SPC BENCHMARK 2™
FULL DISCLOSURE REPORT

IBM CORPORATION
IBM SYSTEM STORAGE
SAN VOLUME CONTROLLER 4.2

SPC-2™ V1.2.1

Submitted for Review: July 12, 2007
Submission Identifier: B00024

First Edition – July 2007

THE INFORMATION CONTAINED IN THIS DOCUMENT IS DISTRIBUTED ON AN AS IS BASIS WITHOUT ANY WARRANTY EITHER EXPRESS OR IMPLIED. The use of this information or the implementation of any of these techniques is the customer's responsibility and depends on the customer's ability to evaluate and integrate them into the customer's operational environment. While each item has been reviewed by IBM Corporation for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere. Customers attempting to adapt these techniques to their own environment do so at their own risk.

This publication was produced in the United States. IBM Corporation may not offer the products, services, or features discussed in this document in other countries, and the information is subject to change with notice. Consult your local IBM Corporation representative for information on products and services available in your area.

© Copyright IBM Corporation 2007. All rights reserved.

Permission is hereby granted to reproduce this document in whole or in part, provided the copyright notice as printed above is set forth in full text on the title page of each item reproduced.

Trademarks

SPC Benchmark 2, SPC-2, SPC-2 MBPS, and SPC-2 Price-Performance are trademarks of the Storage Performance Council. IBM and IBM System Storage are trademarks or registered trademarks of IBM Corporation in the United States and other countries. UNIX is a registered trademark of The Open Group in the United States and other countries. All other brands, trademarks, and product names are the property of their respective owners.

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** 18

Configuration Information 19

- **Benchmark Configuration (BC)/Tested Storage Configuration (TSC) Diagram** 19
- **Storage Network Configuration** 19
- **Host System and Tested Storage Configuration Table** 19
- **Customer Tunable Parameters and Options** 20
- **Tested Storage Configuration (TSC) Description** 20
- **SPC-2 Workload Generator Storage Configuration** 20

SPC-2 Data Repository 21

- **SPC-2 Storage Capacities and Relationships** 21
  - SPC-2 Storage Capacities 21
  - SPC-2 Storage Hierarchy Ratios 22
  - SPC-2 Storage Capacities and Relationships Illustration 22
- **Logical Volume Capacity and ASU Mapping** 23

SPC-2 Test Execution Results 24

- **SPC-2 Tests, Test Phases, Test Run Sequences, and Test Runs** 24
- **Large File Processing Test** 27
  - SPC-2 Workload Generator Commands and Parameters 27
  - SPC-2 Test Results File 28
  - SPC-2 Large File Processing Average Data Rates (MB/s) 28
  - SPC-2 Large File Processing Average Data Rates Graph 29
  - SPC-2 Large File Processing Average Data Rate per Stream 30

SPC-2 Large File Processing Average Data Rate per Stream Graph 31
SPC-2 Large File Average Response Time 32
SPC-2 Large File Processing Average Response Time Graph 33
Large File Processing Test – WRITE ONLY Test Phase 34
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period 35
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 36
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 37
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 37
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate per Stream Graph 38
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Response Time Graph 38
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period 39
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 40
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 41
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 41
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate per Stream Graph 42
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Response Time Graph 42
Large File Processing Test – READ-WRITE Test Phase 43
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period 44
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 45
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 46
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 46
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Average Data Rate per Stream Graph 47
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Average Response Time Graph 47
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period 48

SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 49
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 50
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 50
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate per Stream Graph 51
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Response Time Graph 51
Large File Processing Test – READ ONLY Test Phase 52
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period 53
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data 54
Measurement Interval, Run-Out, and Ramp-Down Periods 54
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 55
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 55
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate per Stream Graph 56
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Response Time Graph 56
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period 57
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 58
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run 59
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only 59
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate per Stream Graph 60
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Response Time Graph 60
Large Database Query Test 61
SPC-2 Workload Generator Commands and Parameters 61
SPC-2 Test Results File 61
SPC-2 Large Database Query Average Data Rates (MB/s) 62
SPC-2 Large Database Query Average Data Rates Graph 62
SPC-2 Large Database Query Average Data Rate per Stream 63
SPC-2 Large Database Query Average Data Rate per Stream Graph 63

SPC-2 Large Database Query Average Response Time 64
SPC-2 Large Database Query Average Response Time Graph 64
Large Database Query Test – 1024 KiB TRANSFER SIZE Test Phase 65
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period 66
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 67
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run 68
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only 68
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate per Stream Graph 69
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Response Time Graph 69
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period 70
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 71
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run 72
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only 72
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate per Stream Graph 73
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Response Time Graph 73
Large Database Query Test – 64 KiB TRANSFER SIZE Test Phase 74
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period 75
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods 76
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run 77
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only 77
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate per Stream Graph 78
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Response Time Graph 78
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period 79

SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period 80
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run 81
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only 81
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate per Stream Graph 82
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Response Time Graph 82
Video on Demand Delivery Test 83
SPC-2 Workload Generator Commands and Parameters 83
SPC-2 Test Results File 84
SPC-2 Video on Demand Delivery Test Run Data 84
Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL 85
SPC-2 Video on Demand Delivery: Average Data Rate Graph 86
SPC-2 Video on Demand Delivery: Average Data Rate per Stream Graph 86
SPC-2 Video on Demand Delivery: Average Response Time Graph 87
SPC-2 Video on Demand Delivery: Maximum Response Time Graph 87
Data Persistence Test 88
SPC-2 Workload Generator Commands and Parameters 88
Data Persistence Test Results File 88
Data Persistence Test Results 89
Priced Storage Configuration Availability Date 90
Anomalies or Irregularities 90
Appendix A: SPC-2 Glossary 91
"Decimal" *(powers of ten)* Measurement Units 91
"Binary" *(powers of two)* Measurement Units 91
SPC-2 Data Repository Definitions 91
SPC-2 Data Protection Levels 92
SPC-2 Test Execution Definitions 92
I/O Completion Types 95
SPC-2 Test Run Components 95
Appendix B: Customer Tunable Parameters and Options 96
Appendix C: Tested Storage Configuration (TSC) Creation 97
Create RAID 5 Arrays (mDisks) 97
`defineRAID5.bat` 97
`defineRAID5_a.bat` 98

defineRAID5_b.bat 98
Create Host Connectivity Definitions 99
mkhost_perfsh3a.bat 99
Define the mDisk Group 99
mkgroup.py 99
Define the vDisks (LUNs) 100
mkdouble64vd_8node_seq.py 100
Define vDisk Paths 101
mapfcs128to32.py 101
Discover each vDisk 102
cfgthesefcs.sh 102
Increase hdisk queue depth 102
hdiskset.sh 5 132 80 0x100000 102
Appendix D: SPC-2 Workload Generator Storage Commands and Parameters 104
Large File Processing Test *(LFP)* 104
Large Database Query Test *(LDQ)* 106
Video on Demand Delivery Test *(VOD)* 109
Persistence Test Run 1 *(write phase)* 111
Persistence Test Run 2 (read phase) 114
Appendix E: SPC-2 Workload Generator Execution Commands and Parameters 117

AUDIT CERTIFICATION

Bruce McNutt
IBM Corporation
KBV/9062-2
9000 South Rita Road
Tucson, AZ 85744

July 11, 2007

The SPC Benchmark 2™ results listed below for the IBM System Storage SAN Volume Controller 4.2 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: IBM System Storage SAN Volume Controller 4.2	
Metric	**Reported Result**
SPC-2 MBPS™	7,084.44
SPC-2 Price-Performance	$463.66/SPC-2 MBPS™
Total ASU Capacity	101,155.070 GB
Data Protection Level	RAID-5
Total Price (including three-year maintenance)	$3,284,767

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 and information supplied by IBM Corporation:
  - ✓ 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
643 Bair Island Road, Suite 103
Redwood City, CA 94062
AuditService@StoragePerformance.org
650.556.9384

AUDIT CERTIFICATION *(CONT.)*

- Listings and commands to create and configure the Benchmark Configuration/Tested Storage Configuration, including each customer tunable parameter or option that was changed from its default value.
- The following Host System items were verified by physical inspection and information supplied by IBM Corporation:
  - ✓ 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 information supplied by IBM Corporation:
  - ✓ 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 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 received 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

Storage Performance Council
643 Bair Island Road, Suite 103
Redwood City, CA 94062
AuditService@StoragePerformance.org
650.556.9384

LETTER OF GOOD FAITH

IBM

Vice President Disk, SAN, NAS Storage Systems

IBM Technology & Systems Group
5600 Cottle Road, San Jose, California 95193

Phone: 408-256-7405
Fax: 408-256-7420

June 15, 2007

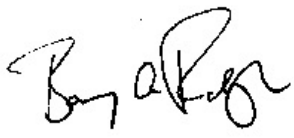
Mr. Walter E. Baker, SPC Auditor
Gradient Systems, Inc.
643 Bair Island Road, Suite 103
Redwood City, CA 94063

Subject: SPC-2 Letter of Good Faith for the IBM System Storage SAN Volume Controller Version 4.2.

IBM Corporation 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 Version 1.2.1 of the SPC-2 benchmark specification.

Our disclosure of the Benchmark configuration and execution of the benchmark includes all items that, to the best of our knowledge and belief, materially affect the reported results, regardless of whether such items are explicitly required to be disclosed by the SPC-2 benchmark specification.

Sincerely,



Barry Rudolph

EXECUTIVE SUMMARY

Test Sponsor and Contact Information

Test Sponsor and Contact Information	
Test Sponsor Primary Contact	IBM Corporation – http://www.ibm.com Peter Leung – leungp@us.ibm.com 65S/9062-2 9000 South Rita Road Tucson, AZ 85744 Phone: (520) 799-2853 FAX: (520) 799-5530
Test Sponsor Alternate Contact	IBM Corporation – http://www.ibm.com Bruce McNutt – bmcnutt@us.ibm.com KBV/9062-2 9000 South Rita Road Tucson, AZ 85744 Phone: (520) 799-2460 FAX: (520) 799-5530
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	July 12, 2007
Date FDR was submitted to the SPC	July 12, 2007
Date the TSC will be available for shipment to customers	currently available
Date the TSC completed audit certification	July 11, 2007

Tested Storage Product (TSP) Description

The IBM System Storage SAN Volume Controller (SVC) enables a single point of control for disparate, heterogeneous storage resources to help support improved business application availability and greater resource utilization. SAN Volume Controller is designed to pool storage volumes from IBM and non-IBM storage systems into a single reservoir of capacity for centralized management.

SAN Volume Controller combines hardware and software into an integrated, modular solution. Using IBM System x™ server technology in clustered pairs, SAN Volume Controller is designed to avoid potential single points of failure. SAN Volume Controller software is designed to operate as a highly available cluster supporting high performance and ease of use.

SAN Volume Controller is highly scalable. An "I/O Group" is formed by combining a redundant pair of System x servers. Each server includes a four-port 4 Gbps-capable host bus adapter (HBA), designed to allow the SAN Volume Controller to connect and operate at up to 4 Gbps SAN fabric speed. Each I/O Group contains 8 GB of mirrored cache memory. Highly available I/O Groups are the basic configuration element of a SAN Volume Controller cluster. Adding I/O Groups to the cluster is designed to increase cluster performance and bandwidth.

SAN Volume Controller can scale out to support four I/O Groups, and it can scale up to support 1024 host servers. For every cluster, SAN Volume Controller support up to 4096 virtual disks.

SPC-2 Reported Data

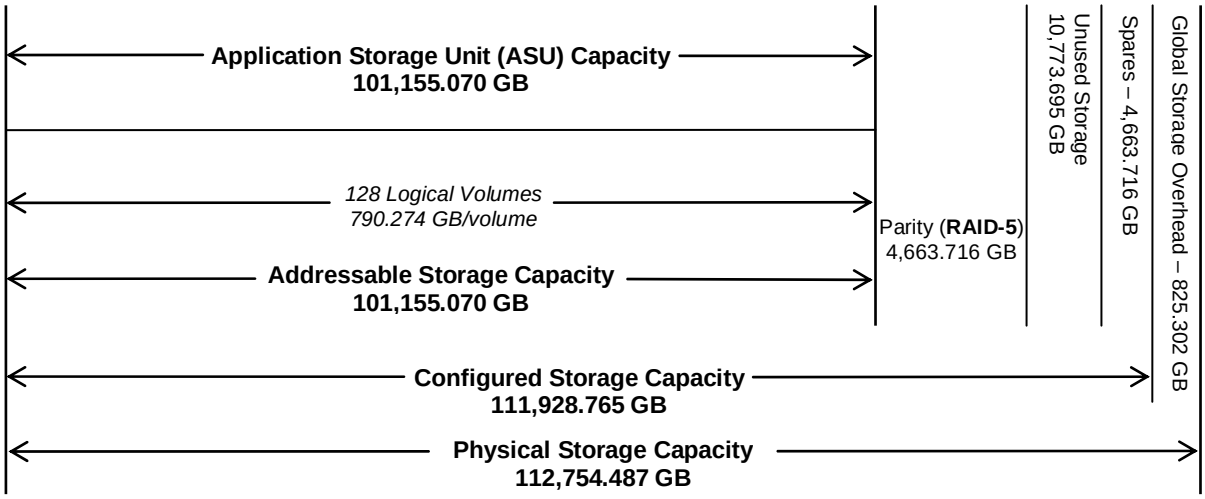
SPC-2 Reported Data consists of three groups of information:

- 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				
IBM System Storage SAN Volume Controller 4.2				
SPC-2 MBPS™	**SPC-2 Price-Performance**	**ASU Capacity (GB)**	**Total Price**	**Data Protection Level**
7,084.44	$463.66	101,155.070	$3,284,767	RAID-5
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	6,489.75			$506.15
Write Only:				
1024 KiB Transfer	4,030.87	128	31.49	
256 KiB Transfer	3,956.28	128	30.91	
Read-Write:				
1024 KiB Transfer	5,321.88	128	41.58	
256 KiB Transfer	5,404.57	128	42.22	
Read Only:				
1024 KiB Transfer	10,249.02	256	40.04	
256 KiB Transfer	9,975.89	256	38.97	
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	9,651.75			$340.33
1024 KiB Transfer Size				
4 I/Os Outstanding	9,513.75	256	37.16	
1 I/O Outstanding	10,005.11	256	39.08	
64 KiB Transfer Size				
4 I/Os Outstanding	9,647.76	256	37.69	
1 I/O Outstanding	9,440.40	256	36.88	
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**
	5,111.80	6,500	0.79	$642.59

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)*

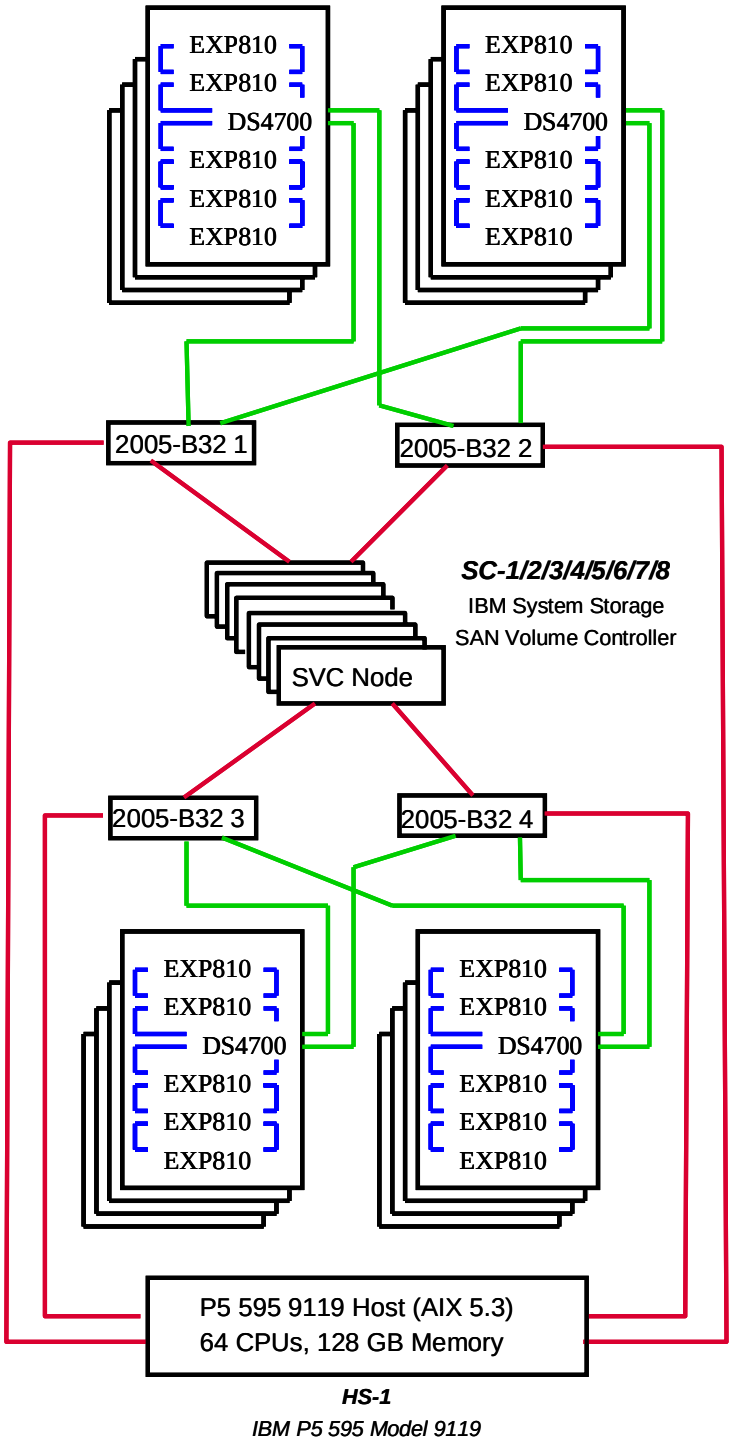
Component	Comments	Quantity	Unit Price	Unit Maint	List w/ Maint	% discount	Total Price
SVC 3550 Storage Engine		8	16,500.00	6,696.00	185,568.00	30	129,897.60
UPS		8	1,250.00	2,592.00	30,736.00	30	21,515.20
Master Console		1	7,499.00	3,816.00	11,315.00	30	7,920.50
SVC Software license	up to 100 virtualized TB	1	332,000.00	132,800.00	464,800.00	30	325,360.00
19 inch rack (7014-T42)		9	3,970.00	1,512.00	49,338.00	50	24,669.00
32 port fibre channel switch (2005-B32)	w/ 32 SFP, 32 ports enabled	4	38,573.00	2,657.00	164,920.00	20	131,936.00
DS 4700 with 16 15K RPM drives (73 GB)	w/ 4 SFP, 2 5m cables	16	43,563	13,950	920,208.00	37	579,731.04
EXP810 with 16 15K RPM drives (73 GB)	w/ 4 SFP, 2 1m cables	80	33,862	5,640	3,160,160.00	37	1,990,900.80
Ethernet switch (73P-2413)		2	135.99	30.00	331.98	42	192.55
Short wave fibre channel cable (5 m)		32	129		4,128.00	20	3,302.40
Short wave fibre channel cable (25 m)		32	189		6,048.00	20	4,838.40
Ethernet cable (7 feet)		8	6.99		55.92	0	55.92
Ethernet cable (25 feet)		32	14.99		479.68	0	479.68
4 Gbit P5 595 adapter (5758)		32	1,999.00		63,968.00	0	63,968.00
Total Price							3,284,767.09

The above pricing provides maintenance/support for 24 hours per day, 7 days per week for three years with four hour acknowledgement and four hour subsequent response (support engineer onsite or customer replaceable part available).

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

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

Benchmark Configuration/Tested Storage Configuration Diagram



Notes:

All storage is managed by each node (single image).

Each EXP810 and DS4700 has 16 disks (total of 1536). Disks are 73 GB, 15K RPM.

Each switch has one zone for node-to-storage traffic, two zones for node-to-host traffic (even nodes to half of fcs's, odd nodes to half of fcs's).

Represents 1 FC path per line drawn

Represents 4 FC paths per line drawn

Represents 8 FC paths per line drawn

Host System(s) and Tested Storage Configuration Components

Host Systems:	Tested Storage Configuration (TSC):
UID=HS-1	32 – 4 Gbit P5 595 HBAs
IBM P5 595 Model 9119	***UID=SC-1/2/3/4/5/6/7/8:*** 8 – TotalStorage® SAN Volume Controllers per controller: 2 – 2.333 GHz Intel Xeon Dual-Core CPUs 864 MiB data cache 160 MiB processor cache 4 – 4 Gbit FC ports
64 – 1.9 GHz CPUs – 2 CPUs/POWER5 chip 32 KB L1 cache, 960 KB L2 cache, and 18 MB L3 cache per CPU	
128 GB main memory	
AIX 5.3	
PCI-X/RIO	4 – 32 port FC switches
WG	2 – Ethernet switch
	16 – DS4700 enclosures 80 – EXP810 enclosures 16 – 73 GB, 15K RPM disk drives per enclosure
	9 – 19 inch racks
	8 – UPS

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 storage network configured as a part of the Tested Storage Configuration is illustrated on page 17 *(Benchmark Configuration/Tested Storage Configuration Diagram).*

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 18 *(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 96 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 97 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 97.

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 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 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)	101,155.070
Addressable Storage Capacity	Gigabytes (GB)	101,155.070
Configured Storage Capacity	Gigabytes (GB)	111,928.765
Physical Storage Capacity	Gigabytes (GB)	112,754.487
Data Protection Overhead (parity)	Gigabytes (GB)	4,663.716
Required Storage *(spares)*	Gigabytes (GB)	4,663.716
Global Storage Overhead	Gigabytes (GB)	825.302
Total Unused Storage	Gigabytes (GB)	10,774.114

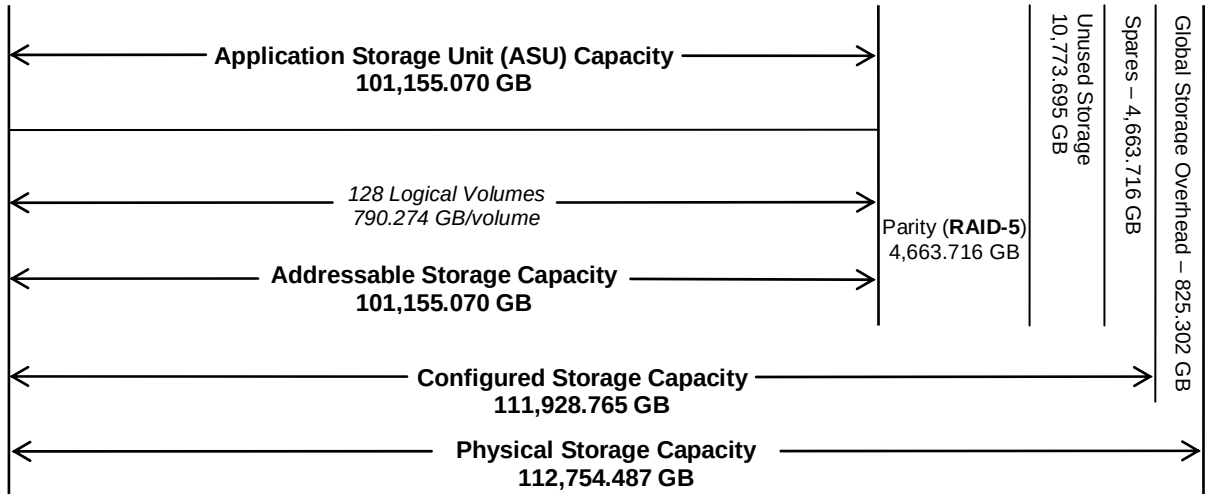
SPC-2 Storage Hierarchy Ratios

	Addressable Storage Capacity	Configured Storage Capacity	Physical Storage Capacity
Total ASU Capacity	100.00%	90.37%	89.71%
Required for Data Protection (Mirroring)		4.17%	4.14%
Addressable Storage Capacity		90.37%	89.71%
Required Storage *(spares)*		4.17%	4.14%
Configured Storage Capacity			99.27%
Global Storage Overhead			0.73%
Unused Storage:			
Addressable	0.00%		
Configured		9.63%	
Physical			0.0004%

The Physical Storage Capacity consisted of 112,754.487 GB distributed over 1,536 disk drives each with a formatted capacity of 73.408 GB. There was 0.419 GB (0.0004%) of Unused Storage within the Physical Storage Capacity. Global Storage Overhead consisted of 825.302 GB (0.73%) of Physical Storage Capacity. There was 10,773.695 GB (9.63%) of Unused Storage within the Configured Storage Capacity. The Total ASU Capacity utilized 100.00% of the Addressable Storage Capacity resulting in 0.000 GB (0.00%) 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 (101,155.070 GB)			
	Total Capacity *(GB)*	Capacity Used *(GB)*	Capacity Unused *(GB)*
Logical Volumes 1-128	790.274 per LV	790.274 per LV	0.000 per LV

See the Storage Definition (sd) entries in "Appendix D: SPC-2 Workload Generator Storage Commands and Parameters" on page 104 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 92 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 117.

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.

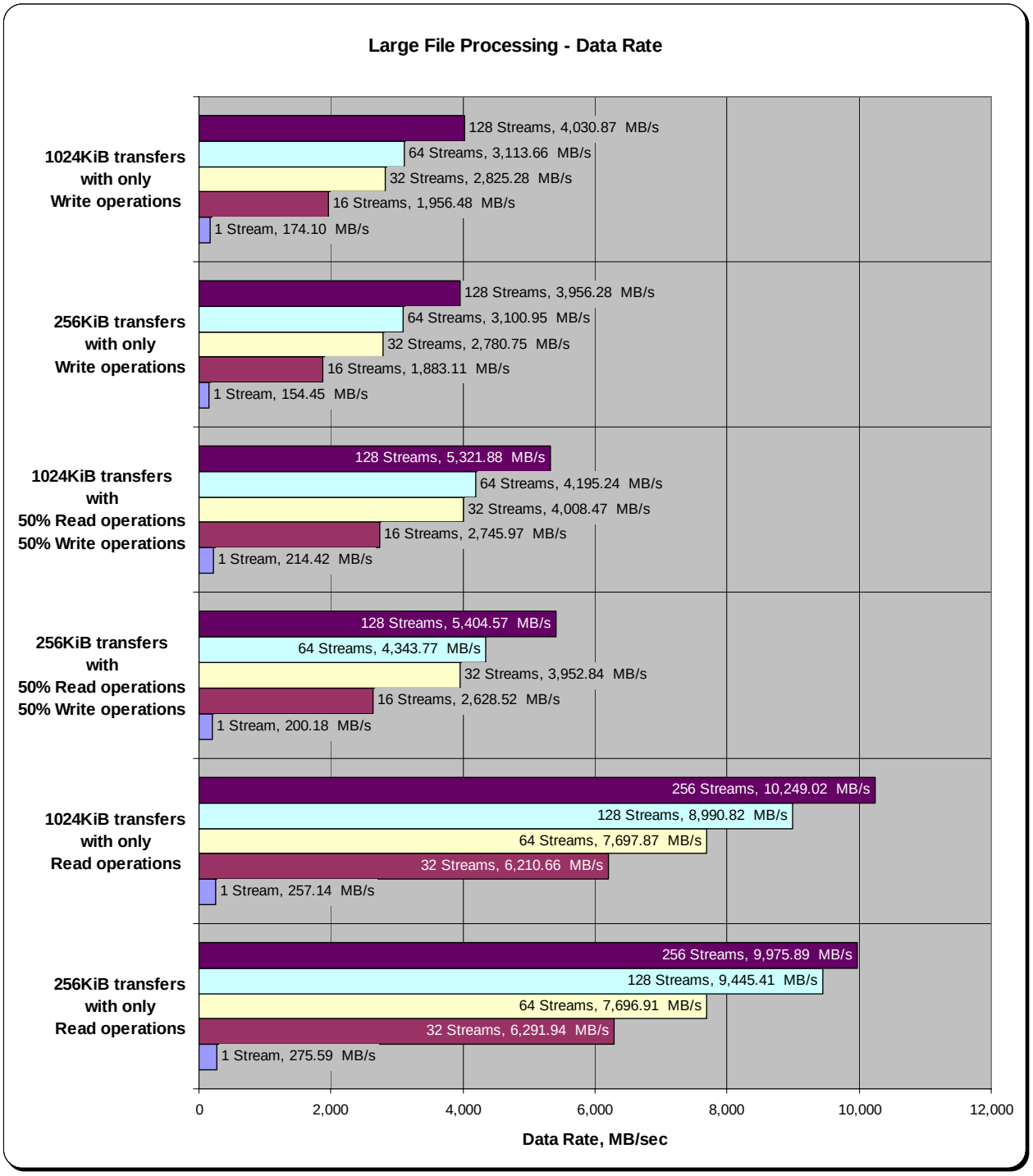
SPC-2 Large File Processing Test Results File

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	16 Streams	32 Streams	64 Streams	128 Streams
Write 1024KiB	174.10	1,956.48	2,825.28	3,113.66	4,030.87
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Write 256KiB	154.45	1,883.11	2,780.75	3,100.95	3,956.28
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read/Write 1024KiB	214.42	2,745.97	4,008.47	4,195.24	5,321.88
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read/Write 256KiB	200.18	2,628.52	3,952.84	4,343.77	5,404.57
Test Run Sequence	**1 Stream**	**32 Streams**	**64 Streams**	**128 Streams**	**256 Streams**
Read 1024KiB	257.14	6,210.66	7,697.87	8,990.82	10,249.02
Test Run Sequence	**1 Stream**	**32 Streams**	**64 Streams**	**128 Streams**	**256 Streams**
Read 256KiB	275.59	6,291.94	7,696.91	9,445.41	9,975.89

SPC-2 Large File Processing Average Data Rates Graph

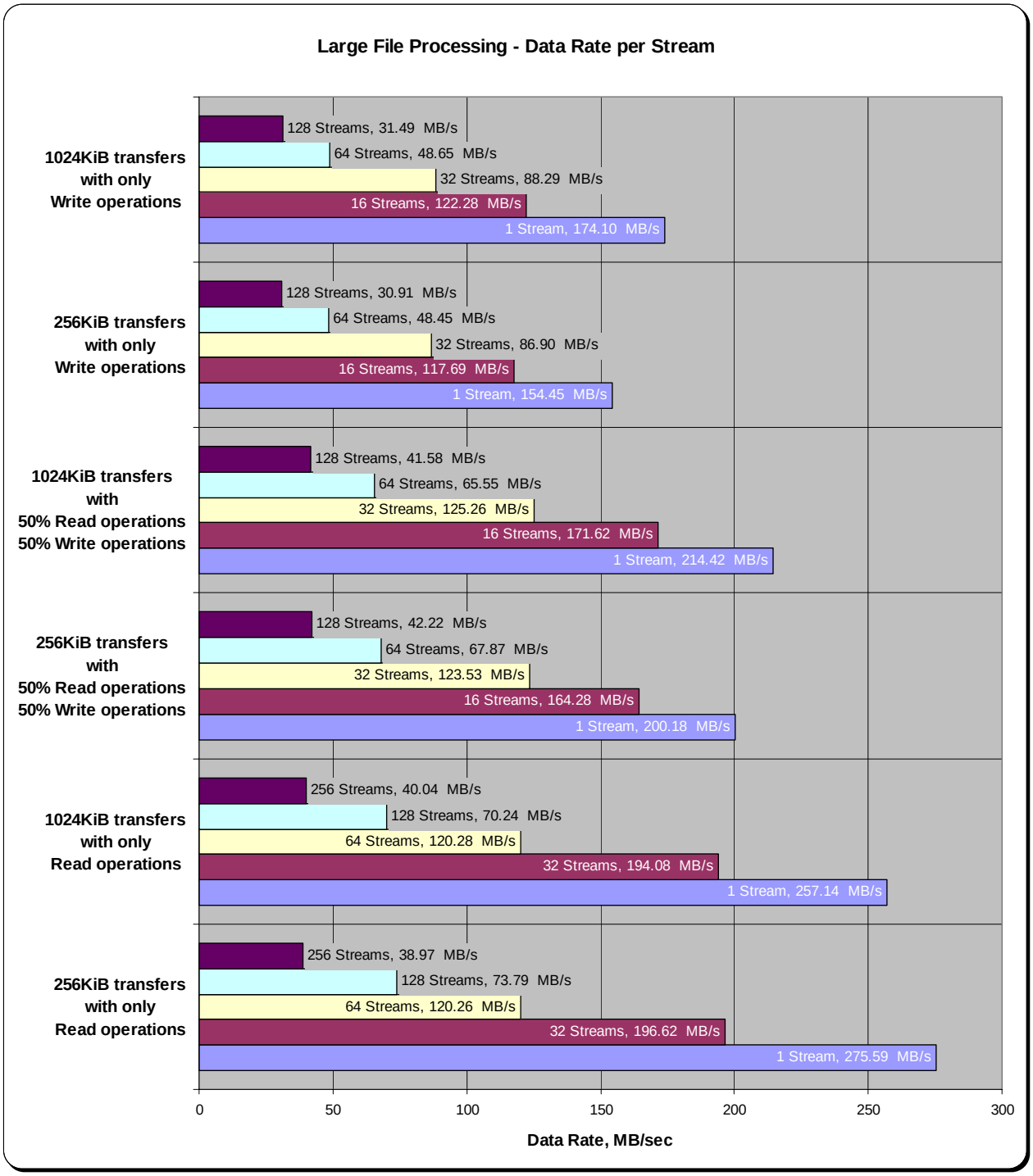


SPC-2 Large File Processing Average Data Rate per Stream

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	16 Streams	32 Streams	64 Streams	128 Streams
Write 1024KiB	174.10	122.28	88.29	48.65	31.49
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Write 256KiB	154.45	117.69	86.90	48.45	30.91
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read/Write 1024KiB	214.42	171.62	125.26	65.55	41.58
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read/Write 256KiB	200.18	164.28	123.53	67.87	42.22
Test Run Sequence	**1 Stream**	**32 Streams**	**64 Streams**	**128 Streams**	**256 Streams**
Read 1024KiB	257.14	194.08	120.28	70.24	40.04
Test Run Sequence	**1 Stream**	**32 Streams**	**64 Streams**	**128 Streams**	**256 Streams**
Read 256KiB	275.59	196.62	120.26	73.79	38.97

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

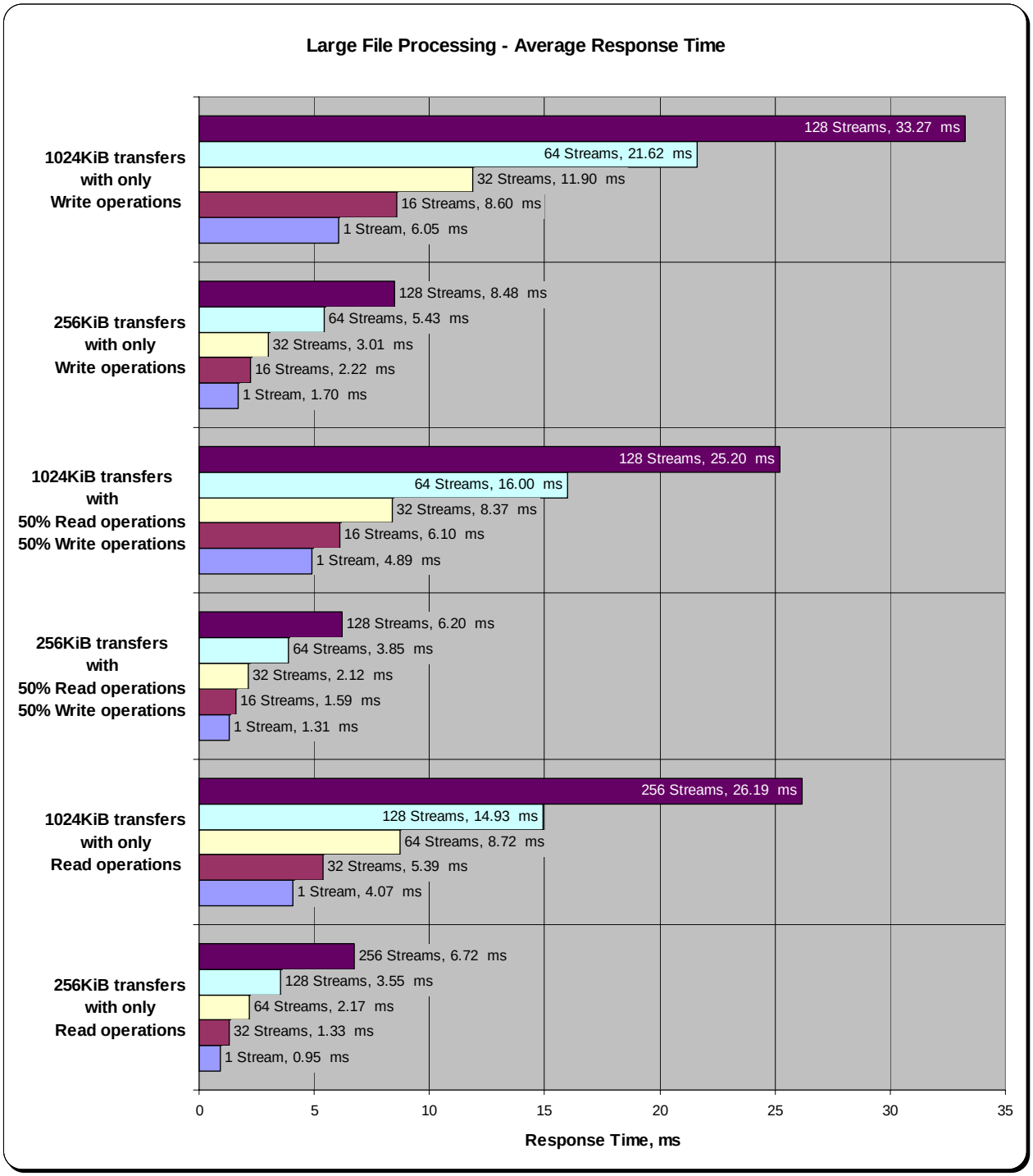


SPC-2 Large File Average Response Time

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	16 Streams	32 Streams	64 Streams	128 Streams
Write 1024KiB	6.05	8.60	11.90	21.62	33.27
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Write 256KiB	1.70	2.22	3.01	5.43	8.48
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read/Write 1024KiB	4.89	6.10	8.37	16.00	25.20
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read/Write 256KiB	1.31	1.59	2.12	3.85	6.20
Test Run Sequence	**1 Stream**	**32 Streams**	**64 Streams**	**128 Streams**	**256 Streams**
Read 1024KiB	4.07	5.39	8.72	14.93	26.19
Test Run Sequence	**1 Stream**	**32 Streams**	**64 Streams**	**128 Streams**	**256 Streams**
Read 256KiB	0.95	1.33	2.17	3.55	6.72

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.

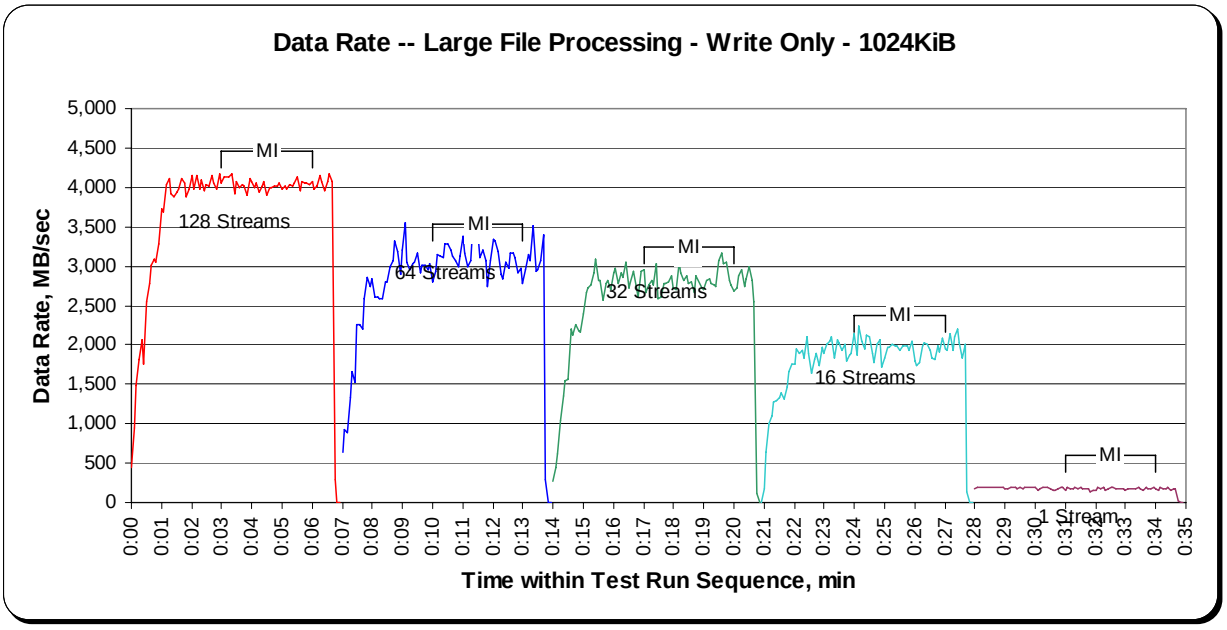
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR1	128 Streams			TR2	64 Streams			TR3	32 Streams			TR4	16 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	436.00	31.14	17.89	0:07:00	645.08	58.64	9.90	0:14:00	272.00	136.00	6.37	0:20:55	0.00	0.00	0.00	0:28:00	182.03	182.03	5.49
0:00:05	941.41	33.62	23.12	0:07:05	933.44	66.67	13.44	0:14:05	444.18	148.06	6.58	0:21:00	181.40	181.40	5.58	0:28:05	193.57	193.57	5.41
0:00:10	1,490.66	37.27	23.76	0:07:10	883.95	52.00	17.97	0:14:10	615.93	102.66	7.37	0:21:05	646.55	107.76	6.38	0:28:10	190.00	190.00	5.51
0:00:15	1,807.12	36.14	25.90	0:07:15	1,325.82	63.13	16.09	0:14:15	1,048.16	95.29	8.45	0:21:10	1,008.52	144.07	6.64	0:28:15	191.26	191.26	5.48
0:00:20	2,074.50	32.93	28.88	0:07:20	1,651.93	56.96	15.91	0:14:20	1,351.40	96.53	10.06	0:21:15	1,105.20	138.15	7.03	0:28:20	188.53	188.53	5.56
0:00:25	1,762.87	25.55	39.03	0:07:25	1,531.76	42.55	21.38	0:14:25	1,543.08	90.77	11.11	0:21:20	1,278.84	142.09	7.15	0:28:25	191.68	191.68	5.46
0:00:30	2,553.91	34.05	30.18	0:07:30	2,253.81	51.22	18.66	0:14:30	1,555.25	70.69	12.46	0:21:25	1,300.86	130.09	7.61	0:28:30	191.05	191.05	5.43
0:00:35	2,786.28	33.57	29.72	0:07:35	2,259.89	48.08	20.85	0:14:35	2,200.75	100.03	10.48	0:21:30	1,334.84	133.48	7.85	0:28:35	187.07	187.07	5.66
0:00:40	3,003.33	32.64	30.36	0:07:40	2,196.14	43.06	23.27	0:14:40	2,121.06	96.41	10.87	0:21:35	1,396.70	126.97	7.99	0:28:40	194.41	194.41	5.39
0:00:45	3,089.10	31.85	32.06	0:07:45	2,586.63	49.74	20.95	0:14:45	2,260.10	90.40	10.97	0:21:40	1,310.51	119.14	8.80	0:28:45	186.65	186.65	5.62
0:00:50	3,058.28	30.58	33.82	0:07:50	2,864.71	55.09	18.99	0:14:50	2,183.55	87.34	12.02	0:21:45	1,460.04	112.31	8.18	0:28:50	192.31	192.31	5.45
0:00:55	3,287.08	31.01	32.31	0:07:55	2,743.28	49.88	20.14	0:14:55	2,169.50	86.78	12.08	0:21:50	1,665.98	128.15	8.18	0:28:55	189.79	189.79	5.52
0:01:00	3,734.82	34.26	30.45	0:08:00	2,835.56	51.56	20.32	0:15:00	2,389.70	91.91	10.98	0:21:55	1,760.98	125.78	8.05	0:29:00	175.11	175.11	5.98
0:01:05	3,693.50	32.40	31.58	0:08:05	2,615.36	46.70	22.18	0:15:05	2,672.61	95.45	10.64	0:22:00	1,753.43	125.24	8.37	0:29:05	182.87	182.87	5.73
0:01:10	4,027.37	33.84	30.10	0:08:10	2,608.44	44.97	23.09	0:15:10	2,722.52	97.23	10.78	0:22:05	1,954.97	139.64	7.50	0:29:10	190.21	190.21	5.51
0:01:15	4,118.39	34.32	30.49	0:08:15	2,584.32	44.56	23.50	0:15:15	2,768.24	95.46	10.70	0:22:10	1,884.71	134.62	7.79	0:29:15	188.11	188.11	5.57
0:01:20	3,920.21	31.87	32.29	0:08:20	2,596.06	41.21	24.17	0:15:20	2,915.46	97.18	10.54	0:22:15	1,930.64	137.90	7.60	0:29:20	183.92	183.92	5.70
0:01:25	3,871.97	30.25	34.19	0:08:25	2,790.26	43.60	23.93	0:15:25	3,093.93	96.69	10.46	0:22:20	1,825.78	121.72	8.18	0:29:25	179.52	179.52	5.84
0:01:30	3,943.07	30.81	34.09	0:08:30	2,805.78	43.84	23.89	0:15:30	2,823.61	88.24	11.88	0:22:25	2,102.60	131.41	7.61	0:29:30	185.18	185.18	5.65
0:01:35	3,979.56	31.09	33.75	0:08:35	2,983.20	46.61	22.53	0:15:35	2,822.56	88.20	11.89	0:22:30	1,893.73	118.36	8.86	0:29:35	174.27	174.27	6.01
0:01:40	4,109.79	32.11	32.65	0:08:40	3,066.67	47.92	21.88	0:15:40	2,573.42	80.42	13.03	0:22:35	1,644.17	102.76	9.79	0:29:40	193.36	193.36	5.42
0:01:45	4,050.86	31.65	33.15	0:08:45	3,323.57	51.93	20.18	0:15:45	2,786.70	87.08	12.04	0:22:40	1,810.05	113.13	9.26	0:29:45	187.70	187.70	5.58
0:01:50	3,880.36	30.32	34.60	0:08:50	3,194.59	49.92	20.97	0:15:50	2,810.39	87.82	11.93	0:22:45	1,897.92	118.62	8.84	0:29:50	188.74	188.74	5.55
0:01:55	3,975.57	31.06	33.79	0:08:55	2,904.56	45.38	23.13	0:15:55	2,703.65	84.49	12.40	0:22:50	1,740.43	108.78	9.64	0:29:55	191.89	191.89	5.46
0:02:00	4,141.04	32.35	32.33	0:09:00	3,195.43	49.93	21.03	0:16:00	2,923.43	91.36	11.49	0:22:55	1,963.98	122.75	8.53	0:30:00	186.44	186.44	5.62
0:02:05	3,974.10	31.05	33.71	0:09:05	3,545.24	55.39	18.93	0:16:05	2,970.62	92.83	11.30	0:23:00	1,895.62	118.48	8.85	0:30:05	159.17	159.17	6.56
0:02:10	4,142.29	32.36	32.48	0:09:10	3,055.76	47.75	21.88	0:16:10	2,787.32	87.10	12.04	0:23:05	2,017.25	126.08	8.32	0:30:10	173.43	173.43	6.06
0:02:15	3,969.28	31.01	33.87	0:09:15	2,948.81	46.08	22.83	0:16:15	2,915.67	91.11	11.50	0:23:10	2,047.24	127.95	8.19	0:30:15	187.70	187.70	5.58
0:02:20	4,098.88	32.02	32.68	0:09:20	3,038.77	47.48	22.09	0:16:20	2,849.19	89.04	11.77	0:23:15	2,110.15	131.88	7.95	0:30:20	185.39	185.39	5.65
0:02:25	3,947.89	30.84	34.08	0:09:25	3,041.50	47.52	22.07	0:16:25	3,051.15	95.35	11.00	0:23:20	1,827.25	114.20	9.16	0:30:25	185.39	185.39	5.65
0:02:30	4,039.74	31.56	33.19	0:09:30	3,157.89	49.34	21.25	0:16:30	2,730.07	85.31	12.29	0:23:25	2,068.84	129.30	8.12	0:30:30	176.37	176.37	5.94
0:02:35	4,011.43	31.34	33.51	0:09:35	2,915.67	45.56	23.01	0:16:35	2,791.94	87.25	12.00	0:23:30	2,021.44	126.34	8.30	0:30:35	156.87	156.87	6.68
0:02:40	4,148.59	32.41	32.30	0:09:40	3,018.43	47.16	22.25	0:16:40	2,941.05	91.91	11.42	0:23:35	1,923.72	120.23	8.72	0:30:40	150.79	150.79	6.95
0:02:45	4,050.23	31.64	33.18	0:09:45	3,014.03	47.09	22.22	0:16:45	2,716.02	84.88	12.34	0:23:40	2,000.47	125.03	8.38	0:30:45	177.63	177.63	5.89
0:02:50	3,968.86	31.01	33.81	0:09:50	2,953.42	46.15	22.70	0:16:50	2,597.95	81.19	12.92	0:23:45	1,801.24	112.58	9.31	0:30:50	190.84	190.84	5.50
0:02:55	4,166.62	32.55	32.24	0:09:55	3,033.53	47.40	22.14	0:16:55	2,928.46	91.51	11.45	0:23:50	1,879.68	117.48	8.92	0:30:55	184.97	184.97	5.66
												0:23:55	1,901.28	118.83	8.83				

