SPC BENCHMARK 2™
FULL DISCLOSURE REPORT

IBM CORPORATION
IBM SYSTEM STORAGE
SAN VOLUME CONTROLLER 4.1

SPC-2™ V1.2

Submitted for Review: September 12, 2006
Submission Identifier: B00011

First Edition – September 2006

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AUDIT CERTIFICATION

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

September 12, 2006

The SPC Benchmark 2™ results listed below for the IBM System Storage SAN Volume Controller 4.1 were produced in compliance with the SPC Benchmark 2™ V1.2 Remote Audit requirements.

SPC Benchmark 2™ V1.2 Results	
Tested Storage Product (TSP) Name: IBM System Storage SAN Volume Controller 4.1	
Metric	**Reported Result**
SPC-2 MBPS™	4,544.35
SPC-2 Price-Performance	$400.78/SPC-2 MBPS™
Total ASU Capacity	51,264.730 GB
Data Protection Level	RAID-5
Total Price (including three-year maintenance)	$1,821,301

The following SPC Benchmark 2™ Remote Audit requirements were reviewed and found compliant with V1.2 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 documentation 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).
- 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.

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

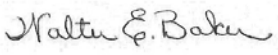
AUDIT CERTIFICATION *(CONT.)*

- The following Host System items were verified by documentation 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 documentation 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 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
SPC Auditor

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LETTER OF GOOD FAITH

IBM

Vice President & BLE, Disk Storage

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

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

August 15, 2006

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 Release 4.1.

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 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
SPC-2 Workload Generator revision number	spc2rc9g
Date Results were first used publicly	September 12, 2006
Date FDR was submitted to the SPC	September 12, 2006
Date the TSC will be available for shipment to customers	currently available
Date the TSC completed audit certification	September 11, 2006

SPC-2 Reported Data

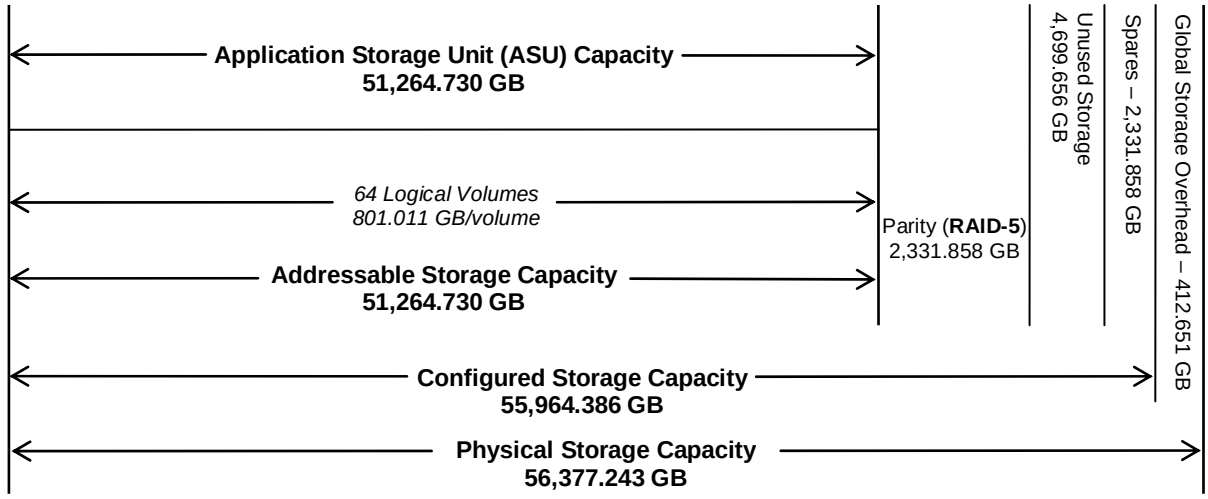
SPC-2 Reported Data consists of three groups of information:

- 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.

IBM System Storage SAN Volume Controller 4.1				
SPC-2 MBPS™	**SPC-2 Price-Performance**	**ASU Capacity (GB)**	**Total Price**	**Data Protection Level**
4,544.35	$400.78	51,264.730	$1,821,301	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	3,237.93			$562.49
Write Only:				
1024 KiB Transfer	1,325.72	16	82.86	
256 KiB Transfer	1,326.92	16	82.93	
Read-Write:				
1024 KiB Transfer	2,056.60	32	64.27	
256 KiB Transfer	2,116.72	32	66.15	
Read Only:				
1024 KiB Transfer	6,294.03	64	98.34	
256 KiB Transfer	6,307.57	64	98.56	
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	5,990.98			$304.01
1024 KiB Transfer Size				
4 I/Os Outstanding	5,898.18	32	184.32	
1 I/O Outstanding	6,116.82	128	47.79	
64 KiB Transfer Size				
4 I/Os Outstanding	6,023.02	128	47.05	
1 I/O Outstanding	5,925.89	128	46.30	
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**
	4,404.14	5,600	0.79	$413.54

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)*

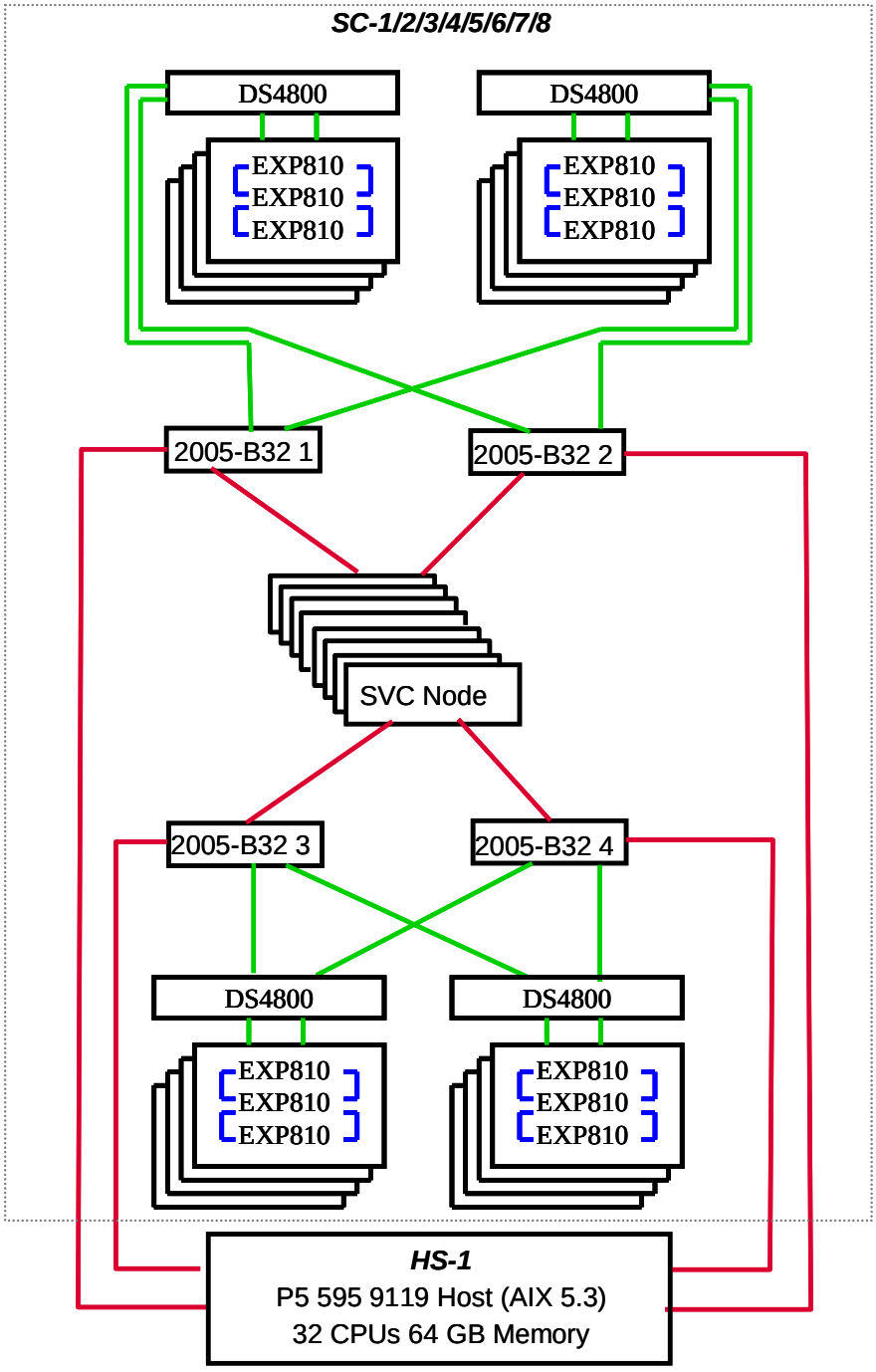
Component	Comments	Quantity	Unit Price	Unit Maint	List w/ Maint	% discount	Total Price
SVC Storage Engine		8	16,500.00	3,564.00	160,512.00	30	112,358.40
UPS		8	1,250.00	2,268.00	28,144.00	30	19,700.80
Master Console		1	7,499.00	3,312.00	10,811.00	30	7,567.70
SVC Software license	up to 52 virtualized TB	1	224,000.00	89,600.00	313,600.00	30	219,520.00
19 inch rack (7014-T42)		5	3,970.00	1,512.00	27,410.00	50	13,705.00
32 port fibre channel switch (2005-B32)	32 ports enabled	4	32,675.00	2,240.00	139,660.00	20	111,728.00
Ethernet switch (73P-2413)		1	489.99	35.00	524.99	42	304.49
DS4800	w/ 16 SFP, 8 - 5m cables	4	59,019	3,200	248,876.00	37	156,791.88
EXP810 with 16 15K RPM drives (73 GB)	w/ 4 SFP, 2 - 1m cables	48	34,740	960	1,713,600.00	37	1,079,568.00
SFP (4 pack, 4Gbit)		16	550		8,800.00	20	7,040.00
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)		12	6.99		83.88	0	83.88
Ethernet cable (25 feet)		8	14.99		119.92	0	119.92
4 Gbit P5 595 adapter (5758)		32	2,646.00		84,672.00	0	84,672.00
Total Price							1,821,301

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 (TSC) and the Priced Storage Configuration.

Benchmark Configuration/Tested Storage Configuration Diagram



Notes:

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

Each EXP810 has 16 disks (total of 768). 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 even fcs's, odd nodes to odd fcs's).

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: xSeries 336 processor which contains: 2 – 3.0 GHz Intel P4 CPUs 8 GB memory/cache 4 – 4 Gbit FC ports
32 – 1.9 GHz CPUs – 2 CPUs/POWER5 chip 32 KB L1 cache, 960 KB L2 cache, and 18 MB L3 cache per CPU	
64 GB main memory	
AIX 5.3	
PCI-X/RIO	4 – 32 port FC switches
WG	1 – Ethernet switch
	4 – DS4800 enclosures 48 – EXP810 enclosures 16 – 73 GB, 15K RPM disk drives per EXP810
	5 – 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 16 *(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 16 *(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 17 *(Host System(s) and Tested Storage Configuration Components).*

Customer Tunable Parameters and Options

Clause 10.6.6.1

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

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

Tested Storage Configuration (TSC) Description

Clause 10.6.6.2

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

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

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

SPC-2 Workload Generator Storage Configuration

Clause 10.6.6.3

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

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

SPC-2 DATA REPOSITORY

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

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

SPC-2 Storage Capacities and Relationships

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

SPC-2 Storage Capacities

SPC-2 Storage Capacities		
Storage Hierarchy Component	**Units**	**Capacity**
Total ASU Capacity	Gigabytes (GB)	51,264.730
Addressable Storage Capacity	Gigabytes (GB)	51,264.730
Configured Storage Capacity	Gigabytes (GB)	55,964.386
Physical Storage Capacity	Gigabytes (GB)	56,366.243
Data Protection Overhead (parity)	Gigabytes (GB)	2,331.858
Required Storage *(spares)*	Gigabytes (GB)	2,331.858
Global Storage Overhead	Gigabytes (GB)	412.651
Total Unused Storage	Gigabytes (GB)	4,699.656

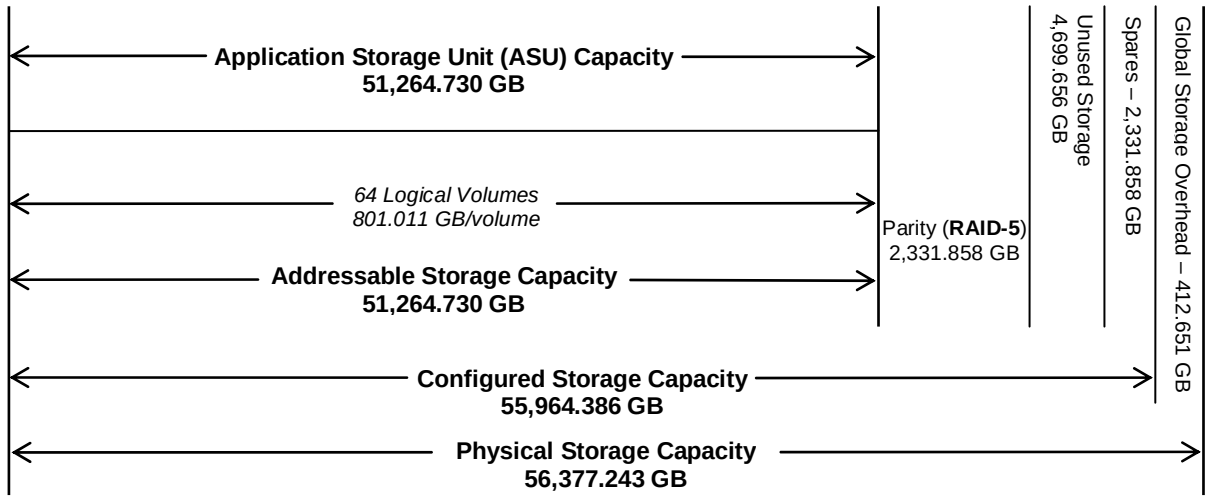
SPC-2 Storage Hierarchy Ratios

	Addressable Storage Capacity	Configured Storage Capacity	Physical Storage Capacity
Total ASU Capacity	100.00%	91.60%	90.93%
Required for Data Protection (Mirroring)		4.17%	4.14%
Addressable Storage Capacity		91.60%	90.93%
Required Storage *(spares)*		4.17%.	4.14%
Configured Storage Capacity			99.27%
Global Storage Overhead			0.73%
Unused Storage:			
Addressable	0.00%		
Configured		8.40%	
Physical			0.00%

The Physical Storage Capacity consisted of 56,377.243 GB distributed over 768 disk drives each with a formatted capacity of 73.408 GB. There was 0.000 GB (0.00%) of Unused Storage within the Physical Storage Capacity. Global Storage Overhead consisted of 412.651 GB (0.73%) of Physical Storage Capacity. There was 4,699.656 GB (8.40%) 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 (51,264.730 GB)			
	Total Capacity *(GB)*	Capacity Used *(GB)*	Capacity Unused *(GB)*
Logical Volumes 1-64	801.011per LV	801.011 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 96 for more detailed configuration information.

SPC-2 TEST EXECUTION RESULTS

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

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

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

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

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

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

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

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

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

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

Large File Processing Test

Clause 6.4.2.1

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

Clause 6.4.2.2

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

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

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

Clause 10.6.8.1

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

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

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Large File Processing Test Runs are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 111.

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.

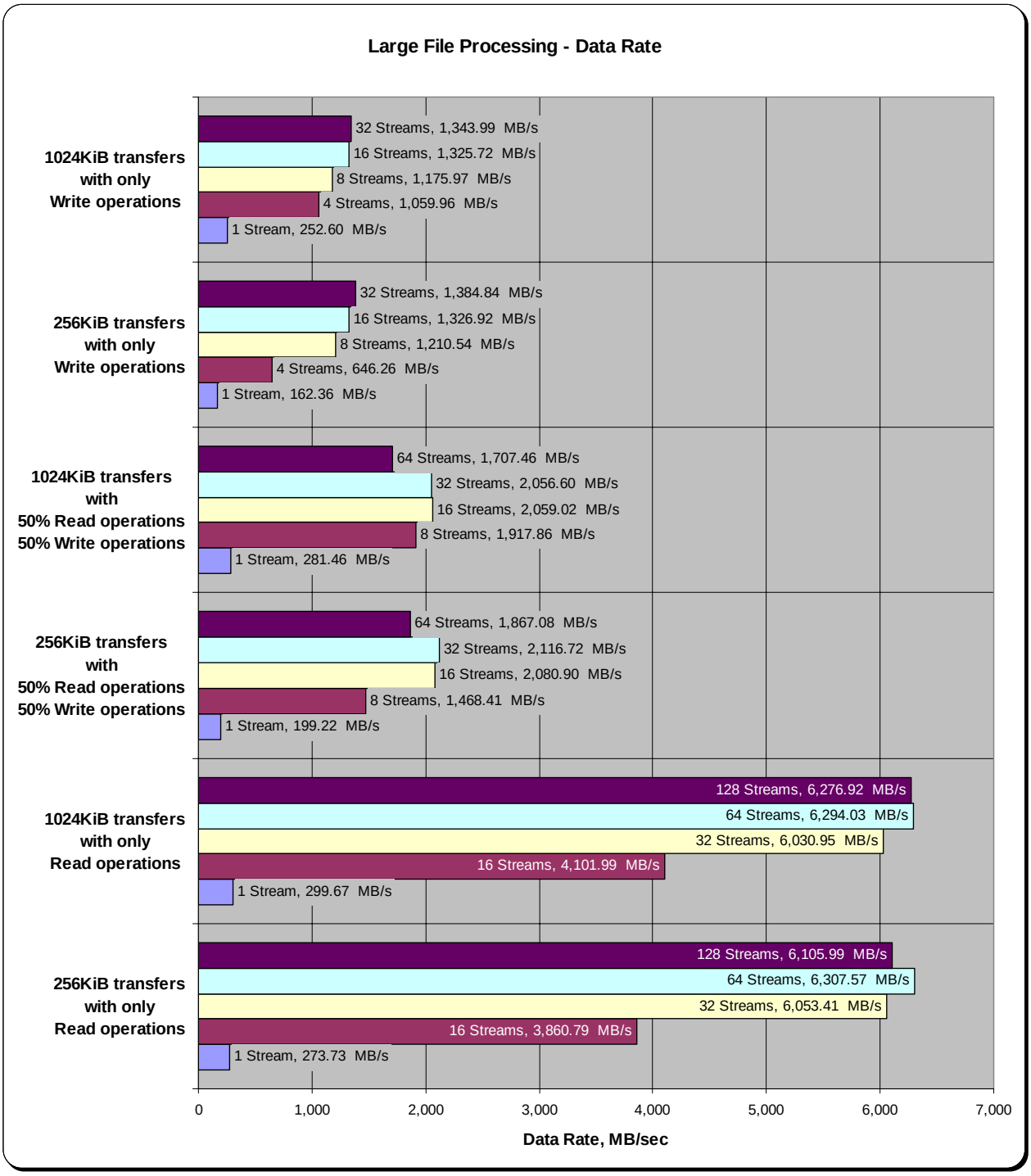
SPC-2 Large File Processing Test Results File

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	4 Streams	8 Streams	16 Streams	32 Streams
Write 1024KiB	252.60	1,059.96	1,175.97	1,325.72	1,343.99
Test Run Sequence	**1 Stream**	**4 Streams**	**8 Streams**	**16 Streams**	**32 Streams**
Write 256KiB	162.36	646.26	1,210.54	1,326.92	1,384.84
Test Run Sequence	**1 Stream**	**8 Streams**	**16 Streams**	**32 Streams**	**64 Streams**
Read/Write 1024KiB	281.46	1,917.86	2,059.02	2,056.60	1,707.46
Test Run Sequence	**1 Stream**	**8 Streams**	**16 Streams**	**32 Streams**	**64 Streams**
Read/Write 256KiB	199.22	1,468.41	2,080.90	2,116.72	1,867.08
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read 1024KiB	299.67	4,101.99	6,030.95	6,294.03	6,276.92
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read 256KiB	273.73	3,860.79	6,053.41	6,307.57	6,105.99

SPC-2 Large File Processing Average Data Rates Graph

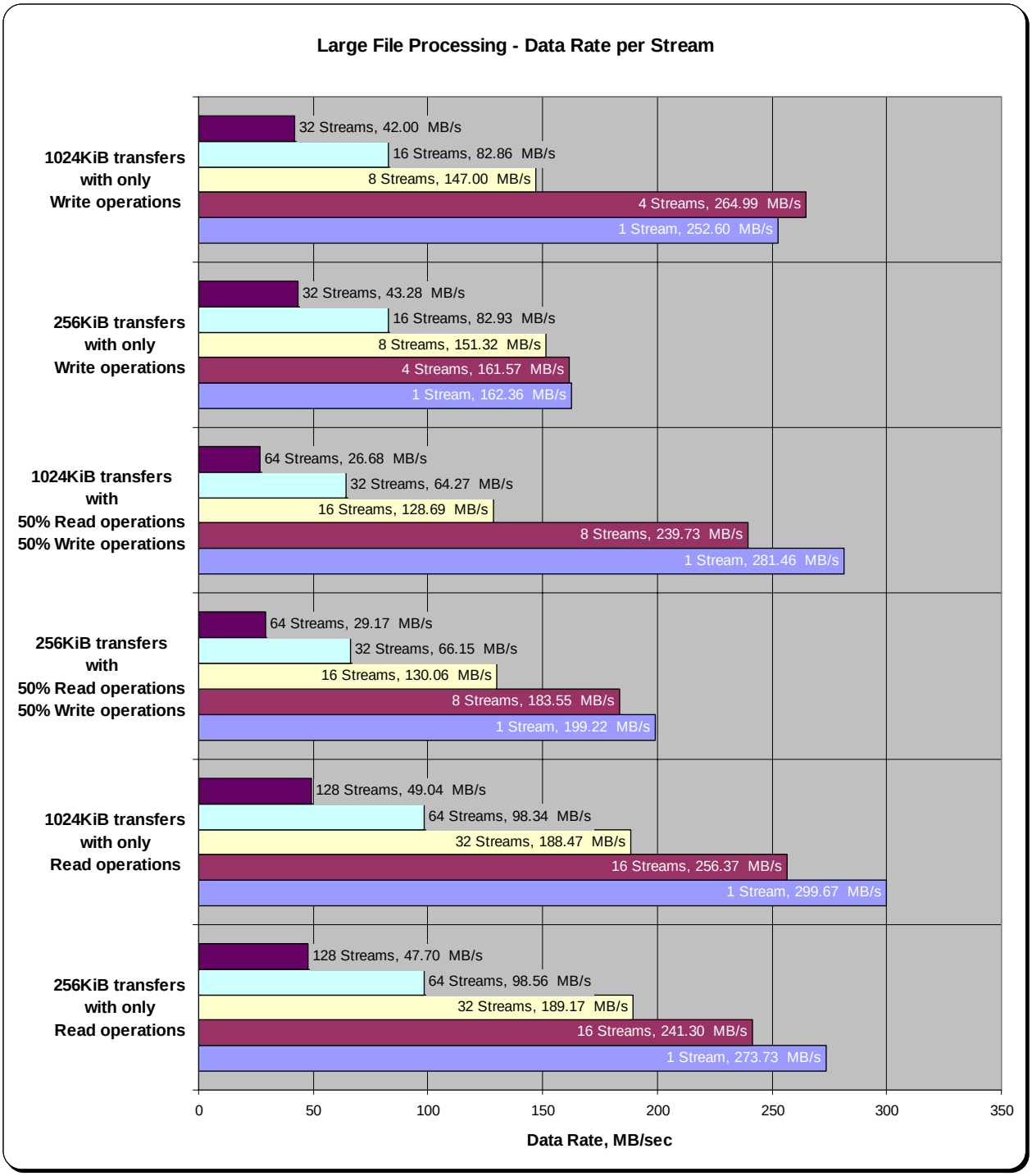


SPC-2 Large File Processing Average Data Rate per Stream

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	4 Streams	8 Streams	16 Streams	32 Streams
Write 1024KiB	252.60	264.99	147.00	82.86	42.00
Test Run Sequence	**1 Stream**	**4 Streams**	**8 Streams**	**16 Streams**	**32 Streams**
Write 256KiB	162.36	161.57	151.32	82.93	43.28
Test Run Sequence	**1 Stream**	**8 Streams**	**16 Streams**	**32 Streams**	**64 Streams**
Read/Write 1024KiB	281.46	239.73	128.69	64.27	26.68
Test Run Sequence	**1 Stream**	**8 Streams**	**16 Streams**	**32 Streams**	**64 Streams**
Read/Write 256KiB	199.22	183.55	130.06	66.15	29.17
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read 1024KiB	299.67	256.37	188.47	98.34	49.04
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read 256KiB	273.73	241.30	189.17	98.56	47.70

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

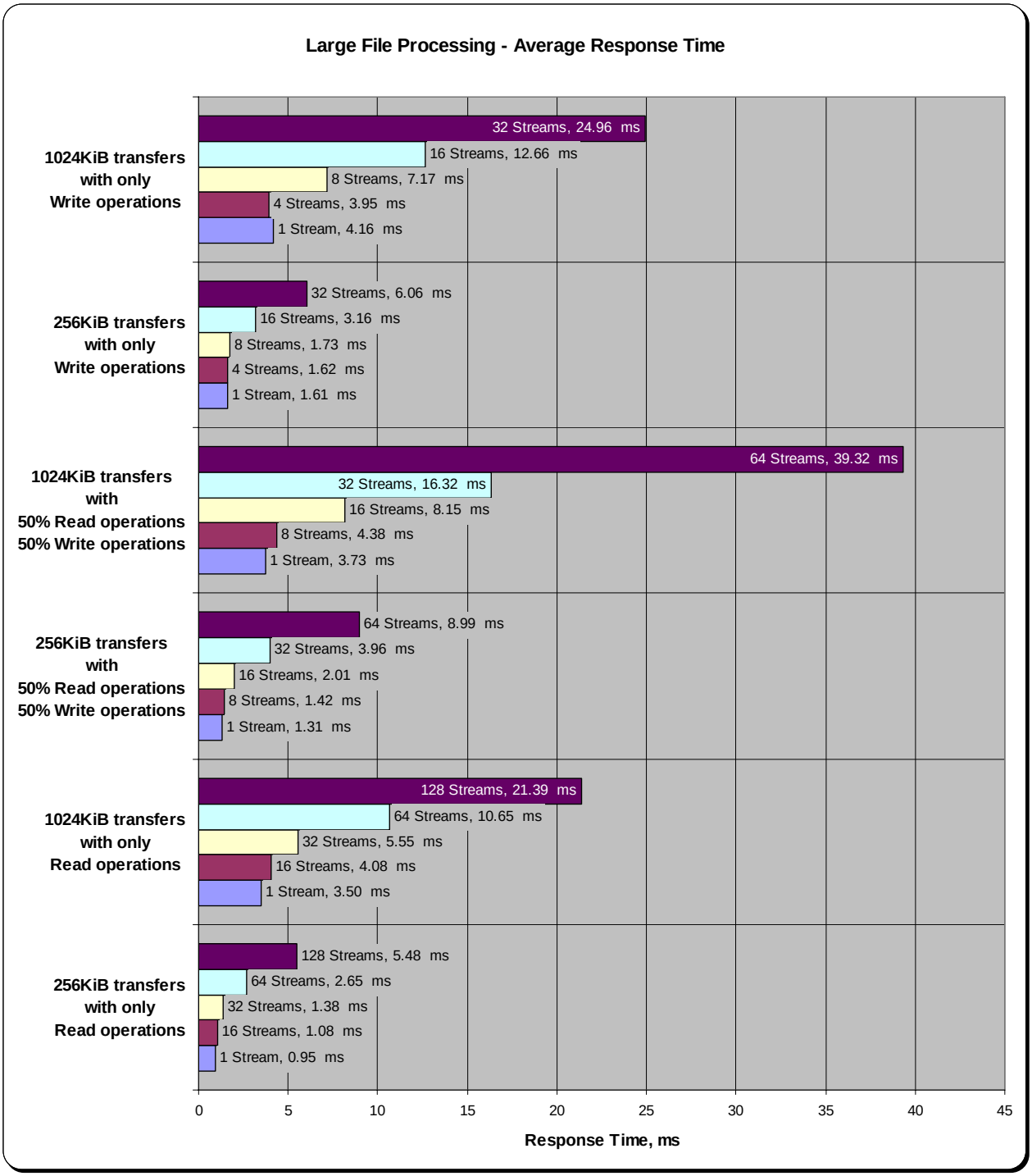


SPC-2 Large File Average Response Time

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	4 Streams	8 Streams	16 Streams	32 Streams
Write 1024KiB	4.16	3.95	7.17	12.66	24.96
Test Run Sequence	**1 Stream**	**4 Streams**	**8 Streams**	**16 Streams**	**32 Streams**
Write 256KiB	1.61	1.62	1.73	3.16	6.06
Test Run Sequence	**1 Stream**	**8 Streams**	**16 Streams**	**32 Streams**	**64 Streams**
Read/Write 1024KiB	3.73	4.38	8.15	16.32	39.32
Test Run Sequence	**1 Stream**	**8 Streams**	**16 Streams**	**32 Streams**	**64 Streams**
Read/Write 256KiB	1.31	1.42	2.01	3.96	8.99
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read 1024KiB	3.50	4.08	5.55	10.65	21.39
Test Run Sequence	**1 Stream**	**16 Streams**	**32 Streams**	**64 Streams**	**128 Streams**
Read 256KiB	0.95	1.08	1.38	2.65	5.48

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.

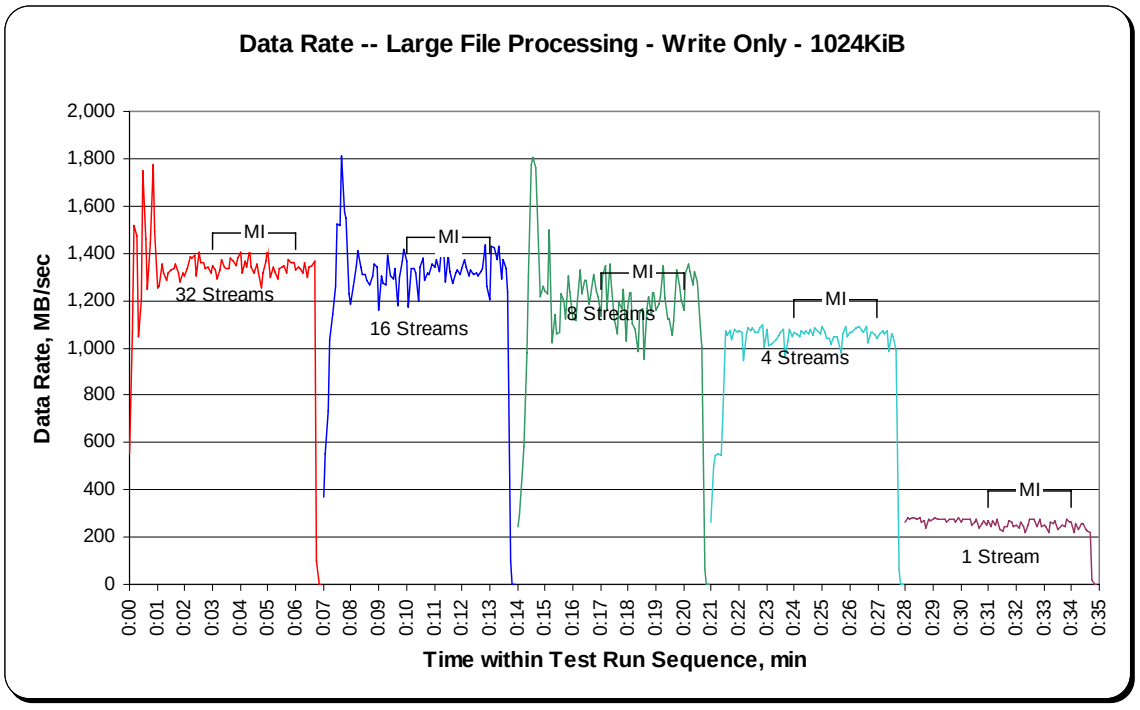
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR1	32 Streams			TR2	16 Streams			TR3	8 Streams			TR4	4 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	550.29	137.57	4.57	0:07:00	371.83	185.91	3.86	0:14:00	241.80	241.80	4.11	0:21:00	265.50	265.50	3.74	0:28:00	263.40	263.40	3.75
0:00:05	1,067.03	118.56	5.60	0:07:05	552.18	184.06	4.18	0:14:05	295.07	147.53	3.72	0:21:05	502.27	251.13	3.76	0:28:05	283.33	283.33	3.69
0:00:10	1,516.66	137.88	6.77	0:07:10	735.47	183.87	4.54	0:14:10	485.49	242.75	4.32	0:21:10	546.94	273.47	3.83	0:28:10	276.61	276.61	3.79
0:00:15	1,471.36	113.18	8.06	0:07:15	1,033.90	172.32	5.01	0:14:15	584.06	194.69	4.09	0:21:15	551.34	275.67	3.80	0:28:15	282.28	282.28	3.71
0:00:20	1,046.90	74.78	13.89	0:07:20	1,140.64	162.95	6.16	0:14:20	976.43	195.29	3.95	0:21:20	544.84	272.42	3.84	0:28:20	279.13	279.13	3.75
0:00:25	1,202.30	75.14	12.72	0:07:25	1,260.39	157.55	6.21	0:14:25	1,301.07	216.85	4.04	0:21:25	689.75	172.44	3.89	0:28:25	274.31	274.31	3.82
0:00:30	1,749.44	87.47	10.38	0:07:30	1,521.90	169.10	5.87	0:14:30	1,773.56	253.37	4.04	0:21:30	1,073.53	268.38	3.90	0:28:30	279.55	279.55	3.75
0:00:35	1,462.13	63.57	15.55	0:07:35	1,514.56	116.50	6.80	0:14:35	1,804.81	257.83	4.06	0:21:35	1,052.98	263.25	3.98	0:28:35	263.19	263.19	3.98
0:00:40	1,245.92	49.84	20.55	0:07:40	1,812.15	129.44	8.04	0:14:40	1,759.09	251.30	4.17	0:21:40	1,069.13	267.28	3.92	0:28:40	272.42	272.42	3.84
0:00:45	1,442.21	55.47	18.61	0:07:45	1,573.49	112.39	9.33	0:14:45	1,400.06	200.01	5.24	0:21:45	1,033.69	258.42	3.99	0:28:45	236.77	236.77	4.42
0:00:50	1,773.14	63.33	15.88	0:07:50	1,548.12	96.76	10.14	0:14:50	1,216.14	173.73	6.03	0:21:50	1,076.05	269.01	3.95	0:28:50	275.57	275.57	3.80
0:00:55	1,489.40	53.19	19.72	0:07:55	1,229.98	76.87	13.64	0:14:55	1,262.07	180.30	5.81	0:21:55	1,064.93	266.23	3.93	0:28:55	270.74	270.74	3.87
0:01:00	1,251.16	43.14	23.50	0:08:00	1,188.04	74.25	14.13	0:15:00	1,244.45	177.78	5.89	0:22:00	1,069.76	267.44	3.92	0:29:00	272.84	272.84	3.84
0:01:05	1,258.08	43.38	24.15	0:08:05	1,259.55	78.72	13.30	0:15:05	1,226.20	153.28	6.09	0:22:05	1,068.08	267.02	3.92	0:29:05	279.55	279.55	3.75
0:01:10	1,355.81	46.75	22.46	0:08:10	1,347.21	84.20	12.47	0:15:10	1,500.72	187.59	5.58	0:22:10	945.19	236.30	4.43	0:29:10	278.71	278.71	3.76
0:01:15	1,318.27	42.52	23.92	0:08:15	1,413.06	88.32	11.88	0:15:15	1,023.41	127.93	8.19	0:22:15	1,050.88	262.72	3.99	0:29:15	275.78	275.78	3.80
0:01:20	1,286.18	40.19	25.59	0:08:20	1,343.44	83.96	12.49	0:15:20	1,138.12	142.27	7.36	0:22:20	1,082.13	270.53	3.87	0:29:20	274.52	274.52	3.82
0:01:25	1,315.54	41.11	25.56	0:08:25	1,311.77	81.99	12.79	0:15:25	1,059.69	132.46	7.92	0:22:25	1,072.06	268.02	3.91	0:29:25	274.31	274.31	3.82
0:01:30	1,331.06	41.60	25.17	0:08:30	1,312.82	82.05	12.77	0:15:30	1,066.19	133.27	7.86	0:22:30	1,086.32	271.58	3.86	0:29:30	260.89	260.89	4.02
0:01:35	1,332.95	41.65	25.12	0:08:35	1,283.88	80.24	13.04	0:15:35	1,228.72	153.59	6.82	0:22:35	1,066.61	266.65	3.93	0:29:35	275.57	275.57	3.80
0:01:40	1,355.39	42.36	24.78	0:08:40	1,263.32	78.96	13.27	0:15:40	1,195.38	149.42	7.01	0:22:40	1,068.50	267.12	3.92	0:29:40	274.94	274.94	3.81
0:01:45	1,319.53	41.24	25.46	0:08:45	1,304.22	81.51	12.89	0:15:45	1,123.86	140.48	7.46	0:22:45	1,085.70	271.42	3.86	0:29:45	277.03	277.03	3.78
0:01:50	1,278.00	39.94	26.27	0:08:50	1,355.60	84.72	12.37	0:15:50	1,307.15	163.39	6.41	0:22:50	1,094.08	273.52	3.83	0:29:50	265.29	265.29	3.94
0:01:55	1,316.59	41.14	25.50	0:08:55	1,342.60	83.91	12.50	0:15:55	1,233.54	154.19	6.80	0:22:55	1,002.23	250.56	4.18	0:29:55	279.55	279.55	3.75
0:02:00	1,303.17	40.72	25.77	0:09:00	1,158.26	72.39	14.48	0:16:00	1,120.72	140.09	7.47	0:23:00	1,079.82	269.96	3.88	0:30:00	264.03	264.03	3.97
0:02:05	1,338.40	41.83	25.07	0:09:05	1,305.90	81.62	12.85	0:16:05	1,118.41	139.80	7.51	0:23:05	1,008.31	252.08	4.15	0:30:05	276.19	276.19	3.79
0:02:10	1,385.59	43.30	24.20	0:09:10	1,273.39	79.59	13.17	0:16:10	1,195.80	149.47	7.01	0:23:10	1,015.23	253.81	4.13	0:30:10	275.57	275.57	3.80
0:02:15	1,379.30	43.10	24.38	0:09:15	1,263.74	78.98	13.29	0:16:15	1,329.59	166.20	6.30	0:23:15	1,020.47	255.12	4.11	0:30:15	272.84	272.84	3.84
0:02:20	1,392.09	43.50	24.03	0:09:20	1,389.99	86.87	12.06	0:16:20	1,230.82	153.85	6.79	0:23:20	1,033.90	258.47	4.05	0:30:20	274.73	274.73	3.81
0:02:25	1,301.70	40.68	25.80	0:09:25	1,306.53	81.66	12.83	0:16:25	1,285.76	160.72	6.55	0:23:25	1,055.08	263.77	3.97	0:30:25	250.82	250.82	4.18
0:02:30	1,401.74	43.80	23.91	0:09:30	1,288.91	80.56	13.01	0:16:30	1,285.76	160.72	6.52	0:23:30	1,068.92	267.23	3.92	0:30:30	261.93	261.93	4.00
0:02:35	1,359.58	42.49	24.67	0:09:35	1,333.37	83.34	12.60	0:16:35	1,187.62	148.45	7.06	0:23:35	1,081.29	270.32	3.88	0:30:35	274.31	274.31	3.82
0:02:40	1,359.16	42.47	24.78	0:09:40	1,178.39	73.65	14.23	0:16:40	1,220.75	152.59	6.87	0:23:40	961.33	240.33	4.36	0:30:40	236.98	236.98	4.42
0:02:45	1,333.16	41.66	25.16	0:09:45	1,295.41	80.96	12.94	0:16:45	1,309.67	163.71	6.39	0:23:45	1,027.81	256.95	4.07	0:30:45	259.42	259.42	4.04
0:02:50	1,341.34	41.92	25.01	0:09:50	1,366.29	85.39	12.28	0:16:50	1,232.50	154.06	6.81	0:23:50	1,080.87	270.22	3.88	0:30:50	268.85	268.85	3.90
0:02:55	1,319.53	41.24	25.35	0:09:55	1,418.93	88.68	11.82	0:16:55	1,216.14	152.02	6.89	0:23:55	1,049.62	262.41	3.99	0:30:55	250.40	250.40	4.18

