42	0:07:35	487.80	121.95	2.15	0:14:35	449.47	149.82	1.75	0:21:35	319.29	159.65	1.64	0:28:35	220.83	220.83	1.18
0:00:40	717.23	89.65	2.60	0:07:40	550.82	137.70	1.90	0:14:40	491.99	164.00	1.60	0:21:40	369.89	184.94	1.41	0:28:40	221.41	221.41	1.18
0:00:45	716.81	89.60	2.92	0:07:45	550.66	137.66	1.90	0:14:45	423.05	141.02	1.86	0:21:45	341.99	171.00	1.53	0:28:45	221.56	221.56	1.18
0:00:50	773.06	96.63	2.71	0:07:50	521.61	130.40	2.01	0:14:50	490.68	163.56	1.60	0:21:50	389.91	194.96	1.34	0:28:50	221.98	221.98	1.18
0:00:55	791.99	99.00	2.65	0:07:55	608.59	152.15	1.72	0:14:55	517.94	172.65	1.52	0:21:55	310.85	155.43	1.68	0:28:55	222.09	222.09	1.18
0:01:00	788.95	98.62	2.66	0:08:00	610.64	122.13	1.76	0:15:00	510.08	170.03	1.54	0:22:00	321.07	160.54	1.63	0:29:00	220.83	220.83	1.18
0:01:05	785.70	98.21	2.67	0:08:05	676.07	135.21	1.94	0:15:05	436.26	145.42	1.80	0:22:05	356.99	178.49	1.47	0:29:05	196.29	196.29	1.33
0:01:10	801.85	89.09	2.86	0:08:10	659.40	131.88	1.99	0:15:10	481.82	160.61	1.63	0:22:10	343.36	171.68	1.52	0:29:10	199.02	199.02	1.31
0:01:15	808.45	80.85	3.18	0:08:15	649.28	129.86	2.02	0:15:15	518.10	172.70	1.52	0:22:15	428.19	214.09	1.22	0:29:15	221.62	221.62	1.18
0:01:20	807.09	80.71	3.25	0:08:20	628.10	125.62	2.08	0:15:20	517.11	172.37	1.52	0:22:20	333.87	166.93	1.57	0:29:20	221.04	221.04	1.18
0:01:25	810.97	81.10	3.23	0:08:25	668.83	133.77	1.96	0:15:25	515.58	171.86	1.52	0:22:25	358.35	179.18	1.46	0:29:25	220.99	220.99	1.18
0:01:30	809.08	80.91	3.24	0:08:30	676.28	135.26	1.94	0:15:30	516.53	172.18	1.52	0:22:30	304.40	152.20	1.72	0:29:30	221.72	221.72	1.18
0:01:35	807.98	80.80	3.24	0:08:35	677.69	135.54	1.93	0:15:35	437.36	145.79	1.80	0:22:35	368.57	184.29	1.42	0:29:35	204.26	204.26	1.28
0:01:40	813.69	81.37	3.22	0:08:40	672.29	134.46	1.95	0:15:40	506.04	168.68	1.55	0:22:40	301.05	150.52	1.74	0:29:40	221.41	221.41	1.18
0:01:45	812.49	81.25	3.22	0:08:45	677.48	135.50	1.93	0:15:45	514.48	171.49	1.53	0:22:45	303.56	151.78	1.72	0:29:45	220.41	220.41	1.19
0:01:50	811.70	81.17	3.23	0:08:50	644.77	128.95	2.03	0:15:50	470.86	156.95	1.67	0:22:50	304.09	152.04	1.72	0:29:50	221.46	221.46	1.18
0:01:55	809.71	80.97	3.24	0:08:55	658.24	131.65	1.99	0:15:55	523.34	174.45	1.50	0:22:55	365.80	182.90	1.43	0:29:55	220.52	220.52	1.19
0:02:00	812.38	81.24	3.22	0:09:00	663.70	132.74	1.97	0:16:00	520.88	173.63	1.51	0:23:00	372.87	186.44	1.40	0:30:00	221.56	221.56	1.18
0:02:05	813.28	81.33	3.22	0:09:05	671.98	134.40	1.95	0:16:05	492.36	164.12	1.59	0:23:05	411.25	205.63	1.27	0:30:05	219.52	219.52	1.19
0:02:10	810.71	81.07	3.23	0:09:10	625.00	125.00	2.09	0:16:10	517.31	172.44	1.52	0:23:10	328.10	164.05	1.59	0:30:10	220.73	220.73	1.18
0:02:15	807.88	80.79	3.24	0:09:15	671.04	134.21	1.95	0:16:15	519.10	173.03	1.51	0:23:15	361.08	180.54	1.45	0:30:15	221.51	221.51	1.18
0:02:20	809.82	80.98	3.23	0:09:20	641.57	128.31	2.04	0:16:20	526.70	175.57	1.49	0:23:20	315.67	157.84	1.66	0:30:20	221.62	221.62	1.18
0:02:25	809.13	80.91	3.24	0:09:25	677.64	135.53	1.93	0:16:25	512.96	170.99	1.53	0:23:25	299.89	149.95	1.75	0:30:25	222.35	222.35	1.18
0:02:30	805.62	80.56	3.25	0:09:30	667.21	133.44	1.96	0:16:30	496.13	165.38	1.58	0:23:30	306.87	153.43	1.71	0:30:30	221.46	221.46	1.18
0:02:35	809.24	80.92	3.24	0:09:35	627.73	125.55	2.09	0:16:35	432.12	144.04	1.82	0:23:35	363.49	181.74	1.44	0:30:35	220.88	220.88	1.18
0:02:40	804.78	80.48	3.25	0:09:40	675.07	135.01	1.94	0:16:40	516.48	172.16	1.52	0:23:40	299.26	149.63	1.75	0:30:40	221.62	221.62	1.18
0:02:45	810.86	81.09	3.23	0:09:45	673.45	134.69	1.94	0:16:45	518.42	172.81	1.51	0:23:45	364.22	182.11	1.44	0:30:45	221.67	221.67	1.18
0:02:50	812.86	81.29	3.22	0:09:50	668.99	133.80	1.96	0:16:50	516.74	172.25	1.52	0:23:50	443.86	221.93	1.18	0:30:50	221.93	221.93	1.18
0:02:55	803.94	80.39	3.26	0:09:55	671.40	134.28	1.95	0:16:55	501.95	167.32	1.56	0:23:55	370.09	185.05	1.41	0:30:55	222.09	222.09	1.18

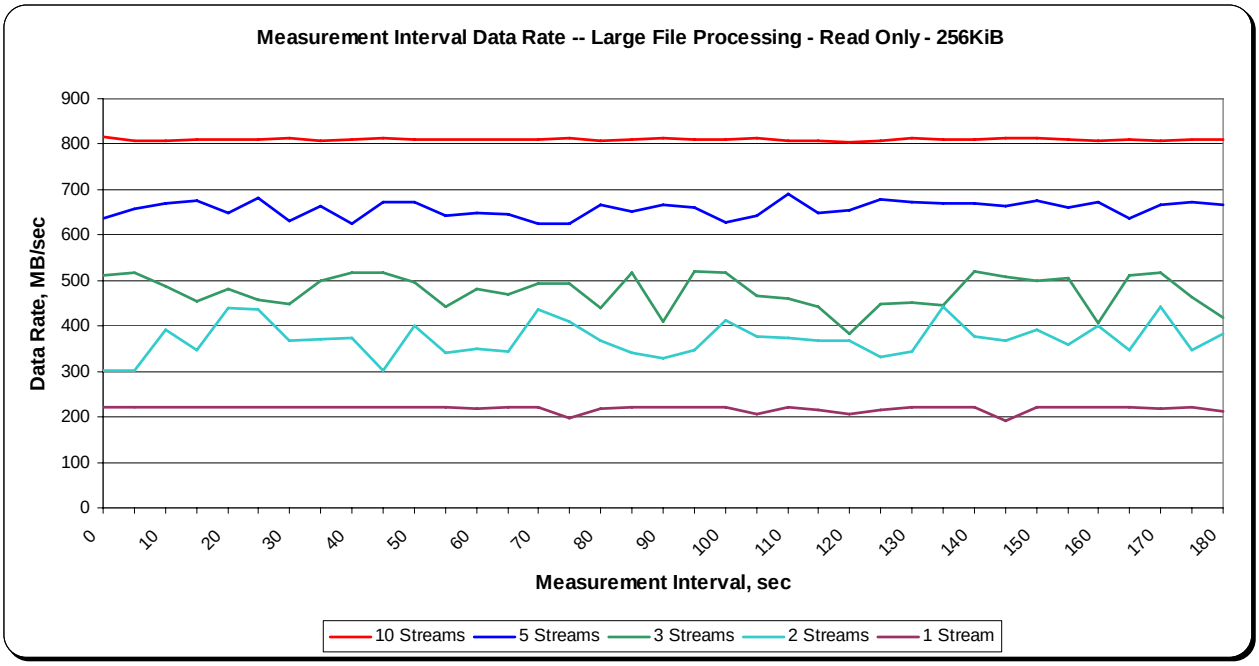
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR26	10 Streams			TR27	5 Streams			TR28	3 Streams			TR29	2 Streams			TR30	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	815.16	81.52	3.21	0:10:00	636.70	127.34	2.06	0:17:00	511.50	170.50	1.53	0:24:00	302.04	151.02	1.73	0:31:00	222.09	222.09	1.18
0:03:05	807.40	80.74	3.24	0:10:05	658.14	131.63	1.99	0:17:05	517.79	172.60	1.52	0:24:05	300.89	150.44	1.74	0:31:05	221.25	221.25	1.18
0:03:10	808.03	80.80	3.24	0:10:10	668.52	133.70	1.96	0:17:10	488.22	162.74	1.61	0:24:10	392.64	196.32	1.33	0:31:10	220.78	220.78	1.18
0:03:15	810.02	81.00	3.23	0:10:15	675.91	135.18	1.94	0:17:15	454.14	151.38	1.73	0:24:15	347.97	173.98	1.50	0:31:15	221.20	221.20	1.18
0:03:20	809.40	80.94	3.24	0:10:20	649.38	129.88	2.02	0:17:20	479.99	160.00	1.64	0:24:20	439.67	219.83	1.19	0:31:20	220.88	220.88	1.18
0:03:25	810.50	81.05	3.23	0:10:25	680.63	136.13	1.92	0:17:25	458.02	152.67	1.71	0:24:25	437.73	218.86	1.20	0:31:25	220.83	220.83	1.18
0:03:30	813.85	81.39	3.22	0:10:30	630.77	126.15	2.08	0:17:30	448.16	149.39	1.75	0:24:30	368.10	184.05	1.42	0:31:30	222.04	222.04	1.18
0:03:35	807.51	80.75	3.24	0:10:35	663.38	132.68	1.97	0:17:35	500.28	166.76	1.57	0:24:35	370.04	185.02	1.41	0:31:35	221.04	221.04	1.18
0:03:40	809.34	80.93	3.24	0:10:40	623.90	124.78	2.10	0:17:40	516.79	172.26	1.52	0:24:40	372.56	186.28	1.40	0:31:40	221.83	221.83	1.18
0:03:45	813.54	81.35	3.22	0:10:45	671.77	134.35	1.95	0:17:45	518.21	172.74	1.51	0:24:45	301.05	150.52	1.74	0:31:45	219.89	219.89	1.19
0:03:50	808.98	80.90	3.24	0:10:50	674.02	134.80	1.94	0:17:50	495.40	165.13	1.59	0:24:50	400.50	200.25	1.31	0:31:50	220.52	220.52	1.19
0:03:55	810.23	81.02	3.23	0:10:55	643.93	128.79	2.03	0:17:55	442.60	147.53	1.77	0:24:55	339.48	169.74	1.54	0:31:55	221.51	221.51	1.18
0:04:00	808.92	80.89	3.24	0:11:00	648.91	129.78	2.02	0:18:00	480.09	160.03	1.63	0:25:00	351.06	175.53	1.49	0:32:00	216.90	216.90	1.21
0:04:05	808.92	80.89	3.24	0:11:05	645.92	129.18	2.03	0:18:05	468.56	156.19	1.68	0:25:05	344.67	172.33	1.52	0:32:05	219.83	219.83	1.19
0:04:10	808.98	80.90	3.24	0:11:10	625.90	125.18	2.09	0:18:10	494.77	164.92	1.59	0:25:10	436.99	218.50	1.20	0:32:10	220.31	220.31	1.19
0:04:15	812.38	81.24	3.22	0:11:15	624.74	124.95	2.09	0:18:15	494.82	164.94	1.59	0:25:15	410.26	205.13	1.28	0:32:15	197.13	197.13	1.33
0:04:20	808.09	80.81	3.24	0:11:20	666.74	133.35	1.96	0:18:20	440.24	146.75	1.78	0:25:20	368.68	184.34	1.42	0:32:20	219.57	219.57	1.19
0:04:25	808.82	80.88	3.24	0:11:25	651.90	130.38	2.01	0:18:25	517.73	172.58	1.52	0:25:25	341.73	170.87	1.53	0:32:25	219.89	219.89	1.19
0:04:30	812.33	81.23	3.23	0:11:30	665.79	133.16	1.97	0:18:30	408.32	136.11	1.92	0:25:30	330.20	165.10	1.58	0:32:30	221.67	221.67	1.18
0:04:35	810.44	81.04	3.23	0:11:35	660.50	132.10	1.98	0:18:35	520.04	173.35	1.51	0:25:35	347.81	173.91	1.51	0:32:35	222.30	222.30	1.18
0:04:40	809.71	80.97	3.24	0:11:40	627.94	125.59	2.08	0:18:40	517.58	172.53	1.52	0:25:40	413.87	206.94	1.26	0:32:40	221.93	221.93	1.18
0:04:45	812.65	81.26	3.22	0:11:45	641.57	128.31	2.04	0:18:45	466.04	155.35	1.68	0:25:45	377.07	188.53	1.39	0:32:45	206.99	206.99	1.26
0:04:50	807.09	80.71	3.25	0:11:50	690.59	138.12	1.89	0:18:50	460.43	153.48	1.71	0:25:50	373.61	186.80	1.40	0:32:50	220.36	220.36	1.19
0:04:55	808.29	80.83	3.24	0:11:55	650.33	130.07	2.01	0:18:55	442.55	147.52	1.77	0:25:55	368.89	184.44	1.42	0:32:55	214.33	214.33	1.22
0:05:00	803.37	80.34	3.26	0:12:00	655.57	131.11	2.00	0:19:00	382.47	127.49	2.05	0:26:00	366.90	183.45	1.43	0:33:00	207.78	207.78	1.26
0:05:05	806.46	80.65	3.25	0:12:05	677.33	135.47	1.93	0:19:05	448.37	149.46	1.75	0:26:05	330.98	165.49	1.58	0:33:05	213.86	213.86	1.22
0:05:10	813.64	81.36	3.22	0:12:10	673.13	134.63	1.94	0:19:10	452.09	150.70	1.74	0:26:10	342.57	171.28	1.53	0:33:10	221.46	221.46	1.18
0:05:15	810.60	81.06	3.23	0:12:15	668.89	133.78	1.96	0:19:15	444.07	148.02	1.77	0:26:15	443.13	221.56	1.18	0:33:15	220.36	220.36	1.19
0:05:20	811.70	81.17	3.23	0:12:20	669.88	133.98	1.95	0:19:20	519.10	173.03	1.51	0:26:20	376.49	188.25	1.39	0:33:20	222.51	222.51	1.18
0:05:25	814.32	81.43	3.22	0:12:25	663.70	132.74	1.97	0:19:25	508.09	169.36	1.54	0:26:25	368.16	184.08	1.42	0:33:25	191.63	191.63	1.37
0:05:30	813.12	81.31	3.22	0:12:30	676.49	135.30	1.93	0:19:30	500.01	166.67	1.57	0:26:30	391.64	195.82	1.34	0:33:30	220.88	220.88	1.18
0:05:35	811.28	81.13	3.23	0:12:35	661.60	132.32	1.98	0:19:35	504.94	168.31	1.55	0:26:35	359.24	179.62	1.46	0:33:35	221.93	221.93	1.18
0:05:40	807.30	80.73	3.24	0:12:40	671.51	134.30	1.95	0:19:40	406.38	135.46	1.93	0:26:40	401.08	200.54	1.30	0:33:40	221.35	221.35	1.18
0:05:45	808.92	80.89	3.24	0:12:45	637.59	127.52	2.05	0:19:45	512.39	170.80	1.53	0:26:45	346.29	173.15	1.51	0:33:45	221.35	221.35	1.18
0:05:50	808.40	80.84	3.24	0:12:50	665.90	133.18	1.97	0:19:50	516.11	172.04	1.52	0:26:50	441.29	220.65	1.18	0:33:50	219.26	219.26	1.19
0:05:55	810.50	81.05	3.23	0:12:55	672.24	134.45	1.95	0:19:55	463.00	154.33	1.70	0:26:55	348.28	174.14	1.50	0:33:55	219.89	219.89	1.19
0:06:00	809.82	80.98	3.24	0:13:00	666.95	133.39	1.96	0:20:00	417.70	139.23	1.88	0:27:00	382.78	191.39	1.37	0:34:00	211.97	211.97	1.23
0:06:05	807.56	80.76	3.23	0:13:05	650.27	130.05	2.01	0:20:05	515.69	171.90	1.52	0:27:05	346.55	173.28	1.51	0:34:05	214.49	214.49	1.22
0:06:10	808.66	80.87	3.23	0:13:10	643.98	128.80	2.03	0:20:10	471.81	157.27	1.66	0:27:10	337.80	168.90	1.55	0:34:10	212.70	212.70	1.23
0:06:15	808.45	80.85	3.24	0:13:15	687.87	137.57	1.90	0:20:15	493.25	164.42	1.59	0:27:15	340.26	170.13	1.54	0:34:15	221.46	221.46	1.18
0:06:20	808.56	80.86	3.24	0:13:20	669.25	133.85	1.96	0:20:20	395.21	131.74	1.99	0:27:20	386.45	193.23	1.35	0:34:20	221.09	221.09	1.18
0:06:25	809.03	80.90	3.24	0:13:25	662.80	132.56	1.98	0:20:25	491.57	163.86	1.60	0:27:25	333.50	166.75	1.57	0:34:25	220.57	220.57	1.19
0:06:30	808.29	80.83	3.24	0:13:30	670.30	134.06	1.95	0:20:30	517.58	172.53	1.52	0:27:30	336.54	168.27	1.55	0:34:30	221.56	221.56	1.18
0:06:35	810.34	81.03	3.23	0:13:35	653.79	130.76	2.00	0:20:35	518.42	172.81	1.51	0:27:35	413.03	206.52	1.27	0:34:35	221.56	221.56	1.18
0:06:40	808.92	80.89	3.24	0:13:40	635.49	127.10	2.06	0:20:40	518.36	172.79	1.51	0:27:40	304.51	152.25	1.72	0:34:40	222.67	222.67	1.17
0:06:45	14.37	0.00	3.00	0:13:45	11.01	0.00	2.01	0:20:45	8.18	0.00	1.45	0:27:45	4.56	0.00	1.65	0:34:45	2.88	0.00	1.16
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

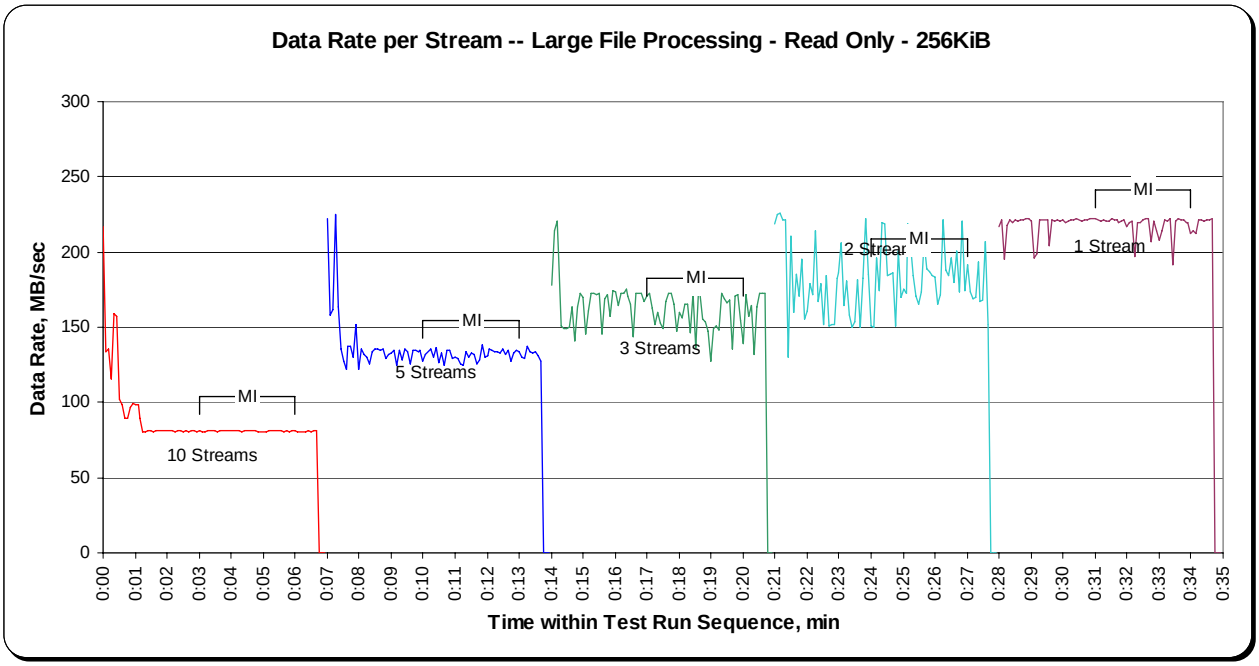
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



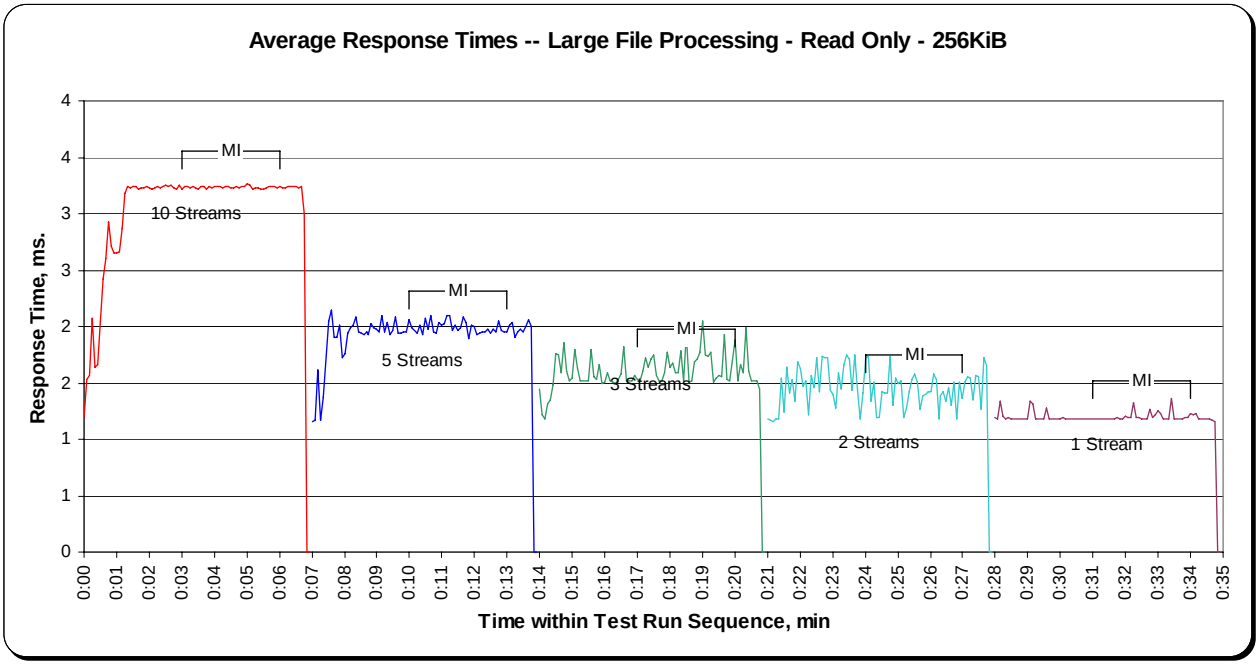
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate per Stream Graph



SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Response Time Graph



Large Database Query Test

Clause 6.4.3.1

The Large Database Query Test is comprised of a set of I/O operations representative of scans or joins of large relational tables such as those performed for data mining or business intelligence.

Clause 6.4.3.2

The Large Database Query Test has two Test Phases, which shall be executed in the following uninterrupted sequence:

1. *1024 KIB TRANSFER SIZE*
2. *64 KIB TRANSFER SIZE*

The BC shall not be restarted or manually disturbed, altered, or adjusted during the execution of the Large File Processing Test. If power is lost to the BC during this Test all results shall be rendered invalid and the Test re-run in its entirety.

Clause 10.6.8.2

The Full Disclosure Report will contain the following content for the Large Database Query Test:

1. *A listing of the SPC-2 Workload Generator commands and parameters used to execute each of the Test Runs in the Large Database Query Test.*
2. *The human readable SPC-2 Test Results File for each of the Test Runs in the Large Database Query Test.*
3. *A table that contains the following information for each Test Run in the two Test Phases of the Large Database Query Test:*
   - *The number Streams specified.*
   - *The Ramp-Up duration in seconds.*
   - *The Measurement Interval duration in seconds.*
   - *The average data rate, in MB per second, for the Measurement Interval.*
   - *The average data rate, in MB per second, per Stream for the Measurement Interval.*
4. *Average Data Rate and Average Data Rate per Stream graphs as defined in Clauses 10.1.1 and 10.1.2.*

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Large Database Query Test Runs are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 109.

SPC-2 Test Results File

A link to the SPC-2 Test Results file generated from the Large Database Query Test Runs is listed below.