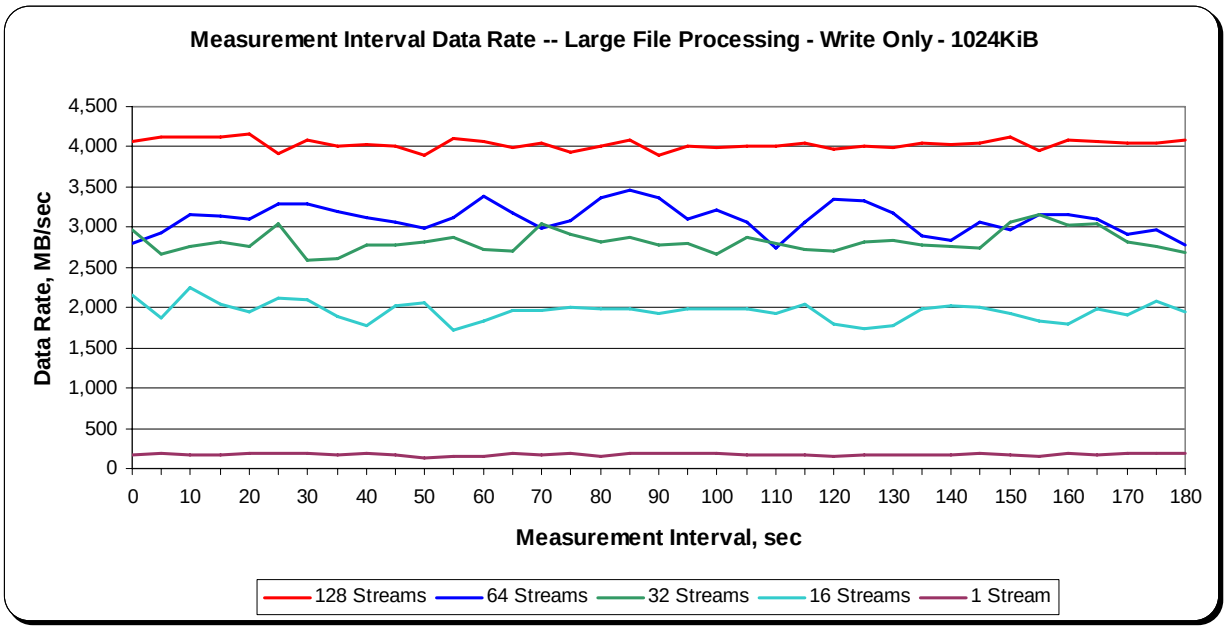
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	128 Streams			TR2	64 Streams			TR3	32 Streams			TR4	16 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	4,063.65	31.75	33.01	0:10:00	2,792.99	43.64	24.04	0:17:00	2,960.34	92.51	11.33	0:24:00	2,149.58	134.35	7.79	0:31:00	161.69	161.69	6.48
0:03:05	4,125.94	32.23	32.53	0:10:05	2,936.01	45.88	22.91	0:17:05	2,667.37	83.36	12.56	0:24:05	1,879.68	117.48	8.92	0:31:05	183.50	183.50	5.71
0:03:10	4,122.79	32.21	32.59	0:10:10	3,150.97	49.23	21.29	0:17:10	2,768.24	86.51	12.13	0:24:10	2,245.84	140.37	7.48	0:31:10	176.79	176.79	5.93
0:03:15	4,121.74	32.20	32.52	0:10:15	3,132.52	48.95	21.41	0:17:15	2,819.62	88.11	11.90	0:24:15	2,039.48	127.47	8.22	0:31:15	167.77	167.77	6.24
0:03:20	4,164.31	32.53	32.25	0:10:20	3,100.64	48.45	21.65	0:17:20	2,760.27	86.26	12.15	0:24:20	1,940.49	121.28	8.64	0:31:20	188.32	188.32	5.57
0:03:25	3,922.93	30.65	32.85	0:10:25	3,289.59	51.40	20.40	0:17:25	3,037.93	94.94	11.04	0:24:25	2,123.37	132.71	7.90	0:31:25	182.03	182.03	5.75
0:03:30	4,078.12	31.86	32.92	0:10:30	3,283.30	51.30	20.45	0:17:30	2,596.27	81.13	12.90	0:24:30	2,104.70	131.54	7.96	0:31:30	190.21	190.21	5.51
0:03:35	4,002.62	31.27	33.55	0:10:35	3,197.53	49.96	20.95	0:17:35	2,612.42	81.64	12.85	0:24:35	1,883.87	117.74	8.91	0:31:35	173.64	173.64	6.04
0:03:40	4,026.74	31.46	33.34	0:10:40	3,119.93	48.75	21.55	0:17:40	2,783.97	87.00	12.05	0:24:40	1,784.47	111.53	9.40	0:31:40	181.19	181.19	5.78
0:03:45	4,007.45	31.31	33.49	0:10:45	3,061.21	47.83	21.92	0:17:45	2,775.37	86.73	12.10	0:24:45	2,016.20	126.01	8.32	0:31:45	167.14	167.14	6.26
0:03:50	3,895.25	30.43	34.49	0:10:50	2,982.99	46.61	22.51	0:17:50	2,808.09	87.75	11.95	0:24:50	2,059.19	128.70	8.14	0:31:50	135.69	135.69	7.73
0:03:55	4,103.92	32.06	32.71	0:10:55	3,125.60	48.84	21.46	0:17:55	2,880.23	90.01	11.65	0:24:55	1,724.28	107.77	9.73	0:31:55	158.75	158.75	6.60
0:04:00	4,065.96	31.77	32.99	0:11:00	3,379.14	52.80	19.84	0:18:00	2,720.64	85.02	12.33	0:25:00	1,829.14	114.32	9.17	0:32:00	151.20	151.20	6.93
0:04:05	3,986.69	31.15	33.66	0:11:05	3,174.04	49.59	21.15	0:18:05	2,698.82	84.34	12.43	0:25:05	1,968.81	123.05	8.52	0:32:05	184.13	184.13	5.69
0:04:10	4,047.71	31.62	33.20	0:11:10	2,994.52	46.79	22.40	0:18:10	3,051.36	95.35	10.99	0:25:10	1,966.29	122.89	8.53	0:32:10	165.05	165.05	6.35
0:04:15	3,933.00	30.73	34.05	0:11:15	3,076.73	48.07	21.84	0:18:15	2,919.03	91.22	11.46	0:25:15	2,010.96	125.68	8.34	0:32:15	191.47	191.47	5.47
0:04:20	4,006.82	31.30	33.55	0:11:20	3,373.69	52.71	19.89	0:18:20	2,821.09	88.16	11.93	0:25:20	1,987.89	124.24	8.43	0:32:20	149.74	149.74	7.00
0:04:25	4,077.28	31.85	32.90	0:11:25	3,457.99	54.03	19.41	0:18:25	2,881.49	90.05	11.63	0:25:25	1,982.02	123.88	8.46	0:32:25	183.29	183.29	5.72
0:04:30	3,904.27	30.50	34.43	0:11:30	3,357.33	52.46	19.96	0:18:30	2,777.89	86.81	12.07	0:25:30	1,924.98	120.31	8.72	0:32:30	193.78	193.78	5.40
0:04:35	4,001.79	31.26	33.51	0:11:35	3,102.11	48.47	21.63	0:18:35	2,801.38	87.54	11.99	0:25:35	1,979.08	123.69	8.47	0:32:35	189.37	189.37	5.54
0:04:40	3,996.54	31.22	33.56	0:11:40	3,210.74	50.17	20.91	0:18:40	2,672.82	83.53	12.54	0:25:40	1,983.49	123.97	8.45	0:32:40	181.40	181.40	5.77
0:04:45	4,014.58	31.36	33.48	0:11:45	3,071.49	47.99	21.85	0:18:45	2,879.60	89.99	11.65	0:25:45	1,992.29	124.52	8.42	0:32:45	170.29	170.29	5.91
0:04:50	4,011.01	31.34	33.45	0:11:50	2,739.51	42.80	24.50	0:18:50	2,791.31	87.23	12.02	0:25:50	1,929.17	120.57	8.69	0:32:50	171.76	171.76	6.10
0:04:55	4,046.66	31.61	33.16	0:11:55	3,065.20	47.89	21.90	0:18:55	2,716.23	84.88	12.35	0:25:55	2,037.17	127.32	8.24	0:32:55	169.24	169.24	6.19
0:05:00	3,967.39	31.00	33.81	0:12:00	3,339.50	52.18	20.08	0:19:00	2,701.13	84.41	12.41	0:26:00	1,795.16	112.20	9.32	0:33:00	154.35	154.35	6.78
0:05:05	4,017.30	31.39	33.47	0:12:05	3,328.60	52.01	20.17	0:19:05	2,820.25	88.13	11.88	0:26:05	1,735.18	108.45	9.69	0:33:05	165.68	165.68	6.33
0:05:10	3,983.12	31.12	33.70	0:12:10	3,177.60	49.65	21.03	0:19:10	2,830.53	88.45	11.85	0:26:10	1,777.13	111.07	9.44	0:33:10	177.00	177.00	5.92
0:05:15	4,038.28	31.55	33.22	0:12:15	2,892.18	45.19	23.22	0:19:15	2,777.26	86.79	12.10	0:26:15	1,990.62	124.41	8.42	0:33:15	174.27	174.27	6.02
0:05:20	4,023.81	31.44	33.40	0:12:20	2,834.93	44.30	23.76	0:19:20	2,765.30	86.42	12.12	0:26:20	2,021.44	126.34	8.27	0:33:20	171.76	171.76	6.10
0:05:25	4,049.39	31.64	33.16	0:12:25	3,057.44	47.77	21.95	0:19:25	2,739.30	85.60	12.25	0:26:25	2,010.33	125.65	8.38	0:33:25	184.34	184.34	5.68
0:05:30	4,126.57	32.24	32.51	0:12:30	2,964.95	46.33	22.63	0:19:30	3,063.52	95.73	10.96	0:26:30	1,933.36	120.84	8.67	0:33:30	178.26	178.26	5.88
0:05:35	3,951.24	30.87	34.01	0:12:35	3,165.86	49.47	21.18	0:19:35	3,159.78	98.74	10.63	0:26:35	1,834.38	114.65	9.14	0:33:35	155.40	155.40	6.74
0:05:40	4,076.23	31.85	32.89	0:12:40	3,165.86	49.47	21.18	0:19:40	3,031.85	94.75	11.06	0:26:40	1,805.44	112.84	9.29	0:33:40	186.86	186.86	5.61
0:05:45	4,057.57	31.70	33.10	0:12:45	3,098.96	48.42	21.68	0:19:45	3,041.50	95.05	11.03	0:26:45	1,994.60	124.66	8.41	0:33:45	179.10	179.10	5.85
0:05:50	4,050.23	31.64	33.16	0:12:50	2,918.40	45.60	22.99	0:19:50	2,822.98	88.22	11.88	0:26:50	1,904.63	119.04	8.80	0:33:50	182.87	182.87	5.73
0:05:55	4,042.47	31.58	33.15	0:12:55	2,971.66	46.43	22.55	0:19:55	2,754.82	86.09	12.16	0:26:55	2,088.55	130.53	8.03	0:33:55	190.42	190.42	5.50
0:06:00	4,079.38	31.87	32.96	0:13:00	2,782.50	43.48	24.14	0:20:00	2,685.82	83.93	12.49	0:27:00	1,948.67	121.79	8.61	0:34:00	181.40	181.40	5.77
0:06:05	3,986.27	31.14	33.67	0:13:05	2,958.87	46.23	22.14	0:20:05	2,722.10	85.07	12.35	0:27:05	1,925.81	120.36	8.70	0:34:05	161.48	161.48	6.49
0:06:10	4,016.47	31.38	33.41	0:13:10	3,143.00	49.11	21.04	0:20:10	2,878.76	89.96	11.66	0:27:10	2,143.08	133.94	7.84	0:34:10	184.55	184.55	5.68
0:06:15	4,143.55	32.37	32.39	0:13:15	3,063.10	47.86	21.91	0:20:15	2,947.97	92.12	11.37	0:27:15	1,938.61	121.16	8.65	0:34:15	181.19	181.19	5.78
0:06:20	4,082.53	31.89	32.89	0:13:20	3,521.75	55.03	19.05	0:20:20	2,745.38	85.79	12.22	0:27:20	2,101.35	131.33	7.98	0:34:20	175.95	175.95	5.95
0:06:25	3,965.29	30.98	33.88	0:13:25	2,936.85	45.89	22.86	0:20:25	2,828.85	88.40	11.87	0:27:25	2,204.74	137.80	7.61	0:34:25	183.50	183.50	5.70
0:06:30	4,078.75	31.87	32.91	0:13:30	2,960.97	46.27	22.65	0:20:30	2,991.80	93.49	11.20	0:27:30	2,029.41	126.84	8.26	0:34:30	155.61	155.61	6.74
0:06:35	4,164.52	32.54	32.18	0:13:35	3,073.80	48.03	21.85	0:20:35	2,819.41	88.11	11.90	0:27:35	1,836.90	114.81	9.13	0:34:35	176.16	176.16	5.95
0:06:40	4,067.43	31.78	32.94	0:13:40	3,406.40	53.23	19.70	0:20:40	2,557.06	79.91	13.10	0:27:40	2,015.15	125.95	8.32	0:34:40	168.19	168.19	6.23
0:06:45	298.63	0.00	36.27	0:13:45	296.54	0.00	17.60	0:20:45	114.92	0.00	14.20	0:27:45	126.88	0.00	7.50	0:34:45	11.53	0.00	5.40
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					0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

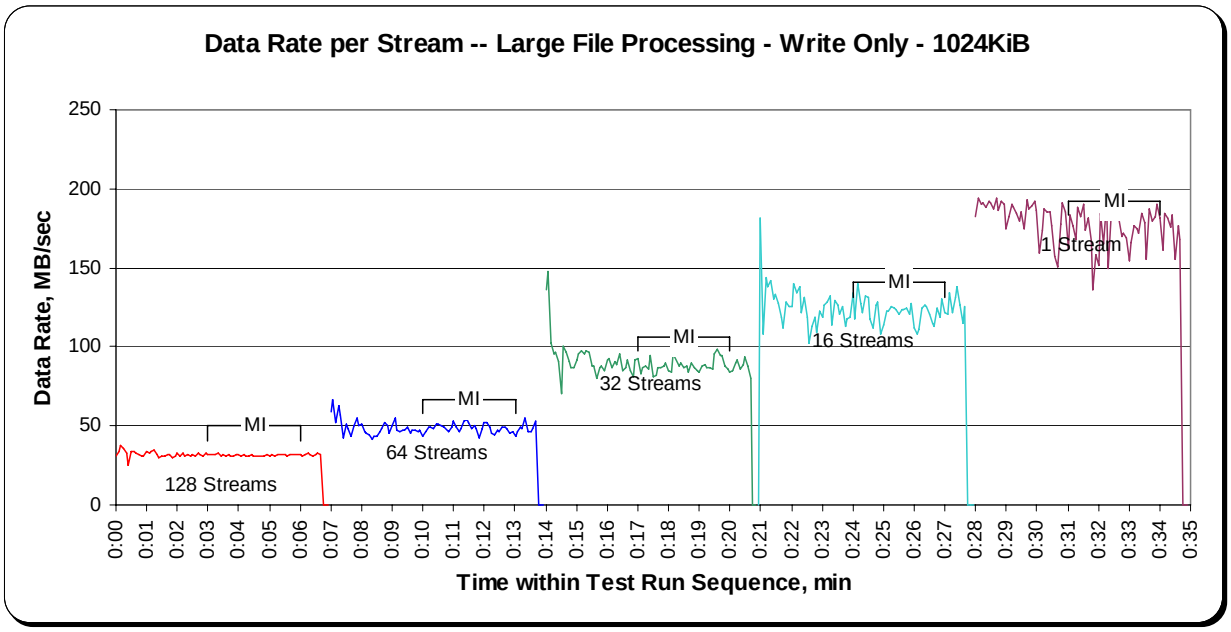
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



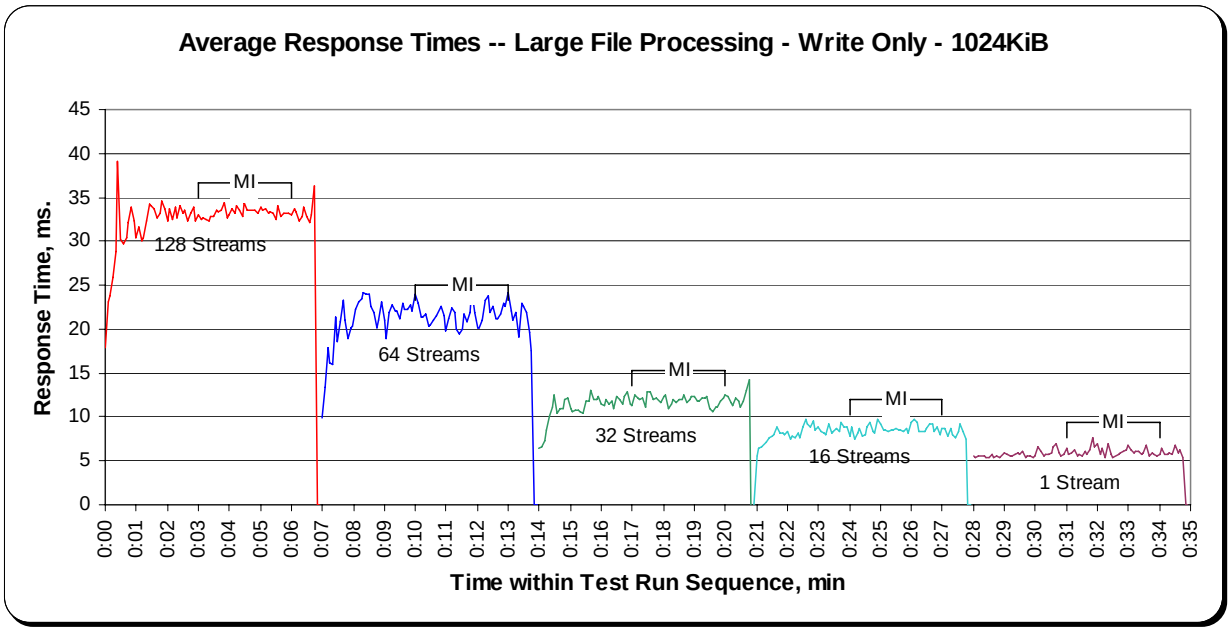
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



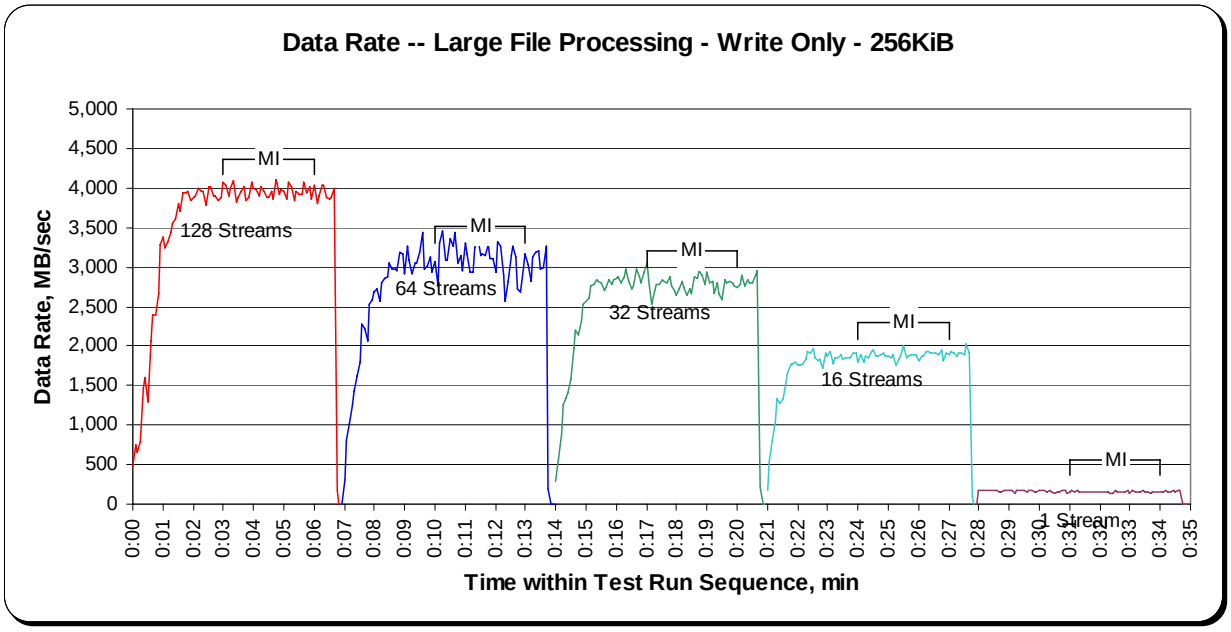
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR6	128 Streams			TR7	64 Streams			TR8	32 Streams			TR9	16 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	482.71	34.48	4.56	0:06:55	0.00	0.00	0.00	0:14:00	297.48	74.37	1.68	0:21:00	169.87	84.93	1.58	0:27:55	0.00	0.00	0.00
0:00:05	749.73	35.70	6.53	0:07:00	316.67	52.78	2.03	0:14:05	574.31	114.86	2.01	0:21:05	541.48	90.25	1.83	0:28:00	164.94	164.94	1.53
0:00:10	649.33	22.39	10.39	0:07:05	809.55	67.46	2.99	0:14:10	881.96	88.20	2.31	0:21:10	816.84	116.69	1.92	0:28:05	170.76	170.76	1.53
0:00:15	787.32	21.87	10.97	0:07:10	1,027.92	54.10	4.09	0:14:15	1,252.21	96.32	2.43	0:21:15	1,042.13	115.79	2.00	0:28:10	170.50	170.50	1.53
0:00:20	1,458.88	33.16	7.48	0:07:15	1,262.38	54.89	4.35	0:14:20	1,353.40	90.23	2.65	0:21:20	1,332.11	133.21	1.94	0:28:15	170.13	170.13	1.54
0:00:25	1,598.08	29.06	8.12	0:07:20	1,432.56	55.10	4.47	0:14:25	1,410.65	88.17	2.81	0:21:25	1,270.72	115.52	2.11	0:28:20	170.24	170.24	1.53
0:00:30	1,294.52	19.92	12.38	0:07:25	1,630.90	54.36	4.57	0:14:30	1,574.38	82.86	2.81	0:21:30	1,339.29	111.61	2.22	0:28:25	168.45	168.45	1.55
0:00:35	2,068.89	26.19	9.10	0:07:30	1,786.72	47.02	5.12	0:14:35	1,960.31	89.11	2.72	0:21:35	1,433.93	110.30	2.19	0:28:30	172.65	172.65	1.51
0:00:40	2,402.08	27.93	9.09	0:07:35	2,274.78	51.70	4.59	0:14:40	2,207.51	91.98	2.71	0:21:40	1,653.66	118.12	2.11	0:28:35	169.71	169.71	1.54
0:00:45	2,397.67	24.98	9.87	0:07:40	2,225.34	47.35	5.33	0:14:45	2,148.74	89.53	2.92	0:21:45	1,765.23	117.68	2.12	0:28:40	155.08	155.08	1.68
0:00:50	2,672.24	26.72	9.62	0:07:45	2,057.46	41.15	6.27	0:14:50	2,316.99	85.81	2.87	0:21:50	1,782.68	118.85	2.20	0:28:45	160.90	160.90	1.62
0:00:55	3,283.35	31.57	8.12	0:07:50	2,525.60	49.52	5.19	0:14:55	2,535.25	93.90	2.79	0:21:55	1,788.29	119.22	2.19	0:28:50	164.52	164.52	1.59
0:01:00	3,386.90	31.65	8.14	0:07:55	2,594.23	48.04	5.11	0:15:00	2,563.72	94.95	2.76	0:22:00	1,748.66	116.58	2.24	0:28:55	171.08	171.08	1.53
0:01:05	3,248.33	28.00	8.87	0:08:00	2,678.53	46.99	5.43	0:15:05	2,605.19	93.04	2.79	0:22:05	1,763.44	117.56	2.22	0:29:00	170.39	170.39	1.53
0:01:10	3,319.27	27.89	9.29	0:08:05	2,717.38	45.29	5.65	0:15:10	2,754.19	91.81	2.76	0:22:10	1,780.53	111.28	2.26	0:29:05	169.19	169.19	1.54
0:01:15	3,429.73	27.88	9.23	0:08:10	2,560.83	40.65	6.35	0:15:15	2,784.23	92.81	2.82	0:22:15	1,842.14	115.13	2.27	0:29:10	136.11	136.11	1.92
0:01:20	3,549.74	27.95	9.11	0:08:15	2,794.51	44.36	5.90	0:15:20	2,847.25	88.98	2.87	0:22:20	1,936.25	121.02	2.16	0:29:15	165.52	165.52	1.58
0:01:25	3,614.91	28.24	9.27	0:08:20	2,866.49	45.50	5.76	0:15:25	2,811.34	87.85	2.98	0:22:25	1,920.10	120.01	2.18	0:29:20	165.15	165.15	1.58
0:01:30	3,801.72	29.70	8.82	0:08:25	2,877.82	44.97	5.76	0:15:30	2,802.21	87.57	2.99	0:22:30	1,976.36	123.52	2.12	0:29:25	167.30	167.30	1.56
0:01:35	3,713.22	29.01	9.03	0:08:30	3,047.58	47.62	5.50	0:15:35	2,701.97	84.44	3.10	0:22:35	1,844.55	115.28	2.27	0:29:30	165.99	165.99	1.57
0:01:40	3,935.99	30.75	8.53	0:08:35	2,979.27	46.55	5.62	0:15:40	2,731.91	85.37	3.07	0:22:40	1,807.12	112.94	2.31	0:29:35	161.17	161.17	1.62
0:01:45	3,946.26	30.83	8.50	0:08:40	2,979.11	46.55	5.63	0:15:45	2,831.16	88.47	2.96	0:22:45	1,828.24	114.27	2.29	0:29:40	170.97	170.97	1.53
0:01:50	3,965.19	30.98	8.45	0:08:45	2,959.66	46.24	5.66	0:15:50	2,777.00	86.78	3.01	0:22:50	1,712.17	107.01	2.44	0:29:45	165.99	165.99	1.57
0:01:55	3,848.43	30.07	8.71	0:08:50	3,186.88	49.80	5.26	0:15:55	2,832.41	88.51	2.96	0:22:55	1,905.21	119.08	2.20	0:29:50	158.96	158.96	1.64
0:02:00	3,881.57	30.32	8.64	0:08:55	3,158.73	49.36	5.31	0:16:00	2,855.53	89.24	2.93	0:23:00	1,881.51	117.59	2.22	0:29:55	150.94	150.94	1.66
0:02:05	3,898.03	30.45	8.61	0:09:00	2,917.77	45.59	5.75	0:16:05	2,867.96	89.62	2.92	0:23:05	1,929.54	120.60	2.17	0:30:00	172.02	172.02	1.52
0:02:10	4,001.73	31.26	8.38	0:09:05	3,259.13	50.92	5.14	0:16:10	2,807.30	87.73	2.98	0:23:10	1,778.91	111.18	2.35	0:30:05	171.34	171.34	1.52
0:02:15	3,965.09	30.98	8.46	0:09:10	3,094.19	48.35	5.42	0:16:15	2,877.19	89.91	2.91	0:23:15	1,844.13	115.26	2.27	0:30:10	165.05	165.05	1.58
0:02:20	3,948.52	30.85	8.49	0:09:15	2,918.97	45.61	5.74	0:16:20	2,969.72	92.80	2.82	0:23:20	1,860.96	116.31	2.25	0:30:15	158.49	158.49	1.65
0:02:25	3,775.61	29.50	8.89	0:09:20	3,042.81	47.54	5.51	0:16:25	2,823.40	88.23	2.97	0:23:25	1,884.66	117.79	2.22	0:30:20	164.57	164.57	1.59
0:02:30	4,023.39	31.43	8.34	0:09:25	3,054.29	47.72	5.49	0:16:30	2,718.33	84.95	3.08	0:23:30	1,840.67	115.04	2.27	0:30:25	163.42	163.42	1.60
0:02:35	4,019.30	31.40	8.35	0:09:30	3,176.45	49.63	5.28	0:16:35	2,760.80	86.27	3.03	0:23:35	1,855.93	116.00	2.25	0:30:30	144.34	144.34	1.81
0:02:40	3,890.53	30.39	8.62	0:09:35	3,431.10	53.61	4.89	0:16:40	2,967.16	92.72	2.82	0:23:40	1,845.60	115.35	2.27	0:30:35	144.81	144.81	1.81
0:02:45	3,898.29	30.46	8.60	0:09:40	2,965.06	46.33	5.65	0:16:45	2,883.95	90.12	2.90	0:23:45	1,848.80	115.55	2.26	0:30:40	145.18	145.18	1.80
0:02:50	3,842.98	30.02	8.73	0:09:45	3,020.58	47.20	5.54	0:16:50	2,803.16	87.60	2.99	0:23:50	1,906.78	119.17	2.19	0:30:45	169.50	169.50	1.54
0:02:55	3,878.94	30.30	8.65	0:09:50	3,117.89	48.72	5.38	0:16:55	2,937.11	91.78	2.85	0:23:55	1,912.24	119.51	2.19	0:30:50	165.99	165.99	1.57
				0:09:55	2,943.72	46.00	5.70									0:30:55	144.55	144.55	1.81

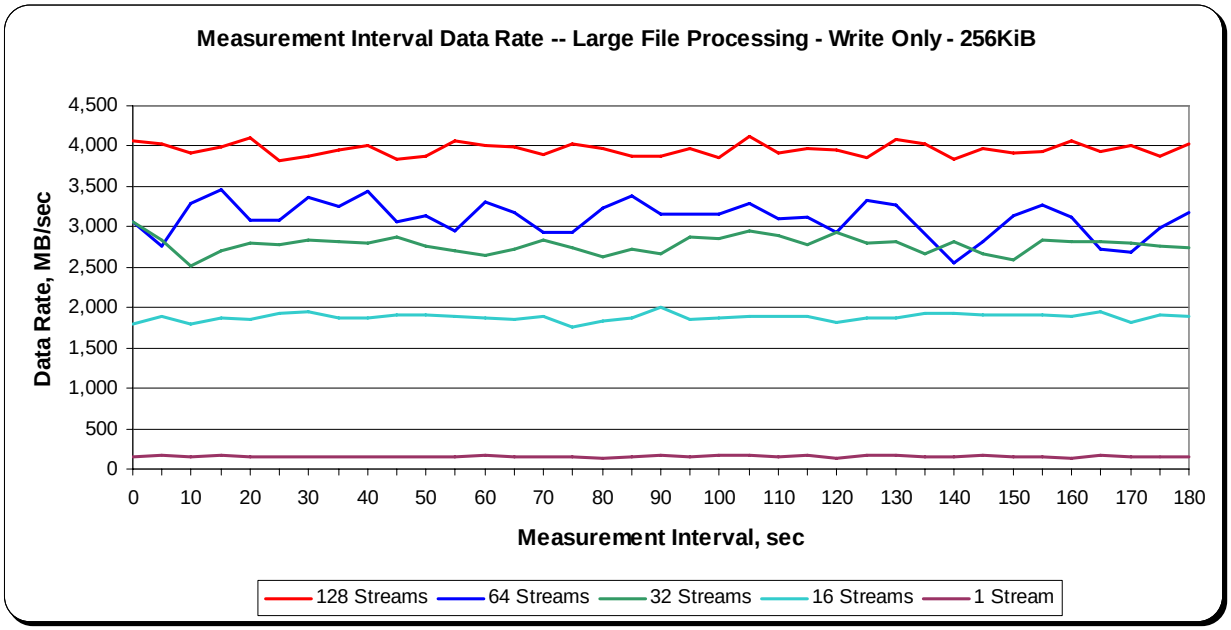
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	128 Streams			TR7	64 Streams			TR8	32 Streams			TR9	16 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	4,070.68	31.80	8.24	0:10:00	3,065.30	47.90	5.47	0:17:00	3,058.43	95.58	2.74	0:24:00	1,794.95	112.18	2.33	0:31:00	149.58	149.58	1.75
0:03:05	4,027.00	31.46	8.33	0:10:05	2,767.93	43.25	6.06	0:17:05	2,840.70	88.77	2.95	0:24:05	1,897.40	118.59	2.21	0:31:05	164.73	164.73	1.59
0:03:10	3,905.47	30.51	8.58	0:10:10	3,297.25	51.52	5.08	0:17:10	2,521.41	78.79	3.32	0:24:10	1,791.65	111.98	2.33	0:31:10	151.41	151.41	1.73
0:03:15	3,987.00	31.15	8.41	0:10:15	3,461.19	54.08	4.84	0:17:15	2,710.25	84.70	3.09	0:24:15	1,878.26	117.39	2.23	0:31:15	165.52	165.52	1.58
0:03:20	4,096.26	32.00	8.19	0:10:20	3,079.67	48.12	5.44	0:17:20	2,789.11	87.16	3.00	0:24:20	1,861.75	116.36	2.25	0:31:20	145.07	145.07	1.80
0:03:25	3,814.09	29.80	8.80	0:10:25	3,080.66	48.14	5.44	0:17:25	2,782.03	86.94	3.01	0:24:25	1,922.51	120.16	2.18	0:31:25	148.32	148.32	1.76
0:03:30	3,880.67	30.32	8.64	0:10:30	3,365.93	52.59	4.98	0:17:30	2,835.87	88.62	2.95	0:24:30	1,955.17	122.20	2.14	0:31:30	147.43	147.43	1.77
0:03:35	3,950.93	30.87	8.48	0:10:35	3,261.39	50.96	5.14	0:17:35	2,818.73	88.09	2.97	0:24:35	1,875.27	117.20	2.23	0:31:35	158.96	158.96	1.64
0:03:40	4,014.26	31.36	8.36	0:10:40	3,435.34	53.68	4.88	0:17:40	2,800.27	87.51	2.99	0:24:40	1,872.70	117.04	2.23	0:31:40	152.25	152.25	1.72
0:03:45	3,843.97	30.03	8.73	0:10:45	3,055.13	47.74	5.48	0:17:45	2,877.14	89.91	2.91	0:24:45	1,901.28	118.83	2.20	0:31:45	156.13	156.13	1.67
0:03:50	3,879.21	30.31	8.65	0:10:50	3,142.16	49.10	5.33	0:17:50	2,764.68	86.40	3.03	0:24:50	1,916.01	119.75	2.18	0:31:50	148.85	148.85	1.76
0:03:55	4,070.73	31.80	8.24	0:10:55	2,949.07	46.08	5.69	0:17:55	2,703.02	84.47	3.10	0:24:55	1,881.36	117.58	2.22	0:31:55	155.40	155.40	1.68
0:04:00	4,001.58	31.26	8.38	0:11:00	3,309.52	51.71	5.06	0:18:00	2,638.06	82.44	3.18	0:25:00	1,874.07	117.13	2.23	0:32:00	161.53	161.53	1.62
0:04:05	3,986.27	31.14	8.42	0:11:05	3,169.43	49.52	5.29	0:18:05	2,718.70	84.96	3.08	0:25:05	1,859.49	116.22	2.25	0:32:05	149.79	149.79	1.74
0:04:10	3,900.39	30.47	8.60	0:11:10	2,927.83	45.75	5.72	0:18:10	2,826.80	88.34	2.96	0:25:10	1,895.14	118.45	2.21	0:32:10	155.61	155.61	1.68
0:04:15	4,022.76	31.43	8.34	0:11:15	2,929.72	45.78	5.73	0:18:15	2,746.38	85.82	3.05	0:25:15	1,758.30	109.89	2.38	0:32:15	148.79	148.79	1.76
0:04:20	3,961.94	30.95	8.47	0:11:20	3,241.25	50.64	5.17	0:18:20	2,636.91	82.40	3.18	0:25:20	1,840.20	115.01	2.27	0:32:20	130.18	130.18	2.01
0:04:25	3,871.87	30.25	8.66	0:11:25	3,385.07	52.89	4.95	0:18:25	2,717.75	84.93	3.08	0:25:25	1,875.85	117.24	2.23	0:32:25	142.29	142.29	1.84
0:04:30	3,879.52	30.31	8.65	0:11:30	3,154.33	49.29	5.32	0:18:30	2,669.78	83.43	3.14	0:25:30	1,999.32	124.96	2.09	0:32:30	166.99	166.99	1.56
0:04:35	3,965.45	30.98	8.46	0:11:35	3,158.15	49.35	5.31	0:18:35	2,875.25	89.85	2.91	0:25:35	1,849.27	115.58	2.26	0:32:35	152.31	152.31	1.72
0:04:40	3,866.31	30.21	8.68	0:11:40	3,148.51	49.20	5.32	0:18:40	2,854.54	89.20	2.93	0:25:40	1,863.53	116.47	2.25	0:32:40	164.05	164.05	1.59
0:04:45	4,115.61	32.15	8.15	0:11:45	3,283.83	51.31	5.11	0:18:45	2,957.61	92.43	2.83	0:25:45	1,890.95	118.18	2.21	0:32:45	162.79	162.79	1.61
0:04:50	3,910.30	30.55	8.58	0:11:50	3,105.04	48.52	5.40	0:18:50	2,887.31	90.23	2.78	0:25:50	1,889.85	118.12	2.21	0:32:50	159.17	159.17	1.64
0:04:55	3,967.55	31.00	8.45	0:11:55	3,114.69	48.67	5.38	0:18:55	2,777.21	86.79	3.02	0:25:55	1,888.33	118.02	2.22	0:32:55	164.26	164.26	1.59
0:05:00	3,956.38	30.91	8.48	0:12:00	2,936.43	45.88	5.70	0:19:00	2,931.35	91.60	2.86	0:26:00	1,822.84	113.93	2.29	0:33:00	135.37	135.37	1.93
0:05:05	3,859.97	30.16	8.69	0:12:05	3,320.58	51.88	5.05	0:19:05	2,800.33	87.51	2.99	0:26:05	1,878.68	117.42	2.23	0:33:05	173.02	173.02	1.51
0:05:10	4,081.90	31.89	8.22	0:12:10	3,271.66	51.12	5.12	0:19:10	2,821.19	88.16	2.97	0:26:10	1,875.01	117.19	2.23	0:33:10	162.21	162.21	1.61
0:05:15	4,019.51	31.40	8.34	0:12:15	2,904.50	45.38	5.77	0:19:15	2,666.48	83.33	3.14	0:26:15	1,936.46	121.03	2.16	0:33:15	158.65	158.65	1.65
0:05:20	3,842.09	30.02	8.73	0:12:20	2,560.15	40.00	6.55	0:19:20	2,807.98	87.75	2.98	0:26:20	1,927.34	120.46	2.17	0:33:20	152.36	152.36	1.72
0:05:25	3,965.14	30.98	8.46	0:12:25	2,823.50	44.12	5.94	0:19:25	2,656.93	83.03	3.15	0:26:25	1,910.77	119.42	2.19	0:33:25	164.31	164.31	1.59
0:05:30	3,913.39	30.57	8.57	0:12:30	3,138.13	49.03	5.34	0:19:30	2,595.44	81.11	3.23	0:26:30	1,917.53	119.85	2.18	0:33:30	150.58	150.58	1.73
0:05:35	3,927.81	30.69	8.54	0:12:35	3,270.67	51.10	5.13	0:19:35	2,831.68	88.49	2.96	0:26:35	1,917.27	119.83	2.18	0:33:35	154.77	154.77	1.69
0:05:40	4,064.07	31.75	8.25	0:12:40	3,125.86	48.84	5.36	0:19:40	2,807.88	87.75	2.98	0:26:40	1,894.72	118.42	2.21	0:33:40	135.48	135.48	1.93
0:05:45	3,930.17	30.70	8.54	0:12:45	2,729.39	42.65	6.15	0:19:45	2,826.38	88.32	2.96	0:26:45	1,949.62	121.85	2.15	0:33:45	161.69	161.69	1.62
0:05:50	4,006.08	31.30	8.37	0:12:50	2,677.96	41.84	6.26	0:19:50	2,797.13	87.41	2.99	0:26:50	1,816.82	113.55	2.30	0:33:50	153.09	153.09	1.71
0:05:55	3,869.93	30.23	8.67	0:12:55	2,987.03	46.67	5.61	0:19:55	2,756.18	86.13	3.04	0:26:55	1,912.13	119.51	2.19	0:33:55	157.29	157.29	1.66
0:06:00	4,029.31	31.48	8.32	0:13:00	3,169.79	49.53	5.29	0:20:00	2,742.18	85.69	3.05	0:27:00	1,889.48	118.09	2.21	0:34:00	159.70	159.70	1.64
0:06:05	3,803.81	29.72	8.82	0:13:05	3,034.26	47.41	5.52	0:20:05	2,772.07	86.63	3.02	0:27:05	1,927.60	120.47	2.17	0:34:05	161.27	161.27	1.62
0:06:10	3,899.34	30.46	8.60	0:13:10	2,819.46	44.05	5.95	0:20:10	2,889.46	90.30	2.90	0:27:10	1,907.67	119.23	2.19	0:34:10	164.57	164.57	1.59
0:06:15	4,030.67	31.49	8.32	0:13:15	3,131.89	48.94	5.35	0:20:15	2,763.47	86.36	3.03	0:27:15	1,876.27	117.27	2.23	0:34:15	148.27	148.27	1.76
0:06:20	4,030.31	31.49	8.32	0:13:20	3,189.14	49.83	5.26	0:20:20	2,844.37	88.89	2.94	0:27:20	1,901.64	118.85	2.20	0:34:20	153.14	153.14	1.71
0:06:25	3,878.68	30.30	8.65	0:13:25	3,196.48	49.94	5.24	0:20:25	2,790.99	87.22	3.00	0:27:25	1,909.56	119.35	2.19	0:34:25	166.20	166.20	1.57
0:06:30	3,865.94	30.20	8.68	0:13:30	2,980.42	46.57	5.62	0:20:30	2,803.26	87.60	2.99	0:27:30	1,888.28	118.02	2.22	0:34:30	162.48	162.48	1.61
0:06:35	3,886.55	30.36	8.63	0:13:35	2,991.69	46.75	5.60	0:20:35	2,888.36	90.26	2.90	0:27:35	2,027.37	126.71	2.06	0:34:35	170.81	170.81	1.53
0:06:40	3,990.93	31.18	8.40	0:13:40	3,268.83	51.08	5.13	0:20:40	2,954.15	92.32	2.83	0:27:40	1,904.53	119.03	2.20	0:34:40	164.89	164.89	1.58
0:06:45	169.50	0.00	8.35	0:13:45	184.55	0.00	5.24	0:20:45	219.94	0.00	2.65	0:27:45	89.76	0.00	2.09	0:34:45	8.07	0.00	1.57
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
				0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00					0:34:55	0.00	0.00	0.00

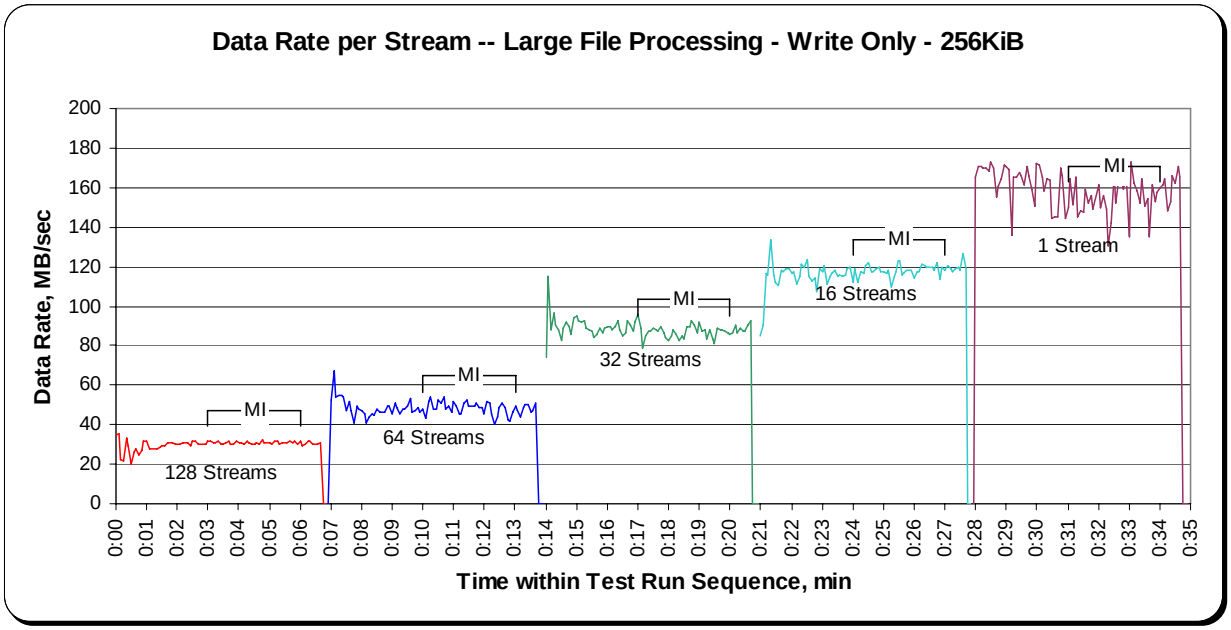
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



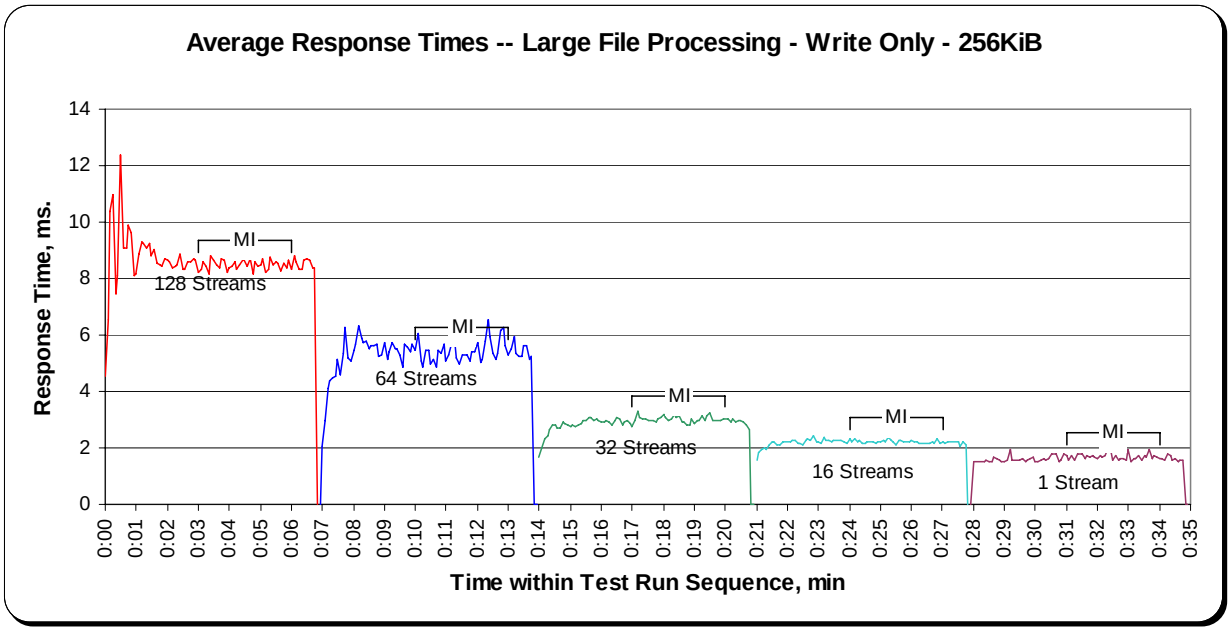
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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.

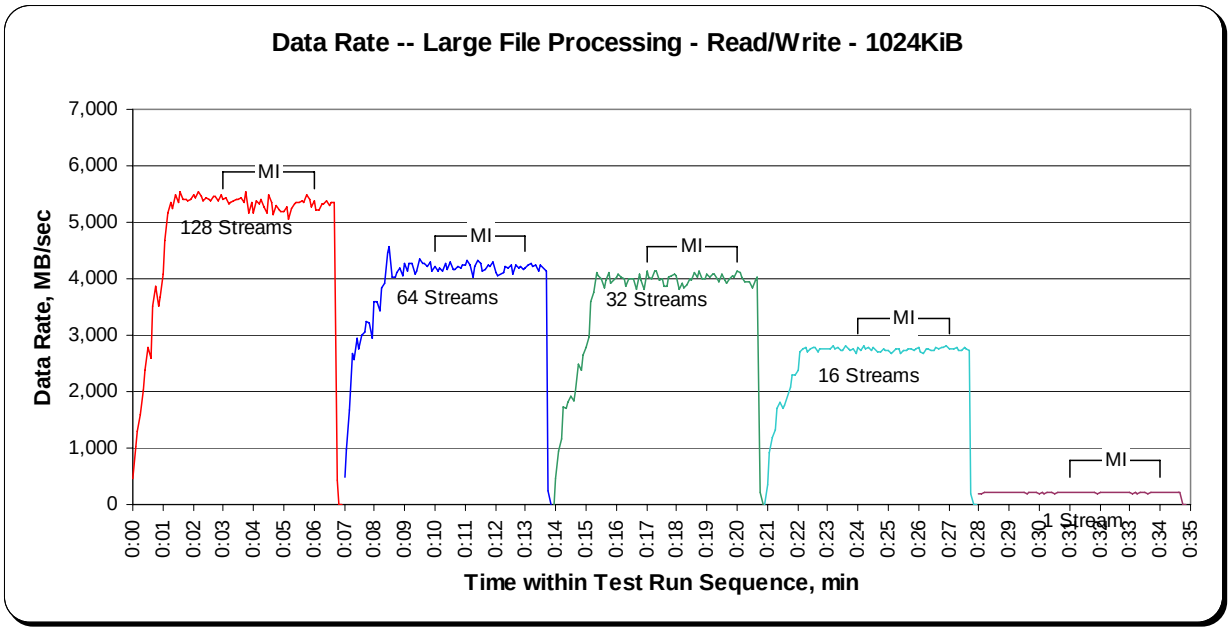
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR11	128 Streams			TR12	64 Streams			TR13	32 Streams			TR14	16 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	448.16	37.35	11.06	0:07:00	491.78	98.36	6.34	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:28:00	197.97	197.97	4.99
0:00:05	1,027.81	51.39	15.26	0:07:05	968.46	74.50	9.19	0:14:00	460.12	92.02	5.76	0:21:00	357.56	119.19	5.27	0:28:05	191.89	191.89	5.46
0:00:10	1,302.54	44.92	19.02	0:07:10	1,666.40	79.35	10.44	0:14:05	934.28	133.47	6.89	0:21:05	920.02	153.34	5.60	0:28:10	220.41	220.41	4.76
0:00:15	1,586.08	45.32	20.77	0:07:15	2,686.24	95.94	10.29	0:14:10	1,163.92	129.32	7.26	0:21:10	1,193.28	170.47	5.86	0:28:15	218.52	218.52	4.75
0:00:20	2,017.25	46.91	20.64	0:07:20	2,559.99	75.29	12.22	0:14:15	1,733.93	144.49	6.69	0:21:15	1,333.16	166.64	6.19	0:28:20	222.93	222.93	4.74
0:00:25	2,378.38	44.04	21.92	0:07:25	2,940.00	79.46	12.71	0:14:20	1,699.95	130.77	7.67	0:21:20	1,693.03	169.30	5.89	0:28:25	227.33	227.33	4.61
0:00:30	2,783.34	43.49	22.12	0:07:30	2,747.06	72.29	14.38	0:14:25	1,806.07	129.00	7.91	0:21:25	1,810.26	181.03	5.80	0:28:30	212.65	212.65	4.92
0:00:35	2,587.05	34.04	28.17	0:07:35	3,004.38	75.11	13.81	0:14:30	1,918.47	137.03	7.62	0:21:30	1,710.86	171.09	6.12	0:28:35	215.59	215.59	4.86
0:00:40	3,516.29	41.86	23.93	0:07:40	3,063.52	76.59	13.69	0:14:35	1,833.75	122.25	8.51	0:21:35	1,754.48	175.45	5.97	0:28:40	224.81	224.81	4.66
0:00:45	3,866.31	44.44	22.78	0:07:45	3,254.15	75.68	13.70	0:14:40	1,994.39	110.80	8.09	0:21:40	1,907.15	173.38	5.93	0:28:45	210.55	210.55	4.97
0:00:50	3,519.44	38.68	26.40	0:07:50	3,205.29	71.23	14.41	0:14:45	2,473.59	137.42	7.63	0:21:45	2,076.18	159.71	6.20	0:28:50	224.81	224.81	4.66
0:00:55	3,672.95	37.10	27.36	0:07:55	2,937.90	58.76	16.75	0:14:50	2,379.22	125.22	7.80	0:21:50	2,305.19	177.32	5.91	0:28:55	218.10	218.10	4.80
0:01:00	4,073.51	37.37	26.71	0:08:00	3,593.05	70.45	14.86	0:14:55	2,635.91	125.52	7.86	0:21:55	2,295.12	176.55	5.94	0:29:00	220.20	220.20	4.73
0:01:05	4,686.30	41.47	24.94	0:08:05	3,587.60	70.35	14.89	0:15:00	2,797.18	133.20	7.89	0:22:00	2,372.93	158.20	6.09	0:29:05	221.25	221.25	4.76
0:01:10	5,160.88	42.30	23.67	0:08:10	3,429.68	65.96	15.73	0:15:05	2,960.97	123.37	8.00	0:22:05	2,705.96	169.12	6.02	0:29:10	228.59	228.59	4.58
0:01:15	5,349.21	42.45	24.15	0:08:15	3,848.69	72.62	14.43	0:15:10	3,584.87	123.62	7.78	0:22:10	2,757.34	172.33	6.08	0:29:15	221.67	221.67	4.73
0:01:20	5,237.64	41.24	25.30	0:08:20	3,912.66	67.46	14.93	0:15:15	3,745.93	124.86	8.15	0:22:15	2,779.98	173.75	6.03	0:29:20	218.10	218.10	4.80
0:01:25	5,488.67	42.88	24.44	0:08:25	4,447.22	70.59	14.02	0:15:20	4,109.58	128.42	7.95	0:22:20	2,703.44	168.96	6.20	0:29:25	219.99	219.99	4.76
0:01:30	5,359.48	41.87	25.07	0:08:30	4,557.53	71.21	14.69	0:15:25	4,065.12	127.03	8.25	0:22:25	2,763.00	172.69	6.07	0:29:30	217.26	217.26	4.82
0:01:35	5,548.64	43.35	24.08	0:08:35	4,023.60	62.87	16.72	0:15:30	4,012.90	125.40	8.35	0:22:30	2,784.39	174.02	6.02	0:29:35	200.70	200.70	5.22
0:01:40	5,401.63	42.20	24.72	0:08:40	4,015.00	62.73	16.70	0:15:35	3,848.06	120.25	8.73	0:22:35	2,771.60	173.22	6.05	0:29:40	224.81	224.81	4.66
0:01:45	5,407.09	42.24	24.92	0:08:45	4,102.24	64.10	16.35	0:15:40	3,980.81	124.40	8.43	0:22:40	2,700.71	168.79	6.21	0:29:45	204.05	204.05	5.13
0:01:50	5,388.21	42.10	24.92	0:08:50	4,196.19	65.57	16.01	0:15:45	4,105.18	128.29	8.13	0:22:45	2,758.38	172.40	6.07	0:29:50	209.51	209.51	5.00
0:01:55	5,406.04	42.23	24.89	0:08:55	4,044.36	63.19	16.58	0:15:50	3,921.67	122.55	8.59	0:22:50	2,759.01	172.44	6.08	0:29:55	205.31	205.31	5.10
0:02:00	5,475.03	42.77	24.43	0:09:00	4,282.38	66.91	15.68	0:15:55	3,985.64	124.55	8.42	0:22:55	2,752.93	172.06	6.09	0:30:00	201.96	201.96	5.11
0:02:05	5,426.59	42.40	24.80	0:09:05	4,133.28	64.58	16.21	0:16:00	4,025.90	125.81	8.33	0:23:00	2,750.21	171.89	6.10	0:30:05	214.75	214.75	4.95
0:02:10	5,533.34	43.23	24.29	0:09:10	4,274.21	66.78	15.73	0:16:05	4,084.62	127.64	8.21	0:23:05	2,748.95	171.81	6.10	0:30:10	201.96	201.96	5.19
0:02:15	5,452.39	42.60	24.63	0:09:15	4,261.20	66.58	15.74	0:16:10	4,025.69	125.80	8.32	0:23:10	2,799.49	174.97	5.99	0:30:15	222.09	222.09	4.72
0:02:20	5,381.71	42.04	24.89	0:09:20	4,072.04	63.63	16.49	0:16:15	4,009.13	125.29	8.35	0:23:15	2,764.47	172.78	6.06	0:30:20	221.88	221.88	4.72
0:02:25	5,419.04	42.34	24.73	0:09:25	4,122.79	64.42	16.29	0:16:20	3,868.20	120.88	8.70	0:23:20	2,772.85	173.30	6.05	0:30:25	219.36	219.36	4.77
0:02:30	5,394.50	42.14	24.96	0:09:30	4,350.75	67.98	15.41	0:16:25	3,991.72	124.74	8.39	0:23:25	2,722.31	170.14	6.16	0:30:30	194.20	194.20	5.39
0:02:35	5,387.79	42.09	24.86	0:09:35	4,272.32	66.75	15.71	0:16:30	4,012.69	125.40	8.37	0:23:30	2,731.96	170.75	6.13	0:30:35	212.02	212.02	4.95
0:02:40	5,463.71	42.69	24.52	0:09:40	4,279.24	66.86	15.66	0:16:35	4,005.56	125.17	8.38	0:23:35	2,820.04	176.25	5.95	0:30:40	210.97	210.97	4.96
0:02:45	5,463.92	42.69	24.60	0:09:45	4,217.37	65.90	15.95	0:16:40	3,815.35	119.23	8.77	0:23:40	2,756.29	172.27	6.08	0:30:45	225.44	225.44	4.59
0:02:50	5,387.79	42.09	24.93	0:09:50	4,300.84	67.20	15.60	0:16:45	4,078.12	127.44	8.23	0:23:45	2,724.83	170.30	6.15	0:30:50	214.96	214.96	4.93
0:02:55	5,483.63	42.84	24.43	0:09:55	4,127.82	64.50	16.27	0:16:50	3,962.15	123.82	8.46	0:23:50	2,749.16	171.82	6.10	0:30:55	211.18	211.18	4.96
								0:16:55	3,823.74	119.49	8.78	0:23:55	2,677.85	167.37	6.26				