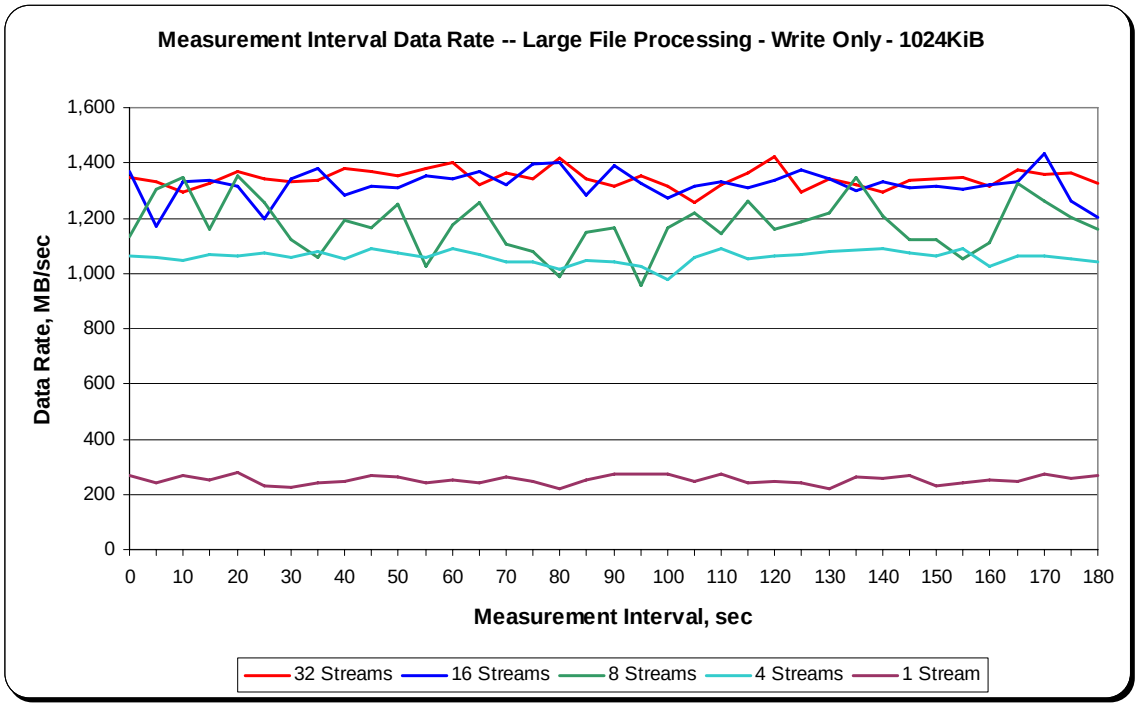
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	32 Streams			TR2	16 Streams			TR3	8 Streams			TR4	4 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	1,347.63	42.11	25.00	0:10:00	1,368.39	85.52	12.27	0:17:00	1,134.14	141.77	7.39	0:24:00	1,063.68	265.92	3.94	0:31:00	268.02	268.02	3.91
0:03:05	1,331.27	41.60	24.93	0:10:05	1,170.00	73.13	14.34	0:17:05	1,305.69	163.21	6.42	0:24:05	1,057.38	264.35	3.96	0:31:05	243.90	243.90	4.29
0:03:10	1,294.57	40.46	25.11	0:10:10	1,333.79	83.36	12.57	0:17:10	1,347.21	168.40	6.23	0:24:10	1,047.32	261.83	4.00	0:31:10	269.90	269.90	3.88
0:03:15	1,326.03	41.44	25.36	0:10:15	1,334.84	83.43	12.56	0:17:15	1,159.73	144.97	7.23	0:24:15	1,069.34	267.33	3.92	0:31:15	249.77	249.77	4.20
0:03:20	1,370.70	42.83	24.48	0:10:20	1,314.49	82.16	12.78	0:17:20	1,352.24	169.03	6.20	0:24:20	1,061.58	265.39	3.95	0:31:20	277.24	277.24	3.78
0:03:25	1,340.50	41.89	24.98	0:10:25	1,197.68	74.86	13.44	0:17:25	1,257.66	157.21	6.66	0:24:25	1,072.06	268.02	3.91	0:31:25	231.74	231.74	4.52
0:03:30	1,332.95	41.65	25.24	0:10:30	1,339.66	83.73	12.53	0:17:30	1,124.49	140.56	7.46	0:24:30	1,058.64	264.66	3.96	0:31:30	224.40	224.40	4.67
0:03:35	1,335.68	41.74	25.13	0:10:35	1,380.76	86.30	12.15	0:17:35	1,058.85	132.36	7.91	0:24:35	1,080.87	270.22	3.88	0:31:35	241.80	241.80	4.33
0:03:40	1,382.44	43.20	24.26	0:10:40	1,283.04	80.19	12.96	0:17:40	1,189.29	148.66	7.06	0:24:40	1,052.35	263.09	3.98	0:31:40	245.79	245.79	4.26
0:03:45	1,369.86	42.81	24.34	0:10:45	1,317.22	82.33	12.83	0:17:45	1,165.39	145.67	6.91	0:24:45	1,087.58	271.90	3.85	0:31:45	270.11	270.11	3.88
0:03:50	1,350.36	42.20	25.04	0:10:50	1,311.14	81.95	12.81	0:17:50	1,250.74	156.34	6.70	0:24:50	1,074.16	268.54	3.90	0:31:50	260.47	260.47	4.02
0:03:55	1,377.41	43.04	24.33	0:10:55	1,353.71	84.61	12.39	0:17:55	1,025.09	128.14	8.18	0:24:55	1,057.38	264.35	3.96	0:31:55	242.43	242.43	4.18
0:04:00	1,402.37	43.82	23.95	0:11:00	1,341.97	83.87	12.51	0:18:00	1,174.20	146.77	7.14	0:25:00	1,089.68	272.42	3.85	0:32:00	252.50	252.50	4.28
0:04:05	1,318.48	41.20	25.35	0:11:05	1,371.33	85.71	12.21	0:18:05	1,257.24	157.16	6.67	0:25:05	1,068.92	267.23	3.92	0:32:05	239.29	239.29	4.38
0:04:10	1,363.78	42.62	24.65	0:11:10	1,322.88	82.68	12.69	0:18:10	1,103.52	137.94	7.60	0:25:10	1,042.70	260.68	3.98	0:32:10	264.03	264.03	3.97
0:04:15	1,342.81	41.96	25.00	0:11:15	1,393.98	87.12	12.04	0:18:15	1,078.15	134.77	7.78	0:25:15	1,043.33	260.83	4.05	0:32:15	246.63	246.63	4.25
0:04:20	1,418.30	44.32	23.70	0:11:20	1,398.80	87.43	11.98	0:18:20	985.66	123.21	8.50	0:25:20	1,015.86	253.97	4.12	0:32:20	219.78	219.78	4.77
0:04:25	1,343.23	41.98	25.03	0:11:25	1,281.15	80.07	13.10	0:18:25	1,146.51	143.31	7.31	0:25:25	1,046.90	261.72	4.00	0:32:25	250.19	250.19	4.19
0:04:30	1,315.12	41.10	25.48	0:11:30	1,389.36	86.84	12.07	0:18:30	1,167.27	145.91	7.19	0:25:30	1,043.96	260.99	4.01	0:32:30	273.89	273.89	3.82
0:04:35	1,351.40	42.23	24.76	0:11:35	1,324.35	82.77	12.68	0:18:35	953.16	119.14	8.80	0:25:35	1,027.81	256.95	3.87	0:32:35	274.73	274.73	3.81
0:04:40	1,314.08	41.06	25.63	0:11:40	1,272.76	79.55	13.16	0:18:40	1,163.92	145.49	7.20	0:25:40	978.95	244.74	4.32	0:32:40	273.26	273.26	3.83
0:04:45	1,257.03	39.28	26.68	0:11:45	1,315.54	82.22	12.76	0:18:45	1,217.61	152.20	6.89	0:25:45	1,056.75	264.19	3.96	0:32:45	247.25	247.25	4.23
0:04:50	1,319.74	41.24	25.35	0:11:50	1,331.48	83.22	12.61	0:18:50	1,143.37	142.92	7.33	0:25:50	1,092.41	273.10	3.83	0:32:50	275.36	275.36	3.80
0:04:55	1,364.41	42.64	24.63	0:11:55	1,311.35	81.96	12.80	0:18:55	1,262.49	157.81	6.65	0:25:55	1,050.04	262.51	3.99	0:32:55	242.01	242.01	4.33
0:05:00	1,425.43	44.54	23.60	0:12:00	1,336.93	83.56	12.54	0:19:00	1,158.47	144.81	7.23	0:26:00	1,062.84	265.71	3.94	0:33:00	249.14	249.14	4.20
0:05:05	1,296.04	40.50	25.86	0:12:05	1,373.63	85.85	12.20	0:19:05	1,184.26	148.03	7.07	0:26:05	1,067.24	266.81	3.92	0:33:05	243.48	243.48	4.30
0:05:10	1,342.18	41.94	25.04	0:12:10	1,343.02	83.94	12.49	0:19:10	1,216.98	152.12	6.90	0:26:10	1,081.08	270.27	3.88	0:33:10	221.04	221.04	4.74
0:05:15	1,321.00	41.28	25.36	0:12:15	1,301.91	81.37	12.90	0:19:15	1,346.37	168.30	6.22	0:26:15	1,086.95	271.74	3.85	0:33:15	260.68	260.68	4.01
0:05:20	1,294.15	40.44	25.96	0:12:20	1,330.43	83.15	12.60	0:19:20	1,209.22	151.15	6.95	0:26:20	1,090.73	272.68	3.84	0:33:20	258.37	258.37	4.05
0:05:25	1,335.47	41.73	25.06	0:12:25	1,309.04	81.82	12.82	0:19:25	1,120.09	140.01	7.48	0:26:25	1,072.48	268.12	3.90	0:33:25	270.95	270.95	3.86
0:05:30	1,340.92	41.90	25.12	0:12:30	1,317.01	82.31	12.74	0:19:30	1,119.67	139.96	7.49	0:26:30	1,064.72	266.18	3.93	0:33:30	232.99	232.99	4.32
0:05:35	1,346.58	42.08	24.81	0:12:35	1,303.80	81.49	12.85	0:19:35	1,051.72	131.47	7.97	0:26:35	1,090.52	272.63	3.84	0:33:35	239.91	239.91	4.37
0:05:40	1,316.38	41.14	25.64	0:12:40	1,319.95	82.50	12.72	0:19:40	1,113.38	139.17	7.54	0:26:40	1,024.46	256.11	4.09	0:33:40	252.29	252.29	4.15
0:05:45	1,373.84	42.93	24.36	0:12:45	1,332.95	83.31	12.57	0:19:45	1,327.92	165.99	6.31	0:26:45	1,063.68	265.92	3.94	0:33:45	245.16	245.16	4.28
0:05:50	1,358.12	42.44	24.73	0:12:50	1,434.66	89.67	11.71	0:19:50	1,261.86	157.73	6.65	0:26:50	1,063.05	265.76	3.92	0:33:50	274.94	274.94	3.81
0:05:55	1,363.57	42.61	24.62	0:12:55	1,262.90	78.93	13.27	0:19:55	1,201.25	150.16	6.98	0:26:55	1,051.09	262.77	4.01	0:33:55	260.26	260.26	4.02
0:06:00	1,327.29	41.48	25.26	0:13:00	1,204.81	75.30	13.79	0:20:00	1,158.05	144.76	7.23	0:27:00	1,040.61	260.15	4.02	0:34:00	265.92	265.92	3.94
0:06:05	1,338.61	41.83	25.09	0:13:05	1,427.11	89.19	11.88	0:20:05	1,317.01	164.63	6.37	0:27:05	1,057.59	264.40	3.96	0:34:05	216.64	216.64	4.84
0:06:10	1,337.56	41.80	24.98	0:13:10	1,424.18	89.01	11.77	0:20:10	1,354.97	169.37	6.19	0:27:10	1,071.02	267.75	3.91	0:34:10	254.59	254.59	4.11
0:06:15	1,315.96	41.12	25.57	0:13:15	1,373.42	85.84	12.08	0:20:15	1,323.30	165.41	6.33	0:27:15	1,059.48	264.87	3.95	0:34:15	233.41	233.41	4.49
0:06:20	1,358.12	42.44	24.76	0:13:20	1,429.21	89.33	11.87	0:20:20	1,264.16	158.02	6.64	0:27:20	1,069.55	267.39	3.92	0:34:20	254.59	254.59	4.11
0:06:25	1,294.78	40.46	25.85	0:13:25	1,292.68	80.79	12.96	0:20:25	1,322.88	165.36	6.33	0:27:25	987.34	246.83	4.24	0:34:25	254.17	254.17	4.12
0:06:30	1,340.08	41.88	25.05	0:13:30	1,370.91	85.68	12.25	0:20:30	1,280.31	160.04	6.55	0:27:30	1,062.00	265.50	3.94	0:34:30	234.25	234.25	4.39
0:06:35	1,348.47	42.14	24.91	0:13:35	1,336.31	83.52	12.55	0:20:35	1,083.18	135.40	7.74	0:27:35	1,045.64	261.41	4.00	0:34:35	226.70	226.70	4.69
0:06:40	1,368.18	42.76	24.53	0:13:40	1,237.74	77.36	13.41	0:20:40	1,001.39	125.17	8.37	0:27:40	992.58	248.15	4.23	0:34:40	222.30	222.30	4.72
0:06:45	98.15	0.00	24.21	0:13:45	98.57	0.00	11.63	0:20:45	65.43	0.00	7.65	0:27:45	64.59	0.00	3.84	0:34:45	16.78	0.00	3.78
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

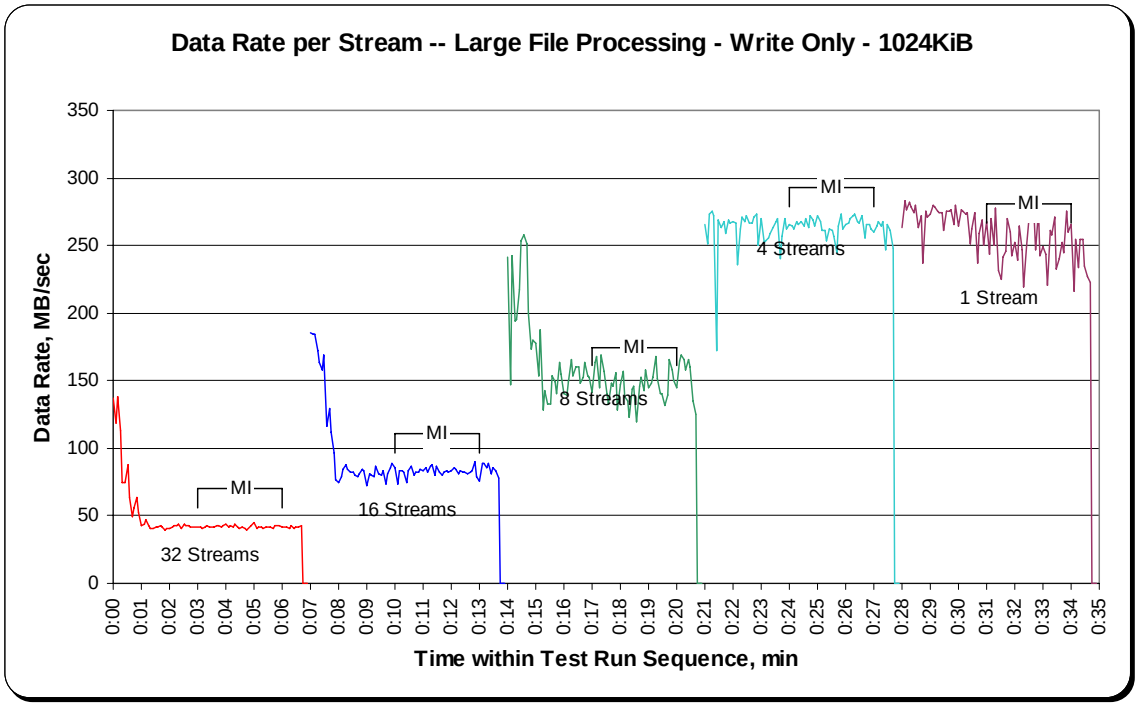
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



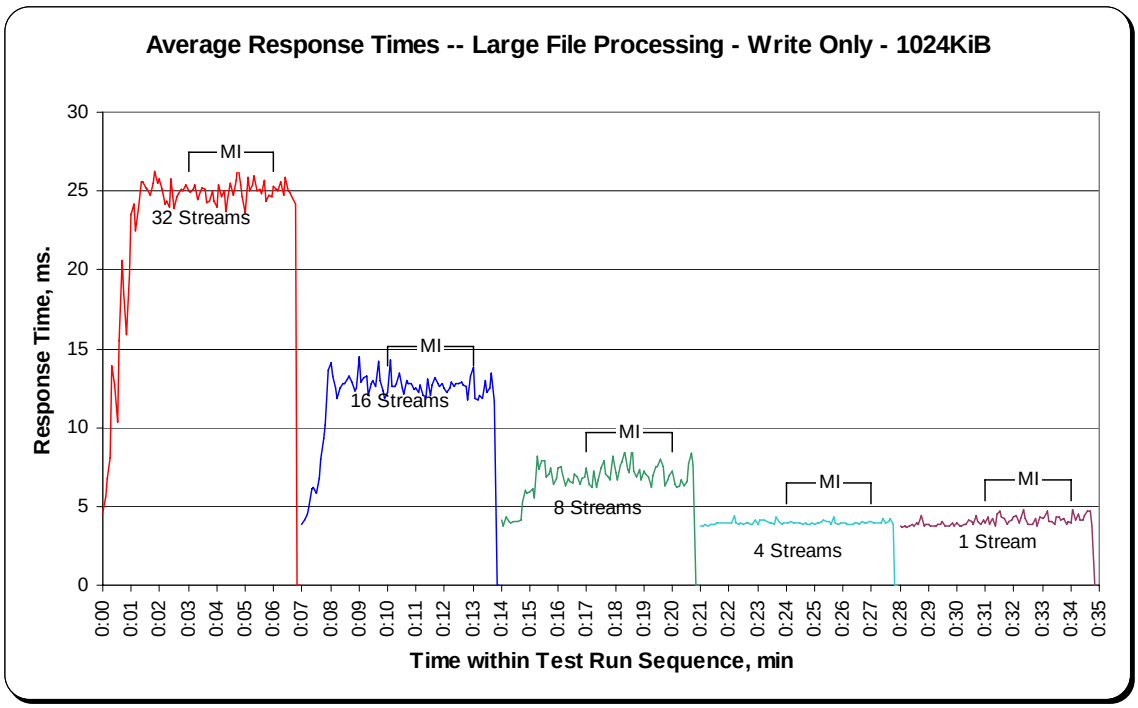
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



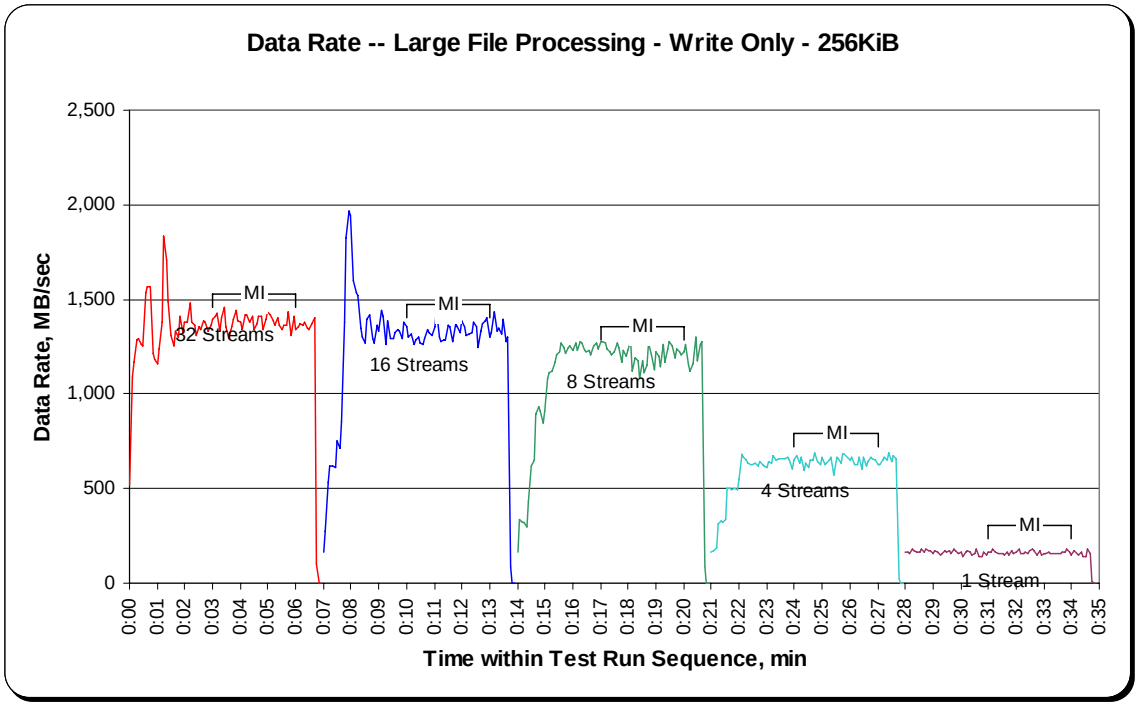
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR6	32 Streams			TR7	16 Streams			TR8	8 Streams			TR9	4 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	515.17	85.86	2.17	0:07:00	167.25	167.25	1.46	0:14:00	163.32	81.66	1.58	0:21:00	164.94	164.94	1.48	0:28:00	167.98	167.98	1.51
0:00:05	1,087.58	98.87	2.26	0:07:05	276.61	92.20	1.59	0:14:05	336.38	168.19	1.55	0:21:05	174.90	174.90	1.49	0:28:05	166.72	166.72	1.56
0:00:10	1,163.97	105.82	2.47	0:07:10	530.63	132.66	1.74	0:14:10	318.50	159.25	1.64	0:21:10	188.06	94.03	1.45	0:28:10	157.18	157.18	1.60
0:00:15	1,282.67	116.61	2.24	0:07:15	622.17	155.54	1.68	0:14:15	319.45	159.72	1.64	0:21:15	316.46	158.23	1.65	0:28:15	181.19	181.19	1.44
0:00:20	1,289.54	99.20	2.34	0:07:20	620.13	155.03	1.69	0:14:20	300.36	150.18	1.74	0:21:20	331.51	165.75	1.58	0:28:20	168.82	168.82	1.55
0:00:25	1,260.39	84.03	2.79	0:07:25	609.64	121.93	1.76	0:14:25	430.28	143.43	1.62	0:21:25	321.86	160.93	1.62	0:28:25	166.25	166.25	1.57
0:00:30	1,252.94	83.53	3.14	0:07:30	753.66	150.73	1.73	0:14:30	619.87	154.97	1.58	0:21:30	336.80	168.40	1.55	0:28:30	167.30	167.30	1.56
0:00:35	1,535.38	76.77	3.04	0:07:35	713.61	118.93	1.89	0:14:35	649.59	129.92	1.75	0:21:35	500.01	166.67	1.56	0:28:35	181.46	181.46	1.44
0:00:40	1,570.09	74.77	3.50	0:07:40	857.84	142.97	1.83	0:14:40	890.82	148.47	1.72	0:21:40	500.59	166.86	1.56	0:28:40	163.42	163.42	1.60
0:00:45	1,567.57	68.16	3.62	0:07:45	1,380.24	115.02	1.87	0:14:45	934.91	155.82	1.68	0:21:45	490.42	163.47	1.60	0:28:45	177.47	177.47	1.47
0:00:50	1,215.25	52.84	4.95	0:07:50	1,827.35	130.53	1.88	0:14:50	908.12	151.35	1.73	0:21:50	504.57	168.19	1.55	0:28:50	171.76	171.76	1.52
0:00:55	1,183.06	51.44	5.09	0:07:55	1,969.38	131.29	1.92	0:14:55	848.93	141.49	1.85	0:21:55	491.42	163.81	1.59	0:28:55	175.11	175.11	1.49
0:01:00	1,163.13	48.46	5.31	0:08:00	1,943.06	129.54	2.02	0:15:00	910.95	151.83	1.72	0:22:00	551.18	137.80	1.57	0:29:00	157.13	157.13	1.66
0:01:05	1,234.91	51.45	5.16	0:08:05	1,599.03	106.60	2.45	0:15:05	1,078.51	154.07	1.68	0:22:05	678.11	169.53	1.54	0:29:05	173.91	173.91	1.50
0:01:10	1,383.12	53.20	4.77	0:08:10	1,536.43	102.43	2.55	0:15:10	1,109.71	158.53	1.65	0:22:10	669.83	167.46	1.56	0:29:10	160.85	160.85	1.62
0:01:15	1,836.27	61.21	4.06	0:08:15	1,519.44	94.96	2.71	0:15:15	1,122.66	160.38	1.63	0:22:15	653.32	163.33	1.60	0:29:15	147.80	147.80	1.75
0:01:20	1,709.49	55.14	4.66	0:08:20	1,349.83	84.36	3.10	0:15:20	1,169.58	146.20	1.74	0:22:20	637.01	159.25	1.64	0:29:20	152.99	152.99	1.73
0:01:25	1,485.47	46.42	5.63	0:08:25	1,303.96	81.50	3.21	0:15:25	1,205.71	150.71	1.73	0:22:25	628.46	157.12	1.66	0:29:25	170.45	170.45	1.53
0:01:30	1,311.09	40.97	6.39	0:08:30	1,272.76	79.55	3.29	0:15:30	1,223.37	152.92	1.71	0:22:30	630.35	157.59	1.66	0:29:30	161.74	161.74	1.61
0:01:35	1,256.09	39.25	6.68	0:08:35	1,392.67	87.04	3.01	0:15:35	1,273.34	159.17	1.64	0:22:35	633.18	158.30	1.65	0:29:35	171.65	171.65	1.52
0:01:40	1,331.69	41.62	6.30	0:08:40	1,418.67	88.67	2.95	0:15:40	1,248.33	156.04	1.67	0:22:40	618.50	154.63	1.69	0:29:40	157.55	157.55	1.66
0:01:45	1,304.32	40.76	6.42	0:08:45	1,293.89	80.87	3.23	0:15:45	1,215.93	151.99	1.72	0:22:45	645.19	161.30	1.62	0:29:45	179.52	179.52	1.45
0:01:50	1,410.23	44.07	5.95	0:08:50	1,272.24	79.51	3.29	0:15:50	1,243.61	155.45	1.68	0:22:50	624.16	156.04	1.67	0:29:50	176.16	176.16	1.48
0:01:55	1,327.13	41.47	6.31	0:08:55	1,367.03	85.44	3.06	0:15:55	1,256.72	157.09	1.66	0:22:55	620.81	155.20	1.68	0:29:55	157.65	157.65	1.66
0:02:00	1,376.36	43.01	6.10	0:09:00	1,333.68	83.36	3.14	0:16:00	1,234.12	154.27	1.69	0:23:00	613.26	153.31	1.71	0:30:00	165.62	165.62	1.58
0:02:05	1,379.61	43.11	6.07	0:09:05	1,443.57	90.22	2.90	0:16:05	1,273.50	159.19	1.64	0:23:05	643.09	160.77	1.62	0:30:05	141.66	141.66	1.84
0:02:10	1,480.69	46.27	5.67	0:09:10	1,411.59	88.22	2.97	0:16:10	1,230.29	153.79	1.70	0:23:10	631.98	157.99	1.65	0:30:10	167.04	167.04	1.57
0:02:15	1,381.39	43.17	6.06	0:09:15	1,261.80	78.86	3.32	0:16:15	1,279.68	159.96	1.63	0:23:15	674.76	168.69	1.55	0:30:15	176.00	176.00	1.48
0:02:20	1,360.47	42.51	6.16	0:09:20	1,390.46	86.90	3.01	0:16:20	1,272.03	159.00	1.64	0:23:20	653.32	163.33	1.60	0:30:20	160.90	160.90	1.62
0:02:25	1,308.05	40.88	6.41	0:09:25	1,296.72	81.05	3.23	0:16:25	1,233.34	154.17	1.69	0:23:25	658.14	164.53	1.59	0:30:25	151.20	151.20	1.73
0:02:30	1,356.49	42.39	6.18	0:09:30	1,290.12	80.63	3.24	0:16:30	1,220.75	152.59	1.71	0:23:30	655.99	164.00	1.59	0:30:30	159.70	159.70	1.64
0:02:35	1,336.31	41.76	6.27	0:09:35	1,322.15	82.63	3.18	0:16:35	1,234.02	154.25	1.70	0:23:35	659.71	164.93	1.58	0:30:35	179.57	179.57	1.45
0:02:40	1,388.26	43.38	6.04	0:09:40	1,336.51	83.53	3.13	0:16:40	1,206.49	150.81	1.73	0:23:40	661.02	165.26	1.58	0:30:40	144.76	144.76	1.77
0:02:45	1,382.44	43.20	6.07	0:09:45	1,329.12	83.07	3.15	0:16:45	1,255.51	156.94	1.66	0:23:45	664.17	166.04	1.57	0:30:45	142.82	142.82	1.85
0:02:50	1,331.17	41.60	6.30	0:09:50	1,292.63	80.79	3.24	0:16:50	1,267.15	158.39	1.65	0:23:50	651.53	162.88	1.60	0:30:50	167.77	167.77	1.57
0:02:55	1,365.98	42.69	6.14	0:09:55	1,375.89	85.99	3.04	0:16:55	1,235.17	154.40	1.69	0:23:55	602.72	150.68	1.73	0:30:55	151.47	151.47	1.72

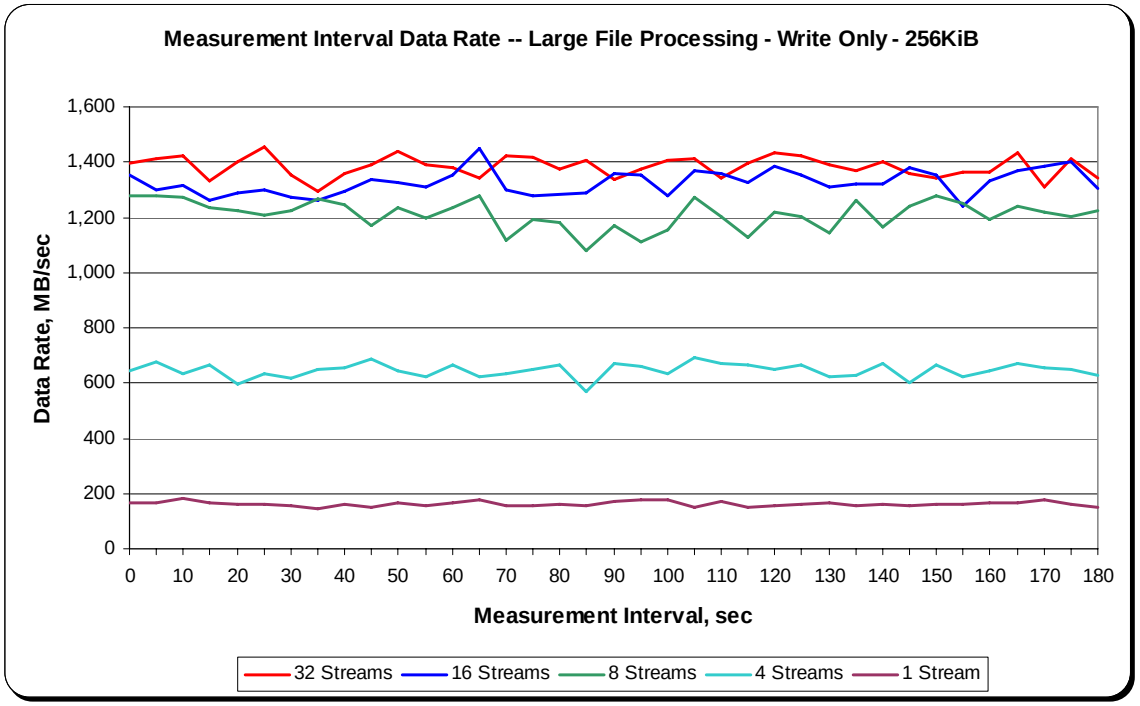
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data
Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	32 Streams			TR7	16 Streams			TR8	8 Streams			TR9	4 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	1,397.96	43.69	5.99	0:10:00	1,353.71	84.61	3.09	0:17:00	1,276.80	159.60	1.64	0:24:00	646.66	161.66	1.62	0:31:00	164.21	164.21	1.59
0:03:05	1,412.01	44.13	5.94	0:10:05	1,300.08	81.25	3.22	0:17:05	1,278.58	159.82	1.63	0:24:05	674.50	168.62	1.55	0:31:05	168.30	168.30	1.55
0:03:10	1,424.49	44.52	5.89	0:10:10	1,315.02	82.19	3.18	0:17:10	1,273.39	159.17	1.64	0:24:10	635.65	158.91	1.64	0:31:10	180.98	180.98	1.44
0:03:15	1,334.10	41.69	6.28	0:10:15	1,259.97	78.75	3.32	0:17:15	1,235.12	154.39	1.69	0:24:15	664.95	166.24	1.56	0:31:15	165.83	165.83	1.54
0:03:20	1,399.32	43.73	6.00	0:10:20	1,288.75	80.55	3.25	0:17:20	1,226.26	153.28	1.70	0:24:20	596.43	149.11	1.77	0:31:20	158.60	158.60	1.68
0:03:25	1,456.52	45.52	5.76	0:10:25	1,299.61	81.23	3.22	0:17:25	1,207.28	150.91	1.73	0:24:25	632.66	158.16	1.65	0:31:25	160.33	160.33	1.63
0:03:30	1,353.40	42.29	6.20	0:10:30	1,273.50	79.59	3.29	0:17:30	1,222.53	152.82	1.71	0:24:30	615.15	153.79	1.70	0:31:30	153.67	153.67	1.70
0:03:35	1,294.36	40.45	6.47	0:10:35	1,260.39	78.77	3.32	0:17:35	1,266.16	158.27	1.65	0:24:35	650.33	162.58	1.61	0:31:35	147.17	147.17	1.77
0:03:40	1,357.43	42.42	6.17	0:10:40	1,293.00	80.81	3.24	0:17:40	1,247.65	155.96	1.68	0:24:40	653.63	163.41	1.60	0:31:40	160.75	160.75	1.63
0:03:45	1,391.83	43.49	6.03	0:10:45	1,338.77	83.67	3.13	0:17:45	1,168.38	146.05	1.79	0:24:45	685.87	171.47	1.52	0:31:45	149.26	149.26	1.75
0:03:50	1,439.07	44.97	5.82	0:10:50	1,323.77	82.74	3.16	0:17:50	1,233.13	154.14	1.69	0:24:50	645.24	161.31	1.62	0:31:50	169.03	169.03	1.55
0:03:55	1,390.10	43.44	6.03	0:10:55	1,311.66	81.98	3.19	0:17:55	1,195.95	149.49	1.75	0:24:55	623.48	155.87	1.68	0:31:55	154.93	154.93	1.69
0:04:00	1,380.50	43.14	6.07	0:11:00	1,352.30	84.52	3.10	0:18:00	1,233.02	154.13	1.70	0:25:00	663.80	165.95	1.57	0:32:00	166.78	166.78	1.57
0:04:05	1,342.81	41.96	6.24	0:11:05	1,447.24	90.45	2.89	0:18:05	1,279.11	159.89	1.63	0:25:05	623.22	155.81	1.68	0:32:05	176.84	176.84	1.48
0:04:10	1,420.87	44.40	5.91	0:11:10	1,300.97	81.31	3.19	0:18:10	1,118.99	139.87	1.87	0:25:10	632.13	158.03	1.65	0:32:10	156.92	156.92	1.66
0:04:15	1,416.63	44.27	5.92	0:11:15	1,276.69	79.79	3.31	0:18:15	1,192.91	149.11	1.75	0:25:15	650.06	162.52	1.61	0:32:15	153.83	153.83	1.70
0:04:20	1,375.63	42.99	6.09	0:11:20	1,284.87	80.30	3.26	0:18:20	1,179.07	147.38	1.77	0:25:20	667.79	166.95	1.56	0:32:20	162.48	162.48	1.61
0:04:25	1,408.13	44.00	5.96	0:11:25	1,289.01	80.56	3.25	0:18:25	1,079.61	134.95	1.94	0:25:25	570.16	142.54	1.83	0:32:25	156.97	156.97	1.66
0:04:30	1,336.25	41.76	6.27	0:11:30	1,360.58	85.04	3.08	0:18:30	1,172.10	146.51	1.78	0:25:30	669.41	167.35	1.56	0:32:30	172.12	172.12	1.52
0:04:35	1,372.59	42.89	6.11	0:11:35	1,352.61	84.54	3.10	0:18:35	1,111.60	138.95	1.88	0:25:35	657.88	164.47	1.59	0:32:35	178.42	178.42	1.46
0:04:40	1,408.60	44.02	5.95	0:11:40	1,277.06	79.82	3.28	0:18:40	1,155.37	144.42	1.81	0:25:40	633.08	158.27	1.65	0:32:40	175.69	175.69	1.49
0:04:45	1,411.38	44.11	5.94	0:11:45	1,370.91	85.68	3.06	0:18:45	1,270.77	158.85	1.64	0:25:45	692.11	173.03	1.51	0:32:45	148.06	148.06	1.76
0:04:50	1,342.12	41.94	6.24	0:11:50	1,357.85	84.87	3.08	0:18:50	1,204.92	150.61	1.73	0:25:50	670.98	167.75	1.56	0:32:50	171.23	171.23	1.52
0:04:55	1,396.18	43.63	6.01	0:11:55	1,327.18	82.95	3.15	0:18:55	1,129.53	141.19	1.85	0:25:55	665.69	166.42	1.57	0:32:55	149.84	149.84	1.74
0:05:00	1,433.51	44.80	5.84	0:12:00	1,387.27	86.70	3.02	0:19:00	1,221.12	152.64	1.71	0:26:00	650.01	162.50	1.61	0:33:00	154.66	154.66	1.69
0:05:05	1,420.19	44.38	5.90	0:12:05	1,354.08	84.63	3.09	0:19:05	1,200.36	150.04	1.74	0:26:05	666.58	166.64	1.57	0:33:05	158.65	158.65	1.65
0:05:10	1,390.52	43.45	6.03	0:12:10	1,307.78	81.74	3.20	0:19:10	1,144.21	143.03	1.83	0:26:10	623.59	155.90	1.68	0:33:10	167.09	167.09	1.56
0:05:15	1,367.50	42.73	6.13	0:12:15	1,318.69	82.42	3.18	0:19:15	1,262.49	157.81	1.66	0:26:15	628.52	157.13	1.66	0:33:15	154.93	154.93	1.69
0:05:20	1,399.74	43.74	5.99	0:12:20	1,323.36	82.71	3.16	0:19:20	1,166.75	145.84	1.79	0:26:20	668.62	167.16	1.56	0:33:20	158.96	158.96	1.64
0:05:25	1,360.06	42.50	6.16	0:12:25	1,378.04	86.13	3.04	0:19:25	1,238.05	154.76	1.69	0:26:25	601.25	150.31	1.74	0:33:25	158.33	158.33	1.65
0:05:30	1,340.13	41.88	6.26	0:12:30	1,353.08	84.57	3.10	0:19:30	1,277.79	159.72	1.64	0:26:30	665.90	166.47	1.57	0:33:30	159.86	159.86	1.63
0:05:35	1,361.68	42.55	6.15	0:12:35	1,242.30	77.64	3.37	0:19:35	1,251.32	156.41	1.67	0:26:35	622.28	155.57	1.68	0:33:35	158.65	158.65	1.65
0:05:40	1,362.78	42.59	6.15	0:12:40	1,332.64	83.29	3.14	0:19:40	1,194.17	149.27	1.75	0:26:40	641.62	160.41	1.63	0:33:40	165.31	165.31	1.58
0:05:45	1,431.88	44.75	5.85	0:12:45	1,369.75	85.61	3.04	0:19:45	1,240.99	155.12	1.68	0:26:45	669.10	167.27	1.56	0:33:45	165.57	165.57	1.58
0:05:50	1,309.78	40.93	6.15	0:12:50	1,386.06	86.63	3.04	0:19:50	1,220.65	152.58	1.71	0:26:50	657.04	164.26	1.59	0:33:50	179.31	179.31	1.46
0:05:55	1,414.11	44.19	6.17	0:12:55	1,400.48	87.53	2.98	0:19:55	1,203.19	150.40	1.74	0:26:55	650.06	162.52	1.61	0:33:55	161.59	161.59	1.62
0:06:00	1,342.60	41.96	5.99	0:13:00	1,304.80	81.55	3.10	0:20:00	1,225.21	153.15	1.71	0:27:00	627.05	156.76	1.67	0:34:00	149.79	149.79	1.74
0:06:05	1,354.18	42.32	6.12	0:13:05	1,322.46	82.65	3.17	0:20:05	1,259.29	157.41	1.66	0:27:05	624.90	156.22	1.67	0:34:05	171.44	171.44	1.52
0:06:10	1,370.33	42.82	6.19	0:13:10	1,435.82	89.74	2.92	0:20:10	1,155.64	144.45	1.81	0:27:10	647.55	161.89	1.61	0:34:10	163.58	163.58	1.60
0:06:15	1,361.63	42.55	6.15	0:13:15	1,332.43	83.28	3.14	0:20:15	1,118.10	139.76	1.87	0:27:15	662.49	165.62	1.56	0:34:15	147.53	147.53	1.77
0:06:20	1,380.82	43.15	6.07	0:13:20	1,345.43	84.09	3.11	0:20:20	1,157.05	144.63	1.73	0:27:20	647.97	161.99	1.63	0:34:20	165.47	165.47	1.58
0:06:25	1,346.84	42.09	6.23	0:13:25	1,314.97	82.19	3.19	0:20:25	1,297.40	162.18	1.68	0:27:25	686.29	171.57	1.52	0:34:25	141.24	141.24	1.85
0:06:30	1,343.28	41.98	6.25	0:13:30	1,394.24	87.14	3.00	0:20:30	1,173.25	146.66	1.71	0:27:30	643.04	160.76	1.62	0:34:30	144.49	144.49	1.81
0:06:35	1,374.21	42.94	6.09	0:13:35	1,276.12	79.76	3.28	0:20:35	1,259.71	157.46	1.66	0:27:35	670.09	167.52	1.56	0:34:35	176.63	176.63	1.48
0:06:40	1,401.32	43.79	5.98	0:13:40	1,300.65	81.29	3.22	0:20:40	1,277.06	159.63	1.64	0:27:40	656.62	164.15	1.59	0:34:40	153.35	153.35	1.70
0:06:45	100.77	0.00	5.96	0:13:45	85.88	0.00	4.28	0:20:45	87.66	0.00	1.67	0:27:45	22.70	0.00	1.47	0:34:45	6.24	0.00	1.47
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00				

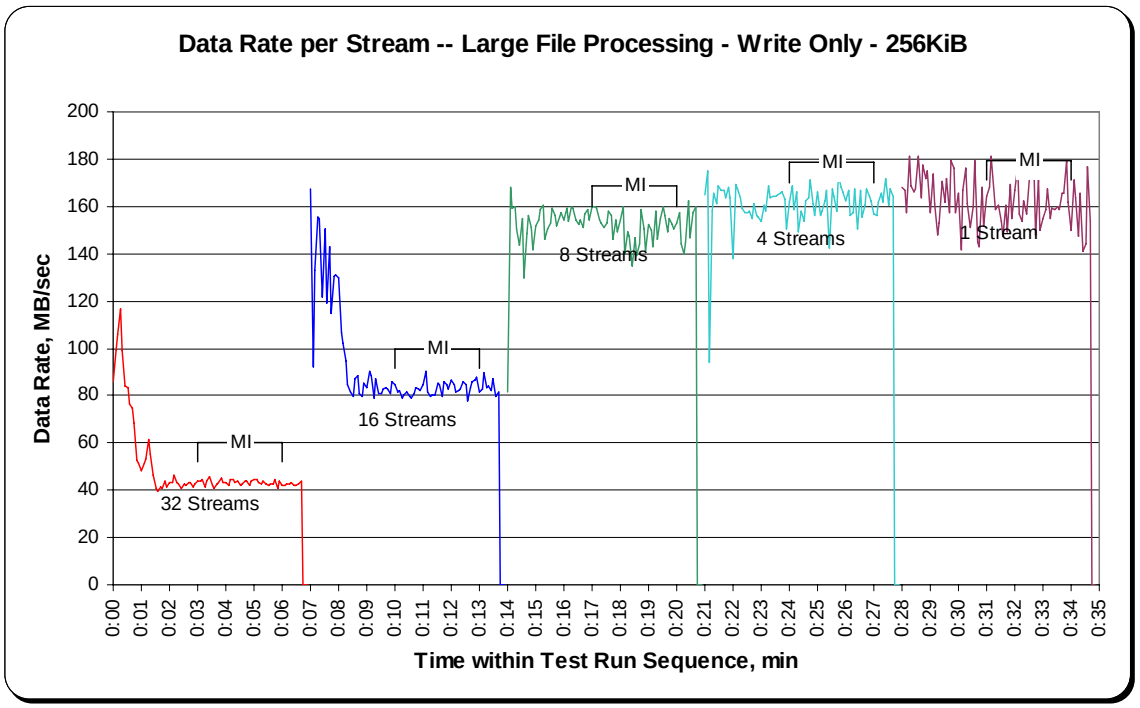
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



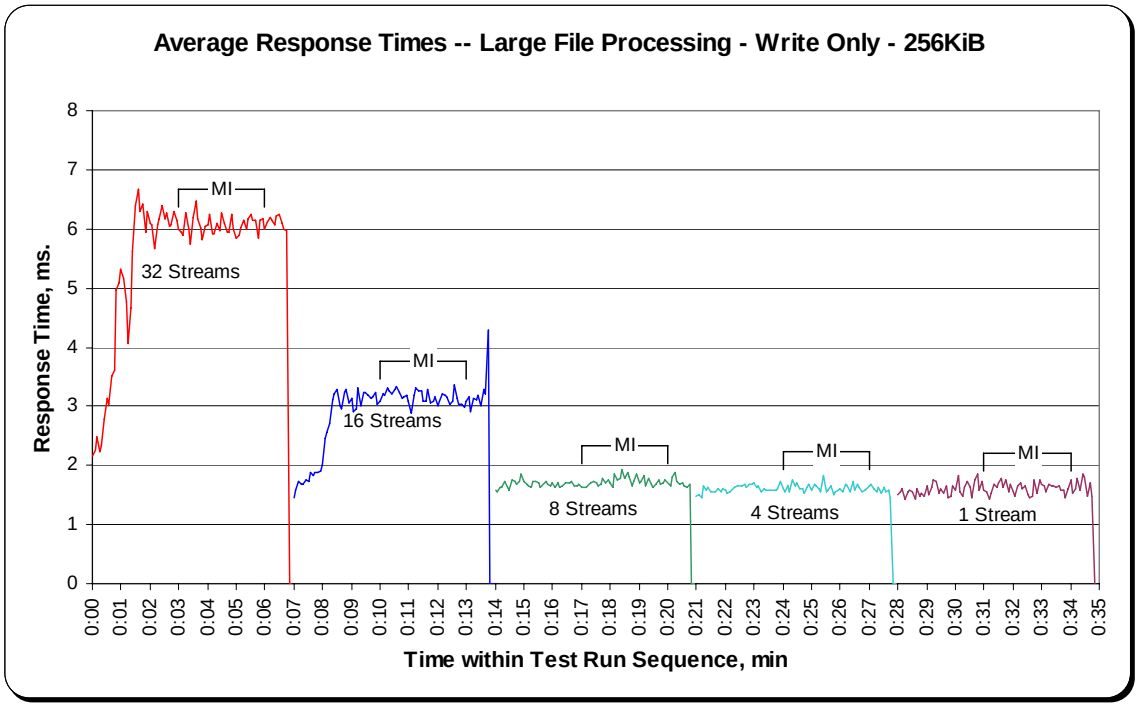
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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.