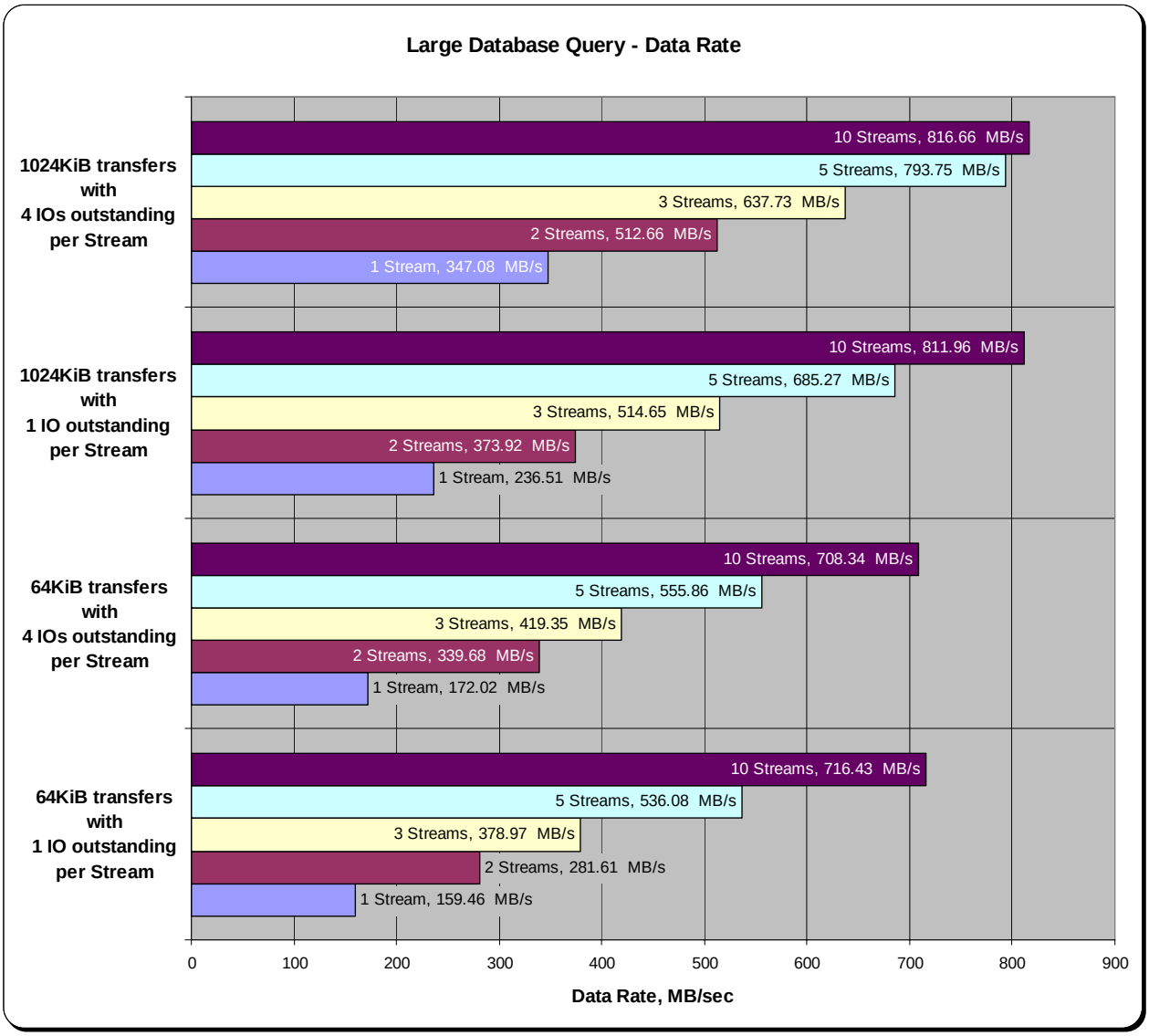
SPC-2 Large Database Query Test Results File

SPC-2 Large Database Query Average Data Rates (MB/s)

The average Data Rate (MB/s) for each Test Run in the two Test Phases of the SPC-2 Large Database Query Test is listed in the table below as well as illustrated in the following graph.

Test Run Sequence	1 Stream	2 Streams	3 Streams	5 Streams	10 Streams
1024KiB w/ 4 IOs/Stream	347.08	512.66	637.73	793.75	816.66
1024KiB w/ 1 IO/Stream	236.51	373.92	514.65	685.27	811.96
64KiB w/ 4 IOs/Stream	172.02	339.68	419.35	555.86	708.34
64KiB w/ 1 IO/Stream	159.46	281.61	378.97	536.08	716.43

SPC-2 Large Database Query Average Data Rates Graph

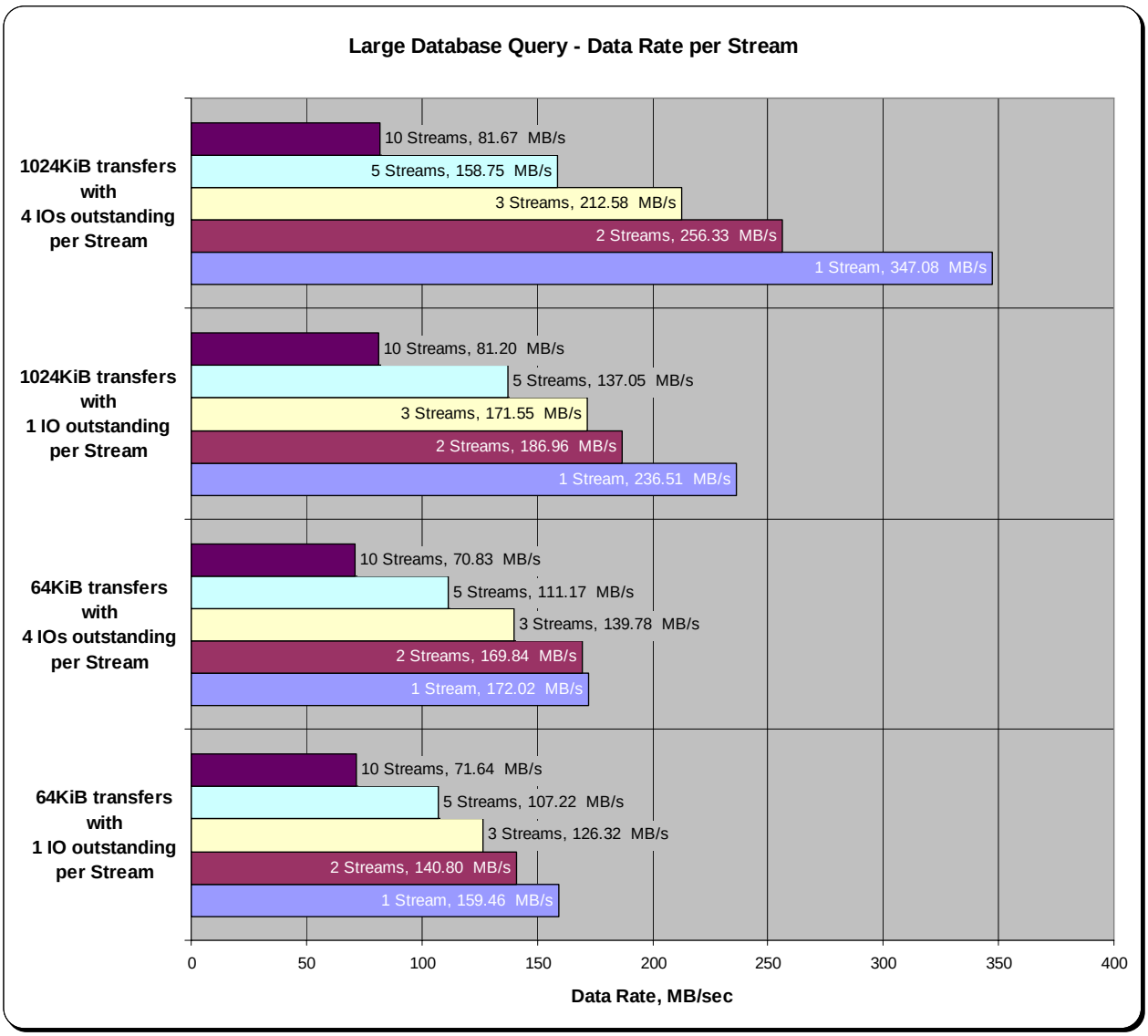


SPC-2 Large Database Query Average Data Rate per Stream

The average Data Rate per Stream for each Test Run in the two Test Phases of the SPC-2 Large Database Query Test is listed in the table below as well as illustrated in the following graph.

Test Run Sequence	1 Stream	2 Streams	3 Streams	5 Streams	10 Streams
1024KiB w/ 4 IOs/Stream	347.08	256.33	212.58	158.75	81.67
1024KiB w/ 1 IO/Stream	236.51	186.96	171.55	137.05	81.20
64KiB w/ 4 IOs/Stream	172.02	169.84	139.78	111.17	70.83
64KiB w/ 1 IO/Stream	159.46	140.80	126.32	107.22	71.64

SPC-2 Large Database Query Average Data Rate per Stream Graph

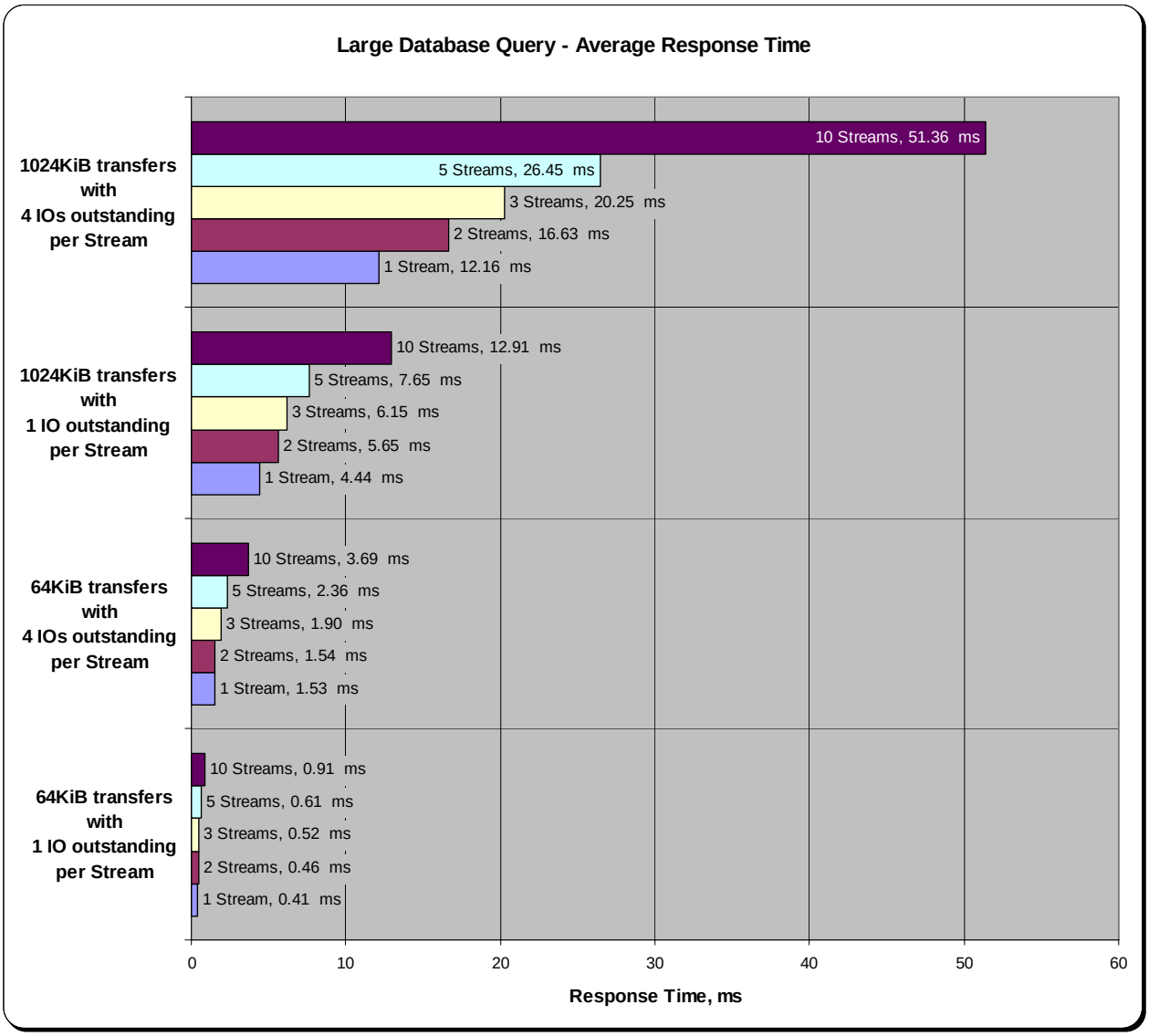


SPC-2 Large Database Query Average Response Time

The average Response Time, in milliseconds, for each Test Run in the two Test Phases of the SPC-2 Large Database Query Test is listed in the table below as well as illustrated in the following graph.

Test Run Sequence	1 Stream	2 Streams	3 Streams	5 Streams	10 Streams
1024KiB w/ 4 IOs/Stream	12.16	16.63	20.25	26.45	51.36
1024KiB w/ 1 IO/Stream	4.44	5.65	6.15	7.65	12.91
64KiB w/ 4 IOs/Stream	1.53	1.54	1.90	2.36	3.69
64KiB w/ 1 IO/Stream	0.41	0.46	0.52	0.61	0.91

SPC-2 Large Database Query Average Response Time Graph



Large Database Query Test – 1024 KIB TRANSFER SIZE Test Phase

Clause 10.6.8.2.1

1. *A table that will contain the following information for each "1024 KiB Transfer Size, 4 Outstanding I/Os" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
2. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "1024 KiB Transfer Size, 4 Outstanding I/Os" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*
3. *A table that will contain the following information for each "1024 KiB Transfer Size, 1 Outstanding I/O" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
4. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "1024 KiB Transfer Size, 1 Outstanding I/O" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*

The SPC-2 "Large DatabaseQuery/1024 KIB TRANSFER SIZE/4 Outstanding I/Os" Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate, average Data Rate per Stream, and average Response Time produced by the same Test Runs. The table and graphs present the data at five-second intervals.

Immediately following the SPC-2 "Large DatabaseQuery/1024 KIB TRANSFER SIZE/4 Outstanding I/Os" table and graphs will be the SPC-2 "Large DatabaseQuery/1024 KIB TRANSFER SIZE/1 Outstanding I/O" table and graphs. The table contains the Test Run data and the graphs illustrate the average Data Rate, average Data Rate per Stream, and average Response Time produced by the Test Runs.

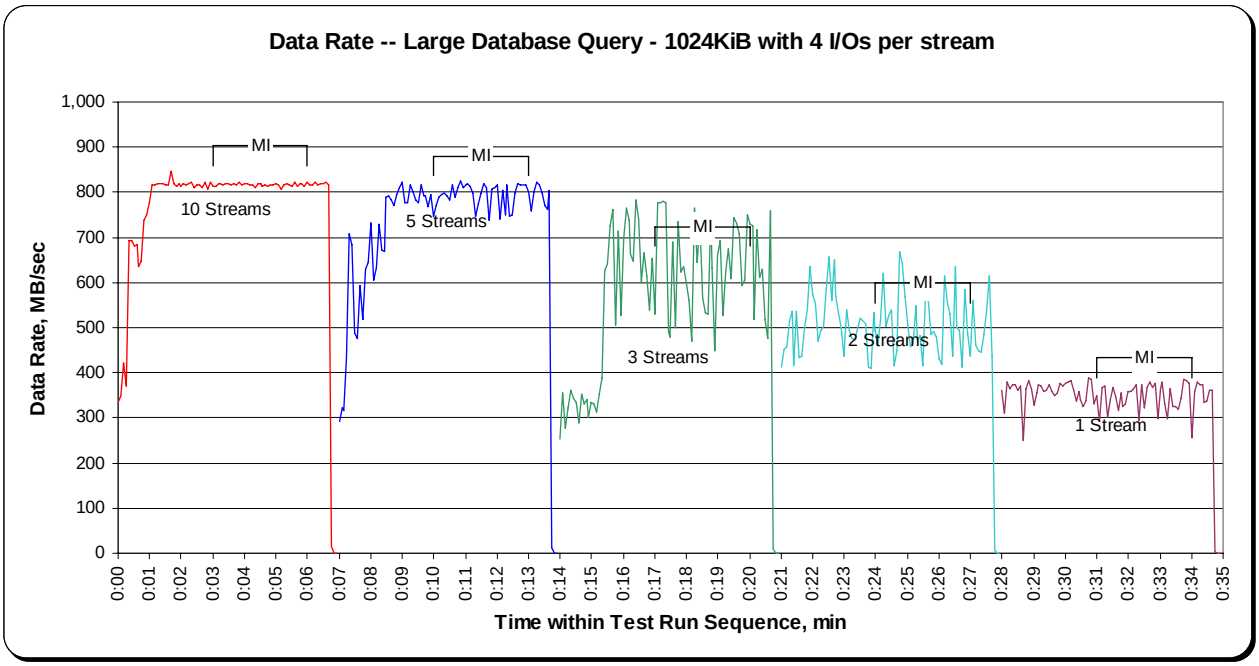
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR1	10 Streams			TR2	5 Streams			TR3	3 Streams			TR4	2 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	335.54	167.77	24.06	0:07:00	293.39	293.39	14.17	0:14:00	252.50	252.50	16.43	0:21:00	411.67	205.84	12.26	0:28:00	360.92	360.92	11.52
0:00:05	349.80	174.90	24.00	0:07:05	321.70	321.70	12.98	0:14:05	356.52	356.52	11.73	0:21:05	452.15	226.07	18.59	0:28:05	310.80	310.80	13.48
0:00:10	422.58	140.86	22.33	0:07:10	317.72	317.72	13.21	0:14:10	277.24	277.24	15.12	0:21:10	456.34	228.17	18.35	0:28:10	380.21	380.21	11.02
0:00:15	369.73	123.24	34.01	0:07:15	433.27	216.64	19.17	0:14:15	322.96	322.96	12.98	0:21:15	514.22	257.11	16.33	0:28:15	365.74	365.74	11.47
0:00:20	693.32	231.11	18.13	0:07:20	707.79	235.93	17.00	0:14:20	360.08	360.08	11.66	0:21:20	536.45	268.23	15.56	0:28:20	373.08	373.08	11.24
0:00:25	692.69	230.90	18.19	0:07:25	684.72	228.24	18.34	0:14:25	342.88	342.88	12.20	0:21:25	416.91	208.46	20.23	0:28:25	374.13	374.13	11.18
0:00:30	681.15	170.29	24.35	0:07:30	488.01	162.67	25.82	0:14:30	335.12	335.12	12.51	0:21:30	535.61	267.81	15.66	0:28:30	361.13	361.13	11.64
0:00:35	684.30	136.86	24.66	0:07:35	476.05	158.68	26.46	0:14:35	287.73	287.73	14.60	0:21:35	433.27	216.64	19.33	0:28:35	369.31	369.31	11.33
0:00:40	636.70	127.34	33.37	0:07:40	592.03	197.34	21.13	0:14:40	353.37	353.37	11.85	0:21:40	437.89	218.94	19.14	0:28:40	248.51	248.51	16.84
0:00:45	648.02	129.60	32.24	0:07:45	517.16	172.39	24.42	0:14:45	331.77	331.77	12.65	0:21:45	500.80	250.40	16.79	0:28:45	364.69	364.69	11.52
0:00:50	736.52	122.75	33.76	0:07:50	628.31	209.44	20.05	0:14:50	338.90	338.90	12.36	0:21:50	538.13	269.06	15.56	0:28:50	381.68	381.68	10.99
0:00:55	750.99	125.17	33.62	0:07:55	644.87	214.96	19.50	0:14:55	302.62	302.62	13.86	0:21:55	635.86	317.93	13.20	0:28:55	365.32	365.32	11.46
0:01:00	777.83	86.43	41.89	0:08:00	731.91	243.97	17.21	0:15:00	333.24	333.24	12.57	0:22:00	572.52	286.26	14.65	0:29:00	327.58	327.58	12.77
0:01:05	816.63	90.74	46.18	0:08:05	604.61	201.54	20.75	0:15:05	331.35	331.35	12.67	0:22:05	553.02	276.51	15.12	0:29:05	356.31	356.31	11.79
0:01:10	817.68	90.85	46.16	0:08:10	631.66	210.55	19.94	0:15:10	314.36	314.36	13.32	0:22:10	468.50	234.25	17.92	0:29:10	373.29	373.29	11.23
0:01:15	818.52	90.95	46.17	0:08:15	729.81	243.27	17.25	0:15:15	352.74	352.74	11.88	0:22:15	493.88	246.94	16.94	0:29:15	371.62	371.62	11.27
0:01:20	819.99	91.11	46.06	0:08:20	671.09	167.77	19.62	0:15:20	387.76	193.88	12.26	0:22:20	503.32	251.66	16.70	0:29:20	358.82	358.82	11.69
0:01:25	819.36	81.94	47.46	0:08:25	667.94	133.59	27.44	0:15:25	625.37	208.46	16.11	0:22:25	588.46	294.23	14.27	0:29:25	362.81	362.81	11.57
0:01:30	817.68	81.77	51.14	0:08:30	788.32	157.66	26.52	0:15:30	641.31	213.77	19.53	0:22:30	655.57	327.78	12.79	0:29:30	373.71	373.71	11.19
0:01:35	817.47	81.75	51.28	0:08:35	791.88	158.38	26.48	0:15:35	725.40	241.80	17.35	0:22:35	560.36	280.18	14.95	0:29:35	359.24	359.24	11.69
0:01:40	847.25	84.72	49.62	0:08:40	782.03	156.41	26.81	0:15:40	761.90	253.97	16.50	0:22:40	650.96	325.48	12.89	0:29:40	349.39	349.39	12.00
0:01:45	820.62	82.06	50.97	0:08:45	770.70	154.14	27.23	0:15:45	507.51	169.17	24.78	0:22:45	568.33	284.16	14.75	0:29:45	355.89	355.89	11.78
0:01:50	814.11	81.41	51.57	0:08:50	795.66	159.13	26.33	0:15:50	714.71	238.24	17.55	0:22:50	532.05	266.02	15.71	0:29:50	376.44	376.44	11.12
0:01:55	819.15	81.91	51.30	0:08:55	810.55	162.11	25.92	0:15:55	526.18	175.39	23.92	0:22:55	499.75	249.88	16.77	0:29:55	369.52	369.52	11.34
0:02:00	814.74	81.47	51.37	0:09:00	821.04	164.21	25.45	0:16:00	698.35	232.78	18.04	0:23:00	437.89	218.94	19.19	0:30:00	375.39	375.39	11.18
0:02:05	820.62	82.06	51.13	0:09:05	776.58	155.32	27.05	0:16:05	766.09	255.36	16.43	0:23:05	538.34	269.17	15.61	0:30:05	379.58	379.58	11.04
0:02:10	815.79	81.58	51.46	0:09:10	776.79	155.36	26.97	0:16:10	737.99	246.00	17.05	0:23:10	493.25	246.63	17.01	0:30:10	381.68	381.68	10.99
0:02:15	818.73	81.87	51.07	0:09:15	817.68	163.54	25.68	0:16:15	661.86	220.62	18.95	0:23:15	476.05	238.03	17.60	0:30:15	360.92	360.92	11.61
0:02:20	822.08	82.21	51.04	0:09:20	801.53	160.31	26.11	0:16:20	646.55	215.52	19.50	0:23:20	472.49	236.24	17.76	0:30:20	338.27	338.27	12.37
0:02:25	810.34	81.03	51.48	0:09:25	782.87	156.57	26.74	0:16:25	782.24	260.75	16.10	0:23:25	497.44	248.72	16.85	0:30:25	357.35	357.35	11.77
0:02:30	816.21	81.62	51.76	0:09:30	776.79	155.36	27.03	0:16:30	742.18	247.39	16.92	0:23:30	519.88	259.94	16.06	0:30:30	339.32	339.32	12.33
0:02:35	817.05	81.71	51.33	0:09:35	815.16	163.03	25.73	0:16:35	603.56	201.19	20.82	0:23:35	515.90	257.95	16.33	0:30:35	326.74	326.74	12.79
0:02:40	810.13	81.01	51.85	0:09:40	793.14	158.63	26.27	0:16:40	666.68	222.23	18.88	0:23:40	509.61	254.80	16.43	0:30:40	336.38	336.38	12.51
0:02:45	823.55	82.36	50.91	0:09:45	792.93	158.59	26.63	0:16:45	615.93	205.31	20.39	0:23:45	411.88	205.94	20.33	0:30:45	388.60	388.60	10.79
0:02:50	808.03	80.80	51.91	0:09:50	768.82	153.76	27.27	0:16:50	539.60	179.87	23.37	0:23:50	409.99	205.00	20.48	0:30:50	386.92	386.92	10.83
0:02:55	821.04	82.10	50.92	0:09:55	793.98	158.80	26.37	0:16:55	653.68	217.89	19.22	0:23:55	531.84	265.92	15.80	0:30:55	332.61	332.61	12.61