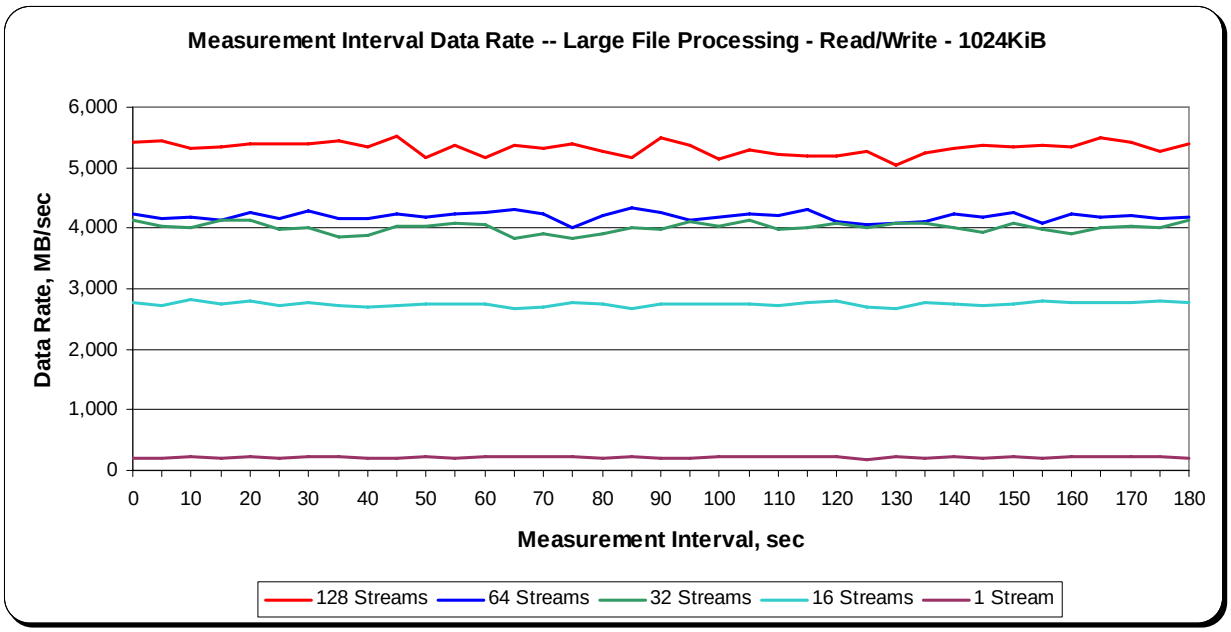
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	128 Streams			TR12	64 Streams			TR13	32 Streams			TR14	16 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	5,412.75	42.29	24.80	0:10:00	4,229.33	66.08	15.85	0:17:00	4,122.37	128.82	8.15	0:24:00	2,785.23	174.08	6.02	0:31:00	211.81	211.81	4.94
0:03:05	5,433.51	42.45	24.73	0:10:05	4,147.33	64.80	16.19	0:17:05	4,034.92	126.09	8.28	0:24:05	2,735.11	170.94	6.13	0:31:05	204.68	204.68	5.12
0:03:10	5,326.77	41.62	25.13	0:10:10	4,196.40	65.57	16.00	0:17:10	4,011.43	125.36	8.38	0:24:10	2,812.91	175.81	5.96	0:31:10	217.68	217.68	4.82
0:03:15	5,356.34	41.85	25.15	0:10:15	4,131.81	64.56	16.24	0:17:15	4,129.08	129.03	8.13	0:24:15	2,751.04	171.94	6.09	0:31:15	214.12	214.12	4.89
0:03:20	5,388.42	42.10	24.88	0:10:20	4,259.32	66.55	15.75	0:17:20	4,135.58	129.24	8.10	0:24:20	2,792.15	174.51	5.99	0:31:20	222.30	222.30	4.71
0:03:25	5,402.68	42.21	24.87	0:10:25	4,167.04	65.11	16.11	0:17:25	3,973.89	124.18	8.45	0:24:25	2,732.80	170.80	6.15	0:31:25	212.02	212.02	4.94
0:03:30	5,397.02	42.16	24.82	0:10:30	4,292.24	67.07	15.62	0:17:30	3,999.48	124.98	8.39	0:24:30	2,773.06	173.32	6.04	0:31:30	214.33	214.33	4.89
0:03:35	5,433.51	42.45	24.71	0:10:35	4,169.98	65.16	16.10	0:17:35	3,868.20	120.88	8.67	0:24:35	2,734.69	170.92	6.13	0:31:35	222.09	222.09	4.72
0:03:40	5,345.85	41.76	25.11	0:10:40	4,154.88	64.92	16.13	0:17:40	3,871.13	120.97	8.66	0:24:40	2,706.79	169.17	6.20	0:31:40	209.92	209.92	4.99
0:03:45	5,527.25	43.18	24.13	0:10:45	4,223.03	65.98	15.91	0:17:45	4,021.71	125.68	8.35	0:24:45	2,713.09	169.57	6.17	0:31:45	204.89	204.89	5.11
0:03:50	5,156.06	40.28	26.17	0:10:50	4,189.27	65.46	15.98	0:17:50	4,046.04	126.44	8.27	0:24:50	2,755.45	172.22	6.09	0:31:50	217.89	217.89	4.81
0:03:55	5,362.63	41.90	25.10	0:10:55	4,229.96	66.09	15.92	0:17:55	4,076.44	127.39	8.24	0:24:55	2,736.99	171.06	6.12	0:31:55	202.58	202.58	5.17
0:04:00	5,158.99	40.30	26.05	0:11:00	4,250.72	66.42	15.78	0:18:00	4,055.05	126.72	8.25	0:25:00	2,740.56	171.28	6.12	0:32:00	225.65	225.65	4.64
0:04:05	5,370.81	41.96	24.91	0:11:05	4,311.53	67.37	15.55	0:18:05	3,819.75	119.37	8.80	0:25:05	2,663.59	166.47	6.10	0:32:05	227.12	227.12	4.61
0:04:10	5,325.93	41.61	25.25	0:11:10	4,241.07	66.27	15.85	0:18:10	3,913.71	122.30	8.56	0:25:10	2,690.65	168.17	6.17	0:32:10	214.33	214.33	4.89
0:04:15	5,394.92	42.15	24.82	0:11:15	4,020.66	62.82	16.71	0:18:15	3,831.71	119.74	8.76	0:25:15	2,762.16	172.63	6.07	0:32:15	215.38	215.38	4.86
0:04:20	5,276.22	41.22	25.47	0:11:20	4,212.76	65.82	15.92	0:18:20	3,903.85	122.00	8.58	0:25:20	2,746.22	171.64	6.10	0:32:20	212.65	212.65	4.93
0:04:25	5,173.88	40.42	25.95	0:11:25	4,335.65	67.74	15.47	0:18:25	4,005.56	125.17	8.38	0:25:25	2,665.27	166.58	6.30	0:32:25	223.56	223.56	4.68
0:04:30	5,489.51	42.89	24.47	0:11:30	4,267.49	66.68	15.72	0:18:30	3,976.62	124.27	8.44	0:25:30	2,740.14	171.26	6.11	0:32:30	210.34	210.34	4.97
0:04:35	5,357.59	41.86	24.98	0:11:35	4,145.65	64.78	16.17	0:18:35	4,097.42	128.04	8.19	0:25:35	2,737.83	171.11	6.12	0:32:35	209.92	209.92	5.00
0:04:40	5,141.80	40.17	26.10	0:11:40	4,173.54	65.21	16.06	0:18:40	4,038.49	126.20	8.29	0:25:40	2,756.92	172.31	6.09	0:32:40	222.72	222.72	4.70
0:04:45	5,288.39	41.32	25.43	0:11:45	4,241.28	66.27	15.82	0:18:45	4,140.62	129.39	8.10	0:25:45	2,756.29	172.27	6.08	0:32:45	223.56	223.56	4.69
0:04:50	5,224.01	40.81	25.59	0:11:50	4,206.68	65.73	15.99	0:18:50	3,994.86	124.84	8.41	0:25:50	2,720.64	170.04	6.16	0:32:50	226.07	226.07	4.63
0:04:55	5,181.01	40.48	26.02	0:11:55	4,309.44	67.33	15.58	0:18:55	4,007.87	125.25	8.37	0:25:55	2,766.56	172.91	6.06	0:32:55	217.89	217.89	4.81
0:05:00	5,191.92	40.56	25.88	0:12:00	4,117.76	64.34	16.28	0:19:00	4,082.74	127.59	8.19	0:26:00	2,794.46	174.65	6.00	0:33:00	214.33	214.33	4.89
0:05:05	5,261.75	41.11	25.49	0:12:05	4,047.29	63.24	16.58	0:19:05	4,017.93	125.56	8.37	0:26:05	2,695.05	168.44	6.22	0:33:05	186.44	186.44	5.62
0:05:10	5,045.12	39.41	25.84	0:12:10	4,094.06	63.97	16.40	0:19:10	4,075.19	127.35	8.23	0:26:10	2,681.00	167.56	6.25	0:33:10	217.26	217.26	4.79
0:05:15	5,244.98	40.98	25.41	0:12:15	4,121.11	64.39	16.26	0:19:15	4,086.30	127.70	8.21	0:26:15	2,765.09	172.82	6.06	0:33:15	195.66	195.66	5.39
0:05:20	5,321.73	41.58	25.13	0:12:20	4,229.54	66.09	15.85	0:19:20	4,000.53	125.02	8.37	0:26:20	2,759.43	172.46	6.08	0:33:20	224.19	224.19	4.67
0:05:25	5,359.48	41.87	24.98	0:12:25	4,185.08	65.39	16.02	0:19:25	3,941.39	123.17	8.52	0:26:25	2,733.22	170.83	6.13	0:33:25	211.18	211.18	4.96
0:05:30	5,344.80	41.76	25.18	0:12:30	4,253.02	66.45	15.80	0:19:30	4,072.67	127.27	8.23	0:26:30	2,739.09	171.19	6.12	0:33:30	218.73	218.73	4.78
0:05:35	5,375.00	41.99	24.95	0:12:35	4,076.86	63.70	16.47	0:19:35	3,986.27	124.57	8.41	0:26:35	2,788.16	174.26	6.01	0:33:35	201.33	201.33	5.21
0:05:40	5,355.29	41.84	25.02	0:12:40	4,242.96	66.30	15.80	0:19:40	3,905.95	122.06	8.59	0:26:40	2,766.98	172.94	6.06	0:33:40	215.38	215.38	4.86
0:05:45	5,486.36	42.86	24.48	0:12:45	4,180.04	65.31	16.09	0:19:45	4,000.95	125.03	8.38	0:26:45	2,771.81	173.24	6.05	0:33:45	215.38	215.38	4.87
0:05:50	5,417.36	42.32	24.83	0:12:50	4,206.89	65.73	15.93	0:19:50	4,045.20	126.41	8.27	0:26:50	2,783.34	173.96	6.02	0:33:50	214.75	214.75	4.88
0:05:55	5,258.19	41.08	25.44	0:12:55	4,167.04	65.11	16.10	0:19:55	4,013.95	125.44	8.37	0:26:55	2,801.17	175.07	5.99	0:33:55	221.04	221.04	4.74
0:06:00	5,389.89	42.11	24.90	0:13:00	4,190.53	65.48	16.03	0:20:00	4,121.95	128.81	8.14	0:27:00	2,761.53	172.60	6.07	0:34:00	211.81	211.81	4.95
0:06:05	5,213.94	40.73	25.81	0:13:05	4,236.04	66.19	15.84	0:20:05	4,108.53	128.39	8.17	0:27:05	2,745.38	171.59	6.11	0:34:05	225.65	225.65	4.64
0:06:10	5,209.12	40.70	25.77	0:13:10	4,261.83	66.59	15.73	0:20:10	4,035.13	126.10	8.30	0:27:10	2,755.03	172.19	6.09	0:34:10	208.46	208.46	5.02
0:06:15	5,329.70	41.64	25.11	0:13:15	4,214.23	65.85	15.93	0:20:15	3,947.47	123.36	8.50	0:27:15	2,794.46	174.65	6.00	0:34:15	226.91	226.91	4.62
0:06:20	5,319.85	41.56	25.31	0:13:20	4,249.46	66.40	15.78	0:20:20	3,937.82	123.06	8.51	0:27:20	2,721.89	170.12	6.16	0:34:20	211.81	211.81	4.94
0:06:25	5,373.11	41.98	24.95	0:13:25	4,138.10	64.66	16.20	0:20:25	3,932.58	122.89	8.50	0:27:25	2,720.01	170.00	6.16	0:34:25	222.51	222.51	4.71
0:06:30	5,309.78	41.48	25.31	0:13:30	4,255.96	66.50	15.80	0:20:30	3,830.66	119.71	8.78	0:27:30	2,784.60	174.04	6.02	0:34:30	222.30	222.30	4.71
0:06:35	5,341.66	41.73	25.16	0:13:35	4,193.26	65.52	16.01	0:20:35	3,961.31	123.79	8.48	0:27:35	2,744.96	171.56	6.10	0:34:35	211.18	211.18	4.95
0:06:40	5,355.29	41.84	24.91	0:13:40	4,146.28	64.79	16.19	0:20:40	4,022.97	125.72	8.34	0:27:40	2,741.61	171.35	6.12	0:34:40	208.25	208.25	5.04
0:06:45	420.90	0.00	31.69	0:13:45	240.75	0.00	12.12	0:20:45	225.86	0.00	8.15	0:27:45	193.57	0.00	5.87	0:34:45	3.77	0.00	9.27
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									0:27:55	0.00	0.00	0.00				

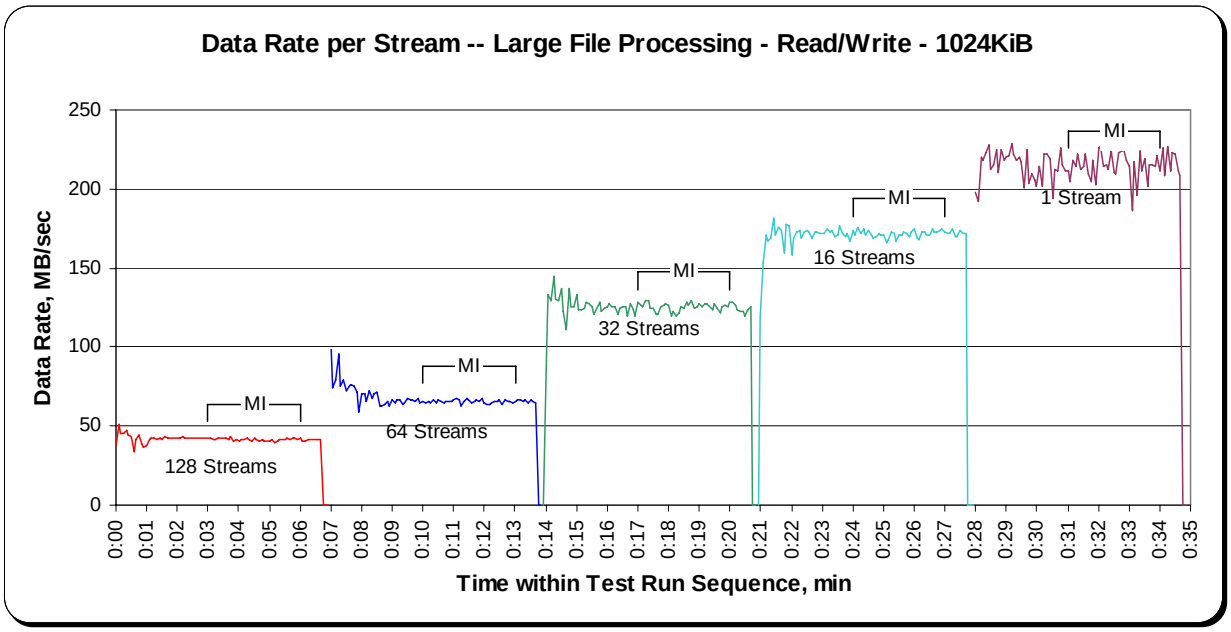
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



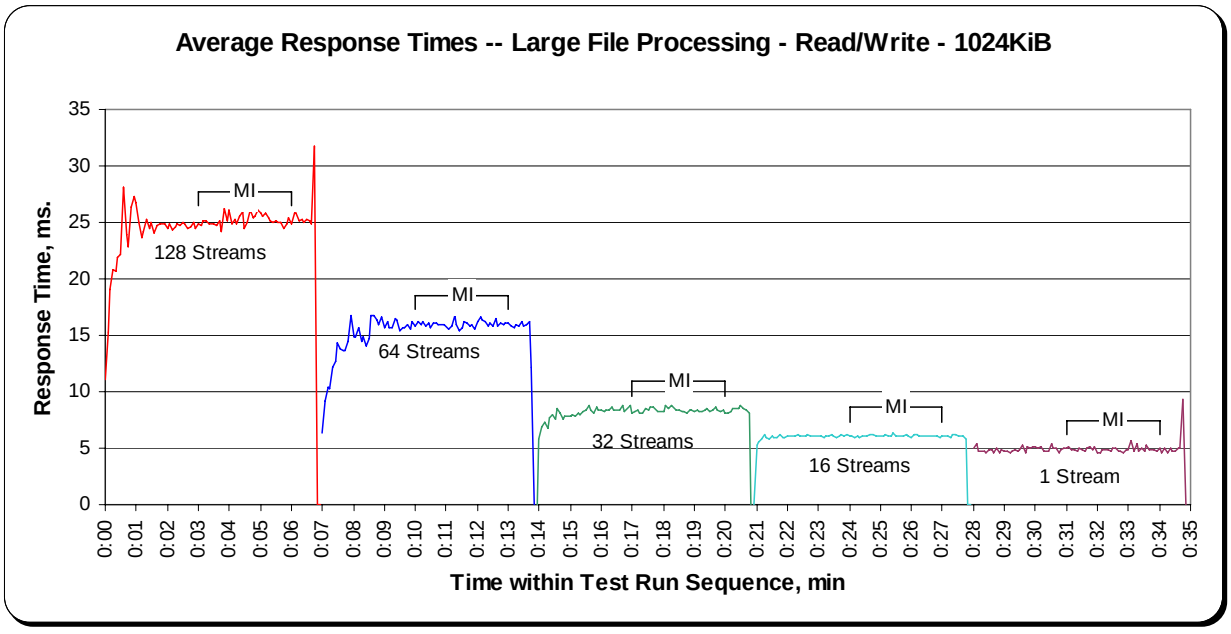
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



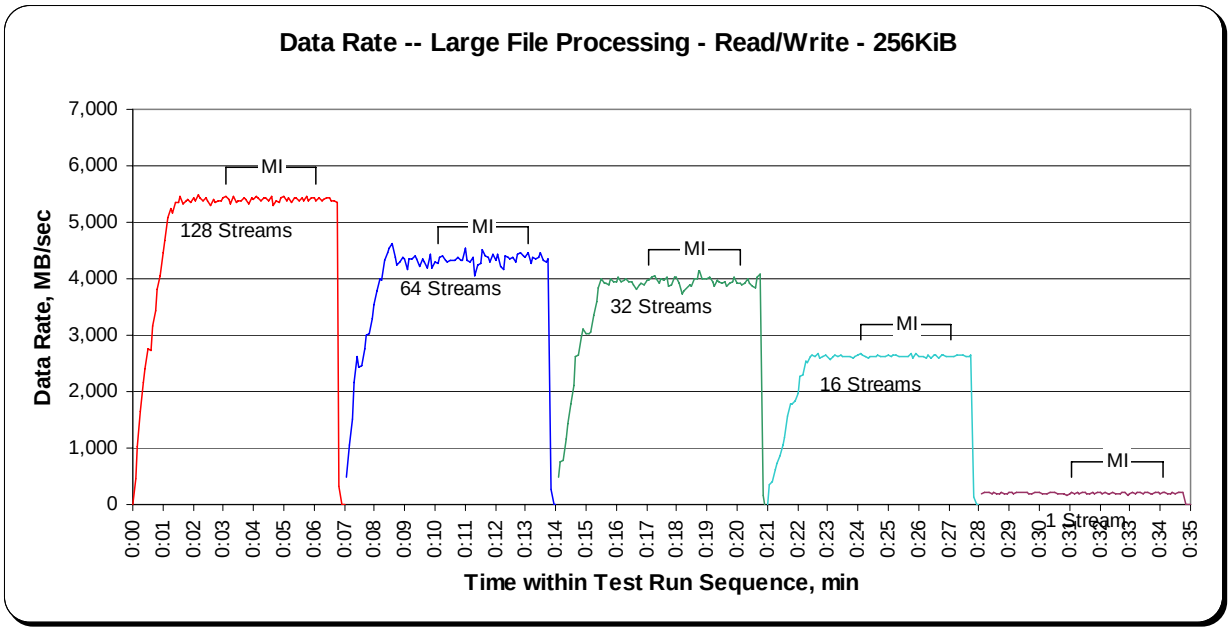
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR16	128 Streams			TR17	64 Streams			TR18	32 Streams			TR19	16 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	0.00	0.00	0.00	0:07:05	492.46	82.08	1.78	0:14:05	481.77	96.35	1.53	0:21:00	0.00	0.00	0.00	0:28:05	192.68	192.68	1.29
0:00:05	466.83	33.34	3.34	0:07:10	1,065.04	88.75	2.52	0:14:10	746.01	149.20	1.75	0:21:05	354.52	177.26	1.28	0:28:10	213.39	213.39	1.22
0:00:10	1,029.91	38.14	4.87	0:07:15	1,512.94	79.63	2.78	0:14:15	788.32	112.62	1.86	0:21:10	408.79	136.26	1.35	0:28:15	209.14	209.14	1.25
0:00:15	1,657.38	43.62	5.10	0:07:20	2,164.05	77.29	2.77	0:14:20	1,163.34	129.26	1.85	0:21:15	608.49	152.12	1.64	0:28:20	204.68	204.68	1.28
0:00:20	2,171.92	48.26	4.94	0:07:25	2,619.50	87.32	2.92	0:14:25	1,440.43	130.95	1.77	0:21:20	726.93	145.39	1.54	0:28:25	195.77	195.77	1.33
0:00:25	2,411.88	43.85	5.32	0:07:30	2,424.10	78.20	3.26	0:14:30	1,785.52	119.03	1.91	0:21:25	865.39	144.23	1.54	0:28:30	213.33	213.33	1.22
0:00:30	2,751.62	45.86	5.53	0:07:35	2,462.53	70.36	3.44	0:14:35	2,119.28	117.74	1.97	0:21:30	1,046.74	174.46	1.50	0:28:35	184.97	184.97	1.41
0:00:35	2,718.75	41.83	6.03	0:07:40	2,746.12	72.27	3.51	0:14:40	2,611.74	137.46	1.89	0:21:35	1,194.12	132.68	1.65	0:28:40	185.28	185.28	1.41
0:00:40	3,164.03	43.94	5.75	0:07:45	3,006.21	77.08	3.38	0:14:45	2,640.42	114.80	2.11	0:21:40	1,570.98	157.10	1.59	0:28:45	213.54	213.54	1.22
0:00:45	3,432.09	43.44	5.73	0:07:50	3,023.31	73.74	3.42	0:14:50	2,971.82	129.21	2.02	0:21:45	1,796.73	163.34	1.53	0:28:50	196.77	196.77	1.33
0:00:50	3,804.92	43.24	5.68	0:07:55	3,306.32	75.14	3.44	0:14:55	3,107.40	129.48	2.02	0:21:50	1,771.57	161.05	1.62	0:28:55	186.12	186.12	1.40
0:00:55	4,053.01	40.94	6.03	0:08:00	3,541.09	72.27	3.43	0:15:00	3,015.81	125.66	2.08	0:21:55	1,832.02	166.55	1.57	0:29:00	204.79	204.79	1.27
0:01:00	4,472.39	42.19	6.02	0:08:05	3,787.40	72.83	3.53	0:15:05	3,035.63	126.48	2.07	0:22:00	1,976.41	152.03	1.63	0:29:05	210.87	210.87	1.24
0:01:05	4,669.41	42.84	5.80	0:08:10	3,992.35	72.59	3.57	0:15:10	3,066.61	122.66	2.12	0:22:05	2,270.80	162.20	1.57	0:29:10	200.59	200.59	1.30
0:01:10	5,076.05	44.14	5.77	0:08:15	3,967.81	70.85	3.68	0:15:15	3,362.94	120.11	2.07	0:22:10	2,305.24	153.68	1.59	0:29:15	208.93	208.93	1.25
0:01:15	5,242.62	44.06	5.79	0:08:20	4,321.60	73.25	3.52	0:15:20	3,605.27	120.18	2.11	0:22:15	2,534.57	158.41	1.59	0:29:20	213.12	213.12	1.22
0:01:20	5,168.38	41.35	6.21	0:08:25	4,469.61	72.09	3.50	0:15:25	3,833.86	123.67	2.11	0:22:20	2,513.38	157.09	1.60	0:29:25	209.09	209.09	1.25
0:01:25	5,353.40	42.49	6.11	0:08:30	4,527.44	70.74	3.67	0:15:30	4,006.14	125.19	2.05	0:22:25	2,611.43	163.21	1.60	0:29:30	208.25	208.25	1.25
0:01:30	5,343.86	41.75	6.24	0:08:35	4,631.93	72.37	3.62	0:15:35	3,906.52	122.08	2.14	0:22:30	2,652.79	165.80	1.58	0:29:35	211.50	211.50	1.23
0:01:35	5,460.04	42.66	6.14	0:08:40	4,374.71	68.35	3.83	0:15:40	3,916.33	122.39	2.14	0:22:35	2,611.74	163.23	1.60	0:29:40	197.29	197.29	1.32
0:01:40	5,325.56	41.61	6.29	0:08:45	4,252.76	66.45	3.94	0:15:45	3,886.28	121.45	2.15	0:22:40	2,664.33	166.52	1.57	0:29:45	195.51	195.51	1.34
0:01:45	5,366.30	41.92	6.26	0:08:50	4,285.11	66.95	3.91	0:15:50	3,996.91	124.90	2.09	0:22:45	2,600.78	162.55	1.61	0:29:50	204.32	204.32	1.28
0:01:50	5,407.51	42.25	6.20	0:08:55	4,372.46	68.32	3.83	0:15:55	3,941.86	123.18	2.12	0:22:50	2,616.72	163.55	1.60	0:29:55	208.82	208.82	1.25
0:01:55	5,358.22	41.86	6.26	0:09:00	4,345.67	67.90	3.86	0:16:00	3,941.75	123.18	2.12	0:22:55	2,643.25	165.20	1.58	0:30:00	203.21	203.21	1.28
0:02:00	5,443.94	42.53	6.15	0:09:05	4,174.75	65.23	4.01	0:16:05	4,031.20	125.97	2.08	0:23:00	2,625.95	164.12	1.59	0:30:05	179.88	179.88	1.45
0:02:05	5,382.08	42.05	6.24	0:09:10	4,341.63	67.84	3.86	0:16:10	3,935.20	122.98	2.13	0:23:05	2,578.40	161.15	1.62	0:30:10	180.83	180.83	1.44
0:02:10	5,474.56	42.77	6.12	0:09:15	4,363.28	68.18	3.84	0:16:15	3,960.84	123.78	2.11	0:23:10	2,616.62	163.54	1.60	0:30:15	177.68	177.68	1.47
0:02:15	5,440.01	42.50	6.16	0:09:20	4,397.41	68.71	3.81	0:16:20	3,991.46	124.73	2.09	0:23:15	2,649.86	165.62	1.58	0:30:20	210.61	210.61	1.24
0:02:20	5,387.06	42.09	6.23	0:09:25	4,338.43	67.79	3.86	0:16:25	3,950.67	123.46	2.12	0:23:20	2,628.31	164.27	1.59	0:30:25	209.40	209.40	1.25
0:02:25	5,426.64	42.40	6.19	0:09:30	4,216.80	65.89	3.97	0:16:30	3,942.28	123.20	2.12	0:23:25	2,654.57	165.91	1.57	0:30:30	213.18	213.18	1.22
0:02:30	5,386.85	42.08	6.21	0:09:35	4,341.84	67.84	3.86	0:16:35	3,888.38	121.51	2.15	0:23:30	2,610.38	163.15	1.60	0:30:35	197.03	197.03	1.32
0:02:35	5,304.01	41.44	6.33	0:09:40	4,308.18	67.32	3.89	0:16:40	3,801.56	118.80	2.20	0:23:35	2,613.58	163.35	1.60	0:30:40	193.99	193.99	1.35
0:02:40	5,415.21	42.31	6.19	0:09:45	4,199.08	65.61	3.99	0:16:45	3,904.37	122.01	2.14	0:23:40	2,616.09	163.51	1.60	0:30:45	194.20	194.20	1.34
0:02:45	5,361.89	41.89	6.25	0:09:50	4,429.76	69.22	3.78	0:16:50	3,907.15	122.10	2.14	0:23:45	2,627.89	164.24	1.59	0:30:50	201.54	201.54	1.30
0:02:50	5,378.04	42.02	6.24	0:09:55	4,184.19	65.38	4.00	0:16:55	3,896.25	121.76	2.14	0:23:50	2,589.46	161.84	1.61	0:30:55	161.90	161.90	1.61
0:02:55	5,369.91	41.95	6.24	0:10:00	4,310.28	67.35	3.89	0:17:00	3,964.67	123.90	2.12	0:23:55	2,633.03	164.56	1.59	0:31:00	194.56	194.56	1.34
0:03:00	5,421.50	42.36	6.18									0:24:00	2,644.40	165.28	1.58				

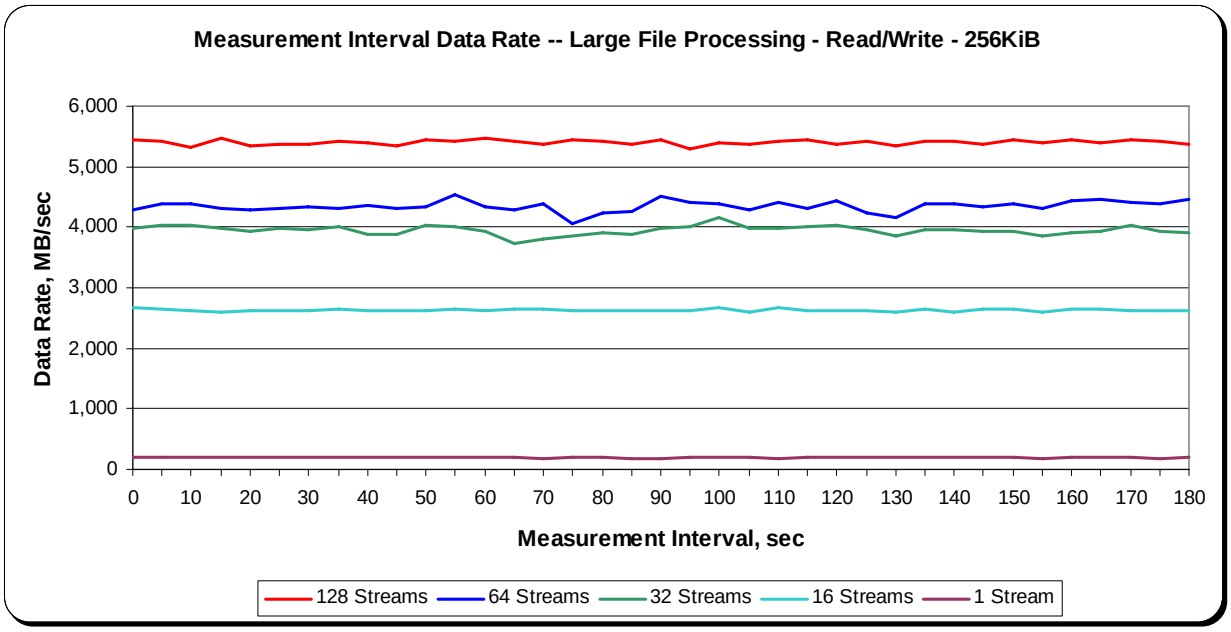
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR16	128 Streams			TR17	64 Streams			TR18	32 Streams			TR19	16 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
0:03:05	5,446.57	42.55	6.15	0:10:05	4,278.45	66.85	3.92	0:17:05	3,979.56	124.36	2.10	0:24:05	2,662.33	166.40	1.57	0:31:05	207.67	207.67	1.26
0:03:10	5,410.86	42.27	6.19	0:10:10	4,388.29	68.57	3.82	0:17:10	4,038.38	126.20	2.07	0:24:10	2,644.30	165.27	1.58	0:31:10	200.91	200.91	1.30
0:03:15	5,328.97	41.63	6.29	0:10:15	4,397.68	68.71	3.81	0:17:15	4,045.72	126.43	2.07	0:24:15	2,626.26	164.14	1.59	0:31:15	203.42	203.42	1.28
0:03:20	5,461.19	42.67	6.15	0:10:20	4,322.44	67.54	3.88	0:17:20	3,992.30	124.76	2.10	0:24:20	2,605.40	162.84	1.60	0:31:20	201.64	201.64	1.29
0:03:25	5,339.19	41.71	6.28	0:10:25	4,291.09	67.05	3.90	0:17:25	3,926.29	122.70	2.13	0:24:25	2,612.47	163.28	1.60	0:31:25	212.70	212.70	1.23
0:03:30	5,365.72	41.92	6.25	0:10:30	4,314.10	67.41	3.88	0:17:30	3,989.67	124.68	2.10	0:24:30	2,626.32	164.14	1.59	0:31:30	213.54	213.54	1.22
0:03:35	5,377.62	42.01	6.23	0:10:35	4,326.21	67.60	3.88	0:17:35	3,969.75	124.05	2.11	0:24:35	2,611.58	163.22	1.60	0:31:35	197.08	197.08	1.32
0:03:40	5,422.55	42.36	6.18	0:10:40	4,315.41	67.43	3.88	0:17:40	4,018.14	125.57	2.08	0:24:40	2,644.98	165.31	1.58	0:31:40	198.55	198.55	1.31
0:03:45	5,406.77	42.24	6.20	0:10:45	4,365.27	68.21	3.84	0:17:45	3,872.39	121.01	2.16	0:24:45	2,620.81	163.80	1.59	0:31:45	203.21	203.21	1.28
0:03:50	5,335.15	41.68	6.28	0:10:50	4,311.27	67.36	3.88	0:17:50	3,885.76	121.43	2.15	0:24:50	2,630.51	164.41	1.59	0:31:50	190.95	190.95	1.37
0:03:55	5,439.70	42.50	6.17	0:10:55	4,329.88	67.65	3.87	0:17:55	4,032.88	126.03	2.08	0:24:55	2,627.57	164.22	1.59	0:31:55	211.45	211.45	1.23
0:04:00	5,411.96	42.28	6.19	0:11:00	4,544.42	71.01	3.68	0:18:00	4,019.35	125.60	2.08	0:25:00	2,655.31	165.96	1.57	0:32:00	204.00	204.00	1.28
0:04:05	5,464.29	42.69	6.14	0:11:05	4,332.24	67.69	3.87	0:18:05	3,924.03	122.63	2.13	0:25:05	2,615.83	163.49	1.60	0:32:05	194.51	194.51	1.34
0:04:10	5,429.21	42.42	6.18	0:11:10	4,285.37	66.96	3.91	0:18:10	3,734.82	116.71	2.24	0:25:10	2,656.57	166.04	1.57	0:32:10	207.57	207.57	1.26
0:04:15	5,381.45	42.04	6.23	0:11:15	4,388.40	68.57	3.82	0:18:15	3,796.74	118.65	2.21	0:25:15	2,645.87	165.37	1.58	0:32:15	180.83	180.83	1.44
0:04:20	5,438.02	42.48	6.17	0:11:20	4,060.72	63.45	3.96	0:18:20	3,847.80	120.24	2.18	0:25:20	2,611.64	163.23	1.60	0:32:20	198.76	198.76	1.31
0:04:25	5,430.94	42.43	6.17	0:11:25	4,231.79	66.12	3.96	0:18:25	3,902.17	121.94	2.14	0:25:25	2,627.84	164.24	1.59	0:32:25	214.07	214.07	1.22
0:04:30	5,376.94	42.01	6.23	0:11:30	4,267.34	66.68	3.93	0:18:30	3,876.64	121.14	2.16	0:25:30	2,616.46	163.53	1.60	0:32:30	182.24	182.24	1.43
0:04:35	5,453.85	42.61	6.15	0:11:35	4,513.65	70.53	3.71	0:18:35	3,991.04	124.72	2.10	0:25:35	2,618.29	163.64	1.60	0:32:35	188.27	188.27	1.39
0:04:40	5,296.41	41.38	6.34	0:11:40	4,401.19	68.77	3.80	0:18:40	3,995.86	124.87	2.09	0:25:40	2,621.81	163.86	1.59	0:32:40	196.87	196.87	1.33
0:04:45	5,383.07	42.06	6.22	0:11:45	4,385.83	68.53	3.82	0:18:45	4,164.52	130.14	2.01	0:25:45	2,678.48	167.41	1.56	0:32:45	208.72	208.72	1.25
0:04:50	5,358.80	41.87	6.26	0:11:50	4,297.48	67.15	3.90	0:18:50	3,992.35	124.76	2.10	0:25:50	2,590.40	161.90	1.61	0:32:50	212.55	212.55	1.23
0:04:55	5,432.20	42.44	6.17	0:11:55	4,420.74	69.07	3.79	0:18:55	3,994.92	124.84	2.10	0:25:55	2,668.31	166.77	1.57	0:32:55	173.70	173.70	1.44
0:05:00	5,455.74	42.62	6.14	0:12:00	4,321.44	67.52	3.88	0:19:00	4,009.54	125.30	2.09	0:26:00	2,627.31	164.21	1.59	0:33:00	201.90	201.90	1.29
0:05:05	5,382.03	42.05	6.24	0:12:05	4,428.29	69.19	3.78	0:19:05	4,024.33	125.76	2.08	0:26:05	2,619.87	163.74	1.60	0:33:05	214.01	214.01	1.22
0:05:10	5,430.99	42.43	6.17	0:12:10	4,223.09	65.99	3.97	0:19:10	3,951.03	123.47	2.12	0:26:10	2,614.57	163.41	1.60	0:33:10	193.36	193.36	1.35
0:05:15	5,338.72	41.71	6.28	0:12:15	4,168.61	65.13	4.02	0:19:15	3,864.79	120.77	2.16	0:26:15	2,592.03	162.00	1.61	0:33:15	209.35	209.35	1.25
0:05:20	5,430.37	42.42	6.17	0:12:20	4,396.63	68.70	3.81	0:19:20	3,967.50	123.98	2.11	0:26:20	2,649.80	165.61	1.58	0:33:20	204.79	204.79	1.27
0:05:25	5,432.51	42.44	6.17	0:12:25	4,379.95	68.44	3.83	0:19:25	3,958.64	123.71	2.11	0:26:25	2,590.56	161.91	1.61	0:33:25	193.04	193.04	1.35
0:05:30	5,371.44	41.96	6.24	0:12:30	4,339.06	67.80	3.86	0:19:30	3,928.18	122.76	2.13	0:26:30	2,642.62	165.16	1.58	0:33:30	211.24	211.24	1.24
0:05:35	5,443.73	42.53	6.16	0:12:35	4,377.33	68.40	3.83	0:19:35	3,937.19	123.04	2.12	0:26:35	2,636.54	164.78	1.59	0:33:35	203.16	203.16	1.28
0:05:40	5,388.11	42.09	6.23	0:12:40	4,303.09	67.24	3.89	0:19:40	3,862.17	120.69	2.17	0:26:40	2,594.70	162.17	1.61	0:33:40	185.91	185.91	1.40
0:05:45	5,449.13	42.57	6.15	0:12:45	4,435.37	69.30	3.78	0:19:45	3,920.05	122.50	2.13	0:26:45	2,645.77	165.36	1.58	0:33:45	197.92	197.92	1.32
0:05:50	5,389.10	42.10	6.22	0:12:50	4,450.26	69.54	3.76	0:19:50	3,938.35	123.07	2.13	0:26:50	2,638.53	164.91	1.58	0:33:50	202.90	202.90	1.29
0:05:55	5,435.50	42.46	6.18	0:12:55	4,401.29	68.77	3.80	0:19:55	4,022.70	125.71	2.08	0:26:55	2,628.47	164.28	1.59	0:33:55	206.83	206.83	1.26
0:06:00	5,425.65	42.39	6.17	0:13:00	4,382.10	68.47	3.83	0:20:00	3,926.60	122.71	2.13	0:27:00	2,626.58	164.16	1.59	0:34:00	178.99	178.99	1.46
0:06:05	5,371.17	41.96	6.24	0:13:05	4,451.62	69.56	3.76	0:20:05	3,909.62	122.18	2.14	0:27:05	2,623.75	163.98	1.59	0:34:05	207.83	207.83	1.26
0:06:10	5,423.60	42.37	6.18	0:13:10	4,272.21	66.75	3.92	0:20:10	3,890.48	121.58	2.15	0:27:10	2,621.81	163.86	1.59	0:34:10	206.57	206.57	1.26
0:06:15	5,377.73	42.01	6.25	0:13:15	4,390.07	68.59	3.82	0:20:15	3,913.60	122.30	2.14	0:27:15	2,640.42	165.03	1.58	0:34:15	195.56	195.56	1.33
0:06:20	5,391.94	42.12	6.22	0:13:20	4,361.03	68.14	3.84	0:20:20	4,012.90	125.40	2.08	0:27:20	2,643.98	165.25	1.58	0:34:20	193.99	193.99	1.35
0:06:25	5,421.71	42.36	6.17	0:13:25	4,389.39	68.58	3.82	0:20:25	3,930.59	122.83	2.13	0:27:25	2,649.28	165.58	1.58	0:34:25	211.92	211.92	1.23
0:06:30	5,441.22	42.51	6.17	0:13:30	4,456.76	69.64	3.76	0:20:30	3,872.92	121.03	2.16	0:27:30	2,636.70	164.79	1.59	0:34:30	192.47	192.47	1.36
0:06:35	5,381.87	42.05	6.23	0:13:35	4,313.58	67.40	3.88	0:20:35	3,825.68	119.55	2.19	0:27:35	2,625.74	164.11	1.59	0:34:35	209.98	209.98	1.24
0:06:40	5,389.63	42.11	6.22	0:13:40	4,303.88	67.25	3.89	0:20:40	4,025.17	125.79	2.08	0:27:40	2,624.53	164.03	1.59	0:34:40	206.20	206.20	1.27
0:06:45	5,362.63	41.90	6.26	0:13:45	4,359.04	68.11	3.85	0:20:45	4,076.60	127.39	2.05	0:27:45	2,639.69	164.98	1.58	0:34:45	211.92	211.92	1.23
0:06:50	317.77	0.00	6.06	0:13:50	273.21	0.00	4.21	0:20:50	164.68	0.00	2.27	0:27:50	143.55	0.00	1.62	0:34:50	12.79	0.00	1.21
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
0:07:00	0.00	0.00	0.00	0:14:00	0.00	0.00	0.00					0:28:00	0.00	0.00	0.00	0:35:00	0.00	0.00	0.00

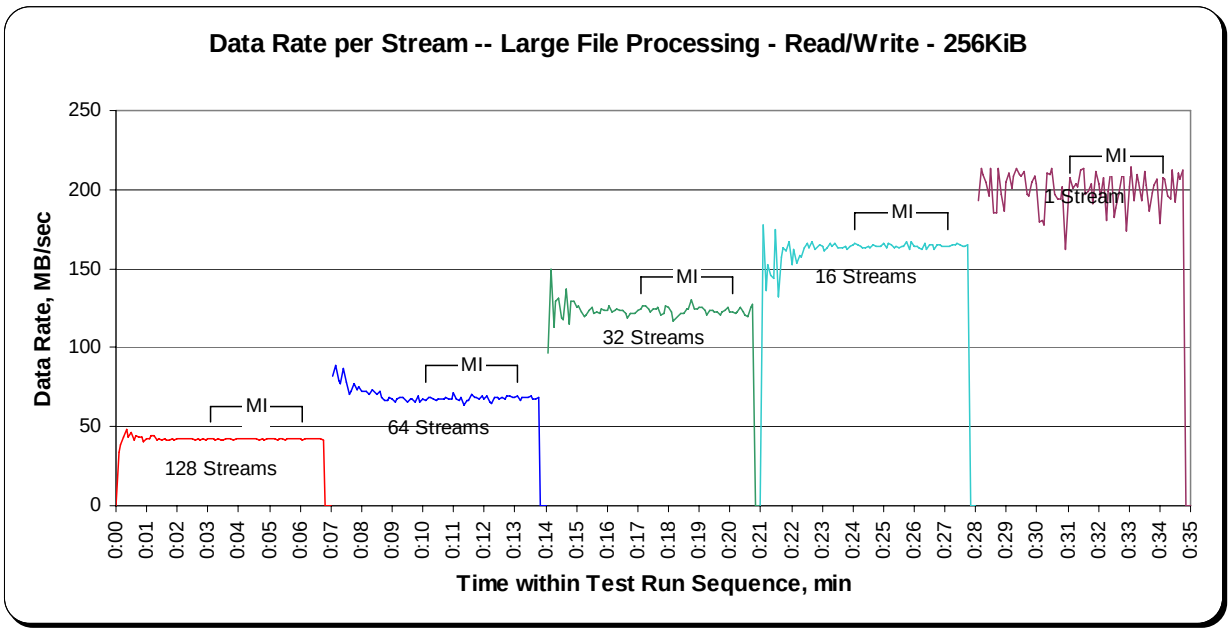
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



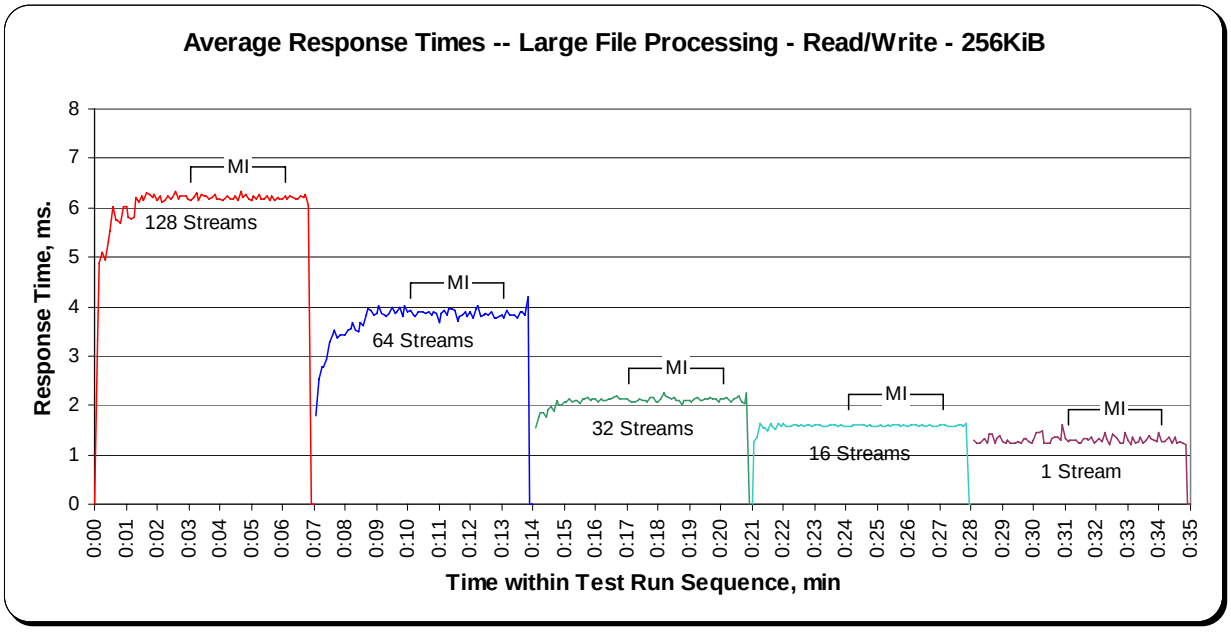
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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.