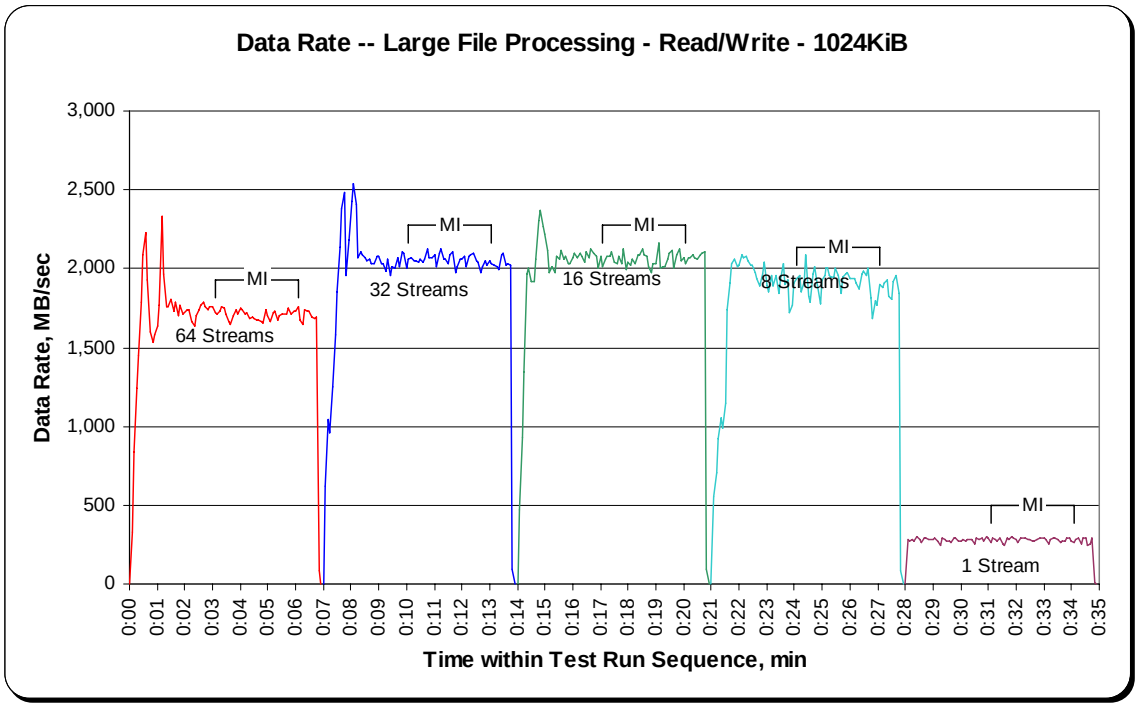
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR11	64 Streams			TR12	32 Streams			TR13	16 Streams			TR14	8 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	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
0:00:05	328.62	109.54	4.87	0:07:05	620.76	124.15	4.28	0:14:05	469.55	156.52	3.99	0:21:05	557.21	185.74	4.17	0:28:05	279.13	279.13	3.61
0:00:10	832.78	104.10	6.24	0:07:10	1,046.06	174.34	5.56	0:14:10	934.91	186.98	4.51	0:21:10	701.92	233.97	4.47	0:28:10	277.24	277.24	3.78
0:00:15	1,236.69	82.45	10.34	0:07:15	955.46	119.43	7.80	0:14:15	1,349.31	168.66	4.63	0:21:15	918.13	229.53	4.04	0:28:15	278.92	278.92	3.75
0:00:20	1,447.87	80.44	11.74	0:07:20	1,254.52	139.39	6.97	0:14:20	1,961.26	217.92	4.61	0:21:20	1,057.80	264.45	3.96	0:28:20	272.00	272.00	3.85
0:00:25	1,790.13	74.59	11.68	0:07:25	1,576.64	121.28	6.97	0:14:25	1,999.63	222.18	4.71	0:21:25	985.66	246.42	4.24	0:28:25	299.05	299.05	3.50
0:00:30	2,088.55	61.43	14.27	0:07:30	1,850.32	123.35	7.84	0:14:30	1,920.78	213.42	4.91	0:21:30	1,144.21	190.70	4.25	0:28:30	278.29	278.29	3.76
0:00:35	2,227.59	63.65	16.33	0:07:35	2,131.34	125.37	7.62	0:14:35	1,917.64	174.33	4.98	0:21:35	1,738.75	248.39	4.10	0:28:35	263.19	263.19	3.98
0:00:40	1,927.70	52.10	19.48	0:07:40	2,382.99	132.39	7.80	0:14:40	2,056.26	146.88	6.08	0:21:40	1,912.18	239.02	4.16	0:28:40	292.97	292.97	3.57
0:00:45	1,599.29	39.98	24.76	0:07:45	2,485.96	103.58	9.14	0:14:45	2,303.51	153.57	6.72	0:21:45	2,031.09	253.89	4.12	0:28:45	289.62	289.62	3.62
0:00:50	1,529.03	33.24	29.17	0:07:50	1,953.29	81.39	12.84	0:14:50	2,365.38	157.69	6.65	0:21:50	2,062.76	257.84	4.06	0:28:50	285.00	285.00	3.67
0:00:55	1,576.22	32.84	31.07	0:07:55	2,179.36	80.72	12.26	0:14:55	2,265.55	141.60	7.03	0:21:55	2,016.62	252.08	4.15	0:28:55	286.47	286.47	3.65
0:01:00	1,632.21	33.31	31.21	0:08:00	2,423.26	86.54	11.98	0:15:00	2,219.42	138.71	7.55	0:22:00	2,023.75	252.97	4.14	0:29:00	286.68	286.68	3.65
0:01:05	1,770.21	33.40	28.68	0:08:05	2,539.23	87.56	11.76	0:15:05	2,116.45	132.28	7.93	0:22:05	2,083.73	260.47	4.02	0:29:05	288.15	288.15	3.63
0:01:10	2,331.82	40.91	24.69	0:08:10	2,403.97	80.13	12.55	0:15:10	1,973.21	123.33	8.49	0:22:10	2,065.48	258.19	4.06	0:29:10	275.36	275.36	3.80
0:01:15	1,965.03	33.31	31.03	0:08:15	2,073.45	66.89	15.57	0:15:15	2,011.59	125.72	8.35	0:22:15	2,080.37	260.05	4.03	0:29:15	247.88	247.88	4.23
0:01:20	1,762.03	28.42	36.35	0:08:20	2,104.70	67.89	15.40	0:15:20	1,972.79	123.30	8.51	0:22:20	2,054.79	256.85	4.08	0:29:20	293.18	293.18	3.57
0:01:25	1,762.66	27.98	37.41	0:08:25	2,085.41	65.17	15.81	0:15:25	2,080.17	130.01	8.05	0:22:25	2,023.75	252.97	4.14	0:29:25	281.02	281.02	3.73
0:01:30	1,802.71	28.17	36.99	0:08:30	2,068.42	64.64	16.13	0:15:30	2,063.39	128.96	7.81	0:22:30	2,023.54	252.94	4.14	0:29:30	275.36	275.36	3.80
0:01:35	1,726.17	26.97	38.98	0:08:35	2,051.64	64.11	16.48	0:15:35	2,112.04	132.00	7.94	0:22:35	1,977.82	247.23	4.07	0:29:35	276.19	276.19	3.64
0:01:40	1,785.31	27.90	37.65	0:08:40	2,061.08	64.41	16.31	0:15:40	2,058.35	128.65	8.15	0:22:40	1,936.93	242.12	4.33	0:29:40	264.87	264.87	3.96
0:01:45	1,699.11	26.55	39.46	0:08:45	2,032.14	63.50	16.46	0:15:45	2,079.96	130.00	8.06	0:22:45	1,886.81	235.85	4.44	0:29:45	287.10	287.10	3.65
0:01:50	1,763.70	27.56	38.21	0:08:50	2,034.24	63.57	16.51	0:15:50	2,035.08	127.19	8.24	0:22:50	1,965.03	245.63	4.27	0:29:50	289.83	289.83	3.61
0:01:55	1,709.60	26.71	39.10	0:08:55	2,079.96	65.00	16.08	0:15:55	2,030.46	126.90	8.26	0:22:55	2,036.75	254.59	4.11	0:29:55	272.63	272.63	3.85
0:02:00	1,720.08	26.88	39.04	0:09:00	2,082.68	65.08	16.13	0:16:00	2,070.52	129.41	8.10	0:23:00	1,894.78	236.85	4.42	0:30:00	270.11	270.11	3.88
0:02:05	1,738.96	27.17	38.44	0:09:05	2,031.09	63.47	16.49	0:16:05	2,096.94	131.06	7.99	0:23:05	1,849.06	231.13	4.53	0:30:05	286.26	286.26	3.66
0:02:10	1,740.64	27.20	38.63	0:09:10	2,030.46	63.45	16.56	0:16:10	2,072.41	129.53	8.11	0:23:10	1,960.00	245.00	4.28	0:30:10	276.40	276.40	3.79
0:02:15	1,665.77	26.03	40.36	0:09:15	1,988.73	62.15	16.68	0:16:15	2,094.22	130.89	8.00	0:23:15	1,888.07	236.01	4.44	0:30:15	279.76	279.76	3.74
0:02:20	1,633.68	25.53	41.15	0:09:20	2,059.82	64.37	16.54	0:16:20	2,079.96	130.00	8.06	0:23:20	1,958.74	244.84	4.27	0:30:20	278.71	278.71	3.76
0:02:25	1,703.52	26.62	39.34	0:09:25	1,956.85	61.15	16.78	0:16:25	2,044.93	127.81	8.20	0:23:25	1,842.35	230.29	4.56	0:30:25	282.70	282.70	3.70
0:02:30	1,743.78	27.25	38.36	0:09:30	2,008.02	62.75	17.00	0:16:30	2,103.02	131.44	7.98	0:23:30	1,923.72	240.46	4.36	0:30:30	258.37	258.37	4.05
0:02:35	1,770.21	27.66	38.21	0:09:35	2,000.68	62.52	16.86	0:16:35	2,072.62	129.54	8.09	0:23:35	2,029.83	253.73	4.13	0:30:35	292.97	292.97	3.58
0:02:40	1,787.82	27.93	37.53	0:09:40	2,069.05	64.66	16.15	0:16:40	2,125.25	132.83	7.88	0:23:40	1,898.13	237.27	4.41	0:30:40	279.76	279.76	3.74
0:02:45	1,756.78	27.45	38.21	0:09:45	2,009.28	62.79	16.71	0:16:45	2,099.04	131.19	7.92	0:23:45	1,931.90	241.49	4.34	0:30:45	288.99	288.99	3.63
0:02:50	1,736.44	27.13	38.75	0:09:50	2,108.90	65.90	15.88	0:16:50	2,078.49	129.91	8.15	0:23:50	1,722.60	215.33	4.86	0:30:50	274.10	274.10	3.82
0:02:55	1,755.74	27.43	37.95	0:09:55	2,093.59	65.42	16.06	0:16:55	2,005.30	125.33	8.36	0:23:55	1,772.72	221.59	4.73	0:30:55	300.10	300.10	3.49
0:03:00	1,758.25	27.47	38.36	0:10:00	2,003.83	62.62	16.73	0:17:00	2,082.26	130.14	8.05	0:24:00	1,910.92	238.87	4.39	0:31:00	287.52	287.52	3.64

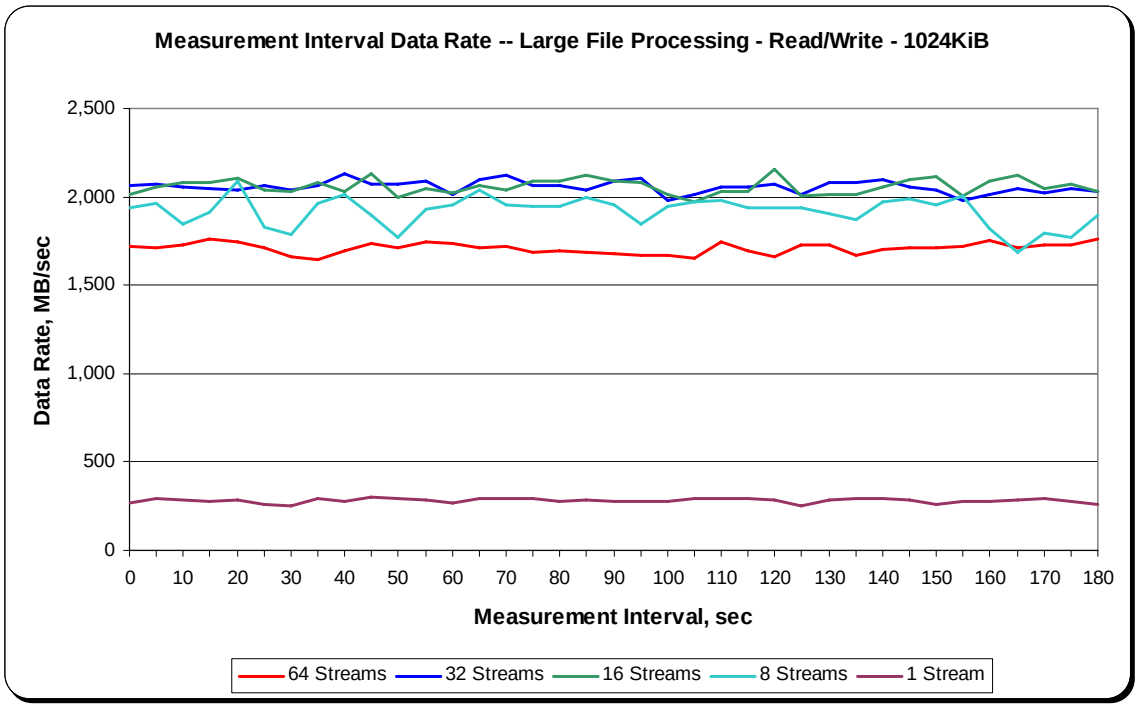
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	64 Streams			TR12	32 Streams			TR13	16 Streams			TR14	8 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
0:03:05	1,723.65	26.93	38.75	0:10:05	2,063.81	64.49	16.25	0:17:05	2,014.52	125.91	8.34	0:24:05	1,937.56	242.19	4.32	0:31:05	265.71	265.71	3.94
0:03:10	1,711.28	26.74	39.27	0:10:10	2,068.21	64.63	16.25	0:17:10	2,056.89	128.56	8.14	0:24:10	1,959.16	244.89	4.28	0:31:10	292.76	292.76	3.58
0:03:15	1,726.17	26.97	39.04	0:10:15	2,051.85	64.12	16.32	0:17:15	2,081.00	130.06	8.06	0:24:15	1,848.85	231.11	4.53	0:31:15	282.91	282.91	3.70
0:03:20	1,761.19	27.52	37.97	0:10:20	2,049.97	64.06	16.34	0:17:20	2,079.54	129.97	8.06	0:24:20	1,915.54	239.44	4.38	0:31:20	273.05	273.05	3.84
0:03:25	1,746.93	27.30	38.53	0:10:25	2,036.96	63.66	16.44	0:17:25	2,106.17	131.64	7.90	0:24:25	2,088.97	261.12	4.01	0:31:25	288.99	288.99	3.62
0:03:30	1,710.02	26.72	39.39	0:10:30	2,061.92	64.43	16.30	0:17:30	2,036.75	127.30	8.30	0:24:30	1,826.83	228.35	4.59	0:31:30	256.90	256.90	4.08
0:03:35	1,662.62	25.98	40.14	0:10:35	2,042.63	63.83	16.43	0:17:35	2,032.98	127.06	8.24	0:24:35	1,783.42	222.93	4.70	0:31:35	249.14	249.14	4.20
0:03:40	1,643.54	25.68	40.86	0:10:40	2,063.39	64.48	16.36	0:17:40	2,081.21	130.08	8.05	0:24:40	1,961.05	245.13	4.27	0:31:40	289.83	289.83	3.61
0:03:45	1,698.06	26.53	39.54	0:10:45	2,129.45	66.55	15.75	0:17:45	2,029.41	126.84	8.27	0:24:45	2,011.17	251.40	4.17	0:31:45	279.34	279.34	3.75
0:03:50	1,736.65	27.14	38.68	0:10:50	2,072.83	64.78	16.23	0:17:50	2,127.14	132.95	7.89	0:24:50	1,892.47	236.56	4.43	0:31:50	299.89	299.89	3.49
0:03:55	1,712.53	26.76	39.26	0:10:55	2,068.21	64.63	16.18	0:17:55	1,997.75	124.86	8.40	0:24:55	1,773.35	221.67	4.73	0:31:55	291.50	291.50	3.59
0:04:00	1,746.93	27.30	38.42	0:11:00	2,091.28	65.35	16.03	0:18:00	2,044.30	127.77	8.17	0:25:00	1,930.85	241.36	4.34	0:32:00	286.68	286.68	3.65
0:04:05	1,738.33	27.16	38.42	0:11:05	2,016.62	63.02	16.71	0:18:05	2,022.49	126.41	8.32	0:25:05	1,955.38	244.42	4.29	0:32:05	266.34	266.34	3.93
0:04:10	1,710.86	26.73	39.32	0:11:10	2,095.68	65.49	15.91	0:18:10	2,063.81	128.99	8.12	0:25:10	2,035.29	254.41	4.12	0:32:10	294.44	294.44	3.56
0:04:15	1,723.23	26.93	38.99	0:11:15	2,123.58	66.36	15.78	0:18:15	2,035.92	127.24	8.24	0:25:15	1,957.69	244.71	4.28	0:32:15	293.18	293.18	3.57
0:04:20	1,687.79	26.37	39.64	0:11:20	2,063.81	64.49	16.28	0:18:20	2,091.91	130.74	8.03	0:25:20	1,945.11	243.14	4.31	0:32:20	296.12	296.12	3.53
0:04:25	1,691.35	26.43	39.93	0:11:25	2,062.97	64.47	16.14	0:18:25	2,088.97	130.56	8.03	0:25:25	1,948.25	243.53	4.30	0:32:25	278.71	278.71	3.76
0:04:30	1,683.17	26.30	39.70	0:11:30	2,034.87	63.59	16.65	0:18:30	2,122.95	132.68	7.89	0:25:30	2,000.68	250.09	4.19	0:32:30	282.49	282.49	3.71
0:04:35	1,678.14	26.22	40.14	0:11:35	2,088.55	65.27	16.12	0:18:35	2,087.71	130.48	8.04	0:25:35	1,958.11	244.76	4.28	0:32:35	275.99	275.99	3.79
0:04:40	1,669.54	26.09	40.23	0:11:40	2,106.80	65.84	15.83	0:18:40	2,078.07	129.88	8.03	0:25:40	1,847.17	230.90	4.54	0:32:40	274.94	274.94	3.81
0:04:45	1,665.35	26.02	40.34	0:11:45	1,976.15	61.75	17.03	0:18:45	2,014.73	125.92	8.35	0:25:45	1,947.21	243.40	4.30	0:32:45	279.55	279.55	3.75
0:04:50	1,655.91	25.87	40.46	0:11:50	2,014.73	62.96	16.72	0:18:50	1,970.69	123.17	8.51	0:25:50	1,969.02	246.13	4.26	0:32:50	294.02	294.02	3.56
0:04:55	1,741.68	27.21	38.20	0:11:55	2,056.26	64.26	16.32	0:18:55	2,026.69	126.67	8.29	0:25:55	1,978.45	247.31	4.23	0:32:55	291.08	291.08	3.60
0:05:00	1,698.06	26.53	39.78	0:12:00	2,056.26	64.26	16.20	0:19:00	2,032.35	127.02	8.25	0:26:00	1,939.45	242.43	4.32	0:33:00	292.55	292.55	3.58
0:05:05	1,660.11	25.94	40.52	0:12:05	2,074.50	64.83	16.20	0:19:05	2,159.02	134.94	7.77	0:26:05	1,937.14	242.14	4.32	0:33:05	283.74	283.74	3.69
0:05:10	1,724.91	26.95	38.90	0:12:10	2,009.91	62.81	16.77	0:19:10	2,007.18	125.45	8.34	0:26:10	1,938.82	242.35	4.32	0:33:10	251.45	251.45	4.17
0:05:15	1,728.68	27.01	38.96	0:12:15	2,076.39	64.89	16.11	0:19:15	2,014.73	125.92	8.33	0:26:15	1,906.10	238.26	4.39	0:33:15	284.58	284.58	3.68
0:05:20	1,669.96	26.09	40.03	0:12:20	2,083.52	65.11	16.05	0:19:20	2,014.94	125.93	8.32	0:26:20	1,873.39	234.17	4.48	0:33:20	295.70	295.70	3.54
0:05:25	1,701.63	26.59	39.24	0:12:25	2,093.59	65.42	16.13	0:19:25	2,058.35	128.65	8.10	0:26:25	1,967.34	245.92	4.26	0:33:25	296.12	296.12	3.54
0:05:30	1,711.49	26.74	39.53	0:12:30	2,053.11	64.16	16.31	0:19:30	2,093.38	130.84	8.06	0:26:30	1,984.33	248.04	4.22	0:33:30	282.28	282.28	3.71
0:05:35	1,710.23	26.72	39.19	0:12:35	2,038.85	63.71	16.51	0:19:35	2,116.87	132.30	7.93	0:26:35	1,956.64	244.58	4.28	0:33:35	260.89	260.89	4.01
0:05:40	1,715.68	26.81	39.09	0:12:40	1,978.66	61.83	16.94	0:19:40	2,001.31	125.08	8.33	0:26:40	2,003.62	250.45	4.18	0:33:40	274.94	274.94	3.81
0:05:45	1,752.17	27.38	38.51	0:12:45	2,016.41	63.01	16.64	0:19:45	2,089.18	130.57	8.08	0:26:45	1,817.39	227.17	4.61	0:33:45	274.73	274.73	3.81
0:05:50	1,710.86	26.73	39.14	0:12:50	2,045.77	63.93	16.39	0:19:50	2,124.62	132.79	7.89	0:26:50	1,683.17	210.40	4.98	0:33:50	287.52	287.52	3.64
0:05:55	1,728.47	27.01	38.67	0:12:55	2,023.33	63.23	16.46	0:19:55	2,047.66	127.98	8.19	0:26:55	1,797.89	224.74	4.66	0:33:55	290.87	290.87	3.60
0:06:00	1,731.41	27.05	38.83	0:13:00	2,046.82	63.96	16.54	0:20:00	2,073.66	129.60	8.09	0:27:00	1,766.01	220.75	4.74	0:34:00	273.47	273.47	3.83
0:06:05	1,763.08	27.55	38.00	0:13:05	2,033.61	63.55	16.53	0:20:05	2,030.88	126.93	8.24	0:27:05	1,898.34	237.29	4.41	0:34:05	263.19	263.19	3.98
0:06:10	1,676.04	26.19	40.21	0:13:10	2,019.35	63.10	16.54	0:20:10	2,064.65	129.04	8.13	0:27:10	1,879.68	234.96	4.46	0:34:10	281.86	281.86	3.72
0:06:15	1,650.04	25.78	40.77	0:13:15	2,013.69	62.93	16.69	0:20:15	2,073.45	129.59	8.09	0:27:15	1,909.04	238.63	4.39	0:34:15	287.52	287.52	3.64
0:06:20	1,740.85	27.20	38.48	0:13:20	1,993.97	62.31	16.86	0:20:20	2,089.60	130.60	8.02	0:27:20	1,929.17	241.15	4.34	0:34:20	250.82	250.82	4.18
0:06:25	1,734.13	27.10	38.61	0:13:25	2,090.02	65.31	15.97	0:20:25	2,070.52	129.41	8.10	0:27:25	1,823.05	227.88	4.60	0:34:25	292.97	292.97	3.57
0:06:30	1,731.62	27.06	38.82	0:13:30	2,099.88	65.62	16.07	0:20:30	2,055.42	128.46	8.16	0:27:30	1,807.12	225.89	4.64	0:34:30	291.71	291.71	3.59
0:06:35	1,690.30	26.41	39.80	0:13:35	2,025.64	63.30	16.54	0:20:35	2,085.20	130.32	8.04	0:27:35	1,919.52	239.94	4.37	0:34:35	248.93	248.93	4.21
0:06:40	1,685.06	26.33	39.85	0:13:40	2,033.61	63.55	16.50	0:20:40	2,097.36	131.09	8.00	0:27:40	1,960.00	245.00	4.28	0:34:40	253.34	253.34	4.13
0:06:45	1,693.66	26.46	39.63	0:13:45	2,019.98	63.12	16.60	0:20:45	2,105.54	131.60	7.96	0:27:45	1,846.75	230.84	4.54	0:34:45	290.25	290.25	3.61
0:06:50	85.35	0.00	46.08	0:13:50	95.42	0.00	18.42	0:20:50	90.18	0.00	8.73	0:27:50	88.29	0.00	4.20	0:34:50	7.76	0.00	5.58
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

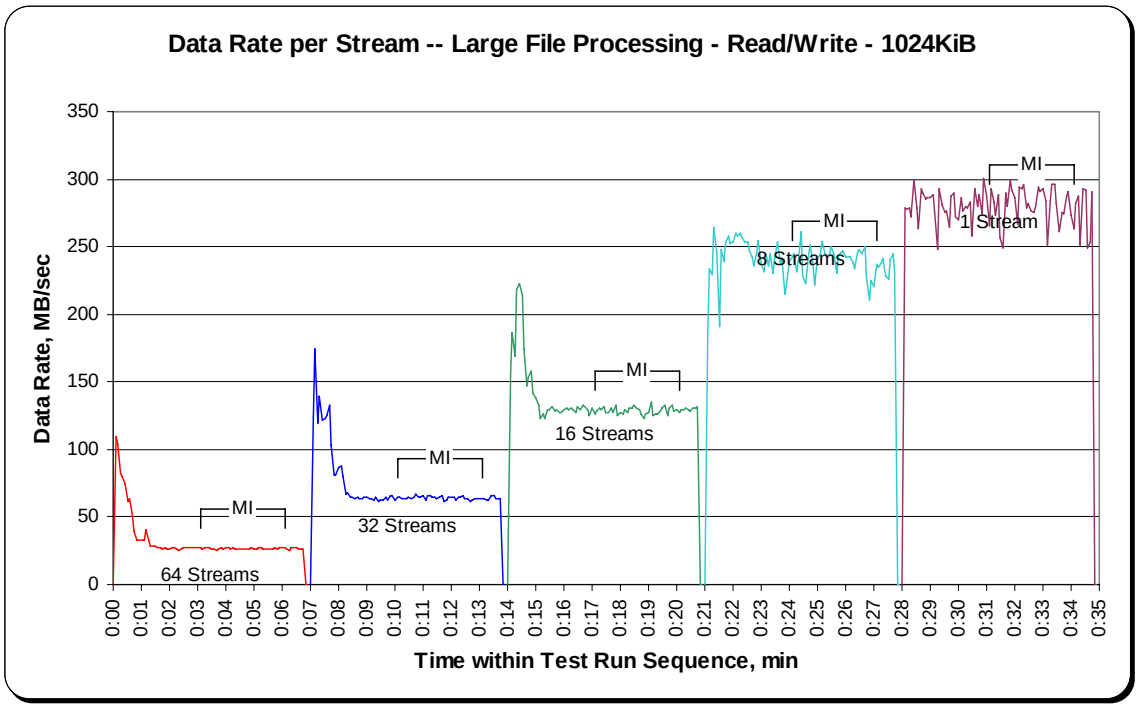
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



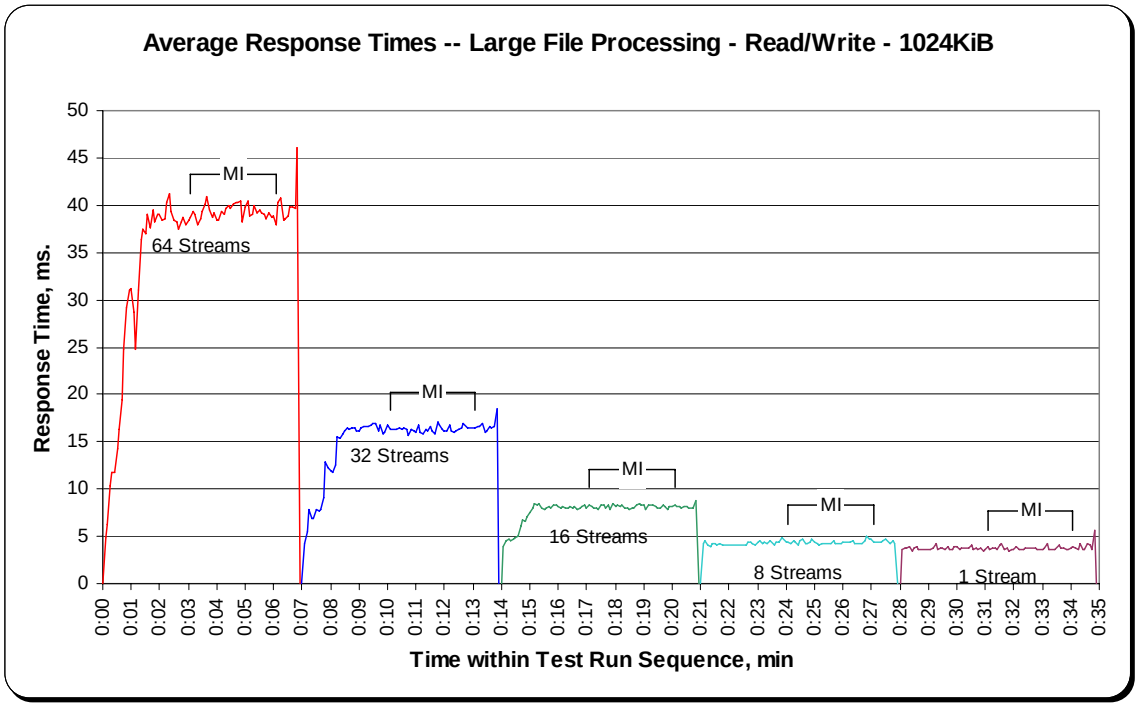
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



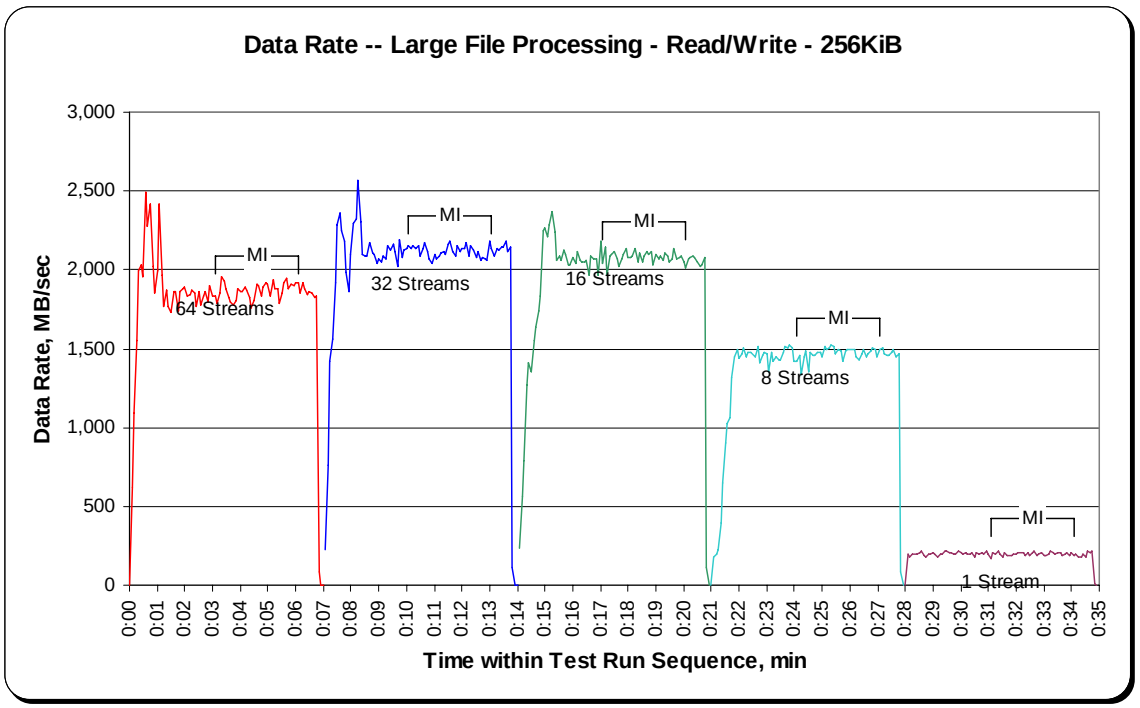
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR16	64 Streams			TR17	32 Streams			TR18	16 Streams			TR19	8 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	228.17	57.04	1.38	0:14:05	232.52	77.51	1.32	0:21:00	0.00	0.00	0.00	0:28:00	0.00	0.00	0.00
0:00:05	624.43	62.44	2.56	0:07:10	758.28	126.38	1.69	0:14:10	565.50	141.37	1.40	0:21:05	180.83	180.83	1.38	0:28:05	195.30	195.30	1.24
0:00:10	1,087.85	77.70	2.74	0:07:15	1,420.09	142.01	1.66	0:14:15	791.99	132.00	1.52	0:21:10	194.62	194.62	1.34	0:28:10	179.78	179.78	1.49
0:00:15	1,555.72	81.88	2.66	0:07:20	1,559.28	111.38	1.84	0:14:20	1,267.78	158.47	1.51	0:21:15	228.01	114.01	1.39	0:28:15	193.78	193.78	1.35
0:00:20	1,994.18	83.09	2.81	0:07:25	1,918.16	119.89	1.96	0:14:25	1,410.13	176.27	1.48	0:21:20	393.06	196.53	1.33	0:28:20	195.24	195.24	1.34
0:00:25	2,034.66	78.26	3.18	0:07:30	2,283.96	126.89	1.90	0:14:30	1,353.08	150.34	1.55	0:21:25	652.90	130.58	1.31	0:28:25	197.29	197.29	1.32
0:00:30	1,954.34	63.04	3.83	0:07:35	2,356.62	124.03	2.09	0:14:35	1,552.84	172.54	1.55	0:21:30	903.40	180.68	1.44	0:28:30	203.95	203.95	1.28
0:00:35	2,489.58	65.52	3.63	0:07:40	2,252.29	118.54	2.20	0:14:40	1,634.42	163.44	1.47	0:21:35	1,022.83	170.47	1.43	0:28:35	212.65	212.65	1.23
0:00:40	2,274.36	52.89	4.66	0:07:45	2,177.74	103.70	2.42	0:14:45	1,738.01	173.80	1.50	0:21:40	1,065.41	152.20	1.50	0:28:40	190.63	190.63	1.37
0:00:45	2,415.71	50.33	4.84	0:07:50	1,988.05	90.37	2.76	0:14:50	1,830.34	140.80	1.55	0:21:45	1,317.90	164.74	1.39	0:28:45	178.05	178.05	1.45
0:00:50	2,019.35	39.60	6.45	0:07:55	1,862.48	77.60	3.21	0:14:55	2,247.83	149.86	1.58	0:21:50	1,451.33	181.42	1.44	0:28:50	201.33	201.33	1.31
0:00:55	1,851.58	34.94	7.36	0:08:00	2,092.70	80.49	3.14	0:15:00	2,267.70	151.18	1.73	0:21:55	1,490.97	186.37	1.40	0:28:55	200.75	200.75	1.30
0:01:00	1,991.19	34.93	7.18	0:08:05	2,298.95	88.42	2.96	0:15:05	2,212.13	138.26	1.87	0:22:00	1,441.53	180.19	1.45	0:29:00	205.31	205.31	1.27
0:01:05	2,420.43	41.02	6.28	0:08:10	2,320.87	77.36	3.09	0:15:10	2,286.32	142.89	1.83	0:22:05	1,470.26	183.78	1.42	0:29:05	197.60	197.60	1.32
0:01:10	1,964.09	31.68	7.96	0:08:15	2,566.13	80.19	3.22	0:15:15	2,367.32	147.96	1.77	0:22:10	1,506.28	188.28	1.39	0:29:10	178.62	178.62	1.46
0:01:15	1,766.64	28.04	9.22	0:08:20	2,306.97	72.09	3.63	0:15:20	2,234.62	139.66	1.87	0:22:15	1,447.77	180.97	1.44	0:29:15	193.04	193.04	1.35
0:01:20	1,869.66	29.68	8.82	0:08:25	2,094.95	65.47	4.00	0:15:25	2,062.55	128.91	2.03	0:22:20	1,476.45	184.56	1.41	0:29:20	201.69	201.69	1.29
0:01:25	1,766.75	27.61	9.46	0:08:30	2,086.35	65.20	4.00	0:15:30	2,091.65	130.73	2.00	0:22:25	1,477.08	184.63	1.41	0:29:25	214.96	214.96	1.21
0:01:30	1,728.73	27.01	9.71	0:08:35	2,085.41	65.17	4.03	0:15:35	2,057.52	128.59	2.03	0:22:30	1,471.20	183.90	1.42	0:29:30	214.22	214.22	1.22
0:01:35	1,866.67	29.17	8.99	0:08:40	2,169.87	67.81	3.86	0:15:40	2,127.98	133.00	1.97	0:22:35	1,444.62	180.58	1.45	0:29:35	203.00	203.00	1.28
0:01:40	1,858.13	29.03	9.03	0:08:45	2,102.03	65.69	3.99	0:15:45	2,094.95	130.93	2.00	0:22:40	1,516.50	189.56	1.38	0:29:40	209.14	209.14	1.25
0:01:45	1,740.95	27.20	9.63	0:08:50	2,098.52	65.58	3.99	0:15:50	2,027.84	126.74	2.06	0:22:45	1,409.29	176.16	1.48	0:29:45	195.77	195.77	1.33
0:01:50	1,864.94	29.14	8.98	0:08:55	2,040.84	63.78	4.10	0:15:55	2,033.29	127.08	2.06	0:22:50	1,453.38	181.67	1.44	0:29:50	194.77	194.77	1.34
0:01:55	1,876.53	29.32	8.95	0:09:00	2,070.83	64.71	4.05	0:16:00	2,076.70	129.79	2.01	0:22:55	1,476.71	184.59	1.41	0:29:55	213.59	213.59	1.22
0:02:00	1,894.04	29.59	8.86	0:09:05	2,053.53	64.17	4.08	0:16:05	2,041.73	127.61	2.05	0:23:00	1,471.05	183.88	1.42	0:30:00	203.53	203.53	1.28
0:02:05	1,829.40	28.58	9.17	0:09:10	2,090.07	65.31	4.01	0:16:10	2,119.17	132.45	1.97	0:23:05	1,350.09	168.76	1.55	0:30:05	198.23	198.23	1.32
0:02:10	1,845.13	28.83	9.08	0:09:15	2,067.84	64.62	4.05	0:16:15	2,062.44	128.90	2.03	0:23:10	1,471.89	183.99	1.42	0:30:10	208.93	208.93	1.25
0:02:15	1,867.67	29.18	8.99	0:09:20	2,151.31	67.23	3.90	0:16:20	2,053.85	128.37	2.04	0:23:15	1,417.52	177.19	1.47	0:30:15	201.06	201.06	1.30
0:02:20	1,855.77	29.00	9.01	0:09:25	2,124.21	66.38	3.94	0:16:25	2,054.58	128.41	2.04	0:23:20	1,451.65	181.46	1.44	0:30:20	198.34	198.34	1.32
0:02:25	1,772.67	27.70	9.11	0:09:30	2,159.07	67.47	3.86	0:16:30	2,055.16	128.45	2.04	0:23:25	1,425.33	178.17	1.47	0:30:25	211.18	211.18	1.24
0:02:30	1,864.58	29.13	8.99	0:09:35	2,116.03	66.13	3.97	0:16:35	1,964.35	122.77	2.13	0:23:30	1,427.37	178.42	1.46	0:30:30	179.99	179.99	1.45
0:02:35	1,779.33	27.80	9.44	0:09:40	2,019.40	63.11	3.98	0:16:40	2,084.20	130.26	2.01	0:23:35	1,475.56	184.44	1.42	0:30:35	207.57	207.57	1.26
0:02:40	1,831.76	28.62	9.12	0:09:45	2,187.33	68.35	3.84	0:16:45	2,068.37	129.27	2.02	0:23:40	1,512.20	189.03	1.38	0:30:40	199.81	199.81	1.31
0:02:45	1,862.53	29.10	9.04	0:09:50	2,082.05	65.06	4.02	0:16:50	2,069.63	129.35	2.02	0:23:45	1,508.38	188.55	1.38	0:30:45	205.89	205.89	1.27
0:02:50	1,795.95	28.06	9.33	0:09:55	2,130.02	66.56	3.93	0:16:55	1,969.38	123.09	2.04	0:23:50	1,525.10	190.64	1.37	0:30:50	196.40	196.40	1.33
0:02:55	1,902.75	29.73	8.83	0:10:00	2,133.80	66.68	3.93	0:17:00	2,177.68	136.11	2.00	0:23:55	1,504.34	188.04	1.39	0:30:55	215.48	215.48	1.21
0:03:00	1,832.81	28.64	9.14									0:24:00	1,424.44	178.05	1.47	0:31:00	198.02	198.02	1.32