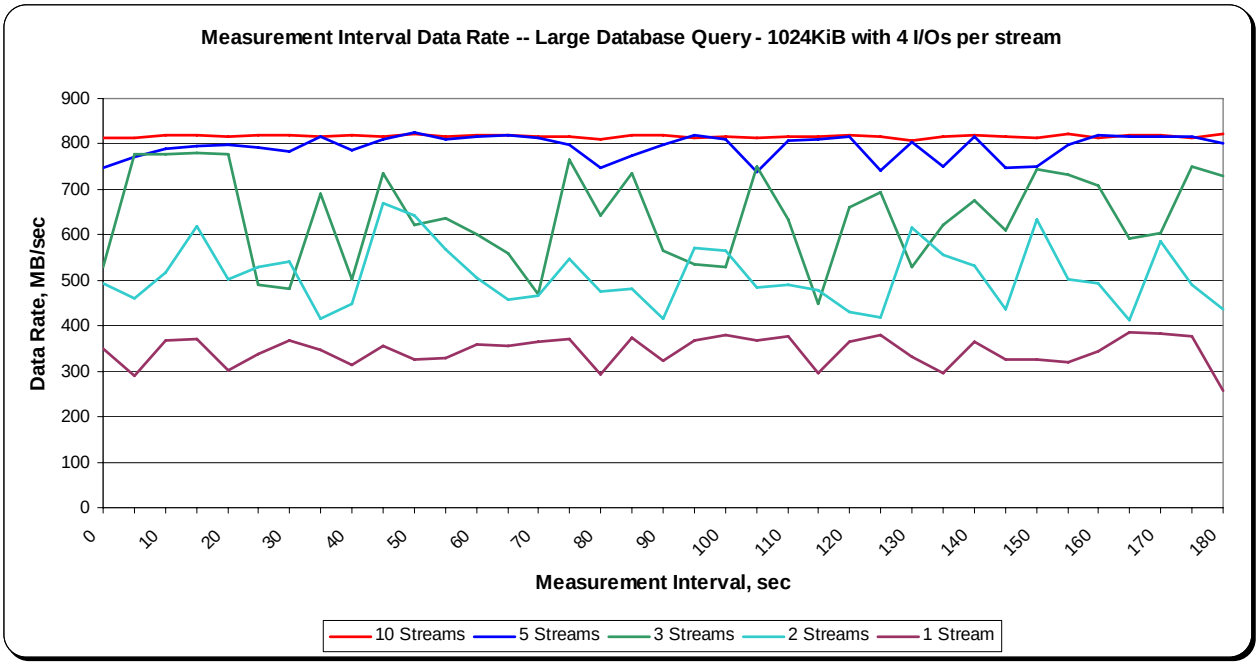
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	10 Streams			TR2	5 Streams			TR3	3 Streams			TR4	2 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	813.49	81.35	51.59	0:10:00	748.05	149.61	28.00	0:17:00	530.37	176.79	23.71	0:24:00	493.25	246.63	16.97	0:31:00	350.64	350.64	11.94
0:03:05	813.07	81.31	51.37	0:10:05	770.91	154.18	27.19	0:17:05	776.99	259.00	16.16	0:24:05	461.37	230.69	18.16	0:31:05	290.67	290.67	14.44
0:03:10	817.89	81.79	51.42	0:10:10	790.00	158.00	26.63	0:17:10	776.99	259.00	16.22	0:24:10	518.00	259.00	16.19	0:31:10	367.63	367.63	11.37
0:03:15	819.36	81.94	51.11	0:10:15	794.82	158.96	26.35	0:17:15	780.35	260.12	16.12	0:24:15	620.34	310.17	13.48	0:31:15	371.62	371.62	11.30
0:03:20	816.00	81.60	51.48	0:10:20	797.55	159.51	26.23	0:17:20	776.79	258.93	16.19	0:24:20	502.27	251.13	16.76	0:31:20	300.94	300.94	13.92
0:03:25	819.15	81.91	51.07	0:10:25	791.88	158.38	26.46	0:17:25	490.10	163.37	25.69	0:24:25	528.27	264.14	15.81	0:31:25	338.90	338.90	12.37
0:03:30	818.94	81.89	51.20	0:10:30	782.45	156.49	26.93	0:17:30	480.25	160.08	26.15	0:24:30	539.81	269.90	15.58	0:31:30	366.58	366.58	11.46
0:03:35	815.58	81.56	51.60	0:10:35	815.58	163.12	25.63	0:17:35	689.96	229.99	18.22	0:24:35	415.66	207.83	20.14	0:31:35	347.29	347.29	12.06
0:03:40	818.73	81.87	51.19	0:10:40	787.69	157.54	26.66	0:17:40	501.43	167.14	25.11	0:24:40	447.32	223.66	18.78	0:31:40	315.20	315.20	13.31
0:03:45	817.68	81.77	51.24	0:10:45	809.29	161.86	25.89	0:17:45	736.31	245.44	17.08	0:24:45	669.20	334.60	12.52	0:31:45	356.73	356.73	11.72
0:03:50	822.50	82.25	50.97	0:10:50	823.97	164.79	25.46	0:17:50	623.06	207.69	20.16	0:24:50	642.78	321.39	13.01	0:31:50	326.11	326.11	12.85
0:03:55	816.21	81.62	51.27	0:10:55	810.97	162.19	25.84	0:17:55	636.49	212.16	19.79	0:24:55	568.33	284.16	14.79	0:31:55	330.30	330.30	12.71
0:04:00	818.10	81.81	51.35	0:11:00	816.00	163.20	25.70	0:18:00	600.00	200.00	20.98	0:25:00	506.67	253.34	16.53	0:32:00	357.56	357.56	11.72
0:04:05	820.41	82.04	51.15	0:11:05	820.20	164.04	25.61	0:18:05	560.57	186.86	22.35	0:25:05	457.39	228.69	18.33	0:32:05	357.14	357.14	11.76
0:04:10	816.84	81.68	51.42	0:11:10	814.74	162.95	25.70	0:18:10	470.39	156.80	26.82	0:25:10	466.83	233.41	18.01	0:32:10	365.74	365.74	11.45
0:04:15	816.42	81.64	51.33	0:11:15	798.39	159.68	26.26	0:18:15	766.09	255.36	16.45	0:25:15	547.78	273.89	15.30	0:32:15	372.03	372.03	11.27
0:04:20	810.97	81.10	51.72	0:11:20	746.80	149.36	28.07	0:18:20	644.04	214.68	19.52	0:25:20	474.17	237.08	17.66	0:32:20	293.81	293.81	14.26
0:04:25	819.99	82.00	51.07	0:11:25	774.06	154.81	27.10	0:18:25	734.84	244.95	17.10	0:25:25	482.76	241.38	17.35	0:32:25	374.34	374.34	11.21
0:04:30	818.10	81.81	51.26	0:11:30	799.01	159.80	26.06	0:18:30	565.18	188.39	22.16	0:25:30	415.87	207.93	20.23	0:32:30	322.96	322.96	12.97
0:04:35	813.90	81.39	51.59	0:11:35	819.78	163.96	25.77	0:18:35	533.73	177.91	23.62	0:25:35	571.26	285.63	14.66	0:32:35	367.84	367.84	11.39
0:04:40	815.37	81.54	51.17	0:11:40	809.71	161.94	25.81	0:18:40	529.95	176.65	23.77	0:25:40	564.55	282.28	14.86	0:32:40	378.33	378.33	11.08
0:04:45	814.32	81.43	51.78	0:11:45	738.41	147.68	28.46	0:18:45	750.15	250.05	16.79	0:25:45	485.49	242.75	17.28	0:32:45	368.05	368.05	11.37
0:04:50	816.00	81.60	51.43	0:11:50	807.40	161.48	25.96	0:18:50	632.50	210.83	19.91	0:25:50	491.15	245.58	17.09	0:32:50	377.49	377.49	11.12
0:04:55	815.58	81.56	51.35	0:11:55	811.39	162.28	25.85	0:18:55	449.21	149.74	27.98	0:25:55	478.36	239.18	17.54	0:32:55	296.75	296.75	14.13
0:05:00	820.62	82.06	50.93	0:12:00	817.26	163.45	25.60	0:19:00	659.76	219.92	19.04	0:26:00	431.80	215.90	19.36	0:33:00	364.69	364.69	11.48
0:05:05	815.16	81.52	51.53	0:12:05	741.34	148.27	28.37	0:19:05	694.16	231.39	18.09	0:26:05	417.96	208.98	20.00	0:33:05	378.54	378.54	11.08
0:05:10	807.40	80.74	52.02	0:12:10	805.10	161.02	26.07	0:19:10	528.06	176.02	23.88	0:26:10	615.93	307.97	13.71	0:33:10	332.61	332.61	12.61
0:05:15	817.47	81.75	51.42	0:12:15	749.94	149.99	27.79	0:19:15	622.22	207.41	20.20	0:26:15	555.75	277.87	15.09	0:33:15	296.96	296.96	14.08
0:05:20	818.52	81.85	51.15	0:12:20	815.79	163.16	25.86	0:19:20	675.07	225.02	18.62	0:26:20	531.42	265.71	15.74	0:33:20	365.32	365.32	11.49
0:05:25	815.79	81.58	51.21	0:12:25	747.63	149.53	27.91	0:19:25	609.85	203.28	20.68	0:26:25	437.89	218.94	19.18	0:33:25	326.32	326.32	12.86
0:05:30	812.23	81.22	51.86	0:12:30	750.57	150.11	28.02	0:19:30	743.65	247.88	16.89	0:26:30	634.39	317.19	13.20	0:33:30	325.90	325.90	12.86
0:05:35	822.50	82.25	51.04	0:12:35	799.22	159.84	26.25	0:19:35	733.37	244.46	17.17	0:26:35	501.22	250.61	16.74	0:33:35	320.03	320.03	13.09
0:05:40	814.74	81.47	51.51	0:12:40	819.36	163.87	25.56	0:19:40	707.79	235.93	17.76	0:26:40	492.62	246.31	17.01	0:33:40	343.93	343.93	12.18
0:05:45	817.89	81.79	51.11	0:12:45	817.47	163.49	25.66	0:19:45	592.86	197.62	21.21	0:26:45	413.98	206.99	20.24	0:33:45	385.25	385.25	10.88
0:05:50	819.78	81.98	51.34	0:12:50	814.95	162.99	25.75	0:19:50	605.03	201.68	20.71	0:26:50	584.90	292.45	14.38	0:33:50	382.94	382.94	10.96
0:05:55	813.07	81.31	51.61	0:12:55	817.47	163.49	25.63	0:19:55	750.78	250.26	16.83	0:26:55	489.06	244.53	17.16	0:33:55	377.91	377.91	11.07
0:06:00	821.24	82.12	51.08	0:13:00	801.53	160.31	26.09	0:20:00	728.55	242.85	17.25	0:27:00	436.42	218.21	19.11	0:34:00	256.48	256.48	16.35
0:06:05	817.05	81.71	51.07	0:13:05	759.59	151.92	27.69	0:20:05	724.78	241.59	17.32	0:27:05	560.99	280.49	14.97	0:34:05	359.24	359.24	11.67
0:06:10	816.42	81.64	51.57	0:13:10	802.16	160.43	26.10	0:20:10	518.63	172.88	24.29	0:27:10	461.16	230.58	18.17	0:34:10	378.96	378.96	11.05
0:06:15	821.45	82.15	51.13	0:13:15	821.66	164.33	25.52	0:20:15	716.18	238.73	17.55	0:27:15	447.74	223.87	18.76	0:34:15	372.03	372.03	11.27
0:06:20	817.47	81.75	51.17	0:13:20	817.26	163.45	25.76	0:20:20	611.11	203.70	20.62	0:27:20	445.64	222.82	18.79	0:34:20	372.03	372.03	11.27
0:06:25	819.36	81.94	51.24	0:13:25	798.81	159.76	26.13	0:20:25	629.77	209.92	19.99	0:27:25	484.86	242.43	17.31	0:34:25	333.45	333.45	12.58
0:06:30	818.94	81.89	51.25	0:13:30	771.75	154.35	27.22	0:20:30	518.84	172.95	24.20	0:27:30	540.44	270.22	15.49	0:34:30	336.17	336.17	12.45
0:06:35	821.45	82.15	51.05	0:13:35	761.90	152.38	27.46	0:20:35	475.42	158.47	26.42	0:27:35	614.88	307.44	13.68	0:34:35	361.13	361.13	11.62
0:06:40	816.21	81.62	51.47	0:13:40	803.84	160.77	26.17	0:20:40	760.43	253.48	16.56	0:27:40	437.47	218.73	19.14	0:34:40	361.97	361.97	11.58
0:06:45	16.15	0.00	61.96	0:13:45	13.21	0.00	27.82	0:20:45	10.07	0.00	17.28	0:27:45	4.61	0.00	21.37	0:34:45	3.15	0.00	11.03
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

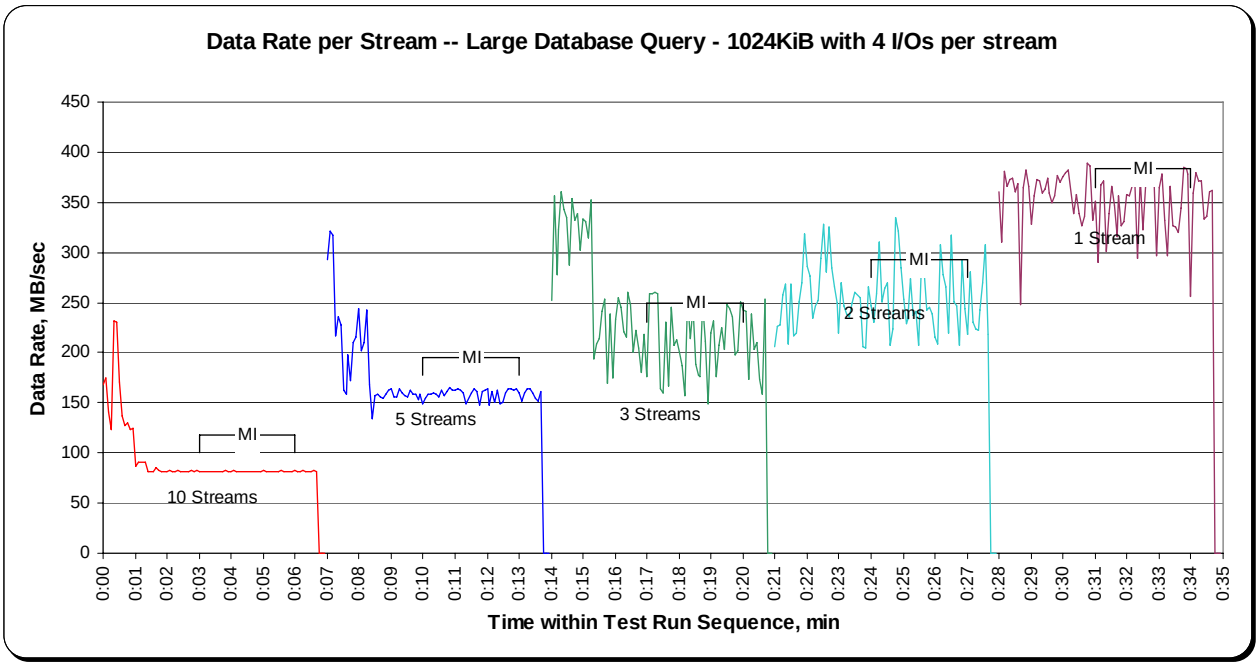
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



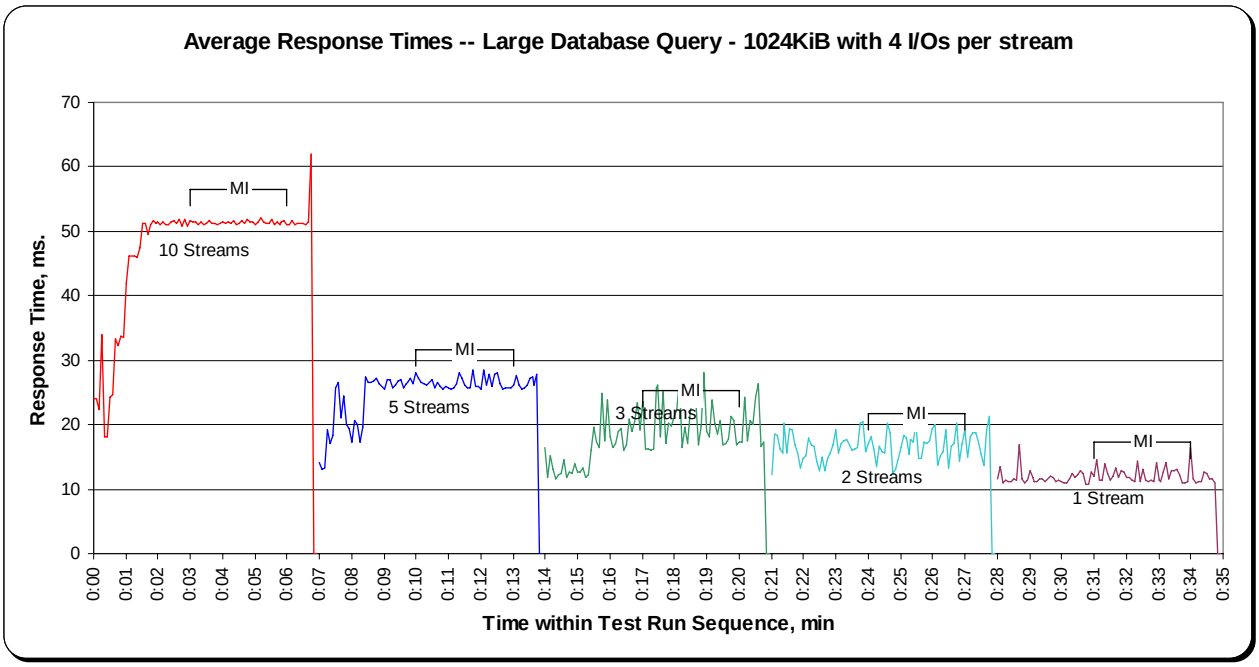
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate per Stream Graph



SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Response Time Graph



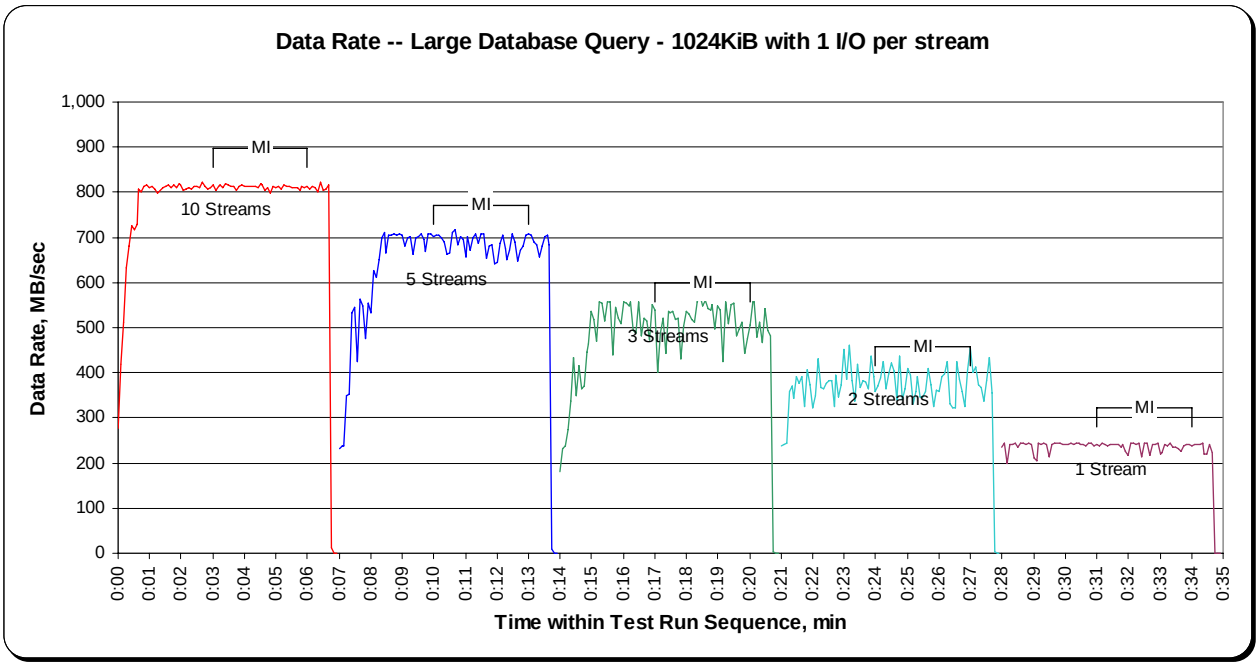
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR6	10 Streams			TR7	5 Streams			TR8	3 Streams			TR9	2 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	277.24	138.62	5.73	0:07:00	231.74	231.74	4.49	0:14:00	180.77	180.77	5.76	0:21:00	238.24	238.24	4.36	0:28:00	235.30	235.30	4.42
0:00:05	420.06	140.02	6.71	0:07:05	239.08	239.08	4.37	0:14:05	232.57	232.57	4.51	0:21:05	240.33	240.33	4.36	0:28:05	243.06	243.06	4.31
0:00:10	513.17	128.29	7.74	0:07:10	238.24	238.24	4.40	0:14:10	238.03	238.03	4.39	0:21:10	243.06	243.06	4.31	0:28:10	199.23	199.23	5.26
0:00:15	633.34	126.67	7.25	0:07:15	348.13	174.06	4.75	0:14:15	275.36	137.68	6.19	0:21:15	359.24	179.62	5.68	0:28:15	239.49	239.49	4.38
0:00:20	680.53	97.22	9.43	0:07:20	351.06	175.53	5.97	0:14:20	338.48	169.24	6.19	0:21:20	369.94	184.97	5.66	0:28:20	241.59	241.59	4.34
0:00:25	726.03	103.72	10.10	0:07:25	533.93	177.98	5.46	0:14:25	432.43	216.22	4.85	0:21:25	342.67	171.34	6.11	0:28:25	243.69	243.69	4.30
0:00:30	718.27	89.78	10.88	0:07:30	544.63	181.54	5.78	0:14:30	350.43	175.22	5.98	0:21:30	390.49	195.24	5.37	0:28:30	234.46	234.46	4.47
0:00:35	728.55	91.07	11.59	0:07:35	425.51	141.84	7.38	0:14:35	416.70	208.35	5.03	0:21:35	377.49	188.74	5.55	0:28:35	242.85	242.85	4.31
0:00:40	806.56	100.82	10.39	0:07:40	563.50	140.88	6.38	0:14:40	364.49	182.24	5.75	0:21:40	390.49	195.24	5.37	0:28:40	242.64	242.64	4.32
0:00:45	801.95	89.11	10.65	0:07:45	548.82	137.21	7.64	0:14:45	370.36	185.18	5.67	0:21:45	326.74	163.37	6.42	0:28:45	240.75	240.75	4.35
0:00:50	814.32	90.48	11.57	0:07:50	476.68	119.17	8.79	0:14:50	445.64	148.55	6.11	0:21:50	407.06	203.53	5.15	0:28:50	243.69	243.69	4.30
0:00:55	816.42	90.71	11.56	0:07:55	553.44	138.36	7.58	0:14:55	462.42	154.14	6.77	0:21:55	374.34	187.17	5.60	0:28:55	240.33	240.33	4.36
0:01:00	810.97	90.11	11.65	0:08:00	533.93	133.48	7.85	0:15:00	536.66	178.89	5.85	0:22:00	323.38	161.69	6.48	0:29:00	209.92	209.92	4.99
0:01:05	814.11	90.46	11.58	0:08:05	626.63	156.66	6.69	0:15:05	518.42	172.81	6.05	0:22:05	349.39	174.69	6.00	0:29:05	205.52	205.52	5.10
0:01:10	805.94	89.55	11.72	0:08:10	611.74	152.93	6.85	0:15:10	470.39	156.80	6.70	0:22:10	429.92	214.96	4.87	0:29:10	243.69	243.69	4.30
0:01:15	798.39	88.71	11.82	0:08:15	649.91	129.98	7.10	0:15:15	556.79	185.60	5.65	0:22:15	368.68	184.34	5.69	0:29:15	242.01	242.01	4.33
0:01:20	805.10	80.51	11.87	0:08:20	697.72	139.54	7.51	0:15:20	553.23	184.41	5.68	0:22:20	365.11	182.56	5.74	0:29:20	244.53	244.53	4.28
0:01:25	809.92	80.99	12.94	0:08:25	711.14	142.23	7.37	0:15:25	515.69	171.90	6.09	0:22:25	376.02	188.01	5.58	0:29:25	239.49	239.49	4.38
0:01:30	812.65	81.26	12.90	0:08:30	666.06	133.21	7.86	0:15:30	556.79	185.60	5.65	0:22:30	382.52	191.26	5.48	0:29:30	214.96	214.96	4.88
0:01:35	816.42	81.64	12.83	0:08:35	704.22	140.84	7.44	0:15:35	556.37	185.46	5.64	0:22:35	382.10	191.05	5.49	0:29:35	240.12	240.12	4.36
0:01:40	809.71	80.97	12.95	0:08:40	705.27	141.05	7.42	0:15:40	439.98	146.66	7.16	0:22:40	326.11	163.05	6.43	0:29:40	243.69	243.69	4.30
0:01:45	815.79	81.58	12.85	0:08:45	708.42	141.68	7.40	0:15:45	545.89	181.96	5.76	0:22:45	395.10	197.55	5.31	0:29:45	244.11	244.11	4.29
0:01:50	808.87	80.89	12.97	0:08:50	706.11	141.22	7.42	0:15:50	521.77	173.92	6.01	0:22:50	347.29	173.64	6.04	0:29:50	243.69	243.69	4.30
0:01:55	818.10	81.81	12.81	0:08:55	706.74	141.35	7.41	0:15:55	510.45	170.15	6.18	0:22:55	372.24	186.12	5.63	0:29:55	241.17	241.17	4.34
0:02:00	816.84	81.68	12.83	0:09:00	705.69	141.14	7.42	0:16:00	557.84	185.95	5.64	0:23:00	451.73	225.86	4.64	0:30:00	241.59	241.59	4.34
0:02:05	803.21	80.32	13.05	0:09:05	681.15	136.23	7.69	0:16:05	553.86	184.62	5.67	0:23:05	385.88	192.94	5.43	0:30:05	239.49	239.49	4.38
0:02:10	808.45	80.85	12.98	0:09:10	699.40	139.88	7.49	0:16:10	547.78	182.59	5.75	0:23:10	460.12	230.06	4.55	0:30:10	242.85	242.85	4.31
0:02:15	810.97	81.10	12.91	0:09:15	702.13	140.43	7.46	0:16:15	558.26	186.09	5.64	0:23:15	382.52	191.26	5.48	0:30:15	241.38	241.38	4.34
0:02:20	808.24	80.82	12.98	0:09:20	663.96	132.79	7.89	0:16:20	493.88	164.63	6.36	0:23:20	337.22	168.61	6.21	0:30:20	243.06	243.06	4.31
0:02:25	813.49	81.35	12.87	0:09:25	697.72	139.54	7.48	0:16:25	489.06	163.02	6.43	0:23:25	419.85	209.92	5.00	0:30:25	243.69	243.69	4.30
0:02:30	814.32	81.43	12.89	0:09:30	701.08	140.22	7.50	0:16:30	557.00	185.67	5.64	0:23:30	366.16	183.08	5.71	0:30:30	240.12	240.12	4.36
0:02:35	811.18	81.12	12.91	0:09:35	709.05	141.81	7.39	0:16:35	482.97	160.99	6.52	0:23:35	383.15	191.57	5.48	0:30:35	242.01	242.01	4.32
0:02:40	822.29	82.23	12.76	0:09:40	695.84	139.17	7.53	0:16:40	520.93	173.64	6.03	0:23:40	380.84	190.42	5.50	0:30:40	236.77	236.77	4.43
0:02:45	811.81	81.18	12.91	0:09:45	667.94	133.59	7.85	0:16:45	514.64	171.55	6.11	0:23:45	364.69	182.35	5.75	0:30:45	243.69	243.69	4.30
0:02:50	807.19	80.72	12.99	0:09:50	708.00	141.60	7.40	0:16:50	474.17	158.06	6.63	0:23:50	436.00	218.00	4.80	0:30:50	244.74	244.74	4.28
0:02:55	809.71	80.97	12.95	0:09:55	708.00	141.60	7.40	0:16:55	549.87	183.29	5.72	0:23:55	392.80	196.40	5.35	0:30:55	239.08	239.08	4.38