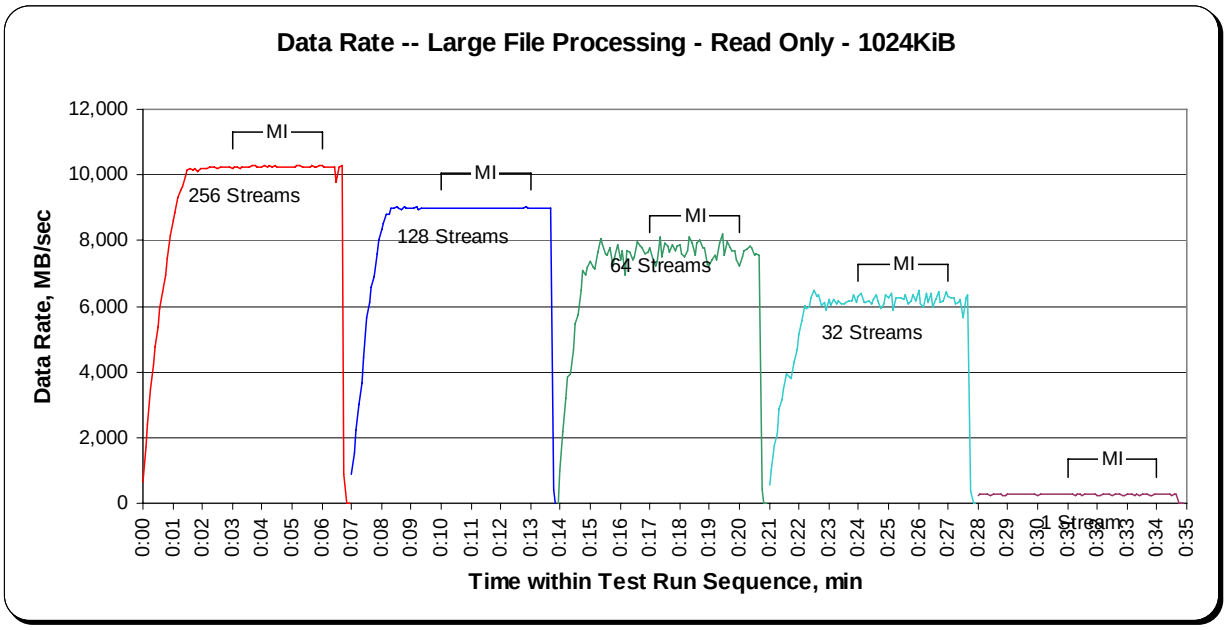
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period

TR21	256 Streams			TR22	128 Streams			TR23	64 Streams			TR24	32 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	669.62	25.75	19.79	0:07:00	863.82	53.99	11.68	0:13:55	0.00	0.00	0.00	0:21:00	538.13	134.53	4.87	0:28:00	239.91	239.91	4.14
0:00:05	1,702.89	34.06	22.94	0:07:05	1,537.42	64.06	12.95	0:14:00	967.42	96.74	7.31	0:21:05	1,003.07	111.45	5.50	0:28:05	262.35	262.35	3.99
0:00:10	2,425.57	36.20	24.92	0:07:10	2,230.32	65.60	14.00	0:14:05	2,179.57	108.98	7.63	0:21:10	1,759.09	195.45	5.36	0:28:10	257.95	257.95	4.06
0:00:15	3,486.52	37.90	24.60	0:07:15	3,031.85	68.91	13.55	0:14:10	3,173.83	109.44	8.31	0:21:15	2,116.87	176.41	5.07	0:28:15	262.35	262.35	3.99
0:00:20	4,238.97	38.54	24.87	0:07:20	3,640.66	68.69	13.81	0:14:15	3,831.71	119.74	8.18	0:21:20	2,890.92	192.73	5.14	0:28:20	260.05	260.05	4.03
0:00:25	4,771.65	39.11	25.30	0:07:25	4,463.16	64.68	14.31	0:14:20	3,928.18	115.53	8.79	0:21:25	3,145.52	196.59	5.19	0:28:25	250.82	250.82	4.18
0:00:30	5,385.70	40.49	25.13	0:07:30	5,663.36	70.79	14.15	0:14:25	4,689.23	111.65	8.72	0:21:30	3,467.01	182.47	5.12	0:28:30	255.85	255.85	4.09
0:00:35	5,913.76	39.43	25.03	0:07:35	6,093.07	70.85	14.29	0:14:30	5,473.57	118.99	8.37	0:21:35	3,928.59	206.77	5.07	0:28:35	259.21	259.21	4.04
0:00:40	6,432.17	38.75	25.85	0:07:40	6,589.67	70.10	14.51	0:14:35	5,767.38	113.09	8.83	0:21:40	3,844.71	202.35	5.18	0:28:40	259.42	259.42	4.03
0:00:45	6,963.59	39.34	25.70	0:07:45	6,917.88	67.82	14.67	0:14:40	6,480.41	122.27	8.47	0:21:45	3,812.83	190.64	5.23	0:28:45	262.14	262.14	4.00
0:00:50	7,451.60	38.41	25.79	0:07:50	7,600.50	71.03	14.36	0:14:45	7,075.16	126.34	8.07	0:21:50	4,290.35	186.54	5.05	0:28:50	254.38	254.38	4.12
0:00:55	8,138.63	40.09	25.58	0:07:55	8,006.51	71.49	14.31	0:14:50	6,945.77	119.75	8.59	0:21:55	4,698.67	187.95	5.28	0:28:55	254.38	254.38	4.12
0:01:00	8,610.07	40.61	25.36	0:08:00	8,349.39	72.60	14.27	0:14:55	7,174.57	123.70	8.47	0:22:00	5,128.17	189.93	5.30	0:29:00	260.89	260.89	4.01
0:01:05	8,842.85	39.65	25.58	0:08:05	8,512.55	70.35	14.40	0:15:00	7,387.22	127.37	8.24	0:22:05	5,553.68	191.51	5.23	0:29:05	257.95	257.95	4.06
0:01:10	9,329.81	40.21	25.62	0:08:10	8,805.52	71.01	14.63	0:15:05	7,175.62	117.63	8.61	0:22:10	6,026.80	207.82	5.04	0:29:10	255.64	255.64	4.10
0:01:15	9,541.62	40.09	25.72	0:08:15	8,812.44	70.50	14.77	0:15:10	7,117.10	114.79	8.74	0:22:15	5,913.34	184.79	5.36	0:29:15	258.37	258.37	4.05
0:01:20	9,627.40	39.14	26.30	0:08:20	8,984.20	71.30	14.69	0:15:15	7,663.62	121.64	8.52	0:22:20	5,985.06	187.03	5.60	0:29:20	262.14	262.14	4.00
0:01:25	9,967.76	38.94	26.42	0:08:25	8,980.21	70.16	14.83	0:15:20	8,052.64	125.82	8.28	0:22:25	6,269.44	195.92	5.34	0:29:25	260.68	260.68	4.02
0:01:30	10,148.96	39.64	26.44	0:08:30	9,019.64	70.47	14.87	0:15:25	7,879.00	123.11	8.51	0:22:30	6,484.18	202.63	5.18	0:29:30	262.35	262.35	3.99
0:01:35	10,178.53	39.76	26.39	0:08:35	8,992.17	70.25	14.94	0:15:30	7,579.11	118.42	8.84	0:22:35	6,291.04	196.59	5.33	0:29:35	260.89	260.89	4.01
0:01:40	10,140.15	39.61	26.47	0:08:40	8,963.65	70.03	14.95	0:15:35	7,554.57	118.04	8.89	0:22:40	6,336.96	198.03	5.29	0:29:40	261.72	261.72	4.00
0:01:45	10,170.35	39.73	26.39	0:08:45	9,016.29	70.44	14.90	0:15:40	7,764.29	121.32	8.63	0:22:45	6,019.46	188.11	5.57	0:29:45	263.61	263.61	3.97
0:01:50	10,108.69	39.49	26.56	0:08:50	8,978.54	70.14	14.95	0:15:45	7,226.58	112.92	9.29	0:22:50	6,134.80	191.71	5.46	0:29:50	257.95	257.95	4.06
0:01:55	10,182.30	39.77	26.36	0:08:55	8,972.46	70.10	14.96	0:15:50	7,495.01	117.11	8.96	0:22:55	5,900.97	184.41	5.69	0:29:55	261.72	261.72	4.00
0:02:00	10,186.92	39.79	26.34	0:09:00	8,999.30	70.31	14.90	0:15:55	7,886.34	123.22	8.50	0:23:00	6,202.75	193.84	5.40	0:30:00	247.04	247.04	4.24
0:02:05	10,208.73	39.88	26.33	0:09:05	8,994.27	70.27	14.92	0:16:00	7,404.00	115.69	9.06	0:23:05	6,031.83	188.49	5.55	0:30:05	260.47	260.47	4.02
0:02:10	10,211.24	39.89	26.29	0:09:10	9,026.98	70.52	14.86	0:16:05	7,678.72	119.98	8.74	0:23:10	6,197.71	193.68	5.41	0:30:10	259.63	259.63	4.03
0:02:15	10,227.39	39.95	26.26	0:09:15	8,961.76	70.01	14.98	0:16:10	6,956.25	108.69	9.64	0:23:15	6,070.63	189.71	5.53	0:30:15	259.84	259.84	4.03
0:02:20	10,222.36	39.93	26.26	0:09:20	8,989.65	70.23	14.93	0:16:15	7,684.80	120.08	8.73	0:23:20	6,144.24	192.01	5.46	0:30:20	262.35	262.35	3.99
0:02:25	10,241.02	40.00	26.21	0:09:25	8,972.87	70.10	14.96	0:16:20	7,624.41	119.13	8.80	0:23:25	6,067.27	189.60	5.53	0:30:25	257.53	257.53	4.07
0:02:30	10,204.74	39.86	26.32	0:09:30	8,985.46	70.20	14.94	0:16:25	7,420.56	115.95	9.04	0:23:30	6,077.55	189.92	5.51	0:30:30	258.79	258.79	4.05
0:02:35	10,240.81	40.00	26.18	0:09:35	8,999.51	70.31	14.91	0:16:30	7,498.37	117.16	8.95	0:23:35	6,103.76	190.74	5.49	0:30:35	257.11	257.11	4.07
0:02:40	10,229.49	39.96	26.26	0:09:40	8,985.46	70.20	14.93	0:16:35	7,951.77	124.25	8.44	0:23:40	6,183.66	193.24	5.42	0:30:40	258.58	258.58	4.05
0:02:45	10,221.94	39.93	26.29	0:09:45	9,005.59	70.36	14.92	0:16:40	7,846.49	122.60	8.54	0:23:45	6,157.03	192.41	5.45	0:30:45	261.72	261.72	4.00
0:02:50	10,235.78	39.98	26.20	0:09:50	8,996.78	70.29	14.92	0:16:45	7,781.90	121.59	8.62	0:23:50	6,356.05	198.63	5.27	0:30:50	258.16	258.16	4.06
0:02:55	10,231.17	39.97	26.26	0:09:55	9,006.22	70.36	14.89	0:16:50	7,596.30	118.69	8.82	0:23:55	6,103.13	190.72	5.49	0:30:55	257.11	257.11	4.07
								0:16:55	7,657.33	119.65	8.76								

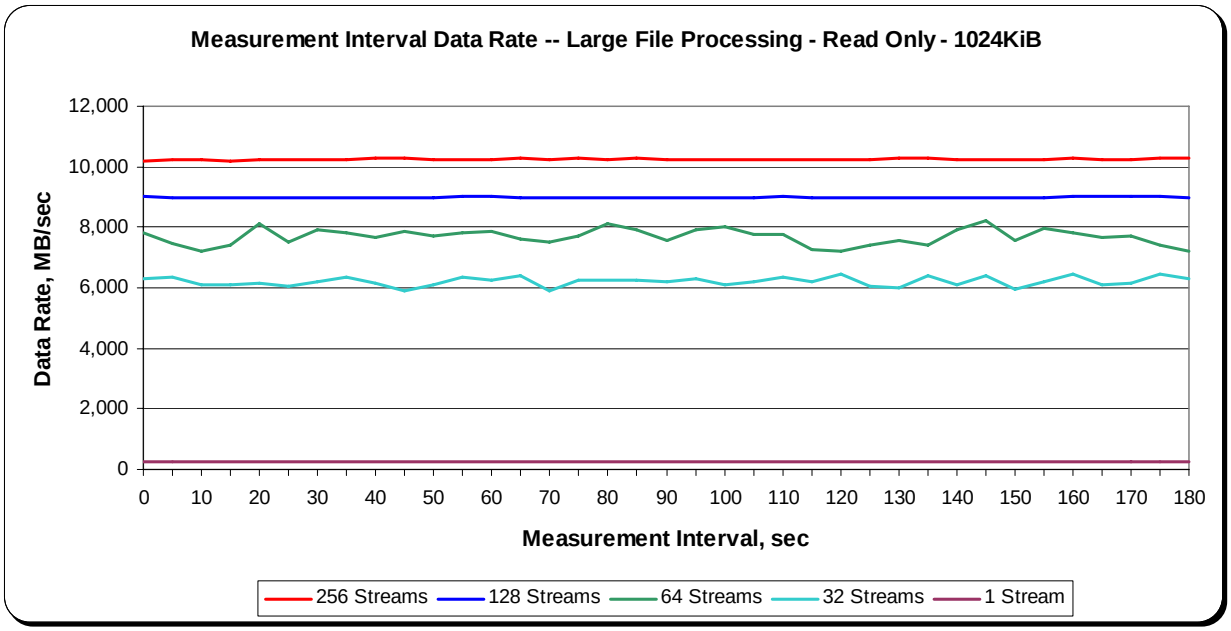
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR21	256 Streams			TR22	128 Streams			TR23	64 Streams			TR24	32 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	10,187.54	39.80	26.34	0:10:00	9,003.49	70.34	14.92	0:17:00	7,791.76	121.75	8.61	0:24:00	6,313.90	197.31	5.32	0:31:00	255.22	255.22	4.10
0:03:05	10,260.32	40.08	26.17	0:10:05	8,980.42	70.16	14.93	0:17:05	7,457.89	116.53	8.99	0:24:05	6,377.86	199.31	5.26	0:31:05	257.11	257.11	4.08
0:03:10	10,234.94	39.98	26.21	0:10:10	8,987.34	70.21	14.93	0:17:10	7,224.90	112.89	9.29	0:24:10	6,122.84	191.34	5.48	0:31:10	260.89	260.89	4.01
0:03:15	10,206.21	39.87	26.32	0:10:15	8,968.26	70.06	14.96	0:17:15	7,388.48	115.44	9.08	0:24:15	6,124.31	191.38	5.26	0:31:15	251.45	251.45	4.17
0:03:20	10,240.81	40.00	26.20	0:10:20	8,996.36	70.28	14.93	0:17:20	8,100.25	126.57	8.29	0:24:20	6,162.06	192.56	5.44	0:31:20	255.22	255.22	4.10
0:03:25	10,239.55	40.00	26.22	0:10:25	8,981.47	70.17	14.92	0:17:25	7,505.29	117.27	8.94	0:24:25	6,062.66	189.46	5.53	0:31:25	261.51	261.51	4.00
0:03:30	10,228.86	39.96	26.25	0:10:30	8,981.05	70.16	14.95	0:17:30	7,922.20	123.78	8.46	0:24:30	6,223.51	194.48	5.38	0:31:30	254.59	254.59	4.11
0:03:35	10,244.80	40.02	26.21	0:10:35	8,999.09	70.31	14.91	0:17:35	7,821.75	122.21	8.58	0:24:35	6,345.77	198.31	5.29	0:31:35	262.35	262.35	3.99
0:03:40	10,273.74	40.13	26.07	0:10:40	8,993.85	70.26	14.92	0:17:40	7,643.28	119.43	8.77	0:24:40	6,148.85	192.15	5.45	0:31:40	257.74	257.74	4.06
0:03:45	10,268.08	40.11	26.21	0:10:45	8,982.52	70.18	14.95	0:17:45	7,881.52	123.15	8.52	0:24:45	5,907.68	184.61	5.67	0:31:45	262.77	262.77	3.99
0:03:50	10,250.04	40.04	26.19	0:10:50	8,978.33	70.14	14.95	0:17:50	7,697.39	120.27	8.71	0:24:50	6,084.89	190.15	5.51	0:31:50	258.58	258.58	4.05
0:03:55	10,253.81	40.05	26.16	0:10:55	9,008.74	70.38	14.89	0:17:55	7,820.07	122.19	8.58	0:24:55	6,329.83	197.81	5.29	0:31:55	260.05	260.05	4.04
0:04:00	10,237.25	39.99	26.21	0:11:00	9,003.28	70.34	14.91	0:18:00	7,882.15	123.16	8.51	0:25:00	6,261.47	195.67	5.36	0:32:00	248.93	248.93	4.20
0:04:05	10,274.58	40.14	26.12	0:11:05	8,994.68	70.27	14.91	0:18:05	7,599.45	118.74	8.82	0:25:05	6,394.01	199.81	5.24	0:32:05	254.80	254.80	4.11
0:04:10	10,255.70	40.06	26.19	0:11:10	8,980.42	70.16	14.94	0:18:10	7,491.45	117.05	8.95	0:25:10	5,887.75	183.99	5.69	0:32:10	262.98	262.98	3.98
0:04:15	10,264.30	40.09	26.18	0:11:15	8,977.91	70.14	14.95	0:18:15	7,694.87	120.23	8.72	0:25:15	6,243.22	195.10	5.37	0:32:15	259.00	259.00	4.04
0:04:20	10,240.18	40.00	26.21	0:11:20	8,987.76	70.22	14.94	0:18:20	8,119.54	126.87	8.26	0:25:20	6,242.17	195.07	5.37	0:32:20	261.51	261.51	4.00
0:04:25	10,271.85	40.12	26.09	0:11:25	8,995.73	70.28	14.93	0:18:25	7,917.59	123.71	8.47	0:25:25	6,248.25	195.26	5.36	0:32:25	259.84	259.84	4.03
0:04:30	10,246.47	40.03	26.26	0:11:30	8,997.41	70.29	14.91	0:18:30	7,550.80	117.98	8.88	0:25:30	6,219.10	194.35	5.39	0:32:30	251.66	251.66	4.16
0:04:35	10,259.06	40.07	26.16	0:11:35	8,987.14	70.21	14.94	0:18:35	7,933.53	123.96	8.47	0:25:35	6,324.59	197.64	5.30	0:32:35	255.22	255.22	4.10
0:04:40	10,245.43	40.02	26.21	0:11:40	8,979.38	70.15	14.94	0:18:40	8,022.45	125.35	8.36	0:25:40	6,087.82	190.24	5.51	0:32:40	256.48	256.48	4.08
0:04:45	10,258.22	40.07	26.13	0:11:45	8,980.42	70.16	14.94	0:18:45	7,768.27	121.38	8.63	0:25:45	6,179.05	193.10	5.42	0:32:45	260.68	260.68	4.02
0:04:50	10,246.27	40.02	26.21	0:11:50	9,002.44	70.33	14.90	0:18:50	7,783.37	121.62	8.62	0:25:50	6,344.93	198.28	5.29	0:32:50	247.46	247.46	4.23
0:04:55	10,256.96	40.07	26.19	0:11:55	8,995.31	70.28	14.92	0:18:55	7,285.30	113.83	9.21	0:25:55	6,179.26	193.10	5.42	0:32:55	253.97	253.97	4.12
0:05:00	10,255.28	40.06	26.20	0:12:00	8,983.99	70.19	14.94	0:19:00	7,216.30	112.75	9.29	0:26:00	6,465.73	202.05	5.19	0:33:00	262.98	262.98	3.98
0:05:05	10,251.09	40.04	26.17	0:12:05	8,987.97	70.22	14.94	0:19:05	7,392.25	115.50	9.07	0:26:05	6,064.54	189.52	5.53	0:33:05	255.85	255.85	4.09
0:05:10	10,269.33	40.11	26.14	0:12:10	8,981.68	70.17	14.95	0:19:10	7,557.72	118.09	8.88	0:26:10	5,995.55	187.36	5.59	0:33:10	259.63	259.63	4.04
0:05:15	10,262.83	40.09	26.18	0:12:15	8,985.25	70.20	14.94	0:19:15	7,399.59	115.62	9.07	0:26:15	6,401.98	200.06	5.24	0:33:15	253.97	253.97	4.12
0:05:20	10,252.56	40.05	26.17	0:12:20	8,987.76	70.22	14.92	0:19:20	7,911.72	123.62	8.49	0:26:20	6,094.53	190.45	5.49	0:33:20	257.53	257.53	4.07
0:05:25	10,231.79	39.97	26.20	0:12:25	8,996.57	70.29	14.91	0:19:25	8,202.59	128.17	8.17	0:26:25	6,397.36	199.92	5.25	0:33:25	254.38	254.38	4.12
0:05:30	10,228.65	39.96	26.27	0:12:30	8,991.96	70.25	14.94	0:19:30	7,565.27	118.21	8.87	0:26:30	5,969.54	186.55	5.62	0:33:30	264.87	264.87	3.96
0:05:35	10,237.04	39.99	26.22	0:12:35	8,991.54	70.25	14.91	0:19:35	7,986.37	124.79	8.41	0:26:35	6,196.25	193.63	5.41	0:33:35	259.00	259.00	4.04
0:05:40	10,273.95	40.13	26.13	0:12:40	9,002.23	70.33	14.91	0:19:40	7,792.60	121.76	8.61	0:26:40	6,449.58	201.55	5.20	0:33:40	262.56	262.56	3.99
0:05:45	10,254.65	40.06	26.22	0:12:45	9,002.02	70.33	14.91	0:19:45	7,671.38	119.87	8.75	0:26:45	6,107.54	190.86	5.49	0:33:45	254.17	254.17	4.12
0:05:50	10,232.00	39.97	26.23	0:12:50	9,012.72	70.41	14.90	0:19:50	7,702.63	120.35	8.70	0:26:50	6,163.11	192.60	5.45	0:33:50	245.37	245.37	4.10
0:05:55	10,270.59	40.12	26.13	0:12:55	9,003.07	70.34	14.91	0:19:55	7,421.40	115.96	9.04	0:26:55	6,462.16	201.94	5.19	0:33:55	256.69	256.69	4.08
0:06:00	10,280.66	40.16	26.13	0:13:00	8,966.16	70.05	14.97	0:20:00	7,234.75	113.04	9.28	0:27:00	6,300.47	196.89	5.32	0:34:00	260.05	260.05	4.03
0:06:05	10,236.41	39.99	26.23	0:13:05	8,985.04	70.20	14.94	0:20:05	7,497.32	117.15	8.95	0:27:05	6,239.24	194.98	5.37	0:34:05	263.61	263.61	3.97
0:06:10	10,242.49	40.01	26.19	0:13:10	8,974.55	70.11	14.96	0:20:10	7,672.85	119.89	8.75	0:27:10	6,237.98	194.94	5.38	0:34:10	255.01	255.01	4.11
0:06:15	10,252.56	40.05	26.20	0:13:15	8,980.21	70.16	14.93	0:20:15	7,736.39	120.88	8.67	0:27:15	6,088.45	190.26	5.50	0:34:15	262.35	262.35	3.99
0:06:20	10,257.38	40.07	26.17	0:13:20	8,981.05	70.16	14.93	0:20:20	7,826.15	122.28	8.57	0:27:20	6,102.71	190.71	5.50	0:34:20	263.40	263.40	3.98
0:06:25	10,234.31	39.98	26.21	0:13:25	8,979.38	70.15	14.96	0:20:25	7,796.37	121.82	8.61	0:27:25	6,200.02	193.75	5.41	0:34:25	259.00	259.00	4.04
0:06:30	9,796.64	38.27	26.33	0:13:30	8,987.14	70.21	14.92	0:20:30	7,546.81	117.92	8.89	0:27:30	5,672.80	177.27	5.91	0:34:30	254.80	254.80	4.11
0:06:35	10,257.38	40.07	26.13	0:13:35	8,982.31	70.17	14.94	0:20:35	7,575.75	118.37	8.84	0:27:35	6,269.86	195.93	5.35	0:34:35	261.31	261.31	4.01
0:06:40	10,269.96	40.12	26.17	0:13:40	8,994.68	70.27	14.88	0:20:40	7,549.75	117.96	8.89	0:27:40	6,350.18	198.44	5.28	0:34:40	255.64	255.64	4.10
0:06:45	876.82	0.00	25.15	0:13:45	431.17	0.00	15.18	0:20:45	426.98	0.00	8.48	0:27:45	383.36	0.00	5.52	0:34:45	16.78	0.00	3.94
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					0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

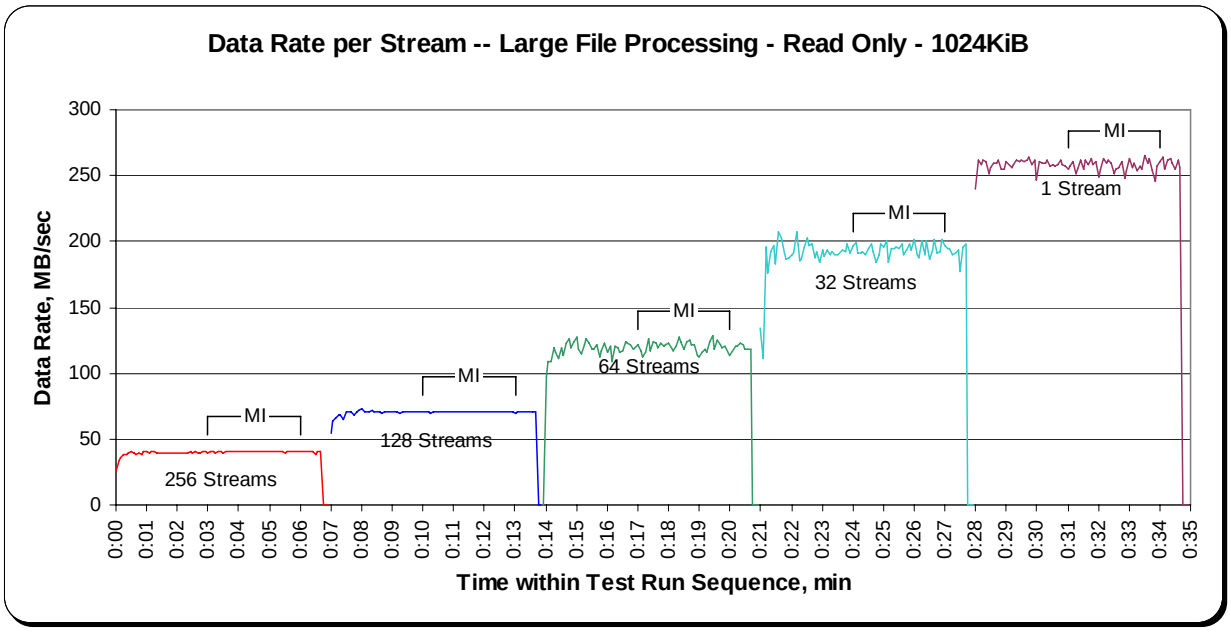
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



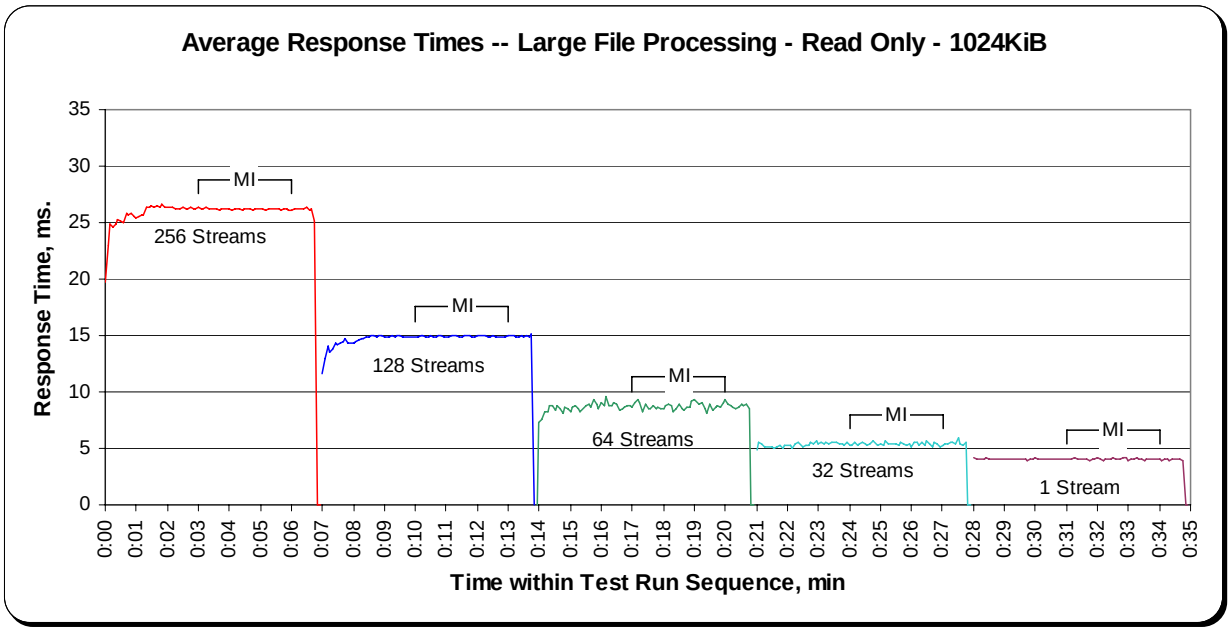
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



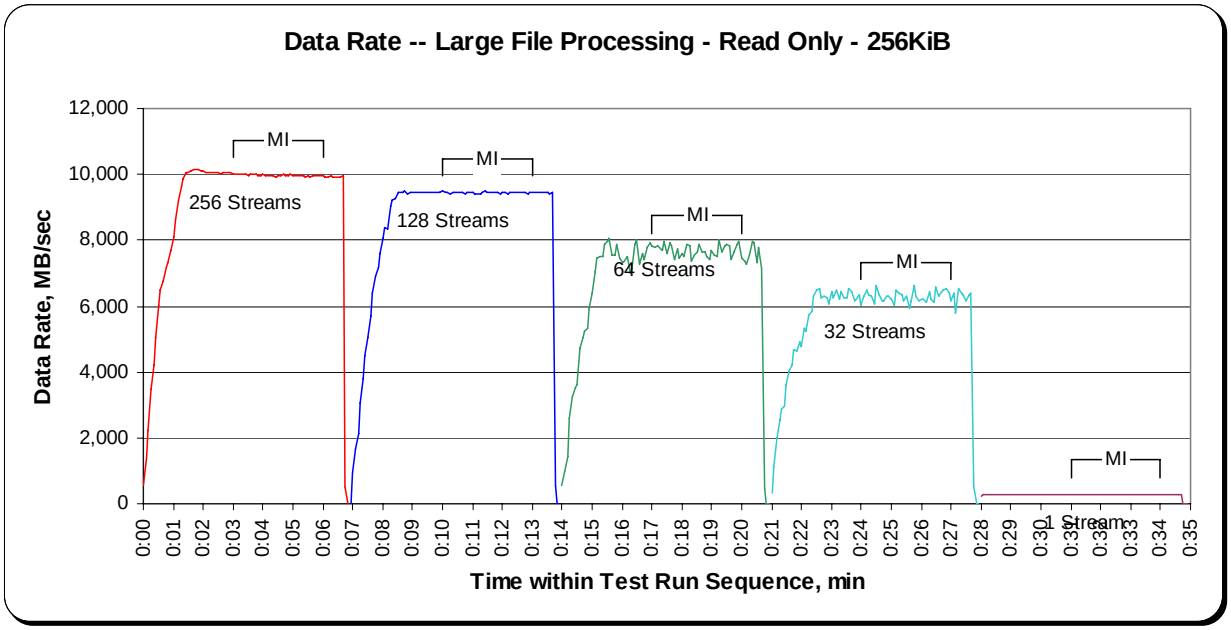
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR26	256 Streams			TR27	128 Streams			TR28	64 Streams			TR29	32 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	573.10	30.16	3.91	0:06:55	0.00	0.00	0.00	0:14:00	556.43	92.74	1.69	0:21:00	302.88	151.44	0.95	0:28:00	246.94	246.94	0.99
0:00:05	1,385.27	32.98	5.70	0:07:00	912.26	65.16	2.69	0:14:05	977.74	108.64	1.93	0:21:05	1,120.19	124.47	1.25	0:28:05	281.12	281.12	0.93
0:00:10	2,212.18	34.03	6.02	0:07:05	1,685.53	76.62	2.97	0:14:10	1,426.38	89.15	2.05	0:21:10	2,006.82	200.68	1.25	0:28:10	276.19	276.19	0.94
0:00:15	3,460.83	38.89	6.02	0:07:10	2,148.85	67.15	3.35	0:14:15	2,588.72	112.55	1.98	0:21:15	2,525.60	210.47	1.20	0:28:15	278.55	278.55	0.94
0:00:20	4,224.14	39.11	6.12	0:07:15	3,054.71	69.43	3.26	0:14:20	3,225.73	111.23	2.12	0:21:20	2,869.22	191.28	1.24	0:28:20	279.39	279.39	0.93
0:00:25	5,062.58	38.94	6.24	0:07:20	3,801.04	70.39	3.31	0:14:25	3,542.25	114.27	2.22	0:21:25	2,966.79	174.52	1.41	0:28:25	273.36	273.36	0.95
0:00:30	6,013.32	39.82	6.16	0:07:25	4,489.69	70.15	3.38	0:14:30	3,606.73	106.08	2.29	0:21:30	3,627.23	190.91	1.30	0:28:30	269.27	269.27	0.97
0:00:35	6,481.25	41.02	6.21	0:07:30	5,041.34	73.06	3.44	0:14:35	4,703.13	114.71	2.09	0:21:35	4,041.00	192.43	1.32	0:28:35	278.13	278.13	0.94
0:00:40	6,752.57	39.96	6.32	0:07:35	5,683.96	72.87	3.37	0:14:40	5,067.45	115.17	2.17	0:21:40	4,214.17	200.67	1.30	0:28:40	273.84	273.84	0.95
0:00:45	7,186.52	40.83	6.26	0:07:40	6,409.79	72.84	3.41	0:14:45	5,229.93	113.69	2.28	0:21:45	4,686.24	203.75	1.25	0:28:45	273.00	273.00	0.95
0:00:50	7,323.99	39.17	6.47	0:07:45	6,880.44	73.98	3.47	0:14:50	5,327.71	110.99	2.32	0:21:50	4,631.56	201.37	1.30	0:28:50	276.61	276.61	0.94
0:00:55	7,706.82	39.93	6.46	0:07:50	7,178.97	72.51	3.50	0:14:55	5,951.72	114.46	2.17	0:21:55	4,888.57	203.69	1.28	0:28:55	273.94	273.94	0.95
0:01:00	8,112.88	39.96	6.41	0:07:55	7,597.82	73.06	3.47	0:15:00	6,406.59	118.64	2.16	0:22:00	4,778.31	199.10	1.31	0:29:00	275.15	275.15	0.95
0:01:05	8,639.11	39.81	6.36	0:08:00	8,047.61	75.21	3.43	0:15:05	7,034.69	125.62	2.03	0:22:05	5,333.95	205.15	1.24	0:29:05	279.60	279.60	0.93
0:01:10	9,239.42	40.17	6.31	0:08:05	8,374.50	74.77	3.41	0:15:10	7,466.49	124.44	2.00	0:22:10	5,255.46	202.13	1.29	0:29:10	271.79	271.79	0.96
0:01:15	9,650.99	40.72	6.35	0:08:10	8,360.19	71.45	3.45	0:15:15	7,490.40	120.81	2.14	0:22:15	5,749.24	198.25	1.27	0:29:15	273.21	273.21	0.95
0:01:20	9,850.27	40.04	6.44	0:08:15	9,018.91	74.54	3.43	0:15:20	7,493.75	118.95	2.19	0:22:20	5,849.69	188.70	1.34	0:29:20	278.13	278.13	0.94
0:01:25	10,048.98	39.25	6.56	0:08:20	9,204.50	74.23	3.48	0:15:25	7,878.48	123.10	2.11	0:22:25	6,313.53	197.30	1.32	0:29:25	280.02	280.02	0.93
0:01:30	10,065.65	39.32	6.67	0:08:25	9,261.91	72.36	3.53	0:15:30	7,966.08	124.47	2.10	0:22:30	6,496.51	203.02	1.29	0:29:30	278.19	278.19	0.94
0:01:35	10,117.55	39.52	6.63	0:08:30	9,455.90	73.87	3.54	0:15:35	8,075.98	126.19	2.07	0:22:35	6,526.86	203.96	1.28	0:29:35	278.13	278.13	0.94
0:01:40	10,138.79	39.60	6.61	0:08:35	9,430.42	73.68	3.55	0:15:40	7,553.16	118.02	2.21	0:22:40	6,238.77	194.96	1.34	0:29:40	282.43	282.43	0.92
0:01:45	10,125.84	39.55	6.62	0:08:40	9,444.58	73.79	3.55	0:15:45	7,562.96	118.17	2.21	0:22:45	6,294.92	196.72	1.33	0:29:45	272.58	272.58	0.95
0:01:50	10,132.65	39.58	6.62	0:08:45	9,487.04	74.12	3.53	0:15:50	7,867.47	122.93	2.13	0:22:50	6,235.41	194.86	1.34	0:29:50	276.67	276.67	0.94
0:01:55	10,109.16	39.49	6.63	0:08:50	9,409.61	73.51	3.56	0:15:55	7,455.11	116.49	2.24	0:22:55	6,084.52	190.14	1.37	0:29:55	267.39	267.39	0.98
0:02:00	10,100.67	39.46	6.64	0:08:55	9,452.81	73.85	3.54	0:16:00	7,328.50	114.51	2.28	0:23:00	6,430.34	200.95	1.30	0:30:00	273.00	273.00	0.95
0:02:05	10,041.43	39.22	6.68	0:09:00	9,436.03	73.72	3.55	0:16:05	7,353.14	114.89	2.28	0:23:05	6,248.67	195.27	1.34	0:30:05	276.56	276.56	0.94
0:02:10	10,057.78	39.29	6.67	0:09:05	9,462.19	73.92	3.54	0:16:10	7,495.43	117.12	2.23	0:23:10	6,484.66	202.65	1.29	0:30:10	270.79	270.79	0.96
0:02:15	10,031.88	39.19	6.68	0:09:10	9,440.80	73.76	3.55	0:16:15	6,984.72	109.14	2.39	0:23:15	6,189.53	193.42	1.35	0:30:15	280.39	280.39	0.93
0:02:20	10,031.41	39.19	6.69	0:09:15	9,435.35	73.71	3.55	0:16:20	7,138.55	111.54	2.35	0:23:20	6,462.32	201.95	1.29	0:30:20	275.57	275.57	0.95
0:02:25	10,057.99	39.29	6.67	0:09:20	9,458.21	73.89	3.54	0:16:25	7,878.06	123.09	2.13	0:23:25	6,251.35	195.35	1.34	0:30:25	279.71	279.71	0.93
0:02:30	10,033.04	39.19	6.68	0:09:25	9,445.21	73.79	3.55	0:16:30	8,005.83	125.09	2.09	0:23:30	6,241.91	195.06	1.34	0:30:30	280.13	280.13	0.93
0:02:35	10,010.23	39.10	6.70	0:09:30	9,460.51	73.91	3.54	0:16:35	7,289.54	113.90	2.30	0:23:35	6,553.34	204.79	1.28	0:30:35	278.92	278.92	0.93
0:02:40	10,043.73	39.23	6.68	0:09:35	9,450.29	73.83	3.55	0:16:40	7,613.34	118.96	2.20	0:23:40	6,448.59	201.52	1.30	0:30:40	275.30	275.30	0.95
0:02:45	10,076.92	39.36	6.66	0:09:40	9,458.42	73.89	3.54	0:16:45	7,411.96	115.81	2.26	0:23:45	6,153.78	192.31	1.36	0:30:45	267.86	267.86	0.97
0:02:50	10,047.66	39.25	6.68	0:09:45	9,439.86	73.75	3.55	0:16:50	7,771.63	121.43	2.15	0:23:50	6,200.54	193.77	1.35	0:30:50	280.65	280.65	0.93
0:02:55	10,032.67	39.19	6.68	0:09:50	9,467.75	73.97	3.54	0:16:55	7,943.12	124.11	2.11	0:23:55	6,344.62	198.27	1.32	0:30:55	277.24	277.24	0.94
				0:09:55	9,468.85	73.98	3.54												

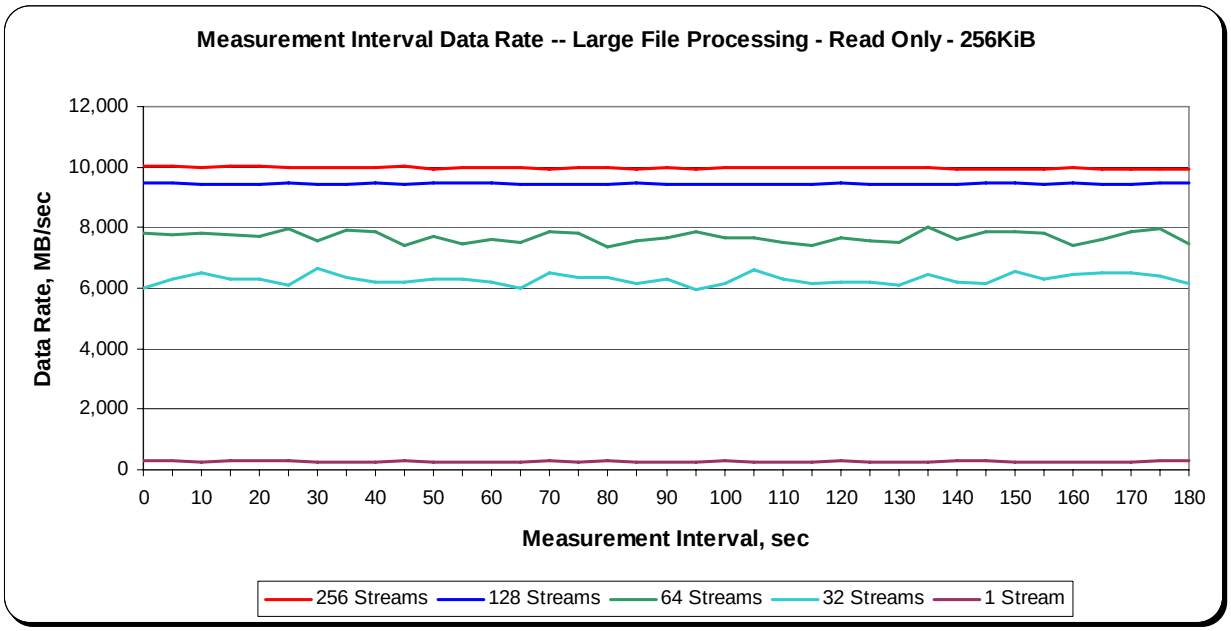
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR26	256 Streams			TR27	128 Streams			TR28	64 Streams			TR29	32 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	10,029.05	39.18	6.69	0:10:00	9,476.51	74.04	3.54	0:17:00	7,821.91	122.22	2.14	0:24:00	6,006.92	187.72	1.39	0:31:00	281.33	281.33	0.93
0:03:05	10,010.76	39.10	6.70	0:10:05	9,468.22	73.97	3.54	0:17:05	7,773.36	121.46	2.15	0:24:05	6,290.98	196.59	1.33	0:31:05	279.66	279.66	0.93
0:03:10	10,000.74	39.07	6.71	0:10:10	9,447.88	73.81	3.55	0:17:10	7,818.08	122.16	2.14	0:24:10	6,504.63	203.27	1.28	0:31:10	277.30	277.30	0.94
0:03:15	10,027.43	39.17	6.69	0:10:15	9,411.34	73.53	3.56	0:17:15	7,760.83	121.26	2.16	0:24:15	6,327.58	197.74	1.32	0:31:15	280.39	280.39	0.93
0:03:20	10,022.03	39.15	6.69	0:10:20	9,436.29	73.72	3.55	0:17:20	7,707.87	120.44	2.17	0:24:20	6,285.16	196.41	1.33	0:31:20	277.77	277.77	0.94
0:03:25	10,004.83	39.08	6.70	0:10:25	9,470.53	73.99	3.54	0:17:25	7,956.49	124.32	2.10	0:24:25	6,087.77	190.24	1.37	0:31:25	280.97	280.97	0.93
0:03:30	9,982.34	38.99	6.72	0:10:30	9,434.41	73.71	3.55	0:17:30	7,578.48	118.41	2.21	0:24:30	6,639.37	207.48	1.26	0:31:30	273.89	273.89	0.95
0:03:35	10,007.45	39.09	6.70	0:10:35	9,449.82	73.83	3.54	0:17:35	7,940.76	124.07	2.11	0:24:35	6,335.39	197.98	1.32	0:31:35	276.98	276.98	0.94
0:03:40	9,988.89	39.02	6.71	0:10:40	9,472.57	74.00	3.54	0:17:40	7,848.17	122.63	2.13	0:24:40	6,183.92	193.25	1.35	0:31:40	274.41	274.41	0.95
0:03:45	10,015.00	39.12	6.69	0:10:45	9,417.94	73.58	3.56	0:17:45	7,432.15	116.13	2.25	0:24:45	6,184.71	193.27	1.35	0:31:45	280.49	280.49	0.93
0:03:50	9,957.91	38.90	6.74	0:10:50	9,454.54	73.86	3.55	0:17:50	7,737.65	120.90	2.16	0:24:50	6,310.07	197.19	1.32	0:31:50	271.84	271.84	0.96
0:03:55	9,964.88	38.93	6.73	0:10:55	9,456.22	73.88	3.54	0:17:55	7,449.61	116.40	2.16	0:24:55	6,286.06	196.44	1.33	0:31:55	270.01	270.01	0.97
0:04:00	9,989.10	39.02	6.71	0:11:00	9,458.31	73.89	3.54	0:18:00	7,594.42	118.66	2.21	0:25:00	6,225.03	194.53	1.34	0:32:00	272.58	272.58	0.96
0:04:05	9,979.61	38.98	6.72	0:11:05	9,425.91	73.64	3.56	0:18:05	7,497.84	117.15	2.23	0:25:05	6,002.94	187.59	1.39	0:32:05	272.68	272.68	0.96
0:04:10	9,956.18	38.89	6.74	0:11:10	9,424.92	73.63	3.56	0:18:10	7,877.64	123.09	2.12	0:25:10	6,479.99	202.50	1.29	0:32:10	277.87	277.87	0.94
0:04:15	9,978.77	38.98	6.72	0:11:15	9,425.02	73.63	3.55	0:18:15	7,807.85	122.00	2.14	0:25:15	6,371.67	199.11	1.31	0:32:15	270.64	270.64	0.96
0:04:20	9,977.36	38.97	6.72	0:11:20	9,436.71	73.72	3.55	0:18:20	7,350.31	114.85	2.28	0:25:20	6,343.57	198.24	1.32	0:32:20	277.98	277.98	0.94
0:04:25	9,934.63	38.81	6.75	0:11:25	9,479.39	74.06	3.53	0:18:25	7,556.72	118.07	2.21	0:25:25	6,158.86	192.46	1.36	0:32:25	275.78	275.78	0.95
0:04:30	9,968.50	38.94	6.72	0:11:30	9,430.42	73.68	3.55	0:18:30	7,658.59	119.67	2.18	0:25:30	6,286.42	196.45	1.33	0:32:30	275.25	275.25	0.95
0:04:35	9,947.05	38.86	6.75	0:11:35	9,450.29	73.83	3.55	0:18:35	7,886.76	123.23	2.12	0:25:35	5,951.30	185.98	1.40	0:32:35	276.88	276.88	0.94
0:04:40	9,992.14	39.03	6.71	0:11:40	9,432.31	73.69	3.55	0:18:40	7,656.18	119.63	2.19	0:25:40	6,139.05	191.85	1.36	0:32:40	278.87	278.87	0.93
0:04:45	9,983.28	39.00	6.72	0:11:45	9,442.22	73.77	3.55	0:18:45	7,654.19	119.60	2.19	0:25:45	6,623.54	206.99	1.26	0:32:45	272.16	272.16	0.96
0:04:50	9,961.52	38.91	6.73	0:11:50	9,438.49	73.74	3.55	0:18:50	7,506.76	117.29	2.23	0:25:50	6,289.99	196.56	1.33	0:32:50	276.82	276.82	0.94
0:04:55	9,992.82	39.03	6.71	0:11:55	9,423.24	73.62	3.55	0:18:55	7,431.21	116.11	2.25	0:25:55	6,175.69	192.99	1.35	0:32:55	274.73	274.73	0.95
0:05:00	9,963.62	38.92	6.73	0:12:00	9,460.88	73.91	3.54	0:19:00	7,688.47	120.13	2.18	0:26:00	6,204.06	193.88	1.35	0:33:00	277.98	277.98	0.94
0:05:05	9,980.56	38.99	6.72	0:12:05	9,439.96	73.75	3.55	0:19:05	7,556.14	118.06	2.21	0:26:05	6,207.36	193.98	1.35	0:33:05	269.12	269.12	0.97
0:05:10	9,966.56	38.93	6.73	0:12:10	9,424.08	73.63	3.56	0:19:10	7,512.37	117.38	2.23	0:26:10	6,100.98	190.66	1.37	0:33:10	271.95	271.95	0.96
0:05:15	9,974.16	38.96	6.73	0:12:15	9,440.80	73.76	3.55	0:19:15	7,996.49	124.95	2.09	0:26:15	6,436.74	201.15	1.30	0:33:15	272.21	272.21	0.96
0:05:20	9,955.91	38.89	6.74	0:12:20	9,432.20	73.69	3.55	0:19:20	7,628.39	119.19	2.19	0:26:20	6,205.63	193.93	1.35	0:33:20	279.24	279.24	0.93
0:05:25	9,916.80	38.74	6.76	0:12:25	9,467.59	73.97	3.54	0:19:25	7,844.29	122.57	2.13	0:26:25	6,131.29	191.60	1.36	0:33:25	277.61	277.61	0.94
0:05:30	9,942.02	38.84	6.74	0:12:30	9,461.46	73.92	3.54	0:19:30	7,870.09	122.97	2.13	0:26:30	6,560.78	205.02	1.27	0:33:30	274.20	274.20	0.95
0:05:35	9,926.08	38.77	6.76	0:12:35	9,449.77	73.83	3.55	0:19:35	7,818.29	122.16	2.14	0:26:35	6,314.05	197.31	1.32	0:33:35	267.60	267.60	0.97
0:05:40	9,978.35	38.98	6.72	0:12:40	9,461.98	73.92	3.54	0:19:40	7,405.57	115.71	2.26	0:26:40	6,454.72	201.71	1.29	0:33:40	274.10	274.10	0.95
0:05:45	9,952.61	38.88	6.73	0:12:45	9,437.81	73.73	3.55	0:19:45	7,623.99	119.12	2.20	0:26:45	6,481.20	202.54	1.29	0:33:45	275.88	275.88	0.94
0:05:50	9,949.26	38.86	6.74	0:12:50	9,424.34	73.63	3.56	0:19:50	7,860.70	122.82	2.13	0:26:50	6,528.12	204.00	1.28	0:33:50	276.40	276.40	0.94
0:05:55	9,953.82	38.88	6.74	0:12:55	9,470.32	73.99	3.54	0:19:55	7,980.08	124.69	2.10	0:26:55	6,394.37	199.82	1.31	0:33:55	277.72	277.72	0.94
0:06:00	9,950.09	38.87	6.75	0:13:00	9,472.10	74.00	3.54	0:20:00	7,452.44	116.44	2.25	0:27:00	6,142.14	191.94	1.36	0:34:00	278.87	278.87	0.93
0:06:05	9,933.84	38.80	6.75	0:13:05	9,464.87	73.94	3.54	0:20:05	7,348.05	114.81	2.28	0:27:05	6,393.01	199.78	1.31	0:34:05	280.81	280.81	0.93
0:06:10	9,918.74	38.75	6.77	0:13:10	9,443.16	73.77	3.55	0:20:10	7,256.57	113.38	2.31	0:27:10	5,805.55	181.42	1.38	0:34:10	269.17	269.17	0.97
0:06:15	9,954.13	38.88	6.74	0:13:15	9,449.09	73.82	3.55	0:20:15	7,570.19	118.28	2.21	0:27:15	6,525.81	203.93	1.28	0:34:15	278.08	278.08	0.94
0:06:20	9,896.72	38.66	6.77	0:13:20	9,440.59	73.75	3.55	0:20:20	7,946.32	124.16	2.11	0:27:20	6,385.25	199.54	1.31	0:34:20	277.09	277.09	0.94
0:06:25	9,932.06	38.80	6.75	0:13:25	9,436.40	73.72	3.55	0:20:25	7,900.92	123.45	2.12	0:27:25	6,354.16	198.57	1.32	0:34:25	277.87	277.87	0.94
0:06:30	9,918.11	38.74	6.76	0:13:30	9,436.08	73.72	3.55	0:20:30	7,325.72	114.46	2.28	0:27:30	6,140.67	191.90	1.36	0:34:30	273.15	273.15	0.95
0:06:35	9,918.90	38.75	6.76	0:13:35	9,412.23	73.53	3.56	0:20:35	7,788.14	121.69	2.15	0:27:35	6,338.38	198.07	1.32	0:34:35	276.77	276.77	0.94
0:06:40	9,948.10	38.86	6.75	0:13:40	9,442.32	73.77	3.55	0:20:40	7,119.46	111.24	2.35	0:27:40	6,388.61	199.64	1.31	0:34:40	280.76	280.76	0.93
0:06:45	491.15	0.00	6.11	0:13:45	536.98	0.00	3.49	0:20:45	462.11	0.00	2.38	0:27:45	502.22	0.00	1.26	0:34:45	10.33	0.00	0.99
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
				0:13:55	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

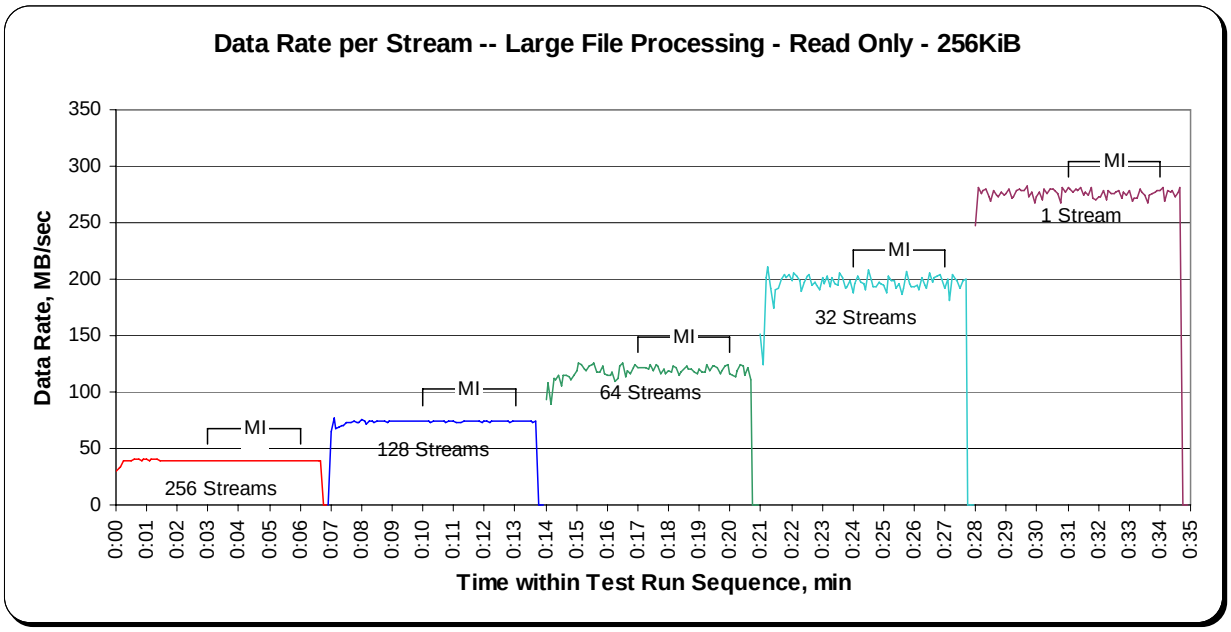
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



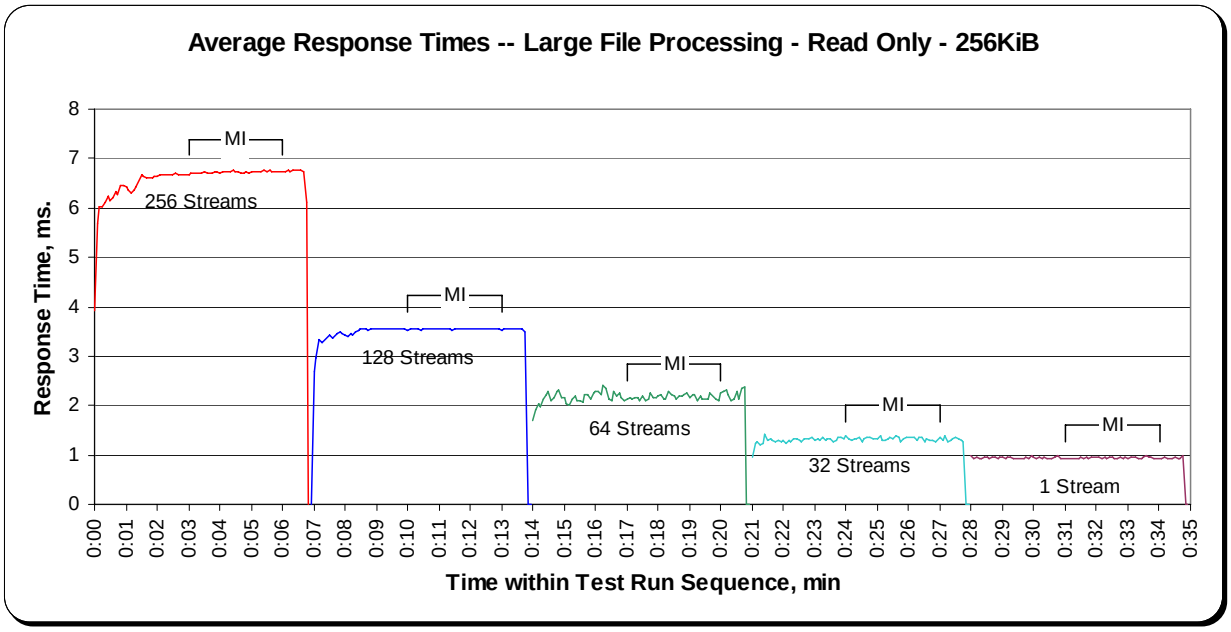
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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 117.