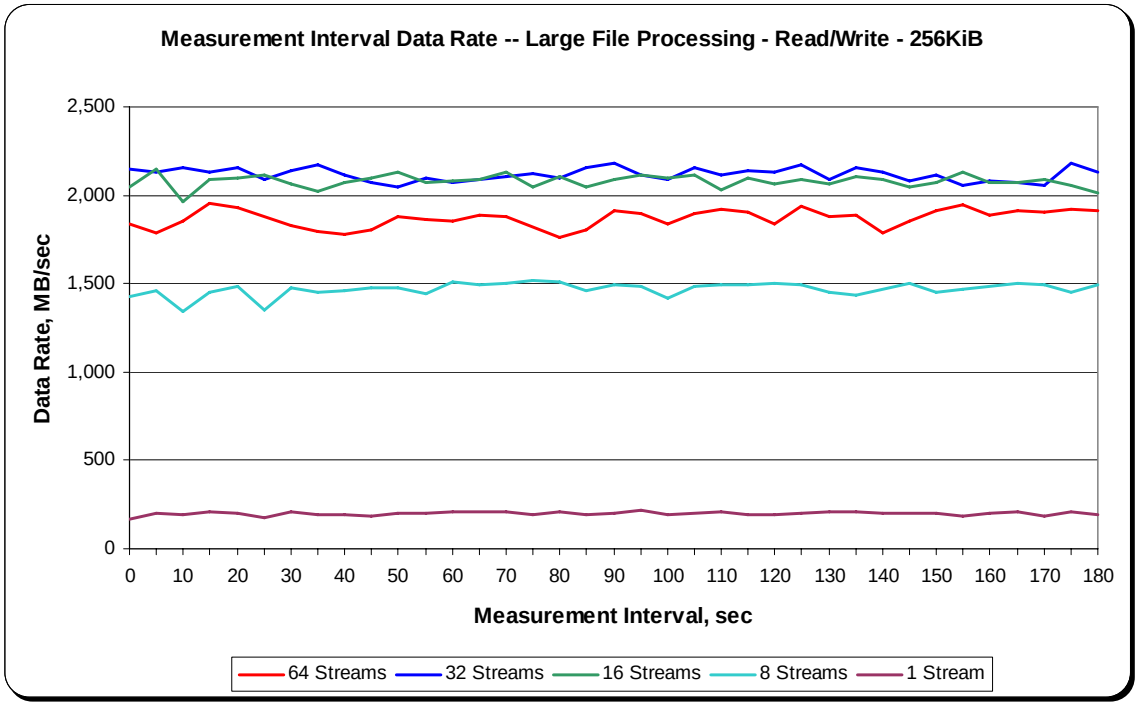
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR16	64 Streams			TR17	32 Streams			TR18	16 Streams			TR19	8 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	1,834.12	28.66	9.16	0:10:05	2,150.37	67.20	3.89	0:17:05	2,043.88	127.74	2.05	0:24:05	1,423.86	177.98	1.47	0:31:05	166.78	166.78	1.57
0:03:10	1,785.46	27.90	9.38	0:10:10	2,134.38	66.70	3.92	0:17:10	2,145.70	134.11	1.95	0:24:10	1,461.51	182.69	1.43	0:31:10	203.74	203.74	1.28
0:03:15	1,850.11	28.91	9.07	0:10:15	2,155.71	67.37	3.85	0:17:15	1,967.02	122.94	2.04	0:24:15	1,339.92	167.49	1.56	0:31:15	195.14	195.14	1.34
0:03:20	1,952.76	30.51	8.57	0:10:20	2,132.59	66.64	3.96	0:17:20	2,088.19	130.51	2.00	0:24:20	1,452.64	181.58	1.41	0:31:20	212.18	212.18	1.23
0:03:25	1,930.80	30.17	8.70	0:10:25	2,153.15	67.29	3.89	0:17:25	2,097.15	131.07	1.99	0:24:25	1,486.09	185.76	1.43	0:31:25	200.96	200.96	1.30
0:03:30	1,881.41	29.40	8.93	0:10:30	2,089.08	65.28	4.01	0:17:30	2,116.50	132.28	1.98	0:24:30	1,352.72	169.09	1.48	0:31:30	179.78	179.78	1.45
0:03:35	1,825.52	28.52	9.18	0:10:35	2,138.47	66.83	3.91	0:17:35	2,067.69	129.23	2.02	0:24:35	1,473.35	184.17	1.42	0:31:35	207.09	207.09	1.26
0:03:40	1,796.63	28.07	9.33	0:10:40	2,176.53	68.02	3.86	0:17:40	2,021.86	126.37	2.07	0:24:40	1,453.96	181.74	1.44	0:31:40	191.10	191.10	1.37
0:03:45	1,775.19	27.74	9.45	0:10:45	2,113.40	66.04	3.95	0:17:45	2,071.15	129.45	2.02	0:24:45	1,458.88	182.36	1.43	0:31:45	192.26	192.26	1.36
0:03:50	1,802.19	28.16	9.32	0:10:50	2,070.78	64.71	4.04	0:17:50	2,093.74	130.86	2.00	0:24:50	1,478.39	184.80	1.41	0:31:50	184.71	184.71	1.41
0:03:55	1,879.57	29.37	8.89	0:10:55	2,044.83	63.90	4.10	0:17:55	2,132.44	133.28	1.96	0:24:55	1,478.96	184.87	1.41	0:31:55	200.07	200.07	1.25
0:04:00	1,863.69	29.12	9.02	0:11:00	2,098.67	65.58	3.98	0:18:00	2,074.14	129.63	2.02	0:25:00	1,444.36	180.55	1.45	0:32:00	199.65	199.65	1.31
0:04:05	1,858.13	29.03	9.04	0:11:05	2,071.78	64.74	4.06	0:18:05	2,076.76	129.80	2.01	0:25:05	1,511.89	188.99	1.38	0:32:05	206.05	206.05	1.27
0:04:10	1,890.06	29.53	8.84	0:11:10	2,091.12	65.35	4.01	0:18:10	2,092.22	130.76	2.00	0:25:10	1,493.54	186.69	1.40	0:32:10	211.29	211.29	1.23
0:04:15	1,875.43	29.30	8.95	0:11:15	2,106.64	65.83	3.98	0:18:15	2,130.23	133.14	1.96	0:25:15	1,501.51	187.69	1.39	0:32:15	205.89	205.89	1.27
0:04:20	1,822.06	28.47	9.21	0:11:20	2,119.96	66.25	3.95	0:18:20	2,048.92	128.06	2.04	0:25:20	1,519.33	189.92	1.37	0:32:20	191.89	191.89	1.36
0:04:25	1,761.50	27.52	9.55	0:11:25	2,101.14	65.66	3.99	0:18:25	2,107.01	131.69	1.99	0:25:25	1,509.58	188.70	1.38	0:32:25	211.34	211.34	1.23
0:04:30	1,802.45	28.16	9.30	0:11:30	2,159.75	67.49	3.88	0:18:30	2,049.55	128.10	2.04	0:25:30	1,463.55	182.94	1.43	0:32:30	192.20	192.20	1.36
0:04:35	1,909.98	29.84	8.78	0:11:35	2,180.25	68.13	3.84	0:18:35	2,087.14	130.45	2.00	0:25:35	1,496.58	187.07	1.40	0:32:35	205.26	205.26	1.27
0:04:40	1,895.93	29.62	8.75	0:11:40	2,116.45	66.14	3.96	0:18:40	2,117.65	132.35	1.98	0:25:40	1,483.79	185.47	1.41	0:32:40	214.28	214.28	1.22
0:04:45	1,836.11	28.69	9.23	0:11:45	2,086.25	65.20	4.01	0:18:45	2,093.74	130.86	2.00	0:25:45	1,415.42	176.93	1.48	0:32:45	190.37	190.37	1.37
0:04:50	1,893.78	29.59	8.86	0:11:50	2,155.40	67.36	3.89	0:18:50	2,112.46	132.03	1.98	0:25:50	1,484.89	185.61	1.41	0:32:50	201.17	201.17	1.30
0:04:55	1,920.41	30.01	8.71	0:11:55	2,111.88	66.00	3.94	0:18:55	2,033.77	127.11	2.05	0:25:55	1,494.01	186.75	1.40	0:32:55	207.83	207.83	1.25
0:05:00	1,908.36	29.82	8.80	0:12:00	2,137.52	66.80	3.95	0:19:00	2,097.52	131.09	2.00	0:26:00	1,493.64	186.71	1.40	0:33:00	192.73	192.73	1.35
0:05:05	1,838.31	28.72	9.12	0:12:05	2,130.34	66.57	3.89	0:19:05	2,066.74	129.17	2.02	0:26:05	1,498.83	187.35	1.39	0:33:05	189.48	189.48	1.38
0:05:10	1,939.81	30.31	8.65	0:12:10	2,168.66	67.77	3.90	0:19:10	2,086.77	130.42	2.01	0:26:10	1,493.85	186.73	1.40	0:33:10	200.44	200.44	1.30
0:05:15	1,879.52	29.37	8.93	0:12:15	2,090.91	65.34	4.01	0:19:15	2,060.19	128.76	2.03	0:26:15	1,450.97	181.37	1.44	0:33:15	213.75	213.75	1.22
0:05:20	1,884.45	29.44	8.91	0:12:20	2,155.03	67.34	3.88	0:19:20	2,106.01	131.63	1.99	0:26:20	1,430.57	178.82	1.46	0:33:20	209.56	209.56	1.25
0:05:25	1,787.66	27.93	9.38	0:12:25	2,128.29	66.51	3.93	0:19:25	2,085.46	130.34	2.00	0:26:25	1,466.43	183.30	1.42	0:33:25	200.80	200.80	1.30
0:05:30	1,853.67	28.96	9.03	0:12:30	2,079.48	64.98	4.04	0:19:30	2,048.55	128.03	2.04	0:26:30	1,499.04	187.38	1.39	0:33:30	203.37	203.37	1.28
0:05:35	1,916.12	29.94	8.78	0:12:35	2,113.35	66.04	3.94	0:19:35	2,071.99	129.50	2.02	0:26:35	1,450.60	181.33	1.44	0:33:35	202.85	202.85	1.29
0:05:40	1,945.74	30.40	8.59	0:12:40	2,056.94	64.28	4.09	0:19:40	2,133.69	133.36	1.96	0:26:40	1,465.65	183.21	1.42	0:33:40	188.22	188.22	1.39
0:05:45	1,884.08	29.44	8.92	0:12:45	2,076.39	64.89	4.05	0:19:45	2,069.31	129.33	2.02	0:26:45	1,486.20	185.77	1.41	0:33:45	201.48	201.48	1.29
0:05:50	1,909.14	29.83	8.80	0:12:50	2,072.56	64.77	4.00	0:19:50	2,075.13	129.70	2.02	0:26:50	1,504.23	188.03	1.39	0:33:50	206.99	206.99	1.26
0:05:55	1,904.06	29.75	8.80	0:12:55	2,055.58	64.24	4.12	0:19:55	2,089.86	130.62	2.00	0:26:55	1,494.64	186.83	1.40	0:33:55	184.03	184.03	1.42
0:06:00	1,920.78	30.01	8.73	0:13:00	2,178.31	68.07	3.84	0:20:00	2,052.27	128.27	2.04	0:27:00	1,449.29	181.16	1.44	0:34:00	207.25	207.25	1.26
0:06:05	1,915.12	29.92	8.75	0:13:05	2,133.90	66.68	3.92	0:20:05	2,014.37	125.90	2.08	0:27:05	1,491.39	186.42	1.40	0:34:05	191.10	191.10	1.37
0:06:10	1,852.36	28.94	9.05	0:13:10	2,092.28	65.38	4.00	0:20:10	2,069.10	129.32	2.02	0:27:10	1,501.77	187.72	1.39	0:34:10	193.36	193.36	1.35
0:06:15	1,921.04	30.02	8.75	0:13:15	2,134.06	66.69	3.94	0:20:15	2,080.95	130.06	2.01	0:27:15	1,463.18	182.90	1.43	0:34:15	183.13	183.13	1.43
0:06:20	1,881.25	29.39	8.91	0:13:20	2,121.06	66.28	3.95	0:20:20	2,087.30	130.46	2.00	0:27:20	1,461.35	182.67	1.43	0:34:20	175.85	175.85	1.48
0:06:25	1,842.82	28.79	9.11	0:13:25	2,146.12	67.07	3.90	0:20:25	2,076.60	129.79	2.01	0:27:25	1,459.51	182.44	1.43	0:34:25	200.91	200.91	1.30
0:06:30	1,862.80	29.11	8.98	0:13:30	2,142.92	66.97	3.91	0:20:30	2,052.06	128.25	2.04	0:27:30	1,472.67	184.08	1.42	0:34:30	174.85	174.85	1.50
0:06:35	1,857.24	29.02	9.04	0:13:35	2,177.26	68.04	3.84	0:20:35	2,023.23	126.45	2.07	0:27:35	1,498.26	187.28	1.39	0:34:35	213.28	213.28	1.22
0:06:40	1,823.26	28.49	9.20	0:13:40	2,119.91	66.25	3.96	0:20:40	2,032.66	127.04	2.06	0:27:40	1,452.07	181.51	1.44	0:34:40	211.03	211.03	1.24
0:06:45	1,829.82	28.59	9.15	0:13:45	2,145.12	67.04	3.90	0:20:45	2,080.37	130.02	2.01	0:27:45	1,469.42	183.68	1.42	0:34:45	213.54	213.54	1.22
0:06:50	87.24	0.00	10.62	0:13:50	114.29	0.00	4.09	0:20:50	116.44	0.00	1.86	0:27:50	81.95	0.00	1.38	0:34:50	11.59	0.00	1.20
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												

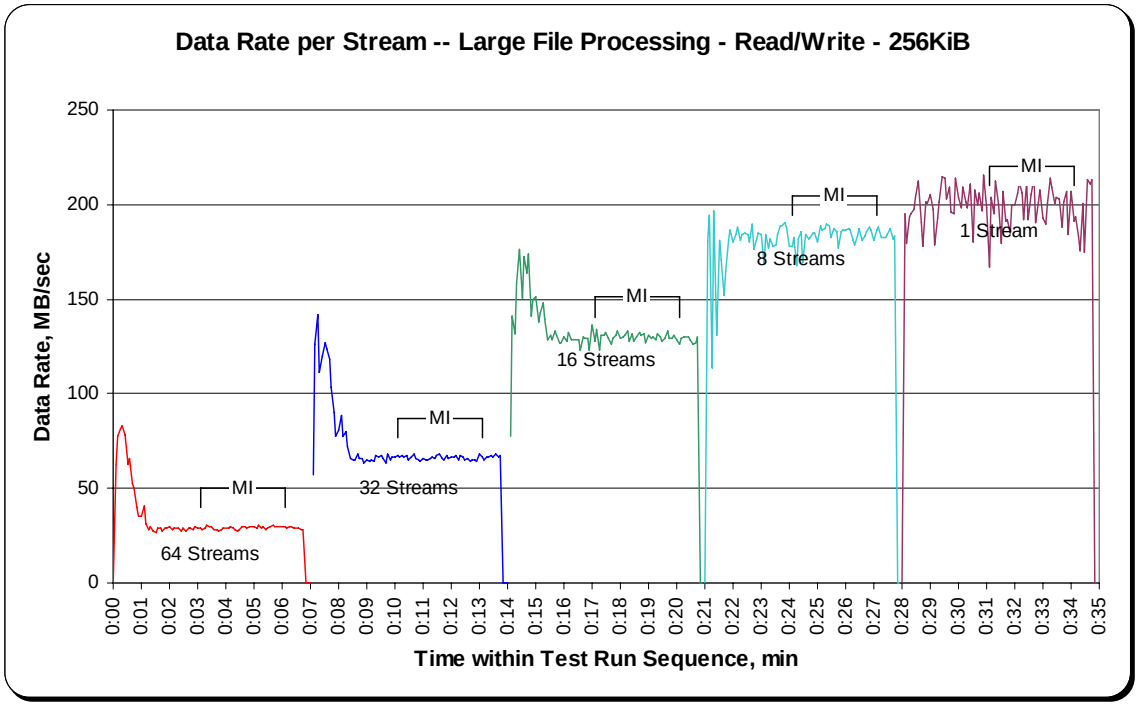
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



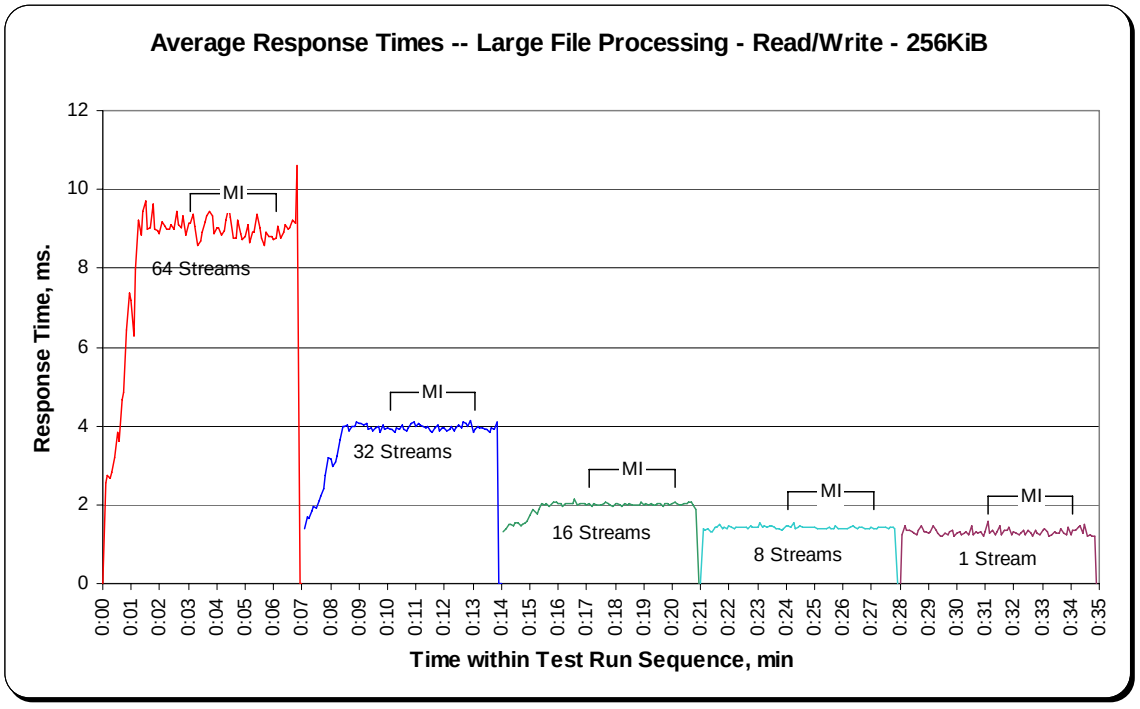
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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.

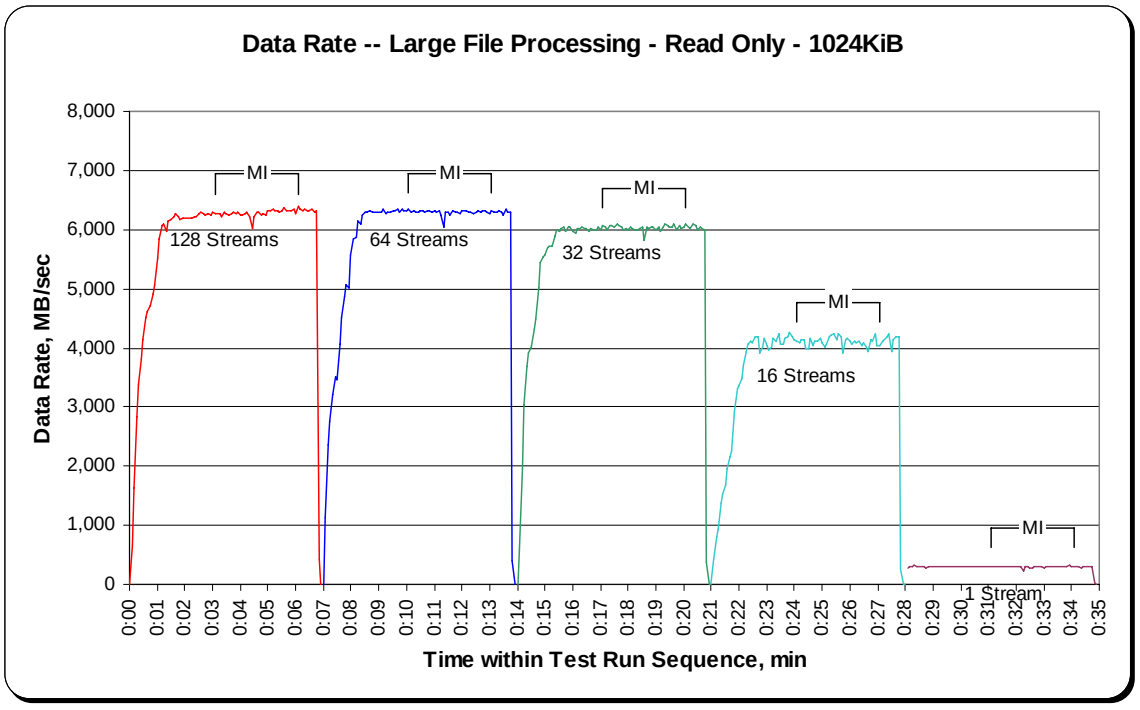
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period

TR21	128 Streams			TR22	64 Streams			TR23	32 Streams			TR24	16 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	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	0:28:05	287.94	287.94	3.43
0:00:05	645.08	46.08	10.71	0:07:05	1,123.44	86.42	6.67	0:14:05	593.91	148.48	3.72	0:21:05	420.27	210.13	3.57	0:28:10	306.60	306.60	3.40
0:00:10	1,641.23	60.79	12.29	0:07:10	2,366.64	139.21	6.83	0:14:10	1,951.40	177.40	4.02	0:21:10	814.74	271.58	3.76	0:28:15	303.67	303.67	3.46
0:00:15	2,839.75	70.99	12.57	0:07:15	2,749.58	144.71	6.71	0:14:15	3,025.14	216.08	4.24	0:21:15	921.28	230.32	3.75	0:28:20	314.36	314.36	3.33
0:00:20	3,378.51	75.08	12.91	0:07:20	3,218.71	139.94	6.88	0:14:20	3,682.39	216.61	4.58	0:21:20	1,386.43	277.29	3.58	0:28:25	308.49	308.49	3.39
0:00:25	3,804.86	66.75	13.56	0:07:25	3,520.07	135.39	7.33	0:14:25	3,915.80	217.54	4.75	0:21:25	1,527.98	254.66	3.82	0:28:30	304.09	304.09	3.44
0:00:30	4,138.94	65.70	15.60	0:07:30	3,454.43	119.12	8.51	0:14:30	4,018.77	211.51	4.85	0:21:30	1,688.63	281.44	3.72	0:28:35	305.14	305.14	3.43
0:00:35	4,520.83	62.79	15.38	0:07:35	4,058.62	122.99	8.10	0:14:35	4,315.94	205.52	5.00	0:21:35	1,956.01	244.50	3.87	0:28:40	300.31	300.31	3.49
0:00:40	4,611.85	60.68	16.63	0:07:40	4,508.04	109.95	8.62	0:14:40	4,491.47	195.28	5.10	0:21:40	2,167.20	270.90	3.87	0:28:45	288.36	288.36	3.63
0:00:45	4,716.29	56.82	17.47	0:07:45	4,873.15	108.29	9.38	0:14:45	5,021.21	179.33	5.24	0:21:45	2,251.29	250.14	3.99	0:28:50	303.88	303.88	3.45
0:00:50	4,918.24	54.05	18.61	0:07:50	5,053.51	109.86	9.38	0:14:50	5,453.64	194.77	5.38	0:21:50	2,943.98	245.33	3.95	0:28:55	309.75	309.75	3.38
0:00:55	5,060.22	51.11	19.53	0:07:55	5,013.87	104.46	9.90	0:14:55	5,544.45	198.02	5.29	0:21:55	3,309.73	254.59	3.98	0:29:00	312.69	312.69	3.35
0:01:00	5,529.77	52.66	19.26	0:08:00	5,560.18	101.09	9.88	0:15:00	5,572.55	192.16	5.33	0:22:00	3,348.52	257.58	4.07	0:29:05	309.33	309.33	3.38
0:01:05	5,834.49	52.09	19.34	0:08:05	5,851.47	104.49	10.00	0:15:05	5,689.78	196.20	5.34	0:22:05	3,486.10	249.01	3.97	0:29:10	302.83	302.83	3.46
0:01:10	6,068.32	50.99	20.00	0:08:10	5,879.37	103.15	10.01	0:15:10	5,713.06	197.00	5.31	0:22:10	3,704.83	264.63	3.95	0:29:15	308.91	308.91	3.39
0:01:15	6,086.77	49.49	20.69	0:08:15	6,147.17	102.45	10.13	0:15:15	5,729.84	190.99	5.34	0:22:15	3,946.21	246.64	4.02	0:29:20	305.97	305.97	3.42
0:01:20	5,978.98	48.22	21.23	0:08:20	6,103.97	101.73	10.30	0:15:20	5,884.82	189.83	5.40	0:22:20	4,070.99	254.44	4.12	0:29:25	306.60	306.60	3.41
0:01:25	6,141.30	48.36	20.69	0:08:25	6,244.90	100.72	10.21	0:15:25	5,983.38	193.01	5.43	0:22:25	4,111.47	256.97	4.07	0:29:30	302.20	302.20	3.46
0:01:30	6,161.01	48.13	22.57	0:08:30	6,297.12	98.39	10.56	0:15:30	5,956.12	186.13	5.57	0:22:30	4,090.49	255.66	4.10	0:29:35	305.97	305.97	3.42
0:01:35	6,224.14	48.63	20.92	0:08:35	6,304.04	98.50	10.64	0:15:35	6,020.29	188.13	5.57	0:22:35	4,194.51	262.16	4.00	0:29:40	305.14	305.14	3.43
0:01:40	6,259.16	48.90	22.16	0:08:40	6,314.52	98.66	10.61	0:15:40	6,032.67	188.52	5.56	0:22:40	4,188.43	261.78	4.00	0:29:45	308.91	308.91	3.39
0:01:45	6,207.36	48.50	20.94	0:08:45	6,296.07	98.38	10.65	0:15:45	5,960.11	186.25	5.58	0:22:45	3,923.14	245.20	4.27	0:29:50	304.30	304.30	3.44
0:01:50	6,175.27	48.24	22.44	0:08:50	6,294.39	98.35	10.66	0:15:50	6,035.18	188.60	5.60	0:22:50	4,007.03	250.44	4.18	0:29:55	288.57	288.57	3.63
0:01:55	6,204.42	48.47	20.96	0:08:55	6,287.89	98.25	10.67	0:15:55	6,045.88	188.93	5.54	0:22:55	4,153.41	259.59	4.03	0:30:00	306.81	306.81	3.41
0:02:00	6,191.63	48.37	20.93	0:09:00	6,302.15	98.47	10.65	0:16:00	5,981.08	186.91	5.60	0:23:00	4,046.04	252.88	4.14	0:30:05	296.96	296.96	3.53
0:02:05	6,194.15	48.39	22.36	0:09:05	6,295.44	98.37	10.66	0:16:05	5,955.07	186.10	5.64	0:23:05	3,964.67	247.79	4.23	0:30:10	304.51	304.51	3.44
0:02:10	6,190.58	48.36	21.11	0:09:10	6,338.85	99.04	10.58	0:16:10	6,011.91	187.87	5.58	0:23:10	4,021.71	251.36	4.17	0:30:15	298.01	298.01	3.51
0:02:15	6,200.44	48.44	20.77	0:09:15	6,270.48	97.98	10.70	0:16:15	6,029.94	188.44	5.56	0:23:15	4,159.91	259.99	4.03	0:30:20	304.09	304.09	3.44
0:02:20	6,211.97	48.53	23.27	0:09:20	6,304.04	98.50	10.65	0:16:20	6,035.60	188.61	5.55	0:23:20	4,116.92	257.31	4.07	0:30:25	304.51	304.51	3.44
0:02:25	6,221.41	48.60	20.99	0:09:25	6,288.31	98.25	10.67	0:16:25	6,021.55	188.17	5.57	0:23:25	4,231.21	264.45	3.96	0:30:30	302.83	302.83	3.46
0:02:30	6,279.92	49.06	22.15	0:09:30	6,313.69	98.65	10.61	0:16:30	6,014.84	187.96	5.57	0:23:30	4,073.09	254.57	4.11	0:30:35	304.30	304.30	3.44
0:02:35	6,295.86	49.19	20.63	0:09:35	6,308.23	98.57	10.65	0:16:35	5,979.82	186.87	5.61	0:23:35	4,068.06	254.25	4.12	0:30:40	299.68	299.68	3.49
0:02:40	6,273.84	49.01	22.45	0:09:40	6,335.29	98.99	10.59	0:16:40	6,017.78	188.06	5.56	0:23:40	4,167.04	260.44	4.02	0:30:45	300.52	300.52	3.48
0:02:45	6,240.50	48.75	21.57	0:09:45	6,302.15	98.47	10.64	0:16:45	5,985.48	187.05	5.61	0:23:45	4,186.13	261.63	4.00	0:30:50	305.56	305.56	3.43
0:02:50	6,269.86	48.98	21.25	0:09:50	6,336.54	99.01	10.59	0:16:50	5,989.05	187.16	5.60	0:23:50	4,262.25	266.39	3.93	0:30:55	293.60	293.60	3.57
0:02:55	6,242.59	48.77	21.51	0:09:55	6,309.70	98.59	10.63	0:16:55	6,038.96	188.72	5.55	0:23:55	4,195.56	262.22	3.99	0:31:00	312.90	312.90	3.35
0:03:00	6,282.65	49.08	20.72	0:10:00	6,314.31	98.66	10.63	0:17:00	5,988.42	187.14	5.58	0:24:00	4,125.73	257.86	4.06				

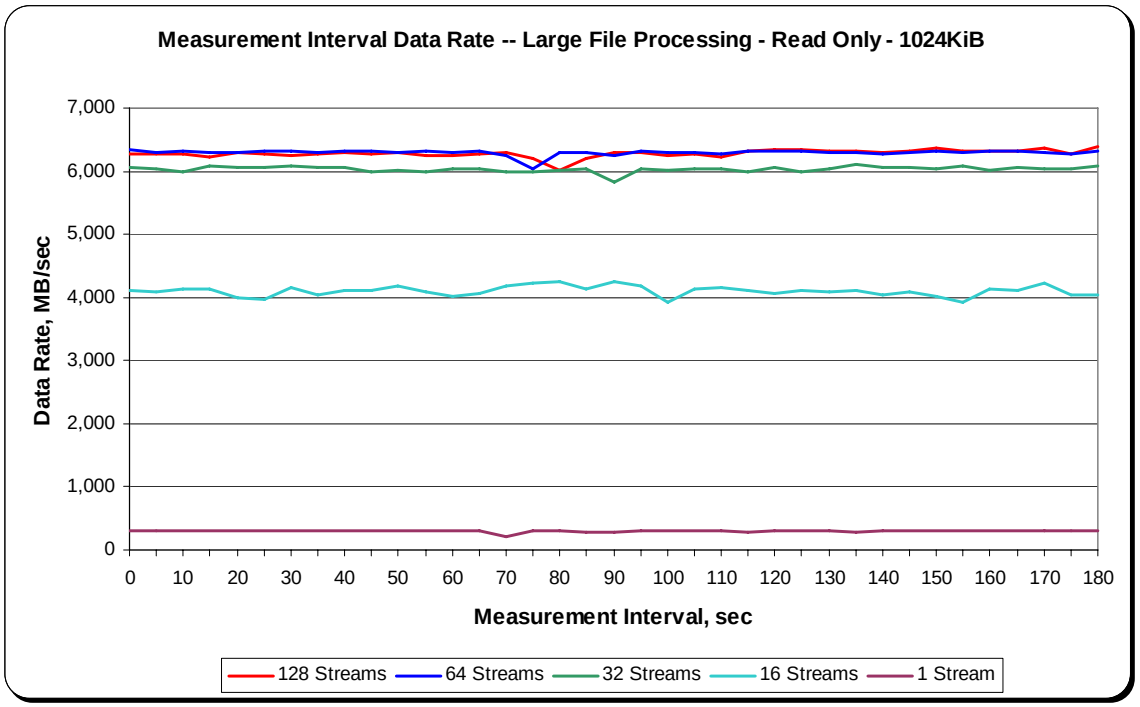
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data
Measurement Interval, Run-Out, and Ramp-Down Periods

TR21	128 Streams			TR22	64 Streams			TR23	32 Streams			TR24	16 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
0:03:05	6,278.66	49.05	21.85	0:10:05	6,332.56	98.95	10.59	0:17:05	6,067.27	189.60	5.55	0:24:05	4,121.95	257.62	4.06	0:31:05	294.65	294.65	3.55
0:03:10	6,263.14	48.93	20.73	0:10:10	6,301.10	98.45	10.59	0:17:10	6,047.56	188.99	5.54	0:24:10	4,081.48	255.09	4.11	0:31:10	312.27	312.27	3.35
0:03:15	6,262.52	48.93	20.82	0:10:15	6,315.78	98.68	10.68	0:17:15	5,989.89	187.18	5.60	0:24:15	4,128.03	258.00	4.06	0:31:15	300.52	300.52	3.49
0:03:20	6,229.17	48.67	22.68	0:10:20	6,305.72	98.53	10.63	0:17:20	6,076.08	189.88	5.52	0:24:20	4,134.12	258.38	4.05	0:31:20	295.07	295.07	3.55
0:03:25	6,289.99	49.14	21.37	0:10:25	6,297.33	98.40	10.65	0:17:25	6,060.35	189.39	5.53	0:24:25	3,981.86	248.87	4.16	0:31:25	299.68	299.68	3.49
0:03:30	6,263.35	48.93	20.79	0:10:30	6,321.24	98.77	10.62	0:17:30	6,051.96	189.12	5.54	0:24:30	3,981.23	248.83	4.26	0:31:30	298.22	298.22	3.51
0:03:35	6,244.69	48.79	21.25	0:10:35	6,318.30	98.72	10.61	0:17:35	6,085.10	190.16	5.51	0:24:35	4,156.35	259.77	4.03	0:31:35	304.09	304.09	3.44
0:03:40	6,276.99	49.04	22.52	0:10:40	6,299.84	98.44	10.66	0:17:40	6,069.58	189.67	5.52	0:24:40	4,040.58	252.54	4.15	0:31:40	303.04	303.04	3.46
0:03:45	6,293.97	49.17	21.04	0:10:45	6,317.46	98.71	10.62	0:17:45	6,056.37	189.26	5.53	0:24:45	4,105.38	256.59	4.08	0:31:45	303.88	303.88	3.45
0:03:50	6,268.39	48.97	20.72	0:10:50	6,309.28	98.58	10.63	0:17:50	5,990.72	187.21	5.60	0:24:50	4,104.13	256.51	4.08	0:31:50	308.91	308.91	3.39
0:03:55	6,292.50	49.16	20.66	0:10:55	6,286.00	98.22	10.68	0:17:55	6,007.71	187.74	5.58	0:24:55	4,173.54	260.85	4.01	0:31:55	308.07	308.07	3.40
0:04:00	6,240.91	48.76	23.00	0:11:00	6,319.77	98.75	10.59	0:18:00	6,000.79	187.52	5.59	0:25:00	4,081.48	255.09	4.11	0:32:00	296.75	296.75	3.53
0:04:05	6,247.84	48.81	20.83	0:11:05	6,286.42	98.23	10.70	0:18:05	6,046.93	188.97	5.54	0:25:05	4,010.80	250.68	4.18	0:32:05	306.18	306.18	3.42
0:04:10	6,274.47	49.02	22.09	0:11:10	6,313.90	98.65	10.63	0:18:10	6,030.36	188.45	5.56	0:25:10	4,052.33	253.27	4.13	0:32:10	305.56	305.56	3.43
0:04:15	6,294.39	49.17	20.68	0:11:15	6,255.80	97.75	10.72	0:18:15	5,981.50	186.92	5.60	0:25:15	4,192.84	262.05	4.00	0:32:15	216.43	216.43	4.84
0:04:20	6,210.30	48.52	22.74	0:11:20	6,041.89	94.40	10.65	0:18:20	6,000.16	187.51	5.59	0:25:20	4,216.53	263.53	3.97	0:32:20	312.06	312.06	3.36
0:04:25	6,016.31	47.00	21.39	0:11:25	6,299.63	98.43	10.65	0:18:25	6,007.50	187.73	5.58	0:25:25	4,244.22	265.26	3.95	0:32:25	299.05	299.05	3.50
0:04:30	6,207.57	48.50	20.76	0:11:30	6,289.57	98.27	10.67	0:18:30	6,038.75	188.71	5.55	0:25:30	4,143.76	258.99	4.04	0:32:30	282.91	282.91	3.70
0:04:35	6,296.70	49.19	20.72	0:11:35	6,252.24	97.69	10.73	0:18:35	5,820.44	181.89	5.53	0:25:35	4,242.12	265.13	3.95	0:32:35	284.16	284.16	3.69
0:04:40	6,289.36	49.14	20.68	0:11:40	6,315.57	98.68	10.62	0:18:40	6,046.93	188.97	5.54	0:25:40	4,187.80	261.74	4.00	0:32:40	303.04	303.04	3.45
0:04:45	6,238.82	48.74	23.21	0:11:45	6,296.07	98.38	10.66	0:18:45	6,023.23	188.23	5.57	0:25:45	3,922.09	245.13	4.10	0:32:45	294.44	294.44	3.56
0:04:50	6,265.87	48.95	21.29	0:11:50	6,303.83	98.50	10.63	0:18:50	6,047.77	188.99	5.54	0:25:50	4,136.42	258.53	4.05	0:32:50	306.39	306.39	3.42
0:04:55	6,233.16	48.70	20.89	0:11:55	6,272.16	98.00	10.70	0:18:55	6,043.78	188.87	5.55	0:25:55	4,167.46	260.47	4.02	0:32:55	309.96	309.96	3.38
0:05:00	6,312.01	49.31	22.49	0:12:00	6,307.39	98.55	10.64	0:19:00	5,998.48	187.45	5.59	0:26:00	4,110.63	256.91	4.08	0:33:00	286.05	286.05	3.66
0:05:05	6,331.30	49.46	21.20	0:12:05	6,320.19	98.75	10.61	0:19:05	6,051.96	189.12	5.54	0:26:05	4,068.68	254.29	4.12	0:33:05	302.20	302.20	3.46
0:05:10	6,340.74	49.54	21.16	0:12:10	6,312.22	98.63	10.64	0:19:10	5,979.82	186.87	5.61	0:26:10	4,102.66	256.42	4.09	0:33:10	308.49	308.49	3.39
0:05:15	6,309.91	49.30	21.28	0:12:15	6,305.51	98.52	10.63	0:19:15	6,031.83	188.49	5.56	0:26:15	4,079.17	254.95	4.11	0:33:15	303.25	303.25	3.45
0:05:20	6,318.72	49.36	21.25	0:12:20	6,293.34	98.33	10.66	0:19:20	6,095.79	190.49	5.50	0:26:20	4,106.01	256.63	4.08	0:33:20	292.13	292.13	3.44
0:05:25	6,289.36	49.14	21.32	0:12:25	6,270.90	97.98	10.70	0:19:25	6,060.14	189.38	5.53	0:26:25	4,044.36	252.77	4.14	0:33:25	307.44	307.44	3.41
0:05:30	6,319.35	49.37	21.26	0:12:30	6,299.01	98.42	10.65	0:19:30	6,049.03	189.03	5.54	0:26:30	4,084.20	255.26	4.10	0:33:30	300.52	300.52	3.48
0:05:35	6,360.66	49.69	21.10	0:12:35	6,315.15	98.67	10.63	0:19:35	6,039.17	188.72	5.55	0:26:35	4,024.43	251.53	4.16	0:33:35	308.28	308.28	3.40
0:05:40	6,319.14	49.37	21.17	0:12:40	6,305.51	98.52	10.64	0:19:40	6,084.05	190.13	5.51	0:26:40	3,926.92	245.43	4.27	0:33:40	307.86	307.86	3.40
0:05:45	6,328.79	49.44	21.26	0:12:45	6,308.02	98.56	10.63	0:19:45	6,002.26	187.57	5.58	0:26:45	4,129.71	258.11	4.06	0:33:45	304.93	304.93	3.43
0:05:50	6,329.83	49.45	21.21	0:12:50	6,313.27	98.64	10.63	0:19:50	6,058.04	189.31	5.53	0:26:50	4,101.19	256.32	4.08	0:33:50	303.67	303.67	3.45
0:05:55	6,355.63	49.65	21.09	0:12:55	6,303.20	98.49	10.60	0:19:55	6,027.21	188.35	5.56	0:26:55	4,239.60	264.98	3.95	0:33:55	314.78	314.78	3.33
0:06:00	6,274.47	49.02	21.44	0:13:00	6,279.92	98.12	10.72	0:20:00	6,045.88	188.93	5.54	0:27:00	4,047.50	252.97	4.14	0:34:00	303.25	303.25	3.45
0:06:05	6,384.15	49.88	21.00	0:13:05	6,328.37	98.88	10.60	0:20:05	6,093.90	190.43	5.50	0:27:05	4,038.07	252.38	4.15	0:34:05	297.38	297.38	3.52
0:06:10	6,347.45	49.59	21.14	0:13:10	6,292.92	98.33	10.66	0:20:10	6,055.11	189.22	5.54	0:27:10	4,117.13	257.32	4.07	0:34:10	312.90	312.90	3.35
0:06:15	6,313.90	49.33	21.27	0:13:15	6,283.28	98.18	10.68	0:20:15	6,028.89	188.40	5.56	0:27:15	4,131.39	258.21	4.06	0:34:15	303.46	303.46	3.45
0:06:20	6,337.38	49.51	21.17	0:13:20	6,311.38	98.62	10.63	0:20:20	6,091.60	190.36	5.50	0:27:20	4,196.19	262.26	3.98	0:34:20	281.44	281.44	3.72
0:06:25	6,328.37	49.44	21.21	0:13:25	6,303.20	98.49	10.64	0:20:25	6,058.46	189.33	5.53	0:27:25	4,243.59	265.22	3.97	0:34:25	308.91	308.91	3.39
0:06:30	6,317.67	49.36	21.24	0:13:30	6,235.25	97.43	10.70	0:20:30	5,999.74	187.49	5.58	0:27:30	3,945.37	246.59	4.25	0:34:30	308.28	308.28	3.40
0:06:35	6,352.48	49.63	21.16	0:13:35	6,338.43	99.04	10.64	0:20:35	6,056.16	189.25	5.54	0:27:35	4,131.18	258.20	4.06	0:34:35	304.51	304.51	3.44
0:06:40	6,282.23	49.08	21.31	0:13:40	6,307.18	98.55	10.63	0:20:40	6,021.55	188.17	5.57	0:27:40	4,186.75	261.67	4.00	0:34:40	301.78	301.78	3.47
0:06:45	6,319.98	49.37	21.23	0:13:45	6,306.97	98.55	10.63	0:20:45	6,004.57	187.64	5.56	0:27:45	4,185.08	261.57	4.00	0:34:45	307.65	307.65	3.40
0:06:50	431.38	0.00	22.67	0:13:50	408.53	0.00	10.64	0:20:50	366.58	0.00	5.94	0:27:50	252.29	0.00	4.22	0:34:50	19.50	0.00	3.28
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
												0:28:00	0.00	0.00	0.00				

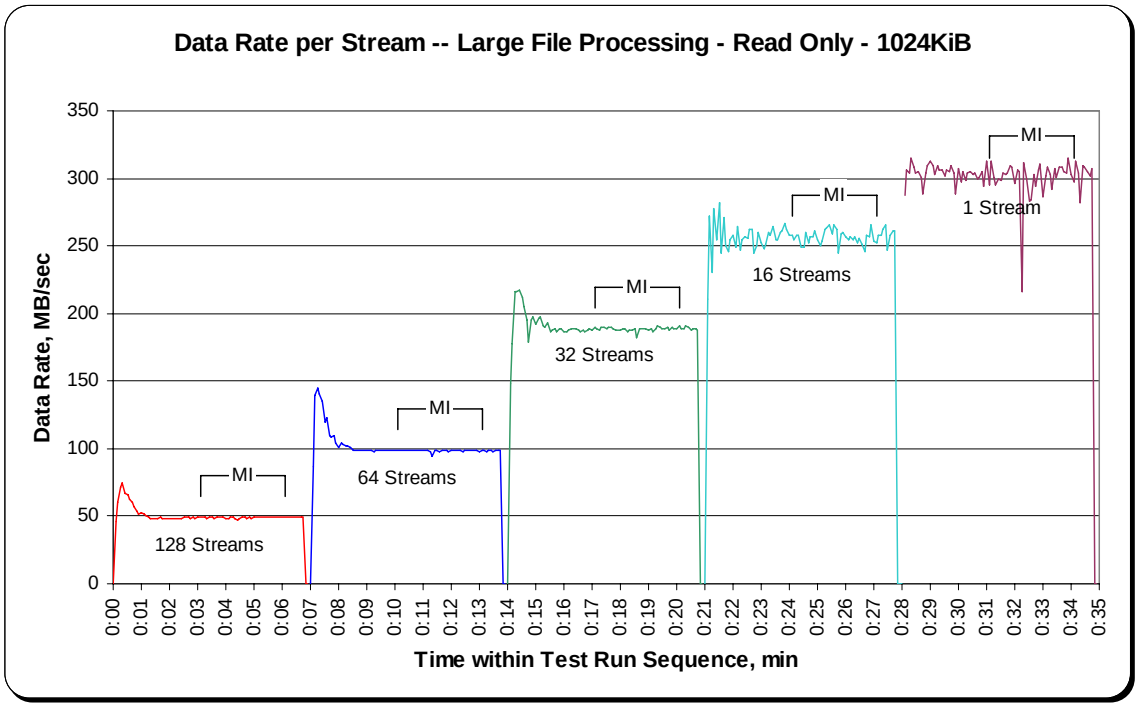
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



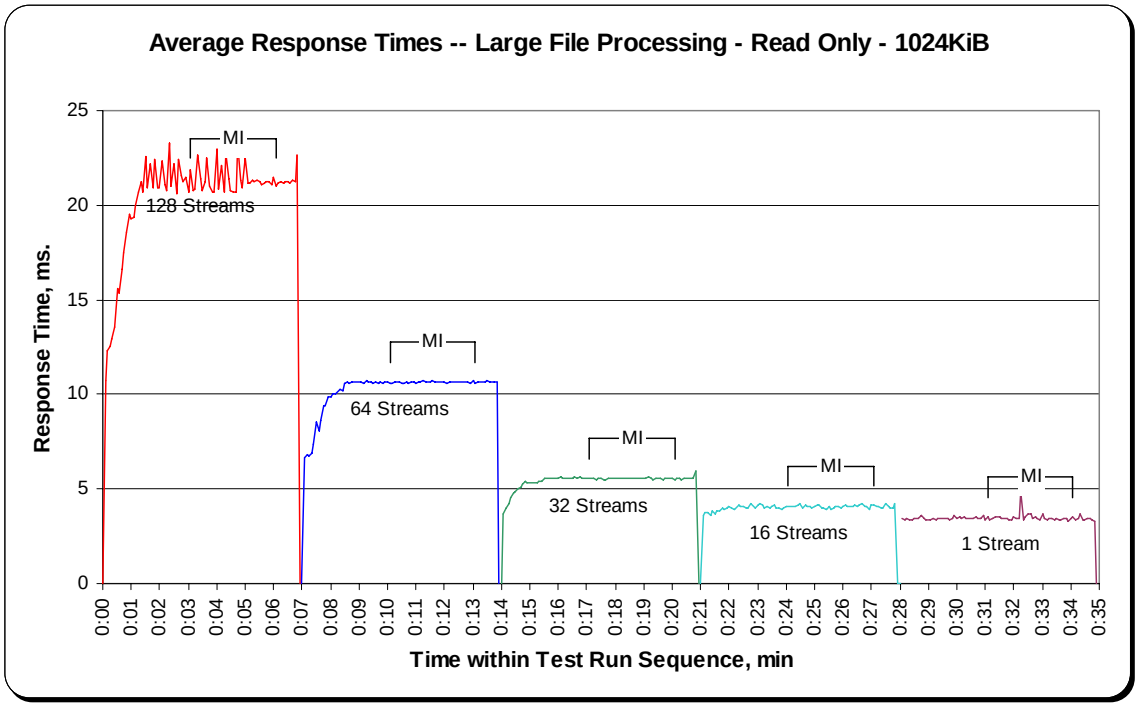
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