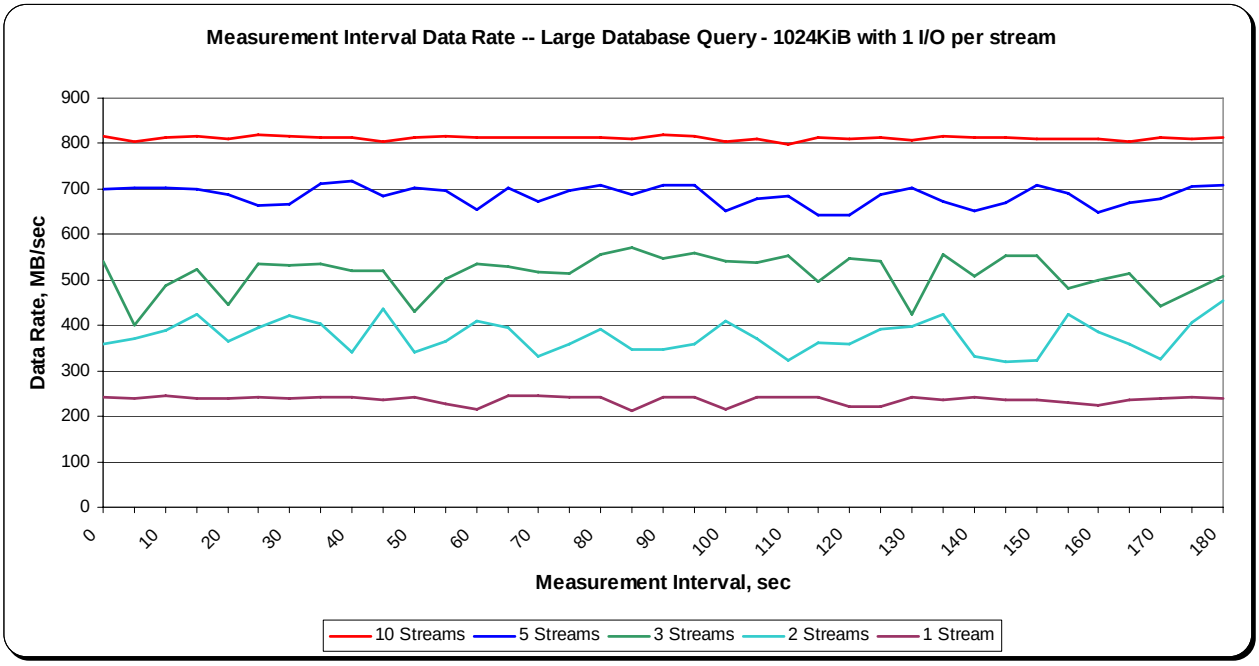
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	10 Streams			TR7	5 Streams			TR8	3 Streams			TR9	2 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	816.42	81.64	12.84	0:10:00	701.08	140.22	7.47	0:17:00	540.02	180.01	5.82	0:24:00	359.24	179.62	5.83	0:31:00	241.38	241.38	4.33
0:03:05	803.00	80.30	13.02	0:10:05	703.80	140.76	7.42	0:17:05	399.30	133.10	7.86	0:24:05	371.41	185.70	5.64	0:31:05	239.29	239.29	4.38
0:03:10	812.44	81.24	12.88	0:10:10	703.80	140.76	7.44	0:17:10	488.85	162.95	6.45	0:24:10	388.18	194.09	5.40	0:31:10	243.69	243.69	4.30
0:03:15	817.47	81.75	12.82	0:10:15	699.82	139.96	7.49	0:17:15	522.40	174.13	6.02	0:24:15	424.88	212.44	4.94	0:31:15	240.12	240.12	4.37
0:03:20	809.50	80.95	12.95	0:10:20	689.12	137.82	7.60	0:17:20	444.18	148.06	7.08	0:24:20	364.49	182.24	5.75	0:31:20	239.08	239.08	4.38
0:03:25	819.36	81.94	12.81	0:10:25	663.75	132.75	7.88	0:17:25	535.82	178.61	5.86	0:24:25	396.15	198.08	5.29	0:31:25	242.22	242.22	4.33
0:03:30	815.16	81.52	12.86	0:10:30	665.64	133.13	7.88	0:17:30	531.84	177.28	5.91	0:24:30	420.27	210.13	4.99	0:31:30	239.91	239.91	4.37
0:03:35	812.65	81.26	12.89	0:10:35	711.14	142.23	7.37	0:17:35	534.77	178.26	5.88	0:24:35	402.65	201.33	5.21	0:31:35	242.01	242.01	4.33
0:03:40	814.32	81.43	12.88	0:10:40	718.06	143.61	7.29	0:17:40	519.46	173.15	6.05	0:24:40	340.16	170.08	6.16	0:31:40	241.17	241.17	4.34
0:03:45	803.00	80.30	13.04	0:10:45	685.14	137.03	7.65	0:17:45	520.93	173.64	6.04	0:24:45	436.42	218.21	4.80	0:31:45	235.09	235.09	4.46
0:03:50	814.53	81.45	12.89	0:10:50	701.29	140.26	7.47	0:17:50	430.13	143.38	7.31	0:24:50	339.95	169.97	6.17	0:31:50	242.01	242.01	4.33
0:03:55	814.95	81.50	12.85	0:10:55	696.04	139.21	7.52	0:17:55	502.48	167.49	6.25	0:24:55	364.07	182.03	5.75	0:31:55	226.70	226.70	4.62
0:04:00	814.74	81.47	12.88	0:11:00	655.15	131.03	8.00	0:18:00	536.45	178.82	5.86	0:25:00	408.53	204.26	5.13	0:32:00	215.38	215.38	4.87
0:04:05	813.28	81.33	12.88	0:11:05	701.92	140.38	7.47	0:18:05	529.32	176.44	5.94	0:25:05	394.68	197.34	5.31	0:32:05	243.90	243.90	4.30
0:04:10	814.32	81.43	12.88	0:11:10	671.93	134.39	7.80	0:18:10	518.42	172.81	6.06	0:25:10	330.72	165.36	6.34	0:32:10	243.90	243.90	4.30
0:04:15	812.02	81.20	12.91	0:11:15	697.72	139.54	7.51	0:18:15	512.96	170.99	6.13	0:25:15	359.24	179.62	5.83	0:32:15	240.96	240.96	4.35
0:04:20	813.69	81.37	12.88	0:11:20	708.00	141.60	7.41	0:18:20	556.16	185.39	5.65	0:25:20	392.59	196.29	5.34	0:32:20	242.85	242.85	4.31
0:04:25	811.60	81.16	12.91	0:11:25	688.08	137.62	7.61	0:18:25	572.31	190.77	5.49	0:25:25	347.50	173.75	6.03	0:32:25	213.70	213.70	4.90
0:04:30	820.62	82.06	12.77	0:11:30	709.05	141.81	7.40	0:18:30	548.41	182.80	5.73	0:25:30	345.82	172.91	6.07	0:32:30	242.85	242.85	4.32
0:04:35	814.95	81.50	12.88	0:11:35	707.58	141.52	7.40	0:18:35	559.52	186.51	5.62	0:25:35	357.77	178.89	5.86	0:32:35	242.85	242.85	4.31
0:04:40	804.05	80.40	13.02	0:11:40	653.26	130.65	8.02	0:18:40	541.07	180.36	5.81	0:25:40	410.41	205.21	5.11	0:32:40	216.43	216.43	4.84
0:04:45	810.76	81.08	12.94	0:11:45	680.11	136.02	7.70	0:18:45	539.18	179.73	5.83	0:25:45	372.03	186.02	5.63	0:32:45	241.17	241.17	4.34
0:04:50	799.43	79.94	13.12	0:11:50	683.88	136.78	7.67	0:18:50	552.18	184.06	5.70	0:25:50	324.01	162.00	6.47	0:32:50	242.43	242.43	4.32
0:04:55	812.65	81.26	12.89	0:11:55	642.36	128.47	8.15	0:18:55	497.23	165.74	6.32	0:25:55	360.50	180.25	5.81	0:32:55	243.06	243.06	4.31
0:05:00	810.34	81.03	12.95	0:12:00	643.41	128.68	8.15	0:19:00	547.78	182.59	5.74	0:26:00	357.56	178.78	5.86	0:33:00	221.04	221.04	4.74
0:05:05	814.53	81.45	12.87	0:12:05	687.66	137.53	7.62	0:19:05	540.65	180.22	5.82	0:26:05	390.91	195.45	5.36	0:33:05	222.09	222.09	4.72
0:05:10	808.45	80.85	12.96	0:12:10	704.01	140.80	7.44	0:19:10	424.25	141.42	7.41	0:26:10	397.83	198.91	5.27	0:33:10	241.38	241.38	4.34
0:05:15	815.58	81.56	12.86	0:12:15	673.81	134.76	7.78	0:19:15	556.79	185.60	5.65	0:26:15	425.30	212.65	4.92	0:33:15	237.61	237.61	4.41
0:05:20	814.32	81.43	12.87	0:12:20	650.75	130.15	8.05	0:19:20	508.56	169.52	6.18	0:26:20	331.14	165.57	6.34	0:33:20	243.48	243.48	4.30
0:05:25	812.02	81.20	12.89	0:12:25	670.67	134.13	7.81	0:19:25	552.18	184.06	5.69	0:26:25	320.86	160.43	6.53	0:33:25	236.14	236.14	4.44
0:05:30	808.87	80.89	12.98	0:12:30	707.16	141.43	7.41	0:19:30	553.23	184.41	5.69	0:26:30	321.91	160.96	6.51	0:33:30	235.72	235.72	4.44
0:05:35	811.60	81.16	12.91	0:12:35	691.22	138.24	7.58	0:19:35	480.46	160.15	6.54	0:26:35	424.25	212.13	4.94	0:33:35	230.90	230.90	4.54
0:05:40	809.08	80.91	12.98	0:12:40	648.02	129.60	8.08	0:19:40	498.07	166.02	6.31	0:26:40	386.71	193.36	5.42	0:33:40	224.81	224.81	4.66
0:05:45	805.31	80.53	13.01	0:12:45	670.67	134.13	7.81	0:19:45	513.38	171.13	6.13	0:26:45	358.82	179.41	5.84	0:33:45	236.77	236.77	4.43
0:05:50	814.53	81.45	12.83	0:12:50	679.69	135.94	7.72	0:19:50	441.87	147.29	7.11	0:26:50	326.74	163.37	6.41	0:33:50	239.91	239.91	4.37
0:05:55	811.18	81.12	12.97	0:12:55	704.85	140.97	7.42	0:19:55	476.68	158.89	6.60	0:26:55	407.27	203.63	5.15	0:33:55	242.22	242.22	4.33
0:06:00	813.90	81.39	12.88	0:13:00	708.84	141.77	7.40	0:20:00	507.30	169.10	6.20	0:27:00	455.08	227.54	4.60	0:34:00	238.03	238.03	4.39
0:06:05	808.66	80.87	12.94	0:13:05	704.85	140.97	7.41	0:20:05	557.21	185.74	5.64	0:27:05	402.02	201.01	5.22	0:34:05	239.49	239.49	4.37
0:06:10	812.65	81.26	12.90	0:13:10	688.49	137.70	7.59	0:20:10	558.26	186.09	5.63	0:27:10	412.51	206.25	5.08	0:34:10	239.49	239.49	4.37
0:06:15	811.60	81.16	12.92	0:13:15	683.88	136.78	7.67	0:20:15	478.99	159.66	6.56	0:27:15	373.08	186.54	5.62	0:34:15	239.91	239.91	4.38
0:06:20	801.53	80.15	13.08	0:13:20	656.20	131.24	7.98	0:20:20	512.96	170.99	6.13	0:27:20	368.26	184.13	5.69	0:34:20	243.69	243.69	4.30
0:06:25	822.50	82.25	12.75	0:13:25	680.95	136.19	7.70	0:20:25	467.46	155.82	6.71	0:27:25	337.22	168.61	6.21	0:34:25	219.36	219.36	4.78
0:06:30	805.52	80.55	13.01	0:13:30	701.71	140.34	7.46	0:20:30	541.27	180.42	5.82	0:27:30	382.10	191.05	5.49	0:34:30	218.73	218.73	4.79
0:06:35	808.24	80.82	12.95	0:13:35	704.43	140.89	7.44	0:20:35	494.09	164.70	6.34	0:27:35	434.32	217.16	4.82	0:34:35	239.70	239.70	4.37
0:06:40	815.58	81.56	12.87	0:13:40	685.14	137.03	7.65	0:20:40	481.72	160.57	6.56	0:27:40	356.73	178.36	5.88	0:34:40	223.35	223.35	4.69
0:06:45	11.32	0.00	13.37	0:13:45	9.02	0.00	6.94	0:20:45	4.19	0.00	7.68	0:27:45	3.15	0.00	5.99	0:34:45	1.47	0.00	5.86
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

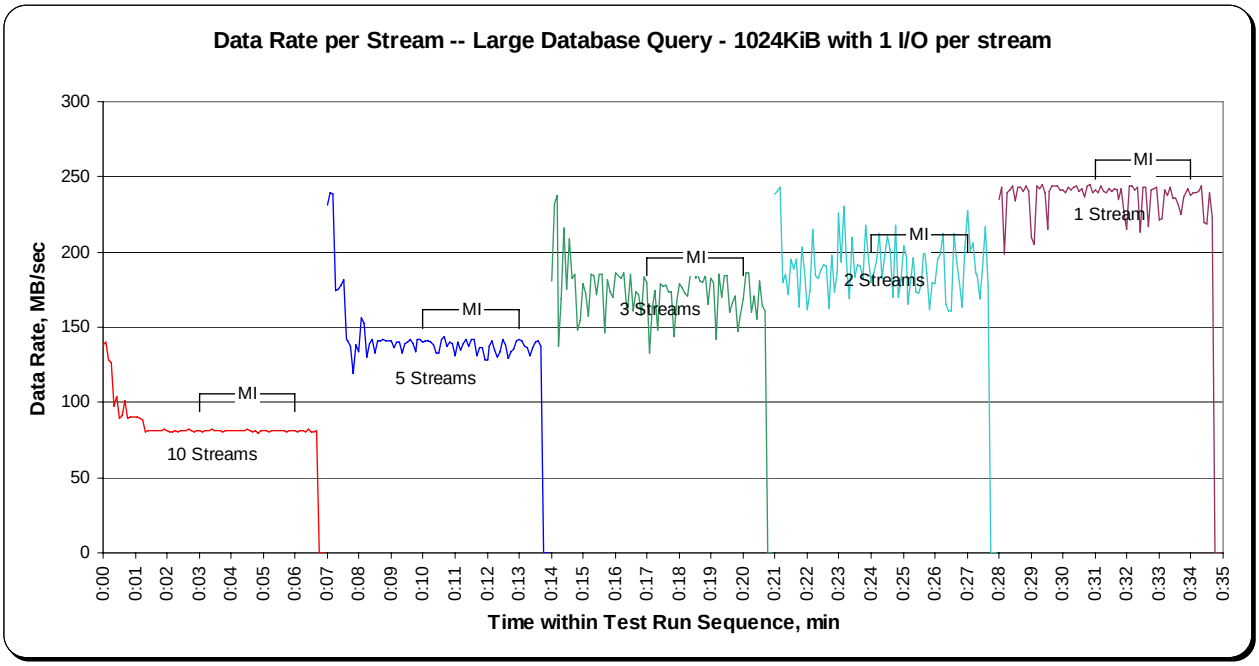
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



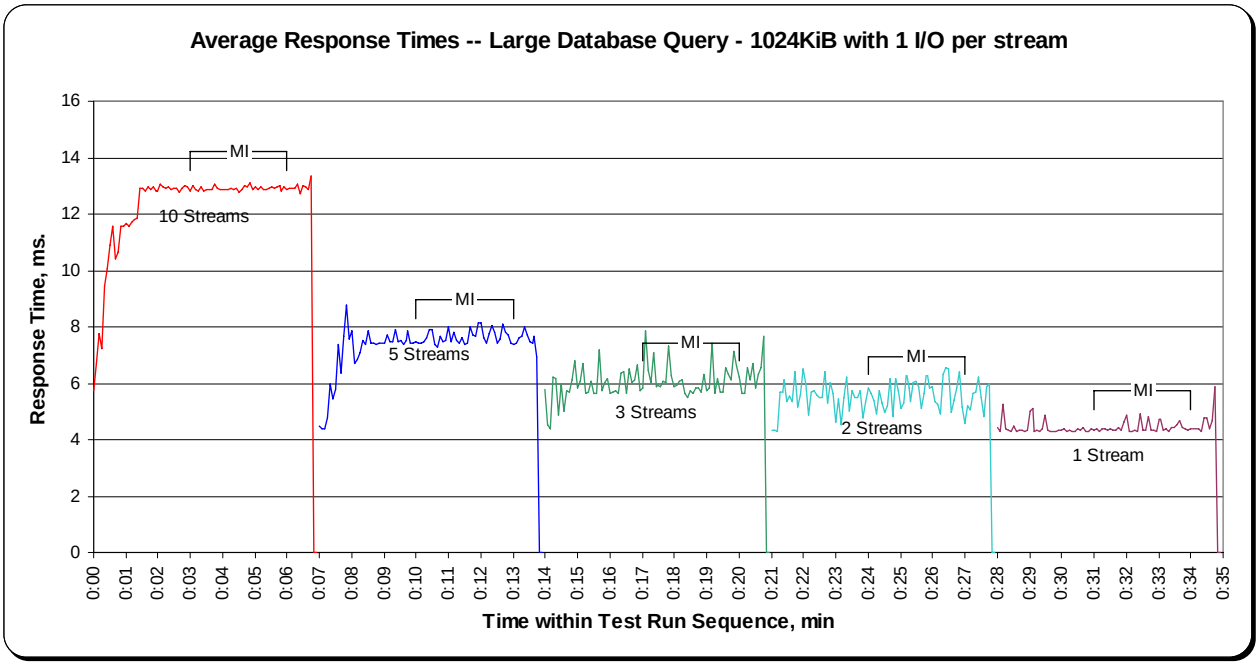
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate per Stream Graph



SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Response Time Graph



Large Database Query Test – 64 KIB TRANSFER SIZE Test Phase

Clause 10.6.8.2.1

5. *A table that will contain the following information for each "64 KiB Transfer Size, 4 Outstanding I/Os" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
6. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "64 KiB Transfer Size, 4 Outstanding I/Os" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*
7. *A table that will contain the following information for each "64 KiB Transfer Size, 1 Outstanding I/O" Test Run:*
   - *The number of Streams specified.*
   - *The average data rate, average data rate per stream, and average Response Time reported at five second intervals.*
8. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the "64 KiB Transfer Size, 1 Outstanding I/O" Test Runs as specified in Clauses 10.1.4 – 10.1.6.*

The SPC-2 "Large DatabaseQuery/64 KIB TRANSFER SIZE/4 Outstanding I/Os" Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate, average Data Rate per Stream, and average Response Time produced by the same Test Runs. The table and graphs present the data at five-second intervals.

Immediately following the SPC-2 "Large DatabaseQuery/64 KIB TRANSFER SIZE/4 Outstanding I/Os" table and graphs will be the SPC-2 "Large DatabaseQuery/64 KIB TRANSFER SIZE/1 Outstanding I/O" table and graphs. The table contains the Test Run data and the graphs illustrate the average Data Rate, average Data Rate per Stream, and average Response Time produced by the Test Runs.

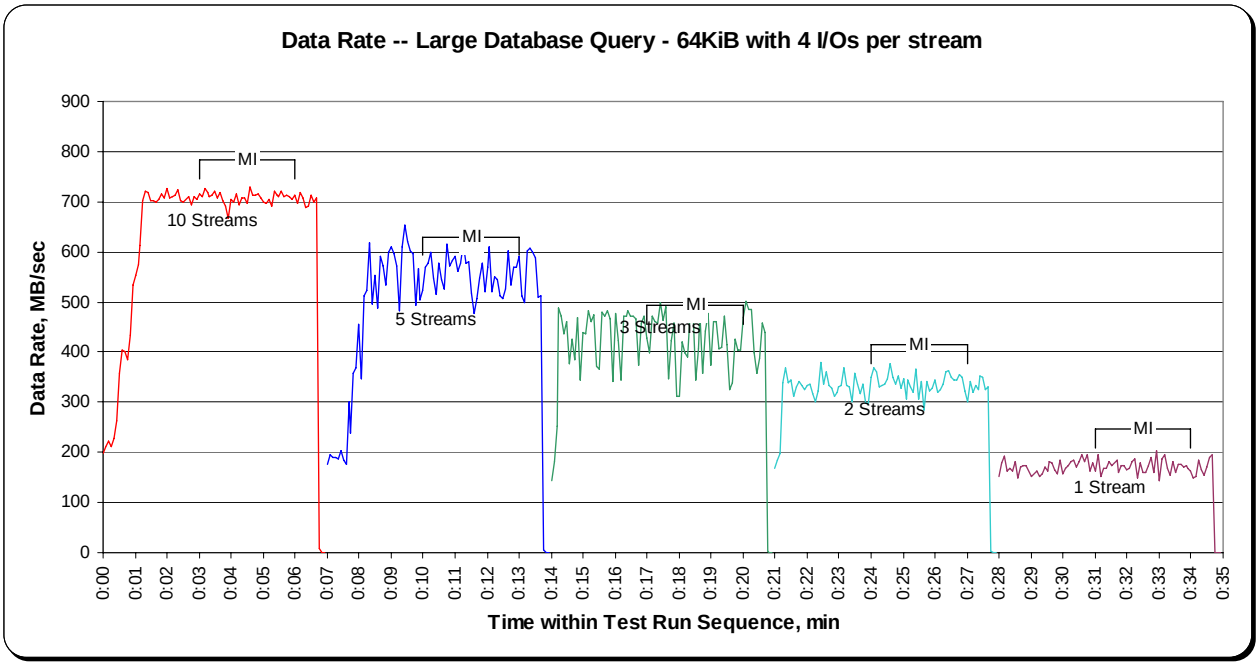
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR11	10 Streams			TR12	5 Streams			TR13	3 Streams			TR14	2 Streams			TR15	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	198.71	99.35	2.07	0:07:00	176.98	176.98	1.46	0:14:00	144.47	144.47	1.79	0:21:00	168.86	168.86	1.53	0:28:00	151.44	151.44	1.71
0:00:05	212.25	106.13	2.47	0:07:05	194.28	194.28	1.34	0:14:05	181.89	181.89	1.43	0:21:05	184.07	184.07	1.42	0:28:05	178.10	178.10	1.47
0:00:10	222.28	111.14	2.35	0:07:10	191.03	191.03	1.36	0:14:10	253.15	126.57	1.47	0:21:10	198.50	198.50	1.31	0:28:10	192.62	192.62	1.35
0:00:15	210.58	105.29	2.48	0:07:15	189.98	189.98	1.37	0:14:15	487.37	162.46	1.58	0:21:15	339.51	169.75	1.50	0:28:15	161.91	161.91	1.62
0:00:20	228.74	76.25	2.59	0:07:20	186.00	186.00	1.40	0:14:20	470.54	156.85	1.66	0:21:20	369.27	184.63	1.41	0:28:20	168.38	168.38	1.55
0:00:25	264.22	88.07	2.97	0:07:25	203.47	203.47	1.28	0:14:25	436.00	145.33	1.79	0:21:25	338.92	169.46	1.54	0:28:25	163.35	163.35	1.60
0:00:30	358.56	89.64	2.81	0:07:30	184.18	184.18	1.42	0:14:30	461.43	153.81	1.69	0:21:30	345.31	172.65	1.51	0:28:30	181.49	181.49	1.44
0:00:35	405.11	101.28	2.57	0:07:35	175.76	175.76	1.48	0:14:35	376.73	125.58	2.09	0:21:35	311.24	155.62	1.68	0:28:35	149.32	149.32	1.75
0:00:40	400.23	80.05	3.13	0:07:40	299.91	149.96	1.55	0:14:40	424.88	141.63	1.85	0:21:40	332.06	166.03	1.57	0:28:40	170.66	170.66	1.53
0:00:45	385.50	77.10	3.39	0:07:45	238.36	119.18	2.19	0:14:45	386.27	128.76	2.02	0:21:45	341.37	170.69	1.53	0:28:45	172.44	172.44	1.51
0:00:50	434.59	72.43	3.19	0:07:50	357.46	178.73	1.46	0:14:50	467.69	155.90	1.67	0:21:50	334.17	167.09	1.56	0:28:50	172.70	172.70	1.51
0:00:55	534.20	76.31	2.95	0:07:55	369.25	123.08	1.45	0:14:55	345.40	115.13	2.27	0:21:55	326.07	163.03	1.60	0:28:55	162.49	162.49	1.60
0:01:00	551.92	78.85	3.31	0:08:00	454.60	151.53	1.72	0:15:00	438.05	146.02	1.79	0:22:00	333.72	166.86	1.56	0:29:00	153.16	153.16	1.71
0:01:05	573.36	71.67	3.55	0:08:05	346.85	115.62	2.26	0:15:05	437.24	145.75	1.79	0:22:05	337.45	168.73	1.55	0:29:05	156.89	156.89	1.66
0:01:10	612.93	61.29	3.62	0:08:10	512.28	102.46	1.78	0:15:10	481.24	160.41	1.63	0:22:10	316.88	158.44	1.65	0:29:10	162.27	162.27	1.61
0:01:15	700.87	70.09	3.72	0:08:15	523.60	104.72	2.49	0:15:15	460.45	153.48	1.70	0:22:15	299.83	149.91	1.74	0:29:15	152.86	152.86	1.71
0:01:20	720.75	72.07	3.63	0:08:20	617.80	123.56	2.11	0:15:20	473.31	157.77	1.65	0:22:20	323.36	161.68	1.61	0:29:20	155.94	155.94	1.67
0:01:25	717.10	71.71	3.65	0:08:25	496.07	99.21	2.63	0:15:25	370.76	123.59	2.11	0:22:25	380.34	190.17	1.37	0:29:25	170.56	170.56	1.53
0:01:30	702.63	70.26	3.73	0:08:30	554.27	110.85	2.36	0:15:30	367.23	122.41	2.14	0:22:30	336.63	168.32	1.55	0:29:30	163.83	163.83	1.59
0:01:35	701.13	70.11	3.73	0:08:35	487.57	97.51	2.68	0:15:35	479.53	159.84	1.63	0:22:35	360.03	180.01	1.45	0:29:35	182.72	182.72	1.43
0:01:40	698.24	69.82	3.75	0:08:40	591.67	118.33	2.21	0:15:40	472.08	157.36	1.66	0:22:40	333.68	166.84	1.56	0:29:40	179.85	179.85	1.45
0:01:45	705.48	70.55	3.71	0:08:45	572.98	114.60	2.28	0:15:45	483.03	161.01	1.62	0:22:45	328.56	164.28	1.59	0:29:45	165.57	165.57	1.58
0:01:50	715.21	71.52	3.66	0:08:50	533.62	106.72	2.45	0:15:50	465.36	155.12	1.68	0:22:50	311.41	155.70	1.68	0:29:50	158.25	158.25	1.65
0:01:55	708.85	70.88	3.69	0:08:55	597.95	119.59	2.18	0:15:55	342.41	114.14	2.29	0:22:55	320.50	160.25	1.63	0:29:55	183.03	183.03	1.42
0:02:00	726.34	72.63	3.60	0:09:00	611.26	122.25	2.14	0:16:00	475.82	158.61	1.65	0:23:00	331.83	165.92	1.57	0:30:00	158.33	158.33	1.65
0:02:05	706.19	70.62	3.71	0:09:05	596.24	119.25	2.19	0:16:05	423.67	141.22	1.85	0:23:05	332.28	166.14	1.57	0:30:05	168.82	168.82	1.54
0:02:10	710.12	71.01	3.68	0:09:10	570.93	114.19	2.29	0:16:10	344.92	114.97	2.27	0:23:10	369.32	184.66	1.41	0:30:10	174.33	174.33	1.50
0:02:15	712.26	71.23	3.67	0:09:15	483.82	96.76	2.70	0:16:15	471.50	157.17	1.66	0:23:15	334.56	167.28	1.56	0:30:15	181.73	181.73	1.43
0:02:20	723.92	72.39	3.61	0:09:20	610.47	122.09	2.14	0:16:20	470.59	156.86	1.66	0:23:20	331.34	165.67	1.57	0:30:20	185.38	185.38	1.40
0:02:25	701.79	70.18	3.73	0:09:25	652.74	130.55	2.00	0:16:25	482.14	160.71	1.62	0:23:25	299.79	149.89	1.74	0:30:25	171.48	171.48	1.52
0:02:30	699.48	69.95	3.74	0:09:30	620.06	124.01	2.11	0:16:30	471.00	157.00	1.66	0:23:30	356.75	178.37	1.46	0:30:30	182.23	182.23	1.43
0:02:35	705.29	70.53	3.71	0:09:35	602.99	120.60	2.17	0:16:35	472.76	157.59	1.66	0:23:35	335.80	167.90	1.55	0:30:35	195.78	195.78	1.33
0:02:40	711.05	71.10	3.68	0:09:40	596.53	119.31	2.19	0:16:40	465.79	155.26	1.68	0:23:40	317.60	158.80	1.65	0:30:40	181.87	181.87	1.43
0:02:45	693.15	69.32	3.77	0:09:45	492.15	98.43	2.66	0:16:45	373.42	124.47	2.10	0:23:45	335.70	167.85	1.55	0:30:45	194.30	194.30	1.35
0:02:50	711.17	71.12	3.68	0:09:50	567.86	113.57	2.30	0:16:50	459.27	153.09	1.71	0:23:50	298.80	149.40	1.75	0:30:50	162.62	162.62	1.60
0:02:55	704.21	70.42	3.71	0:09:55	502.90	100.58	2.60	0:16:55	471.81	157.27	1.66	0:23:55	298.36	149.18	1.75	0:30:55	177.68	177.68	1.47