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.

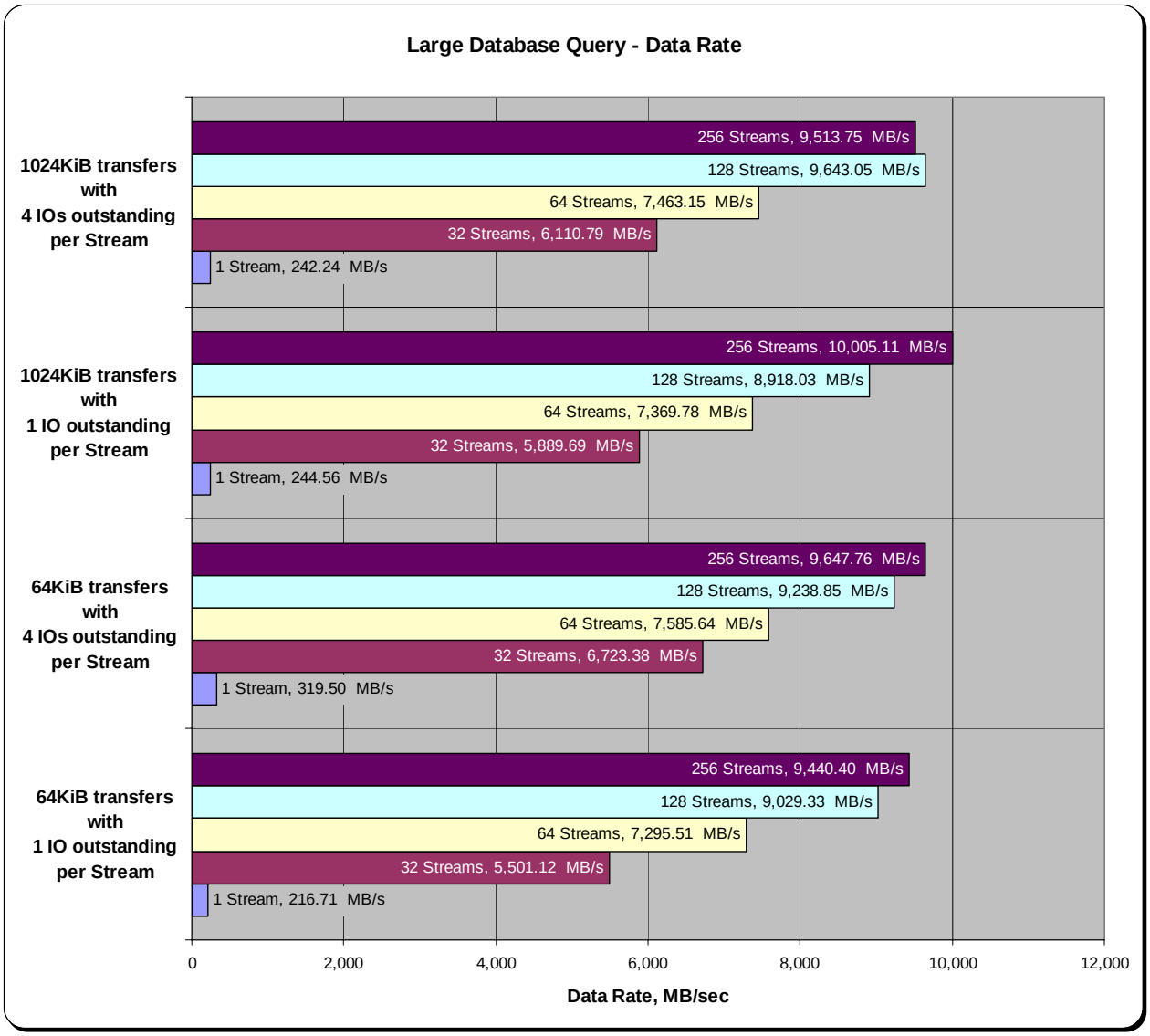
SPC-2 Large Database Query Test Results File

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	32 Streams	64 Streams	128 Streams	256 Streams
1024KiB w/ 4 IOs/Stream	242.24	6,110.79	7,463.15	9,643.05	9,513.75
1024KiB w/ 1 IO/Stream	244.56	5,889.69	7,369.78	8,918.03	10,005.11
64KiB w/ 4 IOs/Stream	319.50	6,723.38	7,585.64	9,238.85	9,647.76
64KiB w/ 1 IO/Stream	216.71	5,501.12	7,295.51	9,029.33	9,440.40

SPC-2 Large Database Query Average Data Rates Graph

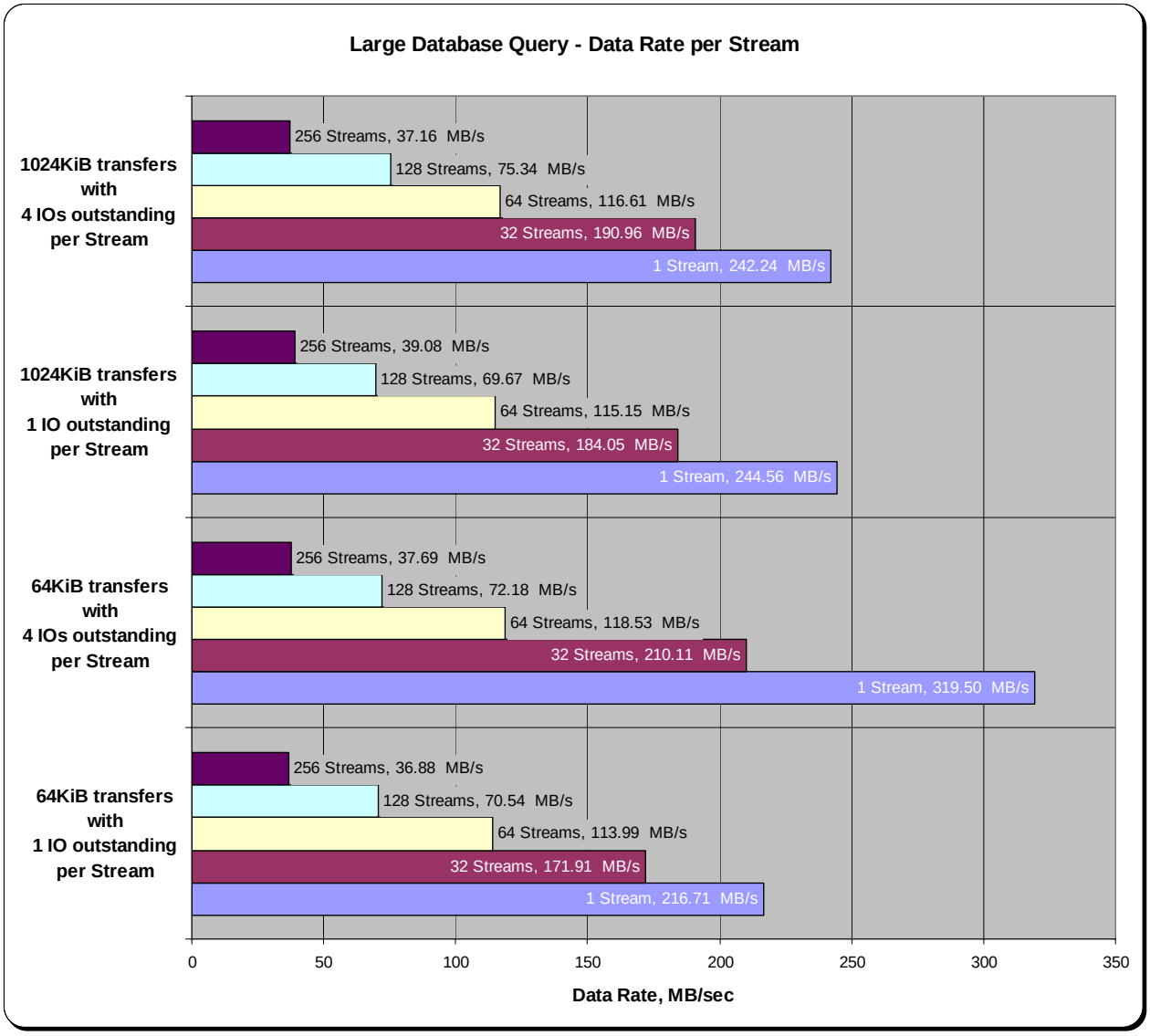


SPC-2 Large Database Query Average Data Rate per Stream

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	32 Streams	64 Streams	128 Streams	256 Streams
1024KiB w/ 4 IOs/Stream	242.24	190.96	116.61	75.34	37.16
1024KiB w/ 1 IO/Stream	244.56	184.05	115.15	69.67	39.08
64KiB w/ 4 IOs/Stream	319.50	210.11	118.53	72.18	37.69
64KiB w/ 1 IO/Stream	216.71	171.91	113.99	70.54	36.88

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

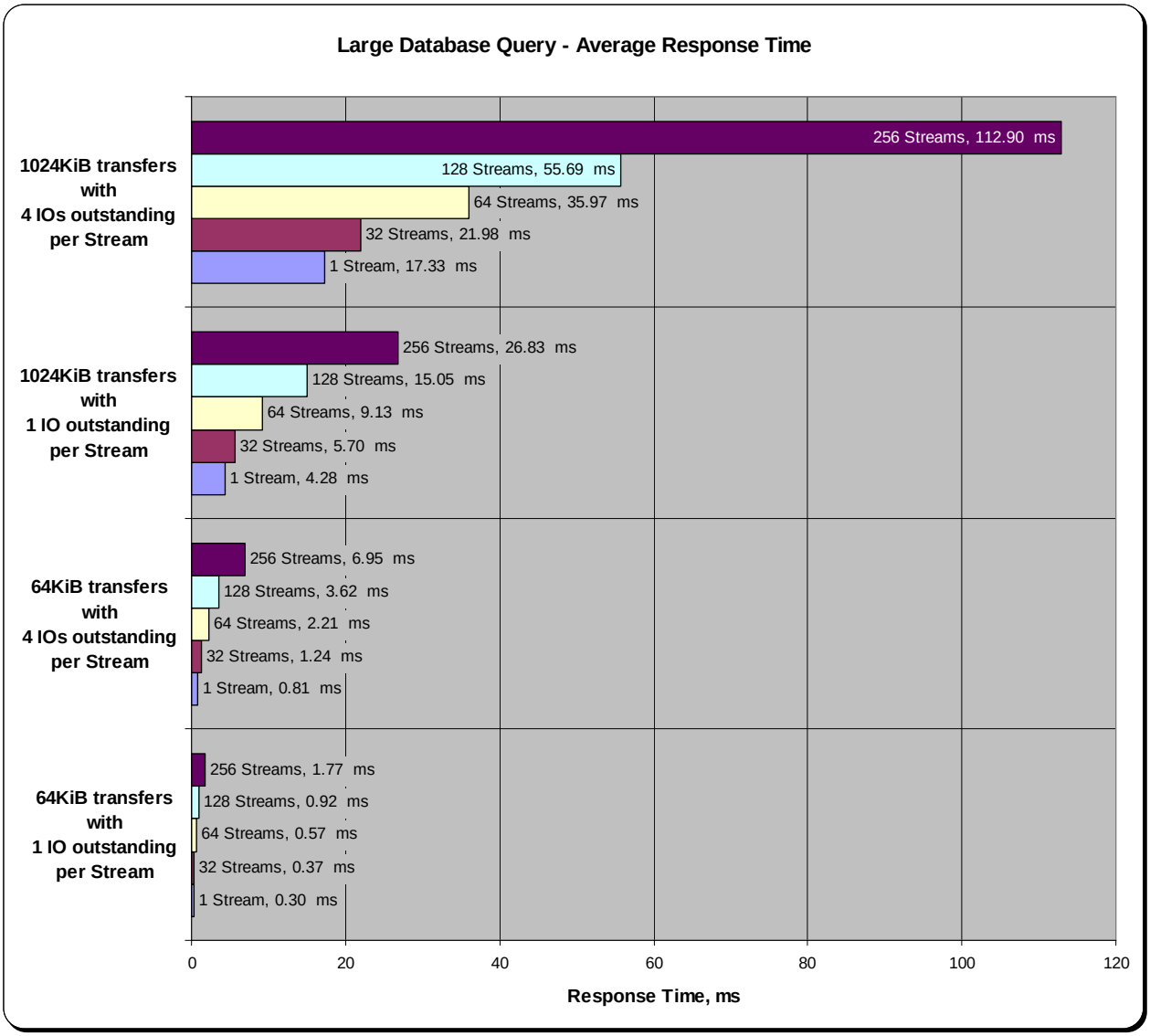


SPC-2 Large Database Query Average Response Time

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	32 Streams	64 Streams	128 Streams	256 Streams
1024KiB w/ 4 IOs/Stream	17.33	21.98	35.97	55.69	112.90
1024KiB w/ 1 IO/Stream	4.28	5.70	9.13	15.05	26.83
64KiB w/ 4 IOs/Stream	0.81	1.24	2.21	3.62	6.95
64KiB w/ 1 IO/Stream	0.30	0.37	0.57	0.92	1.77

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.

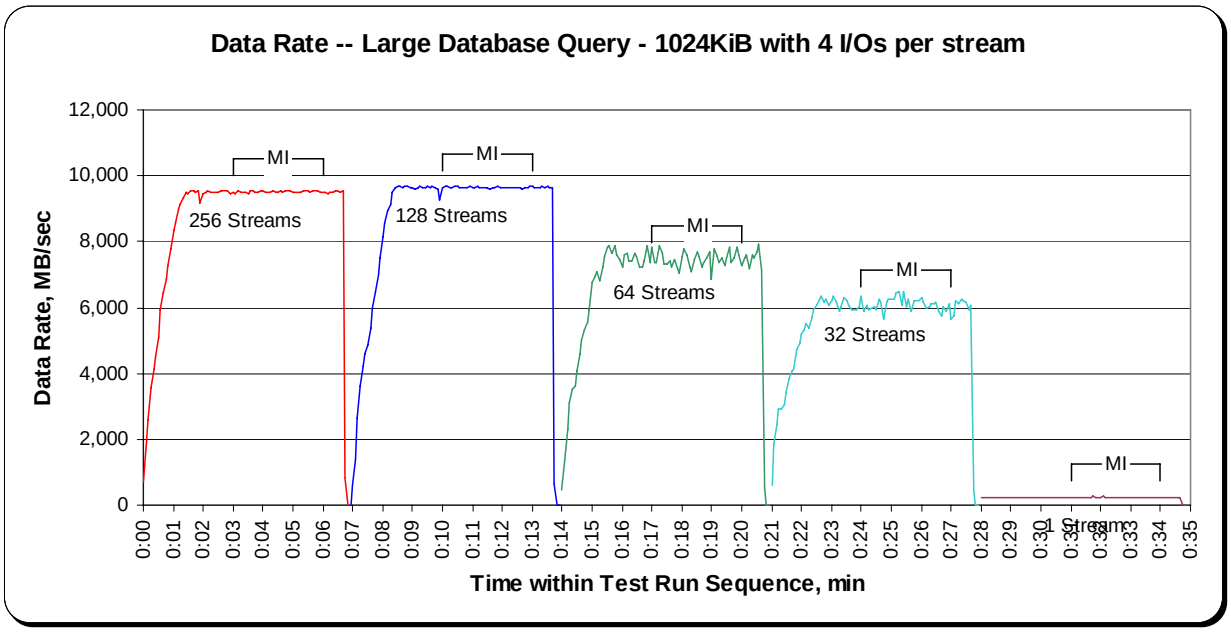
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR11	256 Streams			TR12	128 Streams			TR13	64 Streams			TR14	32 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	677.38	24.19	76.91	0:06:55	0.00	0.00	0.00	0:14:00	480.25	60.03	30.94	0:21:00	620.13	88.59	21.23	0:28:00	234.67	234.67	16.70
0:00:05	1,927.91	37.08	99.59	0:07:00	622.85	69.21	38.32	0:14:05	1,366.08	97.58	30.84	0:21:05	1,844.65	167.70	21.04	0:28:05	250.19	250.19	16.79
0:00:10	2,591.24	34.10	104.32	0:07:05	1,393.14	51.60	48.27	0:14:10	2,321.55	96.73	33.78	0:21:10	2,452.20	188.63	20.55	0:28:10	242.85	242.85	17.26
0:00:15	3,545.24	37.32	102.83	0:07:10	2,647.86	67.89	52.11	0:14:15	3,122.03	111.50	35.71	0:21:15	2,905.39	207.53	19.96	0:28:15	248.72	248.72	16.82
0:00:20	4,115.66	37.08	106.47	0:07:15	3,603.96	72.08	52.07	0:14:20	3,516.29	109.88	36.06	0:21:20	2,900.99	207.21	20.24	0:28:20	243.06	243.06	17.29
0:00:25	4,560.68	36.78	108.88	0:07:20	4,197.03	74.95	52.38	0:14:25	3,592.84	105.67	38.80	0:21:25	3,043.18	179.01	21.28	0:28:25	238.24	238.24	17.59
0:00:30	5,088.74	34.85	108.94	0:07:25	4,574.31	74.99	53.43	0:14:30	4,074.14	110.11	36.81	0:21:30	3,419.83	179.99	21.52	0:28:30	245.58	245.58	17.08
0:00:35	5,934.52	36.86	108.72	0:07:30	4,867.70	72.65	54.35	0:14:35	4,594.86	114.87	35.12	0:21:35	3,854.57	192.73	21.61	0:28:35	241.38	241.38	17.38
0:00:40	6,442.66	37.24	108.69	0:07:35	5,374.16	75.69	53.60	0:14:40	5,022.89	122.51	34.16	0:21:40	4,060.72	203.04	20.66	0:28:40	248.51	248.51	16.88
0:00:45	6,864.61	36.32	111.11	0:07:40	5,984.01	73.88	53.56	0:14:45	5,318.17	113.15	35.06	0:21:45	4,114.82	171.45	21.42	0:28:45	231.74	231.74	18.10
0:00:50	7,287.18	36.80	110.83	0:07:45	6,476.84	75.31	53.87	0:14:50	5,554.10	111.08	36.50	0:21:50	4,725.51	189.02	21.96	0:28:50	242.22	242.22	17.30
0:00:55	7,773.30	36.49	109.05	0:07:50	6,977.01	74.22	53.86	0:14:55	5,928.44	109.79	36.28	0:21:55	4,913.42	196.54	21.34	0:28:55	249.14	249.14	16.84
0:01:00	8,339.53	38.08	108.60	0:07:55	7,492.08	72.74	54.44	0:15:00	6,754.72	122.81	33.96	0:22:00	5,203.24	192.71	21.14	0:29:00	235.51	235.51	17.82
0:01:05	8,593.50	37.53	109.00	0:08:00	8,151.63	75.48	54.61	0:15:05	6,966.32	118.07	34.22	0:22:05	5,313.13	196.78	21.32	0:29:05	244.95	244.95	17.11
0:01:10	8,966.58	37.99	108.48	0:08:05	8,561.83	75.77	53.99	0:15:10	7,110.39	118.51	34.90	0:22:10	5,527.25	204.71	20.48	0:29:10	230.69	230.69	18.18
0:01:15	9,140.65	37.77	109.98	0:08:10	8,938.06	76.39	53.71	0:15:15	6,806.94	109.79	38.13	0:22:15	5,386.33	185.74	21.77	0:29:15	237.40	237.40	17.67
0:01:20	9,291.43	37.17	111.63	0:08:15	9,145.05	76.85	53.95	0:15:20	7,250.69	113.29	36.01	0:22:20	5,681.60	195.92	21.41	0:29:20	240.12	240.12	17.45
0:01:25	9,488.35	37.21	111.93	0:08:20	9,484.79	75.88	54.89	0:15:25	7,566.10	118.22	35.49	0:22:25	5,948.36	185.89	21.49	0:29:25	248.09	248.09	16.91
0:01:30	9,455.43	36.94	113.39	0:08:25	9,624.88	75.19	55.14	0:15:30	7,851.32	122.68	34.21	0:22:30	6,064.54	189.52	22.15	0:29:30	249.56	249.56	16.83
0:01:35	9,546.03	37.29	112.59	0:08:30	9,662.21	75.49	55.57	0:15:35	7,861.59	122.84	34.08	0:22:35	6,234.41	194.83	21.52	0:29:35	242.22	242.22	17.31
0:01:40	9,526.31	37.21	112.79	0:08:35	9,673.74	75.58	55.55	0:15:40	7,644.96	119.45	35.14	0:22:40	6,368.42	199.01	21.07	0:29:40	243.69	243.69	17.22
0:01:45	9,517.92	37.18	112.86	0:08:40	9,652.14	75.41	55.64	0:15:45	7,863.48	122.87	34.16	0:22:45	6,166.47	192.70	21.77	0:29:45	251.45	251.45	16.67
0:01:50	9,564.90	37.36	112.24	0:08:45	9,662.84	75.49	55.51	0:15:50	7,621.05	119.08	35.21	0:22:50	6,259.37	195.61	21.45	0:29:50	242.22	242.22	17.07
0:01:55	9,158.26	35.77	112.57	0:08:50	9,661.79	75.48	55.57	0:15:55	7,481.17	116.89	35.84	0:22:55	6,076.08	189.88	22.09	0:29:55	230.69	230.69	18.42
0:02:00	9,438.02	36.87	113.91	0:08:55	9,655.08	75.43	55.67	0:16:00	7,209.80	112.65	37.31	0:23:00	6,218.68	194.33	21.58	0:30:00	252.71	252.71	16.62
0:02:05	9,518.76	37.18	112.63	0:09:00	9,651.51	75.40	55.64	0:16:05	7,614.55	118.98	35.24	0:23:05	6,367.79	198.99	21.06	0:30:05	248.09	248.09	16.90
0:02:10	9,534.49	37.24	112.71	0:09:05	9,602.86	75.02	55.90	0:16:10	7,626.92	119.17	35.22	0:23:10	6,160.17	192.51	21.81	0:30:10	251.24	251.24	16.69
0:02:15	9,503.87	37.12	113.07	0:09:10	9,660.11	75.47	55.60	0:16:15	7,394.56	115.54	36.31	0:23:15	5,903.48	184.48	22.73	0:30:15	246.42	246.42	17.04
0:02:20	9,507.44	37.14	112.89	0:09:15	9,672.69	75.57	55.50	0:16:20	7,406.93	115.73	36.25	0:23:20	6,042.94	188.84	22.18	0:30:20	241.59	241.59	17.35
0:02:25	9,488.77	37.07	113.15	0:09:20	9,627.19	75.21	55.80	0:16:25	7,641.18	119.39	35.11	0:23:25	6,283.49	196.36	21.38	0:30:25	233.62	233.62	17.96
0:02:30	9,503.24	37.12	113.00	0:09:25	9,632.43	75.25	55.73	0:16:30	7,539.26	117.80	35.62	0:23:30	6,206.31	193.95	21.63	0:30:30	238.24	238.24	17.58
0:02:35	9,566.79	37.37	112.37	0:09:30	9,693.67	75.73	55.35	0:16:35	7,248.81	113.26	37.02	0:23:35	6,077.55	189.92	22.07	0:30:35	240.75	240.75	17.46
0:02:40	9,552.11	37.31	112.51	0:09:35	9,650.67	75.40	55.71	0:16:40	7,248.60	113.26	37.06	0:23:40	5,917.95	184.94	22.69	0:30:40	245.37	245.37	17.09
0:02:45	9,550.64	37.31	112.47	0:09:40	9,661.79	75.48	55.61	0:16:45	7,420.14	115.94	36.21	0:23:45	5,950.88	185.96	22.55	0:30:45	226.28	226.28	18.51
0:02:50	9,560.29	37.34	112.33	0:09:45	9,659.69	75.47	55.55	0:16:50	7,884.03	123.19	34.02	0:23:50	5,946.68	185.83	22.56	0:30:50	244.32	244.32	17.19
0:02:55	9,471.16	37.00	113.38	0:09:50	9,578.11	74.83	56.05	0:16:55	7,386.80	115.42	36.38	0:23:55	6,019.04	188.09	22.30	0:30:55	246.83	246.83	16.99
				0:09:55	9,255.78	72.31	55.75												

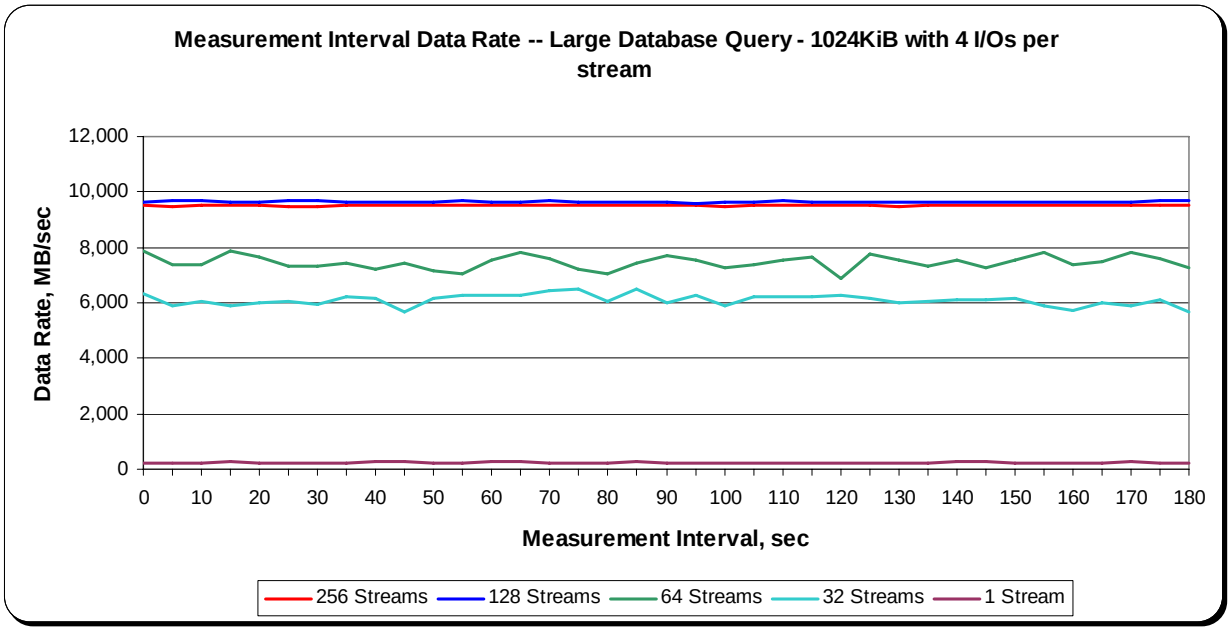
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	256 Streams			TR12	128 Streams			TR13	64 Streams			TR14	32 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	9,506.81	37.14	112.97	0:10:00	9,643.12	75.34	55.64	0:17:00	7,852.79	122.70	34.18	0:24:00	6,331.30	197.85	21.21	0:31:00	245.37	245.37	17.10
0:03:05	9,460.46	36.95	113.60	0:10:05	9,665.77	75.51	55.55	0:17:05	7,362.89	115.05	36.43	0:24:05	5,897.40	184.29	22.76	0:31:05	230.27	230.27	18.22
0:03:10	9,535.12	37.25	112.62	0:10:10	9,664.52	75.50	55.62	0:17:10	7,372.54	115.20	36.41	0:24:10	6,078.60	189.96	22.09	0:31:10	239.08	239.08	17.54
0:03:15	9,497.58	37.10	113.06	0:10:15	9,651.93	75.41	55.62	0:17:15	7,868.93	122.95	34.15	0:24:15	5,917.32	184.92	22.68	0:31:15	251.24	251.24	16.70
0:03:20	9,507.44	37.14	112.99	0:10:20	9,624.46	75.19	55.81	0:17:20	7,634.05	119.28	35.15	0:24:20	5,993.45	187.30	22.39	0:31:20	241.17	241.17	17.38
0:03:25	9,482.69	37.04	113.27	0:10:25	9,673.11	75.57	55.53	0:17:25	7,303.75	114.12	36.74	0:24:25	6,037.70	188.68	22.23	0:31:25	232.57	232.57	18.04
0:03:30	9,466.75	36.98	113.46	0:10:30	9,676.05	75.59	55.49	0:17:30	7,298.93	114.05	36.76	0:24:30	5,943.54	185.74	22.58	0:31:30	247.04	247.04	16.98
0:03:35	9,544.77	37.28	112.35	0:10:35	9,649.42	75.39	55.64	0:17:35	7,430.42	116.10	36.17	0:24:35	6,237.35	194.92	21.53	0:31:35	245.58	245.58	17.06
0:03:40	9,523.80	37.20	112.86	0:10:40	9,637.67	75.29	55.73	0:17:40	7,227.21	112.93	37.16	0:24:40	6,139.20	191.85	21.83	0:31:40	249.14	249.14	16.83
0:03:45	9,518.34	37.18	112.87	0:10:45	9,639.77	75.31	55.63	0:17:45	7,456.63	116.51	36.00	0:24:45	5,659.58	176.86	23.74	0:31:45	259.00	259.00	16.21
0:03:50	9,513.73	37.16	112.93	0:10:50	9,617.12	75.13	55.84	0:17:50	7,165.13	111.96	37.46	0:24:50	6,159.13	192.47	21.77	0:31:50	235.51	235.51	17.80
0:03:55	9,535.54	37.25	112.63	0:10:55	9,665.77	75.51	55.63	0:17:55	7,025.25	109.77	36.72	0:24:55	6,277.82	196.18	21.38	0:31:55	236.77	236.77	17.72
0:04:00	9,531.35	37.23	112.44	0:11:00	9,643.75	75.34	55.70	0:18:00	7,558.35	118.10	35.50	0:25:00	6,250.77	195.34	21.50	0:32:00	251.24	251.24	16.69
0:04:05	9,499.47	37.11	113.40	0:11:05	9,620.89	75.16	55.82	0:18:05	7,793.86	121.78	34.47	0:25:05	6,275.52	196.11	21.39	0:32:05	260.47	260.47	16.10
0:04:10	9,515.41	37.17	112.81	0:11:10	9,682.97	75.65	55.44	0:18:10	7,576.59	118.38	35.38	0:25:10	6,419.59	200.61	20.90	0:32:10	233.62	233.62	17.96
0:04:15	9,498.42	37.10	113.17	0:11:15	9,649.21	75.38	55.65	0:18:15	7,231.19	112.99	37.13	0:25:15	6,496.56	203.02	20.67	0:32:15	241.59	241.59	17.35
0:04:20	9,524.22	37.20	112.72	0:11:20	9,648.58	75.38	55.62	0:18:20	7,066.98	110.42	37.98	0:25:20	6,071.05	189.72	22.08	0:32:20	247.67	247.67	16.94
0:04:25	9,513.31	37.16	112.90	0:11:25	9,641.45	75.32	55.76	0:18:25	7,452.86	116.45	36.07	0:25:25	6,494.04	202.94	20.67	0:32:25	248.51	248.51	16.87
0:04:30	9,505.97	37.13	113.01	0:11:30	9,626.56	75.21	55.73	0:18:30	7,692.98	120.20	34.88	0:25:30	6,015.47	187.98	22.32	0:32:30	245.58	245.58	17.07
0:04:35	9,531.98	37.23	112.67	0:11:35	9,598.66	74.99	55.95	0:18:35	7,537.37	117.77	35.60	0:25:35	6,257.27	195.54	21.45	0:32:35	237.19	237.19	17.70
0:04:40	9,477.87	37.02	113.20	0:11:40	9,619.43	75.15	55.82	0:18:40	7,243.77	113.18	37.07	0:25:40	5,869.51	183.42	22.85	0:32:40	244.74	244.74	17.13
0:04:45	9,524.84	37.21	112.81	0:11:45	9,620.27	75.16	55.87	0:18:45	7,350.31	114.85	36.56	0:25:45	6,229.17	194.66	21.56	0:32:45	230.90	230.90	18.17
0:04:50	9,524.84	37.21	112.82	0:11:50	9,661.58	75.48	55.52	0:18:50	7,523.11	117.55	35.68	0:25:50	6,204.21	193.88	21.64	0:32:50	240.75	240.75	17.41
0:04:55	9,531.56	37.23	112.61	0:11:55	9,633.27	75.26	55.78	0:18:55	7,669.91	119.84	35.00	0:25:55	6,197.50	193.67	21.66	0:32:55	233.62	233.62	17.95
0:05:00	9,510.16	37.15	113.10	0:12:00	9,647.32	75.37	55.68	0:19:00	6,865.87	107.28	39.05	0:26:00	6,295.86	196.75	21.31	0:33:00	218.52	218.52	19.20
0:05:05	9,506.39	37.13	113.02	0:12:05	9,636.62	75.29	55.68	0:19:05	7,778.55	121.54	34.56	0:26:05	6,159.13	192.47	21.78	0:33:05	246.83	246.83	16.99
0:05:10	9,484.79	37.05	113.21	0:12:10	9,653.19	75.42	55.62	0:19:10	7,536.95	117.76	35.56	0:26:10	5,996.39	187.39	22.39	0:33:10	229.85	229.85	18.24
0:05:15	9,496.53	37.10	112.92	0:12:15	9,640.19	75.31	55.72	0:19:15	7,344.86	114.76	36.60	0:26:15	6,040.22	188.76	22.20	0:33:15	243.48	243.48	17.24
0:05:20	9,543.09	37.28	112.68	0:12:20	9,646.48	75.36	55.68	0:19:20	7,523.95	117.56	35.69	0:26:20	6,109.00	190.91	22.00	0:33:20	248.51	248.51	16.87
0:05:25	9,526.31	37.21	112.82	0:12:25	9,642.91	75.34	55.70	0:19:25	7,263.70	113.50	36.94	0:26:25	6,126.62	191.46	21.90	0:33:25	248.93	248.93	16.86
0:05:30	9,531.77	37.23	112.56	0:12:30	9,641.03	75.32	55.66	0:19:30	7,525.42	117.58	35.66	0:26:30	6,176.11	193.00	21.74	0:33:30	233.20	233.20	18.00
0:05:35	9,501.36	37.11	113.12	0:12:35	9,638.93	75.30	55.74	0:19:35	7,841.88	122.53	34.26	0:26:35	5,899.08	184.35	22.74	0:33:35	247.25	247.25	16.95
0:05:40	9,540.78	37.27	112.61	0:12:40	9,611.25	75.09	55.89	0:19:40	7,366.04	115.09	36.42	0:26:40	5,738.44	179.33	23.39	0:33:40	242.64	242.64	17.26
0:05:45	9,539.94	37.27	112.50	0:12:45	9,652.35	75.41	55.59	0:19:45	7,483.48	116.93	35.88	0:26:45	6,001.63	187.55	22.37	0:33:45	240.33	240.33	17.46
0:05:50	9,533.44	37.24	112.64	0:12:50	9,616.91	75.13	55.88	0:19:50	7,837.69	122.46	34.23	0:26:50	5,883.98	183.87	22.82	0:33:50	248.51	248.51	16.88
0:05:55	9,508.07	37.14	113.06	0:12:55	9,667.24	75.53	55.53	0:19:55	7,609.31	118.90	35.31	0:26:55	6,108.79	190.90	21.94	0:33:55	244.11	244.11	17.15
0:06:00	9,508.70	37.14	112.97	0:13:00	9,666.19	75.52	55.58	0:20:00	7,259.29	113.43	36.97	0:27:00	5,662.73	176.96	22.74	0:34:00	236.35	236.35	17.78
0:06:05	9,477.03	37.02	113.35	0:13:05	9,620.89	75.16	55.78	0:20:05	7,514.93	117.42	35.74	0:27:05	5,735.08	179.22	23.43	0:34:05	253.55	253.55	16.54
0:06:10	9,430.89	36.84	113.95	0:13:10	9,627.82	75.22	55.80	0:20:10	7,575.96	118.37	35.37	0:27:10	6,229.80	194.68	21.53	0:34:10	253.13	253.13	16.57
0:06:15	9,489.40	37.07	113.15	0:13:15	9,635.99	75.28	55.69	0:20:15	7,173.94	112.09	37.46	0:27:15	6,113.41	191.04	21.96	0:34:15	245.16	245.16	17.09
0:06:20	9,503.45	37.12	112.93	0:13:20	9,663.89	75.50	55.59	0:20:20	7,600.29	118.75	35.34	0:27:20	6,245.95	195.19	21.49	0:34:20	235.72	235.72	17.79
0:06:25	9,524.01	37.20	112.80	0:13:25	9,650.67	75.40	55.68	0:20:25	7,521.02	117.52	35.69	0:27:25	6,221.41	194.42	21.54	0:34:25	245.37	245.37	17.10
0:06:30	9,552.74	37.32	112.54	0:13:30	9,662.00	75.48	55.60	0:20:30	7,691.51	120.18	34.92	0:27:30	6,184.71	193.27	21.72	0:34:30	239.91	239.91	17.48
0:06:35	9,479.34	37.03	113.25	0:13:35	9,627.82	75.22	55.78	0:20:35	7,918.64	123.73	33.91	0:27:35	5,928.23	185.26	22.66	0:34:35	240.33	240.33	17.43
0:06:40	9,531.35	37.23	112.64	0:13:40	9,649.42	75.39	55.65	0:20:40	7,157.37	111.83	37.48	0:27:40	6,079.43	189.98	22.04	0:34:40	246.83	246.83	17.02
0:06:45	812.02	0.00	111.86	0:13:45	666.06	0.00	53.61	0:20:45	515.06	0.00	37.27	0:27:45	481.51	0.00	21.83	0:34:45	7.76	0.00	17.75
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
				0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00				

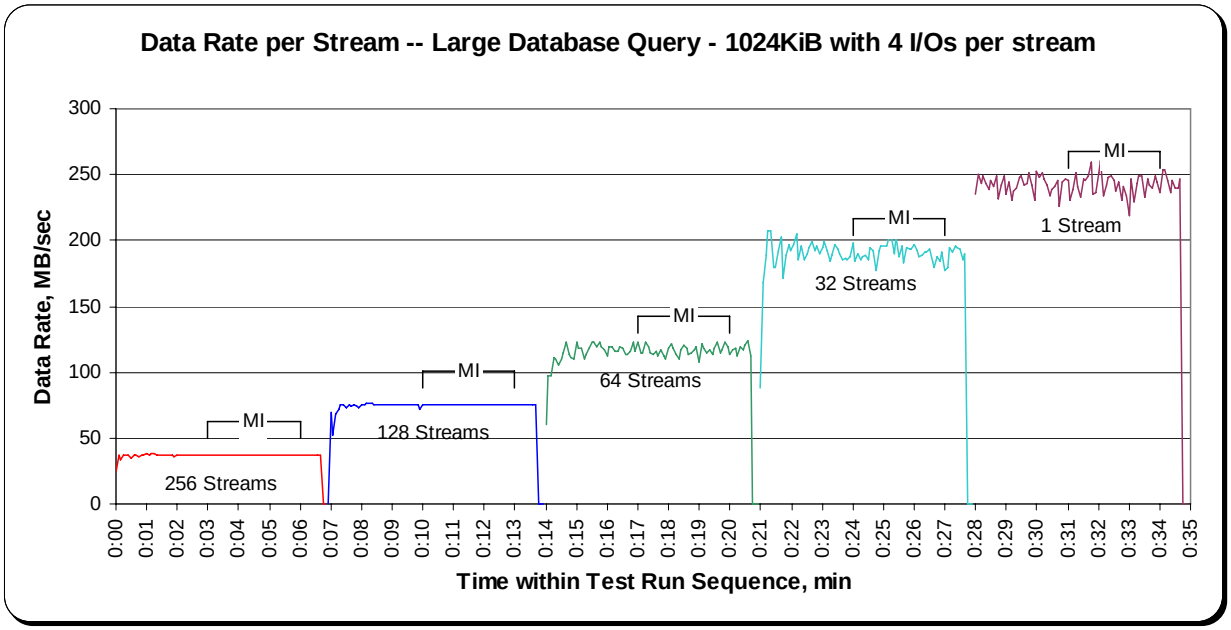
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



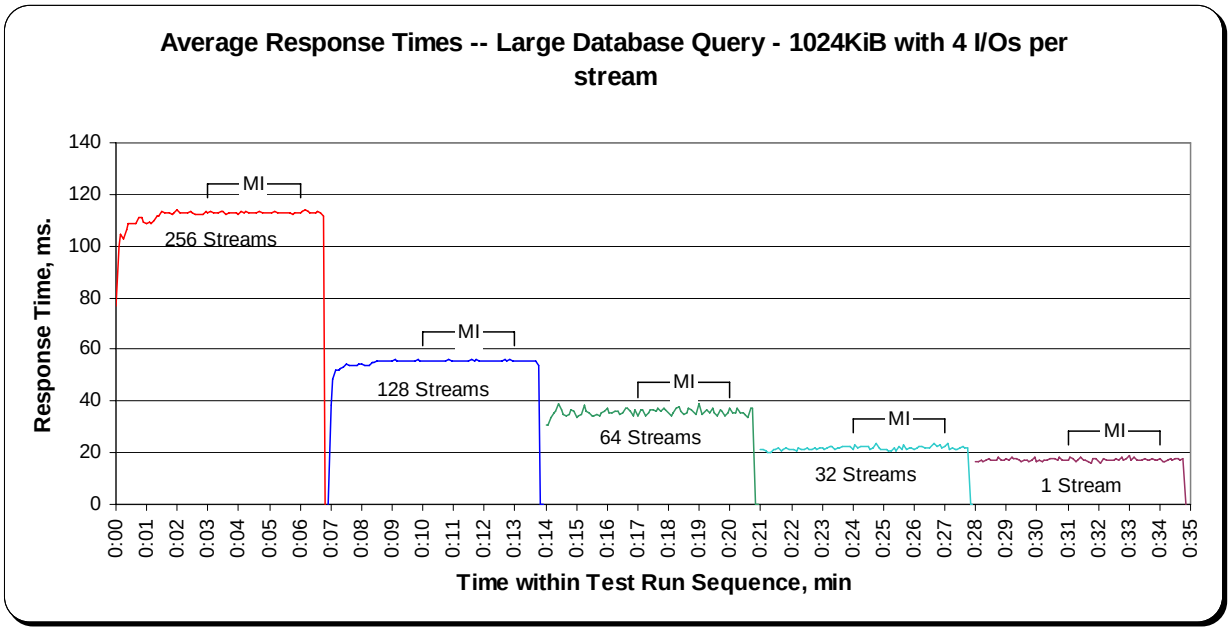
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



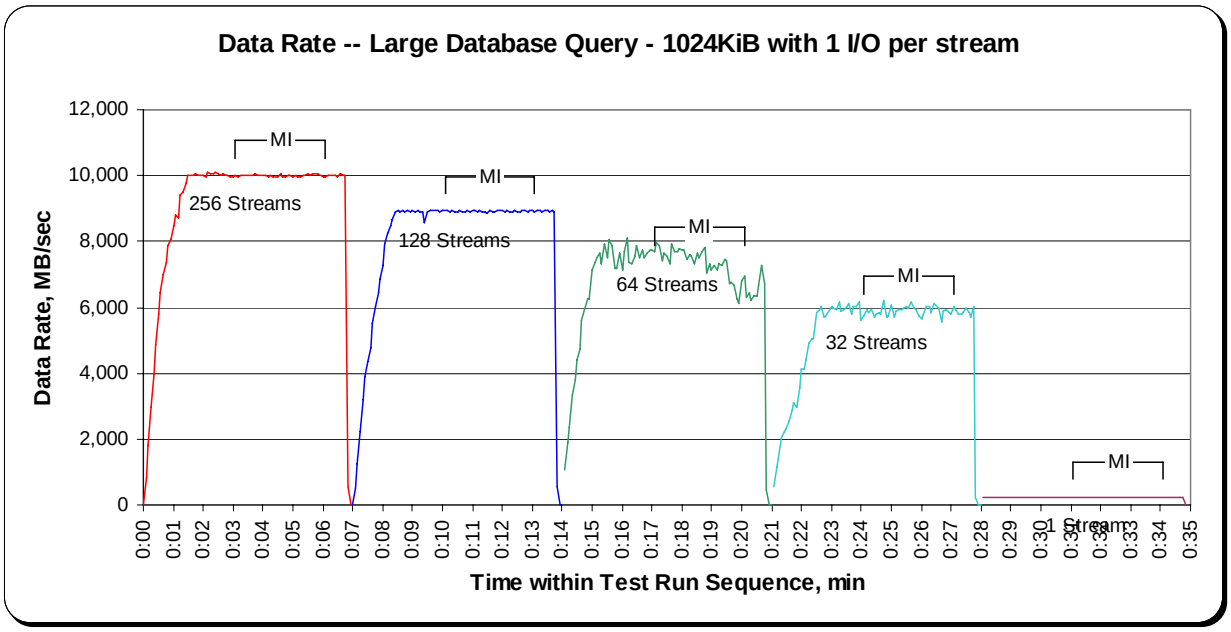
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR16	256 Streams			TR17	128 Streams			TR18	64 Streams			TR19	32 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	0.00	0.00	0.00	0:07:00	0.00	0.00	0.00	0:14:05	1,082.97	98.45	7.27	0:21:05	570.84	114.17	5.28	0:28:05	224.40	224.40	4.37
0:00:05	838.65	27.05	19.70	0:07:05	497.44	55.27	8.67	0:14:10	1,910.92	119.43	7.65	0:21:10	1,153.64	164.81	5.61	0:28:10	247.46	247.46	4.23
0:00:10	1,810.26	32.33	24.45	0:07:10	1,270.04	60.48	12.48	0:14:15	2,365.59	107.53	8.21	0:21:15	1,423.55	158.17	5.91	0:28:15	245.58	245.58	4.26
0:00:15	2,951.95	35.14	25.12	0:07:15	2,233.68	62.05	14.07	0:14:20	3,335.73	115.03	8.16	0:21:20	2,032.98	184.82	5.39	0:28:20	243.06	243.06	4.31
0:00:20	4,003.04	37.41	25.13	0:07:20	3,202.56	68.14	13.56	0:14:25	3,822.06	112.41	8.87	0:21:25	2,227.80	202.53	5.17	0:28:25	243.48	243.48	4.30
0:00:25	4,871.26	37.19	25.85	0:07:25	3,914.54	67.49	14.02	0:14:30	4,413.25	119.28	8.39	0:21:30	2,300.37	176.95	5.35	0:28:30	248.51	248.51	4.21
0:00:30	5,807.85	38.98	25.55	0:07:30	4,345.09	67.89	14.67	0:14:35	4,702.86	109.37	8.90	0:21:35	2,537.13	181.22	5.40	0:28:35	240.12	240.12	4.36
0:00:35	6,421.90	38.69	25.83	0:07:35	4,794.72	68.50	14.53	0:14:40	5,629.18	119.77	8.45	0:21:40	2,873.10	191.54	5.39	0:28:40	244.53	244.53	4.28
0:00:40	7,003.65	39.13	25.95	0:07:40	5,507.96	71.53	14.06	0:14:45	5,920.68	118.41	8.61	0:21:45	3,083.44	192.72	5.40	0:28:45	247.04	247.04	4.24
0:00:45	7,348.21	38.07	26.38	0:07:45	6,012.74	68.33	14.36	0:14:50	6,257.48	122.70	8.47	0:21:50	2,961.18	164.51	5.68	0:28:50	237.40	237.40	4.41
0:00:50	7,854.67	39.67	25.92	0:07:50	6,459.02	68.71	14.61	0:14:55	6,252.87	117.98	8.71	0:21:55	3,557.40	161.70	5.75	0:28:55	249.35	249.35	4.20
0:00:55	8,064.60	38.96	26.06	0:07:55	6,837.34	69.06	14.70	0:15:00	7,127.17	127.27	8.18	0:22:00	4,105.59	186.62	5.61	0:29:00	250.82	250.82	4.17
0:01:00	8,499.76	40.09	25.81	0:08:00	7,278.17	69.32	14.65	0:15:05	7,367.92	124.88	8.19	0:22:05	4,126.36	179.41	5.71	0:29:05	244.74	244.74	4.28
0:01:05	8,818.10	39.54	25.97	0:08:05	7,928.49	72.08	14.34	0:15:10	7,497.32	120.92	8.44	0:22:10	4,389.13	175.57	5.72	0:29:10	250.61	250.61	4.18
0:01:10	8,718.70	37.42	26.20	0:08:10	8,257.75	71.81	14.36	0:15:15	7,648.31	121.40	8.62	0:22:15	4,901.04	181.52	5.61	0:29:15	242.22	242.22	4.32
0:01:15	9,416.63	39.90	26.09	0:08:15	8,457.39	71.07	14.44	0:15:20	7,301.86	114.09	9.14	0:22:20	5,057.07	187.30	5.59	0:29:20	239.70	239.70	4.37
0:01:20	9,490.87	39.38	26.41	0:08:20	8,684.31	68.92	14.79	0:15:25	7,935.41	123.99	8.45	0:22:25	5,069.86	181.07	5.59	0:29:25	239.70	239.70	4.37
0:01:25	9,758.89	38.57	26.45	0:08:25	8,912.27	69.63	14.93	0:15:30	7,522.48	117.54	8.92	0:22:30	5,820.44	181.89	5.51	0:29:30	248.93	248.93	4.21
0:01:30	10,015.37	39.12	26.69	0:08:30	8,924.64	69.72	15.03	0:15:35	8,082.63	126.29	8.29	0:22:35	5,950.04	185.94	5.63	0:29:35	249.77	249.77	4.19
0:01:35	10,030.89	39.18	26.76	0:08:35	8,908.07	69.59	15.05	0:15:40	7,880.89	123.14	8.52	0:22:40	6,043.36	188.86	5.55	0:29:40	250.19	250.19	4.19
0:01:40	10,014.74	39.12	26.81	0:08:40	8,928.83	69.76	15.05	0:15:45	7,194.28	112.41	9.32	0:22:45	5,717.47	178.67	5.86	0:29:45	247.04	247.04	4.24
0:01:45	10,033.40	39.19	26.76	0:08:45	8,904.09	69.56	15.07	0:15:50	7,185.26	112.27	9.33	0:22:50	5,731.10	179.10	5.85	0:29:50	242.43	242.43	4.32
0:01:50	10,016.42	39.13	26.80	0:08:50	8,926.32	69.74	15.04	0:15:55	7,626.29	119.16	8.80	0:22:55	5,906.42	184.58	5.68	0:29:55	249.14	249.14	4.20
0:01:55	10,008.24	39.09	26.80	0:08:55	8,918.14	69.67	15.04	0:16:00	7,140.17	111.57	9.39	0:23:00	6,034.55	188.58	5.55	0:30:00	232.57	232.57	4.50
0:02:00	10,006.98	39.09	26.84	0:09:00	8,937.22	69.82	15.03	0:16:05	7,705.99	120.41	8.71	0:23:05	5,986.32	187.07	5.60	0:30:05	239.91	239.91	4.37
0:02:05	9,964.41	38.92	26.92	0:09:05	8,904.51	69.57	15.03	0:16:10	8,106.75	126.67	8.27	0:23:10	5,920.89	185.03	5.66	0:30:10	246.42	246.42	4.25
0:02:10	10,079.33	39.37	26.60	0:09:10	8,942.05	69.86	15.04	0:16:15	7,383.23	115.36	9.08	0:23:15	6,160.80	192.53	5.44	0:30:15	250.82	250.82	4.17
0:02:15	10,045.15	39.24	26.78	0:09:15	8,914.36	69.64	15.05	0:16:20	7,302.28	114.10	9.19	0:23:20	5,863.01	183.22	5.72	0:30:20	239.29	239.29	4.38
0:02:20	10,064.23	39.31	26.67	0:09:20	8,895.91	69.50	15.08	0:16:25	7,536.12	117.75	8.90	0:23:25	5,931.37	185.36	5.65	0:30:25	241.38	241.38	4.34
0:02:25	10,084.57	39.39	26.59	0:09:25	8,572.32	66.97	15.03	0:16:30	7,889.07	123.27	8.50	0:23:30	6,044.41	188.89	5.55	0:30:30	244.95	244.95	4.28
0:02:30	10,047.46	39.25	26.75	0:09:30	8,897.80	69.51	15.06	0:16:35	7,503.82	117.25	8.94	0:23:35	6,105.02	190.78	5.48	0:30:35	240.75	240.75	4.35
0:02:35	10,011.59	39.11	26.81	0:09:35	8,924.22	69.72	15.05	0:16:40	7,754.43	121.16	8.64	0:23:40	5,786.67	180.83	5.80	0:30:40	239.49	239.49	4.37
0:02:40	10,041.79	39.23	26.74	0:09:40	8,930.72	69.77	15.01	0:16:45	7,503.82	117.25	8.95	0:23:45	6,034.76	188.59	5.56	0:30:45	243.90	243.90	4.30
0:02:45	9,992.93	39.03	26.86	0:09:45	8,921.28	69.70	15.03	0:16:50	7,657.33	119.65	8.75	0:23:50	6,018.83	188.09	5.57	0:30:50	238.45	238.45	4.39
0:02:50	10,024.18	39.16	26.77	0:09:50	8,931.35	69.78	15.05	0:16:55	7,715.21	120.55	8.70	0:23:55	6,154.72	192.34	5.45	0:30:55	246.21	246.21	4.25
0:02:55	9,982.86	39.00	26.91	0:09:55	8,914.57	69.65	15.06	0:17:00	7,741.85	120.97	8.66	0:24:00	5,621.63	175.68	5.96	0:31:00	250.61	250.61	4.18
0:03:00	9,961.89	38.91	26.92	0:10:00	8,924.64	69.72	15.03												