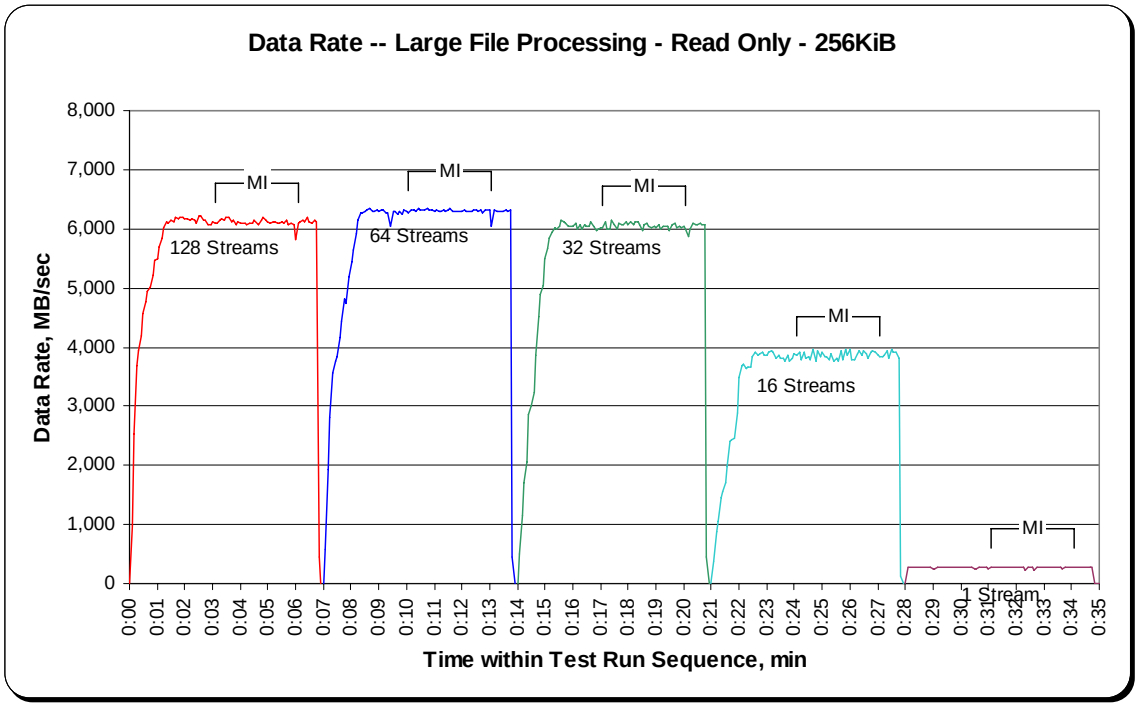
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR26	128 Streams			TR27	64 Streams			TR28	32 Streams			TR29	16 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	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
0:00:05	968.94	48.45	2.57	0:07:05	567.65	81.09	1.44	0:14:05	495.03	165.01	0.97	0:21:05	376.33	125.44	1.03	0:28:05	273.57	273.57	0.93
0:00:10	2,529.53	70.26	2.98	0:07:10	1,937.45	138.39	1.61	0:14:10	1,163.34	166.19	1.05	0:21:10	875.98	219.00	1.02	0:28:10	278.92	278.92	0.93
0:00:15	3,674.58	78.18	3.06	0:07:15	2,819.94	128.18	1.63	0:14:15	1,708.50	244.07	1.07	0:21:15	1,044.38	208.88	1.00	0:28:15	267.07	267.07	0.94
0:00:20	3,949.78	75.96	3.28	0:07:20	3,559.76	148.32	1.67	0:14:20	2,066.95	187.90	1.06	0:21:20	1,458.36	243.06	1.03	0:28:20	277.35	277.35	0.94
0:00:25	4,191.05	65.49	3.62	0:07:25	3,757.94	144.54	1.73	0:14:25	2,848.46	219.11	1.09	0:21:25	1,544.71	220.67	1.08	0:28:25	279.66	279.66	0.93
0:00:30	4,554.23	66.97	3.75	0:07:30	3,842.40	132.50	1.88	0:14:30	3,011.93	215.14	1.17	0:21:30	1,699.79	242.83	1.07	0:28:30	272.47	272.47	0.96
0:00:35	4,756.08	63.41	3.91	0:07:35	4,175.48	130.48	1.89	0:14:35	3,244.24	216.28	1.16	0:21:35	1,970.75	218.97	1.04	0:28:35	277.72	277.72	0.94
0:00:40	4,942.62	59.55	4.23	0:07:40	4,433.64	116.67	2.06	0:14:40	3,863.06	183.96	1.22	0:21:40	2,397.52	239.75	1.08	0:28:40	276.98	276.98	0.94
0:00:45	5,003.86	57.52	4.48	0:07:45	4,820.04	112.09	2.20	0:14:45	4,521.56	188.40	1.30	0:21:45	2,439.09	243.91	1.07	0:28:45	277.30	277.30	0.94
0:00:50	5,219.86	54.95	4.56	0:07:50	4,746.59	105.48	2.40	0:14:50	4,879.50	195.18	1.32	0:21:50	2,446.12	244.61	1.07	0:28:50	281.23	281.23	0.93
0:00:55	5,459.78	55.15	4.67	0:07:55	5,180.12	107.92	2.29	0:14:55	5,038.30	201.53	1.29	0:21:55	2,889.46	206.39	1.05	0:28:55	271.63	271.63	0.96
0:01:00	5,496.37	53.89	4.78	0:08:00	5,443.79	106.74	2.39	0:15:00	5,481.06	189.00	1.32	0:22:00	3,492.49	232.83	1.06	0:29:00	259.89	259.89	1.00
0:01:05	5,687.06	53.65	4.78	0:08:05	5,638.40	104.41	2.44	0:15:05	5,667.08	188.90	1.33	0:22:05	3,683.60	245.57	1.06	0:29:05	243.64	243.64	1.07
0:01:10	5,844.92	51.72	4.90	0:08:10	5,910.93	101.91	2.46	0:15:10	5,833.80	188.19	1.36	0:22:10	3,715.94	247.73	1.05	0:29:10	279.13	279.13	0.93
0:01:15	6,020.50	50.17	5.01	0:08:15	6,132.28	103.94	2.51	0:15:15	5,951.82	191.99	1.36	0:22:15	3,631.01	242.07	1.08	0:29:15	280.44	280.44	0.93
0:01:20	6,118.34	50.15	5.17	0:08:20	6,272.21	101.16	2.56	0:15:20	6,010.96	193.90	1.35	0:22:20	3,666.03	244.40	1.07	0:29:20	282.64	282.64	0.92
0:01:25	6,100.41	48.80	5.32	0:08:25	6,270.22	97.97	2.60	0:15:25	5,986.32	193.11	1.35	0:22:25	3,650.62	228.16	1.08	0:29:25	281.60	281.60	0.93
0:01:30	6,139.88	47.97	5.36	0:08:30	6,297.90	98.40	2.66	0:15:30	6,047.19	188.97	1.36	0:22:30	3,834.96	239.68	1.09	0:29:30	272.26	272.26	0.96
0:01:35	6,116.29	47.78	5.46	0:08:35	6,319.87	98.75	2.65	0:15:35	6,146.86	192.09	1.36	0:22:35	3,924.56	245.28	1.06	0:29:35	279.29	279.29	0.93
0:01:40	6,202.43	48.46	5.41	0:08:40	6,349.65	99.21	2.64	0:15:40	6,118.23	191.19	1.36	0:22:40	3,858.08	241.13	1.08	0:29:40	279.18	279.18	0.93
0:01:45	6,169.40	48.20	5.45	0:08:45	6,306.97	98.55	2.65	0:15:45	6,093.96	190.44	1.37	0:22:45	3,888.33	243.02	1.07	0:29:45	282.59	282.59	0.92
0:01:50	6,194.36	48.39	5.41	0:08:50	6,305.72	98.53	2.66	0:15:50	6,045.72	188.93	1.38	0:22:50	3,910.72	244.42	1.06	0:29:50	272.89	272.89	0.95
0:01:55	6,191.26	48.37	5.42	0:08:55	6,325.74	98.84	2.65	0:15:55	6,050.86	189.09	1.38	0:22:55	3,855.98	241.00	1.08	0:29:55	283.38	283.38	0.92
0:02:00	6,181.72	48.29	5.42	0:09:00	6,287.94	98.25	2.66	0:16:00	6,042.52	188.83	1.38	0:23:00	3,858.03	241.13	1.08	0:30:00	279.97	279.97	0.93
0:02:05	6,177.95	48.27	5.41	0:09:05	6,310.38	98.60	2.65	0:16:05	6,081.85	190.06	1.37	0:23:05	3,918.32	244.89	1.06	0:30:05	265.08	265.08	0.98
0:02:10	6,149.90	48.05	5.46	0:09:10	6,314.52	98.66	2.62	0:16:10	5,983.75	186.99	1.40	0:23:10	3,935.15	245.95	1.06	0:30:10	278.76	278.76	0.93
0:02:15	6,168.67	48.19	5.43	0:09:15	6,277.51	98.09	2.58	0:16:15	6,069.21	189.66	1.38	0:23:15	3,903.74	243.98	1.07	0:30:15	278.40	278.40	0.94
0:02:20	6,139.05	47.96	5.44	0:09:20	6,273.68	98.03	2.59	0:16:20	6,002.63	187.58	1.39	0:23:20	3,808.80	238.05	1.10	0:30:20	281.39	281.39	0.93
0:02:25	6,089.03	47.57	5.54	0:09:25	6,031.83	94.25	2.68	0:16:25	6,064.02	189.50	1.38	0:23:25	3,855.61	240.98	1.08	0:30:25	276.72	276.72	0.94
0:02:30	6,207.41	48.50	5.41	0:09:30	6,283.85	98.19	2.59	0:16:30	6,047.24	188.98	1.38	0:23:30	3,811.73	238.23	1.09	0:30:30	262.72	262.72	0.99
0:02:35	6,209.40	48.51	5.38	0:09:35	6,286.11	98.22	2.58	0:16:35	6,055.42	189.23	1.38	0:23:35	3,810.47	238.15	1.09	0:30:35	262.09	262.09	0.99
0:02:40	6,136.79	47.94	5.47	0:09:40	6,245.16	97.58	2.60	0:16:40	6,113.72	191.05	1.37	0:23:40	3,762.92	235.18	1.11	0:30:40	282.49	282.49	0.92
0:02:45	6,154.20	48.08	5.44	0:09:45	6,286.53	98.23	2.58	0:16:45	6,048.97	189.03	1.37	0:23:45	3,863.64	241.48	1.08	0:30:45	276.40	276.40	0.94
0:02:50	6,056.63	47.32	5.53	0:09:50	6,232.74	97.39	2.60	0:16:50	5,967.76	186.49	1.40	0:23:50	3,767.69	235.48	1.11	0:30:50	279.92	279.92	0.93
0:02:55	6,060.77	47.35	5.53	0:09:55	6,310.59	98.60	3.35	0:16:55	5,984.90	187.03	1.40	0:23:55	3,813.78	238.36	1.09	0:30:55	269.90	269.90	0.97
0:03:00	6,128.87	47.88	5.48	0:10:00	6,282.44	98.16	2.66	0:17:00	6,027.06	188.35	1.39	0:24:00	3,877.63	242.35	1.08	0:31:00	238.71	238.71	1.09

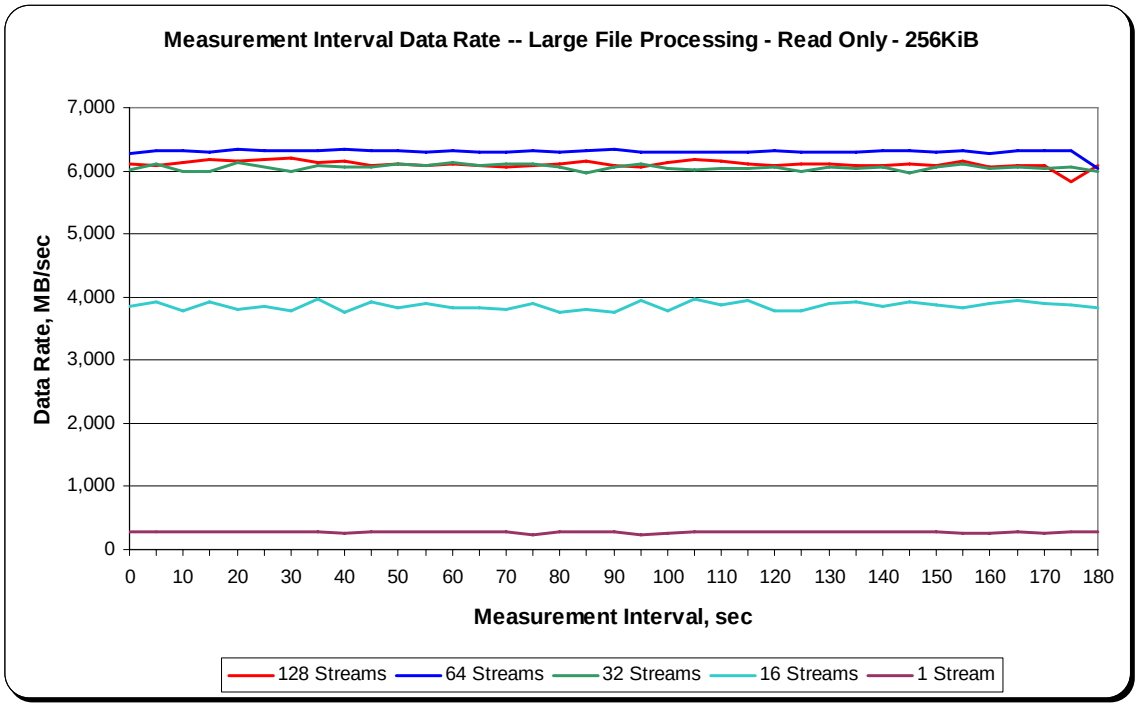
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR26	128 Streams			TR27	64 Streams			TR28	32 Streams			TR29	16 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
0:03:05	6,099.72	47.65	5.47	0:10:05	6,280.71	98.14	2.66	0:17:05	6,007.45	187.73	1.39	0:24:05	3,860.49	241.28	1.08	0:31:05	277.87	277.87	0.94
0:03:10	6,086.98	47.55	5.54	0:10:10	6,311.48	98.62	2.65	0:17:10	6,117.86	191.18	1.36	0:24:10	3,917.85	244.87	1.06	0:31:10	274.05	274.05	0.95
0:03:15	6,140.83	47.98	5.42	0:10:15	6,321.97	98.78	2.65	0:17:15	5,996.60	187.39	1.39	0:24:15	3,793.43	237.09	1.10	0:31:15	277.35	277.35	0.94
0:03:20	6,172.29	48.22	5.48	0:10:20	6,284.54	98.20	2.66	0:17:20	5,991.04	187.22	1.39	0:24:20	3,913.76	244.61	1.07	0:31:20	277.51	277.51	0.94
0:03:25	6,146.91	48.02	5.44	0:10:25	6,333.87	98.97	2.64	0:17:25	6,140.78	191.90	1.36	0:24:25	3,805.75	237.86	1.10	0:31:25	276.14	276.14	0.94
0:03:30	6,186.86	48.33	5.42	0:10:30	6,317.57	98.71	2.65	0:17:30	6,059.72	189.37	1.38	0:24:30	3,846.12	240.38	1.08	0:31:30	276.25	276.25	0.94
0:03:35	6,197.03	48.41	5.40	0:10:35	6,313.37	98.65	2.64	0:17:35	5,985.90	187.06	1.40	0:24:35	3,780.22	236.26	1.10	0:31:35	282.28	282.28	0.92
0:03:40	6,122.74	47.83	5.50	0:10:40	6,315.42	98.68	2.66	0:17:40	6,094.90	190.47	1.37	0:24:40	3,964.61	247.79	1.05	0:31:40	277.09	277.09	0.94
0:03:45	6,154.77	48.08	5.42	0:10:45	6,333.77	98.97	2.64	0:17:45	6,059.93	189.37	1.38	0:24:45	3,768.48	235.53	1.11	0:31:45	268.49	268.49	0.97
0:03:50	6,074.61	47.46	5.54	0:10:50	6,314.52	98.66	2.65	0:17:50	6,062.60	189.46	1.38	0:24:50	3,929.85	245.62	1.06	0:31:50	282.96	282.96	0.92
0:03:55	6,117.03	47.79	5.49	0:10:55	6,317.20	98.71	2.65	0:17:55	6,110.94	190.97	1.37	0:24:55	3,825.00	239.06	1.09	0:31:55	278.55	278.55	0.94
0:04:00	6,081.74	47.51	5.50	0:11:00	6,292.45	98.32	2.66	0:18:00	6,074.14	189.82	1.37	0:25:00	3,909.67	244.35	1.07	0:32:00	278.50	278.50	0.94
0:04:05	6,096.05	47.63	5.47	0:11:05	6,310.33	98.60	2.65	0:18:05	6,121.80	191.31	1.36	0:25:05	3,827.72	239.23	1.09	0:32:05	277.30	277.30	0.94
0:04:10	6,085.73	47.54	5.52	0:11:10	6,304.88	98.51	2.65	0:18:10	6,076.60	189.89	1.37	0:25:10	3,837.95	239.87	1.09	0:32:10	276.35	276.35	0.94
0:04:15	6,061.03	47.35	5.55	0:11:15	6,284.38	98.19	2.67	0:18:15	6,106.64	190.83	1.37	0:25:15	3,794.95	237.18	1.10	0:32:15	278.19	278.19	0.94
0:04:20	6,089.76	47.58	5.50	0:11:20	6,315.47	98.68	2.65	0:18:20	6,111.05	190.97	1.37	0:25:20	3,887.75	242.98	1.07	0:32:20	234.83	234.83	1.11
0:04:25	6,103.55	47.68	5.51	0:11:25	6,294.02	98.34	2.66	0:18:25	6,058.62	189.33	1.38	0:25:25	3,768.90	235.56	1.11	0:32:25	274.15	274.15	0.95
0:04:30	6,143.66	48.00	5.45	0:11:30	6,310.80	98.61	2.65	0:18:30	5,973.21	186.66	1.40	0:25:30	3,810.68	238.17	1.09	0:32:30	280.23	280.23	0.93
0:04:35	6,093.64	47.61	5.48	0:11:35	6,333.03	98.95	2.64	0:18:35	6,059.46	189.36	1.38	0:25:35	3,758.25	234.89	1.11	0:32:35	280.86	280.86	0.93
0:04:40	6,059.93	47.34	5.57	0:11:40	6,299.32	98.43	2.66	0:18:40	6,104.18	190.76	1.37	0:25:40	3,936.98	246.06	1.06	0:32:40	226.34	226.34	1.15
0:04:45	6,138.89	47.96	5.45	0:11:45	6,301.94	98.47	2.66	0:18:45	6,040.27	188.76	1.38	0:25:45	3,778.44	236.15	1.10	0:32:45	265.76	265.76	0.98
0:04:50	6,186.39	48.33	5.41	0:11:50	6,301.47	98.46	2.66	0:18:50	6,010.28	187.82	1.39	0:25:50	3,958.43	247.40	1.05	0:32:50	282.22	282.22	0.92
0:04:55	6,152.94	48.07	5.45	0:11:55	6,295.76	98.37	2.66	0:18:55	6,042.26	188.82	1.38	0:25:55	3,864.79	241.55	1.08	0:32:55	275.09	275.09	0.95
0:05:00	6,113.09	47.76	5.47	0:12:00	6,299.74	98.43	2.66	0:19:00	6,025.33	188.29	1.39	0:26:00	3,957.59	247.35	1.05	0:33:00	273.15	273.15	0.95
0:05:05	6,092.75	47.60	5.51	0:12:05	6,321.55	98.77	2.65	0:19:05	6,062.29	189.45	1.38	0:26:05	3,776.50	236.03	1.10	0:33:05	277.56	277.56	0.94
0:05:10	6,115.87	47.78	5.48	0:12:10	6,288.89	98.26	2.66	0:19:10	5,992.87	187.28	1.39	0:26:10	3,783.58	236.47	1.10	0:33:10	279.24	279.24	0.93
0:05:15	6,115.56	47.78	5.48	0:12:15	6,303.78	98.50	2.66	0:19:15	6,054.79	189.21	1.38	0:26:15	3,898.55	243.66	1.07	0:33:15	281.07	281.07	0.93
0:05:20	6,082.79	47.52	5.52	0:12:20	6,304.88	98.51	2.66	0:19:20	6,034.92	188.59	1.38	0:26:20	3,928.49	245.53	1.06	0:33:20	280.60	280.60	0.93
0:05:25	6,094.48	47.61	5.51	0:12:25	6,312.17	98.63	2.65	0:19:25	6,052.54	189.14	1.38	0:26:25	3,855.72	240.98	1.08	0:33:25	281.18	281.18	0.93
0:05:30	6,107.22	47.71	5.49	0:12:30	6,308.91	98.58	2.65	0:19:30	5,961.47	186.30	1.40	0:26:30	3,924.82	245.30	1.06	0:33:30	278.13	278.13	0.94
0:05:35	6,085.94	47.55	5.50	0:12:35	6,301.21	98.46	2.66	0:19:35	6,069.58	189.67	1.38	0:26:35	3,881.99	242.62	1.08	0:33:35	276.40	276.40	0.94
0:05:40	6,151.47	48.06	5.45	0:12:40	6,313.90	98.65	2.65	0:19:40	6,102.40	190.70	1.37	0:26:40	3,823.42	238.96	1.09	0:33:40	253.28	253.28	1.03
0:05:45	6,070.10	47.42	5.51	0:12:45	6,274.26	98.04	2.67	0:19:45	6,025.54	188.30	1.39	0:26:45	3,902.54	243.91	1.07	0:33:45	268.49	268.49	0.97
0:05:50	6,086.88	47.55	5.52	0:12:50	6,307.24	98.55	2.66	0:19:50	6,050.60	189.08	1.38	0:26:50	3,939.19	246.20	1.06	0:33:50	276.88	276.88	0.94
0:05:55	6,077.86	47.48	5.51	0:12:55	6,328.79	98.89	2.65	0:19:55	6,028.94	188.40	1.39	0:26:55	3,903.59	243.97	1.07	0:33:55	268.96	268.96	0.97
0:06:00	5,828.61	45.54	5.54	0:13:00	6,318.93	98.73	2.65	0:20:00	6,055.21	189.23	1.38	0:27:00	3,872.23	242.01	1.08	0:34:00	281.12	281.12	0.93
0:06:05	6,091.65	47.59	5.51	0:13:05	6,045.77	94.47	2.66	0:20:05	6,001.37	187.54	1.39	0:27:05	3,833.33	239.58	1.09	0:34:05	273.10	273.10	0.95
0:06:10	6,114.04	47.77	5.48	0:13:10	6,325.74	98.84	2.65	0:20:10	5,867.04	183.35	1.36	0:27:10	3,831.39	239.46	1.09	0:34:10	273.84	273.84	0.95
0:06:15	6,141.20	47.98	5.47	0:13:15	6,305.56	98.52	2.66	0:20:15	5,986.90	187.09	1.39	0:27:15	3,869.56	241.85	1.08	0:34:15	273.57	273.57	0.95
0:06:20	6,130.81	47.90	5.46	0:13:20	6,306.92	98.55	2.65	0:20:20	6,090.71	190.33	1.38	0:27:20	3,928.59	245.54	1.06	0:34:20	276.67	276.67	0.94
0:06:25	6,187.65	48.34	5.42	0:13:25	6,303.83	98.50	2.66	0:20:25	6,058.62	189.33	1.38	0:27:25	3,820.70	238.79	1.09	0:34:25	279.24	279.24	0.93
0:06:30	6,123.53	47.84	5.47	0:13:30	6,285.79	98.22	2.66	0:20:30	6,058.20	189.32	1.38	0:27:30	3,974.26	248.39	1.05	0:34:30	274.62	274.62	0.95
0:06:35	6,091.07	47.59	5.51	0:13:35	6,323.18	98.80	2.65	0:20:35	6,089.50	190.30	1.37	0:27:35	3,910.61	244.41	1.07	0:34:35	282.22	282.22	0.92
0:06:40	6,149.32	48.04	5.46	0:13:40	6,286.95	98.23	2.66	0:20:40	6,074.19	189.82	1.37	0:27:40	3,901.80	243.86	1.07	0:34:40	280.02	280.02	0.93
0:06:45	6,115.35	47.78	5.48	0:13:45	6,324.38	98.82	2.63	0:20:45	6,061.61	189.43	1.38	0:27:45	3,821.38	238.84	1.09	0:34:45	280.55	280.55	0.93
0:06:50	445.44	0.00	5.96	0:13:50	452.93	0.00	2.81	0:20:50	448.79	0.00	1.33	0:27:50	134.79	0.00	1.09	0:34:50	9.65	0.00	0.90
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
																0:35:00	0.00	0.00	0.00

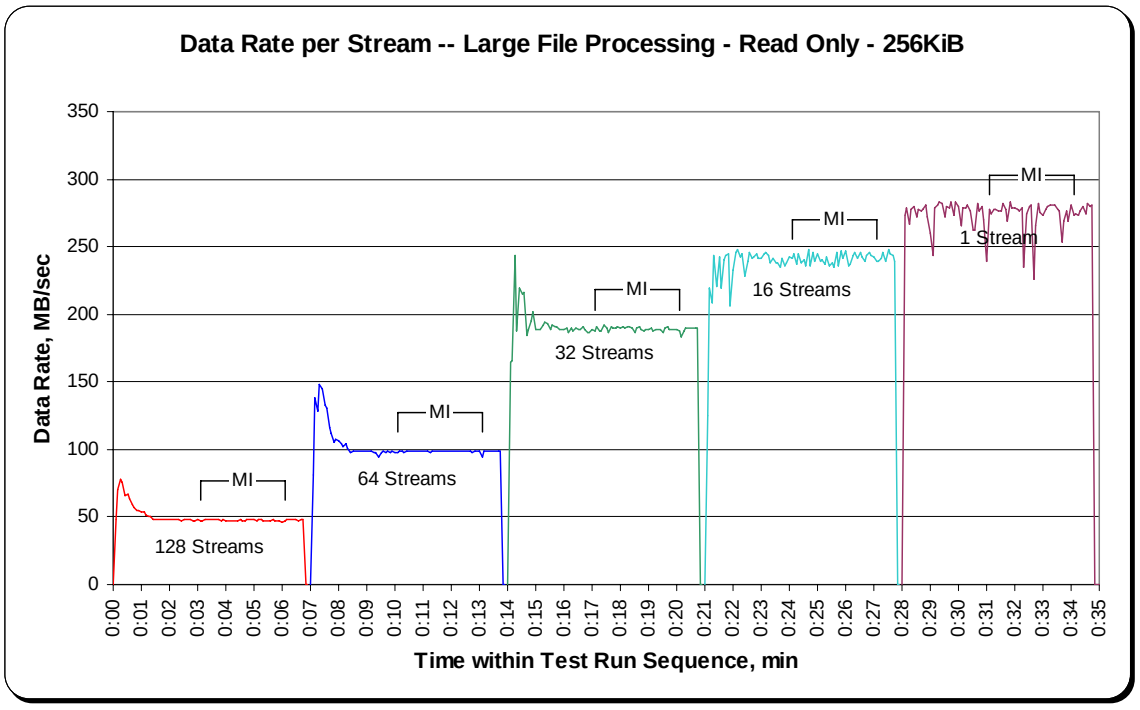
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



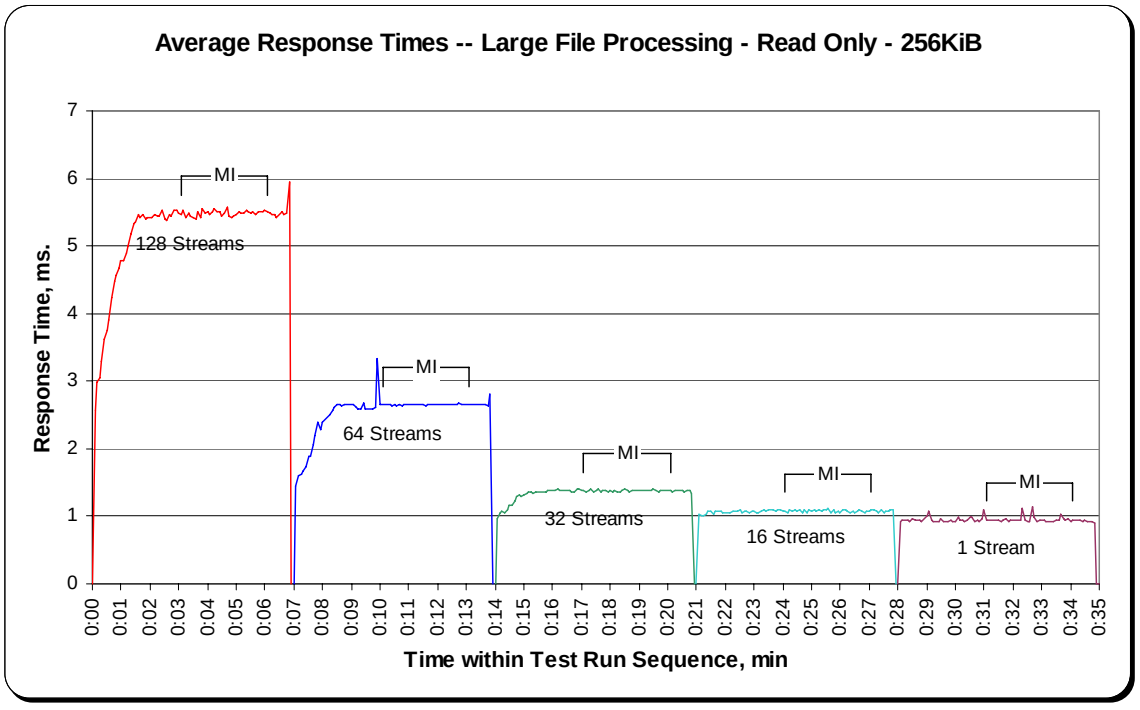
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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 111.

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.

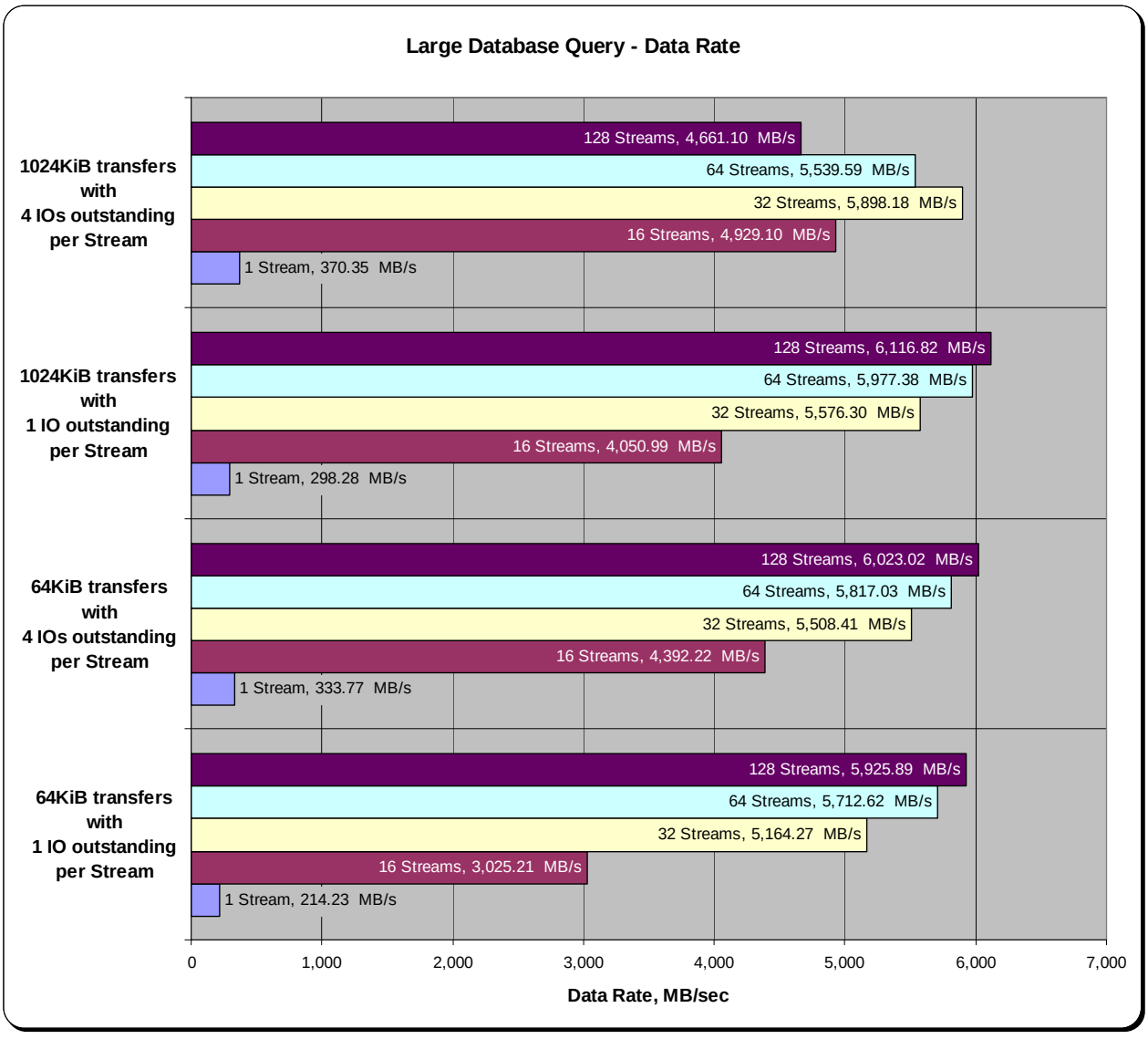
SPC-2 Large Database Query Test Results File

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	16 Streams	32 Streams	64 Streams	128 Streams
1024KiB w/ 4 IOs/Stream	370.35	4,929.10	5,898.18	5,539.59	4,661.10
1024KiB w/ 1 IO/Stream	298.28	4,050.99	5,576.30	5,977.38	6,116.82
64KiB w/ 4 IOs/Stream	333.77	4,392.22	5,508.41	5,817.03	6,023.02
64KiB w/ 1 IO/Stream	214.23	3,025.21	5,164.27	5,712.62	5,925.89

SPC-2 Large Database Query Average Data Rates Graph

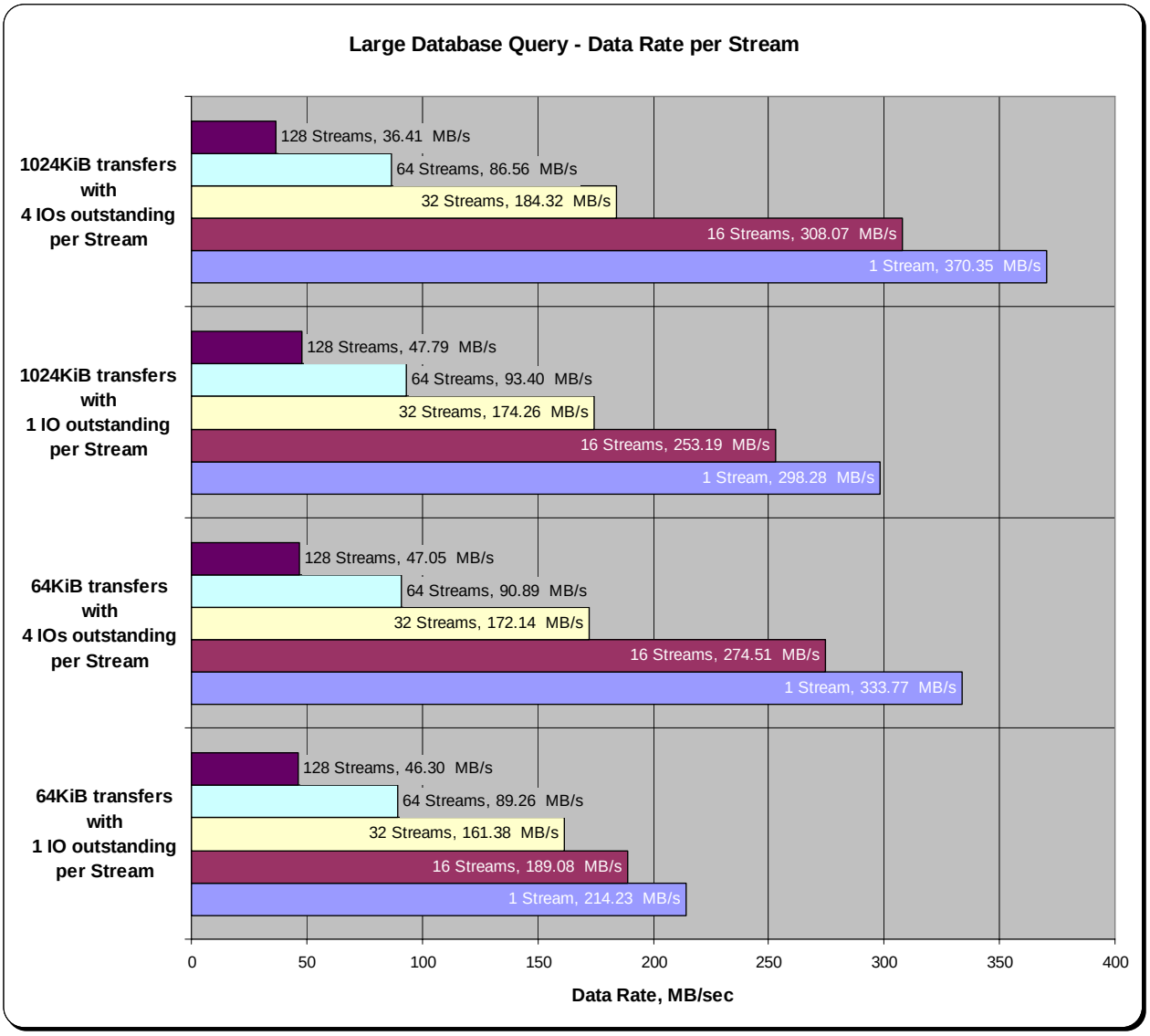


SPC-2 Large Database Query Average Data Rate per Stream

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	16 Streams	32 Streams	64 Streams	128 Streams
1024KiB w/ 4 IOs/Stream	370.35	308.07	184.32	86.56	36.41
1024KiB w/ 1 IO/Stream	298.28	253.19	174.26	93.40	47.79
64KiB w/ 4 IOs/Stream	333.77	274.51	172.14	90.89	47.05
64KiB w/ 1 IO/Stream	214.23	189.08	161.38	89.26	46.30

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

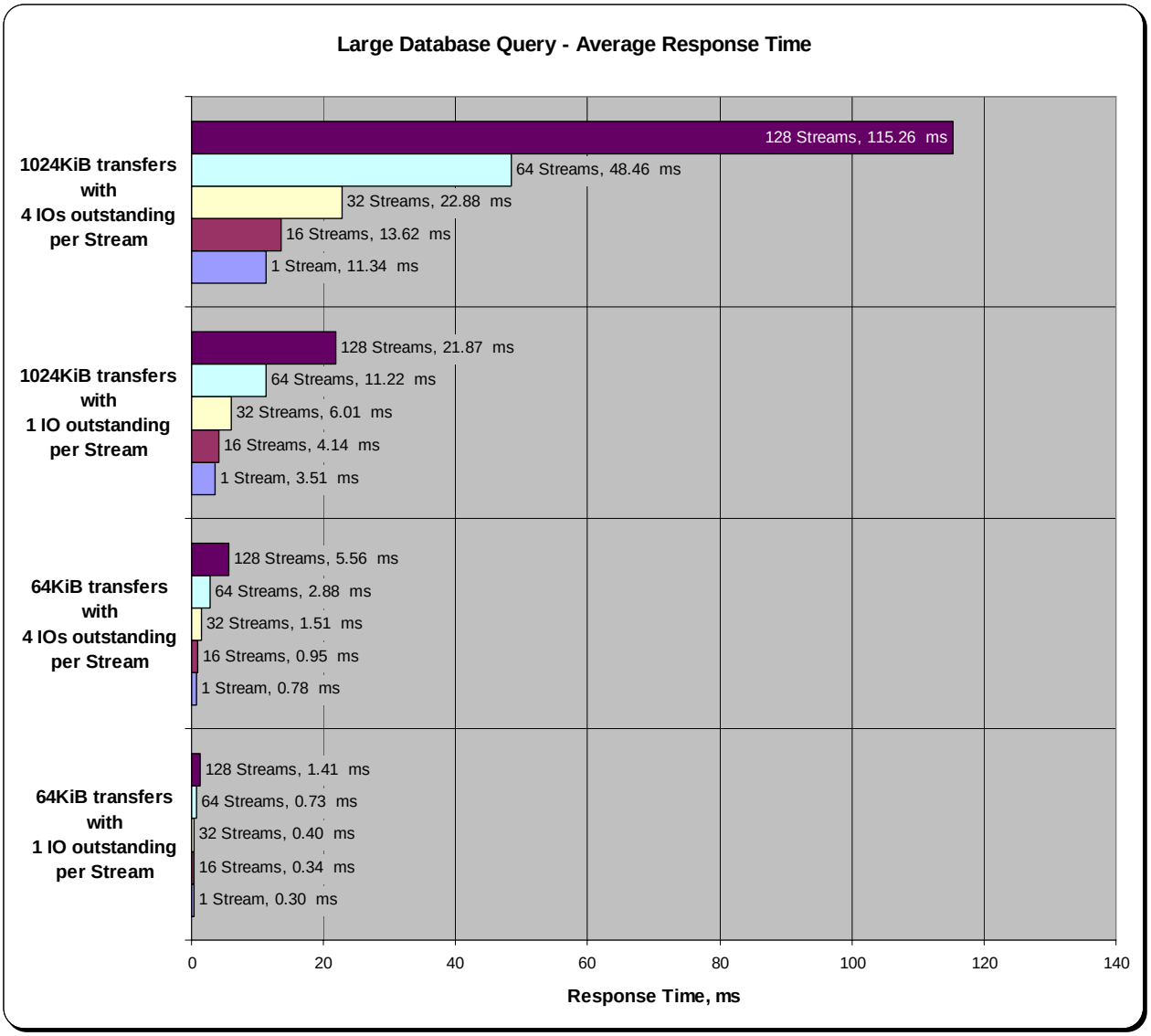


SPC-2 Large Database Query Average Response Time

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	16 Streams	32 Streams	64 Streams	128 Streams
1024KiB w/ 4 IOs/Stream	11.34	13.62	22.88	48.46	115.26
1024KiB w/ 1 IO/Stream	3.51	4.14	6.01	11.22	21.87
64KiB w/ 4 IOs/Stream	0.78	0.95	1.51	2.88	5.56
64KiB w/ 1 IO/Stream	0.30	0.34	0.40	0.73	1.41

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.