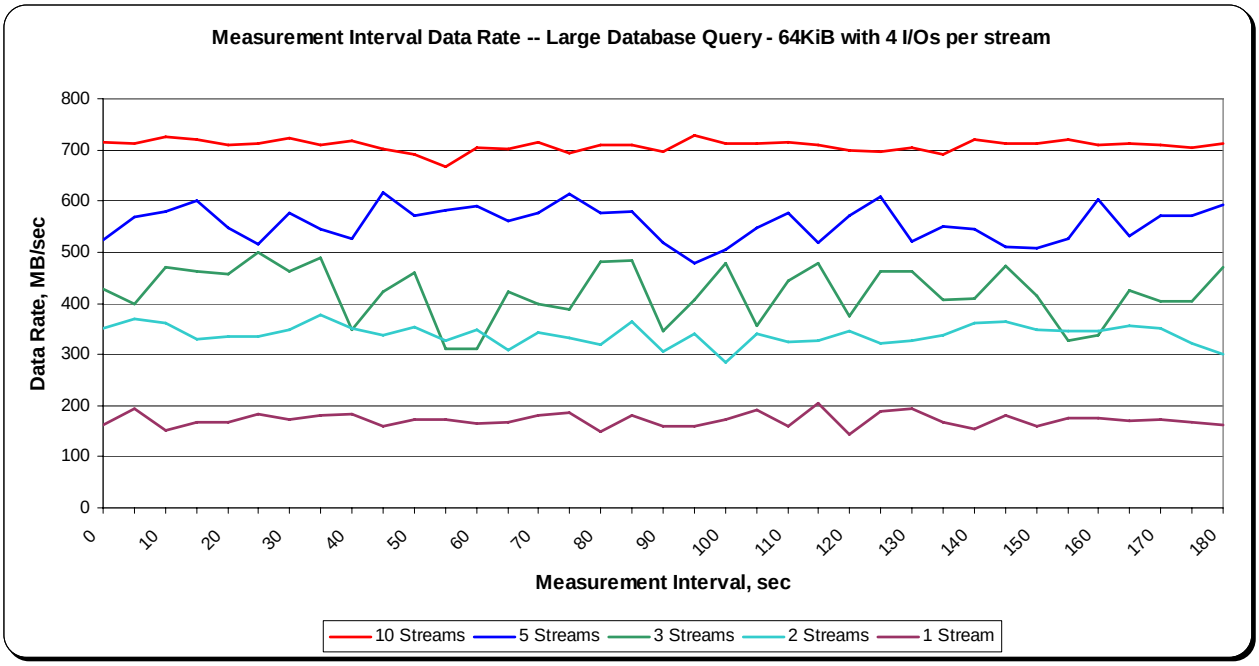
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	10 Streams			TR12	5 Streams			TR13	3 Streams			TR14	2 Streams			TR15	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	714.50	71.45	3.66	0:10:00	523.02	104.60	2.50	0:17:00	428.64	142.88	1.82	0:24:00	351.00	175.50	1.49	0:31:00	162.90	162.90	1.60
0:03:05	711.30	71.13	3.68	0:10:05	567.97	113.59	2.29	0:17:05	398.09	132.70	1.97	0:24:05	368.31	184.16	1.41	0:31:05	195.22	195.22	1.33
0:03:10	726.02	72.60	3.60	0:10:10	578.37	115.67	2.25	0:17:10	470.41	156.80	1.66	0:24:10	360.88	180.44	1.45	0:31:10	151.81	151.81	1.72
0:03:15	719.24	71.92	3.64	0:10:15	599.88	119.98	2.18	0:17:15	461.22	153.74	1.70	0:24:15	330.66	165.33	1.58	0:31:15	166.74	166.74	1.57
0:03:20	709.51	70.95	3.69	0:10:20	547.14	109.43	2.39	0:17:20	457.90	152.63	1.71	0:24:20	334.40	167.20	1.56	0:31:20	167.42	167.42	1.56
0:03:25	713.23	71.32	3.67	0:10:25	514.80	102.96	2.54	0:17:25	499.29	166.43	1.57	0:24:25	335.81	167.90	1.55	0:31:25	182.13	182.13	1.43
0:03:30	722.35	72.24	3.62	0:10:30	576.15	115.23	2.27	0:17:30	463.06	154.35	1.69	0:24:30	347.35	173.68	1.50	0:31:30	172.23	172.23	1.51
0:03:35	708.48	70.85	3.69	0:10:35	543.73	108.75	2.40	0:17:35	489.38	163.13	1.60	0:24:35	378.12	189.06	1.38	0:31:35	180.08	180.08	1.45
0:03:40	717.69	71.77	3.64	0:10:40	526.41	105.28	2.48	0:17:40	346.93	115.64	2.26	0:24:40	349.54	174.77	1.49	0:31:40	183.07	183.07	1.43
0:03:45	701.08	70.11	3.74	0:10:45	615.85	123.17	2.12	0:17:45	423.77	141.26	1.85	0:24:45	336.75	168.38	1.55	0:31:45	159.99	159.99	1.63
0:03:50	689.98	69.00	3.79	0:10:50	572.67	114.53	2.28	0:17:50	458.98	152.99	1.71	0:24:50	353.10	176.55	1.48	0:31:50	173.62	173.62	1.50
0:03:55	666.67	66.67	3.93	0:10:55	582.64	116.53	2.24	0:17:55	310.57	103.52	2.53	0:24:55	328.01	164.00	1.59	0:31:55	172.30	172.30	1.51
0:04:00	703.50	70.35	3.72	0:11:00	591.25	118.25	2.21	0:18:00	311.51	103.84	2.52	0:25:00	346.87	173.43	1.50	0:32:00	165.30	165.30	1.58
0:04:05	700.74	70.07	3.73	0:11:05	560.72	112.14	2.33	0:18:05	421.27	140.42	1.86	0:25:05	307.30	153.65	1.70	0:32:05	168.28	168.28	1.55
0:04:10	715.32	71.53	3.66	0:11:10	577.35	115.47	2.26	0:18:10	399.82	133.27	1.96	0:25:10	343.22	171.61	1.52	0:32:10	180.38	180.38	1.45
0:04:15	695.00	69.50	3.77	0:11:15	614.25	122.85	2.13	0:18:15	389.29	129.76	2.02	0:25:15	331.09	165.54	1.58	0:32:15	187.29	187.29	1.39
0:04:20	708.54	70.85	3.69	0:11:20	576.34	115.27	2.27	0:18:20	481.87	160.62	1.63	0:25:20	318.83	159.42	1.63	0:32:20	149.02	149.02	1.75
0:04:25	708.75	70.88	3.69	0:11:25	578.86	115.77	2.25	0:18:25	482.72	160.91	1.62	0:25:25	364.82	182.41	1.43	0:32:25	180.24	180.24	1.45
0:04:30	695.50	69.55	3.76	0:11:30	519.09	103.82	2.52	0:18:30	344.51	114.84	2.28	0:25:30	306.08	153.04	1.71	0:32:30	158.86	158.86	1.64
0:04:35	728.33	72.83	3.59	0:11:35	478.27	95.65	2.73	0:18:35	405.58	135.19	1.93	0:25:35	341.42	170.71	1.53	0:32:35	158.63	158.63	1.64
0:04:40	711.92	71.19	3.68	0:11:40	505.85	101.17	2.58	0:18:40	477.20	159.07	1.64	0:25:40	284.67	142.33	1.83	0:32:40	172.51	172.51	1.51
0:04:45	711.90	71.19	3.68	0:11:45	547.48	109.50	2.39	0:18:45	357.02	119.01	2.20	0:25:45	340.25	170.13	1.54	0:32:45	190.06	190.06	1.37
0:04:50	716.11	71.61	3.65	0:11:50	576.13	115.23	2.27	0:18:50	442.91	147.64	1.77	0:25:50	323.11	161.55	1.61	0:32:50	159.11	159.11	1.64
0:04:55	708.47	70.85	3.69	0:11:55	519.37	103.87	2.52	0:18:55	477.44	159.15	1.64	0:25:55	327.98	163.99	1.59	0:32:55	203.52	203.52	1.28
0:05:00	698.10	69.81	3.75	0:12:00	570.40	114.08	2.29	0:19:00	374.18	124.73	2.09	0:26:00	344.66	172.33	1.51	0:33:00	142.92	142.92	1.83
0:05:05	697.60	69.76	3.75	0:12:05	608.81	121.76	2.14	0:19:05	461.32	153.77	1.70	0:26:05	320.89	160.44	1.63	0:33:05	187.54	187.54	1.39
0:05:10	705.50	70.55	3.71	0:12:10	521.54	104.31	2.51	0:19:10	462.06	154.02	1.70	0:26:10	325.68	162.84	1.60	0:33:10	194.10	194.10	1.34
0:05:15	691.85	69.19	3.78	0:12:15	551.40	110.28	2.37	0:19:15	407.58	135.86	1.92	0:26:15	336.24	168.12	1.55	0:33:15	168.38	168.38	1.55
0:05:20	720.62	72.06	3.63	0:12:20	544.11	108.82	2.40	0:19:20	408.55	136.18	1.92	0:26:20	360.88	180.44	1.44	0:33:20	153.62	153.62	1.70
0:05:25	713.61	71.36	3.67	0:12:25	511.48	102.30	2.55	0:19:25	472.38	157.46	1.66	0:26:25	363.49	181.74	1.44	0:33:25	180.71	180.71	1.44
0:05:30	711.20	71.12	3.68	0:12:30	508.06	101.61	2.57	0:19:30	413.57	137.86	1.89	0:26:30	349.18	174.59	1.49	0:33:30	160.70	160.70	1.62
0:05:35	720.21	72.02	3.63	0:12:35	525.42	105.08	2.49	0:19:35	325.89	108.63	2.41	0:26:35	345.44	172.72	1.51	0:33:35	176.62	176.62	1.48
0:05:40	709.82	70.98	3.69	0:12:40	602.64	120.53	2.17	0:19:40	338.12	112.71	2.32	0:26:40	344.82	172.41	1.51	0:33:40	176.60	176.60	1.48
0:05:45	712.95	71.29	3.67	0:12:45	532.80	106.56	2.45	0:19:45	425.76	141.92	1.84	0:26:45	355.32	177.66	1.47	0:33:45	171.00	171.00	1.53
0:05:50	710.35	71.03	3.68	0:12:50	570.24	114.05	2.29	0:19:50	403.60	134.53	1.94	0:26:50	350.22	175.11	1.49	0:33:50	172.59	172.59	1.51
0:05:55	704.24	70.42	3.71	0:12:55	570.58	114.12	2.29	0:19:55	404.12	134.71	1.94	0:26:55	321.98	160.99	1.62	0:33:55	167.10	167.10	1.56
0:06:00	711.77	71.18	3.68	0:13:00	591.93	118.39	2.21	0:20:00	469.62	156.54	1.66	0:27:00	301.11	150.55	1.73	0:34:00	161.88	161.88	1.61
0:06:05	696.62	69.66	3.76	0:13:05	512.52	102.50	2.55	0:20:05	502.15	167.38	1.56	0:27:05	341.68	170.84	1.53	0:34:05	148.91	148.91	1.75
0:06:10	718.01	71.80	3.64	0:13:10	498.47	99.69	2.62	0:20:10	484.39	161.46	1.62	0:27:10	318.57	159.28	1.64	0:34:10	151.15	151.15	1.73
0:06:15	706.73	70.67	3.70	0:13:15	602.74	120.55	2.17	0:20:15	483.90	161.30	1.62	0:27:15	333.41	166.70	1.57	0:34:15	185.56	185.56	1.41
0:06:20	687.74	68.77	3.81	0:13:20	606.96	121.39	2.15	0:20:20	397.96	132.65	1.95	0:27:20	325.88	162.94	1.60	0:34:20	165.82	165.82	1.57
0:06:25	690.82	69.08	3.78	0:13:25	600.09	120.02	2.18	0:20:25	359.10	119.70	2.21	0:27:25	351.68	175.84	1.48	0:34:25	155.35	155.35	1.68
0:06:30	713.68	71.37	3.67	0:13:30	587.21	117.44	2.22	0:20:30	387.92	129.31	2.02	0:27:30	348.55	174.27	1.50	0:34:30	169.71	169.71	1.54
0:06:35	698.23	69.82	3.75	0:13:35	509.56	101.91	2.56	0:20:35	456.88	152.29	1.71	0:27:35	325.98	162.99	1.60	0:34:35	191.09	191.09	1.36
0:06:40	708.88	70.89	3.69	0:13:40	511.64	102.33	2.56	0:20:40	440.11	146.70	1.78	0:27:40	331.55	165.77	1.57	0:34:40	193.98	193.98	1.34
0:06:45	7.05	0.00	4.30	0:13:45	5.88	0.00	2.37	0:20:45	3.47	0.00	2.10	0:27:45	1.59	0.00	2.44	0:34:45	1.28	0.00	1.70
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

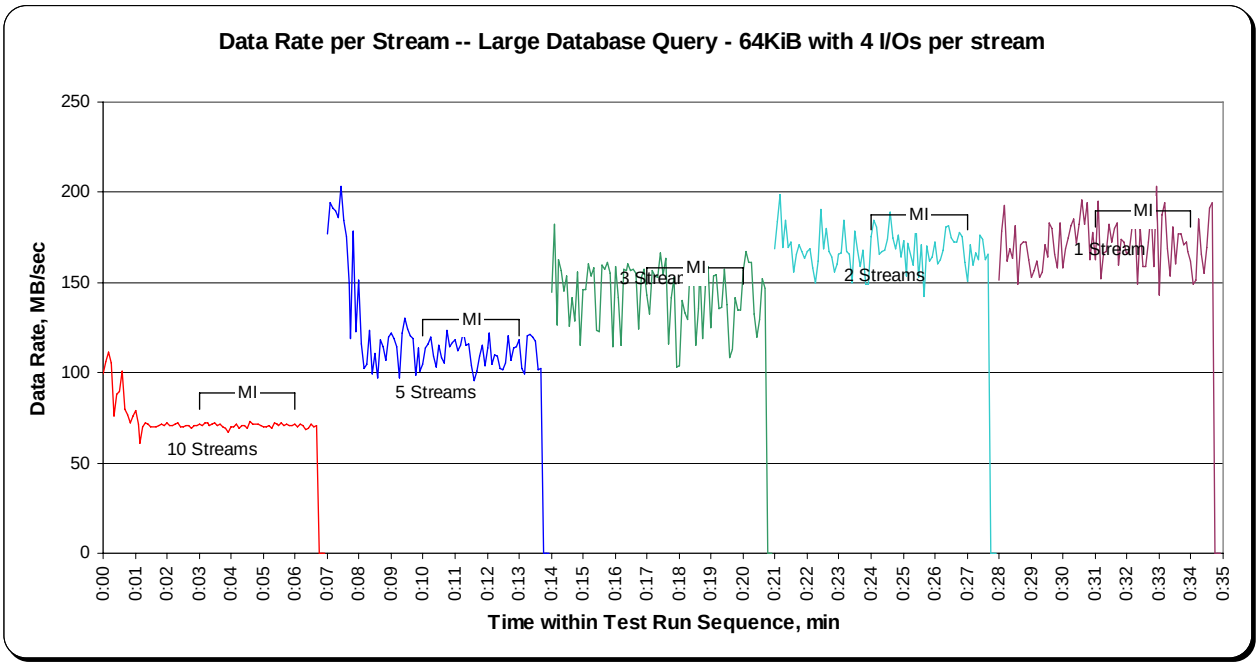
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



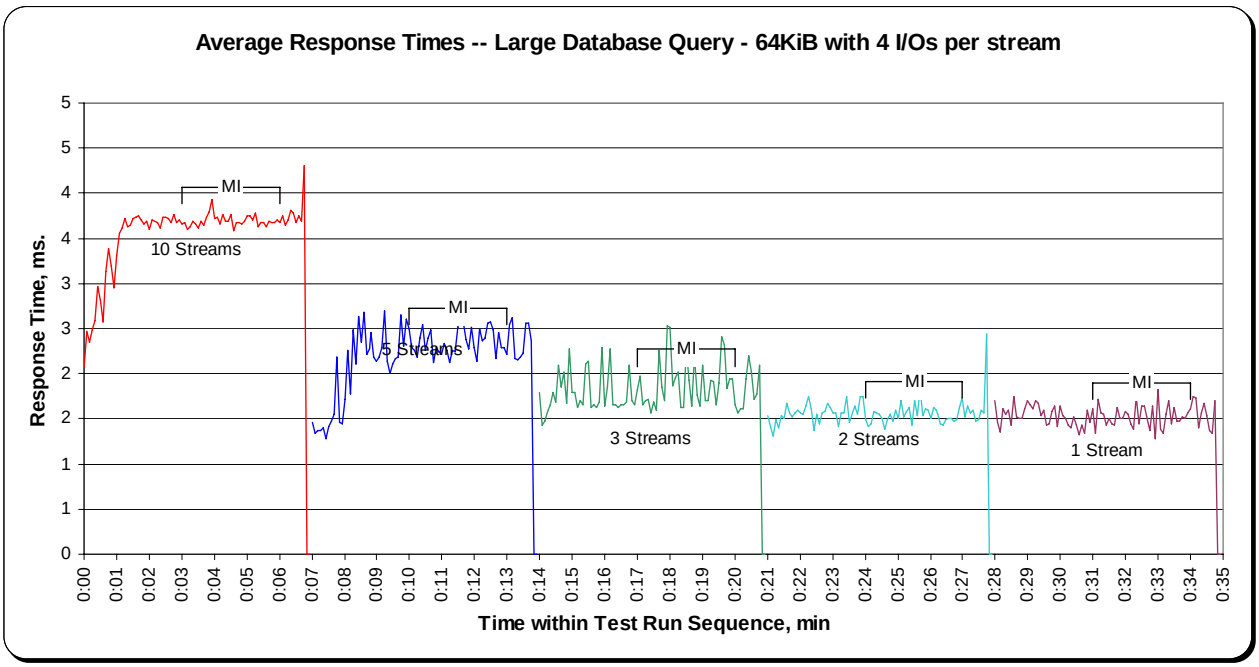
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate per Stream Graph



SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Response Time Graph



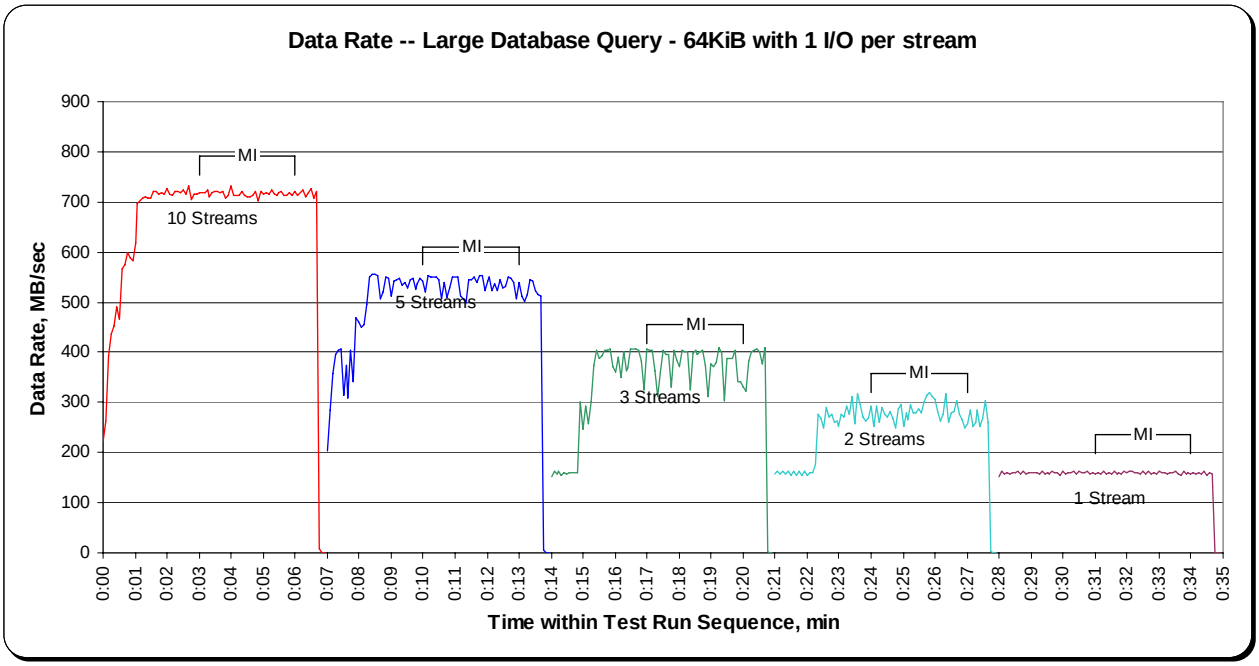
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR16	10 Streams			TR17	5 Streams			TR18	3 Streams			TR19	2 Streams			TR20	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	221.54	110.77	0.57	0:07:00	203.86	101.93	0.42	0:14:00	152.77	152.77	0.42	0:21:00	156.76	156.76	0.41	0:28:00	152.42	152.42	0.43
0:00:05	261.83	87.28	0.54	0:07:05	283.86	94.62	0.54	0:14:05	162.11	162.11	0.40	0:21:05	163.04	163.04	0.40	0:28:05	162.99	162.99	0.40
0:00:10	392.22	98.05	0.58	0:07:10	358.19	119.40	0.55	0:14:10	158.01	158.01	0.41	0:21:10	156.50	156.50	0.42	0:28:10	158.46	158.46	0.41
0:00:15	435.56	87.11	0.68	0:07:15	395.79	131.93	0.49	0:14:15	162.05	162.05	0.40	0:21:15	162.05	162.05	0.40	0:28:15	159.89	159.89	0.41
0:00:20	453.31	90.66	0.72	0:07:20	403.44	134.48	0.48	0:14:20	153.39	153.39	0.42	0:21:20	157.33	157.33	0.41	0:28:20	156.09	156.09	0.42
0:00:25	489.42	97.88	0.67	0:07:25	405.97	135.32	0.48	0:14:25	160.66	160.66	0.41	0:21:25	162.11	162.11	0.40	0:28:25	160.33	160.33	0.41
0:00:30	465.71	93.14	0.70	0:07:30	313.71	104.57	0.62	0:14:30	158.49	158.49	0.41	0:21:30	155.81	155.81	0.42	0:28:30	158.81	158.81	0.41
0:00:35	566.84	80.98	0.74	0:07:35	372.87	124.29	0.52	0:14:35	160.32	160.32	0.41	0:21:35	161.40	161.40	0.40	0:28:35	161.60	161.60	0.40
0:00:40	575.16	82.17	0.80	0:07:40	308.05	102.68	0.64	0:14:40	159.61	159.61	0.41	0:21:40	154.58	154.58	0.42	0:28:40	157.10	157.10	0.41
0:00:45	600.40	85.77	0.76	0:07:45	403.50	134.50	0.48	0:14:45	160.52	160.52	0.41	0:21:45	162.90	162.90	0.40	0:28:45	162.59	162.59	0.40
0:00:50	587.98	84.00	0.78	0:07:50	341.05	85.26	0.57	0:14:50	159.86	159.86	0.41	0:21:50	155.72	155.72	0.42	0:28:50	157.76	157.76	0.41
0:00:55	583.55	83.36	0.78	0:07:55	468.48	117.12	0.56	0:14:55	301.48	150.74	0.43	0:21:55	162.48	162.48	0.40	0:28:55	159.89	159.89	0.41
0:01:00	617.40	68.60	0.83	0:08:00	460.62	115.15	0.57	0:15:00	246.06	123.03	0.53	0:22:00	155.08	155.08	0.42	0:29:00	159.97	159.97	0.41
0:01:05	697.62	77.51	0.84	0:08:05	450.21	112.55	0.58	0:15:05	291.80	145.90	0.45	0:22:05	159.24	159.24	0.41	0:29:05	158.81	158.81	0.41
0:01:10	702.46	78.05	0.84	0:08:10	454.78	113.69	0.57	0:15:10	258.26	129.13	0.50	0:22:10	160.95	160.95	0.40	0:29:10	159.16	159.16	0.41
0:01:15	708.17	78.69	0.83	0:08:15	496.69	99.34	0.55	0:15:15	300.42	100.14	0.48	0:22:15	175.59	87.80	0.45	0:29:15	157.41	157.41	0.41
0:01:20	711.10	79.01	0.83	0:08:20	550.27	110.05	0.59	0:15:20	373.75	124.58	0.52	0:22:20	277.40	138.70	0.47	0:29:20	162.55	162.55	0.40
0:01:25	708.26	70.83	0.87	0:08:25	555.75	111.15	0.59	0:15:25	404.56	134.85	0.48	0:22:25	267.27	133.64	0.49	0:29:25	158.27	158.27	0.41
0:01:30	707.99	70.80	0.92	0:08:30	554.85	110.97	0.59	0:15:30	386.49	128.83	0.51	0:22:30	250.23	125.12	0.52	0:29:30	159.16	159.16	0.41
0:01:35	720.21	72.02	0.91	0:08:35	552.27	110.45	0.59	0:15:35	393.61	131.20	0.50	0:22:35	290.06	145.03	0.45	0:29:35	156.96	156.96	0.41
0:01:40	722.04	72.20	0.90	0:08:40	508.12	101.62	0.64	0:15:40	404.03	134.68	0.48	0:22:40	270.47	135.23	0.48	0:29:40	163.43	163.43	0.40
0:01:45	716.50	71.65	0.91	0:08:45	521.71	104.34	0.63	0:15:45	404.33	134.78	0.48	0:22:45	277.05	138.53	0.47	0:29:45	159.95	159.95	0.41
0:01:50	718.90	71.89	0.91	0:08:50	550.97	110.19	0.59	0:15:50	406.72	135.57	0.48	0:22:50	259.31	129.66	0.50	0:29:50	160.84	160.84	0.40
0:01:55	715.99	71.60	0.91	0:08:55	547.90	109.58	0.60	0:15:55	371.67	123.89	0.53	0:22:55	262.51	131.26	0.50	0:29:55	155.15	155.15	0.42
0:02:00	726.88	72.69	0.90	0:09:00	511.96	102.39	0.64	0:16:00	360.30	120.10	0.54	0:23:00	252.18	126.09	0.52	0:30:00	162.20	162.20	0.40
0:02:05	716.24	71.62	0.91	0:09:05	541.67	108.33	0.60	0:16:05	390.83	130.28	0.50	0:23:05	275.50	137.75	0.47	0:30:05	157.44	157.44	0.41
0:02:10	712.80	71.28	0.92	0:09:10	544.67	108.93	0.60	0:16:10	350.80	116.93	0.56	0:23:10	270.30	135.15	0.48	0:30:10	160.23	160.23	0.41
0:02:15	721.57	72.16	0.91	0:09:15	546.56	109.31	0.60	0:16:15	401.25	133.75	0.49	0:23:15	292.57	146.29	0.45	0:30:15	158.97	158.97	0.41
0:02:20	719.85	71.98	0.91	0:09:20	534.34	106.87	0.61	0:16:20	362.48	120.83	0.54	0:23:20	277.05	138.53	0.47	0:30:20	161.77	161.77	0.40
0:02:25	718.12	71.81	0.91	0:09:25	539.16	107.83	0.60	0:16:25	369.20	123.07	0.53	0:23:25	310.90	155.45	0.42	0:30:25	157.51	157.51	0.41
0:02:30	723.27	72.33	0.91	0:09:30	529.55	105.91	0.62	0:16:30	406.39	135.46	0.48	0:23:30	257.51	128.75	0.51	0:30:30	161.90	161.90	0.40
0:02:35	714.39	71.44	0.91	0:09:35	545.97	109.19	0.60	0:16:35	405.64	135.21	0.48	0:23:35	316.94	158.47	0.41	0:30:35	159.72	159.72	0.41
0:02:40	731.65	73.17	0.89	0:09:40	547.98	109.60	0.60	0:16:40	407.58	135.86	0.48	0:23:40	295.30	147.65	0.44	0:30:40	161.19	161.19	0.40
0:02:45	705.50	70.55	0.93	0:09:45	526.57	105.31	0.62	0:16:45	403.03	134.34	0.49	0:23:45	271.50	135.75	0.48	0:30:45	161.74	161.74	0.40
0:02:50	714.94	71.49	0.91	0:09:50	535.50	107.10	0.61	0:16:50	381.58	127.19	0.51	0:23:50	262.92	131.46	0.50	0:30:50	158.56	158.56	0.41
0:02:55	716.89	71.69	0.91	0:09:55	546.96	109.39	0.60	0:16:55	325.84	108.61	0.60	0:23:55	269.00	134.50	0.48	0:30:55	160.64	160.64	0.41

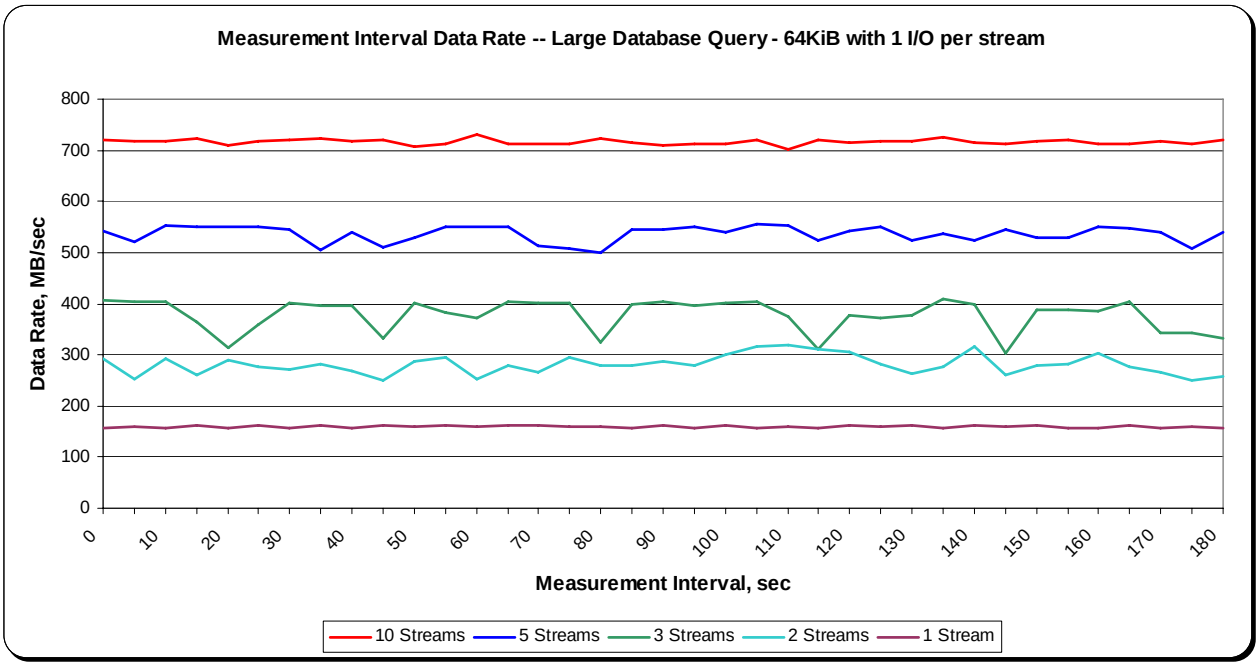
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period

TR16	10 Streams			TR17	5 Streams			TR18	3 Streams			TR19	2 Streams			TR20	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	719.69	71.97	0.91	0:10:00	543.48	108.70	0.60	0:17:00	407.73	135.91	0.48	0:24:00	292.74	146.37	0.44	0:31:00	156.05	156.05	0.42
0:03:05	718.12	71.81	0.91	0:10:05	520.51	104.10	0.63	0:17:05	403.20	134.40	0.48	0:24:05	253.14	126.57	0.51	0:31:05	159.59	159.59	0.41
0:03:10	717.84	71.78	0.91	0:10:10	553.73	110.75	0.59	0:17:10	403.80	134.60	0.48	0:24:10	292.88	146.44	0.44	0:31:10	158.01	158.01	0.41
0:03:15	723.11	72.31	0.90	0:10:15	549.85	109.97	0.59	0:17:15	363.86	121.29	0.54	0:24:15	261.19	130.59	0.50	0:31:15	162.43	162.43	0.40
0:03:20	710.40	71.04	0.92	0:10:20	549.41	109.88	0.59	0:17:20	313.01	104.34	0.63	0:24:20	289.71	144.86	0.45	0:31:20	156.46	156.46	0.42
0:03:25	718.68	71.87	0.91	0:10:25	550.51	110.10	0.59	0:17:25	359.68	119.89	0.54	0:24:25	276.81	138.41	0.47	0:31:25	161.08	161.08	0.40
0:03:30	721.47	72.15	0.91	0:10:30	544.52	108.90	0.60	0:17:30	402.61	134.20	0.49	0:24:30	270.73	135.37	0.48	0:31:30	157.43	157.43	0.41
0:03:35	721.75	72.17	0.90	0:10:35	506.30	101.26	0.64	0:17:35	395.80	131.93	0.49	0:24:35	280.69	140.35	0.46	0:31:35	161.56	161.56	0.40
0:03:40	718.65	71.87	0.91	0:10:40	540.45	108.09	0.60	0:17:40	394.83	131.61	0.49	0:24:40	269.70	134.85	0.48	0:31:40	157.91	157.91	0.41
0:03:45	719.96	72.00	0.91	0:10:45	509.90	101.98	0.64	0:17:45	331.97	110.66	0.59	0:24:45	248.53	124.27	0.52	0:31:45	161.27	161.27	0.40
0:03:50	708.12	70.81	0.92	0:10:50	528.00	105.60	0.62	0:17:50	402.60	134.20	0.49	0:24:50	287.63	143.82	0.45	0:31:50	158.17	158.17	0.41
0:03:55	712.98	71.30	0.92	0:10:55	550.67	110.13	0.59	0:17:55	383.87	127.96	0.51	0:24:55	295.11	147.56	0.44	0:31:55	161.64	161.64	0.40
0:04:00	732.07	73.21	0.89	0:11:00	550.29	110.06	0.59	0:18:00	371.84	123.95	0.53	0:25:00	252.73	126.36	0.52	0:32:00	158.60	158.60	0.41
0:04:05	713.35	71.33	0.92	0:11:05	550.36	110.07	0.59	0:18:05	403.48	134.49	0.48	0:25:05	279.64	139.82	0.47	0:32:05	161.47	161.47	0.40
0:04:10	712.98	71.30	0.92	0:11:10	513.66	102.73	0.64	0:18:10	402.12	134.04	0.49	0:25:10	264.78	132.39	0.49	0:32:10	162.21	162.21	0.40
0:04:15	712.97	71.30	0.92	0:11:15	506.87	101.37	0.64	0:18:15	400.58	133.53	0.49	0:25:15	294.84	147.42	0.44	0:32:15	160.74	160.74	0.40
0:04:20	722.18	72.22	0.91	0:11:20	498.66	99.73	0.65	0:18:20	324.95	108.32	0.60	0:25:20	279.67	139.83	0.47	0:32:20	158.99	158.99	0.41
0:04:25	714.13	71.41	0.91	0:11:25	543.98	108.80	0.60	0:18:25	398.19	132.73	0.49	0:25:25	278.60	139.30	0.47	0:32:25	156.33	156.33	0.42
0:04:30	710.04	71.00	0.92	0:11:30	544.11	108.82	0.60	0:18:30	403.35	134.45	0.48	0:25:30	287.00	143.50	0.45	0:32:30	163.05	163.05	0.40
0:04:35	711.03	71.10	0.92	0:11:35	549.96	109.99	0.59	0:18:35	395.54	131.85	0.49	0:25:35	277.88	138.94	0.47	0:32:35	156.75	156.75	0.42
0:04:40	712.34	71.23	0.92	0:11:40	539.19	107.84	0.60	0:18:40	402.25	134.08	0.49	0:25:40	300.57	150.29	0.43	0:32:40	161.65	161.65	0.40
0:04:45	720.11	72.01	0.91	0:11:45	554.24	110.85	0.59	0:18:45	402.66	134.22	0.49	0:25:45	315.40	157.70	0.41	0:32:45	156.03	156.03	0.42
0:04:50	702.28	70.23	0.93	0:11:50	553.98	110.80	0.59	0:18:50	374.98	124.99	0.52	0:25:50	318.86	159.43	0.41	0:32:50	160.05	160.05	0.41
0:04:55	720.16	72.02	0.91	0:11:55	524.23	104.85	0.62	0:18:55	311.05	103.68	0.62	0:25:55	311.37	155.69	0.42	0:32:55	157.68	157.68	0.41
0:05:00	714.54	71.45	0.91	0:12:00	541.00	108.20	0.60	0:19:00	377.79	125.93	0.52	0:26:00	305.05	152.53	0.43	0:33:00	162.51	162.51	0.40
0:05:05	717.79	71.78	0.91	0:12:05	549.87	109.97	0.59	0:19:05	372.39	124.13	0.53	0:26:05	282.84	141.42	0.46	0:33:05	159.08	159.08	0.41
0:05:10	716.74	71.67	0.91	0:12:10	523.57	104.71	0.62	0:19:10	378.18	126.06	0.52	0:26:10	263.70	131.85	0.49	0:33:10	160.86	160.86	0.40
0:05:15	724.72	72.47	0.90	0:12:15	537.07	107.41	0.61	0:19:15	408.69	136.23	0.48	0:26:15	275.30	137.65	0.47	0:33:15	157.17	157.17	0.41
0:05:20	715.38	71.54	0.91	0:12:20	522.46	104.49	0.62	0:19:20	398.21	132.74	0.49	0:26:20	316.75	158.38	0.41	0:33:20	161.26	161.26	0.40
0:05:25	711.84	71.18	0.92	0:12:25	544.01	108.80	0.60	0:19:25	303.26	101.09	0.65	0:26:25	260.31	130.15	0.50	0:33:25	159.43	159.43	0.41
0:05:30	717.29	71.73	0.91	0:12:30	527.97	105.59	0.62	0:19:30	388.79	129.60	0.50	0:26:30	278.76	139.38	0.47	0:33:30	161.90	161.90	0.40
0:05:35	720.04	72.00	0.91	0:12:35	529.97	105.99	0.62	0:19:35	388.07	129.36	0.50	0:26:35	281.63	140.81	0.46	0:33:35	157.41	157.41	0.41
0:05:40	713.08	71.31	0.92	0:12:40	550.86	110.17	0.59	0:19:40	386.52	128.84	0.51	0:26:40	302.40	151.20	0.43	0:33:40	155.50	155.50	0.42
0:05:45	713.16	71.32	0.92	0:12:45	548.52	109.70	0.59	0:19:45	403.29	134.43	0.48	0:26:45	275.42	137.71	0.47	0:33:45	162.64	162.64	0.40
0:05:50	718.84	71.88	0.91	0:12:50	539.68	107.94	0.60	0:19:50	341.68	113.89	0.57	0:26:50	265.82	132.91	0.49	0:33:50	157.65	157.65	0.41
0:05:55	713.62	71.36	0.92	0:12:55	507.10	101.42	0.64	0:19:55	342.02	114.01	0.57	0:26:55	249.61	124.81	0.52	0:33:55	160.01	160.01	0.41
0:06:00	721.36	72.14	0.91	0:13:00	539.75	107.95	0.60	0:20:00	331.20	110.40	0.59	0:27:00	258.59	129.29	0.50	0:34:00	157.79	157.79	0.41
0:06:05	713.47	71.35	0.91	0:13:05	512.28	102.46	0.63	0:20:05	321.86	107.29	0.61	0:27:05	284.90	142.45	0.46	0:34:05	159.45	159.45	0.41
0:06:10	718.61	71.86	0.91	0:13:10	500.44	100.09	0.65	0:20:10	381.51	127.17	0.51	0:27:10	251.24	125.62	0.52	0:34:10	156.54	156.54	0.42
0:06:15	723.54	72.35	0.90	0:13:15	514.31	102.86	0.63	0:20:15	399.99	133.33	0.49	0:27:15	260.55	130.28	0.50	0:34:15	160.60	160.60	0.41
0:06:20	709.53	70.95	0.92	0:13:20	544.80	108.96	0.60	0:20:20	403.69	134.56	0.48	0:27:20	285.49	142.74	0.46	0:34:20	157.37	157.37	0.41
0:06:25	719.63	71.96	0.91	0:13:25	542.16	108.43	0.60	0:20:25	407.95	135.98	0.48	0:27:25	251.40	125.70	0.52	0:34:25	162.32	162.32	0.40
0:06:30	726.09	72.61	0.90	0:13:30	522.44	104.49	0.62	0:20:30	401.51	133.84	0.49	0:27:30	269.65	134.83	0.48	0:34:30	155.73	155.73	0.42
0:06:35	708.83	70.88	0.92	0:13:35	514.75	102.95	0.63	0:20:35	376.71	125.57	0.52	0:27:35	302.51	151.26	0.43	0:34:35	160.50	160.50	0.41
0:06:40	719.96	72.00	0.91	0:13:40	511.71	102.34	0.64	0:20:40	408.02	136.01	0.48	0:27:40	260.80	130.40	0.50	0:34:40	156.40	156.40	0.42
0:06:45	8.40	0.00	0.94	0:13:45	4.52	0.00	0.95	0:20:45	3.36	0.00	0.49	0:27:45	1.90	0.00	0.55	0:34:45	0.93	0.00	0.45
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

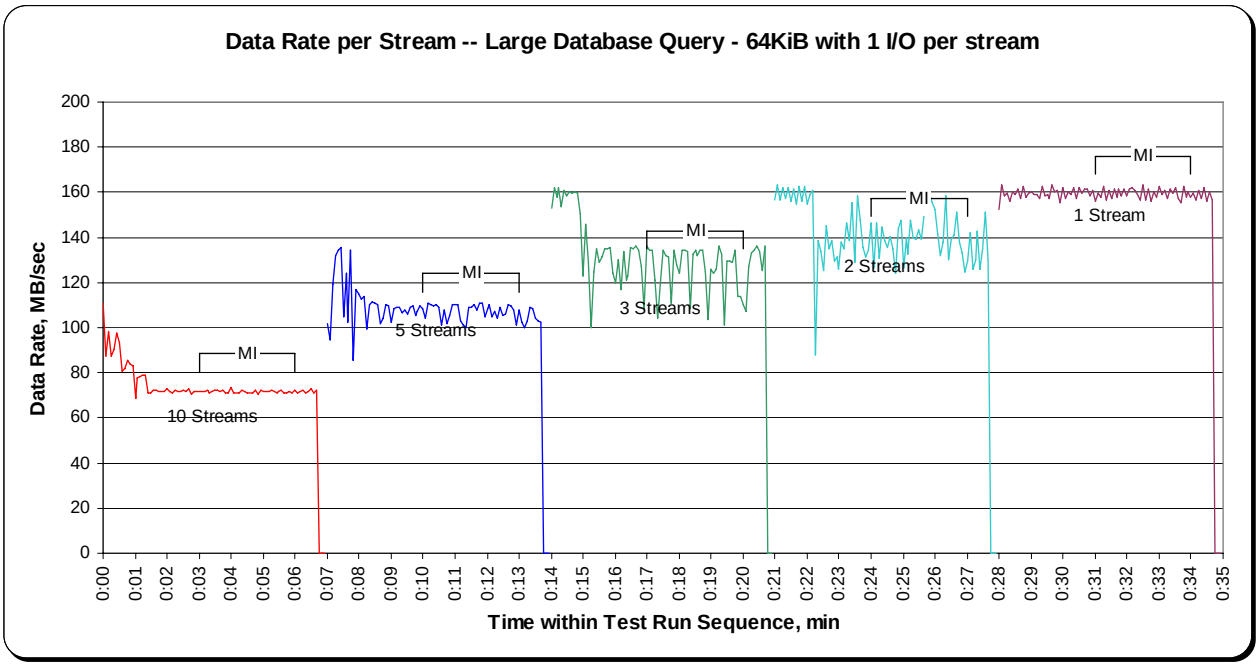
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



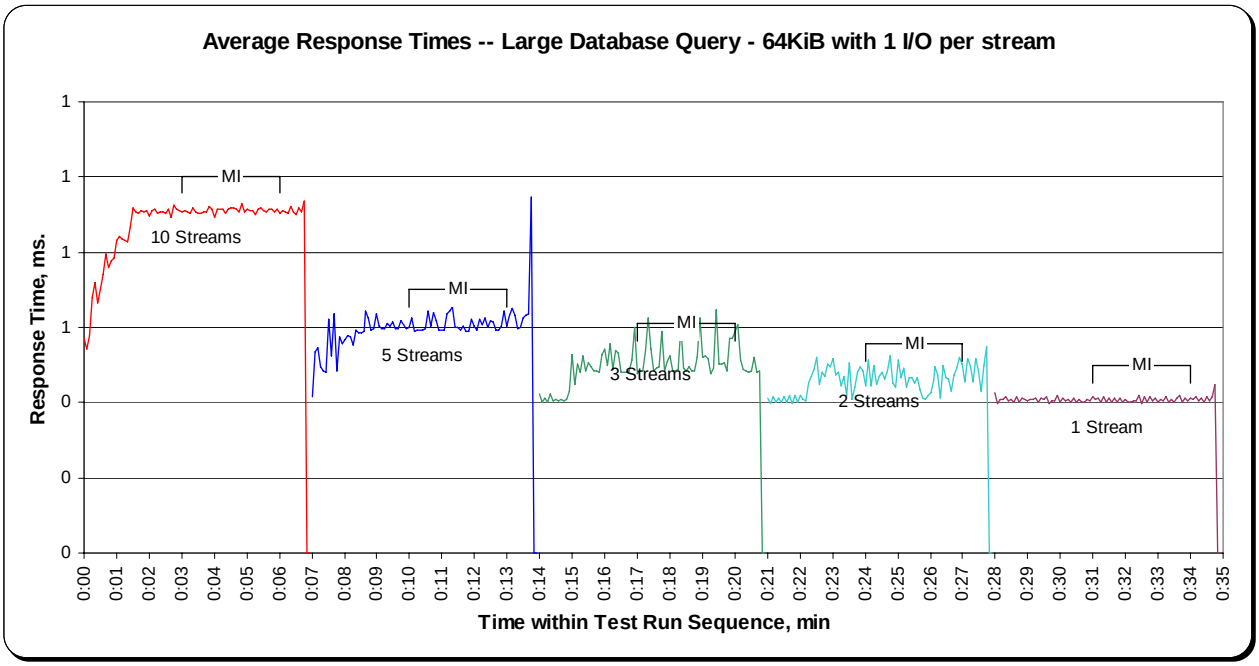
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate per Stream Graph



SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Response Time Graph



Video on Demand Delivery Test

Clause 6.4.4.1

The Video on Demand Delivery Test represents the I/O operations required to enable individualized video entertainment for a community of subscribers, which draw from a digital film library.

Clause 6.4.2.2

The Video on Demand Delivery Test consists of one (1) Test Run.

The BC shall not be restarted or manually disturbed, altered, or adjusted during the execution of the Video on Demand Delivery Test. If power is lost to the BC during this Test all results shall be rendered invalid and the Test re-run in its entirety.