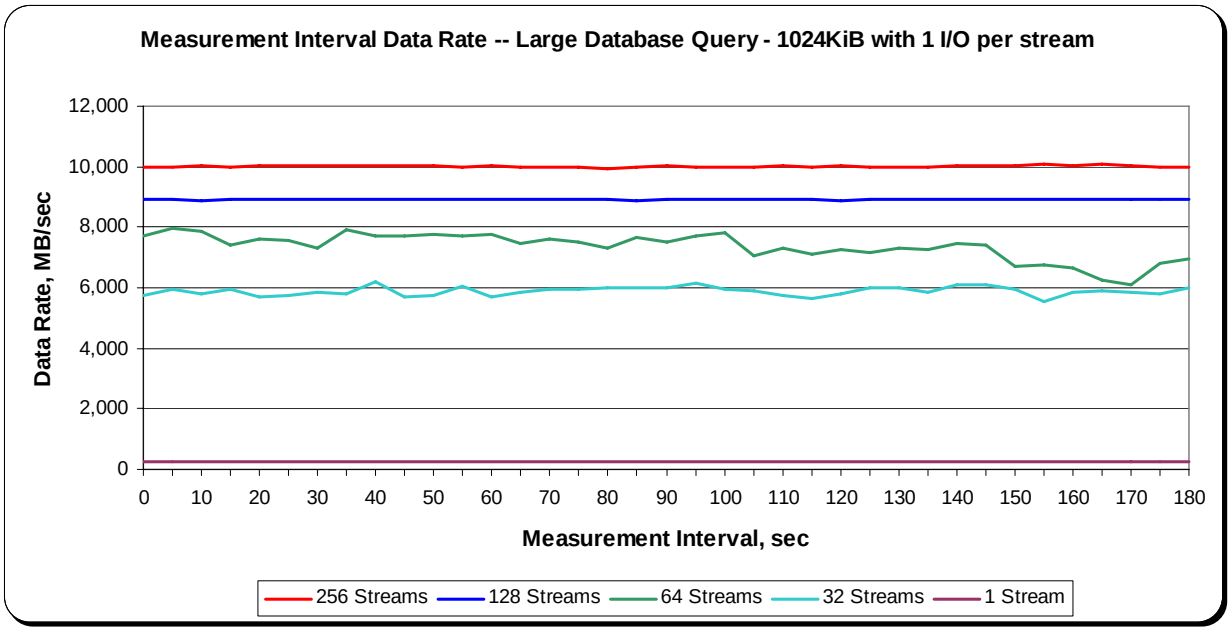
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR16	256 Streams			TR17	128 Streams			TR18	64 Streams			TR19	32 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
0:03:05	9,987.69	39.01	26.89	0:10:05	8,926.53	69.74	15.03	0:17:05	7,692.77	120.20	8.73	0:24:05	5,742.42	179.45	5.84	0:31:05	239.08	239.08	4.38
0:03:10	9,965.04	38.93	26.95	0:10:10	8,921.28	69.70	15.05	0:17:10	7,977.99	124.66	8.40	0:24:10	5,933.26	185.41	5.64	0:31:10	237.82	237.82	4.41
0:03:15	10,012.01	39.11	26.80	0:10:15	8,886.05	69.42	15.09	0:17:15	7,879.63	123.12	8.51	0:24:15	5,820.65	181.90	5.76	0:31:15	251.03	251.03	4.17
0:03:20	9,995.66	39.05	26.87	0:10:20	8,947.50	69.90	15.00	0:17:20	7,429.37	116.08	9.04	0:24:20	5,941.65	185.68	5.64	0:31:20	250.61	250.61	4.18
0:03:25	10,010.55	39.10	26.80	0:10:25	8,908.07	69.59	15.06	0:17:25	7,624.41	119.13	8.80	0:24:25	5,704.46	178.26	5.89	0:31:25	241.17	241.17	4.34
0:03:30	10,009.71	39.10	26.84	0:10:30	8,918.14	69.67	15.02	0:17:30	7,538.84	117.79	8.87	0:24:30	5,771.36	180.36	5.81	0:31:30	244.74	244.74	4.27
0:03:35	10,020.61	39.14	26.78	0:10:35	8,923.59	69.72	15.06	0:17:35	7,304.38	114.13	9.19	0:24:35	5,853.78	182.93	5.72	0:31:35	246.83	246.83	4.24
0:03:40	10,012.64	39.11	26.79	0:10:40	8,916.46	69.66	15.05	0:17:40	7,917.38	123.71	8.47	0:24:40	5,794.43	181.08	5.80	0:31:40	248.51	248.51	4.22
0:03:45	10,031.94	39.19	26.73	0:10:45	8,918.14	69.67	15.06	0:17:45	7,689.84	120.15	8.73	0:24:45	6,205.89	193.93	5.40	0:31:45	248.30	248.30	4.22
0:03:50	10,009.92	39.10	26.89	0:10:50	8,925.90	69.73	15.02	0:17:50	7,691.93	120.19	8.72	0:24:50	5,721.87	178.81	5.85	0:31:50	244.95	244.95	4.28
0:03:55	10,024.18	39.16	26.78	0:10:55	8,911.43	69.62	15.06	0:17:55	7,781.69	121.59	8.62	0:24:55	5,757.10	179.91	5.83	0:31:55	244.11	244.11	4.29
0:04:00	9,996.28	39.05	26.81	0:11:00	8,933.66	69.79	15.04	0:18:00	7,722.13	120.66	8.69	0:25:00	6,068.32	189.63	5.52	0:32:00	245.16	245.16	4.27
0:04:05	10,013.06	39.11	26.81	0:11:05	8,927.16	69.74	15.02	0:18:05	7,749.61	121.09	8.65	0:25:05	5,714.53	178.58	5.87	0:32:05	249.35	249.35	4.19
0:04:10	9,961.26	38.91	26.96	0:11:10	8,913.11	69.63	15.07	0:18:10	7,468.17	116.69	8.98	0:25:10	5,865.10	183.28	5.71	0:32:10	246.00	246.00	4.27
0:04:15	10,004.46	39.08	26.87	0:11:15	8,928.41	69.75	15.03	0:18:15	7,591.69	118.62	8.84	0:25:15	5,927.81	185.24	5.66	0:32:15	242.85	242.85	4.31
0:04:20	9,974.68	38.96	26.88	0:11:20	8,908.70	69.60	15.06	0:18:20	7,530.87	117.67	8.90	0:25:20	5,949.41	185.92	5.64	0:32:20	244.74	244.74	4.28
0:04:25	9,956.02	38.89	26.95	0:11:25	8,911.22	69.62	15.06	0:18:25	7,301.65	114.09	9.20	0:25:25	5,996.39	187.39	5.59	0:32:25	243.27	243.27	4.31
0:04:30	9,984.54	39.00	26.92	0:11:30	8,864.03	69.25	15.13	0:18:30	7,644.75	119.45	8.78	0:25:30	6,017.57	188.05	5.57	0:32:30	244.11	244.11	4.29
0:04:35	10,040.74	39.22	26.74	0:11:35	8,927.37	69.75	15.03	0:18:35	7,512.63	117.38	8.93	0:25:35	5,985.27	187.04	5.60	0:32:35	248.51	248.51	4.22
0:04:40	9,963.57	38.92	26.96	0:11:40	8,916.88	69.66	15.05	0:18:40	7,707.03	120.42	8.70	0:25:40	6,140.46	191.89	5.46	0:32:40	242.22	242.22	4.32
0:04:45	9,982.23	38.99	26.90	0:11:45	8,910.80	69.62	15.07	0:18:45	7,825.31	122.27	8.57	0:25:45	5,973.11	186.66	5.61	0:32:45	248.51	248.51	4.21
0:04:50	9,999.64	39.06	26.85	0:11:50	8,926.11	69.74	15.05	0:18:50	7,065.51	110.40	9.11	0:25:50	5,922.36	185.07	5.66	0:32:50	237.82	237.82	4.41
0:04:55	10,016.21	39.13	26.81	0:11:55	8,930.72	69.77	15.02	0:18:55	7,333.32	114.58	9.15	0:25:55	5,767.38	180.23	5.81	0:32:55	246.21	246.21	4.25
0:05:00	9,973.43	38.96	26.90	0:12:00	8,935.34	69.81	15.01	0:19:00	7,128.64	111.38	9.40	0:26:00	5,653.50	176.67	5.94	0:33:00	244.32	244.32	4.28
0:05:05	10,029.00	39.18	26.78	0:12:05	8,892.76	69.47	15.08	0:19:05	7,254.05	113.34	9.25	0:26:05	5,788.35	180.89	5.78	0:33:05	246.63	246.63	4.25
0:05:10	9,972.38	38.95	26.92	0:12:10	8,935.55	69.81	15.03	0:19:10	7,150.66	111.73	9.39	0:26:10	6,016.52	188.02	5.58	0:33:10	248.09	248.09	4.22
0:05:15	9,968.60	38.94	26.93	0:12:15	8,906.81	69.58	15.06	0:19:15	7,317.38	114.33	9.17	0:26:15	6,001.21	187.54	5.58	0:33:15	235.09	235.09	4.45
0:05:20	9,989.78	39.02	26.85	0:12:20	8,912.27	69.63	15.07	0:19:20	7,265.79	113.53	9.22	0:26:20	5,848.54	182.77	5.73	0:33:20	237.61	237.61	4.41
0:05:25	10,021.03	39.14	26.79	0:12:25	8,928.41	69.75	15.03	0:19:25	7,451.39	116.43	9.00	0:26:25	6,093.69	190.43	5.50	0:33:25	244.11	244.11	4.29
0:05:30	10,034.45	39.20	26.77	0:12:30	8,904.93	69.57	15.07	0:19:30	7,431.68	116.12	9.03	0:26:30	6,078.60	189.96	5.52	0:33:30	247.04	247.04	4.24
0:05:35	10,025.85	39.16	26.78	0:12:35	8,917.93	69.67	15.05	0:19:35	6,711.93	104.87	9.99	0:26:35	5,973.95	186.69	5.61	0:33:35	247.04	247.04	4.24
0:05:40	10,066.54	39.32	26.68	0:12:40	8,938.27	69.83	15.01	0:19:40	6,754.51	105.54	9.93	0:26:40	5,559.97	173.75	6.03	0:33:40	242.64	242.64	4.32
0:05:45	10,053.54	39.27	26.68	0:12:45	8,919.82	69.69	15.04	0:19:45	6,664.54	104.13	10.06	0:26:45	5,870.98	183.47	5.71	0:33:45	241.59	241.59	4.34
0:05:50	10,065.49	39.32	26.69	0:12:50	8,908.28	69.60	15.06	0:19:50	6,264.40	97.88	10.72	0:26:50	5,917.74	184.93	5.67	0:33:50	245.37	245.37	4.27
0:05:55	10,028.79	39.17	26.75	0:12:55	8,921.49	69.70	15.05	0:19:55	6,113.20	95.52	10.97	0:26:55	5,851.05	182.85	5.73	0:33:55	248.09	248.09	4.22
0:06:00	9,982.44	38.99	26.91	0:13:00	8,925.90	69.73	15.01	0:20:00	6,822.87	106.61	9.83	0:27:00	5,800.30	181.26	5.78	0:34:00	240.75	240.75	4.35
0:06:05	9,977.83	38.98	26.89	0:13:05	8,914.99	69.65	15.06	0:20:05	6,970.51	108.91	9.62	0:27:05	6,020.71	188.15	5.57	0:34:05	249.77	249.77	4.19
0:06:10	9,995.24	39.04	26.85	0:13:10	8,921.28	69.70	15.04	0:20:10	6,287.26	98.24	10.67	0:27:10	5,919.63	184.99	5.66	0:34:10	247.25	247.25	4.24
0:06:15	10,013.48	39.12	26.80	0:13:15	8,923.80	69.72	15.05	0:20:15	6,437.21	100.58	10.42	0:27:15	5,786.67	180.83	5.80	0:34:15	247.67	247.67	4.22
0:06:20	10,021.24	39.15	26.82	0:13:20	8,909.33	69.60	15.05	0:20:20	6,206.73	96.98	10.82	0:27:20	5,797.37	181.17	5.78	0:34:20	239.91	239.91	4.37
0:06:25	10,028.79	39.17	26.77	0:13:25	8,920.03	69.69	15.06	0:20:25	6,354.37	99.29	10.55	0:27:25	5,839.94	182.50	5.73	0:34:25	246.21	246.21	4.25
0:06:30	9,983.28	39.00	26.90	0:13:30	8,930.09	69.77	15.03	0:20:30	6,359.19	99.36	10.56	0:27:30	5,954.44	186.08	5.64	0:34:30	245.37	245.37	4.27
0:06:35	10,033.61	39.19	26.72	0:13:35	8,918.77	69.68	15.02	0:20:35	6,694.95	104.61	10.00	0:27:35	5,858.60	183.08	5.72	0:34:35	236.77	236.77	4.42
0:06:40	10,029.42	39.18	26.80	0:13:40	8,932.82	69.79	15.04	0:20:40	7,264.53	113.51	9.22	0:27:40	5,702.16	178.19	5.88	0:34:40	239.29	239.29	4.38
0:06:45	9,997.54	39.05	26.82	0:13:45	8,916.25	69.66	15.06	0:20:45	6,731.86	105.19	10.00	0:27:45	6,037.91	188.68	5.55	0:34:45	248.72	248.72	4.21
0:06:50	573.99	0.00	24.53	0:13:50	554.28	0.00	14.28	0:20:50	443.97	0.00	10.38	0:27:50	219.36	0.00	5.75	0:34:50	10.07	0.00	3.87
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
				0:14:00	0.00	0.00	0.00	0:21:00	0.00	0.00	0.00	0:28:00	0.00	0.00	0.00				

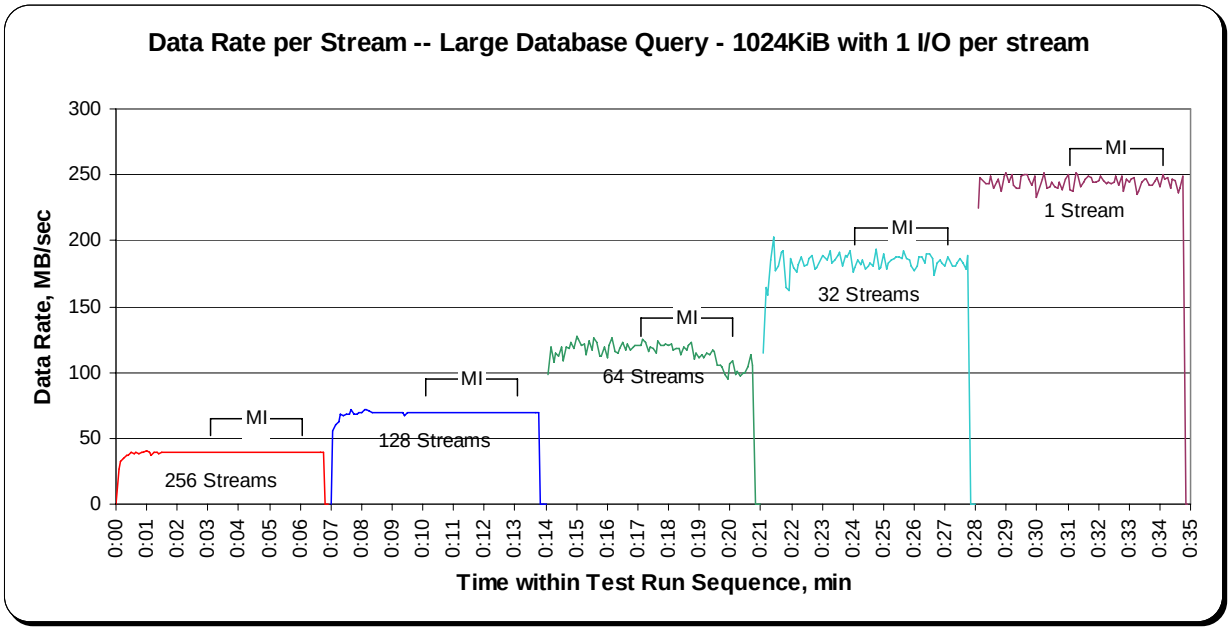
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



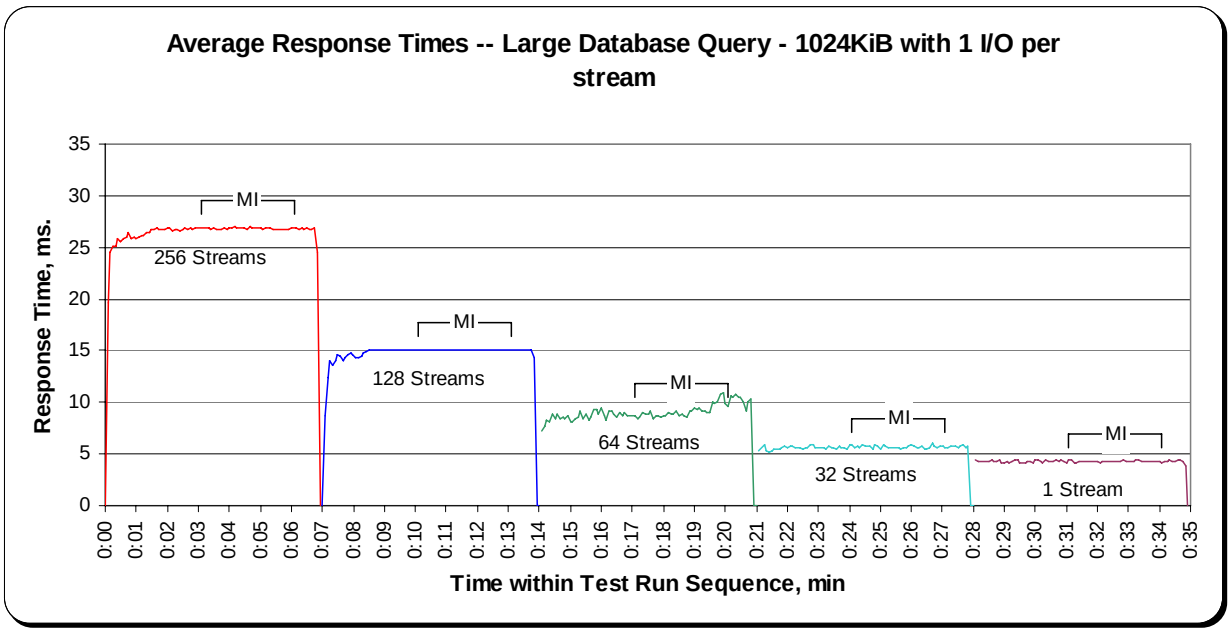
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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.

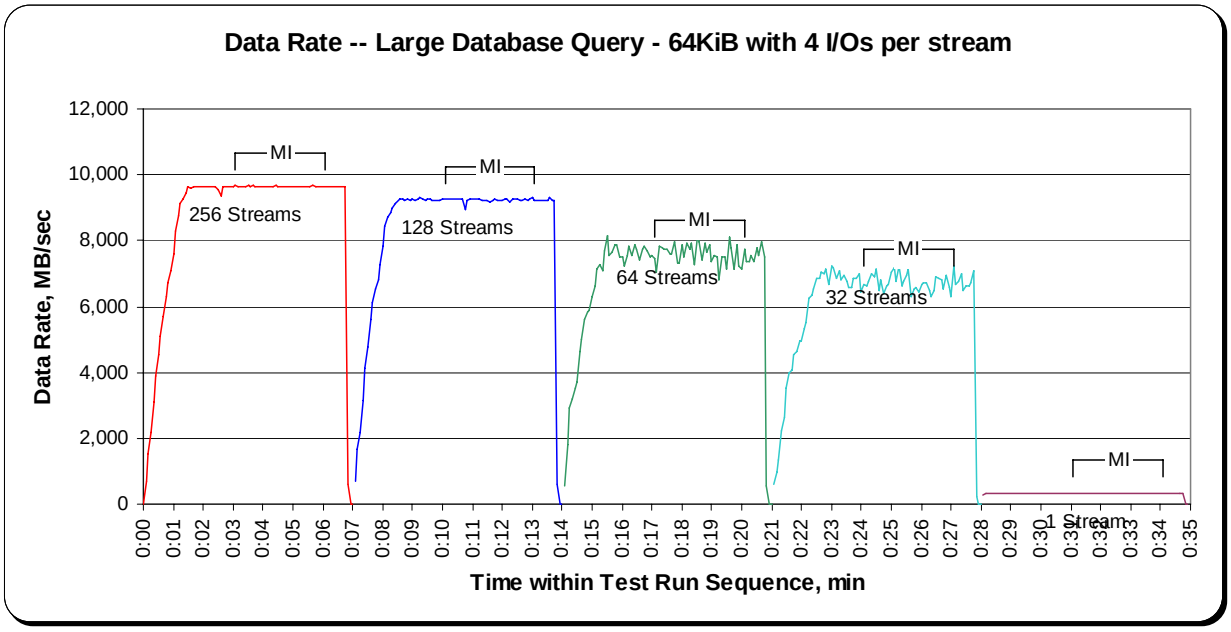
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR1	256 Streams			TR2	128 Streams			TR3	64 Streams			TR4	32 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	0.00	0.00	0.00	0:07:05	684.67	48.90	2.70	0:14:05	565.96	62.88	1.36	0:21:05	593.45	148.36	1.12	0:28:05	297.61	297.61	0.82
0:00:05	672.85	32.04	4.57	0:07:10	1,668.92	69.54	3.00	0:14:10	1,796.61	94.56	1.85	0:21:10	952.31	190.46	1.10	0:28:10	317.34	317.34	0.82
0:00:10	1,520.46	33.79	5.93	0:07:15	2,182.20	66.13	3.32	0:14:15	2,941.91	133.72	1.85	0:21:15	1,343.29	191.90	1.29	0:28:15	324.24	324.24	0.80
0:00:15	2,168.73	36.15	6.41	0:07:20	3,168.05	68.87	3.29	0:14:20	3,204.19	114.44	1.98	0:21:20	2,221.84	222.18	1.02	0:28:20	326.57	326.57	0.80
0:00:20	3,120.55	35.87	6.41	0:07:25	4,128.02	71.17	3.32	0:14:25	3,511.91	121.10	2.10	0:21:25	2,638.02	219.83	1.09	0:28:25	322.79	322.79	0.81
0:00:25	3,875.69	35.89	6.47	0:07:30	4,766.64	69.08	3.45	0:14:30	3,729.63	103.60	2.18	0:21:30	3,502.46	218.90	1.07	0:28:30	322.84	322.84	0.81
0:00:30	4,542.89	36.05	6.71	0:07:35	5,588.53	71.65	3.41	0:14:35	4,652.27	116.31	2.12	0:21:35	3,998.65	210.46	1.14	0:28:35	318.33	318.33	0.82
0:00:35	5,082.97	36.83	6.77	0:07:40	6,117.66	72.83	3.48	0:14:40	4,998.93	116.25	2.19	0:21:40	4,090.35	204.52	1.25	0:28:40	316.54	316.54	0.82
0:00:40	5,705.40	37.05	6.62	0:07:45	6,520.20	73.26	3.45	0:14:45	5,619.42	122.16	2.03	0:21:45	4,555.34	216.92	1.17	0:28:45	323.38	323.38	0.80
0:00:45	6,298.05	37.71	6.72	0:07:50	6,813.59	71.72	3.51	0:14:50	5,814.99	123.72	2.11	0:21:50	4,612.17	209.64	1.22	0:28:50	321.09	321.09	0.81
0:00:50	6,738.57	37.65	6.67	0:07:55	7,255.52	71.84	3.53	0:14:55	5,877.33	117.55	2.14	0:21:55	4,953.93	206.41	1.20	0:28:55	320.22	320.22	0.81
0:00:55	7,110.82	37.62	6.80	0:08:00	7,808.41	72.30	3.49	0:15:00	6,305.87	123.64	2.08	0:22:00	4,965.00	198.60	1.29	0:29:00	320.42	320.42	0.81
0:01:00	7,607.67	37.11	6.80	0:08:05	8,441.98	74.05	3.47	0:15:05	6,619.65	122.59	2.07	0:22:05	5,312.83	212.51	1.23	0:29:05	324.21	324.21	0.80
0:01:05	8,294.39	37.36	6.74	0:08:10	8,711.76	73.83	3.48	0:15:10	7,142.79	123.15	2.04	0:22:10	5,513.20	204.19	1.21	0:29:10	318.91	318.91	0.82
0:01:10	8,763.37	38.44	6.70	0:08:15	8,871.02	74.55	3.49	0:15:15	7,290.70	121.51	2.13	0:22:15	6,277.13	216.45	1.16	0:29:15	326.68	326.68	0.80
0:01:15	9,112.32	38.29	6.71	0:08:20	8,991.79	73.10	3.53	0:15:20	7,067.45	112.18	2.24	0:22:20	6,350.41	218.98	1.19	0:29:20	313.23	313.23	0.83
0:01:20	9,285.37	37.90	6.80	0:08:25	9,119.34	72.95	3.57	0:15:25	7,698.20	122.19	2.14	0:22:25	6,533.38	217.78	1.17	0:29:25	324.37	324.37	0.80
0:01:25	9,429.55	37.72	6.85	0:08:30	9,224.22	72.06	3.58	0:15:30	8,174.11	127.72	2.02	0:22:30	6,837.92	213.69	1.17	0:29:30	317.13	317.13	0.82
0:01:30	9,634.38	37.63	6.88	0:08:35	9,258.71	72.33	3.62	0:15:35	7,571.08	118.30	2.21	0:22:35	6,861.55	214.42	1.21	0:29:35	323.34	323.34	0.80
0:01:35	9,607.88	37.53	6.98	0:08:40	9,254.53	72.30	3.62	0:15:40	7,628.31	119.19	2.19	0:22:40	7,039.77	219.99	1.18	0:29:40	318.76	318.76	0.81
0:01:40	9,654.20	37.71	6.95	0:08:45	9,216.92	72.01	3.63	0:15:45	7,869.40	122.96	2.12	0:22:45	7,001.95	218.81	1.19	0:29:45	319.13	319.13	0.82
0:01:45	9,645.70	37.68	6.95	0:08:50	9,250.20	72.27	3.62	0:15:50	7,870.65	122.98	2.13	0:22:50	7,131.88	222.87	1.17	0:29:50	323.43	323.43	0.80
0:01:50	9,647.53	37.69	6.95	0:08:55	9,235.01	72.15	3.63	0:15:55	7,501.91	117.22	2.23	0:22:55	6,652.39	207.89	1.25	0:29:55	323.61	323.61	0.80
0:01:55	9,647.05	37.68	6.95	0:09:00	9,262.22	72.36	3.62	0:16:00	7,522.68	117.54	2.22	0:23:00	7,240.90	226.28	1.15	0:30:00	316.50	316.50	0.82
0:02:00	9,628.82	37.61	6.96	0:09:05	9,237.09	72.16	3.63	0:16:05	7,234.94	113.05	2.31	0:23:05	7,161.67	223.80	1.16	0:30:05	313.41	313.41	0.83
0:02:05	9,648.64	37.69	6.95	0:09:10	9,274.92	72.46	3.61	0:16:10	7,556.76	118.07	2.21	0:23:10	6,846.37	213.95	1.22	0:30:10	307.03	307.03	0.85
0:02:10	9,635.55	37.64	6.96	0:09:15	9,306.52	72.71	3.60	0:16:15	7,820.29	122.19	2.14	0:23:15	7,075.12	221.10	1.18	0:30:15	320.24	320.24	0.81
0:02:15	9,641.61	37.66	6.96	0:09:20	9,258.36	72.33	3.62	0:16:20	7,572.98	118.33	2.21	0:23:20	6,821.57	213.17	1.22	0:30:20	326.79	326.79	0.80
0:02:20	9,654.46	37.71	6.95	0:09:25	9,227.11	72.09	3.63	0:16:25	7,853.98	122.72	2.13	0:23:25	6,927.09	216.47	1.20	0:30:25	316.42	316.42	0.82
0:02:25	9,637.65	37.65	6.96	0:09:30	9,249.85	72.26	3.62	0:16:30	7,722.30	120.66	2.17	0:23:30	6,770.84	211.59	1.23	0:30:30	318.16	318.16	0.82
0:02:30	9,540.80	37.27	6.96	0:09:35	9,248.39	72.25	3.62	0:16:35	7,433.00	116.14	2.25	0:23:35	6,594.81	206.09	1.26	0:30:35	317.53	317.53	0.82
0:02:35	9,368.27	36.59	6.94	0:09:40	9,241.72	72.20	3.62	0:16:40	7,731.82	120.81	2.16	0:23:40	6,589.50	205.92	1.27	0:30:40	309.67	309.67	0.84
0:02:40	9,646.23	37.68	6.95	0:09:45	9,227.22	72.09	3.63	0:16:45	7,823.62	122.24	2.14	0:23:45	6,858.13	214.32	1.22	0:30:45	320.01	320.01	0.81
0:02:45	9,649.67	37.69	6.95	0:09:50	9,221.37	72.04	3.63	0:16:50	7,674.12	119.91	2.18	0:23:50	6,834.39	213.57	1.22	0:30:50	322.66	322.66	0.81
0:02:50	9,656.87	37.72	6.94	0:09:55	9,234.18	72.14	3.63	0:16:55	7,489.71	117.03	2.23	0:23:55	6,974.54	217.95	1.19	0:30:55	317.89	317.89	0.82
0:02:55	9,646.91	37.68	6.95	0:10:00	9,270.37	72.42	3.61	0:17:00	7,543.27	117.86	2.22	0:24:00	6,427.37	200.86	1.30	0:31:00	325.05	325.05	0.80
0:03:00	9,641.13	37.66	6.96																

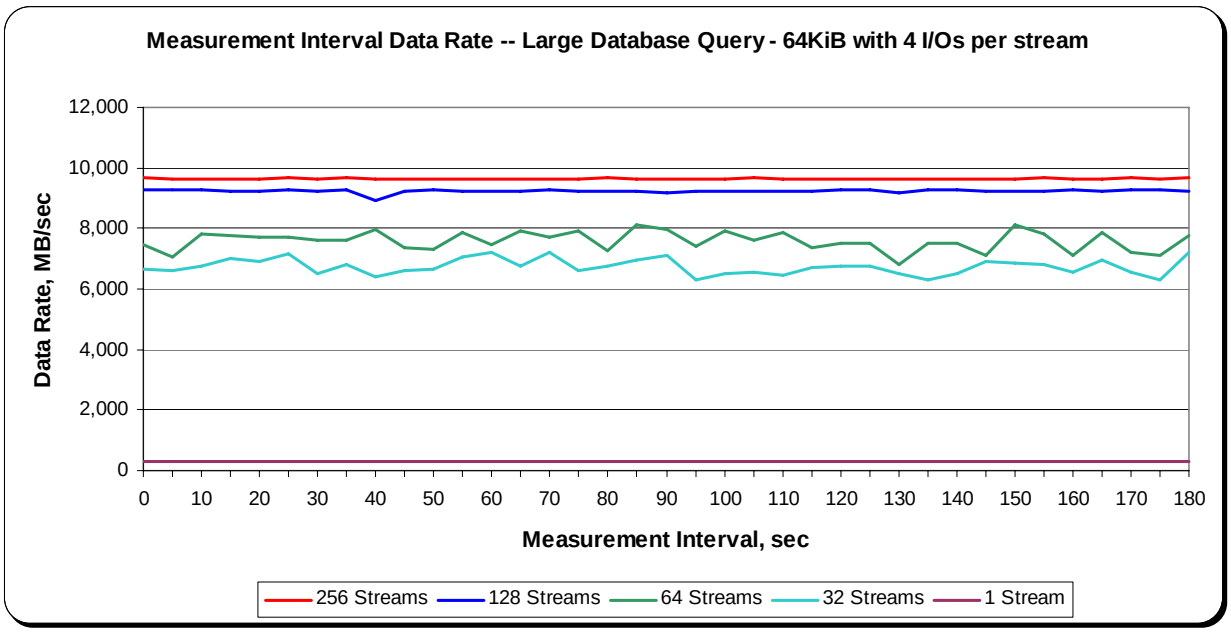
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	256 Streams			TR2	128 Streams			TR3	64 Streams			TR4	32 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
0:03:05	9,660.78	37.74	6.94	0:10:05	9,276.54	72.47	3.61	0:17:05	7,444.77	116.32	2.25	0:24:05	6,660.93	208.15	1.25	0:31:05	326.04	326.04	0.80
0:03:10	9,640.20	37.66	6.95	0:10:10	9,286.69	72.55	3.61	0:17:10	7,062.80	110.36	2.37	0:24:10	6,613.45	206.67	1.26	0:31:10	318.65	318.65	0.82
0:03:15	9,646.94	37.68	6.95	0:10:15	9,257.40	72.32	3.62	0:17:15	7,823.40	122.24	2.14	0:24:15	6,768.79	211.52	1.23	0:31:15	301.40	301.40	0.86
0:03:20	9,649.04	37.69	6.95	0:10:20	9,249.05	72.26	3.62	0:17:20	7,763.02	121.30	2.15	0:24:20	6,986.68	218.33	1.19	0:31:20	309.71	309.71	0.84
0:03:25	9,635.01	37.64	6.96	0:10:25	9,247.70	72.25	3.62	0:17:25	7,724.08	120.69	2.16	0:24:25	6,904.94	215.78	1.21	0:31:25	323.67	323.67	0.80
0:03:30	9,674.56	37.79	6.93	0:10:30	9,253.49	72.29	3.62	0:17:30	7,719.49	120.62	2.17	0:24:30	7,138.71	223.08	1.17	0:31:30	319.66	319.66	0.81
0:03:35	9,638.26	37.65	6.96	0:10:35	9,249.40	72.26	3.62	0:17:35	7,594.90	118.67	2.20	0:24:35	6,500.71	203.15	1.28	0:31:35	325.17	325.17	0.80
0:03:40	9,670.37	37.77	6.93	0:10:40	9,260.23	72.35	3.62	0:17:40	7,617.23	119.02	2.20	0:24:40	6,825.35	213.29	1.22	0:31:40	324.28	324.28	0.80
0:03:45	9,650.70	37.70	6.95	0:10:45	8,921.41	69.70	3.60	0:17:45	7,976.31	124.63	2.10	0:24:45	6,393.34	199.79	1.30	0:31:45	324.26	324.26	0.80
0:03:50	9,633.41	37.63	6.96	0:10:50	9,219.96	72.03	3.63	0:17:50	7,337.45	114.65	2.28	0:24:50	6,622.76	206.96	1.26	0:31:50	318.64	318.64	0.82
0:03:55	9,637.36	37.65	6.96	0:10:55	9,288.58	72.57	3.61	0:17:55	7,314.26	114.29	2.29	0:24:55	6,673.76	208.55	1.25	0:31:55	325.47	325.47	0.80
0:04:00	9,632.47	37.63	6.96	0:11:00	9,243.31	72.21	3.62	0:18:00	7,878.18	123.10	2.12	0:25:00	7,062.75	220.71	1.18	0:32:00	321.75	321.75	0.81
0:04:05	9,646.15	37.68	6.95	0:11:05	9,245.31	72.23	3.62	0:18:05	7,485.72	116.96	2.23	0:25:05	7,193.33	224.79	1.16	0:32:05	318.41	318.41	0.82
0:04:10	9,648.59	37.69	6.95	0:11:10	9,249.11	72.26	3.62	0:18:10	7,904.46	123.51	2.12	0:25:10	6,780.68	211.90	1.23	0:32:10	323.11	323.11	0.80
0:04:15	9,643.91	37.67	6.95	0:11:15	9,256.77	72.32	3.62	0:18:15	7,729.56	120.77	2.16	0:25:15	7,209.39	225.29	1.16	0:32:15	304.45	304.45	0.85
0:04:20	9,629.09	37.61	6.96	0:11:20	9,226.55	72.08	3.63	0:18:20	7,924.15	123.81	2.11	0:25:20	6,619.92	206.87	1.26	0:32:20	315.78	315.78	0.82
0:04:25	9,668.92	37.77	6.93	0:11:25	9,233.98	72.14	3.63	0:18:25	7,259.83	113.43	2.30	0:25:25	6,753.73	211.05	1.23	0:32:25	323.75	323.75	0.80
0:04:30	9,652.58	37.71	6.95	0:11:30	9,217.68	72.01	3.63	0:18:30	8,107.23	126.68	2.06	0:25:30	6,952.39	217.26	1.20	0:32:30	323.74	323.74	0.80
0:04:35	9,635.10	37.64	6.96	0:11:35	9,193.79	71.83	3.64	0:18:35	7,966.97	124.48	2.10	0:25:35	7,118.67	222.46	1.17	0:32:35	319.17	319.17	0.81
0:04:40	9,655.37	37.72	6.95	0:11:40	9,231.51	72.12	3.63	0:18:40	7,395.31	115.55	2.26	0:25:40	6,320.63	197.52	1.32	0:32:40	327.03	327.03	0.79
0:04:45	9,635.18	37.64	6.96	0:11:45	9,247.16	72.24	3.62	0:18:45	7,907.08	123.55	2.12	0:25:45	6,524.87	203.90	1.28	0:32:45	324.02	324.02	0.80
0:04:50	9,658.89	37.73	6.94	0:11:50	9,228.50	72.10	3.63	0:18:50	7,623.65	119.12	2.19	0:25:50	6,570.37	205.32	1.27	0:32:50	320.91	320.91	0.81
0:04:55	9,652.45	37.70	6.95	0:11:55	9,230.71	72.11	3.63	0:18:55	7,879.85	123.12	2.12	0:25:55	6,462.07	201.94	1.29	0:32:55	316.05	316.05	0.82
0:05:00	9,650.40	37.70	6.95	0:12:00	9,239.94	72.19	3.62	0:19:00	7,382.55	115.35	2.27	0:26:00	6,687.06	208.97	1.25	0:33:00	326.36	326.36	0.80
0:05:05	9,622.62	37.59	6.97	0:12:05	9,269.03	72.41	3.61	0:19:05	7,533.87	117.72	2.22	0:26:05	6,732.18	210.38	1.24	0:33:05	325.32	325.32	0.80
0:05:10	9,647.09	37.68	6.95	0:12:10	9,289.22	72.57	3.60	0:19:10	7,528.73	117.64	2.22	0:26:10	6,737.82	210.56	1.24	0:33:10	311.83	311.83	0.84
0:05:15	9,648.46	37.69	6.95	0:12:15	9,193.01	71.82	3.64	0:19:15	6,821.24	106.58	2.35	0:26:15	6,499.26	203.10	1.28	0:33:15	317.22	317.22	0.82
0:05:20	9,629.24	37.61	6.96	0:12:20	9,278.54	72.49	3.61	0:19:20	7,515.33	117.43	2.23	0:26:20	6,311.53	197.24	1.32	0:33:20	309.91	309.91	0.84
0:05:25	9,655.24	37.72	6.94	0:12:25	9,252.74	72.29	3.62	0:19:25	7,489.20	117.02	2.23	0:26:25	6,496.36	203.01	1.28	0:33:25	325.35	325.35	0.80
0:05:30	9,651.46	37.70	6.95	0:12:30	9,244.19	72.22	3.62	0:19:30	7,118.74	111.23	2.35	0:26:30	6,906.89	215.84	1.21	0:33:30	326.96	326.96	0.80
0:05:35	9,650.11	37.70	6.94	0:12:35	9,242.25	72.21	3.62	0:19:35	8,097.31	126.52	2.06	0:26:35	6,837.24	213.66	1.22	0:33:35	318.45	318.45	0.82
0:05:40	9,673.17	37.79	6.93	0:12:40	9,231.86	72.12	3.63	0:19:40	7,800.26	121.88	2.14	0:26:40	6,813.03	212.91	1.22	0:33:40	318.02	318.02	0.82
0:05:45	9,646.52	37.68	6.95	0:12:45	9,255.37	72.31	3.62	0:19:45	7,126.92	111.36	2.35	0:26:45	6,547.08	204.60	1.27	0:33:45	320.64	320.64	0.81
0:05:50	9,641.34	37.66	6.96	0:12:50	9,234.59	72.15	3.63	0:19:50	7,886.03	123.22	2.12	0:26:50	6,939.39	216.86	1.20	0:33:50	315.82	315.82	0.82
0:05:55	9,657.69	37.73	6.94	0:12:55	9,252.94	72.29	3.62	0:19:55	7,231.04	112.99	2.31	0:26:55	6,578.18	205.57	1.27	0:33:55	319.60	319.60	0.81
0:06:00	9,650.80	37.70	6.95	0:13:00	9,300.14	72.66	3.60	0:20:00	7,112.27	111.13	2.35	0:27:00	6,297.52	196.80	1.32	0:34:00	311.37	311.37	0.83
0:06:05	9,656.12	37.72	6.94	0:13:05	9,241.44	72.20	3.62	0:20:05	7,749.46	121.09	2.16	0:27:05	7,235.08	226.10	1.15	0:34:05	316.69	316.69	0.82
0:06:10	9,622.66	37.59	6.97	0:13:10	9,241.00	72.20	3.62	0:20:10	7,384.80	115.39	2.26	0:27:10	6,649.36	207.79	1.25	0:34:10	306.54	306.54	0.85
0:06:15	9,649.22	37.69	6.95	0:13:15	9,214.86	71.99	3.63	0:20:15	7,362.81	115.04	2.27	0:27:15	6,763.20	211.35	1.23	0:34:15	308.68	308.68	0.84
0:06:20	9,645.26	37.68	6.95	0:13:20	9,223.99	72.06	3.63	0:20:20	7,549.37	117.96	2.22	0:27:20	6,978.00	218.06	1.19	0:34:20	306.24	306.24	0.85
0:06:25	9,657.48	37.72	6.94	0:13:25	9,235.79	72.15	3.63	0:20:25	7,344.04	114.75	2.28	0:27:25	6,502.43	203.20	1.28	0:34:25	311.69	311.69	0.83
0:06:30	9,622.72	37.59	6.97	0:13:30	9,238.91	72.18	3.63	0:20:30	7,793.22	121.77	2.15	0:27:30	6,614.48	206.70	1.26	0:34:30	317.91	317.91	0.82
0:06:35	9,626.56	37.60	6.97	0:13:35	9,290.32	72.58	3.61	0:20:35	7,547.12	117.92	2.22	0:27:35	6,638.73	207.46	1.26	0:34:35	316.62	316.62	0.82
0:06:40	9,626.34	37.60	6.96	0:13:40	9,230.32	72.11	3.63	0:20:40	7,951.45	124.24	2.10	0:27:40	6,710.91	209.72	1.24	0:34:40	310.47	310.47	0.84
0:06:45	9,644.85	37.68	6.95	0:13:45	9,205.72	71.92	3.64	0:20:45	7,499.95	117.19	2.23	0:27:45	7,098.95	221.84	1.17	0:34:45	311.00	311.00	0.84
0:06:50	597.19	0.00	6.63	0:13:50	614.35	0.00	3.43	0:20:50	546.93	0.00	2.09	0:27:50	246.95	0.00	1.24	0:34:50	10.08	0.00	0.96
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
0:07:00	0.00	0.00	0.00	0:14:00	0.00	0.00	0.00	0:21:00	0.00	0.00	0.00	0:28:00	0.00	0.00	0.00				

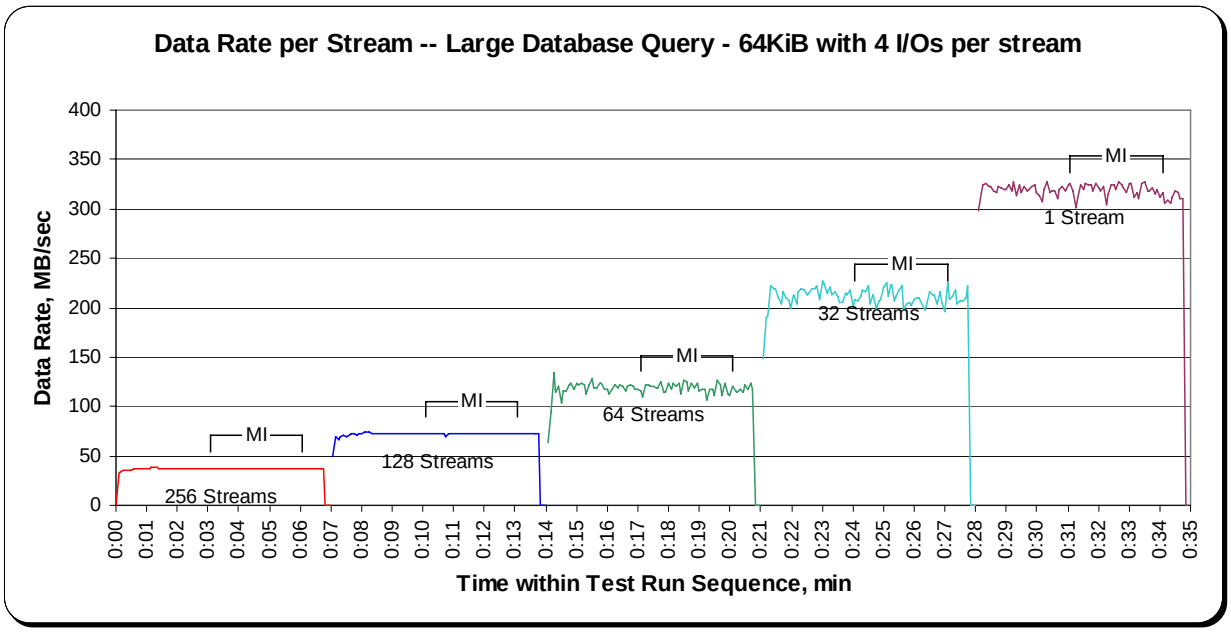
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



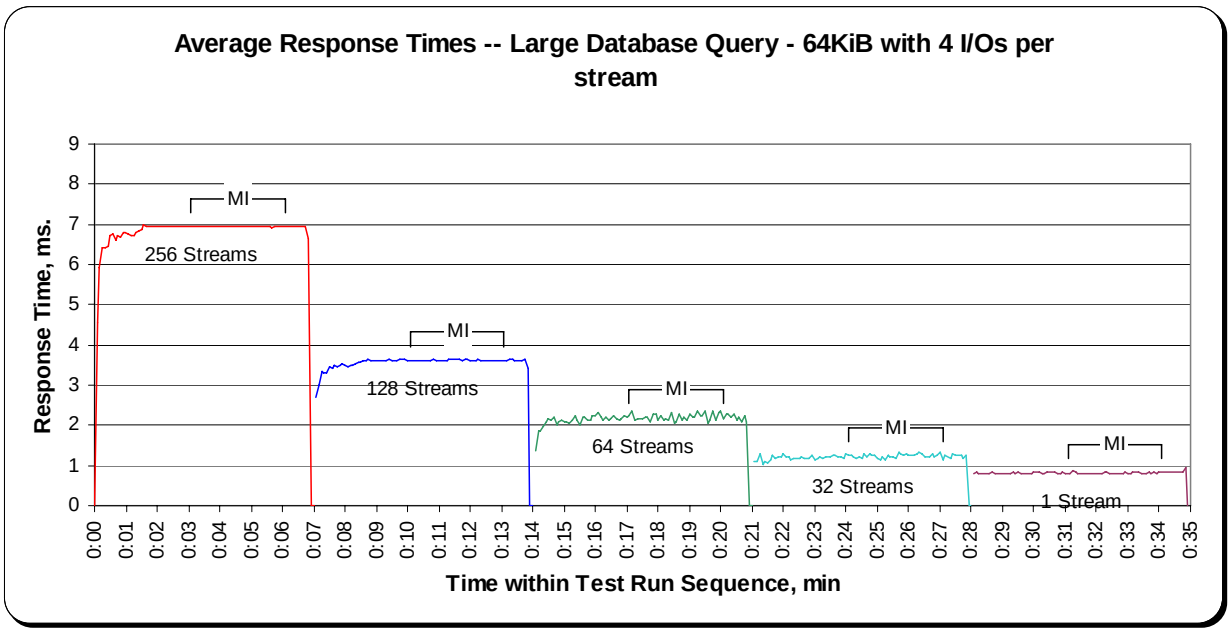
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