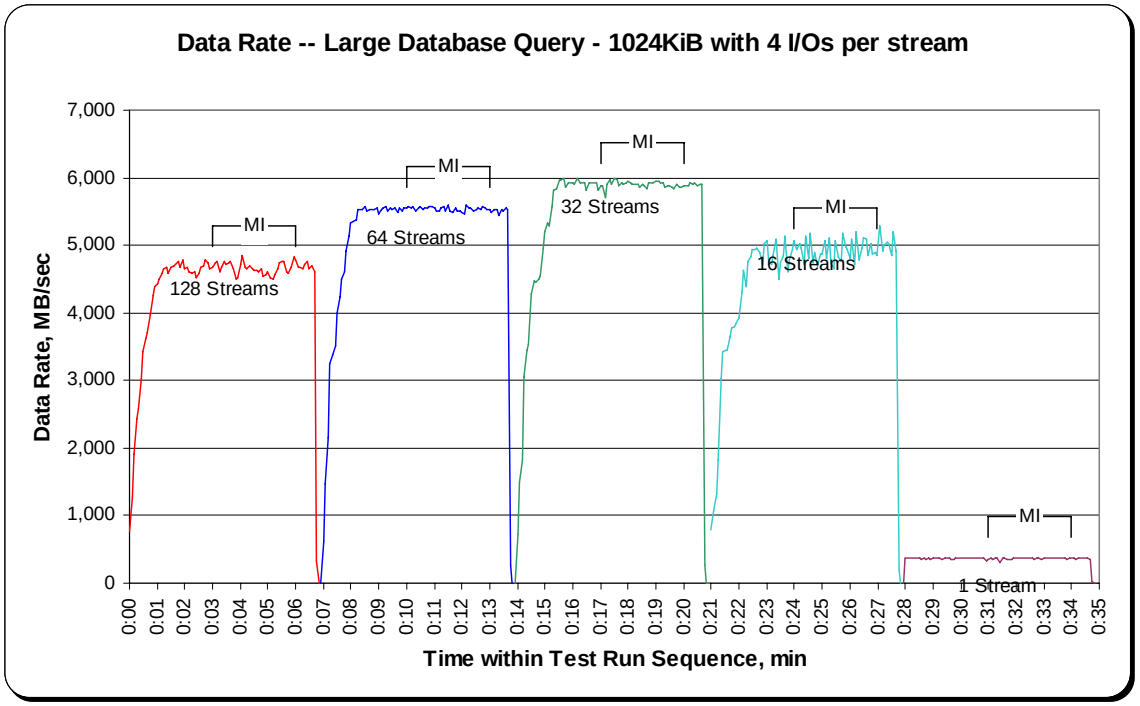
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR11	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	766.30	45.08	45.84	0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:21:00	793.56	264.52	12.68	0:27:55	0.00	0.00	0.00
0:00:05	1,280.10	53.34	70.43	0:07:00	618.24	88.32	20.56	0:14:00	727.29	242.43	11.92	0:21:05	1,085.07	361.69	11.61	0:28:00	365.95	365.95	11.06
0:00:10	1,917.64	50.46	67.96	0:07:05	1,479.75	134.52	26.58	0:14:05	1,484.99	297.00	13.05	0:21:10	1,307.99	261.60	12.53	0:28:05	380.63	380.63	11.02
0:00:15	2,435.84	49.71	73.47	0:07:10	2,160.70	108.03	27.30	0:14:10	1,813.62	259.09	13.29	0:21:15	1,811.52	258.79	12.43	0:28:10	373.08	373.08	11.24
0:00:20	2,597.74	44.03	89.12	0:07:15	3,248.70	141.25	28.02	0:14:15	3,044.02	276.73	13.06	0:21:20	3,032.06	275.64	13.10	0:28:15	378.96	378.96	11.06
0:00:25	3,027.03	42.04	90.14	0:07:20	3,378.30	129.93	30.77	0:14:20	3,442.06	312.91	13.40	0:21:25	3,423.81	311.26	13.47	0:28:20	362.81	362.81	11.56
0:00:30	3,422.76	42.78	92.47	0:07:25	3,510.84	125.39	32.38	0:14:25	3,536.85	272.07	14.04	0:21:30	3,454.85	314.08	13.35	0:28:25	378.54	378.54	11.08
0:00:35	3,627.65	41.22	95.68	0:07:30	3,994.66	105.12	34.60	0:14:30	4,272.95	251.35	15.84	0:21:35	3,441.01	312.82	13.41	0:28:30	377.28	377.28	11.11
0:00:40	3,705.46	39.00	101.23	0:07:35	4,237.92	108.66	36.56	0:14:35	4,473.64	223.68	17.58	0:21:40	3,651.98	304.33	12.62	0:28:35	361.34	361.34	11.60
0:00:45	3,966.76	39.27	103.91	0:07:40	4,504.89	102.38	38.65	0:14:40	4,454.98	222.75	18.84	0:21:45	3,768.79	314.07	13.35	0:28:40	378.75	378.75	11.08
0:00:50	4,265.61	39.50	103.60	0:07:45	4,599.89	97.87	41.02	0:14:45	4,488.53	213.74	18.83	0:21:50	3,795.43	316.29	13.26	0:28:45	349.60	349.60	11.52
0:00:55	4,390.39	40.28	103.59	0:07:50	4,918.24	96.44	42.04	0:14:50	4,549.14	197.79	19.45	0:21:55	3,848.69	320.72	13.08	0:28:50	379.37	379.37	11.05
0:01:00	4,437.99	39.98	103.82	0:07:55	5,139.28	95.17	42.79	0:14:55	4,957.88	198.32	20.06	0:22:00	3,927.76	302.14	13.23	0:28:55	357.35	357.35	11.74
0:01:05	4,498.81	39.46	105.27	0:08:00	5,325.72	93.43	42.93	0:15:00	5,204.92	208.20	20.11	0:22:05	4,302.52	307.32	12.85	0:29:00	377.70	377.70	11.10
0:01:10	4,596.96	38.96	105.43	0:08:05	5,357.80	90.81	45.55	0:15:05	5,332.22	205.09	20.37	0:22:10	4,630.09	330.72	12.73	0:29:05	380.84	380.84	11.01
0:01:15	4,644.35	38.38	107.18	0:08:10	5,383.39	88.25	46.81	0:15:10	5,298.45	203.79	20.57	0:22:15	4,395.84	313.99	13.36	0:29:10	379.58	379.58	11.05
0:01:20	4,683.78	37.17	110.54	0:08:15	5,521.38	87.64	46.49	0:15:15	5,584.09	192.55	20.56	0:22:20	4,767.25	297.95	13.46	0:29:15	382.94	382.94	10.95
0:01:25	4,587.31	36.12	115.53	0:08:20	5,533.55	87.83	47.93	0:15:20	5,807.43	200.26	20.95	0:22:25	4,825.13	301.57	13.91	0:29:20	359.66	359.66	11.66
0:01:30	4,671.83	36.50	114.80	0:08:25	5,521.59	86.27	48.24	0:15:25	5,837.42	182.42	21.70	0:22:30	4,927.68	307.98	13.54	0:29:25	369.52	369.52	11.35
0:01:35	4,694.06	36.67	114.58	0:08:30	5,562.91	86.92	48.26	0:15:30	5,973.74	186.68	22.46	0:22:35	4,945.29	309.08	13.64	0:29:30	379.17	379.17	11.06
0:01:40	4,725.93	36.92	113.58	0:08:35	5,517.61	86.21	48.40	0:15:35	5,965.35	186.42	22.50	0:22:40	4,964.38	310.27	13.52	0:29:35	368.05	368.05	11.01
0:01:45	4,771.02	37.27	112.41	0:08:40	5,531.24	86.43	48.81	0:15:40	5,997.44	187.42	22.39	0:22:45	4,883.64	305.23	13.73	0:29:40	355.89	355.89	12.18
0:01:50	4,664.70	36.44	115.28	0:08:45	5,528.09	86.38	48.56	0:15:45	5,854.83	182.96	22.93	0:22:50	4,725.30	295.33	14.21	0:29:45	359.87	359.87	11.65
0:01:55	4,786.75	37.40	112.10	0:08:50	5,531.87	86.44	48.54	0:15:50	5,928.23	185.26	22.63	0:22:55	5,017.86	313.62	13.37	0:29:50	379.17	379.17	11.06
0:02:00	4,653.79	36.36	115.46	0:08:55	5,561.23	86.89	48.28	0:15:55	5,923.20	185.10	22.67	0:23:00	5,072.17	317.01	13.23	0:29:55	364.69	364.69	11.50
0:02:05	4,669.52	36.48	114.95	0:09:00	5,467.69	85.43	49.05	0:16:00	5,924.87	185.15	22.65	0:23:05	4,788.43	299.28	14.02	0:30:00	380.63	380.63	11.02
0:02:10	4,614.78	36.05	116.19	0:09:05	5,536.27	86.50	48.56	0:16:05	5,912.29	184.76	22.69	0:23:10	4,724.46	295.28	14.20	0:30:05	379.58	379.58	11.05
0:02:15	4,576.41	35.75	117.52	0:09:10	5,542.14	86.60	48.46	0:16:10	5,989.26	187.16	22.41	0:23:15	4,854.91	303.43	13.82	0:30:10	375.81	375.81	11.16
0:02:20	4,606.18	35.99	116.68	0:09:15	5,573.18	87.08	48.15	0:16:15	5,935.57	185.49	22.62	0:23:20	5,097.55	318.60	13.12	0:30:15	372.66	372.66	11.25
0:02:25	4,526.70	35.36	118.68	0:09:20	5,515.51	86.18	48.70	0:16:20	5,930.12	185.32	22.21	0:23:25	4,505.31	281.58	14.93	0:30:20	379.17	379.17	11.06
0:02:30	4,590.25	35.86	116.80	0:09:25	5,543.82	86.62	48.42	0:16:25	5,921.94	185.06	21.98	0:23:30	4,749.63	296.85	14.14	0:30:25	379.79	379.79	11.05
0:02:35	4,679.58	36.56	114.94	0:09:30	5,537.74	86.53	48.51	0:16:30	5,807.01	181.47	22.39	0:23:35	4,854.49	303.41	13.82	0:30:30	362.60	362.60	11.56
0:02:40	4,688.18	36.63	114.48	0:09:35	5,541.72	86.59	48.46	0:16:35	5,930.54	185.33	21.93	0:23:40	5,138.44	321.15	13.06	0:30:35	382.73	382.73	10.96
0:02:45	4,772.91	37.29	112.72	0:09:40	5,478.81	85.61	48.98	0:16:40	5,925.71	185.18	21.94	0:23:45	4,616.04	288.50	14.53	0:30:40	374.76	374.76	11.17
0:02:50	4,730.13	36.95	113.41	0:09:45	5,562.28	86.91	48.29	0:16:45	5,926.97	185.22	21.94	0:23:50	4,775.01	298.44	14.06	0:30:45	376.23	376.23	11.15
0:02:55	4,661.97	36.42	115.28	0:09:50	5,513.83	86.15	48.68	0:16:50	5,928.86	185.28	23.09	0:23:55	4,931.03	308.19	13.61	0:30:50	364.07	364.07	11.52
				0:09:55	5,551.79	86.75	48.35	0:16:55	5,818.55	181.83	22.28					0:30:55	331.77	331.77	12.64

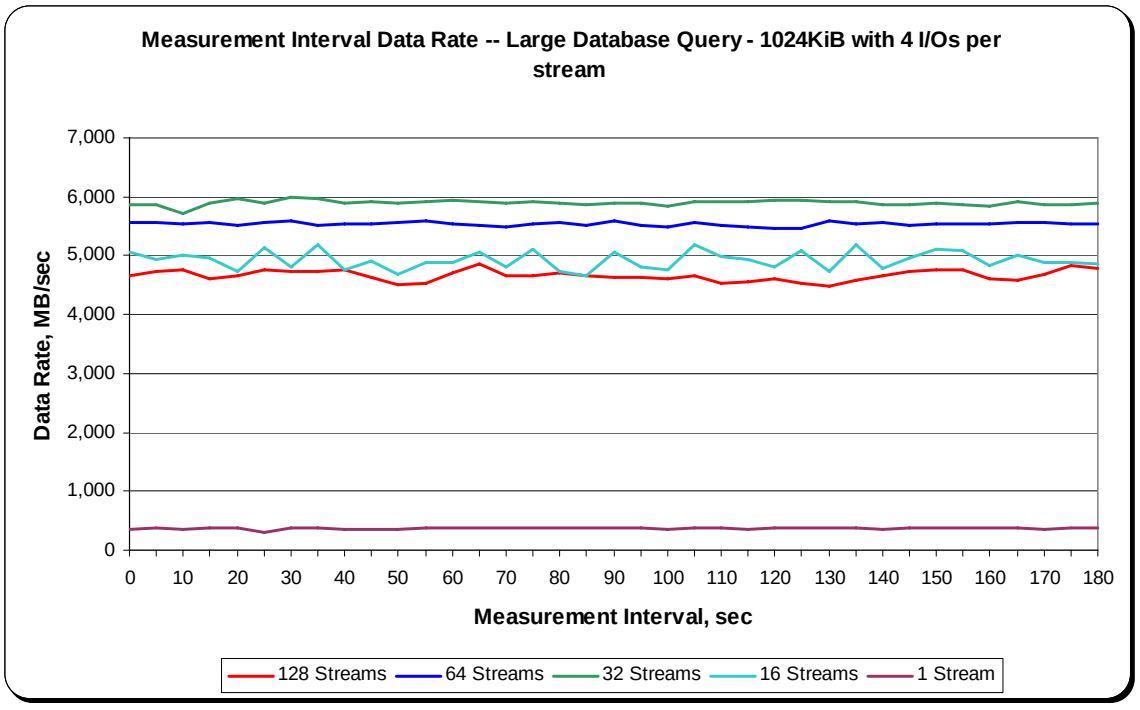
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	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	4,667.42	36.46	115.03	0:10:00	5,553.47	86.77	48.38	0:17:00	5,878.32	183.70	27.11	0:24:00	5,069.03	316.81	13.24	0:31:00	360.92	360.92	11.62
0:03:05	4,742.92	37.05	113.20	0:10:05	5,574.86	87.11	48.16	0:17:05	5,878.11	183.69	22.83	0:24:05	4,930.61	308.16	13.61	0:31:05	376.44	376.44	11.14
0:03:10	4,755.92	37.16	112.96	0:10:10	5,545.29	86.65	48.43	0:17:10	5,712.22	178.51	23.50	0:24:10	5,017.23	313.58	13.37	0:31:10	354.84	354.84	11.82
0:03:15	4,616.67	36.07	116.21	0:10:15	5,573.60	87.09	48.18	0:17:15	5,894.05	184.19	22.78	0:24:15	4,952.63	309.54	13.54	0:31:15	371.83	371.83	11.28
0:03:20	4,665.32	36.45	115.12	0:10:20	5,515.09	86.17	48.66	0:17:20	5,972.48	186.64	22.36	0:24:20	4,723.63	295.23	14.21	0:31:20	381.47	381.47	10.99
0:03:25	4,760.54	37.19	112.98	0:10:25	5,553.47	86.77	48.33	0:17:25	5,893.21	184.16	22.89	0:24:25	5,132.36	320.77	13.07	0:31:25	312.06	312.06	13.38
0:03:30	4,722.37	36.89	113.51	0:10:30	5,578.21	87.16	48.17	0:17:30	5,988.84	187.15	22.39	0:24:30	4,805.41	300.34	13.96	0:31:30	377.49	377.49	11.15
0:03:35	4,740.82	37.04	113.40	0:10:35	5,519.49	86.24	48.65	0:17:35	5,962.83	186.34	22.51	0:24:35	5,177.45	323.59	12.96	0:31:35	377.70	377.70	11.10
0:03:40	4,758.65	37.18	112.82	0:10:40	5,541.10	86.58	48.44	0:17:40	5,886.50	183.95	22.81	0:24:40	4,749.63	296.85	14.13	0:31:40	356.52	356.52	11.75
0:03:45	4,644.14	36.28	115.69	0:10:45	5,551.16	86.74	48.36	0:17:45	5,914.18	184.82	22.70	0:24:45	4,903.77	306.49	13.68	0:31:45	361.76	361.76	11.60
0:03:50	4,506.36	35.21	119.07	0:10:50	5,570.04	87.03	48.21	0:17:50	5,893.21	184.16	22.77	0:24:50	4,690.28	293.14	14.31	0:31:50	360.08	360.08	11.62
0:03:55	4,522.93	35.34	118.87	0:10:55	5,581.15	87.21	48.11	0:17:55	5,919.00	184.97	22.66	0:24:55	4,873.36	304.59	13.76	0:31:55	375.81	375.81	11.18
0:04:00	4,712.51	36.82	114.04	0:11:00	5,548.02	86.69	48.39	0:18:00	5,952.35	186.01	22.56	0:25:00	4,879.23	304.95	13.74	0:32:00	376.23	376.23	11.15
0:04:05	4,848.62	37.88	110.69	0:11:05	5,517.40	86.21	48.65	0:18:05	5,923.83	185.12	22.67	0:25:05	5,070.91	316.93	13.25	0:32:05	377.28	377.28	11.12
0:04:10	4,665.32	36.45	115.10	0:11:10	5,499.57	85.93	48.84	0:18:10	5,902.85	184.46	22.74	0:25:10	4,813.59	300.85	13.94	0:32:10	381.05	381.05	11.01
0:04:15	4,658.40	36.39	115.28	0:11:15	5,541.51	86.59	48.40	0:18:15	5,907.47	184.61	22.71	0:25:15	5,116.21	319.76	13.12	0:32:15	380.00	380.00	11.03
0:04:20	4,703.70	36.75	114.20	0:11:20	5,563.95	86.94	48.31	0:18:20	5,894.67	184.21	22.78	0:25:20	4,730.55	295.66	14.02	0:32:20	375.60	375.60	11.16
0:04:25	4,657.15	36.38	115.24	0:11:25	5,518.03	86.22	48.67	0:18:25	5,862.38	183.20	22.85	0:25:25	4,657.56	291.10	14.18	0:32:25	370.36	370.36	11.15
0:04:30	4,640.58	36.25	115.89	0:11:30	5,586.60	87.29	48.07	0:18:30	5,903.69	184.49	22.76	0:25:30	5,067.35	316.71	13.03	0:32:30	365.95	365.95	11.63
0:04:35	4,625.48	36.14	116.08	0:11:35	5,509.64	86.09	48.72	0:18:35	5,885.45	183.92	22.81	0:25:35	4,820.93	301.31	14.50	0:32:35	378.12	378.12	11.09
0:04:40	4,608.49	36.00	116.43	0:11:40	5,495.80	85.87	48.85	0:18:40	5,845.18	182.66	22.93	0:25:40	4,765.57	297.85	14.08	0:32:40	361.76	361.76	11.59
0:04:45	4,661.55	36.42	115.34	0:11:45	5,560.81	86.89	48.27	0:18:45	5,920.26	185.01	22.49	0:25:45	5,179.76	323.73	12.95	0:32:45	379.37	379.37	11.05
0:04:50	4,537.82	35.45	118.23	0:11:50	5,511.11	86.11	47.19	0:18:50	5,929.28	185.29	22.85	0:25:50	4,987.03	311.69	13.46	0:32:50	380.63	380.63	11.01
0:04:55	4,555.85	35.59	117.39	0:11:55	5,498.52	85.91	47.29	0:18:55	5,925.71	185.18	22.64	0:25:55	4,942.36	308.90	13.57	0:32:55	358.19	358.19	11.71
0:05:00	4,618.35	36.08	116.78	0:12:00	5,475.03	85.55	47.52	0:19:00	5,936.62	185.52	22.63	0:26:00	4,807.09	300.44	13.96	0:33:00	380.63	380.63	11.01
0:05:05	4,523.35	35.34	118.71	0:12:05	5,454.48	85.23	47.69	0:19:05	5,950.67	185.96	22.55	0:26:05	5,088.11	318.01	13.19	0:33:05	378.33	378.33	11.09
0:05:10	4,488.11	35.06	119.66	0:12:10	5,597.51	87.46	46.46	0:19:10	5,924.87	185.15	22.65	0:26:10	4,721.32	295.08	14.21	0:33:10	375.39	375.39	11.17
0:05:15	4,571.16	35.71	117.46	0:12:15	5,541.93	86.59	51.51	0:19:15	5,918.79	184.96	22.68	0:26:15	5,190.87	324.43	12.92	0:33:15	378.12	378.12	11.09
0:05:20	4,649.81	36.33	115.54	0:12:20	5,561.23	86.89	47.13	0:19:20	5,866.57	183.33	22.75	0:26:20	4,792.83	299.55	14.00	0:33:20	364.07	364.07	11.51
0:05:25	4,732.64	36.97	113.47	0:12:25	5,509.43	86.08	54.43	0:19:25	5,870.14	183.44	23.01	0:26:25	4,966.69	310.42	13.51	0:33:25	377.28	377.28	11.11
0:05:30	4,763.26	37.21	112.93	0:12:30	5,536.48	86.51	48.52	0:19:30	5,889.43	184.04	22.79	0:26:30	5,110.55	319.41	13.12	0:33:30	376.02	376.02	11.15
0:05:35	4,769.34	37.26	112.41	0:12:35	5,550.11	86.72	48.41	0:19:35	5,860.07	183.13	22.91	0:26:35	5,086.22	317.89	13.19	0:33:35	380.63	380.63	11.02
0:05:40	4,607.65	36.00	116.55	0:12:40	5,536.27	86.50	48.49	0:19:40	5,837.84	182.43	22.99	0:26:40	4,845.47	302.84	13.85	0:33:40	379.17	379.17	11.06
0:05:45	4,585.00	35.82	117.25	0:12:45	5,565.63	86.96	48.24	0:19:45	5,907.89	184.62	22.73	0:26:45	5,016.60	313.54	13.37	0:33:45	379.58	379.58	11.05
0:05:50	4,677.07	36.54	114.83	0:12:50	5,554.94	86.80	48.35	0:19:50	5,863.01	183.22	22.86	0:26:50	4,879.86	304.99	13.76	0:33:50	343.72	343.72	12.20
0:05:55	4,834.15	37.77	111.16	0:12:55	5,534.17	86.47	48.20	0:19:55	5,862.59	183.21	22.92	0:26:55	4,885.53	305.35	13.73	0:33:55	368.05	368.05	11.39
0:06:00	4,780.25	37.35	112.43	0:13:00	5,528.09	86.38	48.87	0:20:00	5,889.43	184.04	22.78	0:27:00	4,849.03	303.06	13.84	0:34:00	381.05	381.05	11.01
0:06:05	4,681.47	36.57	114.66	0:13:05	5,481.33	85.65	48.94	0:20:05	5,888.17	184.01	22.81	0:27:05	5,283.98	330.25	12.70	0:34:05	380.42	380.42	11.02
0:06:10	4,670.99	36.49	114.81	0:13:10	5,526.00	86.34	48.61	0:20:10	5,880.83	183.78	22.81	0:27:10	4,922.02	307.63	13.64	0:34:10	360.50	360.50	11.63
0:06:15	4,658.40	36.39	115.25	0:13:15	5,522.43	86.29	48.63	0:20:15	5,931.17	185.35	22.63	0:27:15	5,002.55	312.66	13.41	0:34:15	380.00	380.00	11.03
0:06:20	4,709.15	36.79	114.27	0:13:20	5,449.66	85.15	49.27	0:20:20	5,906.21	184.57	22.73	0:27:20	5,051.62	315.73	13.28	0:34:20	379.17	379.17	11.06
0:06:25	4,760.12	37.19	112.60	0:13:25	5,535.22	86.49	48.49	0:20:25	5,927.39	185.23	22.64	0:27:25	5,032.33	314.52	13.34	0:34:25	365.32	365.32	11.48
0:06:30	4,662.60	36.43	115.32	0:13:30	5,517.61	86.21	48.56	0:20:30	5,881.67	183.80	22.76	0:27:30	4,857.21	303.58	13.81	0:34:30	380.00	380.00	11.03
0:06:35	4,686.92	36.62	114.67	0:13:35	5,544.66	86.64	48.55	0:20:35	5,899.08	184.35	22.82	0:27:35	5,198.84	324.93	12.91	0:34:35	378.75	378.75	11.06
0:06:40	4,617.30	36.07	115.69	0:13:40	5,537.74	86.53	48.46	0:20:40	5,909.35	184.67	22.72	0:27:40	4,910.69	306.92	13.66	0:34:40	347.50	347.50	12.05
0:06:45	324.22	0.00	129.61	0:13:45	256.90	0.00	51.35	0:20:45	255.22	0.00	23.19	0:27:45	202.17	0.00	13.38	0:34:45	14.47	0.00	11.30
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
								0:20:55	0.00	0.00	0.00								

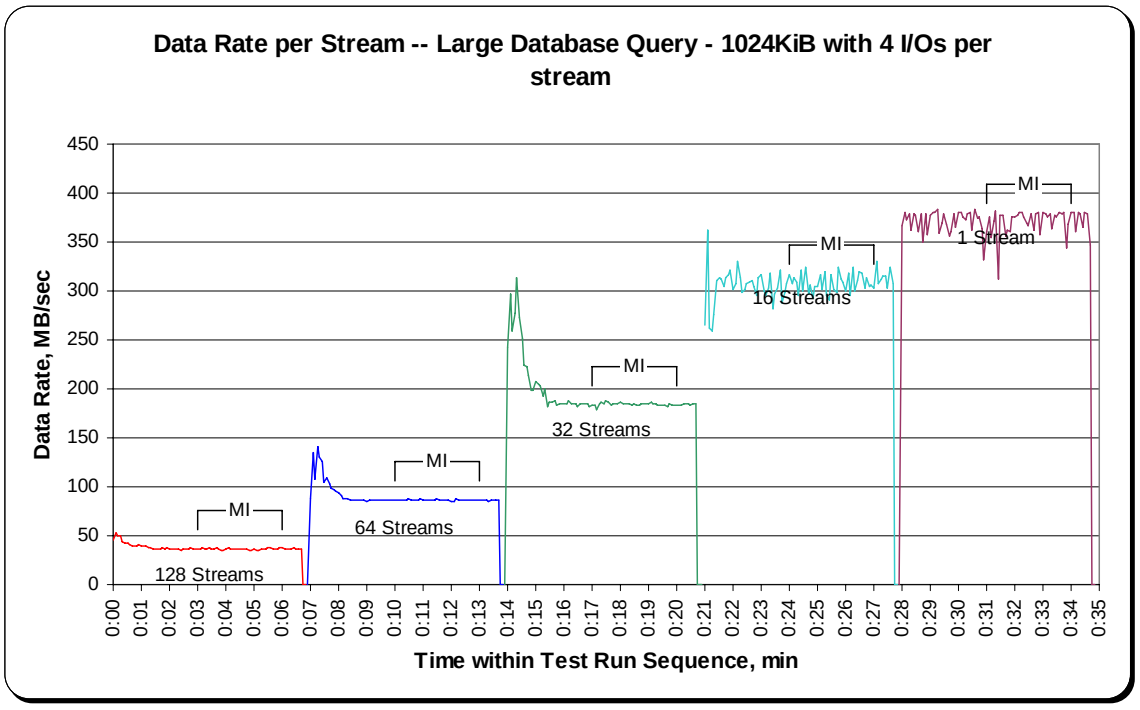
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



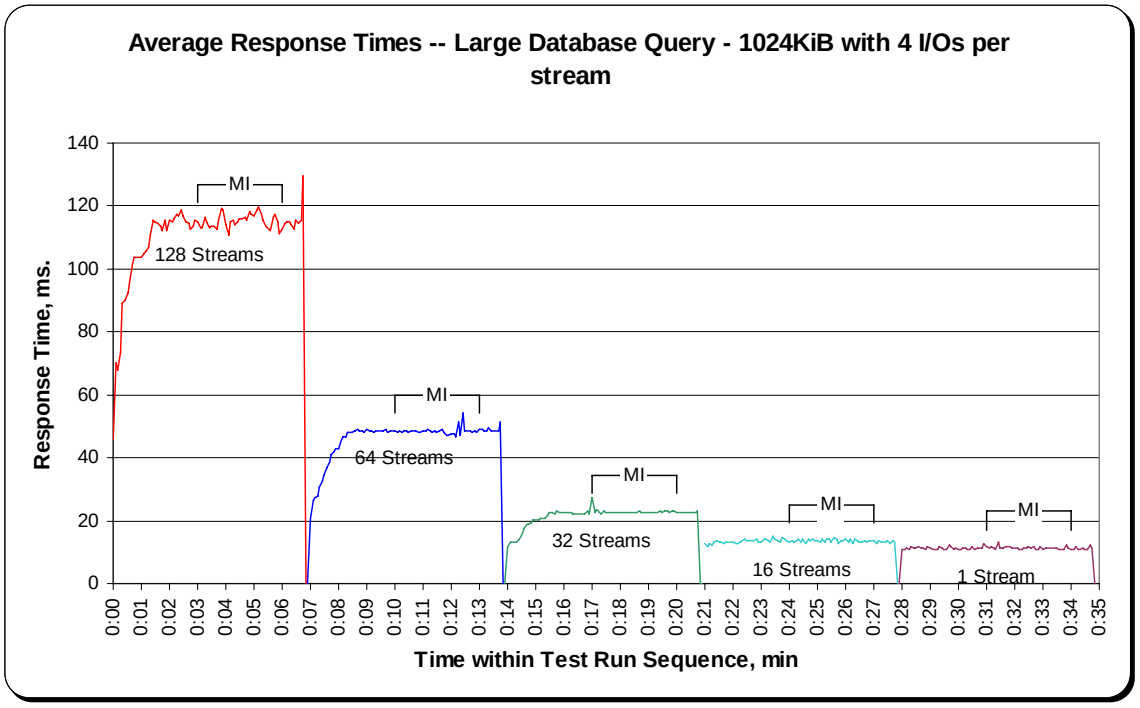
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



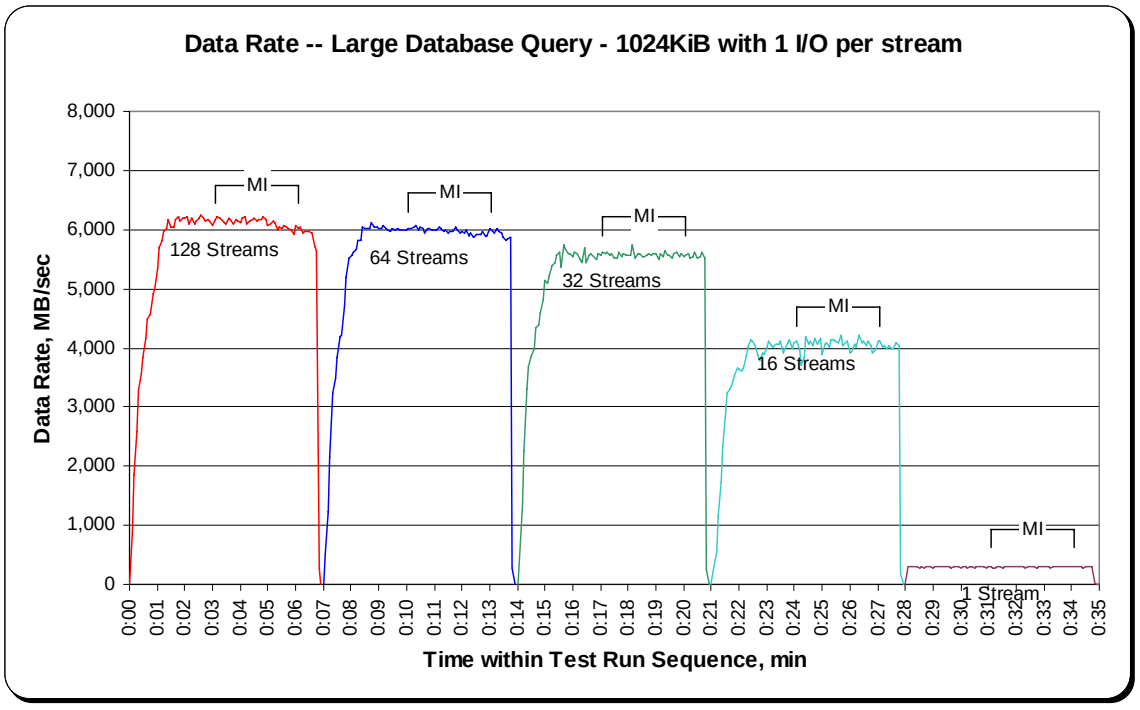
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR16	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	0:07:00	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
0:00:05	887.93	52.23	11.90	0:07:05	512.12	128.03	6.03	0:14:05	432.01	216.01	3.70	0:21:05	280.18	280.18	3.60	0:28:05	298.01	298.01	3.38
0:00:10	1,865.21	69.08	12.51	0:07:10	1,231.03	102.59	6.71	0:14:10	1,320.16	165.02	4.19	0:21:10	559.10	279.55	3.68	0:28:10	300.73	300.73	3.48
0:00:15	2,586.21	68.06	13.29	0:07:15	2,155.66	113.46	7.03	0:14:15	2,252.55	204.78	4.19	0:21:15	1,163.29	232.66	3.86	0:28:15	308.28	308.28	3.40
0:00:20	3,278.90	79.97	12.60	0:07:20	3,236.74	134.86	7.23	0:14:20	3,303.43	206.46	4.52	0:21:20	1,728.05	246.86	3.81	0:28:20	310.59	310.59	3.37
0:00:25	3,564.74	68.55	13.35	0:07:25	3,479.59	124.27	7.94	0:14:25	3,689.73	204.98	4.79	0:21:25	2,303.30	230.33	3.87	0:28:25	300.31	300.31	3.48
0:00:30	3,839.26	65.07	15.25	0:07:30	3,834.22	119.82	8.03	0:14:30	3,872.18	203.80	5.11	0:21:30	2,902.25	241.85	4.08	0:28:30	285.21	285.21	3.68
0:00:35	4,163.06	59.47	16.04	0:07:35	4,197.45	127.20	8.22	0:14:35	3,994.86	181.58	5.21	0:21:35	3,245.55	249.66	4.14	0:28:35	307.23	307.23	3.41
0:00:40	4,491.26	56.14	17.23	0:07:40	4,208.15	107.90	8.65	0:14:40	4,340.89	197.31	5.31	0:21:40	3,311.61	254.74	4.11	0:28:40	288.36	288.36	3.63
0:00:45	4,570.11	53.14	19.07	0:07:45	4,724.25	100.52	9.90	0:14:45	4,383.89	190.60	5.34	0:21:45	3,350.41	239.32	4.18	0:28:45	307.44	307.44	3.41
0:00:50	4,909.22	53.36	19.30	0:07:50	5,181.22	99.64	10.08	0:14:50	4,598.63	183.95	5.31	0:21:50	3,546.49	253.32	4.13	0:28:50	304.93	304.93	3.43
0:00:55	4,980.53	51.35	19.87	0:07:55	5,523.27	102.28	9.89	0:14:55	4,807.72	178.06	5.49	0:21:55	3,654.08	261.01	4.01	0:28:55	300.10	300.10	3.49
0:01:00	5,350.67	50.48	19.47	0:08:00	5,578.84	101.43	10.35	0:15:00	5,136.55	190.24	5.51	0:22:00	3,625.14	258.94	4.05	0:29:00	269.69	269.69	3.81
0:01:05	5,703.41	53.30	18.77	0:08:05	5,612.61	102.05	10.28	0:15:05	5,100.90	188.92	5.54	0:22:05	3,622.62	258.76	4.05	0:29:05	298.22	298.22	3.58
0:01:10	5,820.86	52.44	20.86	0:08:10	5,656.02	101.00	10.22	0:15:10	5,228.83	180.30	5.47	0:22:10	3,664.77	244.32	4.12	0:29:10	311.22	311.22	3.36
0:01:15	5,963.25	51.41	19.42	0:08:15	5,824.42	97.07	10.55	0:15:15	5,386.53	185.74	5.64	0:22:15	3,867.57	257.84	4.06	0:29:15	298.63	298.63	3.51
0:01:20	6,018.83	49.33	19.77	0:08:20	5,811.00	93.73	10.65	0:15:20	5,441.69	175.54	5.78	0:22:20	4,007.24	250.45	4.08	0:29:20	304.09	304.09	3.44
0:01:25	6,166.05	48.94	22.16	0:08:25	6,033.72	95.77	10.72	0:15:25	5,574.23	174.19	5.87	0:22:25	4,149.63	259.35	4.04	0:29:25	308.91	308.91	3.39
0:01:30	6,050.70	47.27	20.89	0:08:30	6,007.29	93.86	11.06	0:15:30	5,619.32	175.60	5.97	0:22:30	4,123.42	257.71	4.06	0:29:30	309.96	309.96	3.38
0:01:35	6,031.62	47.12	22.52	0:08:35	6,008.34	93.88	11.21	0:15:35	5,372.90	167.90	5.99	0:22:35	4,041.42	252.59	4.14	0:29:35	300.94	300.94	3.48
0:01:40	6,167.30	48.18	20.78	0:08:40	6,007.08	93.86	11.17	0:15:40	5,743.47	179.48	5.84	0:22:40	3,870.50	241.91	4.16	0:29:40	286.47	286.47	3.66
0:01:45	6,207.78	48.50	22.58	0:08:45	6,112.36	95.51	10.98	0:15:45	5,679.09	177.47	5.90	0:22:45	3,791.65	236.98	4.42	0:29:45	303.67	303.67	3.45
0:01:50	6,153.04	48.07	20.55	0:08:50	6,038.12	94.35	11.12	0:15:50	5,587.86	174.62	6.00	0:22:50	3,920.00	245.00	4.27	0:29:50	297.38	297.38	3.52
0:01:55	6,187.44	48.34	21.78	0:08:55	6,052.59	94.57	11.08	0:15:55	5,588.49	174.64	5.96	0:22:55	3,887.91	242.99	4.31	0:29:55	304.30	304.30	3.44
0:02:00	6,190.58	48.36	22.45	0:09:00	6,007.71	93.87	11.17	0:16:00	5,538.37	173.07	6.09	0:23:00	4,016.47	251.03	4.17	0:30:00	279.97	279.97	3.59
0:02:05	6,230.64	48.68	20.45	0:09:05	6,016.31	94.00	11.04	0:16:05	5,617.22	175.54	5.97	0:23:05	4,104.76	256.55	4.08	0:30:05	299.26	299.26	3.50
0:02:10	6,087.82	47.56	22.72	0:09:10	6,075.66	94.93	11.15	0:16:10	5,593.31	174.79	5.96	0:23:10	4,049.81	253.11	4.11	0:30:10	301.99	301.99	3.46
0:02:15	6,192.89	48.38	22.61	0:09:15	6,012.33	93.94	11.16	0:16:15	5,488.88	171.53	6.14	0:23:15	4,024.85	251.55	4.19	0:30:15	282.91	282.91	3.70
0:02:20	6,086.77	47.55	21.34	0:09:20	5,990.30	93.60	11.11	0:16:20	5,434.56	169.83	6.16	0:23:20	4,059.46	253.72	4.13	0:30:20	298.01	298.01	3.51
0:02:25	6,132.49	47.91	22.40	0:09:25	5,975.42	93.37	11.31	0:16:25	5,685.59	177.67	5.88	0:23:25	4,055.68	253.48	4.13	0:30:25	294.23	294.23	3.56
0:02:30	6,203.59	48.47	21.79	0:09:30	6,023.44	94.12	11.14	0:16:30	5,450.71	170.33	6.18	0:23:30	4,101.19	256.32	4.08	0:30:30	286.26	286.26	3.66
0:02:35	6,238.19	48.74	20.62	0:09:35	6,000.37	93.76	11.04	0:16:35	5,573.60	174.18	6.01	0:23:35	3,921.05	245.07	4.27	0:30:35	304.51	304.51	3.44
0:02:40	6,192.05	48.38	22.63	0:09:40	6,024.70	94.14	11.28	0:16:40	5,587.86	174.62	6.00	0:23:40	3,990.88	249.43	4.18	0:30:40	305.76	305.76	3.42
0:02:45	6,138.78	47.96	20.90	0:09:45	5,987.16	93.55	11.05	0:16:45	5,533.75	172.93	6.06	0:23:45	4,093.43	255.84	4.11	0:30:45	303.46	303.46	3.45
0:02:50	6,179.89	48.28	22.63	0:09:50	5,995.34	93.68	11.34	0:16:50	5,499.99	171.87	6.10	0:23:50	4,125.73	257.86	4.06	0:30:50	294.23	294.23	3.56
0:02:55	6,139.20	47.96	21.76	0:09:55	6,001.21	93.77	11.18	0:16:55	5,587.44	174.61	6.00	0:23:55	3,982.07	248.88	4.21	0:30:55	285.21	285.21	3.67
0:03:00	6,079.22	47.49	21.29	0:10:00	5,999.74	93.75	11.19	0:17:00	5,576.96	174.28	6.01	0:24:00	4,086.09	255.38	4.10	0:31:00	296.54	296.54	3.53