Clause 10.6.8.3

The Full Disclosure Report will contain the following content for the Video on Demand Delivery Test:

1. *A listing of the SPC-2 Workload Generator commands and parameters used to execute the Test Run in the Video on Demand Delivery Test.*
2. *The human readable SPC-2 Test Results File for the Test Run in the Video on Demand Delivery Test.*
3. *A table that contains the following information for the Test Run in the Video on Demand Delivery Test:*
   - *The number Streams specified.*
   - *The Ramp-Up duration in seconds.*
   - *The Measurement Interval duration in seconds.*
   - *The average data rate, in MB per second, for the Measurement Interval.*
   - *The average data rate, in MB per second, per Stream for the Measurement Interval.*
4. *A table that contains the following information for the single Video on Demand Delivery Test Run:*
   - *The number Streams specified.*
   - *The average data rate, average data rate per stream, average Response Time, and Maximum Response Time reported at 60 second intervals.*
5. *Average Data Rate (intervals), Average Data Rate per Stream (intervals), and Average Response Time (intervals) graphs for the single Video on Demand Delivery Test Run as specified in Clauses 10.1.4-2-10.1.6.*
6. *A Maximum Response Time (intervals) graph, which will utilize the format defined in Clause 10.1.6, substituting maximum Response Time data for average Response Time data.*

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Video on Demand Delivery Test Run are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 109.

SPC-2 Test Results File

A link to the SPC-2 Test Results file generated from the Video on Demand Delivery Test Run is listed below.

SPC-2 Video on Demand Delivery Test Results File

SPC-2 Video on Demand Delivery Test Run Data

The number of Streams specified, Ramp-Up duration in seconds, Measurement Interval duration in seconds, average Data Rate for the Measurement Interval, and average Data Rate per Stream for the Measurement Interval are listed in the following table.

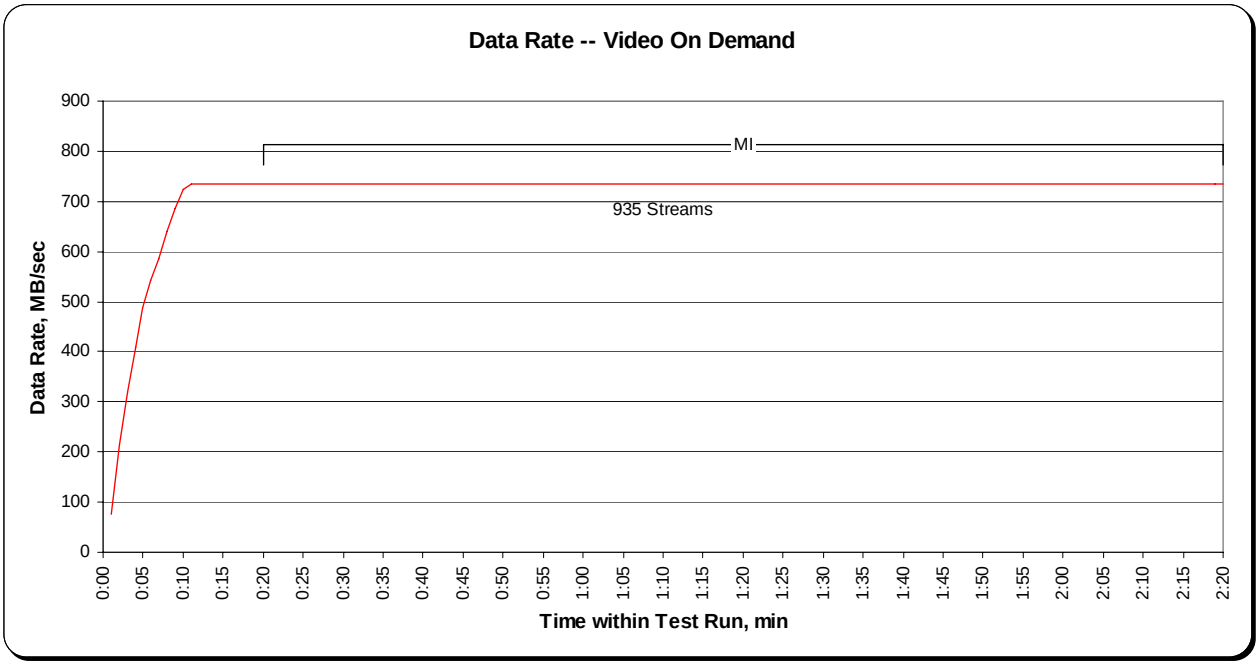
SPC-2-VOD	TR1
Number of Streams	935
Ramp-up Time, sec	1200
Measurement Interval, sec	7200
Average Data Rate, MB/sec	735.32
Per Stream Data Rate, MB/sec	0.79
Average Response Time, ms	32.45
Average Max Response Time, ms	758.44

Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL

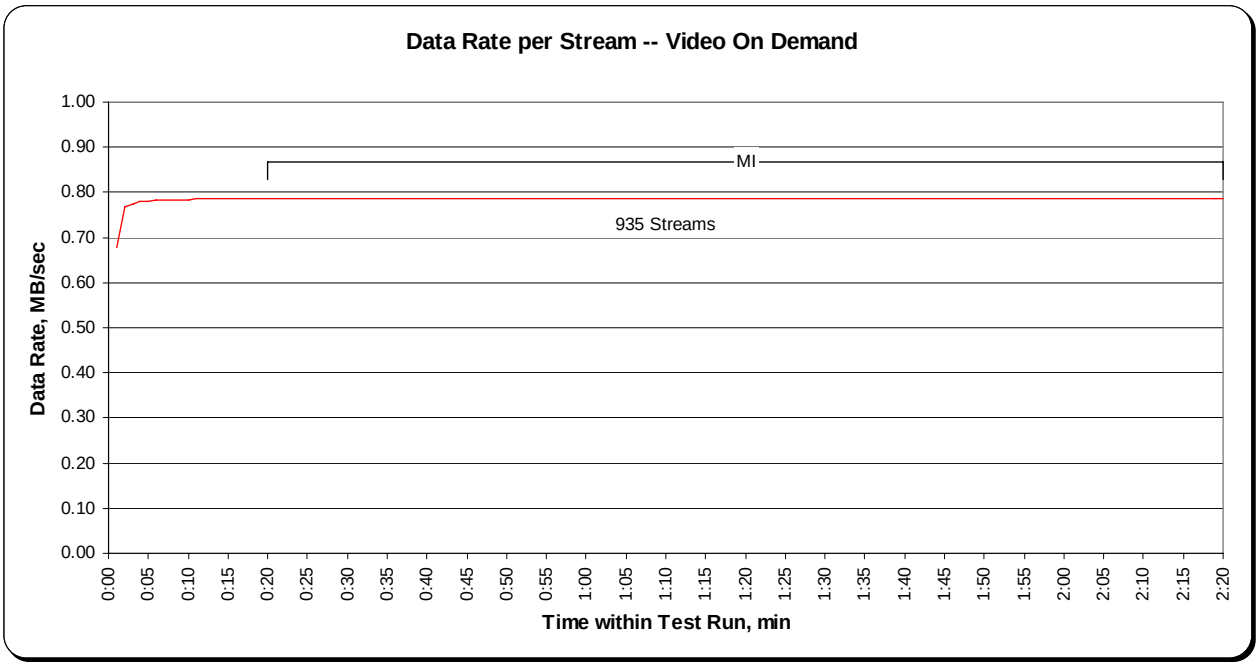
The SPC-2 Video on Demand Delivery Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate and average Data Rate per Stream produced by the same Test Runs. The table and graphs present the data at sixty second intervals.

TR1	935 Streams				TR1	935 Streams				TR1	935 Streams			
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Maximum Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Maximum Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Maximum Response Time, ms
0:01:00	75.33	0.68	1.75	21.42	0:51:00	735.20	0.79	30.46	679.83	1:41:00	735.01	0.79	34.10	848.22
0:02:00	213.98	0.77	11.96	199.67	0:52:00	735.19	0.79	30.59	780.26	1:42:00	735.51	0.79	33.42	809.58
0:03:00	319.15	0.77	17.70	379.48	0:53:00	735.28	0.79	30.50	809.33	1:43:00	735.29	0.79	32.26	718.86
0:04:00	408.07	0.78	22.41	403.59	0:54:00	735.33	0.79	30.10	637.69	1:44:00	735.33	0.79	32.42	773.53
0:05:00	488.39	0.78	27.48	544.20	0:55:00	735.08	0.79	30.44	740.17	1:45:00	735.37	0.79	34.74	940.47
0:06:00	541.11	0.78	34.10	594.14	0:56:00	735.30	0.79	30.28	687.84	1:46:00	735.31	0.79	34.72	999.13
0:07:00	586.43	0.78	39.65	591.70	0:57:00	735.25	0.79	30.34	639.45	1:47:00	735.33	0.79	34.39	1,030.23
0:08:00	638.99	0.78	57.20	880.35	0:58:00	735.29	0.79	30.16	676.14	1:48:00	735.10	0.79	43.99	975.98
0:09:00	684.96	0.78	80.48	939.25	0:59:00	735.32	0.79	30.26	712.56	1:49:00	735.47	0.79	42.49	1,149.67
0:10:00	723.51	0.78	75.25	881.56	1:00:00	735.32	0.79	30.11	832.93	1:50:00	735.35	0.79	37.05	1,087.14
0:11:00	735.51	0.79	71.36	845.72	1:01:00	735.25	0.79	30.00	644.36	1:51:00	735.30	0.79	39.01	1,060.26
0:12:00	734.74	0.79	71.37	972.71	1:02:00	735.34	0.79	29.69	590.74	1:52:00	735.32	0.79	36.89	1,115.17
0:13:00	735.48	0.79	69.68	909.31	1:03:00	735.32	0.79	31.55	795.31	1:53:00	735.36	0.79	36.61	1,062.91
0:14:00	735.10	0.79	68.70	891.98	1:04:00	735.26	0.79	30.23	735.16	1:54:00	735.38	0.79	36.72	1,204.29
0:15:00	735.55	0.79	70.10	1,001.47	1:05:00	735.33	0.79	29.60	628.52	1:55:00	735.34	0.79	36.18	1,084.22
0:16:00	735.03	0.79	67.35	811.72	1:06:00	735.25	0.79	30.50	707.57	1:56:00	735.40	0.79	37.39	1,100.01
0:17:00	735.44	0.79	67.63	890.59	1:07:00	734.98	0.79	33.59	883.37	1:57:00	735.19	0.79	36.93	921.01
0:18:00	734.98	0.79	69.37	1,033.16	1:08:00	734.87	0.79	33.47	885.99	1:58:00	735.34	0.79	36.58	1,063.44
0:19:00	735.38	0.79	66.36	942.28	1:09:00	735.55	0.79	33.55	697.41	1:59:00	735.36	0.79	36.73	1,233.35
0:20:00	734.84	0.79	68.13	864.38	1:10:00	735.24	0.79	33.56	672.67	2:00:00	735.40	0.79	36.96	1,037.86
0:21:00	735.60	0.79	43.33	741.71	1:11:00	735.28	0.79	32.94	700.87	2:01:00	735.38	0.79	33.63	852.04
0:22:00	735.38	0.79	32.73	710.02	1:12:00	735.39	0.79	32.80	686.37	2:02:00	735.37	0.79	30.76	817.49
0:23:00	735.32	0.79	30.26	559.47	1:13:00	735.00	0.79	33.52	766.50	2:03:00	735.30	0.79	30.63	720.74
0:24:00	735.33	0.79	29.64	442.92	1:14:00	735.23	0.79	33.07	695.54	2:04:00	735.41	0.79	30.90	790.81
0:25:00	735.35	0.79	30.33	552.72	1:15:00	735.16	0.79	32.57	664.49	2:05:00	735.36	0.79	31.36	748.08
0:26:00	735.35	0.79	29.72	484.57	1:16:00	735.26	0.79	32.97	685.79	2:06:00	735.37	0.79	31.30	643.87
0:27:00	735.14	0.79	29.53	586.71	1:17:00	735.37	0.79	32.55	681.29	2:07:00	735.31	0.79	30.17	510.43
0:28:00	735.33	0.79	31.33	912.40	1:18:00	735.29	0.79	32.42	712.71	2:08:00	735.30	0.79	31.05	729.12
0:29:00	735.40	0.79	33.39	935.86	1:19:00	735.33	0.79	32.61	696.78	2:09:00	735.39	0.79	30.90	750.30
0:30:00	735.47	0.79	31.08	776.61	1:20:00	735.38	0.79	32.88	686.47	2:10:00	735.27	0.79	29.26	674.04
0:31:00	735.37	0.79	30.85	817.87	1:21:00	735.29	0.79	32.07	731.58	2:11:00	735.29	0.79	28.93	657.89
0:32:00	735.39	0.79	30.42	746.73	1:22:00	735.32	0.79	33.44	959.32	2:12:00	735.29	0.79	29.10	738.32
0:33:00	735.39	0.79	30.10	700.67	1:23:00	735.24	0.79	38.29	908.50	2:13:00	735.30	0.79	29.42	666.26
0:34:00	735.33	0.79	30.02	625.51	1:24:00	735.58	0.79	52.56	910.21	2:14:00	735.32	0.79	29.29	696.10
0:35:00	735.38	0.79	30.07	683.60	1:25:00	735.35	0.79	33.55	724.48	2:15:00	735.30	0.79	29.11	587.56
0:36:00	735.39	0.79	30.22	698.35	1:26:00	735.33	0.79	31.73	640.61	2:16:00	735.26	0.79	29.50	783.95
0:37:00	735.35	0.79	30.26	760.14	1:27:00	735.41	0.79	33.72	783.17	2:17:00	735.32	0.79	29.67	627.27
0:38:00	735.39	0.79	30.30	782.94	1:28:00	735.41	0.79	32.52	765.08	2:18:00	735.28	0.79	29.53	648.80
0:39:00	735.35	0.79	30.23	707.26	1:29:00	735.25	0.79	33.27	892.74	2:19:00	735.29	0.79	29.14	624.06
0:40:00	735.33	0.79	29.88	668.49	1:30:00	735.24	0.79	33.38	854.22	2:20:00	735.32	0.79	29.22	616.30
0:41:00	735.35	0.79	29.06	584.36	1:31:00	735.31	0.79	33.35	916.36					
0:42:00	735.13	0.79	30.25	518.85	1:32:00	735.25	0.79	33.75	837.46					
0:43:00	735.38	0.79	31.63	554.96	1:33:00	735.29	0.79	32.49	817.95					
0:44:00	735.29	0.79	29.79	386.90	1:34:00	735.29	0.79	32.35	687.09					
0:45:00	735.30	0.79	29.58	444.60	1:35:00	735.29	0.79	32.90	848.64					
0:46:00	735.31	0.79	28.87	355.00	1:36:00	735.28	0.79	32.97	930.23					
0:47:00	735.31	0.79	29.08	409.49	1:37:00	735.29	0.79	32.94	947.03					
0:48:00	735.34	0.79	29.50	489.88	1:38:00	735.28	0.79	32.05	844.91					
0:49:00	735.30	0.79	30.04	614.36	1:39:00	735.30	0.79	31.68	771.95					
0:50:00	735.30	0.79	31.03	796.78	1:40:00	735.29	0.79	32.12	798.35					

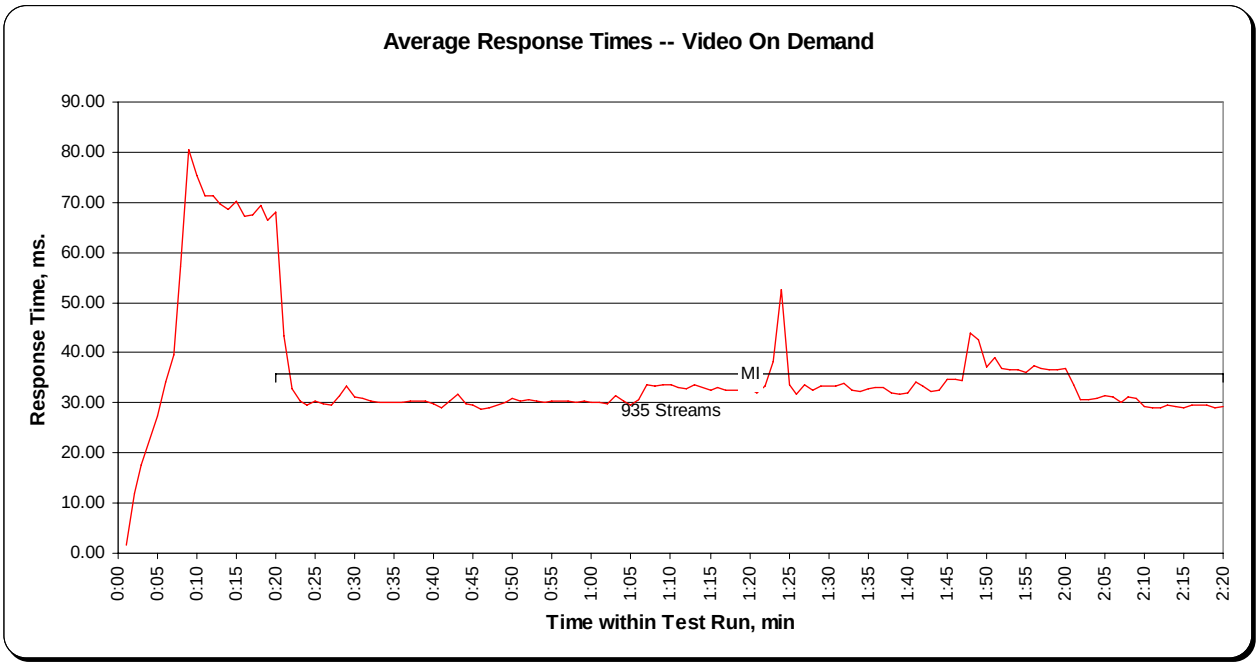
SPC-2 Video on Demand Delivery Average Data Rate Graph



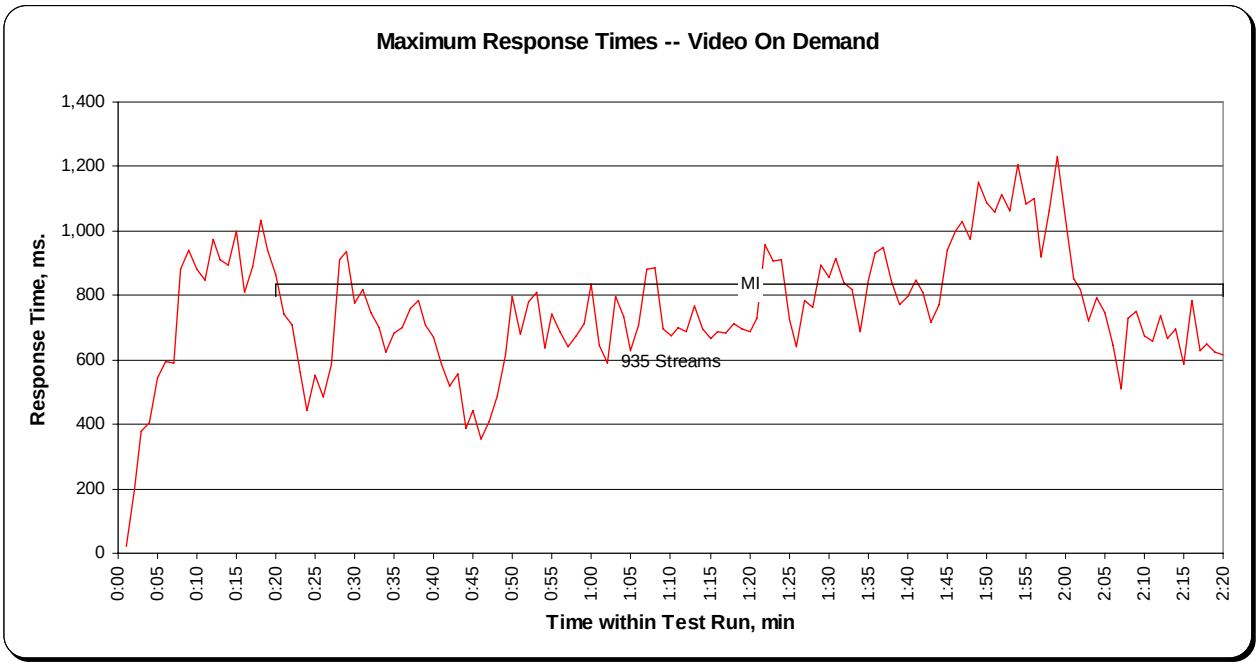
SPC-2 Video on Demand Delivery Average Data Rate per Stream Graph



SPC-2 Video on Demand Delivery Average Response Time Graph



SPC-2 Video on Demand Delivery Maximum Response Time Graph



Data Persistence Test

Clause 6

The Data Persistence Test demonstrates the Tested Storage Configuration (TSC):

- *Is capable of maintain data integrity across a power cycle.*
- *Ensures the transfer of data between Logical Volumes and host systems occurs without corruption or loss.*

The SPC-2 Workload Generator will write a specific pattern at randomly selected locations throughout the Total ASU Capacity (Persistence Test Run 1). The SPC-2 Workload Generator will retain the information necessary to later validate the pattern written at each location.

The Tested Storage Configuration will be shutdown and restarted using a power off/power on cycle at the end of the above sequence of write operations. In addition, any caches employing battery backup must be flushed/emptied.

Restart the TSC, and if the Host System(s) were shutdown and powered off, restart the Host System(s).

The SPC-2 Workload Generator will utilize the retained data from Persistence Test Run 1 to verify (Persistence Run 2) the bit patterns written in Persistence Test Run 1 and their corresponding location.

Clause 10.6.8.4

The Full Disclosure Report will contain the following content for the Data Persistence Test:

1. *A listing of the SPC-2 Workload Generator commands and parameters used to execute each of the Test Runs in the Persistence Test.*
2. *The human readable SPC-2 Test Results File for each of the Test Runs in the Data Persistence Test.*
3. *A table from the successful Persistence Test, which contains the results from the test.*

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Persistence Test Runs are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 109.

Data Persistence Test Results File

A link to the test result file generated from each Data Persistence Test is listed below.

Persistence 1 Test Results File

Persistence 2 Test Results File

Data Persistence Test Results

Data Persistence Test Results	
Data Persistence Test Number: 1	
Total Number of Logical Blocks Written	125,013
Total Number of Logical Blocks Re-referenced	9,342
Total Number of Logical Blocks Verified	125,013
Total Number of Logical Blocks that Failed Verification	0
Number of Failed I/O Requests in the process of the Test	0

PRICED STORAGE CONFIGURATION AVAILABILITY DATE

Clause 10.6.9

The committed delivery date for general availability (Availability Date) of all products that comprise the Priced Storage Configuration must be reported. When the Priced Storage Configuration includes products or components with different availability dates, the reported Availability Date must be the date at which all components are committed to be available. All availability dates, whether for individual components or for the Priced Storage Configuration as a whole, must be disclosed to a precision of one day.

*The FDR shall state: "The **Priced Storage Configuration**, as documented in this Full Disclosure Report will be available for shipment to customers on MMMM DD, YYYY." Where **Priced Storage Configuration** is the Priced Storage Configuration Name as described in Clause 10.6.5.3, #1 and MM is month, DD is the day, and YY is the year of the date that the Priced Storage Configuration, as documented, is available for shipment to customers as described above.*

The Sun StorageTek® 2530 Array, as documented in this SPC-2 Full Disclosure Report, became available July 1, 2007 for customer purchase and shipment.

ANOMALIES OR IRREGULARITIES

Clause 10.6.11

The FDR shall include a clear and complete description of any anomalies or irregularities encountered in the course of executing the SPC-2 benchmark that may in any way call into question the accuracy, verifiability, or authenticity of information published in this FDR.

There were no anomalies or irregularities encountered during the SPC-2 Onsite Audit of the Sun StorageTek® 2530 Array.

APPENDIX A: SPC-2 GLOSSARY

"Decimal" *(powers of ten)* Measurement Units

In the storage industry, the terms "kilo", "mega", "giga", "tera", "peta", and "exa" are commonly used prefixes for computing performance and capacity. For the purposes of the SPC workload definitions, all of the following terms are defined in "powers of ten" measurement units.

- A kilobyte (KB) is equal to 1,000 (10^3) bytes.
- A megabyte (MB) is equal to 1,000,000 (10^6) bytes.
- A gigabyte (GB) is equal to 1,000,000,000 (10^9) bytes.
- A terabyte (TB) is equal to 1,000,000,000,000 (10^{12}) bytes.
- A petabyte (PB) is equal to 1,000,000,000,000,000 (10^{15}) bytes
- An exabyte (EB) is equal to 1,000,000,000,000,000,000 (10^{18}) bytes

"Binary" *(powers of two)* Measurement Units

The sizes reported by many operating system components use "powers of two" measurement units rather than "power of ten" units. The following standardized definitions and terms are also valid and may be used in this document.

- A kibibyte (KiB) is equal to 1,024 (2^{10}) bytes.
- A mebibyte (MiB) is equal to 1,048,576 (2^{20}) bytes.
- A gigibyte (GiB) is equal to 1,073,741,824 (2^{30}) bytes.
- A tebibyte (TiB) is equal to 1,099,511,627,776 (2^{40}) bytes.
- A pebibyte (PiB) is equal to 1,125,899,906,842,624 (2^{50}) bytes.
- An exbibyte (EiB) is equal to 1,152,921,504,606,846,967 (2^{60}) bytes.

SPC-2 Data Repository Definitions

Total ASU Capacity: The total storage capacity read and written in the course of executing the SPC-2 benchmark.

Application Storage Unit (ASU): The logical interface between the storage and SPC-2 Workload Generator. The ASU is implemented on one or more Logical Volume.

Logical Volume: The division of Addressable Storage Capacity into individually addressable logical units of storage used in the SPC-2 benchmark. Each Logical Volume is implemented as a single, contiguous address space.

Addressable Storage Capacity: The total storage (sum of Logical Volumes) that can be read and written by application programs such as the SPC-2 Workload Generator.

Configured Storage Capacity: This capacity includes the Addressable Storage Capacity and any other storage (parity disks, hot spares, etc.) necessary to implement the Addressable Storage Capacity.

Physical Storage Capacity: The formatted capacity of all storage devices physically present in the Tested Storage Configuration (TSC).

Data Protection Overhead: The storage capacity required to implement the selected level of data protection.

Required Storage: The amount of Configured Storage Capacity required to implement the Addressable Storage Configuration, excluding the storage required for the ASU.

Global Storage Overhead: The amount of Physical Storage Capacity that is required for storage subsystem use and unavailable for use by application programs.

Total Unused Storage: The sum of unused storage capacity within the Physical Storage Capacity, Configured Storage Capacity, and Addressable Storage Capacity.