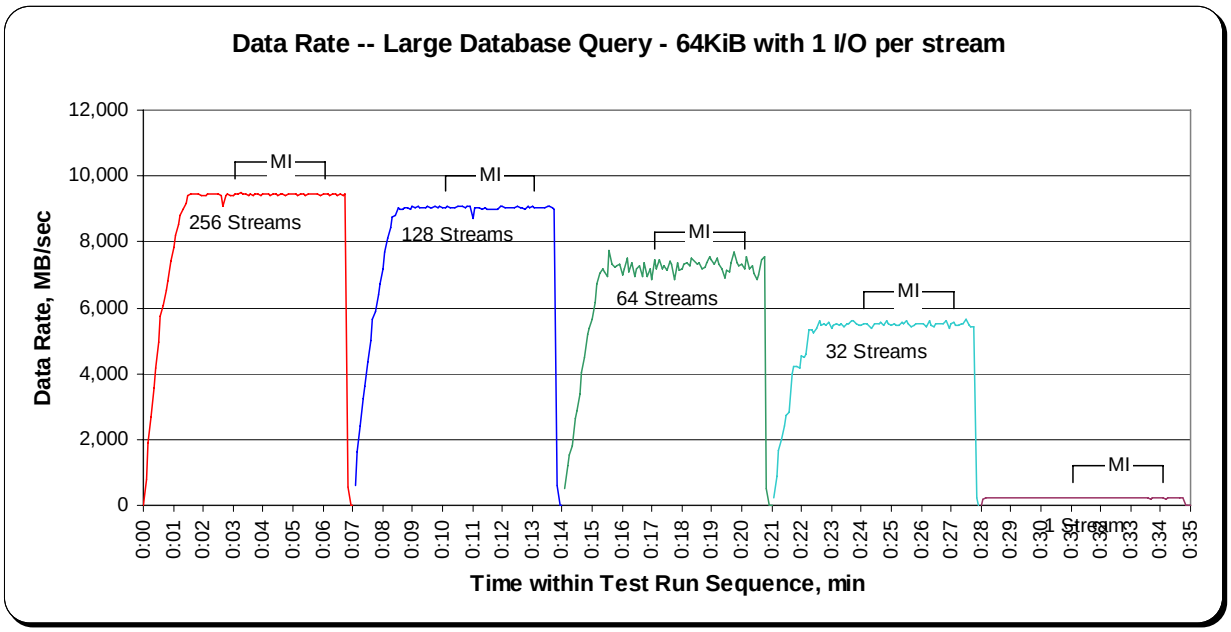
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR6	256 Streams			TR7	128 Streams			TR8	64 Streams			TR9	32 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	0.00	0.00	0.00	0:07:05	598.04	42.72	0.68	0:14:05	502.32	83.72	0.45	0:21:05	243.43	81.14	0.33	0:28:00	0.00	0.00	0.00
0:00:05	803.99	26.80	1.27	0:07:10	1,624.37	62.48	0.81	0:14:10	1,210.79	100.90	0.52	0:21:10	886.70	147.78	0.35	0:28:05	207.41	207.41	0.30
0:00:10	1,906.47	33.45	1.56	0:07:15	2,388.14	62.85	0.86	0:14:15	1,546.78	110.48	0.56	0:21:15	1,677.39	167.74	0.35	0:28:10	214.90	214.90	0.30
0:00:15	2,678.02	33.48	1.66	0:07:20	3,225.57	71.68	0.84	0:14:20	1,787.32	99.30	0.56	0:21:20	2,004.99	182.27	0.35	0:28:15	218.82	218.82	0.29
0:00:20	3,574.87	36.85	1.63	0:07:25	3,609.47	65.63	0.86	0:14:25	2,629.78	109.57	0.54	0:21:25	2,387.21	159.15	0.36	0:28:20	221.46	221.46	0.29
0:00:25	4,180.57	36.04	1.67	0:07:30	4,371.15	69.38	0.89	0:14:30	2,878.40	102.80	0.58	0:21:30	2,714.20	169.64	0.37	0:28:25	215.28	215.28	0.30
0:00:30	4,962.71	35.70	1.70	0:07:35	4,990.53	68.36	0.88	0:14:35	3,365.28	105.16	0.56	0:21:35	2,838.76	141.94	0.38	0:28:30	215.71	215.71	0.30
0:00:35	5,751.11	37.10	1.70	0:07:40	5,648.78	72.42	0.87	0:14:40	4,040.41	115.44	0.54	0:21:40	3,979.88	165.83	0.37	0:28:35	220.49	220.49	0.29
0:00:40	6,072.67	37.49	1.69	0:07:45	5,874.46	69.93	0.89	0:14:45	4,497.50	104.59	0.56	0:21:45	4,225.35	176.06	0.37	0:28:40	219.45	219.45	0.29
0:00:45	6,510.21	37.20	1.70	0:07:50	6,403.23	70.37	0.88	0:14:50	5,174.52	112.49	0.56	0:21:50	4,219.68	175.82	0.37	0:28:45	217.28	217.28	0.30
0:00:50	6,816.46	36.26	1.72	0:07:55	6,700.44	69.80	0.91	0:14:55	5,379.57	112.07	0.56	0:21:55	4,177.86	167.11	0.37	0:28:50	219.36	219.36	0.29
0:00:55	7,393.89	36.24	1.73	0:08:00	7,185.05	70.44	0.90	0:15:00	5,672.13	111.22	0.56	0:22:00	4,541.40	174.67	0.37	0:28:55	217.28	217.28	0.30
0:01:00	7,832.29	37.12	1.73	0:08:05	7,678.58	70.45	0.89	0:15:05	6,184.73	110.44	0.56	0:22:05	4,487.69	172.60	0.37	0:29:00	217.26	217.26	0.30
0:01:05	8,213.39	37.50	1.70	0:08:10	8,116.15	71.82	0.88	0:15:10	6,729.25	114.06	0.56	0:22:10	4,577.99	169.56	0.37	0:29:05	220.84	220.84	0.29
0:01:10	8,515.67	37.68	1.71	0:08:15	8,419.65	71.35	0.89	0:15:15	7,035.94	117.27	0.55	0:22:15	5,314.33	171.43	0.37	0:29:10	221.83	221.83	0.29
0:01:15	8,781.22	37.69	1.72	0:08:20	8,738.87	72.22	0.90	0:15:20	7,197.17	119.95	0.54	0:22:20	5,313.53	171.40	0.38	0:29:15	215.27	215.27	0.30
0:01:20	9,000.26	37.66	1.71	0:08:25	8,812.78	70.50	0.91	0:15:25	7,099.54	112.69	0.57	0:22:25	5,238.57	168.99	0.38	0:29:20	220.98	220.98	0.29
0:01:25	9,179.72	37.01	1.74	0:08:30	9,012.71	70.41	0.91	0:15:30	6,963.32	108.80	0.59	0:22:30	5,357.27	167.41	0.37	0:29:25	220.43	220.43	0.29
0:01:30	9,416.63	36.93	1.75	0:08:35	9,003.30	70.34	0.93	0:15:35	7,748.43	121.07	0.53	0:22:35	5,584.30	174.51	0.37	0:29:30	209.21	209.21	0.31
0:01:35	9,430.54	36.84	1.77	0:08:40	9,011.32	70.40	0.92	0:15:40	7,342.35	114.72	0.57	0:22:40	5,476.57	171.14	0.38	0:29:35	220.16	220.16	0.29
0:01:40	9,440.67	36.88	1.77	0:08:45	9,051.77	70.72	0.92	0:15:45	7,239.26	113.11	0.57	0:22:45	5,533.52	172.92	0.37	0:29:40	215.39	215.39	0.30
0:01:45	9,436.91	36.86	1.77	0:08:50	9,033.81	70.58	0.92	0:15:50	7,275.25	113.68	0.57	0:22:50	5,460.42	170.64	0.38	0:29:45	209.41	209.41	0.29
0:01:50	9,436.26	36.86	1.77	0:08:55	9,003.90	70.34	0.93	0:15:55	7,314.43	114.29	0.57	0:22:55	5,572.29	174.13	0.37	0:29:50	217.42	217.42	0.30
0:01:55	9,420.21	36.80	1.77	0:09:00	9,082.18	70.95	0.92	0:16:00	6,988.96	109.20	0.59	0:23:00	5,392.57	168.52	0.38	0:29:55	215.16	215.16	0.30
0:02:00	9,413.88	36.77	1.78	0:09:05	9,054.64	70.74	0.92	0:16:05	7,178.11	112.16	0.58	0:23:05	5,466.10	170.82	0.38	0:30:00	216.21	216.21	0.30
0:02:05	9,417.67	36.79	1.77	0:09:10	9,064.05	70.81	0.92	0:16:10	7,504.67	117.26	0.55	0:23:10	5,494.55	171.70	0.38	0:30:05	214.02	214.02	0.30
0:02:10	9,443.67	36.89	1.77	0:09:15	9,046.75	70.68	0.92	0:16:15	7,067.21	110.43	0.59	0:23:15	5,475.51	171.11	0.38	0:30:10	220.19	220.19	0.29
0:02:15	9,440.35	36.88	1.77	0:09:20	9,047.13	70.68	0.92	0:16:20	7,351.80	114.87	0.56	0:23:20	5,501.35	171.92	0.37	0:30:15	217.69	217.69	0.30
0:02:20	9,439.29	36.87	1.77	0:09:25	9,015.99	70.44	0.92	0:16:25	6,933.35	108.33	0.60	0:23:25	5,402.56	168.83	0.38	0:30:20	216.02	216.02	0.30
0:02:25	9,430.14	36.84	1.77	0:09:30	9,059.17	70.77	0.92	0:16:30	7,179.47	112.18	0.58	0:23:30	5,535.17	172.97	0.37	0:30:25	220.83	220.83	0.29
0:02:30	9,445.73	36.90	1.77	0:09:35	9,036.71	70.60	0.92	0:16:35	7,286.51	113.85	0.57	0:23:35	5,499.83	171.87	0.37	0:30:30	212.11	212.11	0.30
0:02:35	9,385.30	36.66	1.77	0:09:40	9,035.00	70.59	0.92	0:16:40	6,950.02	108.59	0.60	0:23:40	5,609.87	175.31	0.37	0:30:35	217.42	217.42	0.30
0:02:40	9,097.67	35.54	1.77	0:09:45	9,077.27	70.92	0.92	0:16:45	7,380.72	115.32	0.56	0:23:45	5,584.04	174.50	0.37	0:30:40	217.64	217.64	0.30
0:02:45	9,420.64	36.80	1.77	0:09:50	9,034.76	70.58	0.92	0:16:50	6,967.90	108.87	0.60	0:23:50	5,501.25	171.91	0.38	0:30:45	216.02	216.02	0.30
0:02:50	9,432.65	36.85	1.77	0:09:55	9,063.10	70.81	0.92	0:16:55	7,170.10	112.03	0.58	0:23:55	5,453.95	170.44	0.38	0:30:50	217.63	217.63	0.30
0:02:55	9,420.18	36.80	1.77	0:10:00	9,051.66	70.72	0.92	0:17:00	6,876.67	107.45	0.60	0:24:00	5,444.27	170.13	0.38	0:30:55	215.59	215.59	0.30
0:03:00	9,427.83	36.83	1.77													0:31:00	217.99	217.99	0.29

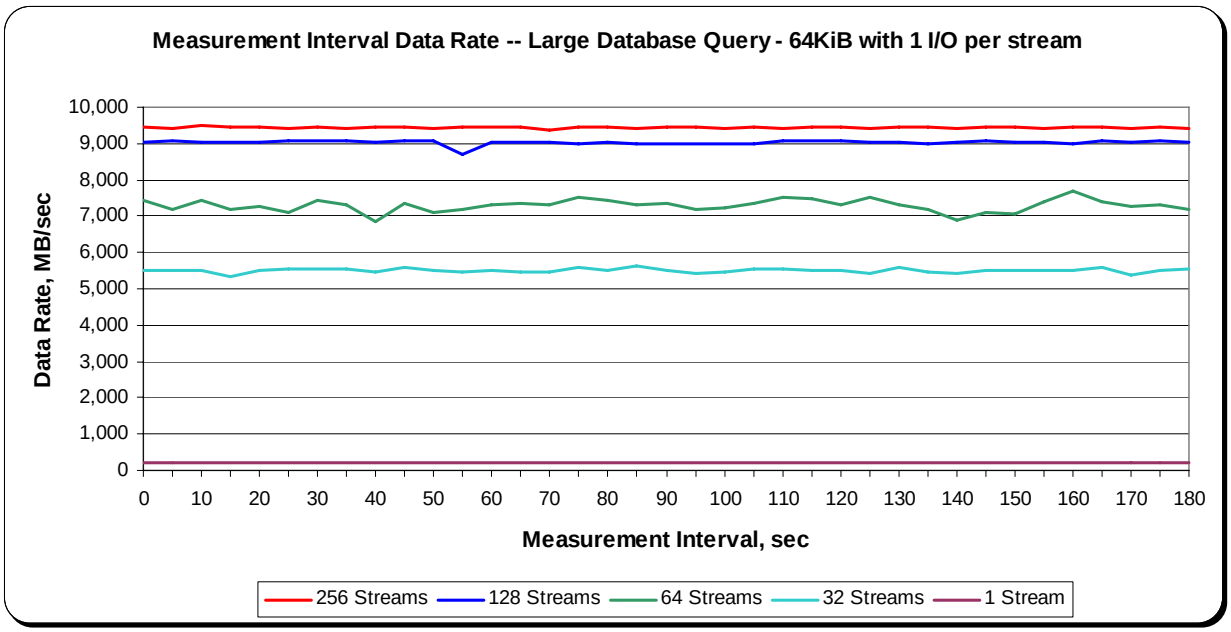
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period

TR6	256 Streams			TR7	128 Streams			TR8	64 Streams			TR9	32 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
0:03:05	9,462.66	36.96	1.77	0:10:05	9,018.26	70.46	0.92	0:17:05	7,446.34	116.35	0.56	0:24:05	5,504.45	172.01	0.38	0:31:05	218.77	218.77	0.29
0:03:10	9,431.77	36.84	1.77	0:10:10	9,060.89	70.79	0.92	0:17:10	7,171.90	112.06	0.58	0:24:10	5,491.56	171.61	0.38	0:31:10	215.78	215.78	0.30
0:03:15	9,480.13	37.03	1.76	0:10:15	9,038.20	70.61	0.92	0:17:15	7,447.67	116.37	0.56	0:24:15	5,486.44	171.45	0.38	0:31:15	218.58	218.58	0.29
0:03:20	9,437.76	36.87	1.77	0:10:20	9,050.64	70.71	0.92	0:17:20	7,167.11	111.99	0.58	0:24:20	5,355.91	167.37	0.39	0:31:20	219.83	219.83	0.29
0:03:25	9,435.17	36.86	1.77	0:10:25	9,026.75	70.52	0.92	0:17:25	7,276.99	113.70	0.57	0:24:25	5,493.47	171.67	0.38	0:31:25	211.59	211.59	0.30
0:03:30	9,427.34	36.83	1.77	0:10:30	9,060.00	70.78	0.92	0:17:30	7,121.14	111.27	0.58	0:24:30	5,529.69	172.80	0.37	0:31:30	214.73	214.73	0.30
0:03:35	9,468.22	36.99	1.77	0:10:35	9,070.34	70.86	0.92	0:17:35	7,416.36	115.88	0.56	0:24:35	5,531.22	172.85	0.37	0:31:35	219.61	219.61	0.29
0:03:40	9,416.73	36.78	1.77	0:10:40	9,058.87	70.77	0.92	0:17:40	7,313.80	114.28	0.57	0:24:40	5,552.23	173.51	0.37	0:31:40	220.08	220.08	0.29
0:03:45	9,455.48	36.94	1.77	0:10:45	9,039.41	70.62	0.92	0:17:45	6,864.81	107.26	0.60	0:24:45	5,457.29	170.54	0.38	0:31:45	214.02	214.02	0.30
0:03:50	9,435.95	36.86	1.77	0:10:50	9,082.65	70.96	0.92	0:17:50	7,363.88	115.06	0.56	0:24:50	5,596.06	174.88	0.37	0:31:50	221.20	221.20	0.29
0:03:55	9,397.72	36.71	1.78	0:10:55	9,071.44	70.87	0.92	0:17:55	7,119.29	111.24	0.58	0:24:55	5,515.92	172.37	0.37	0:31:55	217.29	217.29	0.30
0:04:00	9,467.65	36.98	1.77	0:11:00	8,699.31	67.96	0.92	0:18:00	7,169.83	112.03	0.58	0:25:00	5,465.28	170.79	0.38	0:32:00	215.25	215.25	0.30
0:04:05	9,442.69	36.89	1.77	0:11:05	9,028.60	70.54	0.92	0:18:05	7,297.66	114.03	0.57	0:25:05	5,518.24	172.44	0.37	0:32:05	211.66	211.66	0.30
0:04:10	9,462.94	36.96	1.77	0:11:10	9,022.64	70.49	0.92	0:18:10	7,357.54	114.96	0.56	0:25:10	5,444.10	170.13	0.38	0:32:10	216.01	216.01	0.30
0:04:15	9,385.08	36.66	1.78	0:11:15	9,047.51	70.68	0.92	0:18:15	7,293.68	113.96	0.57	0:25:15	5,462.75	170.71	0.38	0:32:15	212.40	212.40	0.30
0:04:20	9,452.65	36.92	1.77	0:11:20	9,004.63	70.35	0.93	0:18:20	7,505.73	117.28	0.55	0:25:20	5,573.77	174.18	0.37	0:32:20	219.80	219.80	0.29
0:04:25	9,471.28	37.00	1.76	0:11:25	9,021.96	70.48	0.92	0:18:25	7,427.90	116.06	0.56	0:25:25	5,513.31	172.29	0.37	0:32:25	219.56	219.56	0.29
0:04:30	9,422.52	36.81	1.77	0:11:30	9,010.39	70.39	0.92	0:18:30	7,307.15	114.17	0.57	0:25:30	5,614.37	175.45	0.37	0:32:30	218.15	218.15	0.30
0:04:35	9,449.39	36.91	1.77	0:11:35	9,008.96	70.38	0.92	0:18:35	7,349.03	114.83	0.56	0:25:35	5,515.07	172.35	0.37	0:32:35	219.74	219.74	0.29
0:04:40	9,442.03	36.88	1.77	0:11:40	8,991.91	70.25	0.93	0:18:40	7,192.87	112.39	0.58	0:25:40	5,438.45	169.95	0.38	0:32:40	219.98	219.98	0.29
0:04:45	9,420.01	36.80	1.77	0:11:45	9,009.57	70.39	0.92	0:18:45	7,222.99	112.86	0.57	0:25:45	5,483.17	171.35	0.38	0:32:45	213.70	213.70	0.30
0:04:50	9,453.52	36.93	1.77	0:11:50	8,996.97	70.29	0.93	0:18:50	7,354.93	114.92	0.56	0:25:50	5,527.56	172.74	0.37	0:32:50	214.18	214.18	0.30
0:04:55	9,429.11	36.83	1.77	0:11:55	9,062.88	70.80	0.92	0:18:55	7,537.52	117.77	0.55	0:25:55	5,529.04	172.78	0.37	0:32:55	216.26	216.26	0.30
0:05:00	9,439.39	36.87	1.77	0:12:00	9,066.31	70.83	0.92	0:19:00	7,476.25	116.82	0.55	0:26:00	5,520.77	172.52	0.37	0:33:00	218.27	218.27	0.29
0:05:05	9,436.53	36.86	1.77	0:12:05	9,057.26	70.76	0.92	0:19:05	7,326.60	114.48	0.57	0:26:05	5,522.64	172.58	0.37	0:33:05	220.87	220.87	0.29
0:05:10	9,419.88	36.80	1.77	0:12:10	9,027.73	70.53	0.92	0:19:10	7,522.90	117.55	0.55	0:26:10	5,439.32	169.98	0.38	0:33:10	215.07	215.07	0.30
0:05:15	9,442.86	36.89	1.77	0:12:15	9,043.12	70.65	0.92	0:19:15	7,297.80	114.03	0.57	0:26:15	5,583.73	174.49	0.37	0:33:15	214.28	214.28	0.30
0:05:20	9,441.84	36.88	1.77	0:12:20	9,012.14	70.41	0.92	0:19:20	7,200.90	112.51	0.58	0:26:20	5,455.33	170.48	0.38	0:33:20	217.07	217.07	0.30
0:05:25	9,419.20	36.79	1.77	0:12:25	9,024.84	70.51	0.92	0:19:25	6,911.54	107.99	0.58	0:26:25	5,427.59	169.61	0.38	0:33:25	219.52	219.52	0.29
0:05:30	9,474.64	37.01	1.76	0:12:30	9,069.12	70.85	0.92	0:19:30	7,112.06	111.13	0.58	0:26:30	5,522.60	172.58	0.37	0:33:30	217.69	217.69	0.30
0:05:35	9,442.09	36.88	1.77	0:12:35	9,044.47	70.66	0.92	0:19:35	7,073.61	110.53	0.59	0:26:35	5,516.67	172.40	0.37	0:33:35	221.68	221.68	0.29
0:05:40	9,428.95	36.83	1.77	0:12:40	9,040.10	70.63	0.92	0:19:40	7,376.80	115.26	0.56	0:26:40	5,500.57	171.89	0.37	0:33:40	202.50	202.50	0.32
0:05:45	9,435.78	36.86	1.77	0:12:45	9,007.29	70.37	0.92	0:19:45	7,670.39	119.85	0.54	0:26:45	5,497.37	171.79	0.37	0:33:45	210.87	210.87	0.30
0:05:50	9,453.64	36.93	1.77	0:12:50	9,075.78	70.90	0.92	0:19:50	7,381.07	115.33	0.56	0:26:50	5,584.44	174.51	0.37	0:33:50	215.23	215.23	0.30
0:05:55	9,412.87	36.77	1.78	0:12:55	9,030.11	70.55	0.92	0:19:55	7,255.01	113.36	0.57	0:26:55	5,366.72	167.71	0.38	0:33:55	221.29	221.29	0.29
0:06:00	9,458.76	36.95	1.77	0:13:00	9,074.89	70.90	0.92	0:20:00	7,307.41	114.18	0.57	0:27:00	5,503.07	171.97	0.37	0:34:00	219.04	219.04	0.29
0:06:05	9,431.40	36.84	1.77	0:13:05	9,045.16	70.67	0.92	0:20:05	7,178.76	112.17	0.58	0:27:05	5,560.97	173.78	0.37	0:34:05	221.52	221.52	0.29
0:06:10	9,460.66	36.96	1.77	0:13:10	9,040.32	70.63	0.92	0:20:10	7,558.05	118.09	0.55	0:27:10	5,454.88	170.47	0.38	0:34:10	204.68	204.68	0.31
0:06:15	9,423.45	36.81	1.77	0:13:15	9,017.91	70.45	0.92	0:20:15	7,176.92	112.14	0.58	0:27:15	5,454.69	170.46	0.38	0:34:15	211.08	211.08	0.30
0:06:20	9,431.50	36.84	1.77	0:13:20	9,037.16	70.60	0.92	0:20:20	7,274.30	113.66	0.57	0:27:20	5,517.83	172.43	0.37	0:34:20	217.14	217.14	0.30
0:06:25	9,435.51	36.86	1.77	0:13:25	9,039.41	70.62	0.92	0:20:25	7,039.55	109.99	0.59	0:27:25	5,528.46	172.76	0.37	0:34:25	221.51	221.51	0.29
0:06:30	9,420.34	36.80	1.77	0:13:30	9,072.48	70.88	0.92	0:20:30	6,871.13	107.36	0.60	0:27:30	5,664.77	177.02	0.36	0:34:30	221.04	221.04	0.29
0:06:35	9,446.41	36.90	1.77	0:13:35	9,076.14	70.91	0.92	0:20:35	6,996.43	109.32	0.59	0:27:35	5,458.24	170.57	0.38	0:34:35	221.66	221.66	0.29
0:06:40	9,393.25	36.69	1.78	0:13:40	9,029.28	70.54	0.92	0:20:40	7,462.09	116.60	0.56	0:27:40	5,420.56	169.39	0.38	0:34:40	219.84	219.84	0.29
0:06:45	9,470.65	36.99	1.76	0:13:45	8,994.45	70.27	0.93	0:20:45	7,550.68	117.98	0.55	0:27:45	5,424.66	169.52	0.38	0:34:45	211.61	211.61	0.30
0:06:50	544.09	0.00	1.75	0:13:50	594.75	0.00	0.86	0:20:50	508.99	0.00	0.57	0:27:50	214.60	0.00	0.41	0:34:50	10.16	0.00	0.30
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
0:07:00	0.00	0.00	0.00	0:14:00	0.00	0.00	0.00	0:21:00	0.00	0.00	0.00					0:35:00	0.00	0.00	0.00

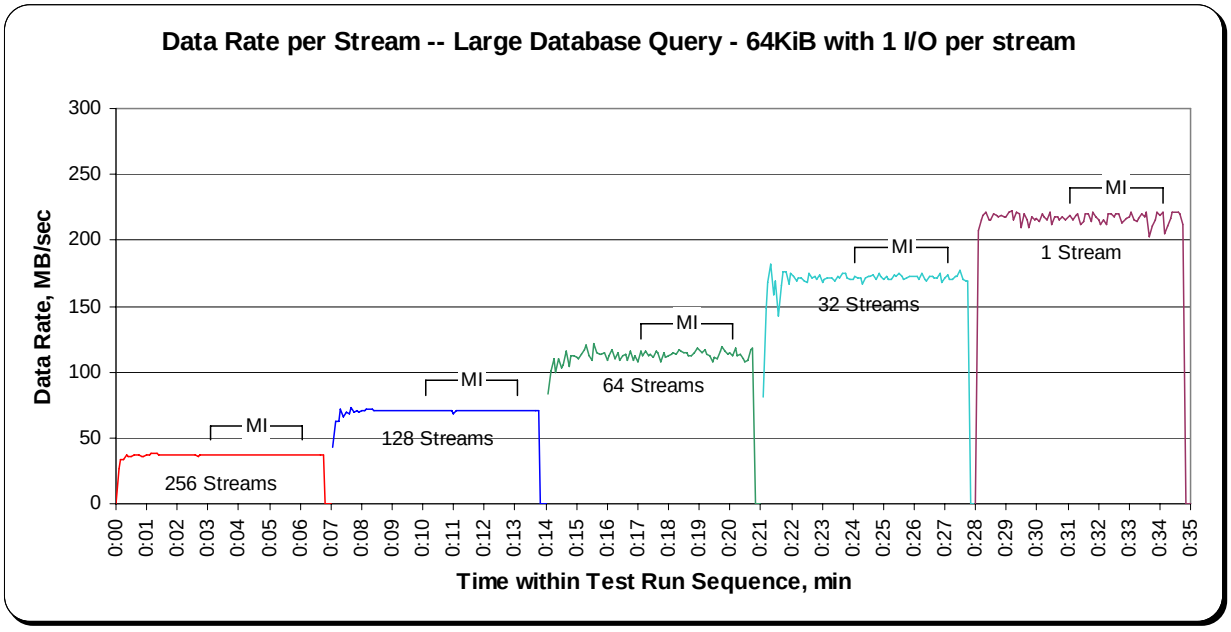
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



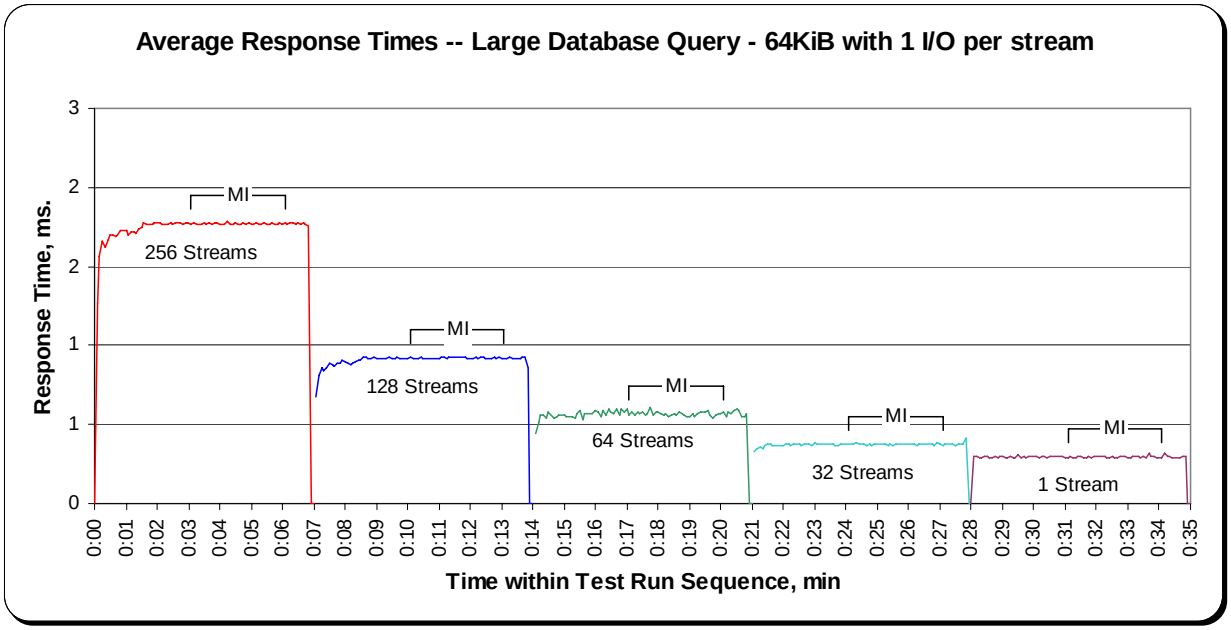
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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 117.

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.

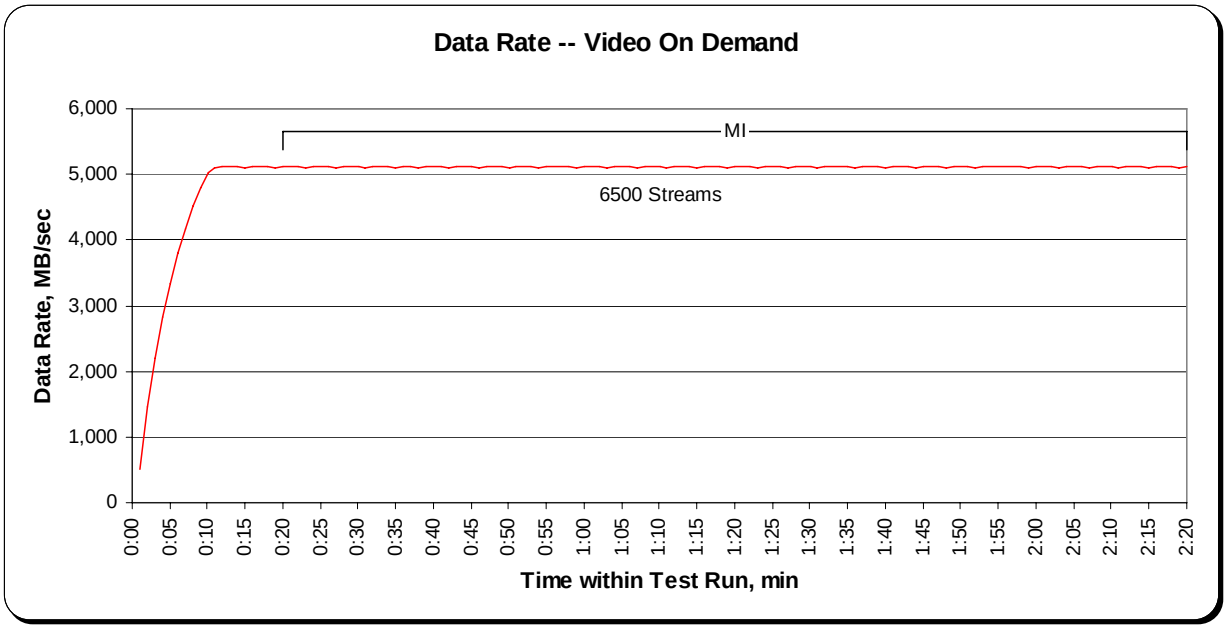
SPC-2-VOD	TR1
Number of Streams	6500
Ramp-up Time, sec	1,200
Measurement Interval, sec	7,200
Average Data Rate, MB/sec	5,111.80
Per Stream Data Rate, MB/sec	0.79
Average Response Time, ms	14.17
Average Max Response Time, ms	155.50

Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL

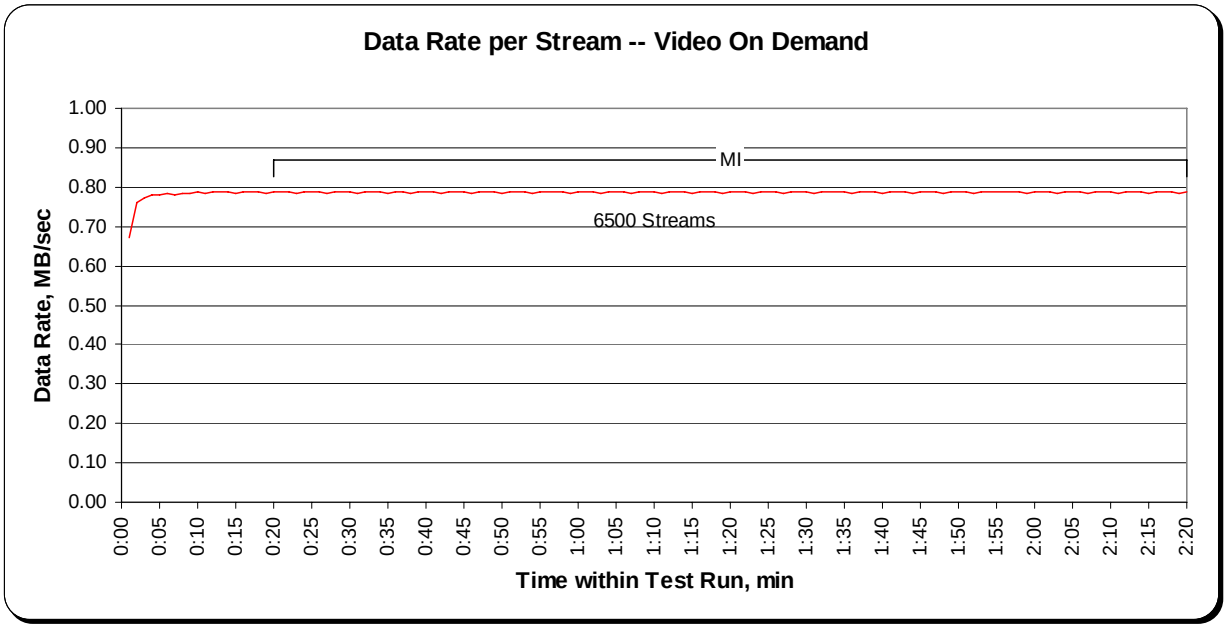
The SPC-2 Video on Demand Delivery Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate and average Data Rate per Stream produced by the same Test Runs. The table and graphs present the data at sixty second intervals.

TR1	6500 Streams				TR1	6500 Streams				TR1	6500 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	504.41	0.67	1.76	50.42	0:51:00	5,115.82	0.79	14.19	156.63	1:41:00	5,116.01	0.79	14.09	157.16
0:02:00	1,463.25	0.76	4.08	107.33	0:52:00	5,116.12	0.79	14.12	155.00	1:42:00	5,115.89	0.79	14.11	166.12
0:03:00	2,192.61	0.77	10.94	138.47	0:53:00	5,116.14	0.79	14.11	162.49	1:43:00	5,116.22	0.79	14.11	146.77
0:04:00	2,819.22	0.78	11.34	130.31	0:54:00	5,098.92	0.78	14.14	148.13	1:44:00	5,098.94	0.78	14.09	148.49
0:05:00	3,339.13	0.78	11.96	141.47	0:55:00	5,115.81	0.79	14.05	153.18	1:45:00	5,116.21	0.79	14.10	155.87
0:06:00	3,795.33	0.78	12.27	133.83	0:56:00	5,116.31	0.79	14.11	150.63	1:46:00	5,115.65	0.79	14.05	163.17
0:07:00	4,175.53	0.78	12.71	141.92	0:57:00	5,115.69	0.79	14.09	156.67	1:47:00	5,116.02	0.79	14.05	157.92
0:08:00	4,526.02	0.78	13.14	149.05	0:58:00	5,115.68	0.79	14.08	151.54	1:48:00	5,098.69	0.78	14.12	159.28
0:09:00	4,801.63	0.79	13.48	152.42	0:59:00	5,098.68	0.78	14.11	150.76	1:49:00	5,116.24	0.79	14.06	158.99
0:10:00	5,037.39	0.79	13.91	149.71	1:00:00	5,116.05	0.79	14.10	156.45	1:50:00	5,116.12	0.79	14.02	152.17
0:11:00	5,097.36	0.78	14.12	156.01	1:01:00	5,115.68	0.79	14.15	156.96	1:51:00	5,116.12	0.79	14.21	170.40
0:12:00	5,116.31	0.79	14.14	151.58	1:02:00	5,116.12	0.79	14.15	159.44	1:52:00	5,098.57	0.78	14.35	190.81
0:13:00	5,116.12	0.79	14.13	146.37	1:03:00	5,098.88	0.78	14.19	162.29	1:53:00	5,116.44	0.79	14.31	178.50
0:14:00	5,116.38	0.79	14.22	162.58	1:04:00	5,115.80	0.79	14.22	152.85	1:54:00	5,115.63	0.79	14.30	177.49
0:15:00	5,097.32	0.78	14.33	149.70	1:05:00	5,116.02	0.79	14.25	156.08	1:55:00	5,108.68	0.79	14.34	165.32
0:16:00	5,115.80	0.79	14.38	153.38	1:06:00	5,116.11	0.79	14.30	161.10	1:56:00	5,115.96	0.79	14.22	155.84
0:17:00	5,116.29	0.79	14.43	153.18	1:07:00	5,098.86	0.78	14.23	152.20	1:57:00	5,116.16	0.79	14.27	150.87
0:18:00	5,116.11	0.79	14.77	159.60	1:08:00	5,115.90	0.79	14.20	153.97	1:58:00	5,115.97	0.79	14.25	152.34
0:19:00	5,097.51	0.78	14.48	148.17	1:09:00	5,115.80	0.79	14.16	161.43	1:59:00	5,099.09	0.78	14.14	148.68
0:20:00	5,116.42	0.79	14.32	147.49	1:10:00	5,116.15	0.79	14.14	150.43	2:00:00	5,115.61	0.79	14.12	155.30
0:21:00	5,116.35	0.79	14.32	147.51	1:11:00	5,098.72	0.78	14.12	154.70	2:01:00	5,116.27	0.79	14.21	146.16
0:22:00	5,116.28	0.79	14.38	147.44	1:12:00	5,116.15	0.79	14.05	156.31	2:02:00	5,116.03	0.79	14.24	154.65
0:23:00	5,098.91	0.78	14.39	153.00	1:13:00	5,115.84	0.79	14.11	154.54	2:03:00	5,099.30	0.78	14.27	151.71
0:24:00	5,115.94	0.79	14.25	149.39	1:14:00	5,116.54	0.79	14.13	155.48	2:04:00	5,116.10	0.79	14.34	150.28
0:25:00	5,115.79	0.79	14.20	153.16	1:15:00	5,098.14	0.78	14.10	146.79	2:05:00	5,116.24	0.79	14.24	155.31
0:26:00	5,116.49	0.79	14.08	154.12	1:16:00	5,115.59	0.79	14.15	155.78	2:06:00	5,116.12	0.79	14.21	150.33
0:27:00	5,098.86	0.78	14.07	153.43	1:17:00	5,116.02	0.79	14.15	155.58	2:07:00	5,099.20	0.78	14.25	146.69
0:28:00	5,115.96	0.79	14.10	161.65	1:18:00	5,116.05	0.79	14.24	154.85	2:08:00	5,116.18	0.79	14.19	145.32
0:29:00	5,115.97	0.79	14.10	148.86	1:19:00	5,098.32	0.78	14.21	148.44	2:09:00	5,116.17	0.79	14.32	158.79
0:30:00	5,116.53	0.79	14.15	160.76	1:20:00	5,115.66	0.79	14.22	153.15	2:10:00	5,116.58	0.79	14.29	159.15
0:31:00	5,098.68	0.78	14.16	156.02	1:21:00	5,116.08	0.79	14.17	162.32	2:11:00	5,099.30	0.78	14.33	146.80
0:32:00	5,116.18	0.79	14.23	160.02	1:22:00	5,116.27	0.79	14.15	150.84	2:12:00	5,116.41	0.79	14.28	164.12
0:33:00	5,116.40	0.79	14.24	164.70	1:23:00	5,098.84	0.78	14.18	157.26	2:13:00	5,116.24	0.79	14.23	149.58
0:34:00	5,116.41	0.79	14.18	152.08	1:24:00	5,115.69	0.79	14.13	158.03	2:14:00	5,116.01	0.79	14.17	151.22
0:35:00	5,098.71	0.78	14.12	147.27	1:25:00	5,115.61	0.79	14.10	155.85	2:15:00	5,099.31	0.78	14.11	150.23
0:36:00	5,116.29	0.79	14.16	157.96	1:26:00	5,116.40	0.79	14.23	173.99	2:16:00	5,115.94	0.79	14.19	158.77
0:37:00	5,116.33	0.79	14.23	152.85	1:27:00	5,098.90	0.78	14.14	151.34	2:17:00	5,115.93	0.79	14.18	152.17
0:38:00	5,099.14	0.78	14.13	159.40	1:28:00	5,116.01	0.79	14.29	157.03	2:18:00	5,115.94	0.79	14.16	145.55
0:39:00	5,116.13	0.79	14.16	150.66	1:29:00	5,115.90	0.79	14.13	155.31	2:19:00	5,098.65	0.78	14.07	153.93
0:40:00	5,116.20	0.79	14.21	150.63	1:30:00	5,115.93	0.79	14.07	160.44	2:20:00	5,116.05	0.79	14.04	150.66
0:41:00	5,116.18	0.79	14.19	158.22	1:31:00	5,102.52	0.79	14.29	161.64					
0:42:00	5,099.32	0.78	14.26	163.82	1:32:00	5,115.94	0.79	14.21	151.65					
0:43:00	5,115.85	0.79	14.11	152.62	1:33:00	5,116.05	0.79	14.18	155.58					
0:44:00	5,116.33	0.79	14.05	156.13	1:34:00	5,116.29	0.79	14.16	158.10					
0:45:00	5,116.11	0.79	14.06	146.68	1:35:00	5,115.73	0.79	14.14	151.05					
0:46:00	5,099.00	0.78	14.04	151.09	1:36:00	5,098.77	0.78	14.05	147.80					
0:47:00	5,115.81	0.79	14.09	147.52	1:37:00	5,116.33	0.79	14.03	150.02					
0:48:00	5,116.34	0.79	14.16	177.11	1:38:00	5,116.02	0.79	14.08	160.49					
0:49:00	5,116.24	0.79	14.09	154.07	1:39:00	5,116.26	0.79	14.00	153.90					
0:50:00	5,098.97	0.78	14.11	153.90	1:40:00	5,098.79	0.78	14.08	151.76					

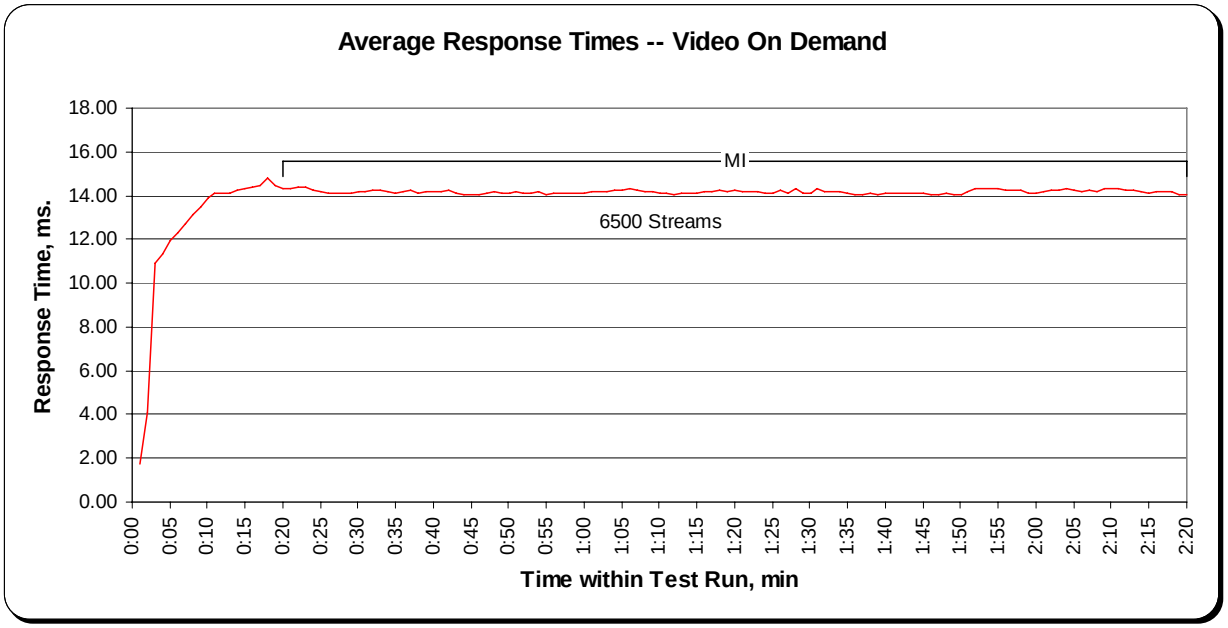
SPC-2 Video on Demand Delivery: Average Data Rate Graph



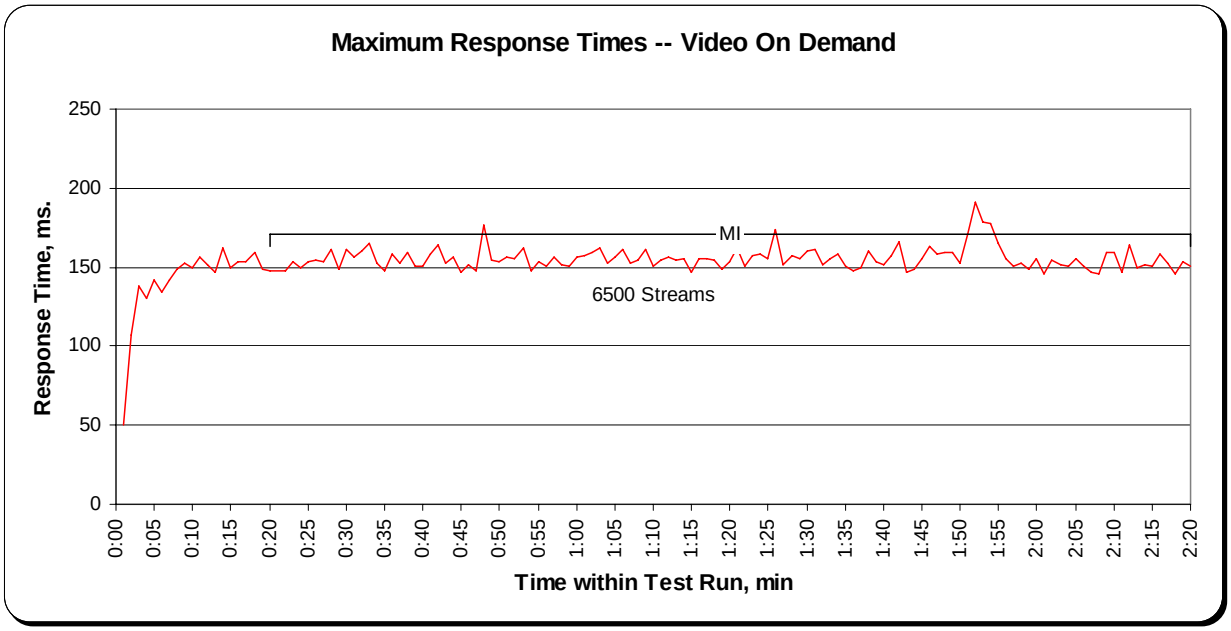
SPC-2 Video on Demand Delivery: Average Data Rate per Stream Graph



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 117.

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	1,080,444
Total Number of Logical Blocks Re-referenced	6,007
Total Number of Logical Blocks Verified	1,074,437
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 IBM System Storage SAN Volume Controller 4.2, as documented in this SPC-2 Full Disclosure Report is currently available 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 IBM System Storage SAN Volume Controller 4.2.

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:

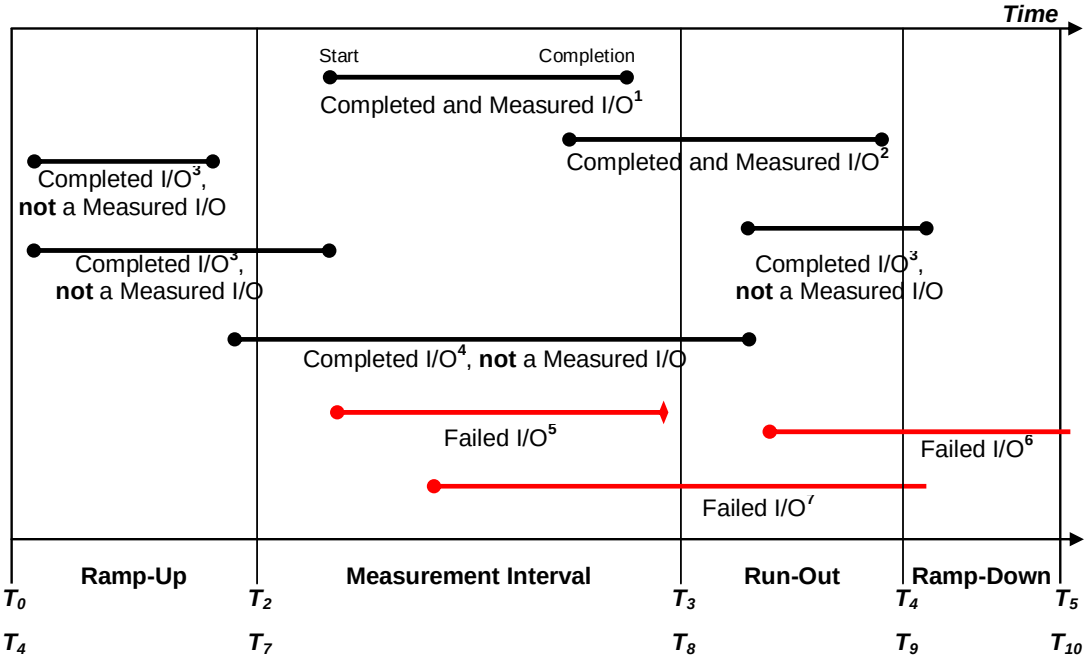
- Test Run 1: Maximum number of Streams, which is selected by the Test Sponsor
- Test Run 2: 50% of the maximum number of Streams used in Test Run 1.
- Test Run 3: 25% of the maximum number of Streams used in Test Run 1.
- Test Run 4: 12.5% of the maximum number of Streams used in Test Run 1.
- Test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

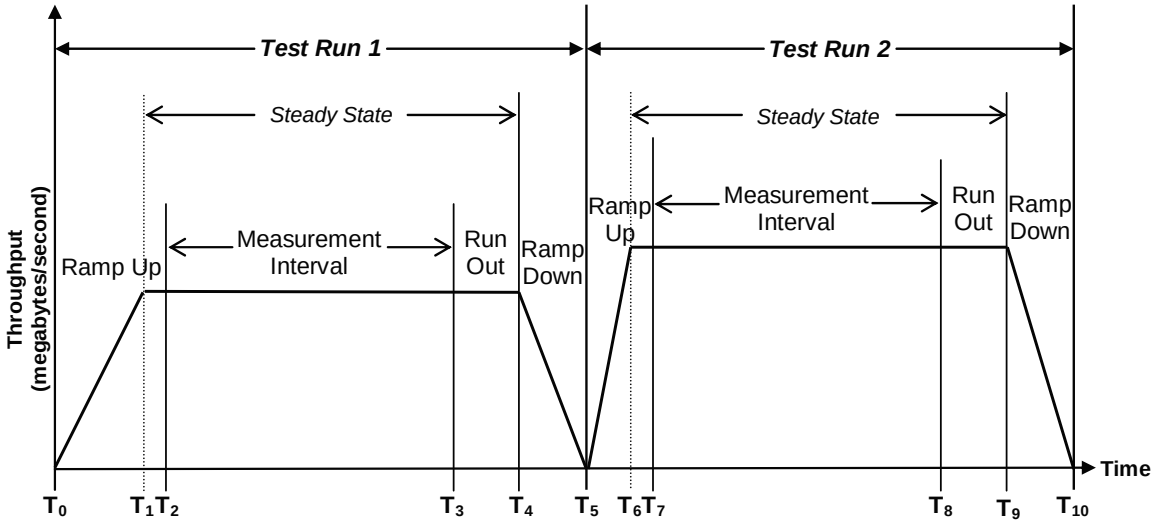
Transfer Size: The Transfer Size parameter specifies the number of bytes in KiB to transfer. *(Clause 3.4.7 of the SPC-2 Benchmark Specification)*

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

The following customer tunable parameters/options were changed from their default value:

- In the FAStT logical volume characteristics, media scanning has been disabled (this is enabled by default)

In the hdisk characteristics, queue depth has been set to 80 and the maximum transfer size to 1024K bytes (defaults are 20 and 256K bytes respectively).