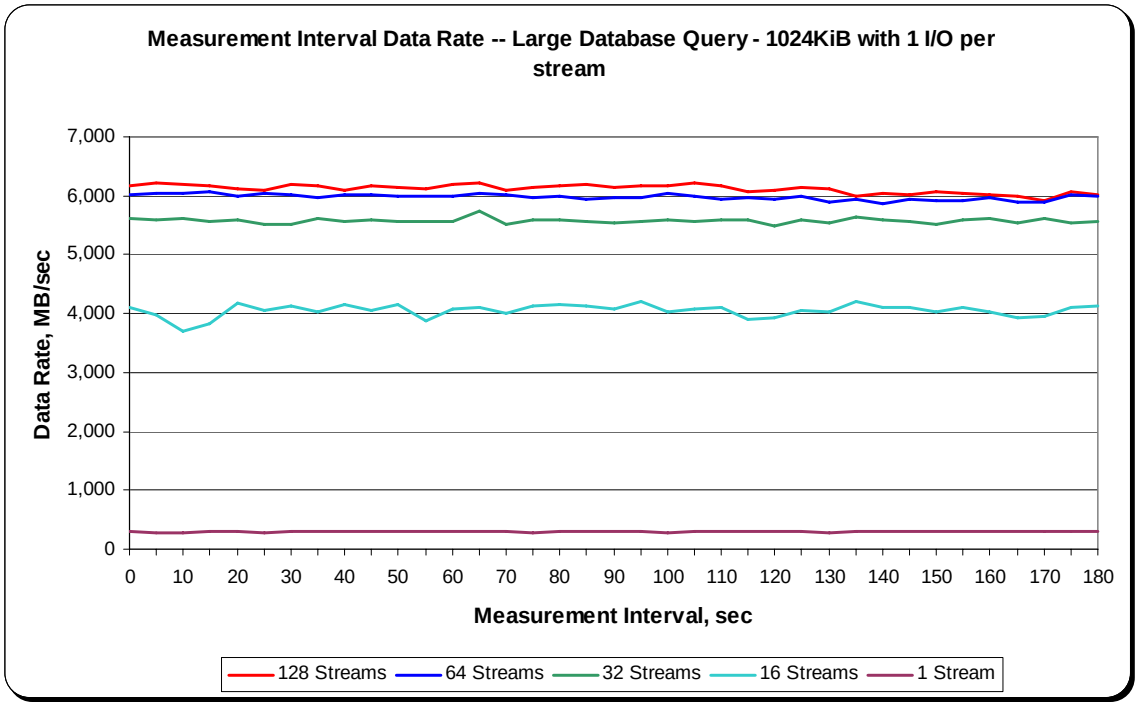
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR16	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	6,159.13	48.12	22.66	0:10:05	6,024.28	94.13	11.13	0:17:05	5,615.12	175.47	5.98	0:24:05	4,107.90	256.74	4.08	0:31:05	307.44	307.44	3.41
0:03:10	6,226.65	48.65	21.28	0:10:10	6,030.78	94.23	11.12	0:17:10	5,585.34	174.54	6.00	0:24:10	3,966.97	247.94	4.22	0:31:10	287.31	287.31	3.64
0:03:15	6,187.86	48.34	21.02	0:10:15	6,038.33	94.35	11.12	0:17:15	5,615.33	175.48	5.97	0:24:15	3,702.52	231.41	4.52	0:31:15	281.02	281.02	3.70
0:03:20	6,161.64	48.14	21.58	0:10:20	6,062.03	94.72	11.02	0:17:20	5,572.55	174.14	6.01	0:24:20	3,825.62	239.10	4.38	0:31:20	300.31	300.31	3.51
0:03:25	6,109.00	47.73	21.68	0:10:25	5,999.74	93.75	11.22	0:17:25	5,582.62	174.46	6.01	0:24:25	4,182.56	261.41	3.99	0:31:25	307.86	307.86	3.40
0:03:30	6,084.47	47.53	23.02	0:10:30	6,050.28	94.54	11.09	0:17:30	5,523.69	172.62	6.07	0:24:30	4,065.12	254.07	4.14	0:31:30	282.91	282.91	3.62
0:03:35	6,200.65	48.44	21.19	0:10:35	6,015.05	93.99	11.15	0:17:35	5,524.74	172.65	6.07	0:24:35	4,120.48	257.53	4.07	0:31:35	301.15	301.15	3.55
0:03:40	6,157.24	48.10	22.32	0:10:40	5,955.70	93.06	11.26	0:17:40	5,624.77	175.77	5.96	0:24:40	4,039.53	252.47	4.15	0:31:40	301.78	301.78	3.47
0:03:45	6,090.97	47.59	22.42	0:10:45	6,019.04	94.05	11.15	0:17:45	5,552.63	173.52	6.04	0:24:45	4,157.81	259.86	4.03	0:31:45	309.12	309.12	3.39
0:03:50	6,166.89	48.18	21.30	0:10:50	6,012.33	93.94	11.11	0:17:50	5,580.31	174.38	6.01	0:24:50	4,065.75	254.11	4.12	0:31:50	304.51	304.51	3.44
0:03:55	6,138.57	47.96	21.93	0:10:55	5,993.45	93.65	11.25	0:17:55	5,576.33	174.26	5.98	0:24:55	4,166.20	260.39	4.02	0:31:55	292.76	292.76	3.58
0:04:00	6,131.02	47.90	21.21	0:11:00	5,998.48	93.73	11.18	0:18:00	5,571.29	174.10	6.05	0:25:00	3,881.41	242.59	4.32	0:32:00	301.99	301.99	3.47
0:04:05	6,194.15	48.39	22.31	0:11:05	5,988.84	93.58	11.20	0:18:05	5,572.97	174.16	6.02	0:25:05	4,067.01	254.19	4.12	0:32:05	297.17	297.17	3.52
0:04:10	6,219.52	48.59	21.62	0:11:10	6,032.46	94.26	11.12	0:18:10	5,738.23	179.32	5.84	0:25:10	4,098.88	256.18	4.09	0:32:10	292.55	292.55	3.58
0:04:15	6,090.34	47.58	21.94	0:11:15	6,028.68	94.20	11.12	0:18:15	5,515.51	172.36	6.08	0:25:15	4,007.66	250.48	4.18	0:32:15	303.04	303.04	3.46
0:04:20	6,145.28	48.01	21.43	0:11:20	5,974.79	93.36	11.24	0:18:20	5,595.62	174.86	5.99	0:25:20	4,138.52	258.66	4.05	0:32:20	270.11	270.11	3.88
0:04:25	6,166.47	48.18	22.04	0:11:25	5,996.39	93.69	11.06	0:18:25	5,592.06	174.75	5.99	0:25:25	4,142.92	258.93	4.04	0:32:25	295.70	295.70	3.54
0:04:30	6,190.79	48.37	22.08	0:11:30	5,931.79	92.68	11.16	0:18:30	5,554.52	173.58	6.04	0:25:30	4,118.81	257.43	4.07	0:32:30	299.05	299.05	3.50
0:04:35	6,148.85	48.04	21.68	0:11:35	5,959.90	93.12	11.34	0:18:35	5,536.69	173.02	6.02	0:25:35	4,083.57	255.22	4.10	0:32:35	309.96	309.96	3.38
0:04:40	6,164.79	48.16	22.17	0:11:40	5,969.54	93.27	11.07	0:18:40	5,557.66	173.68	6.07	0:25:40	4,203.32	262.71	3.99	0:32:40	309.33	309.33	3.38
0:04:45	6,158.29	48.11	21.21	0:11:45	6,043.36	94.43	11.45	0:18:45	5,580.52	174.39	6.01	0:25:45	4,033.66	252.10	4.15	0:32:45	277.87	277.87	3.60
0:04:50	6,222.88	48.62	22.11	0:11:50	5,994.08	93.66	11.19	0:18:50	5,573.18	174.16	6.01	0:25:50	4,086.51	255.41	4.10	0:32:50	304.30	304.30	3.59
0:04:55	6,158.92	48.12	20.76	0:11:55	5,931.58	92.68	11.31	0:18:55	5,592.48	174.76	6.00	0:25:55	4,108.11	256.76	4.08	0:32:55	303.25	303.25	3.45
0:05:00	6,071.46	47.43	22.75	0:12:00	5,971.01	93.30	11.02	0:19:00	5,589.12	174.66	6.00	0:26:00	3,900.07	243.75	4.30	0:33:00	311.22	311.22	3.37
0:05:05	6,087.19	47.56	21.24	0:12:05	5,938.51	92.79	11.52	0:19:05	5,491.60	171.61	6.10	0:26:05	3,928.39	245.52	4.23	0:33:05	304.09	304.09	3.44
0:05:10	6,136.06	47.94	23.02	0:12:10	5,983.38	93.49	11.20	0:19:10	5,589.12	174.66	6.00	0:26:10	4,054.42	253.40	4.17	0:33:10	298.84	298.84	3.50
0:05:15	6,116.55	47.79	21.69	0:12:15	5,904.32	92.26	11.37	0:19:15	5,540.68	173.15	6.05	0:26:15	4,018.35	251.15	4.17	0:33:15	284.37	284.37	3.68
0:05:20	5,993.66	46.83	21.88	0:12:20	5,932.42	92.69	11.30	0:19:20	5,650.99	176.59	5.93	0:26:20	4,202.48	262.66	3.99	0:33:20	302.83	302.83	3.46
0:05:25	6,038.12	47.17	21.30	0:12:25	5,871.19	91.74	11.43	0:19:25	5,577.59	174.30	6.01	0:26:25	4,092.59	255.79	4.09	0:33:25	293.18	293.18	3.57
0:05:30	6,022.39	47.05	22.26	0:12:30	5,929.91	92.65	11.31	0:19:30	5,577.17	174.29	6.01	0:26:30	4,106.43	256.65	4.08	0:33:30	304.51	304.51	3.44
0:05:35	6,059.09	47.34	23.95	0:12:35	5,921.94	92.53	11.33	0:19:35	5,506.91	172.09	6.09	0:26:35	4,036.39	252.27	4.15	0:33:35	306.60	306.60	3.41
0:05:40	6,041.27	47.20	20.73	0:12:40	5,913.34	92.40	11.35	0:19:40	5,600.44	175.01	5.99	0:26:40	4,110.63	256.91	4.08	0:33:40	298.42	298.42	3.50
0:05:45	6,007.50	46.93	20.88	0:12:45	5,964.09	93.19	11.25	0:19:45	5,618.90	175.59	5.97	0:26:45	4,028.21	251.76	4.16	0:33:45	292.34	292.34	3.59
0:05:50	5,988.00	46.78	22.80	0:12:50	5,886.29	91.97	11.05	0:19:50	5,533.34	172.92	6.06	0:26:50	3,918.11	244.88	4.28	0:33:50	301.36	301.36	3.47
0:05:55	5,912.08	46.19	23.56	0:12:55	5,900.13	92.19	11.72	0:19:55	5,602.96	175.09	5.98	0:26:55	3,962.36	247.65	4.23	0:33:55	297.80	297.80	3.52
0:06:00	6,057.62	47.33	20.43	0:13:00	6,018.20	94.03	11.14	0:20:00	5,533.96	172.94	6.06	0:27:00	4,106.43	256.65	4.08	0:34:00	302.20	302.20	3.46
0:06:05	6,015.68	47.00	22.43	0:13:05	5,982.76	93.48	10.86	0:20:05	5,569.41	174.04	6.02	0:27:05	4,119.65	257.48	4.07	0:34:05	303.04	303.04	3.46
0:06:10	6,045.46	47.23	23.41	0:13:10	5,932.21	92.69	11.66	0:20:10	5,595.41	174.86	5.99	0:27:10	4,018.14	251.13	4.17	0:34:10	297.59	297.59	3.51
0:06:15	5,946.06	46.45	22.62	0:13:15	6,027.01	94.17	10.73	0:20:15	5,527.46	172.73	6.07	0:27:15	4,044.78	252.80	4.14	0:34:15	301.78	301.78	3.47
0:06:20	5,960.94	46.57	20.90	0:13:20	5,968.28	93.25	11.61	0:20:20	5,544.03	173.25	6.04	0:27:20	3,996.54	249.78	4.19	0:34:20	310.59	310.59	3.37
0:06:25	5,979.40	46.71	20.44	0:13:25	5,940.39	92.82	11.32	0:20:25	5,628.97	175.91	5.96	0:27:25	4,046.25	252.89	4.14	0:34:25	287.94	287.94	3.64
0:06:30	5,958.85	46.55	23.80	0:13:30	5,879.58	91.87	11.18	0:20:30	5,523.27	172.60	6.07	0:27:30	3,985.01	249.06	4.21	0:34:30	299.47	299.47	3.49
0:06:35	5,943.96	46.44	23.73	0:13:35	5,828.82	91.08	11.74	0:20:35	5,553.89	173.56	6.04	0:27:35	3,985.01	249.06	4.20	0:34:35	302.41	302.41	3.46
0:06:40	5,710.75	44.62	22.19	0:13:40	5,831.34	91.11	11.48	0:20:40	5,605.69	175.18	5.98	0:27:40	4,081.69	255.11	4.11	0:34:40	304.09	304.09	3.44
0:06:45	5,650.99	44.15	19.82	0:13:45	5,855.88	91.50	11.49	0:20:45	5,527.88	172.75	6.06	0:27:45	4,035.13	252.20	4.15	0:34:45	305.76	305.76	3.42
0:06:50	278.08	0.00	209.61	0:13:50	269.69	0.00	12.13	0:20:50	251.45	0.00	5.98	0:27:50	177.00	0.00	4.14	0:34:50	13.00	0.00	3.47
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
																0:35:00	0.00	0.00	0.00

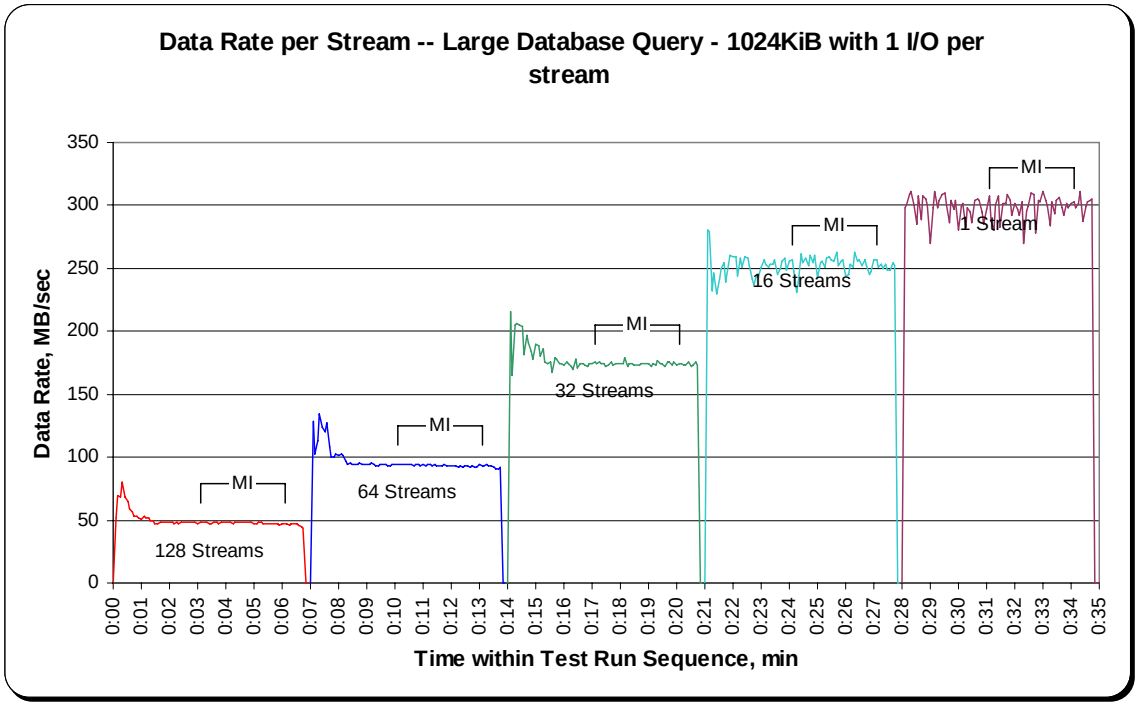
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



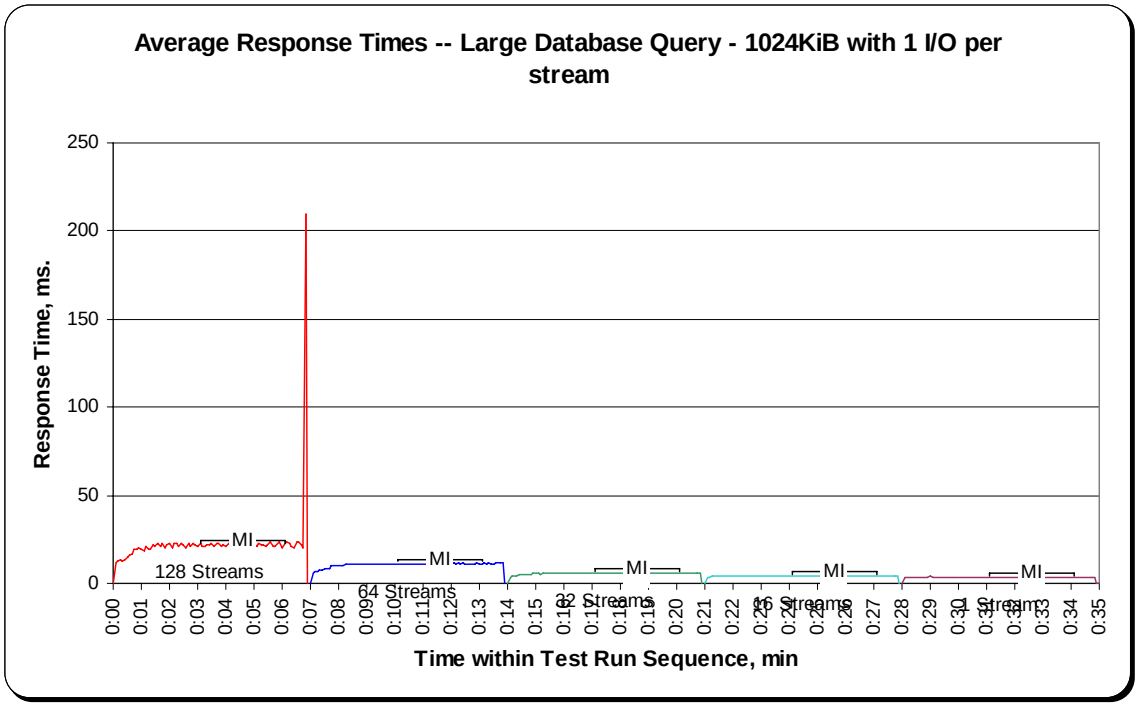
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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.

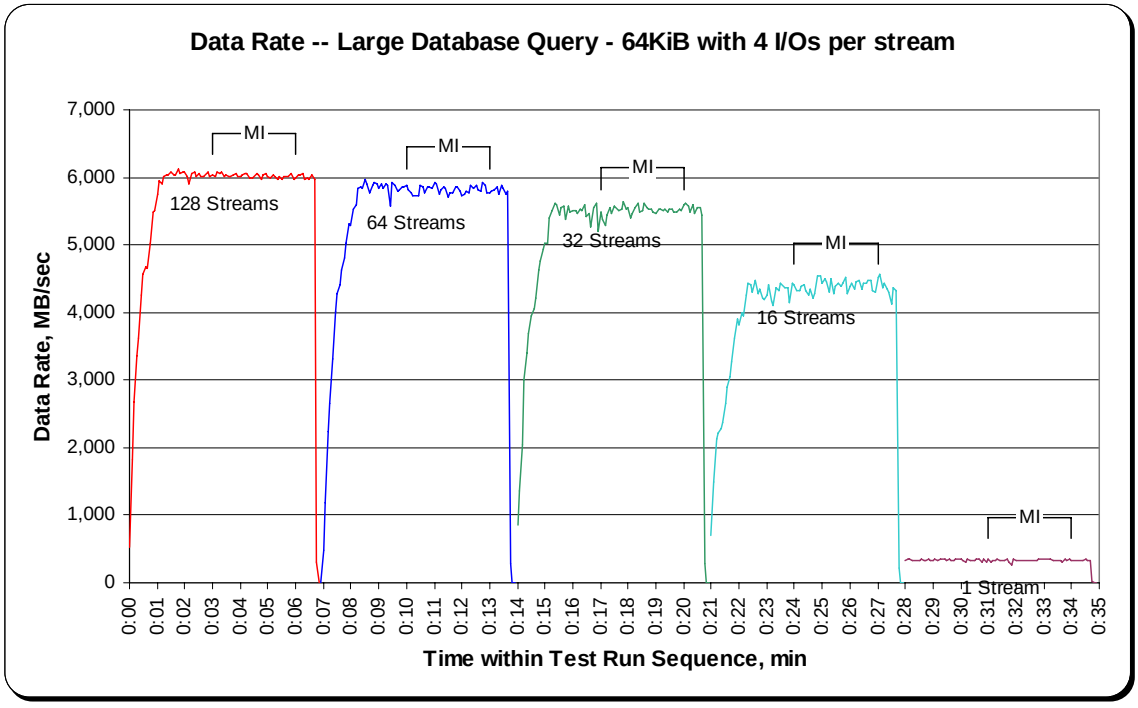
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR1	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	521.30	37.24	2.44	0:06:55	0.00	0.00	0.00	0:14:00	846.70	211.68	0.83	0:21:00	707.48	176.87	0.84	0:28:00	320.97	320.97	0.77
0:00:05	1,821.90	67.48	3.10	0:07:00	482.15	96.43	1.45	0:14:05	1,354.18	225.70	0.95	0:21:05	1,501.10	214.44	0.83	0:28:05	340.22	340.22	0.76
0:00:10	2,669.38	66.73	3.10	0:07:05	1,180.11	98.34	1.90	0:14:10	2,035.02	203.50	0.94	0:21:10	2,126.83	303.83	0.86	0:28:10	344.05	344.05	0.75
0:00:15	3,351.03	74.47	3.28	0:07:10	2,229.44	139.34	1.75	0:14:15	3,011.11	250.93	0.94	0:21:15	2,214.26	276.78	0.86	0:28:15	328.89	328.89	0.79
0:00:20	3,631.48	64.85	3.66	0:07:15	2,664.47	140.24	1.70	0:14:20	3,397.81	242.70	1.03	0:21:20	2,277.17	284.65	0.91	0:28:20	322.10	322.10	0.80
0:00:25	4,262.17	64.58	3.81	0:07:20	3,319.38	132.78	1.73	0:14:25	3,681.43	216.55	1.09	0:21:25	2,358.97	262.11	0.89	0:28:25	333.60	333.60	0.78
0:00:30	4,567.05	62.56	3.97	0:07:25	4,010.39	125.32	1.95	0:14:30	3,949.72	219.43	1.14	0:21:30	2,647.32	264.73	0.91	0:28:30	326.86	326.86	0.79
0:00:35	4,666.69	56.23	4.37	0:07:30	4,268.53	121.96	2.00	0:14:35	4,066.78	214.04	1.19	0:21:35	2,897.74	263.43	0.90	0:28:35	342.86	342.86	0.76
0:00:40	4,658.26	52.34	4.90	0:07:35	4,418.34	116.27	2.14	0:14:40	4,211.48	200.55	1.21	0:21:40	3,053.87	277.62	0.94	0:28:40	329.35	329.35	0.79
0:00:45	5,015.93	50.67	4.83	0:07:40	4,632.14	107.72	2.26	0:14:45	4,635.96	193.17	1.31	0:21:45	3,262.94	271.91	0.91	0:28:45	337.34	337.34	0.77
0:00:50	5,489.04	52.78	4.86	0:07:45	4,816.61	102.48	2.46	0:14:50	4,753.82	190.15	1.34	0:21:50	3,627.75	279.06	0.89	0:28:50	357.87	357.87	0.73
0:00:55	5,498.27	52.87	4.95	0:07:50	5,023.53	100.47	2.54	0:14:55	4,928.42	189.55	1.36	0:21:55	3,900.27	278.59	0.91	0:28:55	330.04	330.04	0.79
0:01:00	5,744.47	50.84	4.96	0:07:55	5,303.19	103.98	2.51	0:15:00	5,026.25	193.32	1.35	0:22:00	3,826.84	273.35	0.95	0:29:00	334.97	334.97	0.78
0:01:05	5,940.97	51.22	5.06	0:08:00	5,281.56	97.81	2.54	0:15:05	5,032.58	179.73	1.37	0:22:05	3,998.05	285.58	0.91	0:29:05	349.80	349.80	0.74
0:01:10	5,911.55	49.68	5.23	0:08:05	5,520.34	100.37	2.58	0:15:10	5,390.14	179.67	1.39	0:22:10	3,949.80	263.32	0.96	0:29:10	331.12	331.12	0.78
0:01:15	6,016.30	49.31	5.19	0:08:10	5,599.18	96.54	2.63	0:15:15	5,507.55	177.66	1.43	0:22:15	4,249.68	265.60	0.93	0:29:15	351.55	351.55	0.74
0:01:20	6,037.57	48.69	5.33	0:08:15	5,842.65	95.78	2.69	0:15:20	5,609.66	175.30	1.46	0:22:20	4,432.75	277.05	0.94	0:29:20	340.27	340.27	0.76
0:01:25	6,037.54	47.17	5.47	0:08:20	5,868.98	94.66	2.73	0:15:25	5,584.69	174.52	1.49	0:22:25	4,407.74	275.48	0.94	0:29:25	350.75	350.75	0.74
0:01:30	6,081.23	47.51	5.50	0:08:25	5,843.62	91.31	2.83	0:15:30	5,451.39	170.36	1.53	0:22:30	4,298.27	268.64	0.97	0:29:30	330.78	330.78	0.79
0:01:35	6,044.29	47.22	5.55	0:08:30	5,971.85	93.31	2.80	0:15:35	5,555.67	173.61	1.50	0:22:35	4,467.15	279.20	0.93	0:29:35	348.12	348.12	0.75
0:01:40	6,033.53	47.14	5.55	0:08:35	5,902.13	92.22	2.84	0:15:40	5,566.01	173.94	1.50	0:22:40	4,286.48	267.91	0.97	0:29:40	326.63	326.63	0.80
0:01:45	6,114.62	47.77	5.48	0:08:40	5,774.28	90.22	2.90	0:15:45	5,382.74	168.21	1.55	0:22:45	4,350.34	271.90	0.96	0:29:45	321.23	321.23	0.81
0:01:50	6,064.45	47.38	5.52	0:08:45	5,871.91	91.75	2.85	0:15:50	5,575.61	174.24	1.50	0:22:50	4,209.01	263.06	0.99	0:29:50	350.73	350.73	0.74
0:01:55	6,085.83	47.55	5.51	0:08:50	5,935.23	92.74	2.82	0:15:55	5,490.83	171.59	1.52	0:22:55	4,189.47	261.84	0.99	0:29:55	340.22	340.22	0.76
0:02:00	6,077.66	47.48	5.51	0:08:55	5,893.92	92.09	2.84	0:16:00	5,512.30	172.26	1.51	0:23:00	4,250.42	265.65	0.98	0:30:00	351.13	351.13	0.74
0:02:05	6,012.75	46.97	5.48	0:09:00	5,839.18	91.24	2.87	0:16:05	5,498.94	171.84	1.52	0:23:05	4,402.76	275.17	0.94	0:30:05	330.21	330.21	0.79
0:02:10	5,908.00	46.16	5.54	0:09:05	5,895.53	92.12	2.84	0:16:10	5,456.78	170.52	1.53	0:23:10	4,174.95	260.93	1.00	0:30:10	314.98	314.98	0.82
0:02:15	6,064.50	47.38	5.53	0:09:10	5,846.40	91.35	2.86	0:16:15	5,538.74	173.09	1.51	0:23:15	4,111.83	256.99	1.01	0:30:15	341.30	341.30	0.76
0:02:20	6,076.96	47.48	5.51	0:09:15	5,910.73	92.36	2.83	0:16:20	5,510.80	172.21	1.51	0:23:20	4,356.12	272.26	0.95	0:30:20	338.00	338.00	0.77
0:02:25	6,013.95	46.98	5.57	0:09:20	5,878.02	91.84	2.83	0:16:25	5,586.85	174.59	1.49	0:23:25	4,318.06	269.88	0.96	0:30:25	331.99	331.99	0.78
0:02:30	6,059.31	47.34	5.55	0:09:25	5,564.14	86.94	2.90	0:16:30	5,420.32	169.39	1.55	0:23:30	4,433.92	277.12	0.94	0:30:30	336.95	336.95	0.77
0:02:35	6,023.29	47.06	5.56	0:09:30	5,920.18	92.50	2.83	0:16:35	5,460.82	170.65	1.53	0:23:35	4,394.08	274.63	0.95	0:30:35	351.31	351.31	0.74
0:02:40	6,009.08	46.95	5.58	0:09:35	5,876.64	91.82	2.85	0:16:40	5,265.91	164.56	1.52	0:23:40	4,360.86	272.55	0.95	0:30:40	352.54	352.54	0.74
0:02:45	6,034.96	47.15	5.55	0:09:40	5,802.39	90.66	2.89	0:16:45	5,561.76	173.81	1.50	0:23:45	4,367.58	272.97	0.95	0:30:45	317.09	317.09	0.82
0:02:50	6,082.28	47.52	5.51	0:09:45	5,805.22	90.71	2.88	0:16:50	5,610.20	175.32	1.48	0:23:50	4,155.87	259.74	0.96	0:30:50	348.75	348.75	0.74
0:02:55	6,009.76	46.95	5.58	0:09:50	5,848.03	91.38	2.86	0:16:55	5,197.92	162.43	1.59	0:23:55	4,436.37	277.27	0.94	0:30:55	302.15	302.15	0.86
				0:09:55	5,853.09	91.45	2.86												

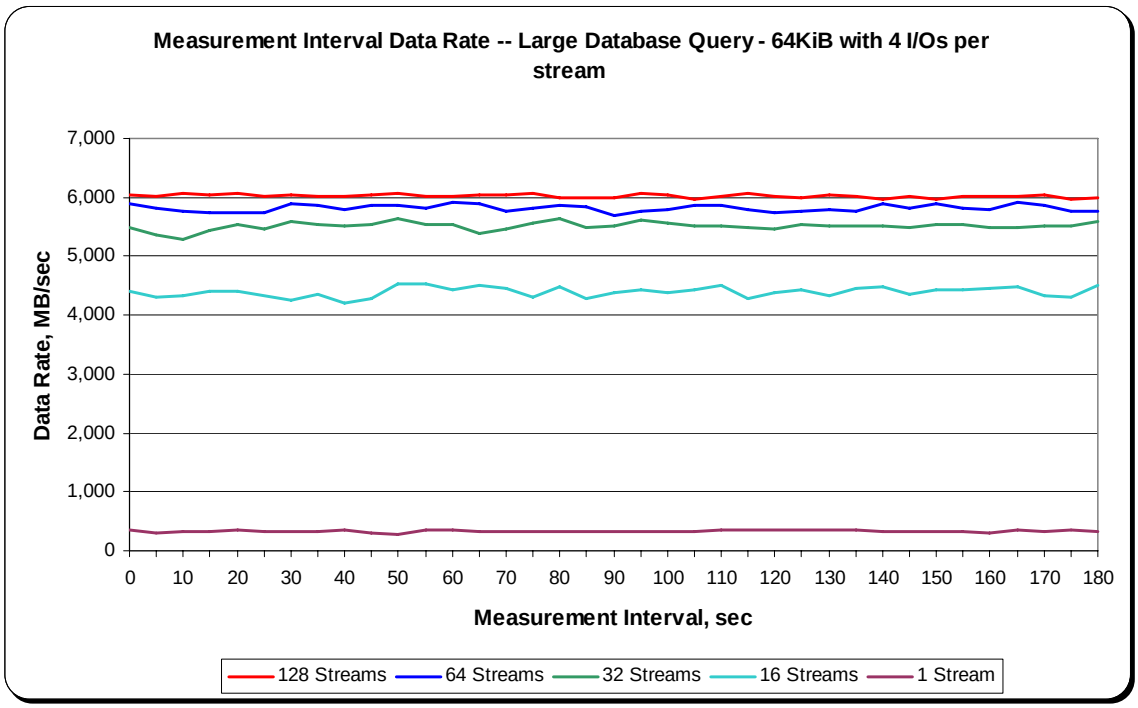
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	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	6,040.69	47.19	5.55	0:10:00	5,880.54	91.88	2.84	0:17:00	5,482.59	171.33	1.50	0:24:00	4,418.17	276.14	0.94	0:31:00	344.26	344.26	0.75
0:03:05	6,022.12	47.05	5.57	0:10:05	5,815.11	90.86	2.88	0:17:05	5,372.27	167.88	1.60	0:24:05	4,317.07	269.82	0.96	0:31:05	311.57	311.57	0.83
0:03:10	6,069.85	47.42	5.52	0:10:10	5,765.65	90.09	2.90	0:17:10	5,278.30	164.95	1.58	0:24:10	4,329.61	270.60	0.96	0:31:10	327.20	327.20	0.79
0:03:15	6,051.38	47.28	5.54	0:10:15	5,738.06	89.66	2.90	0:17:15	5,443.36	170.10	1.53	0:24:15	4,395.76	274.73	0.95	0:31:15	328.48	328.48	0.76
0:03:20	6,080.91	47.51	5.51	0:10:20	5,732.97	89.58	2.94	0:17:20	5,546.46	173.33	1.50	0:24:20	4,413.67	275.85	0.94	0:31:20	354.13	354.13	0.73
0:03:25	6,014.19	46.99	5.56	0:10:25	5,731.79	89.56	2.92	0:17:25	5,463.06	170.72	1.53	0:24:25	4,333.83	270.86	0.96	0:31:25	332.57	332.57	0.78
0:03:30	6,032.48	47.13	5.57	0:10:30	5,881.69	91.90	2.84	0:17:30	5,578.94	174.34	1.49	0:24:30	4,256.33	266.02	0.98	0:31:30	338.33	338.33	0.77
0:03:35	6,018.34	47.02	5.57	0:10:35	5,863.43	91.62	2.86	0:17:35	5,536.37	173.01	1.51	0:24:35	4,345.91	271.62	0.96	0:31:35	325.15	325.15	0.80
0:03:40	6,022.33	47.05	5.57	0:10:40	5,780.22	90.32	2.89	0:17:40	5,502.83	171.96	1.52	0:24:40	4,205.19	262.82	0.99	0:31:40	346.01	346.01	0.75
0:03:45	6,040.07	47.19	5.55	0:10:45	5,859.39	91.55	2.86	0:17:45	5,535.21	172.98	1.51	0:24:45	4,277.98	267.37	0.97	0:31:45	300.89	300.89	0.86
0:03:50	6,063.29	47.37	5.52	0:10:50	5,864.50	91.63	2.85	0:17:50	5,645.45	176.42	1.48	0:24:50	4,536.10	283.51	0.92	0:31:50	271.27	271.27	0.96
0:03:55	6,008.21	46.94	5.58	0:10:55	5,828.14	91.06	2.87	0:17:55	5,531.34	172.85	1.51	0:24:55	4,544.95	284.06	0.91	0:31:55	347.60	347.60	0.75
0:04:00	6,012.10	46.97	5.58	0:11:00	5,914.37	92.41	2.83	0:18:00	5,541.58	173.17	1.51	0:25:00	4,432.97	277.06	0.94	0:32:00	340.00	340.00	0.76
0:04:05	6,034.15	47.14	5.55	0:11:05	5,899.75	92.18	2.84	0:18:05	5,394.70	168.58	1.55	0:25:05	4,505.37	281.59	0.92	0:32:05	336.34	336.34	0.77
0:04:10	6,055.69	47.31	5.54	0:11:10	5,755.12	89.92	2.91	0:18:10	5,473.05	171.03	1.52	0:25:10	4,445.75	277.86	0.94	0:32:10	321.23	321.23	0.81
0:04:15	6,065.97	47.39	5.52	0:11:15	5,811.58	90.81	2.88	0:18:15	5,556.95	173.65	1.50	0:25:15	4,301.79	268.86	0.97	0:32:15	336.60	336.60	0.77
0:04:20	5,990.58	46.80	5.59	0:11:20	5,860.39	91.57	2.86	0:18:20	5,627.85	175.87	1.48	0:25:20	4,493.32	280.83	0.93	0:32:20	337.41	337.41	0.77
0:04:25	5,981.71	46.73	5.60	0:11:25	5,835.12	91.17	2.87	0:18:25	5,479.29	171.23	1.52	0:25:25	4,269.68	266.85	0.97	0:32:25	339.28	339.28	0.77
0:04:30	6,003.31	46.90	5.58	0:11:30	5,700.39	89.07	2.94	0:18:30	5,502.95	171.97	1.52	0:25:30	4,391.69	274.48	0.95	0:32:30	338.22	338.22	0.77
0:04:35	6,056.39	47.32	5.54	0:11:35	5,777.84	90.28	2.90	0:18:35	5,611.10	175.35	1.49	0:25:35	4,424.41	276.53	0.94	0:32:35	336.49	336.49	0.77
0:04:40	6,040.80	47.19	5.54	0:11:40	5,779.85	90.31	2.89	0:18:40	5,559.59	173.74	1.50	0:25:40	4,379.79	273.74	0.95	0:32:40	333.76	333.76	0.78
0:04:45	5,971.51	46.65	5.62	0:11:45	5,855.62	91.49	2.86	0:18:45	5,519.45	172.48	1.51	0:25:45	4,436.69	277.29	0.94	0:32:45	339.53	339.53	0.76
0:04:50	6,027.57	47.09	5.56	0:11:50	5,863.42	91.62	2.85	0:18:50	5,521.65	172.55	1.51	0:25:50	4,514.01	282.13	0.92	0:32:50	344.03	344.03	0.75
0:04:55	6,056.94	47.32	5.53	0:11:55	5,792.42	90.51	2.89	0:18:55	5,484.00	171.38	1.52	0:25:55	4,272.10	267.01	0.97	0:32:55	344.57	344.57	0.75
0:05:00	6,018.25	47.02	5.57	0:12:00	5,734.30	89.60	2.92	0:19:00	5,470.40	170.95	1.53	0:26:00	4,379.27	273.70	0.95	0:33:00	341.08	341.08	0.76
0:05:05	5,990.16	46.80	5.59	0:12:05	5,759.40	89.99	2.90	0:19:05	5,534.05	172.94	1.51	0:26:05	4,421.66	276.35	0.94	0:33:05	350.62	350.62	0.74
0:05:10	6,037.78	47.17	5.55	0:12:10	5,796.88	90.58	2.89	0:19:10	5,519.27	172.48	1.51	0:26:10	4,337.37	271.09	0.96	0:33:10	343.25	343.25	0.76
0:05:15	6,015.34	46.99	5.54	0:12:15	5,773.83	90.22	2.90	0:19:15	5,514.79	172.34	1.51	0:26:15	4,447.97	278.00	0.94	0:33:15	351.19	351.19	0.74
0:05:20	5,959.59	46.56	5.65	0:12:20	5,883.69	91.93	2.84	0:19:20	5,519.75	172.49	1.51	0:26:20	4,472.64	279.54	0.93	0:33:20	335.25	335.25	0.77
0:05:25	6,017.74	47.01	5.56	0:12:25	5,827.14	91.05	2.87	0:19:25	5,485.50	171.42	1.52	0:26:25	4,346.22	271.64	0.95	0:33:25	319.18	319.18	0.81
0:05:30	5,972.23	46.66	5.60	0:12:30	5,888.60	92.01	2.84	0:19:30	5,527.55	172.74	1.51	0:26:30	4,442.56	277.66	0.94	0:33:30	339.43	339.43	0.77
0:05:35	6,015.18	46.99	5.56	0:12:35	5,811.84	90.81	2.88	0:19:35	5,529.23	172.79	1.51	0:26:35	4,442.75	277.67	0.94	0:33:35	339.05	339.05	0.77
0:05:40	6,015.49	47.00	5.61	0:12:40	5,785.04	90.39	2.89	0:19:40	5,488.94	171.53	1.52	0:26:40	4,467.04	279.19	0.93	0:33:40	302.79	302.79	0.86
0:05:45	6,009.69	46.95	5.57	0:12:45	5,919.79	92.50	2.82	0:19:45	5,487.04	171.47	1.52	0:26:45	4,483.56	280.22	0.93	0:33:45	340.36	340.36	0.76
0:05:50	6,049.46	47.26	5.54	0:12:50	5,869.98	91.72	2.85	0:19:50	5,521.50	172.55	1.51	0:26:50	4,331.92	270.74	0.96	0:33:50	337.03	337.03	0.77
0:05:55	5,967.09	46.62	5.61	0:12:55	5,775.23	90.24	2.90	0:19:55	5,516.22	172.38	1.51	0:26:55	4,304.97	269.06	0.95	0:33:55	341.46	341.46	0.76
0:06:00	5,996.24	46.85	5.59	0:13:00	5,773.57	90.21	2.89	0:20:00	5,591.42	174.73	1.49	0:27:00	4,515.44	282.22	0.93	0:34:00	323.22	323.22	0.80
0:06:05	6,026.23	47.08	5.56	0:13:05	5,803.97	90.69	2.89	0:20:05	5,611.37	175.36	1.49	0:27:05	4,560.97	285.06	0.91	0:34:05	338.00	338.00	0.77
0:06:10	6,040.63	47.19	5.55	0:13:10	5,814.54	90.85	2.88	0:20:10	5,580.22	174.38	1.50	0:27:10	4,373.03	273.31	0.95	0:34:10	338.77	338.77	0.77
0:06:15	6,052.11	47.28	5.53	0:13:15	5,853.35	91.46	2.86	0:20:15	5,481.45	171.30	1.52	0:27:15	4,436.43	277.28	0.94	0:34:15	331.85	331.85	0.78
0:06:20	5,978.76	46.71	5.60	0:13:20	5,757.33	89.96	2.91	0:20:20	5,587.18	174.60	1.49	0:27:20	4,335.45	270.97	0.95	0:34:20	330.87	330.87	0.79
0:06:25	5,999.86	46.87	5.59	0:13:25	5,875.49	91.80	2.85	0:20:25	5,469.05	170.91	1.53	0:27:25	4,293.77	268.36	0.98	0:34:25	335.75	335.75	0.77
0:06:30	5,973.19	46.67	5.61	0:13:30	5,836.63	91.20	2.86	0:20:30	5,553.59	173.55	1.50	0:27:30	4,119.60	257.48	1.01	0:34:30	344.86	344.86	0.75
0:06:35	6,039.76	47.19	5.55	0:13:35	5,739.72	89.68	2.92	0:20:35	5,547.62	173.36	1.50	0:27:35	4,363.44	272.71	0.95	0:34:35	334.45	334.45	0.78
0:06:40	5,975.77	46.69	5.61	0:13:40	5,796.69	90.57	2.89	0:20:40	5,451.76	170.37	1.53	0:27:40	4,314.79	269.67	0.96	0:34:40	325.49	325.49	0.80
0:06:45	298.17	0.00	5.86	0:13:45	293.29	0.00	2.93	0:20:45	286.79	0.00	1.50	0:27:45	223.91	0.00	0.95	0:34:45	17.18	0.00	0.73
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

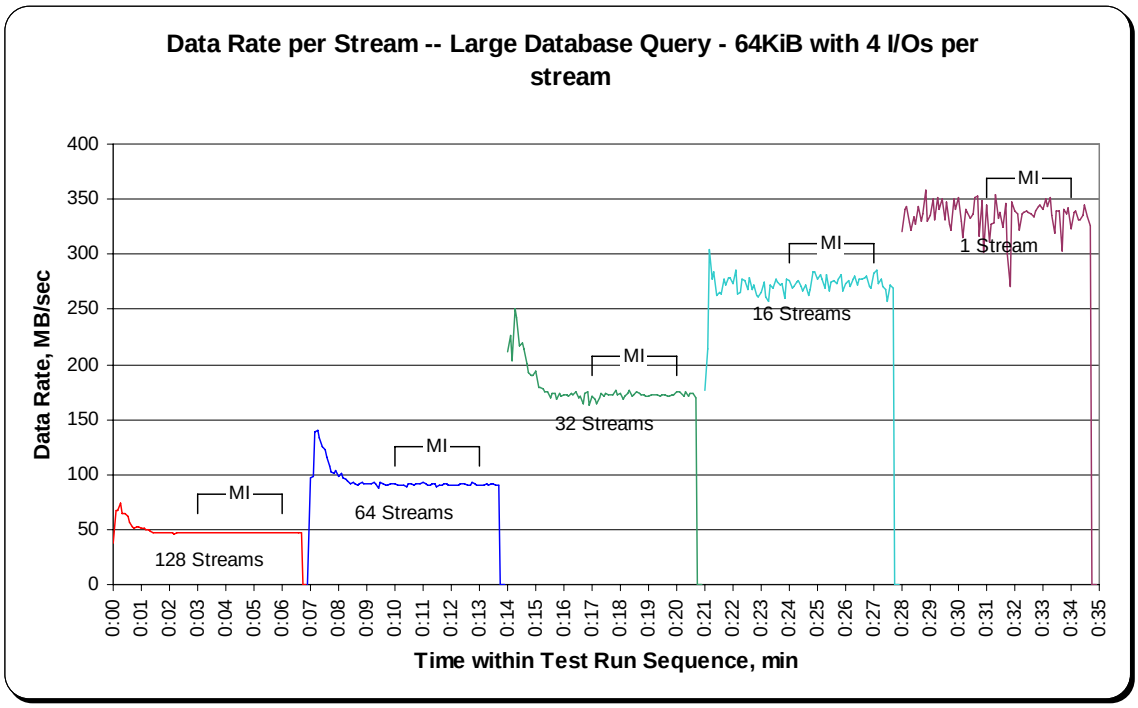
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



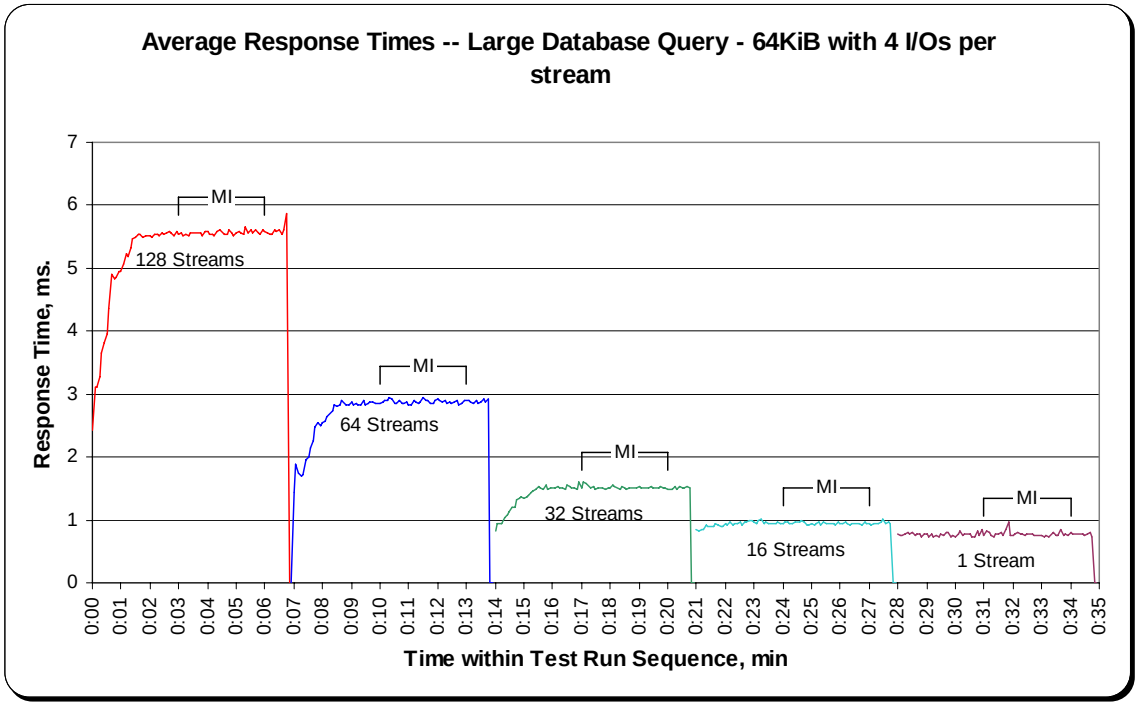
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