SPC-2 Data Protection Levels

RAID5: User data is distributed across the disks in the array. Check data corresponding to user data is distributed across multiple disks in the form of bit-by-bit parity.

Mirroring: Two or more identical copies of user data are maintained on separate disks.

Other Protection Level: Any data protection other than **RAID5** or **Mirroring**.

Unprotected: There is no data protection provided.

SPC-2 Test Execution Definitions

Completed I/O Request: An I/O Request with a Start Time and a Completion Time *(see "I/O Completion Types" illustrated below)*.

Completion Time: The time recorded by the Workload Generator when an I/O Request is completed by the Tested Storage Configuration (TSC) as signaled by System Software.

Data Rate: The data volume, in MB, transferred by all Measured I/O Requests in an SPC-2 Test Run divided by the length of the Test Run in seconds.

Failed I/O Request: Any I/O Request issued by the SPC-2 Workload Generator that meets one of the following conditions *(see "I/O Completion Types" illustrated below)*:

- The I/O Request was signaled as failed by System Software.
- The I/O Request started within the Measurement Interval, but did not complete prior to the end of the appropriate Run-Out period..
- The I/O Request started within the Run-Out period, but did not complete prior to the end of the appropriate Ramp-Down period.

I/O Request Throughput: The total number of Measured I/O Requests in an SPC-2 Test Run divided by the duration of the Measurement Interval in seconds.

Measured I/O Request: A Completed I/O Request that begins (Start Time) within a Measurement Interval and completes (Completion Time) prior to the end of the appropriate Ramp Down *(see "I/O Completion Types" illustrated below).*

Measurement Interval: A specified, contiguous period of time, after the TSC has reached Steady State, when data is collected by the Workload Generator to produce the test results for a SPC-2 Test Run *(see "SPC-2 Test Run Components" illustrated below, Test Run 1: T_2-T_3 and Test Run 2: T_7-T_8).*

Outstanding I/O Requests: The Outstanding I/O Requests parameter specifies the maximum number of concurrent I/O Requests, associated with a give Stream, which have been issued but not yet completed. *(Clause 3.4.4 of the SPC-2 Benchmark Specification).*

Ramp-Down: A specified, contiguous period of time in which the TSC is required to complete I/O Requests started but not completed during the preceding Run-Out period. Ramp-Down begins at the end of the preceding Run-Out period *(see "SPC-2 Test Run Components" illustrated below, Test Run 1: T_4-T_5 and Test Run 2: T_9-T_{10}).* The Workload Generator will not submit any I/O Requests during the Ramp-Down.

Ramp-Up: A specified, contiguous period of time required for the Benchmark Configuration (BC) to produce Steady State throughput after the Workload Generator begins submitting I/O Requests to the TSC for execution. The Ramp-Up period ends at the beginning of the Measurement Interval *(see "SPC-2 Test Run Components" illustrated below, Test Run 1: T_0-T_2 and Test Run 2: T_5-T_7).*

Response Time: The Response Time of a Measured I/O Request is its Completion Time minus its Start Time.

Run-Out: A specified, contiguous period of time in which the TSC is required to complete I/O Requests started but not completed during the preceding Measurement Interval. The Run-Out period begins at the end of the preceding Measurement Interval and is a component of the Steady State period *(see "SPC-2 Test Run Components" illustrated below, Test Run 1: T_3-T_4 and Test Run 2: T_9-T_{10}).* The Workload Generator will continue to submit I/O Requests at the Test Run's specified rate during the Run-Out period.

Start Time: The time recorded by the Workload Generator when an I/O Request is submitted, by the Workload Generator, to the System Software for execution on the TSC.

Steady State: The period during which the workload presented to the TSC by the SPC-2 Workload Generator is constant and the resulting TSC I/O Request Throughput is both consistent and sustainable. The Steady State period includes both the Measurement Interval and Run-Out periods *(see "SPC-2 Test Run Components" illustrated below, Test Run 1: T_1-T_4 and Test Run 2: T_6-T_9).*

Steady State is achieved only after caches in the TSC have filled and as a result the I/O Request Throughput of the TSC has stabilized.

Stream: A collection of Stream Segments that started within a Test Run.

Stream Segment: A sequentially organized pattern of I/O requests, which transfers a contiguous range of data.

Test: A collection of Test Phases and or Test Runs sharing a common objective.

Test Phase: A collection of one or more SPC-2 Test Runs sharing a common objective and intended to be run in a specific sequence.

Test Run: The execution of SPC-2 that produces specific SPC-2 test results. SPC-2 Test Runs have specified, measured Ramp-Up, Measurement Interval, Run-Out and Ramp-Down periods. "SPC-2 Test Run Components" *(see below)* illustrates the Ramp-Up, Steady State, Measurement Interval, Run-Out, and Ramp-Down components contained in two uninterrupted SPC-2 Test Runs *(Test Run 1: T_0-T_5 and Test Run 2: T_5-T_{10}).*

Test Run Sequence: A related sequence of Large File Processing (LFP) or Large Database Query (LDQ) Test Runs. Each Test Run Sequence will consist of five Test Runs, which vary the number of Streams as follows:

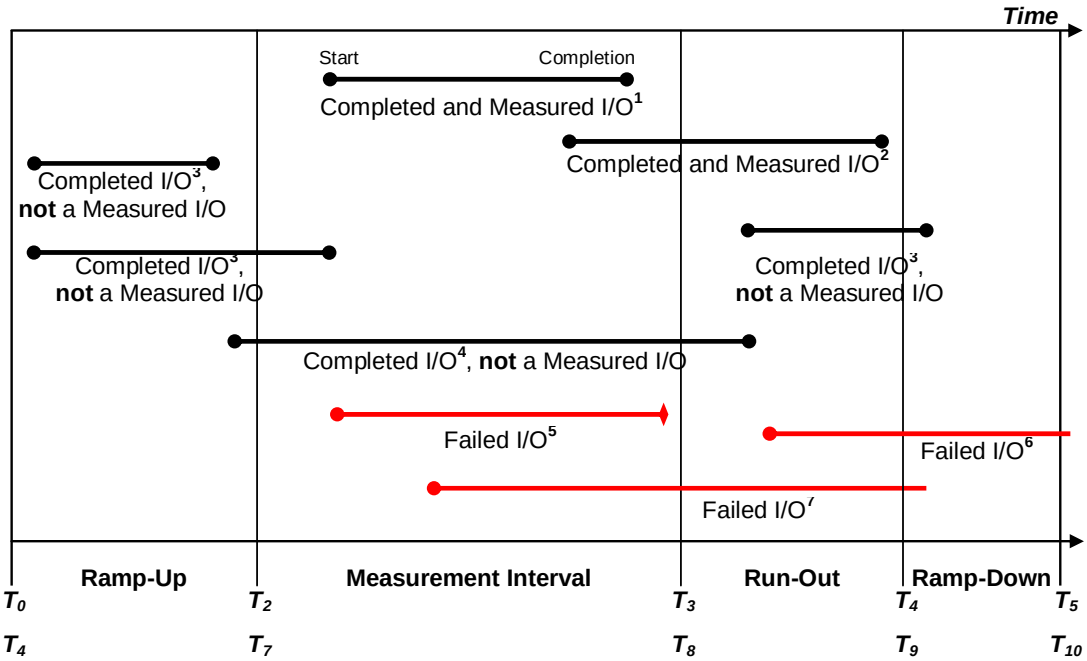
- Test Run 1: Maximum number of Streams, which is selected by the Test Sponsor
- Test Run 2: 50% of the maximum number of Streams used in Test Run 1.
- Test Run 3: 25% of the maximum number of Streams used in Test Run 1.
- Test Run 4: 12.5% of the maximum number of Streams used in Test Run 1.
- Test Run 5: 1 Stream.

Each of the five Test Runs in a Test Run Sequence will share the same attributes with the exception of the number of Streams. For example:

- Large File Processing, Read, 1024 KiB Transfer Size: Maximum Streams
- Large File Processing, Read, 1024 KiB Transfer Size: 50% of Maximum Streams
- Large File Processing, Read, 1024 KiB Transfer Size: 25% of Maximum Streams
- Large File Processing, Read, 1024 KiB Transfer Size: 12.5% of Maximum Streams
- Large File Processing, Read, 1024 KiB Transfer Size: 1 Stream

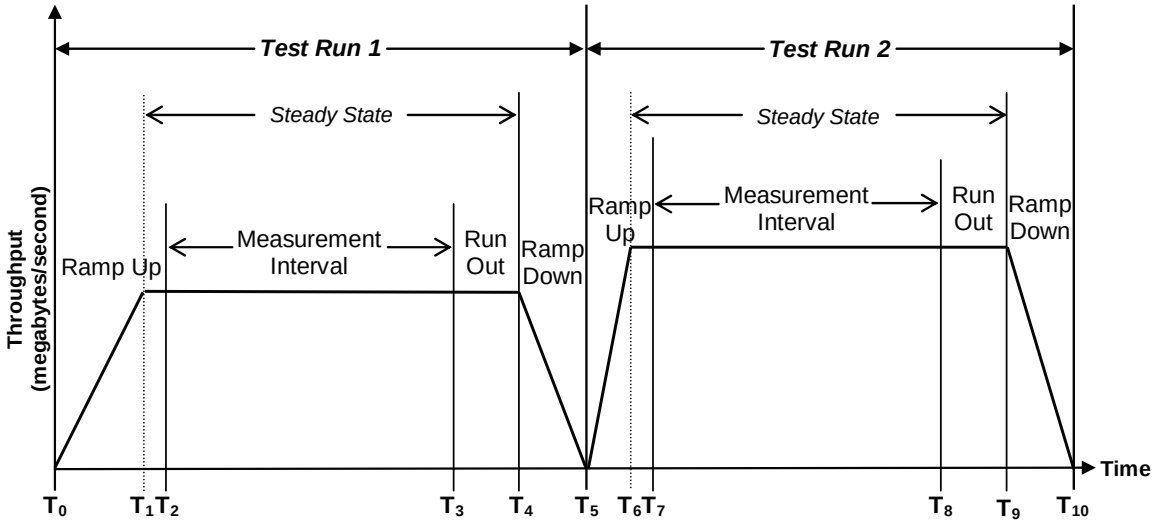
Transfer Size: The Transfer Size parameter specifies the number of bytes in KiB to transfer. *(Clause 3.4.7 of the SPC-2 Benchmark Specification)*

I/O Completion Types



Completed and Measured I/O[1]: *I/O started and completed within the Measurement Interval.*
Completed and Measured I/O[2]: *I/O started within the Measurement Interval and completed within Ramp Down.*
Completed I/O[3]: *I/O started before or after the Measurement Interval – not measured.*
Completed I/O[4]: *I/O started before and completed after the Measurement Interval – not measured.*
Failed I/O[5]: *Signaled as failed by System Software.*
Failed I/O[6]: *I/O did not complete prior to the end of Ramp-Down.*
Failed I/O[7]: *I/O did not complete prior to the end of Run-Out.*

SPC-2 Test Run Components



APPENDIX B: CUSTOMER TUNABLE PARAMETERS AND OPTIONS

All customer tunable parameters and options were set at their default values.

APPENDIX C: TESTED STORAGE CONFIGURATION (TSC) CREATION

Create RAID-1 Storage Groups

The SST2530 is configured with four (4) RAID-1 storage groups with one LUN per group. The configuration file **spc2-2530-R1-cfg.xml** is used to configure the SST2540 via the **sscs** command. The **sscs** command is accessed via the "SUNWsesscs package" found in the CD that ships with the ST2530.

sscs import –f spc2-2530-R1-cfg.xml array sbm-2530a

The above command performs the following:

- Probes SST2340 to ensure configuration file compatibility
- Removes any existing LUN configuration
- Creates four (4) RAID-1 LUNs
- Presents all LUNs to the attached host

*Note: **sbm-2530a**, in the above command, is the nodename assigned to the SST2530.*

The configuration file, **spc2-2540-R1-cfg.xml** is listed below.

spc2-2530-R1-cfg.xml


```
<?xml version="1.0" encoding="UTF-8"?>
<raidbaseview>
<raidsystem>
<name>sbm-2530</name>
<unique_id>60%3A0A%3A0B%3A80%3A00%3A2F%3ABC%3A37%3A00%3A00%3A00%3A00%3A45%3AC3%3A5A
%3AF5</unique_id>
<status>ok</status>
<manufacturer>SUN</manufacturer>
<model>2530</model>
<firmware_version>06.17.52.10</firmware_version>
<nvsram_version></nvsram_version>
<cache_size></cache_size>
<network>
<ip1>172.20.106.58</ip1>
<ip2>172.20.106.59</ip2>
<gateway1>172.20.106.248</gateway1>
<gateway2>172.20.106.248</gateway2>
<netmask1>255.255.255.0</netmask1>
<netmask2>255.255.255.0</netmask2>
</network>
<array_param>
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<cache_flush_threshold>80</cache_flush_threshold>
<cache_flush_amount>80</cache_flush_amount>
<default_host_port_type>SOLARIS_MPXIO</default_host_port_type>
<default_media_scan>0</default_media_scan>
<default_failover_alert_delay>300</default_failover_alert_delay>
</array_param>
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<premium_name>Snapshot</premium_name>
</premium_features>
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<pool>
```

```
<pool_name>raid+1</pool_name>
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<pool_avail_capacity>14.393GB</pool_avail_capacity>
</pool>
<pool>
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<pool_desc>Default+Storage+Pool</pool_desc>
<pool_profile_name>Default</pool_profile_name>
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<pool_avail_capacity>0.000GB</pool_avail_capacity>
</pool>
</pools>
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<tray>
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<volume_type>Standard</volume_type>
<assignment>A</assignment>
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<vol_write_cache_with_mirroring>true</vol_write_cache_with_mirroring>
```

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<vol_write_cache_without_batteries>false</vol_write_cache_without_batteries>
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<vol_disk_scrubbing_with_redundancy>false</vol_disk_scrubbing_with_redundancy>
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```

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<lun>2</lun>
</mapping>
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<profile>
<profile_name>Default</profile_name>
<profile_desc>Pre-configured+Default+profile</profile_desc>
<raid_level>RAID+5</raid_level>
<optimal_num_drives>0</optimal_num_drives>
<segment_size>512K</segment_size>
<read_ahead>On</read_ahead>
<drive_type>SAS</drive_type>
<factory_profile>yes</factory_profile>
</profile>
<profile>
<profile_name>NFS_Mirroring</profile_name>
<profile_desc>Pre-configured+NFS+Mirroring+profile</profile_desc>
<raid_level>RAID+1</raid_level>
<optimal_num_drives>0</optimal_num_drives>
<segment_size>512K</segment_size>
<read_ahead>On</read_ahead>
<drive_type>SAS</drive_type>
<factory_profile>yes</factory_profile>
</profile>
<profile>
<profile_name>Microsoft_NTFS</profile_name>
<profile_desc>Microsoft+Windows+NTFS</profile_desc>
<raid_level>RAID+5</raid_level>
<optimal_num_drives>4</optimal_num_drives>
<segment_size>64K</segment_size>
<read_ahead>On</read_ahead>
<drive_type>ANY</drive_type>
<factory_profile>yes</factory_profile>
</profile>
<profile>
<profile_name>NFS_Striping</profile_name>
<profile_desc>Pre-configured+NFS+Striping+profile</profile_desc>
<raid_level>RAID+5</raid_level>
<optimal_num_drives>0</optimal_num_drives>
<segment_size>512K</segment_size>
<read_ahead>On</read_ahead>
<drive_type>SAS</drive_type>
<factory_profile>yes</factory_profile>
</profile>
<profile>
<profile_name>High_Capacity_Computing</profile_name>
<profile_desc>Pre-configured+High+Capacity+Computing+profile</profile_desc>
<raid_level>RAID+5</raid_level>
<optimal_num_drives>0</optimal_num_drives>
```

```
<segment_size>512K</segment_size>
<read_ahead>On</read_ahead>
<drive_type>SAS</drive_type>
<factory_profile>yes</factory_profile>
</profile>
</profiles>
</raidsystem>
</raidbaseview>
```


Sun StoreEdge MPIO Multipathing

The Sun StoreEdge MPIO multipathing driver was installed on the Sun Fire X4600 with factory default setting as follows:

- Execute **/Windows/csmdsm/DSMDrivers/dsmUtil.exe**, which is located on the SST2530 Support CD, and select all the default settings.
- After the installation is complete, accept the prompt for a system reboot.

LUN discovery via Windows 2003 Server

Select the **Disk Management** option from the **Computer Management** utility in Window 2003 Server.

From the menu bar, select **Action** followed by **Rescan Disks**.

All four volumes will as appear as **Unknown Not Initialized Unallocated** disks.

Right click on each disk and select **Initialize Disk**.

The status of each disk will change from **Unknown** to **Online**.

APPENDIX D: SPC-2 WORKLOAD GENERATOR STORAGE COMMANDS AND PARAMETERS

Large File Processing Test *(LFP)*

```
* Large File Processing Test (LFP)

host=localhost,jvms=5,maxstreams=1200,java=("C:\Sun\SDK\jdk\jre\bin\java","-Xmx512m
-Xms256m -Xss124k -Xnoclassgc")
*host=localhost,jvms=4,maxstreams=1200,java=("C:\Sun\SDK\jdk\jre\bin\java")

sd=default,host=localhost,size=199g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive2
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive4

maxlatestart=1
reportinginterval=5
segmentlength=512m

rd=default,rampup=180,periods=90,measurement=180,runout=45,rampdown=15,buffers=1

* LFP, "write" Test Phase

* Test Run Sequence 1
rd=default,rdpct=0,xfersize=1024k
rd=TR1-s15_SPC-2-FP,streams=10
rd=TR2-s8_SPC-2-FP,streams=5
rd=TR3-s4_SPC-2-FP,streams=3
rd=TR4-s2_SPC-2-FP,streams=2
rd=TR5-s1_SPC-2-FP,streams=1

* Test Run Sequence 2
rd=default,xfersize=256k
rd=TR6-s15_SPC-2-FP,streams=10
rd=TR7-s8_SPC-2-FP,streams=5
rd=TR8-s4_SPC-2-FP,streams=3
rd=TR9-s2_SPC-2-FP,streams=2
rd=TR10-s1_SPC-2-FP,streams=1

* LFP, "read-write" Test Phase

* Test Run Sequence 3
rd=default,rdpct=50,xfersize=1024k
rd=TR11-s15_SPC-2-FP,streams=10
rd=TR12-s8_SPC-2-FP,streams=5
rd=TR13-s4_SPC-2-FP,streams=3
rd=TR14-s2_SPC-2-FP,streams=2
rd=TR15-s1_SPC-2-FP,streams=1

* Test Run Sequence 4
rd=default,xfersize=256k
rd=TR16-s15_SPC-2-FP,streams=10
rd=TR17-s8_SPC-2-FP,streams=5
rd=TR18-s4_SPC-2-FP,streams=3
rd=TR19-s2_SPC-2-FP,streams=2
rd=TR20-s1_SPC-2-FP,streams=1

* LFP, "read" Test Phase
```

```
* Test Run Sequence 5
rd=default,rdpct=100,xfersize=1024k
rd=TR21-s15_SPC-2-FP,streams=10
rd=TR22-s8_SPC-2-FP,streams=5
rd=TR23-s4_SPC-2-FP,streams=3
rd=TR24-s2_SPC-2-FP,streams=2
rd=TR25-s1_SPC-2-FP,streams=1

* Test Run Sequence 6
rd=default,xfersize=256k
rd=TR26-s15_SPC-2-FP,streams=10
rd=TR27-s8_SPC-2-FP,streams=5
rd=TR28-s4_SPC-2-FP,streams=3
rd=TR29-s2_SPC-2-FP,streams=2
rd=TR30-s1_SPC-2-FP,streams=1
```

Large Database Query Test *(LDQ)*

```
* Large Database Query Test (LDQ)
host=localhost,jvms=5,maxstreams=1200,java=("C:\Sun\SDK\jdk\jre\bin\java","-Xmx512m
-Xms256m -Xss124k -Xnoclassgc")
*host=localhost,jvms=4,maxstreams=1200,java=("C:\Sun\SDK\jdk\jre\bin\java")

sd=default,host=localhost,size=199g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive2
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive4

maxlatestart=0
reportinginterval=5
segmentlength=512m

rd=default,rdpct=99,rampup=180,periods=90,measurement=180,runout=45,rampdown=15


* LDQ, 1024 KiB Test Phase

* Test Run Sequence 1
rd=default,xfersize=1024k,buffers=4
rd=TR1-s10_SPC-2-DQ,streams=10
rd=TR2-s5_SPC-2-DQ,streams=5
rd=TR3-s3_SPC-2-DQ,streams=3
rd=TR4-s2_SPC-2-DQ,streams=2
rd=TR5-s1_SPC-2-DQ,streams=1

* Test Run Sequence 2
rd=default,buffers=1
rd=TR6-s10_SPC-2-DQ,streams=10
rd=TR7-s5_SPC-2-DQ,streams=5
rd=TR8-s3_SPC-2-DQ,streams=3
rd=TR9-s2_SPC-2-DQ,streams=2
rd=TR10-s1_SPC-2-DQ,streams=1

* LDQ, 64 KiB Test Phase

* Test Run Sequence 3
rd=default,xfersize=64k,buffers=4
rd=TR11-s10_SPC-2-DQ,streams=10
rd=TR12-s5_SPC-2-DQ,streams=5
rd=TR13-s3_SPC-2-DQ,streams=3
```

```
rd=TR14-s2_SPC-2-DQ,streams=2
rd=TR15-s1_SPC-2-DQ,streams=1

* Test Run Sequence 4
rd=default,buffers=1
rd=TR16-s10_SPC-2-DQ,streams=10
rd=TR17-s5_SPC-2-DQ,streams=5
rd=TR18-s3_SPC-2-DQ,streams=3
rd=TR19-s2_SPC-2-DQ,streams=2
rd=TR20-s1_SPC-2-DQ,streams=1
```

Video on Demand Delivery Test *(VOD)*

```
* Video on Demand Test (VOD)

host=localhost,jvms=5,maxstreams=1200,java=("C:\Sun\SDK\jdk\jre\bin\java","-Xmx512m
-Xms256m -Xss124k -Xnoclassgc")
*host=localhost,jvms=4,maxstreams=1200,java=("C:\Sun\SDK\jdk\jre\bin\java")

sd=default,host=localhost,size=338g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive2
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive4


maxlatestart=0
videosegmentduration=1200
maxlatevod=0
reportinginterval=5

rd=default,rampup=1200,periods=600,measurement=7200,runout=45,rampdown=15,buffers=8

rd=TR1-s935_SPC-2-VOD,streams=935
```

Persistence Test Run 1 *(write phase)*

```
* Persist 1

host=localhost,jvms=5,maxstreams=100,java=("C:\Sun\SDK\jdk\jre\bin\java","-Xmx512m
-Xms256m -Xss124k -Xnoclassgc")
#host=localhost,jvms=4,maxstreams=100
* Remote Host Definition Parameters
#host=(172.20.106.204,sbm-4200a),java=(java,-
Xmx1024m),spc2=/spc/spc2,shell=spc2,jvms=4,maxstreams=100
#* Master host config
sd=default,host=localhost,size=199g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive2
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive4

maxlatestart=1
reportinginterval=5
segmentlength=512m

rd=default,rampup=180,periods=90,measurement=300,runout=0,rampdown=0,buffers=1

rd=default,rdpct=0,xfersize=1024k
rd=TR1-10s_SPC-2-persist-w,streams=10
```

Persistence Test Run 2 *(read phase)*

```
* Persistence Test Run 2

host=localhost,jvms=5,maxstreams=100,java=("C:\Sun\SDK\jdk\jre\bin\java","-Xmx512m
-Xms256m -Xss124k -Xnoclassgc")
#host=localhost,jvms=4,maxstreams=100
* Remote Host Definition Parameters
#host=(172.20.106.204,sbm-4200a),java=(java,-
Xmx1024m),spc2=/spc/spc2,shell=spc2,jvms=4,maxstreams=100
* Master host config
sd=default,host=localhost,size=199g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive2
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive4

maxlatestart=1
reportinginterval=5
segmentlength=512m

maxpersistenceerrors=10
*corruptstreams=3

rd=default,buffers=1,rdpct=100,xfersize=1024k
rd=TR1-10s_SPC-2-persist-r
```

APPENDIX E: SPC-2 WORKLOAD GENERATOR EXECUTION COMMANDS AND PARAMETERS

Video on Demand Delivery, Large File Processing Test, Large Database Query Tests, and Persistence Test Run 1

The following script was used to execute the Video on Demand Delivery, Large File Processing and Large Database Query Tests.

```
@ECHO off
:BEGIN

cls

java vdbench -f vod-935.txt -o raid-1-2T\Audit\vod-935

java vdbench -f lfp-10.txt -o raid-1-2T\Audit\lfp-10

java vdbench -f ldq-10.txt -o raid-1-2T\Audit\ldq-10

*java vdbench -f persist1.txt -o raid-1-2T\Audit\persist1

*java vdbench -f persist2.txt -o raid-1-2T\Audit\persist2


:end
```

Persistence Test Run 1

The following script was used to execute Persistence Test Run 1.

```
@ECHO off
:BEGIN

cls

*java vdbench -f vod-935.txt -o raid-1-2T\Audit\vod-935

*java vdbench -f lfp-10.txt -o raid-1-2T\Audit\lfp-10

*java vdbench -f ldq-10.txt -o raid-1-2T\Audit\ldq-10

java vdbench -f persist1.txt -o raid-1-2T\Audit\persist1

*java vdbench -f persist2.txt -o raid-1-2T\Audit\persist2


:end
```

Persistence Test Run 2

The following script was used to execute Persistence Test Run 2.

```
@ECHO off
:BEGIN

cls

*java vdbench -f vod-935.txt -o raid-1-2T\Audit\vod-935

*java vdbench -f lfp-10.txt -o raid-1-2T\Audit\lfp-10

*java vdbench -f ldq-10.txt -o raid-1-2T\Audit\ldq-10

*java vdbench -f persist1.txt -o raid-1-2T\Audit\persist1

java vdbench -f persist2.txt -o raid-1-2T\Audit\persist2


:end
```