APPENDIX C: TESTED STORAGE CONFIGURATION (TSC) CREATION

Create RAID 5 Arrays (mDisks)

Within each DS4700, four RAID-5 arrays are defined, with one LUN per array. The odd LUNs are assigned to DS4700 controller "a", and are created with the script " **defineRAID5_a.bat**. The even LUNs are assigned to DS4700 controller "b", and are created with the script **defineRAID5_a.bat**. Both scripts are called repeatedly (for each DS4700) by **defineRAID5.bat**. This script also invokes the SVC "detectmdisk" function, which causes SVC to discover the LUNs and place them into its list of available mDisks.

defineRAID5.bat

```
plink perfclus_local svctask detectmdisk
@rem ping local address for short delay
ping -n 30 192.168.1.31
plink perfclus_local svcinfo lsmdisk > afternone

SMcli -n "A1" -f defineRAID5_a.script
SMcli -n "A2" -f defineRAID5_a.script
SMcli -n "B1" -f defineRAID5_a.script
SMcli -n "B2" -f defineRAID5_a.script
SMcli -n "C1" -f defineRAID5_a.script
SMcli -n "C2" -f defineRAID5_a.script
SMcli -n "D1" -f defineRAID5_a.script
SMcli -n "D2" -f defineRAID5_a.script
ping -n 30 192.168.1.31
plink perfclus_local svctask detectmdisk
ping -n 30 192.168.1.31
plink perfclus_local svcinfo lsmdisk > afters1list

SMcli -n "A1" -f defineRAID5_b.script
SMcli -n "A2" -f defineRAID5_b.script
SMcli -n "B1" -f defineRAID5_b.script
SMcli -n "B2" -f defineRAID5_b.script
SMcli -n "C1" -f defineRAID5_b.script
SMcli -n "C2" -f defineRAID5_b.script
SMcli -n "D1" -f defineRAID5_b.script
SMcli -n "D2" -f defineRAID5_b.script
ping -n 30 192.168.1.31
plink perfclus_local svctask detectmdisk
ping -n 30 192.168.1.31
plink perfclus_local svcinfo lsmdisk > afters2list

SMcli -n "E1" -f defineRAID5_a.script
SMcli -n "E2" -f defineRAID5_a.script
SMcli -n "F1" -f defineRAID5_a.script
SMcli -n "F2" -f defineRAID5_a.script
SMcli -n "G1" -f defineRAID5_a.script
SMcli -n "G2" -f defineRAID5_a.script
SMcli -n "H1" -f defineRAID5_a.script
SMcli -n "H2" -f defineRAID5_a.script
ping -n 30 192.168.1.31
plink perfclus_local svctask detectmdisk
ping -n 30 192.168.1.31
plink perfclus_local svcinfo lsmdisk > afters3list

SMcli -n "E1" -f defineRAID5_b.script
SMcli -n "E2" -f defineRAID5_b.script
```

```
SMcli -n "F1" -f defineRAID5_b.script
SMcli -n "F2" -f defineRAID5_b.script
SMcli -n "G1" -f defineRAID5_b.script
SMcli -n "G2" -f defineRAID5_b.script
SMcli -n "H1" -f defineRAID5_b.script
SMcli -n "H2" -f defineRAID5_b.script
ping -n 30 192.168.1.31
plink perfclus_local svctask detectmdisk
ping -n 30 192.168.1.31
plink perfclus_local svcinfo lsmdisk > afters4list
```

defineRAID5_a.bat

```
set drives[12,1 14,16] hotSpare=TRUE;

create logicalDrive drives=(12,2 12,3 12,4 12,5 12,6 12,7 12,8 12,9 12,10 12,11
12,12 12,13 12,14 12,15 12,16
                        13,1 13,2 13,3 13,4 13,5 13,6 13,7 13,8)
RAIDLevel=5
segmentSize=256
userLabel="1"
owner=a;
set logicalDrive["1"] logicalUnitNumber=1 hostGroup=defaultGroup;

create logicalDrive drives=(                                    13,9 13,10 13,11
13,12 13,13 13,14 13,15 13,16
                        14,1 14,2 14,3 14,4 14,5 14,6 14,7 14,8 14,9 14,10 14,11
14,12 14,13 14,14 14,15)
RAIDLevel=5
segmentSize=256
userLabel="3"
owner=a;
set logicalDrive["3"] logicalUnitNumber=3 hostGroup=defaultGroup;

set storageSubsystem defaultHostType=12 cacheBlockSize=16;
set allLogicalDrives mirrorEnabled=TRUE writeCacheEnabled=TRUE
cacheWithoutBatteryEnabled=FALSE mediaScanEnabled=FALSE readAheadMultiplier=1;
```

defineRAID5_b.bat

```
set drives[81,1 16,16] hotSpare=TRUE;

create logicalDrive drives=(81,2 81,3 81,4 81,5 81,6 81,7 81,8 81,9 81,10 81,11
81,12 81,13 81,14 81,15 81,16
                        15,1 15,2 15,3 15,4 15,5 15,6 15,7 15,8)
RAIDLevel=5
segmentSize=256
userLabel="2"
owner=b;
set logicalDrive["2"] logicalUnitNumber=2 hostGroup=defaultGroup;

create logicalDrive drives=(                                    15,9 15,10 15,11
15,12 15,13 15,14 15,15 15,16
                        16,1 16,2 16,3 16,4 16,5 16,6 16,7 16,8 16,9 16,10 16,11
16,12 16,13 16,14 16,15)
RAIDLevel=5
segmentSize=256
userLabel="4"
owner=b;
set logicalDrive["4"] logicalUnitNumber=4 hostGroup=defaultGroup;

set storageSubsystem defaultHostType=12 cacheBlockSize=16;
set allLogicalDrives mirrorEnabled=TRUE writeCacheEnabled=TRUE
```

```
cacheWithoutBatteryEnabled=FALSE mediaScanEnabled=FALSE readAheadMultiplier=1;
```

Create Host Connectivity Definitions

For each of the 32 HBA's in the host processor, the script **mkhost_perfsh3a.bat** defines an SVC host connection using the appropriate WWPN. Due to the usage in AIX, these host paths are also referred to as "fcs's".

mkhost_perfsh3a.bat

```
plink perfclus_local svctask mkhost -force -name A0 -hbawwpn 10000000C959795C
plink perfclus_local svctask mkhost -force -name A2 -hbawwpn 10000000C95D40E4
plink perfclus_local svctask mkhost -force -name A4 -hbawwpn 10000000C95E344C
plink perfclus_local svctask mkhost -force -name A6 -hbawwpn 10000000C95E632D
plink perfclus_local svctask mkhost -force -name A8 -hbawwpn 10000000C95CBAA4
plink perfclus_local svctask mkhost -force -name A10 -hbawwpn 10000000C95969BD
plink perfclus_local svctask mkhost -force -name A12 -hbawwpn 10000000C95CBF64
plink perfclus_local svctask mkhost -force -name A14 -hbawwpn 10000000C95CBB42
plink perfclus_local svctask mkhost -force -name A16 -hbawwpn 10000000C95D3F8E
plink perfclus_local svctask mkhost -force -name A18 -hbawwpn 10000000C95D3F88
plink perfclus_local svctask mkhost -force -name A20 -hbawwpn 10000000C95D40BA
plink perfclus_local svctask mkhost -force -name A22 -hbawwpn 10000000C95D40B3
plink perfclus_local svctask mkhost -force -name A24 -hbawwpn 10000000C95CBE91
plink perfclus_local svctask mkhost -force -name A26 -hbawwpn 10000000C95E7667
plink perfclus_local svctask mkhost -force -name A28 -hbawwpn 10000000C95E33C6
plink perfclus_local svctask mkhost -force -name A30 -hbawwpn 10000000C95A6824
plink perfclus_local svctask mkhost -force -name A32 -hbawwpn 10000000C9600F48
plink perfclus_local svctask mkhost -force -name A34 -hbawwpn 10000000C957DC9A
plink perfclus_local svctask mkhost -force -name A36 -hbawwpn 10000000C95D3FB7
plink perfclus_local svctask mkhost -force -name A38 -hbawwpn 10000000C95CBE89
plink perfclus_local svctask mkhost -force -name A41 -hbawwpn 10000000C95CBB06
plink perfclus_local svctask mkhost -force -name A42 -hbawwpn 10000000C95CBCDA
plink perfclus_local svctask mkhost -force -name A44 -hbawwpn 10000000C95E7E4F
plink perfclus_local svctask mkhost -force -name A46 -hbawwpn 10000000C95E76D3
plink perfclus_local svctask mkhost -force -name A48 -hbawwpn 10000000C95CBCA5
plink perfclus_local svctask mkhost -force -name A50 -hbawwpn 10000000C95D3F2F
plink perfclus_local svctask mkhost -force -name A53 -hbawwpn 10000000C95D3FA8
plink perfclus_local svctask mkhost -force -name A54 -hbawwpn 10000000C95CBC5E
plink perfclus_local svctask mkhost -force -name A56 -hbawwpn 10000000C95CBA39
plink perfclus_local svctask mkhost -force -name A58 -hbawwpn 10000000C95CBEBC
plink perfclus_local svctask mkhost -force -name A60 -hbawwpn 10000000C95988FD
plink perfclus_local svctask mkhost -force -name A62 -hbawwpn 10000000C95CBC96
```

Define the mDisk Group

The following script organizes the LUNs (mDisks) into an mDisk group for the purpose of SVC management.

mkgroup.py

```
import os

list="md0"
for i in range(1,64): list=list + ":md" + str(i)

os.system('plink perfclus_local svctask mkmdiskgrp -name thebiggroup -ext 256 -
mdisk ' + list)
```

Define the vDisks (LUNs)

Construct a set of 128 vDisks by assigning 2 vDisks to each mDisk. For SPC-2, the vDisks are assigned in "sequential" mode (direct association between vDisk and the related mDisk). This is done by the script **mkdouble64vd_8node_seq.py**. Here "double64" means that there are 128 vdisks mapped 2 to 1 with 64 mDisks.

mkdouble64vd_8node_seq.py

```
import os,time


outfile = 'mk64vd_8node_seq.tmp'

reffile = 'mk64vd_8node_seq.txt'
if os.access(outfile,0): os.remove(outfile)
if os.access(reffile,0): os.remove(reffile)
i=0

iogrp=0

lode=1

f = open(outfile, 'w')

g = open(reffile,'w')
g.write('Created by script: mk32vd_8node_seq.py\n')
g.write('Commands executed: '+time.strftime("%c",time.localtime())+'\n\n')
for i in range(64):

    j=((i%32)%4)*16 + (i/4)

    #select an mDisk so a node's 4 utilized mDisks connect via different ports.
    #assume 64 mdisks in groups of 16 by switch.
    #organize vDisks into sets of 32 each containing groups of 4 by node, 8 by
iogrp

    print ("i=" + str(i) + " j=" + str(j))

    cmdstr = 'svctask mkvdisk -vtype seq -mdisk md' + str(j) + \
        ' -size 736 -unit gb -mdiskgrp thebiggroup -iogrp io_grp' + str(iogrp) + \
        ' -name vd' + str(i) + ' -node lode' + str(lode) + '\n'
    f.write(cmdstr)
    g.write(cmdstr)

    ii=i+64
    print ("ii=" + str(ii) + " j=" + str(j))
    cmdstr = 'svctask mkvdisk -vtype seq -mdisk md' + str(j) + \
        ' -size 736 -unit gb -mdiskgrp thebiggroup -iogrp io_grp' + str(iogrp) + \
        ' -name vd' + str(ii) + ' -node lode' + str(lode) + '\n'
    f.write(cmdstr)
    g.write(cmdstr)

    if i%8 == 7: iogrp += 1

    if i%4 == 3: lode += 1

    if i==31:
        iogrp=0
        lode=1
```

```
f.close()

g.close()
os.system('plink perfclus_local -m ' + outfile)

os.remove(outfile)
```

Define vDisk Paths

Define two paths through which each vDisk can be seen by the host. This is done by the script **mapfcs128to32.py**. This step completes the configuration in SVC. The remaining steps are performed in the host AIX system.

mapfcs128to32.py

```
# Maps each vdisk to two fcs's.

import os, time

outfile = 'mapfcs128to32.tmp'

reffile = '.\mapfcs128to32.txt'
if os.access(outfile,0): os.remove(outfile)
if os.access(reffile,0): os.remove(reffile)

# The fcs's are organized
# into groups of four, with two groups in each switch.
fcsarray = [6,14,18,50,  16,24,53,60, \

            2,32,38,46,     8,20,36,58, \

            10,12,56,62,  22,26,44,48, \

            4,28,41,42, 0,30,34,54]



fcsarray = ['A' + str(v) for v in fcsarray]



f = open(outfile, 'w')
g = open(reffile, 'w')
g.write('Created by script: mapfcs128to32.py\n')
g.write('Commands executed: '+time.strftime("%c",time.localtime())+'\n\n')
for i in range(32):
    k=i - ((i/4)%2)*4 #odd and even nodes are handled symmetrically except for
offset of 4
    j=(k%4)*8 + k/8 + ((i/4)%2)*4
    print ('mapping primary path: vd'+str(i)+' <--> '+fcsarray[j])
    cmdstr1 = 'svctask mkvdiskhostmap -force -host ' + fcsarray[j] + ' vd' + str(i)
+ '\n'
    f.write(cmdstr1)
    g.write(cmdstr1)
    aj=(k%4)*8 + k/8 + (1-(i/4)%2)*4 +8-16*((j%16)/8)
    cmdstr2 = 'svctask mkvdiskhostmap -force -host ' + fcsarray[aj] + ' vd' +
str(i) + '\n'
    print ('mapping alternate path: vd'+str(i)+' <--> '+fcsarray[aj])
    f.write(cmdstr2)
    g.write(cmdstr2)
    g.write('========\n')
```

```
        for repeat in range (1,4):
            ii=i+32*repeat

            print ('mapping primary path: vd'+str(ii)+' <--> '+fcsarray[j])
            cmdstr1 = 'svctask mkvdiskhostmap -force -host ' + fcsarray[j] + ' vd' +
    str(ii) + '\n'
            f.write(cmdstr1)
            g.write(cmdstr1)
            cmdstr2 = 'svctask mkvdiskhostmap -force -host ' + fcsarray[aj] + ' vd' +
    str(ii) + '\n'
            print ('mapping alternate path: vd'+str(ii)+' <--> '+fcsarray[aj])
            f.write(cmdstr2)
            g.write(cmdstr2)
            g.write('========\n')
    f.close()

    g.close()
    os.system('plink perfclus_local -m ' + outfile)

    os.remove(outfile)
```

Discover each vDisk

Discover the vDisks that are being presented by the SVC. This is done by the script **cfgthesefcs.sh**. The process of discovery uses MPIO; as a result, one hdisk is found for each vDisk, which is accessible via a primary and an alternate path.

cfgthesefcs.sh

```
i=$1
for i in 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 41 42 44 46 48 50
53 54 56 58 60 62
do
   cfgmgr -vl fcs$i > fcs$i.cfg
   i=$((i+1))
done
```

Increase hdisk queue depth

Set the queue depth of each hdisk to 80 and its maximum transfer size to 1024K. This is done by invoking "hdiskset.sh 5 132 80 0x100000".

hdiskset.sh 5 132 80 0x100000

```
if [[ $# -lt 4 ]]
then
    echo "usage: chqdepth start_hdisk end_hdisk qdepth xfer"
    exit
fi

i=$1
n=$2
q=$3
x=$4

while [[ $i -le $n ]]
do
    rmdev -l hdisk$i
    chdev -l hdisk$i -a queue_depth=$q
```

```
        chdev -l hdisk$i -a max_transfer=$x
        mkdev -l hdisk$i
        i=$((i+1))
    done
```

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

Large File Processing Test *(LFP)*

```
maxlatestart=0
host=localhost,jvms=8,maxstreams=400
reportinginterval=5
segmentlength=512m
sd=default,host=localhost,size=736g
sd=sd2,lun=/dev/rhdisk5
sd=sd3,lun=/dev/rhdisk6
sd=sd4,lun=/dev/rhdisk7
sd=sd5,lun=/dev/rhdisk8
sd=sd6,lun=/dev/rhdisk9
sd=sd7,lun=/dev/rhdisk10
sd=sd8,lun=/dev/rhdisk11
sd=sd9,lun=/dev/rhdisk12
sd=sd10,lun=/dev/rhdisk13
sd=sd11,lun=/dev/rhdisk14
sd=sd12,lun=/dev/rhdisk15
sd=sd13,lun=/dev/rhdisk16
sd=sd14,lun=/dev/rhdisk17
sd=sd15,lun=/dev/rhdisk18
sd=sd16,lun=/dev/rhdisk19
sd=sd17,lun=/dev/rhdisk20
sd=sd18,lun=/dev/rhdisk21
sd=sd19,lun=/dev/rhdisk22
sd=sd20,lun=/dev/rhdisk23
sd=sd21,lun=/dev/rhdisk24
sd=sd22,lun=/dev/rhdisk25
sd=sd23,lun=/dev/rhdisk26
sd=sd24,lun=/dev/rhdisk27
sd=sd25,lun=/dev/rhdisk28
sd=sd26,lun=/dev/rhdisk29
sd=sd27,lun=/dev/rhdisk30
sd=sd28,lun=/dev/rhdisk31
sd=sd29,lun=/dev/rhdisk32
sd=sd30,lun=/dev/rhdisk33
sd=sd31,lun=/dev/rhdisk34
sd=sd32,lun=/dev/rhdisk35
sd=sd33,lun=/dev/rhdisk36
sd=sd34,lun=/dev/rhdisk37
sd=sd35,lun=/dev/rhdisk38
sd=sd36,lun=/dev/rhdisk39
sd=sd37,lun=/dev/rhdisk40
sd=sd38,lun=/dev/rhdisk41
sd=sd39,lun=/dev/rhdisk42
sd=sd40,lun=/dev/rhdisk43
sd=sd41,lun=/dev/rhdisk44
sd=sd42,lun=/dev/rhdisk45
sd=sd43,lun=/dev/rhdisk46
sd=sd44,lun=/dev/rhdisk47
sd=sd45,lun=/dev/rhdisk48
sd=sd46,lun=/dev/rhdisk49
sd=sd47,lun=/dev/rhdisk50
sd=sd48,lun=/dev/rhdisk51
sd=sd49,lun=/dev/rhdisk52
sd=sd50,lun=/dev/rhdisk53
sd=sd51,lun=/dev/rhdisk54
```

```
sd=sd52,lun=/dev/rhdisk55
sd=sd53,lun=/dev/rhdisk56
sd=sd54,lun=/dev/rhdisk57
sd=sd55,lun=/dev/rhdisk58
sd=sd56,lun=/dev/rhdisk59
sd=sd57,lun=/dev/rhdisk60
sd=sd58,lun=/dev/rhdisk61
sd=sd59,lun=/dev/rhdisk62
sd=sd60,lun=/dev/rhdisk63
sd=sd61,lun=/dev/rhdisk64
sd=sd62,lun=/dev/rhdisk65
sd=sd63,lun=/dev/rhdisk66
sd=sd64,lun=/dev/rhdisk67
sd=sd65,lun=/dev/rhdisk68
sd=sd66,lun=/dev/rhdisk69
sd=sd67,lun=/dev/rhdisk70
sd=sd68,lun=/dev/rhdisk71
sd=sd69,lun=/dev/rhdisk72
sd=sd70,lun=/dev/rhdisk73
sd=sd71,lun=/dev/rhdisk74
sd=sd72,lun=/dev/rhdisk75
sd=sd73,lun=/dev/rhdisk76
sd=sd74,lun=/dev/rhdisk77
sd=sd75,lun=/dev/rhdisk78
sd=sd76,lun=/dev/rhdisk79
sd=sd77,lun=/dev/rhdisk80
sd=sd78,lun=/dev/rhdisk81
sd=sd79,lun=/dev/rhdisk82
sd=sd80,lun=/dev/rhdisk83
sd=sd81,lun=/dev/rhdisk84
sd=sd82,lun=/dev/rhdisk85
sd=sd83,lun=/dev/rhdisk86
sd=sd84,lun=/dev/rhdisk87
sd=sd85,lun=/dev/rhdisk88
sd=sd86,lun=/dev/rhdisk89
sd=sd87,lun=/dev/rhdisk90
sd=sd88,lun=/dev/rhdisk91
sd=sd89,lun=/dev/rhdisk92
sd=sd90,lun=/dev/rhdisk93
sd=sd91,lun=/dev/rhdisk94
sd=sd92,lun=/dev/rhdisk95
sd=sd93,lun=/dev/rhdisk96
sd=sd94,lun=/dev/rhdisk97
sd=sd95,lun=/dev/rhdisk98
sd=sd96,lun=/dev/rhdisk99
sd=sd97,lun=/dev/rhdisk100
sd=sd98,lun=/dev/rhdisk101
sd=sd99,lun=/dev/rhdisk102
sd=sd100,lun=/dev/rhdisk103
sd=sd101,lun=/dev/rhdisk104
sd=sd102,lun=/dev/rhdisk105
sd=sd103,lun=/dev/rhdisk106
sd=sd104,lun=/dev/rhdisk107
sd=sd105,lun=/dev/rhdisk108
sd=sd106,lun=/dev/rhdisk109
sd=sd107,lun=/dev/rhdisk110
sd=sd108,lun=/dev/rhdisk111
sd=sd109,lun=/dev/rhdisk112
sd=sd110,lun=/dev/rhdisk113
sd=sd111,lun=/dev/rhdisk114
sd=sd112,lun=/dev/rhdisk115
sd=sd113,lun=/dev/rhdisk116
sd=sd114,lun=/dev/rhdisk117
```

```
sd=sd115,lun=/dev/rhdisk118
sd=sd116,lun=/dev/rhdisk119
sd=sd117,lun=/dev/rhdisk120
sd=sd118,lun=/dev/rhdisk121
sd=sd119,lun=/dev/rhdisk122
sd=sd120,lun=/dev/rhdisk123
sd=sd121,lun=/dev/rhdisk124
sd=sd122,lun=/dev/rhdisk125
sd=sd123,lun=/dev/rhdisk126
sd=sd124,lun=/dev/rhdisk127
sd=sd125,lun=/dev/rhdisk128
sd=sd126,lun=/dev/rhdisk129
sd=sd127,lun=/dev/rhdisk130
sd=sd128,lun=/dev/rhdisk131
sd=sd129,lun=/dev/rhdisk132
rd=default,rampup=180,measurement=180,runout=45,rampdown=15,buffers=1,periods=90
rd=default,rdpct=0,xfersize=1024k
rd=TR1_SPC-2-FP2.0,streams=128
rd=TR2_SPC-2-FP2.0,streams=64
rd=TR3_SPC-2-FP2.0,streams=32
rd=TR4_SPC-2-FP2.0,streams=16
rd=TR5_SPC-2-FP2.0,streams=1
rd=default,rdpct=0,xfersize=256k
rd=TR6_SPC-2-FP2.0,streams=128
rd=TR7_SPC-2-FP2.0,streams=64
rd=TR8_SPC-2-FP2.0,streams=32
rd=TR9_SPC-2-FP2.0,streams=16
rd=TR10_SPC-2-FP2.0,streams=1
rd=default,rdpct=50,xfersize=1024k
rd=TR11_SPC-2-FP2.0,streams=128
rd=TR12_SPC-2-FP2.0,streams=64
rd=TR13_SPC-2-FP2.0,streams=32
rd=TR14_SPC-2-FP2.0,streams=16
rd=TR15_SPC-2-FP2.0,streams=1
rd=default,rdpct=50,xfersize=256k
rd=TR16_SPC-2-FP2.0,streams=128
rd=TR17_SPC-2-FP2.0,streams=64
rd=TR18_SPC-2-FP2.0,streams=32
rd=TR19_SPC-2-FP2.0,streams=16
rd=TR20_SPC-2-FP2.0,streams=1
rd=default,rdpct=100,xfersize=1024k
rd=TR21_SPC-2-FP2.0,streams=256
rd=TR22_SPC-2-FP2.0,streams=128
rd=TR23_SPC-2-FP2.0,streams=64
rd=TR24_SPC-2-FP2.0,streams=32
rd=TR25_SPC-2-FP2.0,streams=1
rd=default,rdpct=100,xfersize=256k
rd=TR26_SPC-2-FP2.0,streams=256
rd=TR27_SPC-2-FP2.0,streams=128
rd=TR28_SPC-2-FP2.0,streams=64
rd=TR29_SPC-2-FP2.0,streams=32
rd=TR30_SPC-2-FP2.0,streams=1
```

Large Database Query Test *(LDQ)*

```
maxlatestart=0
host=localhost,jvms=8,maxstreams=400
reportinginterval=5
segmentlength=512m
sd=default,host=localhost,size=736g
sd=sd2,lun=/dev/rhdisk5
sd=sd3,lun=/dev/rhdisk6
```

```
sd=sd4,lun=/dev/rhdisk7
sd=sd5,lun=/dev/rhdisk8
sd=sd6,lun=/dev/rhdisk9
sd=sd7,lun=/dev/rhdisk10
sd=sd8,lun=/dev/rhdisk11
sd=sd9,lun=/dev/rhdisk12
sd=sd10,lun=/dev/rhdisk13
sd=sd11,lun=/dev/rhdisk14
sd=sd12,lun=/dev/rhdisk15
sd=sd13,lun=/dev/rhdisk16
sd=sd14,lun=/dev/rhdisk17
sd=sd15,lun=/dev/rhdisk18
sd=sd16,lun=/dev/rhdisk19
sd=sd17,lun=/dev/rhdisk20
sd=sd18,lun=/dev/rhdisk21
sd=sd19,lun=/dev/rhdisk22
sd=sd20,lun=/dev/rhdisk23
sd=sd21,lun=/dev/rhdisk24
sd=sd22,lun=/dev/rhdisk25
sd=sd23,lun=/dev/rhdisk26
sd=sd24,lun=/dev/rhdisk27
sd=sd25,lun=/dev/rhdisk28
sd=sd26,lun=/dev/rhdisk29
sd=sd27,lun=/dev/rhdisk30
sd=sd28,lun=/dev/rhdisk31
sd=sd29,lun=/dev/rhdisk32
sd=sd30,lun=/dev/rhdisk33
sd=sd31,lun=/dev/rhdisk34
sd=sd32,lun=/dev/rhdisk35
sd=sd33,lun=/dev/rhdisk36
sd=sd34,lun=/dev/rhdisk37
sd=sd35,lun=/dev/rhdisk38
sd=sd36,lun=/dev/rhdisk39
sd=sd37,lun=/dev/rhdisk40
sd=sd38,lun=/dev/rhdisk41
sd=sd39,lun=/dev/rhdisk42
sd=sd40,lun=/dev/rhdisk43
sd=sd41,lun=/dev/rhdisk44
sd=sd42,lun=/dev/rhdisk45
sd=sd43,lun=/dev/rhdisk46
sd=sd44,lun=/dev/rhdisk47
sd=sd45,lun=/dev/rhdisk48
sd=sd46,lun=/dev/rhdisk49
sd=sd47,lun=/dev/rhdisk50
sd=sd48,lun=/dev/rhdisk51
sd=sd49,lun=/dev/rhdisk52
sd=sd50,lun=/dev/rhdisk53
sd=sd51,lun=/dev/rhdisk54
sd=sd52,lun=/dev/rhdisk55
sd=sd53,lun=/dev/rhdisk56
sd=sd54,lun=/dev/rhdisk57
sd=sd55,lun=/dev/rhdisk58
sd=sd56,lun=/dev/rhdisk59
sd=sd57,lun=/dev/rhdisk60
sd=sd58,lun=/dev/rhdisk61
sd=sd59,lun=/dev/rhdisk62
sd=sd60,lun=/dev/rhdisk63
sd=sd61,lun=/dev/rhdisk64
sd=sd62,lun=/dev/rhdisk65
sd=sd63,lun=/dev/rhdisk66
sd=sd64,lun=/dev/rhdisk67
sd=sd65,lun=/dev/rhdisk68
sd=sd66,lun=/dev/rhdisk69
```

```
sd=sd67,lun=/dev/rhdisk70
sd=sd68,lun=/dev/rhdisk71
sd=sd69,lun=/dev/rhdisk72
sd=sd70,lun=/dev/rhdisk73
sd=sd71,lun=/dev/rhdisk74
sd=sd72,lun=/dev/rhdisk75
sd=sd73,lun=/dev/rhdisk76
sd=sd74,lun=/dev/rhdisk77
sd=sd75,lun=/dev/rhdisk78
sd=sd76,lun=/dev/rhdisk79
sd=sd77,lun=/dev/rhdisk80
sd=sd78,lun=/dev/rhdisk81
sd=sd79,lun=/dev/rhdisk82
sd=sd80,lun=/dev/rhdisk83
sd=sd81,lun=/dev/rhdisk84
sd=sd82,lun=/dev/rhdisk85
sd=sd83,lun=/dev/rhdisk86
sd=sd84,lun=/dev/rhdisk87
sd=sd85,lun=/dev/rhdisk88
sd=sd86,lun=/dev/rhdisk89
sd=sd87,lun=/dev/rhdisk90
sd=sd88,lun=/dev/rhdisk91
sd=sd89,lun=/dev/rhdisk92
sd=sd90,lun=/dev/rhdisk93
sd=sd91,lun=/dev/rhdisk94
sd=sd92,lun=/dev/rhdisk95
sd=sd93,lun=/dev/rhdisk96
sd=sd94,lun=/dev/rhdisk97
sd=sd95,lun=/dev/rhdisk98
sd=sd96,lun=/dev/rhdisk99
sd=sd97,lun=/dev/rhdisk100
sd=sd98,lun=/dev/rhdisk101
sd=sd99,lun=/dev/rhdisk102
sd=sd100,lun=/dev/rhdisk103
sd=sd101,lun=/dev/rhdisk104
sd=sd102,lun=/dev/rhdisk105
sd=sd103,lun=/dev/rhdisk106
sd=sd104,lun=/dev/rhdisk107
sd=sd105,lun=/dev/rhdisk108
sd=sd106,lun=/dev/rhdisk109
sd=sd107,lun=/dev/rhdisk110
sd=sd108,lun=/dev/rhdisk111
sd=sd109,lun=/dev/rhdisk112
sd=sd110,lun=/dev/rhdisk113
sd=sd111,lun=/dev/rhdisk114
sd=sd112,lun=/dev/rhdisk115
sd=sd113,lun=/dev/rhdisk116
sd=sd114,lun=/dev/rhdisk117
sd=sd115,lun=/dev/rhdisk118
sd=sd116,lun=/dev/rhdisk119
sd=sd117,lun=/dev/rhdisk120
sd=sd118,lun=/dev/rhdisk121
sd=sd119,lun=/dev/rhdisk122
sd=sd120,lun=/dev/rhdisk123
sd=sd121,lun=/dev/rhdisk124
sd=sd122,lun=/dev/rhdisk125
sd=sd123,lun=/dev/rhdisk126
sd=sd124,lun=/dev/rhdisk127
sd=sd125,lun=/dev/rhdisk128
sd=sd126,lun=/dev/rhdisk129
sd=sd127,lun=/dev/rhdisk130
sd=sd128,lun=/dev/rhdisk131
sd=sd129,lun=/dev/rhdisk132
```

```
rd=default,rdpct=99,rampup=180,measurement=180,runout=45,rampdown=15,periods=90
rd=default,xfersize=1024k,buffers=4
rd=TR11_SPC-2-DQ2.0,streams=256
rd=TR12_SPC-2-DQ2.0,streams=128
rd=TR13_SPC-2-DQ2.0,streams=64
rd=TR14_SPC-2-DQ2.0,streams=32
rd=TR15_SPC-2-DQ2.0,streams=1
rd=default,xfersize=1024k,buffers=1
rd=TR16_SPC-2-DQ2.0,streams=256
rd=TR17_SPC-2-DQ2.0,streams=128
rd=TR18_SPC-2-DQ2.0,streams=64
rd=TR19_SPC-2-DQ2.0,streams=32
rd=TR20_SPC-2-DQ2.0,streams=1
rd=default,xfersize=64k,buffers=4
rd=TR1_SPC-2-DQ2.0,streams=256
rd=TR2_SPC-2-DQ2.0,streams=128
rd=TR3_SPC-2-DQ2.0,streams=64
rd=TR4_SPC-2-DQ2.0,streams=32
rd=TR5_SPC-2-DQ2.0,streams=1
rd=default,xfersize=64k,buffers=1
rd=TR6_SPC-2-DQ2.0,streams=256
rd=TR7_SPC-2-DQ2.0,streams=128
rd=TR8_SPC-2-DQ2.0,streams=64
rd=TR9_SPC-2-DQ2.0,streams=32
rd=TR10_SPC-2-DQ2.0,streams=1
```

Video on Demand Delivery Test *(VOD)*

```
maxlatestart=0
host=localhost,jvms=24,maxstreams=400
reportinginterval=5
videosegmentduration=600
maxlatevod=0
sd=default,host=localhost,size=736g
sd=sd2,lun=/dev/rhdisk5
sd=sd3,lun=/dev/rhdisk6
sd=sd4,lun=/dev/rhdisk7
sd=sd5,lun=/dev/rhdisk8
sd=sd6,lun=/dev/rhdisk9
sd=sd7,lun=/dev/rhdisk10
sd=sd8,lun=/dev/rhdisk11
sd=sd9,lun=/dev/rhdisk12
sd=sd10,lun=/dev/rhdisk13
sd=sd11,lun=/dev/rhdisk14
sd=sd12,lun=/dev/rhdisk15
sd=sd13,lun=/dev/rhdisk16
sd=sd14,lun=/dev/rhdisk17
sd=sd15,lun=/dev/rhdisk18
sd=sd16,lun=/dev/rhdisk19
sd=sd17,lun=/dev/rhdisk20
sd=sd18,lun=/dev/rhdisk21
sd=sd19,lun=/dev/rhdisk22
sd=sd20,lun=/dev/rhdisk23
sd=sd21,lun=/dev/rhdisk24
sd=sd22,lun=/dev/rhdisk25
sd=sd23,lun=/dev/rhdisk26
sd=sd24,lun=/dev/rhdisk27
sd=sd25,lun=/dev/rhdisk28
sd=sd26,lun=/dev/rhdisk29
sd=sd27,lun=/dev/rhdisk30
sd=sd28,lun=/dev/rhdisk31
sd=sd29,lun=/dev/rhdisk32
```

```
sd=sd30,lun=/dev/rhdisk33
sd=sd31,lun=/dev/rhdisk34
sd=sd32,lun=/dev/rhdisk35
sd=sd33,lun=/dev/rhdisk36
sd=sd34,lun=/dev/rhdisk37
sd=sd35,lun=/dev/rhdisk38
sd=sd36,lun=/dev/rhdisk39
sd=sd37,lun=/dev/rhdisk40
sd=sd38,lun=/dev/rhdisk41
sd=sd39,lun=/dev/rhdisk42
sd=sd40,lun=/dev/rhdisk43
sd=sd41,lun=/dev/rhdisk44
sd=sd42,lun=/dev/rhdisk45
sd=sd43,lun=/dev/rhdisk46
sd=sd44,lun=/dev/rhdisk47
sd=sd45,lun=/dev/rhdisk48
sd=sd46,lun=/dev/rhdisk49
sd=sd47,lun=/dev/rhdisk50
sd=sd48,lun=/dev/rhdisk51
sd=sd49,lun=/dev/rhdisk52
sd=sd50,lun=/dev/rhdisk53
sd=sd51,lun=/dev/rhdisk54
sd=sd52,lun=/dev/rhdisk55
sd=sd53,lun=/dev/rhdisk56
sd=sd54,lun=/dev/rhdisk57
sd=sd55,lun=/dev/rhdisk58
sd=sd56,lun=/dev/rhdisk59
sd=sd57,lun=/dev/rhdisk60
sd=sd58,lun=/dev/rhdisk61
sd=sd59,lun=/dev/rhdisk62
sd=sd60,lun=/dev/rhdisk63
sd=sd61,lun=/dev/rhdisk64
sd=sd62,lun=/dev/rhdisk65
sd=sd63,lun=/dev/rhdisk66
sd=sd64,lun=/dev/rhdisk67
sd=sd65,lun=/dev/rhdisk68
sd=sd66,lun=/dev/rhdisk69
sd=sd67,lun=/dev/rhdisk70
sd=sd68,lun=/dev/rhdisk71
sd=sd69,lun=/dev/rhdisk72
sd=sd70,lun=/dev/rhdisk73
sd=sd71,lun=/dev/rhdisk74
sd=sd72,lun=/dev/rhdisk75
sd=sd73,lun=/dev/rhdisk76
sd=sd74,lun=/dev/rhdisk77
sd=sd75,lun=/dev/rhdisk78
sd=sd76,lun=/dev/rhdisk79
sd=sd77,lun=/dev/rhdisk80
sd=sd78,lun=/dev/rhdisk81
sd=sd79,lun=/dev/rhdisk82
sd=sd80,lun=/dev/rhdisk83
sd=sd81,lun=/dev/rhdisk84
sd=sd82,lun=/dev/rhdisk85
sd=sd83,lun=/dev/rhdisk86
sd=sd84,lun=/dev/rhdisk87
sd=sd85,lun=/dev/rhdisk88
sd=sd86,lun=/dev/rhdisk89
sd=sd87,lun=/dev/rhdisk90
sd=sd88,lun=/dev/rhdisk91
sd=sd89,lun=/dev/rhdisk92
sd=sd90,lun=/dev/rhdisk93
sd=sd91,lun=/dev/rhdisk94
sd=sd92,lun=/dev/rhdisk95
```

```
sd=sd93,lun=/dev/rhdisk96
sd=sd94,lun=/dev/rhdisk97
sd=sd95,lun=/dev/rhdisk98
sd=sd96,lun=/dev/rhdisk99
sd=sd97,lun=/dev/rhdisk100
sd=sd98,lun=/dev/rhdisk101
sd=sd99,lun=/dev/rhdisk102
sd=sd100,lun=/dev/rhdisk103
sd=sd101,lun=/dev/rhdisk104
sd=sd102,lun=/dev/rhdisk105
sd=sd103,lun=/dev/rhdisk106
sd=sd104,lun=/dev/rhdisk107
sd=sd105,lun=/dev/rhdisk108
sd=sd106,lun=/dev/rhdisk109
sd=sd107,lun=/dev/rhdisk110
sd=sd108,lun=/dev/rhdisk111
sd=sd109,lun=/dev/rhdisk112
sd=sd110,lun=/dev/rhdisk113
sd=sd111,lun=/dev/rhdisk114
sd=sd112,lun=/dev/rhdisk115
sd=sd113,lun=/dev/rhdisk116
sd=sd114,lun=/dev/rhdisk117
sd=sd115,lun=/dev/rhdisk118
sd=sd116,lun=/dev/rhdisk119
sd=sd117,lun=/dev/rhdisk120
sd=sd118,lun=/dev/rhdisk121
sd=sd119,lun=/dev/rhdisk122
sd=sd120,lun=/dev/rhdisk123
sd=sd121,lun=/dev/rhdisk124
sd=sd122,lun=/dev/rhdisk125
sd=sd123,lun=/dev/rhdisk126
sd=sd124,lun=/dev/rhdisk127
sd=sd125,lun=/dev/rhdisk128
sd=sd126,lun=/dev/rhdisk129
sd=sd127,lun=/dev/rhdisk130
sd=sd128,lun=/dev/rhdisk131
sd=sd129,lun=/dev/rhdisk132
rd=default,measurement=7200,rampup=1200,runout=45,rampdown=15,periods=600
rd=TR1_SPC-2-VOD11.0,streams=6500,buffers=8
```

Persistence Test Run 1 *(write phase)*

```
* Persistence Test Run 1
host=localhost,jvms=4,maxstreams=150

sd=default,host=localhost,size=736g
sd=sd2,lun=/dev/rhdisk5
sd=sd3,lun=/dev/rhdisk6
sd=sd4,lun=/dev/rhdisk7
sd=sd5,lun=/dev/rhdisk8
sd=sd6,lun=/dev/rhdisk9
sd=sd7,lun=/dev/rhdisk10
sd=sd8,lun=/dev/rhdisk11
sd=sd9,lun=/dev/rhdisk12
sd=sd10,lun=/dev/rhdisk13
sd=sd11,lun=/dev/rhdisk14
sd=sd12,lun=/dev/rhdisk15
sd=sd13,lun=/dev/rhdisk16
sd=sd14,lun=/dev/rhdisk17
sd=sd15,lun=/dev/rhdisk18
sd=sd16,lun=/dev/rhdisk19
sd=sd17,lun=/dev/rhdisk20
```

```
sd=sd18,lun=/dev/rhdisk21
sd=sd19,lun=/dev/rhdisk22
sd=sd20,lun=/dev/rhdisk23
sd=sd21,lun=/dev/rhdisk24
sd=sd22,lun=/dev/rhdisk25
sd=sd23,lun=/dev/rhdisk26
sd=sd24,lun=/dev/rhdisk27
sd=sd25,lun=/dev/rhdisk28
sd=sd26,lun=/dev/rhdisk29
sd=sd27,lun=/dev/rhdisk30
sd=sd28,lun=/dev/rhdisk31
sd=sd29,lun=/dev/rhdisk32
sd=sd30,lun=/dev/rhdisk33
sd=sd31,lun=/dev/rhdisk34
sd=sd32,lun=/dev/rhdisk35
sd=sd33,lun=/dev/rhdisk36
sd=sd34,lun=/dev/rhdisk37
sd=sd35,lun=/dev/rhdisk38
sd=sd36,lun=/dev/rhdisk39
sd=sd37,lun=/dev/rhdisk40
sd=sd38,lun=/dev/rhdisk41
sd=sd39,lun=/dev/rhdisk42
sd=sd40,lun=/dev/rhdisk43
sd=sd41,lun=/dev/rhdisk44
sd=sd42,lun=/dev/rhdisk45
sd=sd43,lun=/dev/rhdisk46
sd=sd44,lun=/dev/rhdisk47
sd=sd45,lun=/dev/rhdisk48
sd=sd46,lun=/dev/rhdisk49
sd=sd47,lun=/dev/rhdisk50
sd=sd48,lun=/dev/rhdisk51
sd=sd49,lun=/dev/rhdisk52
sd=sd50,lun=/dev/rhdisk53
sd=sd51,lun=/dev/rhdisk54
sd=sd52,lun=/dev/rhdisk55
sd=sd53,lun=/dev/rhdisk56
sd=sd54,lun=/dev/rhdisk57
sd=sd55,lun=/dev/rhdisk58
sd=sd56,lun=/dev/rhdisk59
sd=sd57,lun=/dev/rhdisk60
sd=sd58,lun=/dev/rhdisk61
sd=sd59,lun=/dev/rhdisk62
sd=sd60,lun=/dev/rhdisk63
sd=sd61,lun=/dev/rhdisk64
sd=sd62,lun=/dev/rhdisk65
sd=sd63,lun=/dev/rhdisk66
sd=sd64,lun=/dev/rhdisk67
sd=sd65,lun=/dev/rhdisk68
sd=sd66,lun=/dev/rhdisk69
sd=sd67,lun=/dev/rhdisk70
sd=sd68,lun=/dev/rhdisk71
sd=sd69,lun=/dev/rhdisk72
sd=sd70,lun=/dev/rhdisk73
sd=sd71,lun=/dev/rhdisk74
sd=sd72,lun=/dev/rhdisk75
sd=sd73,lun=/dev/rhdisk76
sd=sd74,lun=/dev/rhdisk77
sd=sd75,lun=/dev/rhdisk78
sd=sd76,lun=/dev/rhdisk79
sd=sd77,lun=/dev/rhdisk80
sd=sd78,lun=/dev/rhdisk81
sd=sd79,lun=/dev/rhdisk82
sd=sd80,lun=/dev/rhdisk83
```

```
sd=sd81,lun=/dev/rhdisk84
sd=sd82,lun=/dev/rhdisk85
sd=sd83,lun=/dev/rhdisk86
sd=sd84,lun=/dev/rhdisk87
sd=sd85,lun=/dev/rhdisk88
sd=sd86,lun=/dev/rhdisk89
sd=sd87,lun=/dev/rhdisk90
sd=sd88,lun=/dev/rhdisk91
sd=sd89,lun=/dev/rhdisk92
sd=sd90,lun=/dev/rhdisk93
sd=sd91,lun=/dev/rhdisk94
sd=sd92,lun=/dev/rhdisk95
sd=sd93,lun=/dev/rhdisk96
sd=sd94,lun=/dev/rhdisk97
sd=sd95,lun=/dev/rhdisk98
sd=sd96,lun=/dev/rhdisk99
sd=sd97,lun=/dev/rhdisk100
sd=sd98,lun=/dev/rhdisk101
sd=sd99,lun=/dev/rhdisk102
sd=sd100,lun=/dev/rhdisk103
sd=sd101,lun=/dev/rhdisk104
sd=sd102,lun=/dev/rhdisk105
sd=sd103,lun=/dev/rhdisk106
sd=sd104,lun=/dev/rhdisk107
sd=sd105,lun=/dev/rhdisk108
sd=sd106,lun=/dev/rhdisk109
sd=sd107,lun=/dev/rhdisk110
sd=sd108,lun=/dev/rhdisk111
sd=sd109,lun=/dev/rhdisk112
sd=sd110,lun=/dev/rhdisk113
sd=sd111,lun=/dev/rhdisk114
sd=sd112,lun=/dev/rhdisk115
sd=sd113,lun=/dev/rhdisk116
sd=sd114,lun=/dev/rhdisk117
sd=sd115,lun=/dev/rhdisk118
sd=sd116,lun=/dev/rhdisk119
sd=sd117,lun=/dev/rhdisk120
sd=sd118,lun=/dev/rhdisk121
sd=sd119,lun=/dev/rhdisk122
sd=sd120,lun=/dev/rhdisk123
sd=sd121,lun=/dev/rhdisk124
sd=sd122,lun=/dev/rhdisk125
sd=sd123,lun=/dev/rhdisk126
sd=sd124,lun=/dev/rhdisk127
sd=sd125,lun=/dev/rhdisk128
sd=sd126,lun=/dev/rhdisk129
sd=sd127,lun=/dev/rhdisk130
sd=sd128,lun=/dev/rhdisk131
sd=sd129,lun=/dev/rhdisk132
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=TR1-5s_SPC-2-persist-w,streams=128
```

Persistence Test Run 2 (read phase)

```
* Persistence Test Run 2

host=localhost,jvms=4,maxstreams=150

sd=default,host=localhost,size=736g
sd=sd2,lun=/dev/rhdisk5
sd=sd3,lun=/dev/rhdisk6
sd=sd4,lun=/dev/rhdisk7
sd=sd5,lun=/dev/rhdisk8
sd=sd6,lun=/dev/rhdisk9
sd=sd7,lun=/dev/rhdisk10
sd=sd8,lun=/dev/rhdisk11
sd=sd9,lun=/dev/rhdisk12
sd=sd10,lun=/dev/rhdisk13
sd=sd11,lun=/dev/rhdisk14
sd=sd12,lun=/dev/rhdisk15
sd=sd13,lun=/dev/rhdisk16
sd=sd14,lun=/dev/rhdisk17
sd=sd15,lun=/dev/rhdisk18
sd=sd16,lun=/dev/rhdisk19
sd=sd17,lun=/dev/rhdisk20
sd=sd18,lun=/dev/rhdisk21
sd=sd19,lun=/dev/rhdisk22
sd=sd20,lun=/dev/rhdisk23
sd=sd21,lun=/dev/rhdisk24
sd=sd22,lun=/dev/rhdisk25
sd=sd23,lun=/dev/rhdisk26
sd=sd24,lun=/dev/rhdisk27
sd=sd25,lun=/dev/rhdisk28
sd=sd26,lun=/dev/rhdisk29
sd=sd27,lun=/dev/rhdisk30
sd=sd28,lun=/dev/rhdisk31
sd=sd29,lun=/dev/rhdisk32
sd=sd30,lun=/dev/rhdisk33
sd=sd31,lun=/dev/rhdisk34
sd=sd32,lun=/dev/rhdisk35
sd=sd33,lun=/dev/rhdisk36
sd=sd34,lun=/dev/rhdisk37
sd=sd35,lun=/dev/rhdisk38
sd=sd36,lun=/dev/rhdisk39
sd=sd37,lun=/dev/rhdisk40
sd=sd38,lun=/dev/rhdisk41
sd=sd39,lun=/dev/rhdisk42
sd=sd40,lun=/dev/rhdisk43
sd=sd41,lun=/dev/rhdisk44
sd=sd42,lun=/dev/rhdisk45
sd=sd43,lun=/dev/rhdisk46
sd=sd44,lun=/dev/rhdisk47
sd=sd45,lun=/dev/rhdisk48
sd=sd46,lun=/dev/rhdisk49
sd=sd47,lun=/dev/rhdisk50
sd=sd48,lun=/dev/rhdisk51
sd=sd49,lun=/dev/rhdisk52
sd=sd50,lun=/dev/rhdisk53
sd=sd51,lun=/dev/rhdisk54
sd=sd52,lun=/dev/rhdisk55
sd=sd53,lun=/dev/rhdisk56
sd=sd54,lun=/dev/rhdisk57
sd=sd55,lun=/dev/rhdisk58
sd=sd56,lun=/dev/rhdisk59
sd=sd57,lun=/dev/rhdisk60
```

```
sd=sd58,lun=/dev/rhdisk61
sd=sd59,lun=/dev/rhdisk62
sd=sd60,lun=/dev/rhdisk63
sd=sd61,lun=/dev/rhdisk64
sd=sd62,lun=/dev/rhdisk65
sd=sd63,lun=/dev/rhdisk66
sd=sd64,lun=/dev/rhdisk67
sd=sd65,lun=/dev/rhdisk68
sd=sd66,lun=/dev/rhdisk69
sd=sd67,lun=/dev/rhdisk70
sd=sd68,lun=/dev/rhdisk71
sd=sd69,lun=/dev/rhdisk72
sd=sd70,lun=/dev/rhdisk73
sd=sd71,lun=/dev/rhdisk74
sd=sd72,lun=/dev/rhdisk75
sd=sd73,lun=/dev/rhdisk76
sd=sd74,lun=/dev/rhdisk77
sd=sd75,lun=/dev/rhdisk78
sd=sd76,lun=/dev/rhdisk79
sd=sd77,lun=/dev/rhdisk80
sd=sd78,lun=/dev/rhdisk81
sd=sd79,lun=/dev/rhdisk82
sd=sd80,lun=/dev/rhdisk83
sd=sd81,lun=/dev/rhdisk84
sd=sd82,lun=/dev/rhdisk85
sd=sd83,lun=/dev/rhdisk86
sd=sd84,lun=/dev/rhdisk87
sd=sd85,lun=/dev/rhdisk88
sd=sd86,lun=/dev/rhdisk89
sd=sd87,lun=/dev/rhdisk90
sd=sd88,lun=/dev/rhdisk91
sd=sd89,lun=/dev/rhdisk92
sd=sd90,lun=/dev/rhdisk93
sd=sd91,lun=/dev/rhdisk94
sd=sd92,lun=/dev/rhdisk95
sd=sd93,lun=/dev/rhdisk96
sd=sd94,lun=/dev/rhdisk97
sd=sd95,lun=/dev/rhdisk98
sd=sd96,lun=/dev/rhdisk99
sd=sd97,lun=/dev/rhdisk100
sd=sd98,lun=/dev/rhdisk101
sd=sd99,lun=/dev/rhdisk102
sd=sd100,lun=/dev/rhdisk103
sd=sd101,lun=/dev/rhdisk104
sd=sd102,lun=/dev/rhdisk105
sd=sd103,lun=/dev/rhdisk106
sd=sd104,lun=/dev/rhdisk107
sd=sd105,lun=/dev/rhdisk108
sd=sd106,lun=/dev/rhdisk109
sd=sd107,lun=/dev/rhdisk110
sd=sd108,lun=/dev/rhdisk111
sd=sd109,lun=/dev/rhdisk112
sd=sd110,lun=/dev/rhdisk113
sd=sd111,lun=/dev/rhdisk114
sd=sd112,lun=/dev/rhdisk115
sd=sd113,lun=/dev/rhdisk116
sd=sd114,lun=/dev/rhdisk117
sd=sd115,lun=/dev/rhdisk118
sd=sd116,lun=/dev/rhdisk119
sd=sd117,lun=/dev/rhdisk120
sd=sd118,lun=/dev/rhdisk121
sd=sd119,lun=/dev/rhdisk122
sd=sd120,lun=/dev/rhdisk123
```

```
sd=sd121,lun=/dev/rhdisk124
sd=sd122,lun=/dev/rhdisk125
sd=sd123,lun=/dev/rhdisk126
sd=sd124,lun=/dev/rhdisk127
sd=sd125,lun=/dev/rhdisk128
sd=sd126,lun=/dev/rhdisk129
sd=sd127,lun=/dev/rhdisk130
sd=sd128,lun=/dev/rhdisk131
sd=sd129,lun=/dev/rhdisk132
maxlatestart=1
reportinginterval=5
segmentlength=512m

maxpersistenceerrors=10
*corruptstreams=3

rd=default,buffers=1,rdpct=100,xfersize=1024k
rd=TR1-5s_SPC-2-persist-r
```

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

The following script was used to execute the Large File Processing (LFP), Large Database Query (LDQ), and Video on Demand Delivery (VOD) Tests, as well as Persistence Test Run 1 *(write phase)*.

```
export PATH=$PATH:/usr/java14/bin
export SPC2HOME=/perform/spc2install
export CLASSPATH=$SPC2HOME
export LIBPATH=$SPC2HOME/aix
export IBM_JAVADUMP_OUTOFMEMORY=false
export IBM_HEAPDUMP_OUTOFMEMORY=false
java -Xoptionsfile=javaopts.cfg vdbench -f vod.cfg -o vod
java -Xoptionsfile=javaopts.cfg vdbench -f lfp.cfg -o lfp
java -Xoptionsfile=javaopts.cfg vdbench -f ldq.cfg -o ldq
java -Xoptionsfile=javaopts.cfg vdbench -f persistw.cfg -o persistw
```

The following script was used to execute Persistence Test Run 2 *(read phase)*.

```
export PATH=$PATH:/usr/java14/bin
export SPC2HOME=/perform/spc2install
export CLASSPATH=$SPC2HOME
export LIBPATH=$SPC2HOME/aix
export IBM_JAVADUMP_OUTOFMEMORY=false
export IBM_HEAPDUMP_OUTOFMEMORY=false
java -Xoptionsfile=javaopts.cfg vdbench -f persistr.cfg -o persistr
```

javaopts.cfg

```
-Xms384m -Xmx768m -Xss128k -Xgcpolicy:optavgpause
```