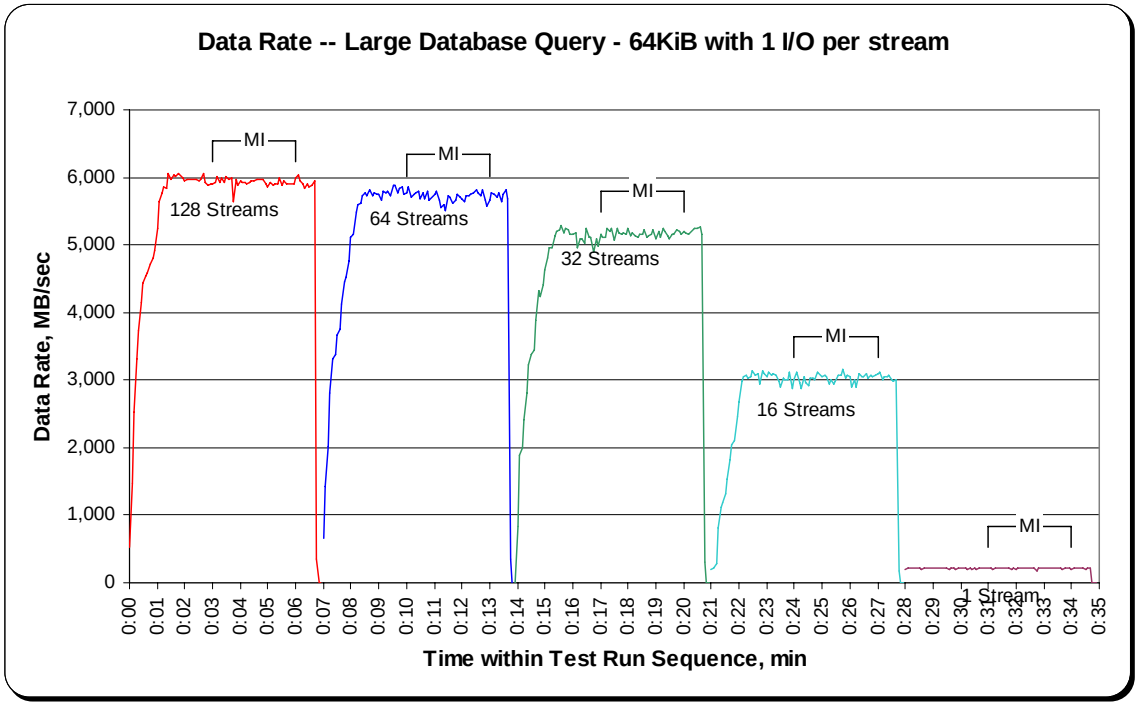
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR6	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	523.60	52.36	0.63	0:07:00	667.05	83.38	0.45	0:13:55	0.00	0.00	0.00	0:21:00	207.25	207.25	0.29	0:28:00	202.31	202.31	0.30
0:00:05	1,474.50	56.71	0.79	0:07:05	1,425.54	118.79	0.48	0:14:00	839.45	93.27	0.32	0:21:05	218.79	218.79	0.29	0:28:05	220.00	220.00	0.29
0:00:10	2,531.62	66.62	0.81	0:07:10	2,027.15	101.36	0.49	0:14:05	1,883.79	188.38	0.33	0:21:10	293.61	97.87	0.30	0:28:10	214.33	214.33	0.30
0:00:15	3,304.82	70.32	0.85	0:07:15	2,815.83	122.43	0.47	0:14:10	1,997.86	166.49	0.33	0:21:15	813.36	162.67	0.32	0:28:15	213.99	213.99	0.30
0:00:20	3,724.27	63.12	0.95	0:07:20	3,305.65	127.14	0.50	0:14:15	2,415.62	172.54	0.34	0:21:20	1,114.44	185.74	0.32	0:28:20	216.93	216.93	0.30
0:00:25	4,148.73	66.92	0.94	0:07:25	3,371.16	116.25	0.51	0:14:20	2,798.19	164.60	0.35	0:21:25	1,195.18	199.20	0.32	0:28:25	214.92	214.92	0.30
0:00:30	4,437.63	65.26	0.95	0:07:30	3,653.61	121.79	0.52	0:14:25	3,225.46	169.76	0.36	0:21:30	1,319.22	188.46	0.32	0:28:30	211.24	211.24	0.29
0:00:35	4,532.98	63.84	1.00	0:07:35	3,754.26	107.26	0.55	0:14:30	3,383.18	169.16	0.37	0:21:35	1,530.93	170.10	0.34	0:28:35	205.93	205.93	0.32
0:00:40	4,576.05	57.92	1.07	0:07:40	4,136.07	103.40	0.57	0:14:35	3,450.57	172.53	0.37	0:21:40	1,822.00	165.64	0.36	0:28:40	217.25	217.25	0.29
0:00:45	4,714.86	55.47	1.12	0:07:45	4,459.65	108.77	0.59	0:14:40	3,875.70	161.49	0.37	0:21:45	2,049.64	186.33	0.35	0:28:45	218.62	218.62	0.29
0:00:50	4,804.06	52.22	1.20	0:07:50	4,517.83	96.12	0.64	0:14:45	4,328.92	166.50	0.38	0:21:50	2,113.29	176.11	0.34	0:28:50	214.91	214.91	0.30
0:00:55	4,907.53	50.59	1.26	0:07:55	4,754.35	97.03	0.66	0:14:50	4,244.95	163.27	0.39	0:21:55	2,456.83	175.49	0.34	0:28:55	219.83	219.83	0.29
0:01:00	5,240.73	50.39	1.25	0:08:00	5,121.39	98.49	0.65	0:14:55	4,407.96	169.54	0.38	0:22:00	2,687.92	179.19	0.34	0:29:00	215.61	215.61	0.30
0:01:05	5,635.30	50.32	1.26	0:08:05	5,161.53	92.17	0.67	0:15:00	4,634.66	165.52	0.38	0:22:05	2,984.96	186.56	0.34	0:29:05	215.65	215.65	0.30
0:01:10	5,775.54	49.79	1.29	0:08:10	5,488.30	96.29	0.67	0:15:05	4,799.92	165.51	0.38	0:22:10	3,050.93	190.68	0.34	0:29:10	219.63	219.63	0.29
0:01:15	5,863.65	48.06	1.33	0:08:15	5,597.94	94.88	0.68	0:15:10	4,968.42	165.61	0.39	0:22:15	3,071.79	191.99	0.33	0:29:15	215.88	215.88	0.30
0:01:20	5,829.03	45.90	1.40	0:08:20	5,613.75	92.03	0.70	0:15:15	4,958.65	159.96	0.39	0:22:20	3,038.86	189.93	0.34	0:29:20	219.36	219.36	0.29
0:01:25	6,053.94	47.30	1.38	0:08:25	5,725.80	89.47	0.70	0:15:20	5,125.82	160.18	0.39	0:22:25	3,057.79	191.11	0.34	0:29:25	216.37	216.37	0.30
0:01:30	5,975.50	46.68	1.40	0:08:30	5,767.71	90.12	0.72	0:15:25	5,200.47	162.51	0.40	0:22:30	3,128.20	195.51	0.33	0:29:30	217.24	217.24	0.30
0:01:35	6,030.34	47.11	1.38	0:08:35	5,731.58	89.56	0.72	0:15:30	5,214.78	162.96	0.40	0:22:35	3,067.25	191.70	0.33	0:29:35	208.08	208.08	0.31
0:01:40	6,018.66	47.02	1.39	0:08:40	5,822.00	90.97	0.71	0:15:35	5,287.55	165.24	0.39	0:22:40	3,102.78	193.92	0.33	0:29:40	209.97	209.97	0.31
0:01:45	6,061.81	47.36	1.38	0:08:45	5,716.82	89.33	0.73	0:15:40	5,178.86	161.84	0.40	0:22:45	2,949.50	184.34	0.35	0:29:45	212.59	212.59	0.30
0:01:50	6,027.82	47.09	1.38	0:08:50	5,772.64	90.20	0.72	0:15:45	5,237.39	163.67	0.39	0:22:50	3,127.61	195.48	0.33	0:29:50	206.91	206.91	0.31
0:01:55	5,981.69	46.73	1.40	0:08:55	5,753.01	89.89	0.72	0:15:50	5,217.99	163.06	0.39	0:22:55	3,089.83	193.11	0.33	0:29:55	209.45	209.45	0.31
0:02:00	5,951.61	46.50	1.40	0:09:00	5,738.55	89.66	0.72	0:15:55	5,150.04	160.94	0.40	0:23:00	3,045.70	190.36	0.34	0:30:00	216.09	216.09	0.30
0:02:05	5,964.25	46.60	1.40	0:09:05	5,665.51	88.52	0.73	0:16:00	5,147.51	160.86	0.40	0:23:05	3,105.47	194.09	0.33	0:30:05	219.00	219.00	0.29
0:02:10	5,973.36	46.67	1.40	0:09:10	5,787.50	90.43	0.72	0:16:05	5,184.98	162.03	0.40	0:23:10	3,071.54	191.97	0.33	0:30:10	215.43	215.43	0.30
0:02:15	5,965.30	46.60	1.40	0:09:15	5,778.59	90.29	0.72	0:16:10	4,956.91	154.90	0.42	0:23:15	3,084.19	192.76	0.33	0:30:15	208.44	208.44	0.31
0:02:20	5,962.61	46.58	1.40	0:09:20	5,785.04	90.39	0.72	0:16:15	5,100.55	159.39	0.40	0:23:20	3,067.70	191.73	0.33	0:30:20	214.49	214.49	0.30
0:02:25	5,976.98	46.70	1.39	0:09:25	5,736.78	89.64	0.72	0:16:20	5,097.29	159.29	0.40	0:23:25	2,988.70	186.79	0.34	0:30:25	200.99	200.99	0.32
0:02:30	5,942.23	46.42	1.40	0:09:30	5,871.30	91.74	0.71	0:16:25	5,014.66	156.71	0.41	0:23:30	2,900.32	181.27	0.35	0:30:30	217.26	217.26	0.30
0:02:35	5,960.04	46.56	1.40	0:09:35	5,886.38	91.97	0.71	0:16:30	5,244.98	163.91	0.39	0:23:35	3,024.11	189.01	0.34	0:30:35	201.93	201.93	0.32
0:02:40	6,047.60	47.25	1.38	0:09:40	5,771.84	90.19	0.72	0:16:35	5,117.05	159.91	0.40	0:23:40	3,011.17	188.20	0.34	0:30:40	218.29	218.29	0.29
0:02:45	5,927.90	46.31	1.41	0:09:45	5,843.29	91.30	0.71	0:16:40	5,115.62	159.86	0.40	0:23:45	3,016.49	188.53	0.34	0:30:45	214.71	214.71	0.30
0:02:50	5,884.72	45.97	1.42	0:09:50	5,856.52	91.51	0.71	0:16:45	4,891.92	152.87	0.41	0:23:50	3,107.12	194.19	0.33	0:30:50	218.67	218.67	0.29
0:02:55	5,906.80	46.15	1.41	0:09:55	5,757.50	89.96	0.72	0:16:50	5,081.30	158.79	0.39	0:23:55	2,866.96	179.19	0.36	0:30:55	217.53	217.53	0.29
								0:16:55	4,988.83	155.90	0.40								

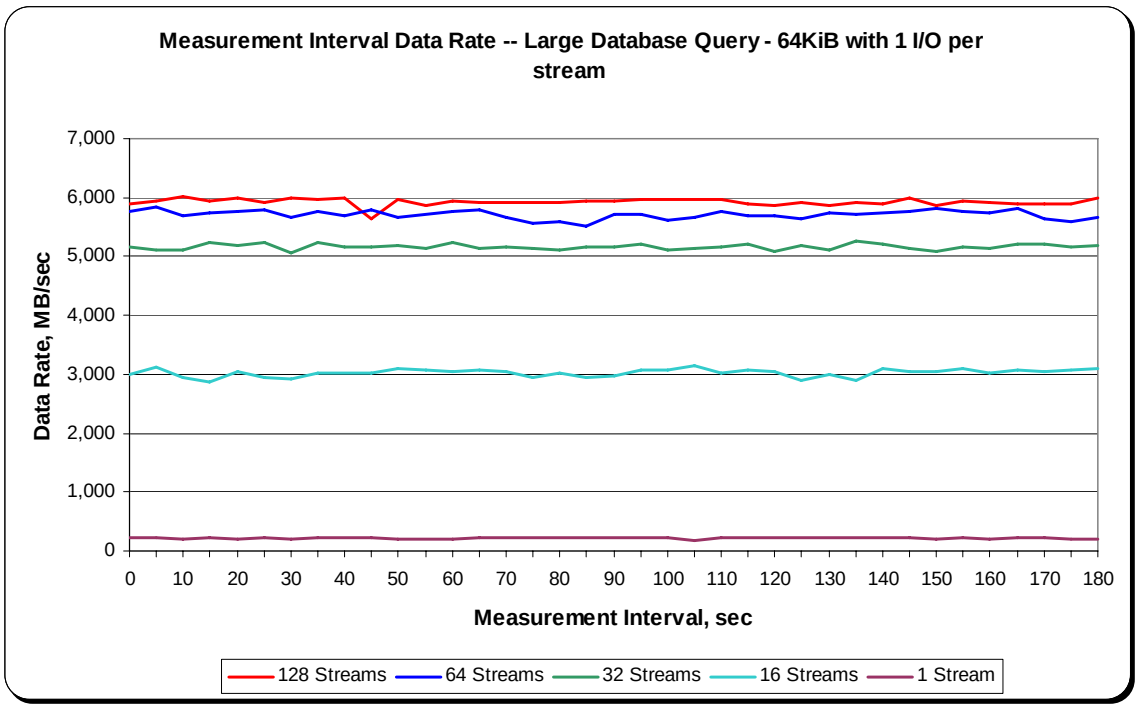
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period

TR6	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	5,896.56	46.07	1.42	0:10:00	5,763.98	90.06	0.72	0:17:00	5,160.13	161.25	0.43	0:24:00	3,006.78	187.92	0.34	0:31:00	217.14	217.14	0.30
0:03:05	5,933.57	46.36	1.41	0:10:05	5,851.37	91.43	0.71	0:17:05	5,112.23	159.76	0.40	0:24:05	3,116.12	194.76	0.33	0:31:05	217.68	217.68	0.29
0:03:10	6,009.19	46.95	1.39	0:10:10	5,695.86	89.00	0.73	0:17:10	5,107.28	159.60	0.40	0:24:10	2,951.55	184.47	0.35	0:31:10	202.98	202.98	0.30
0:03:15	5,932.28	46.35	1.41	0:10:15	5,748.24	89.82	0.72	0:17:15	5,234.82	163.59	0.39	0:24:15	2,866.90	179.18	0.36	0:31:15	215.17	215.17	0.30
0:03:20	5,988.78	46.79	1.39	0:10:20	5,772.19	90.19	0.72	0:17:20	5,192.22	162.26	0.40	0:24:20	3,051.03	190.69	0.34	0:31:20	210.35	210.35	0.31
0:03:25	5,923.19	46.27	1.41	0:10:25	5,795.23	90.55	0.72	0:17:25	5,237.53	163.67	0.39	0:24:25	2,956.75	184.80	0.35	0:31:25	218.11	218.11	0.29
0:03:30	6,002.25	46.89	1.39	0:10:30	5,677.47	88.71	0.73	0:17:30	5,062.71	158.21	0.41	0:24:30	2,922.86	182.68	0.35	0:31:30	213.92	213.92	0.30
0:03:35	5,972.02	46.66	1.40	0:10:35	5,769.01	90.14	0.72	0:17:35	5,241.32	163.79	0.39	0:24:35	3,034.04	189.63	0.34	0:31:35	220.51	220.51	0.29
0:03:40	5,998.90	46.87	1.39	0:10:40	5,692.32	88.94	0.73	0:17:40	5,169.94	161.56	0.40	0:24:40	3,028.46	189.28	0.34	0:31:40	217.53	217.53	0.29
0:03:45	5,643.31	44.09	1.42	0:10:45	5,785.85	90.40	0.72	0:17:45	5,153.34	161.04	0.40	0:24:45	3,015.45	188.47	0.34	0:31:45	217.47	217.47	0.29
0:03:50	5,971.22	46.65	1.40	0:10:50	5,666.59	88.54	0.73	0:17:50	5,175.88	161.75	0.40	0:24:50	3,105.04	194.07	0.33	0:31:50	206.95	206.95	0.31
0:03:55	5,878.17	45.92	1.42	0:10:55	5,708.32	89.19	0.73	0:17:55	5,147.38	160.86	0.40	0:24:55	3,065.07	191.57	0.34	0:31:55	210.16	210.16	0.31
0:04:00	5,944.31	46.44	1.40	0:11:00	5,756.60	89.95	0.72	0:18:00	5,244.22	163.88	0.39	0:25:00	3,050.12	190.63	0.34	0:32:00	195.82	195.82	0.33
0:04:05	5,916.63	46.22	1.41	0:11:05	5,793.37	90.52	0.72	0:18:05	5,142.84	160.71	0.40	0:25:05	3,078.19	192.39	0.33	0:32:05	216.00	216.00	0.30
0:04:10	5,928.01	46.31	1.41	0:11:10	5,654.19	88.35	0.73	0:18:10	5,169.08	161.53	0.40	0:25:10	3,049.35	190.58	0.34	0:32:10	215.47	215.47	0.30
0:04:15	5,907.52	46.15	1.41	0:11:15	5,557.64	86.84	0.72	0:18:15	5,126.91	160.22	0.39	0:25:15	2,944.35	184.02	0.33	0:32:15	217.53	217.53	0.29
0:04:20	5,926.28	46.30	1.41	0:11:20	5,599.21	87.49	0.74	0:18:20	5,105.56	159.55	0.40	0:25:20	3,011.72	188.23	0.34	0:32:20	217.08	217.08	0.30
0:04:25	5,945.95	46.45	1.40	0:11:25	5,516.81	86.20	0.76	0:18:25	5,165.09	161.41	0.40	0:25:25	2,940.95	183.81	0.35	0:32:25	219.34	219.34	0.29
0:04:30	5,945.36	46.45	1.40	0:11:30	5,724.57	89.45	0.73	0:18:30	5,156.12	161.13	0.40	0:25:30	2,975.12	185.95	0.35	0:32:30	219.91	219.91	0.29
0:04:35	5,972.05	46.66	1.40	0:11:35	5,705.87	89.15	0.73	0:18:35	5,212.21	162.88	0.40	0:25:35	3,066.56	191.66	0.33	0:32:35	218.95	218.95	0.29
0:04:40	5,964.99	46.60	1.40	0:11:40	5,626.49	87.91	0.74	0:18:40	5,115.59	159.86	0.40	0:25:40	3,074.93	192.18	0.33	0:32:40	218.69	218.69	0.29
0:04:45	5,973.36	46.67	1.40	0:11:45	5,667.22	88.55	0.73	0:18:45	5,142.24	160.69	0.40	0:25:45	3,157.26	197.33	0.33	0:32:45	181.51	181.51	0.35
0:04:50	5,976.16	46.69	1.40	0:11:50	5,756.88	89.95	0.72	0:18:50	5,165.60	161.42	0.40	0:25:50	3,024.85	189.05	0.34	0:32:50	216.30	216.30	0.30
0:04:55	5,900.44	46.10	1.41	0:11:55	5,697.50	89.02	0.72	0:18:55	5,213.23	162.91	0.40	0:25:55	3,062.59	191.41	0.34	0:32:55	217.66	217.66	0.29
0:05:00	5,862.58	45.80	1.42	0:12:00	5,690.60	88.92	0.73	0:19:00	5,081.04	158.78	0.41	0:26:00	3,046.06	190.38	0.34	0:33:00	217.85	217.85	0.29
0:05:05	5,915.80	46.22	1.41	0:12:05	5,639.44	88.12	0.74	0:19:05	5,190.25	162.20	0.40	0:26:05	2,895.01	180.94	0.36	0:33:05	218.04	218.04	0.29
0:05:10	5,878.25	45.92	1.41	0:12:10	5,732.40	89.57	0.73	0:19:10	5,119.84	160.00	0.40	0:26:10	3,004.17	187.76	0.34	0:33:10	218.31	218.31	0.29
0:05:15	5,910.46	46.18	1.40	0:12:15	5,725.56	89.46	0.72	0:19:15	5,251.04	164.09	0.39	0:26:15	2,887.80	180.49	0.36	0:33:15	217.47	217.47	0.29
0:05:20	5,902.96	46.12	1.44	0:12:20	5,745.26	89.77	0.73	0:19:20	5,203.06	162.60	0.40	0:26:20	3,098.16	193.64	0.33	0:33:20	217.88	217.88	0.29
0:05:25	5,995.88	46.84	1.39	0:12:25	5,764.38	90.07	0.72	0:19:25	5,134.89	160.47	0.40	0:26:25	3,051.13	190.70	0.34	0:33:25	217.29	217.29	0.30
0:05:30	5,870.97	45.87	1.42	0:12:30	5,819.51	90.93	0.71	0:19:30	5,091.62	159.11	0.40	0:26:30	3,050.41	190.65	0.34	0:33:30	213.78	213.78	0.30
0:05:35	5,941.90	46.42	1.40	0:12:35	5,777.05	90.27	0.72	0:19:35	5,167.48	161.48	0.40	0:26:35	3,098.42	193.65	0.33	0:33:35	218.92	218.92	0.29
0:05:40	5,907.99	46.16	1.41	0:12:40	5,737.45	89.65	0.72	0:19:40	5,148.91	160.90	0.40	0:26:40	3,032.00	189.50	0.34	0:33:40	205.60	205.60	0.31
0:05:45	5,894.57	46.05	1.42	0:12:45	5,807.64	90.74	0.71	0:19:45	5,211.79	162.87	0.40	0:26:45	3,067.30	191.71	0.33	0:33:45	216.90	216.90	0.30
0:05:50	5,902.87	46.12	1.41	0:12:50	5,652.83	88.33	0.73	0:19:50	5,209.91	162.81	0.40	0:26:50	3,051.77	190.74	0.34	0:33:50	217.03	217.03	0.30
0:05:55	5,897.18	46.07	1.42	0:12:55	5,579.22	87.18	0.74	0:19:55	5,150.33	160.95	0.40	0:26:55	3,069.34	191.83	0.33	0:33:55	210.92	210.92	0.30
0:06:00	5,985.70	46.76	1.39	0:13:00	5,658.47	88.41	0.73	0:20:00	5,194.01	162.31	0.40	0:27:00	3,087.48	192.97	0.33	0:34:00	205.73	205.73	0.31
0:06:05	6,031.46	47.12	1.38	0:13:05	5,769.95	90.16	0.72	0:20:05	5,184.35	162.01	0.40	0:27:05	3,119.67	194.98	0.33	0:34:05	210.95	210.95	0.30
0:06:10	5,949.46	46.48	1.40	0:13:10	5,741.32	89.71	0.72	0:20:10	5,153.69	161.05	0.40	0:27:10	3,012.39	188.27	0.34	0:34:10	209.11	209.11	0.31
0:06:15	5,903.67	46.12	1.41	0:13:15	5,712.26	89.25	0.73	0:20:15	5,187.74	162.12	0.40	0:27:15	3,060.31	191.27	0.34	0:34:15	214.14	214.14	0.30
0:06:20	5,847.51	45.68	1.43	0:13:20	5,781.10	90.33	0.72	0:20:20	5,230.55	163.45	0.39	0:27:20	3,048.06	190.50	0.34	0:34:20	216.47	216.47	0.30
0:06:25	5,904.44	46.13	1.41	0:13:25	5,647.25	88.24	0.74	0:20:25	5,239.02	163.72	0.39	0:27:25	3,062.06	191.38	0.34	0:34:25	215.90	215.90	0.30
0:06:30	5,856.71	45.76	1.42	0:13:30	5,750.22	89.85	0.72	0:20:30	5,243.87	163.87	0.39	0:27:30	3,001.05	187.57	0.34	0:34:30	199.82	199.82	0.32
0:06:35	5,890.01	46.02	1.42	0:13:35	5,816.64	90.88	0.71	0:20:35	5,273.07	164.78	0.39	0:27:35	2,984.16	186.51	0.34	0:34:35	218.68	218.68	0.29
0:06:40	5,937.36	46.39	1.40	0:13:40	5,673.61	88.65	0.73	0:20:40	5,166.38	161.45	0.40	0:27:40	3,009.27	188.08	0.34	0:34:40	214.54	214.54	0.30
0:06:45	352.32	0.00	1.49	0:13:45	342.59	0.00	0.73	0:20:45	305.36	0.00	0.40	0:27:45	185.23	0.00	0.33	0:34:45	10.74	0.00	0.28
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

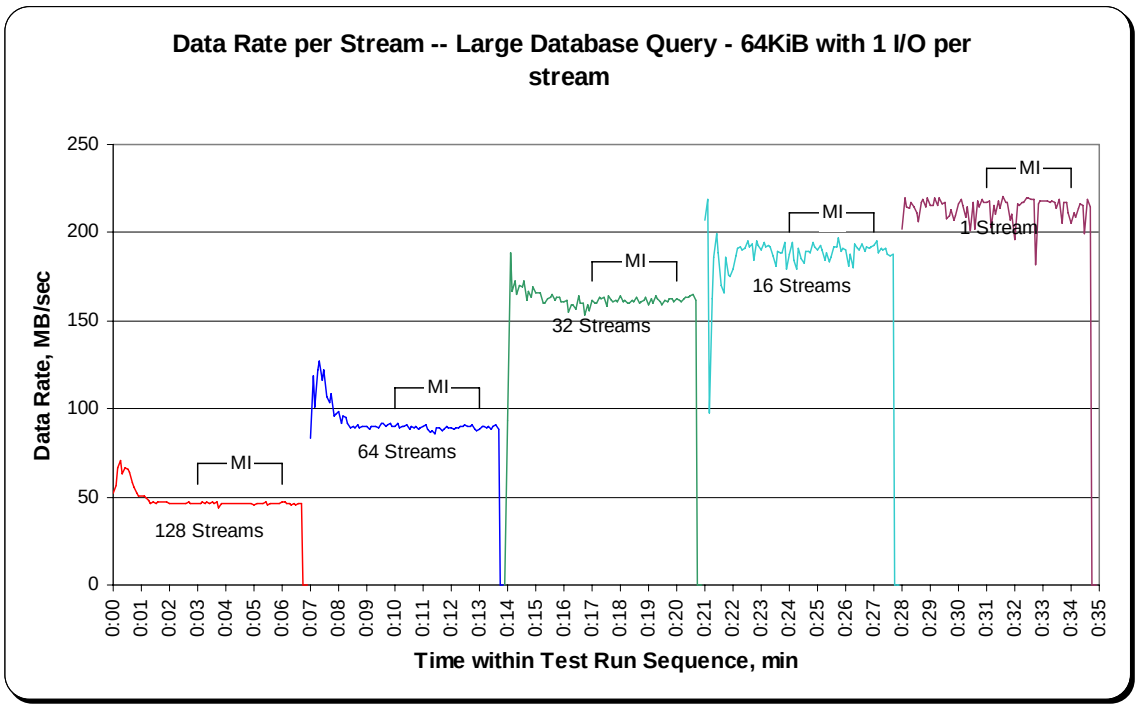
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



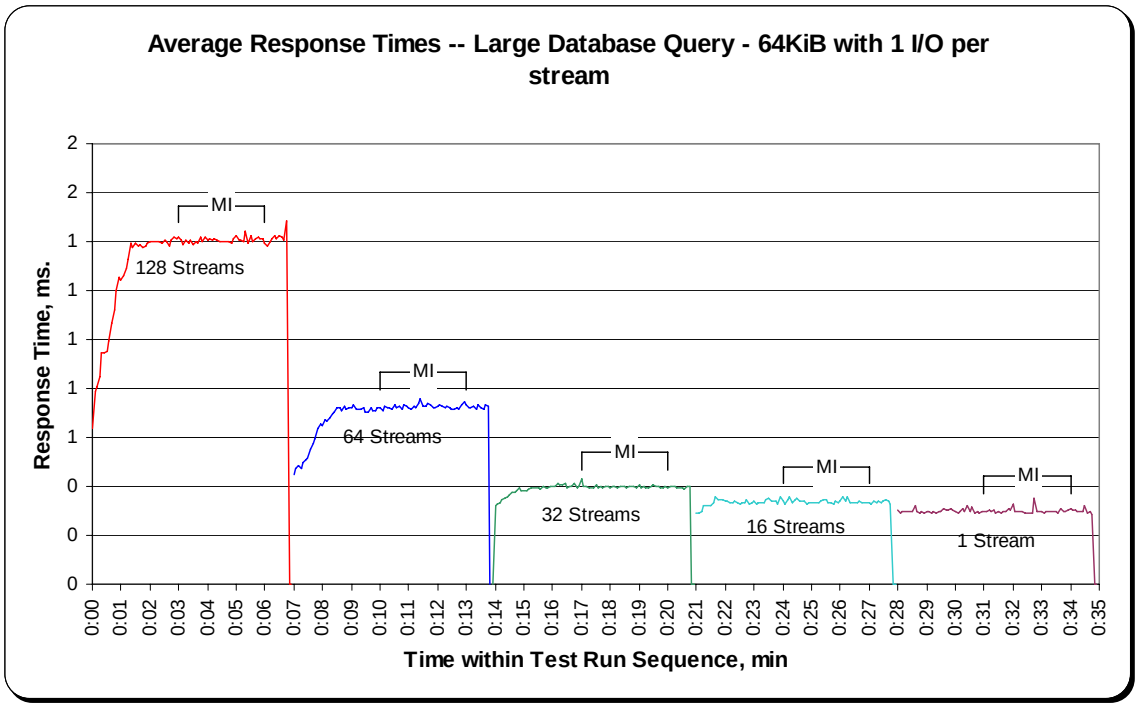
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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 111.

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.

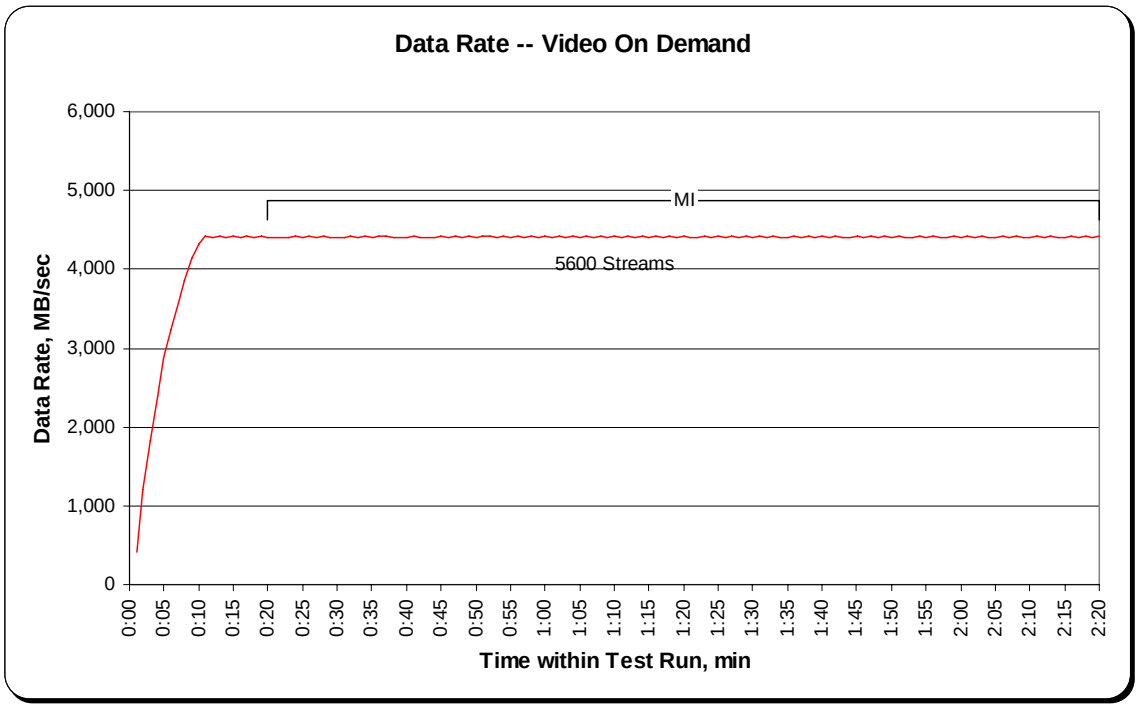
SPC-2-VOD	TR1
Number of Streams	5600
Ramp-up Time, sec	1,200
Measurement Interval, sec	7,200
Average Data Rate, MB/sec	4,404.14
Per Stream Data Rate, MB/sec	0.79
Average Response Time, ms	12.55
Average Max Response Time, ms	213.42

Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL

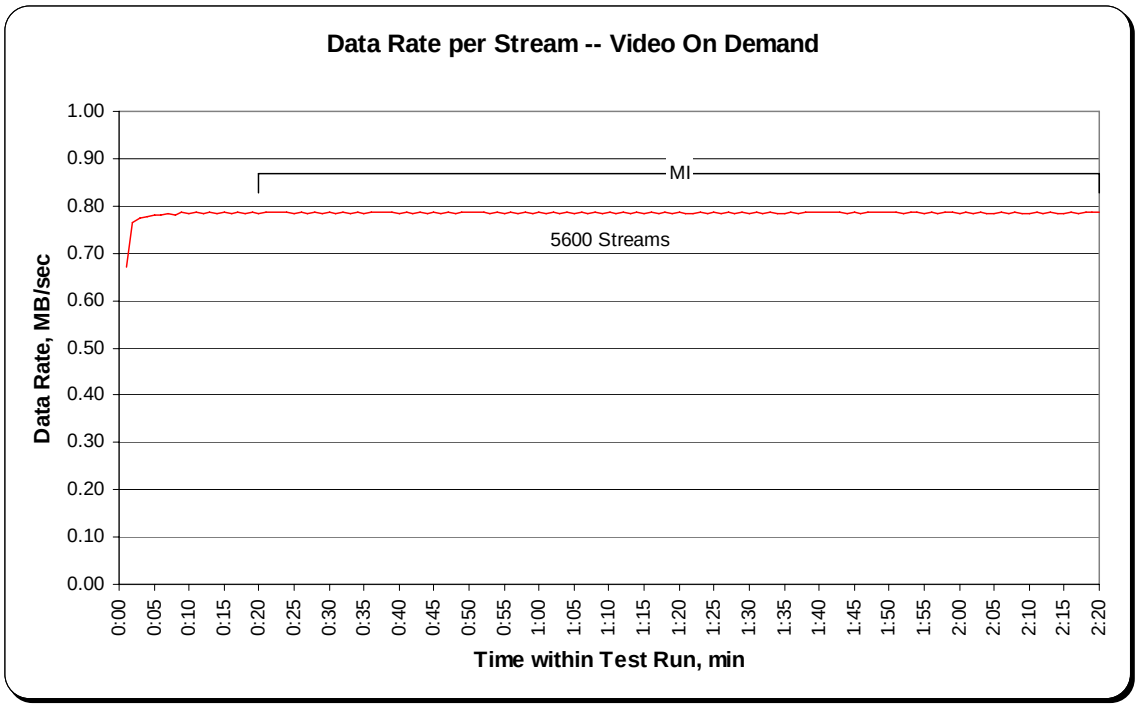
The SPC-2 Video on Demand Delivery Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate and average Data Rate per Stream produced by the same Test Runs. The table and graphs present the data at sixty second intervals.

TR1	5600 Streams				TR1	5600 Streams				TR1	5600 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	408.08	0.67	1.94	135.63	0:51:00	4,410.70	0.79	12.50	206.79	1:41:00	4,397.76	0.79	12.62	237.68
0:02:00	1,205.00	0.77	2.81	140.09	0:52:00	4,410.70	0.79	12.18	194.65	1:42:00	4,410.99	0.79	14.40	320.77
0:03:00	1,823.84	0.78	6.39	274.08	0:53:00	4,395.26	0.78	12.22	197.46	1:43:00	4,398.68	0.79	12.65	219.68
0:04:00	2,379.95	0.78	6.68	220.13	0:54:00	4,411.23	0.79	12.04	147.94	1:44:00	4,396.54	0.79	12.81	220.40
0:05:00	2,868.39	0.78	7.72	183.89	0:55:00	4,394.78	0.78	12.73	228.32	1:45:00	4,412.00	0.79	12.54	245.77
0:06:00	3,233.19	0.78	8.31	147.77	0:56:00	4,410.97	0.79	12.86	207.52	1:46:00	4,396.68	0.79	12.63	220.59
0:07:00	3,566.09	0.78	9.29	178.75	0:57:00	4,395.22	0.78	12.13	185.21	1:47:00	4,412.16	0.79	12.81	217.58
0:08:00	3,850.06	0.78	10.66	222.64	0:58:00	4,413.41	0.79	12.48	203.18	1:48:00	4,397.57	0.79	12.18	185.15
0:09:00	4,131.22	0.79	11.43	208.20	0:59:00	4,394.85	0.78	13.40	269.80	1:49:00	4,412.60	0.79	12.30	181.62
0:10:00	4,317.44	0.78	12.66	280.95	1:00:00	4,411.13	0.79	13.73	311.65	1:50:00	4,397.65	0.79	12.46	208.66
0:11:00	4,411.08	0.79	12.82	245.99	1:01:00	4,394.82	0.78	12.82	221.82	1:51:00	4,412.62	0.79	12.79	240.08
0:12:00	4,395.09	0.78	12.17	194.99	1:02:00	4,411.42	0.79	12.83	247.86	1:52:00	4,396.30	0.79	12.64	209.84
0:13:00	4,411.21	0.79	12.07	189.25	1:03:00	4,395.30	0.78	11.85	161.08	1:53:00	4,397.71	0.79	11.74	155.10
0:14:00	4,394.94	0.78	13.23	256.79	1:04:00	4,412.57	0.79	12.53	208.77	1:54:00	4,413.02	0.79	12.40	205.80
0:15:00	4,410.97	0.79	12.08	173.64	1:05:00	4,396.14	0.79	12.64	223.64	1:55:00	4,397.39	0.79	12.23	197.44
0:16:00	4,395.60	0.78	12.83	245.58	1:06:00	4,411.27	0.79	13.00	216.92	1:56:00	4,412.86	0.79	12.24	188.15
0:17:00	4,410.88	0.79	12.26	187.94	1:07:00	4,394.79	0.78	12.95	227.38	1:57:00	4,396.43	0.79	12.15	180.66
0:18:00	4,395.37	0.78	12.31	203.61	1:08:00	4,411.66	0.79	11.62	133.84	1:58:00	4,397.97	0.79	13.07	246.25
0:19:00	4,410.74	0.79	11.86	158.54	1:09:00	4,394.92	0.78	12.65	204.42	1:59:00	4,412.68	0.79	13.38	231.55
0:20:00	4,395.49	0.78	12.23	198.55	1:10:00	4,413.60	0.79	12.59	205.21	2:00:00	4,396.00	0.79	12.22	188.56
0:21:00	4,410.32	0.79	11.81	145.87	1:11:00	4,394.62	0.78	12.30	170.75	2:01:00	4,413.46	0.79	13.11	242.96
0:22:00	4,398.45	0.79	12.98	232.91	1:12:00	4,411.21	0.79	12.53	212.44	2:02:00	4,396.39	0.79	12.63	215.99
0:23:00	4,410.15	0.79	12.11	209.68	1:13:00	4,395.22	0.78	12.71	230.62	2:03:00	4,412.49	0.79	12.71	248.63
0:24:00	4,410.99	0.79	12.12	173.88	1:14:00	4,411.16	0.79	12.88	213.28	2:04:00	4,396.56	0.79	13.03	228.54
0:25:00	4,394.75	0.78	12.33	211.32	1:15:00	4,395.51	0.78	13.37	271.58	2:05:00	4,396.74	0.79	13.57	252.28
0:26:00	4,411.05	0.79	12.07	197.18	1:16:00	4,411.55	0.79	12.59	217.35	2:06:00	4,411.49	0.79	12.98	250.05
0:27:00	4,395.19	0.78	13.21	270.17	1:17:00	4,395.83	0.78	12.28	210.36	2:07:00	4,397.30	0.79	12.21	195.62
0:28:00	4,411.19	0.79	12.83	240.66	1:18:00	4,411.93	0.79	13.26	204.61	2:08:00	4,412.20	0.79	11.95	185.96
0:29:00	4,394.81	0.78	11.75	163.63	1:19:00	4,396.52	0.79	12.36	206.89	2:09:00	4,396.97	0.79	12.13	160.44
0:30:00	4,410.63	0.79	11.79	149.34	1:20:00	4,412.00	0.79	12.52	208.20	2:10:00	4,397.20	0.79	12.40	200.44
0:31:00	4,395.12	0.78	12.57	195.58	1:21:00	4,397.12	0.79	12.03	150.03	2:11:00	4,410.94	0.79	12.83	247.04
0:32:00	4,410.80	0.79	12.74	238.83	1:22:00	4,395.16	0.78	12.38	199.06	2:12:00	4,396.88	0.79	11.92	165.21
0:33:00	4,395.31	0.78	12.50	234.27	1:23:00	4,411.72	0.79	12.68	243.76	2:13:00	4,412.53	0.79	13.00	254.97
0:34:00	4,412.12	0.79	11.88	180.07	1:24:00	4,395.77	0.78	12.05	209.72	2:14:00	4,396.93	0.79	12.35	198.97
0:35:00	4,394.42	0.78	12.23	219.82	1:25:00	4,411.77	0.79	12.42	199.54	2:15:00	4,397.45	0.79	12.70	224.68
0:36:00	4,411.34	0.79	12.79	250.66	1:26:00	4,396.40	0.79	12.58	224.45	2:16:00	4,412.05	0.79	12.61	211.69
0:37:00	4,410.73	0.79	12.06	194.95	1:27:00	4,411.27	0.79	12.88	239.49	2:17:00	4,396.59	0.79	11.98	178.64
0:38:00	4,409.55	0.79	12.12	184.24	1:28:00	4,395.91	0.78	12.34	180.11	2:18:00	4,412.43	0.79	12.37	185.08
0:39:00	4,410.56	0.79	12.48	247.36	1:29:00	4,412.80	0.79	12.43	207.25	2:19:00	4,398.19	0.79	12.92	274.57
0:40:00	4,395.26	0.78	12.23	207.06	1:30:00	4,395.75	0.78	12.22	188.82	2:20:00	4,413.17	0.79	12.04	187.45
0:41:00	4,410.93	0.79	13.67	277.54	1:31:00	4,411.73	0.79	13.18	248.12					
0:42:00	4,394.64	0.78	13.15	274.54	1:32:00	4,396.90	0.79	12.27	188.32					
0:43:00	4,410.48	0.79	13.00	241.59	1:33:00	4,411.72	0.79	11.91	169.84					
0:44:00	4,394.94	0.78	12.65	244.34	1:34:00	4,396.74	0.79	12.43	204.79					
0:45:00	4,410.75	0.79	12.85	264.42	1:35:00	4,397.43	0.79	12.42	214.05					
0:46:00	4,394.54	0.78	13.13	245.94	1:36:00	4,412.73	0.79	12.62	191.22					
0:47:00	4,410.97	0.79	12.44	186.46	1:37:00	4,395.74	0.78	12.46	201.30					
0:48:00	4,395.02	0.78	12.00	181.94	1:38:00	4,412.08	0.79	12.11	168.09					
0:49:00	4,410.72	0.79	12.47	190.82	1:39:00	4,397.80	0.79	14.21	318.09					
0:50:00	4,410.59	0.79	11.84	175.66	1:40:00	4,411.73	0.79	12.54	187.16					

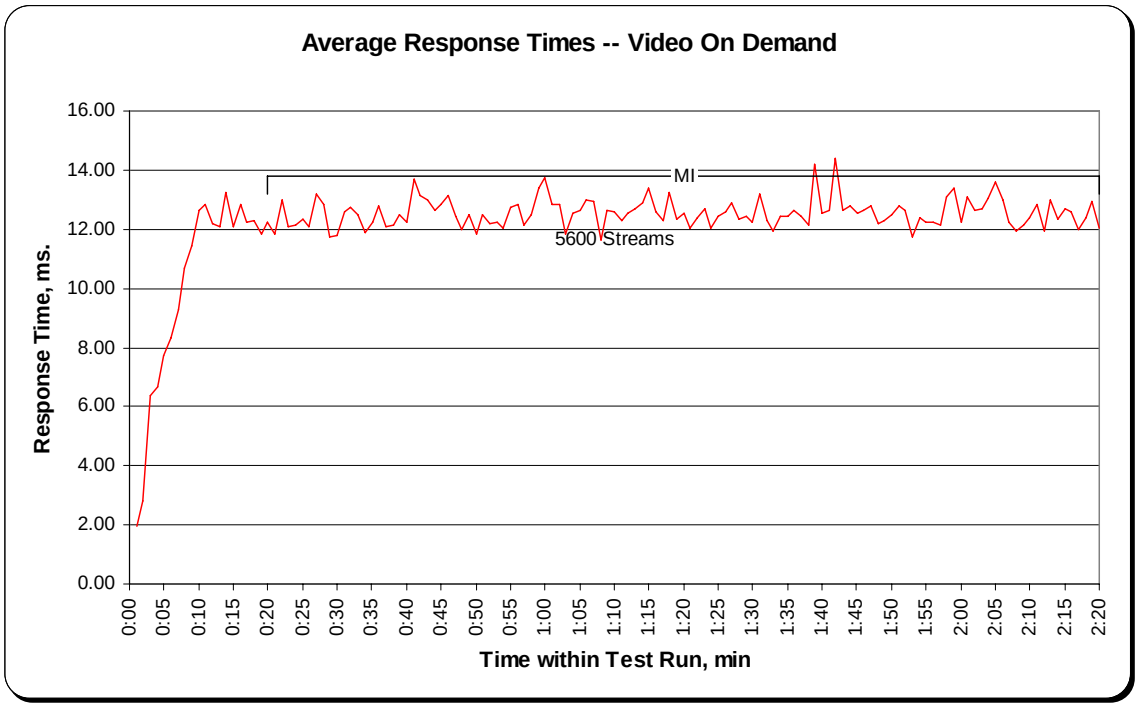
SPC-2 Video on Demand Delivery Average Data Rate Graph



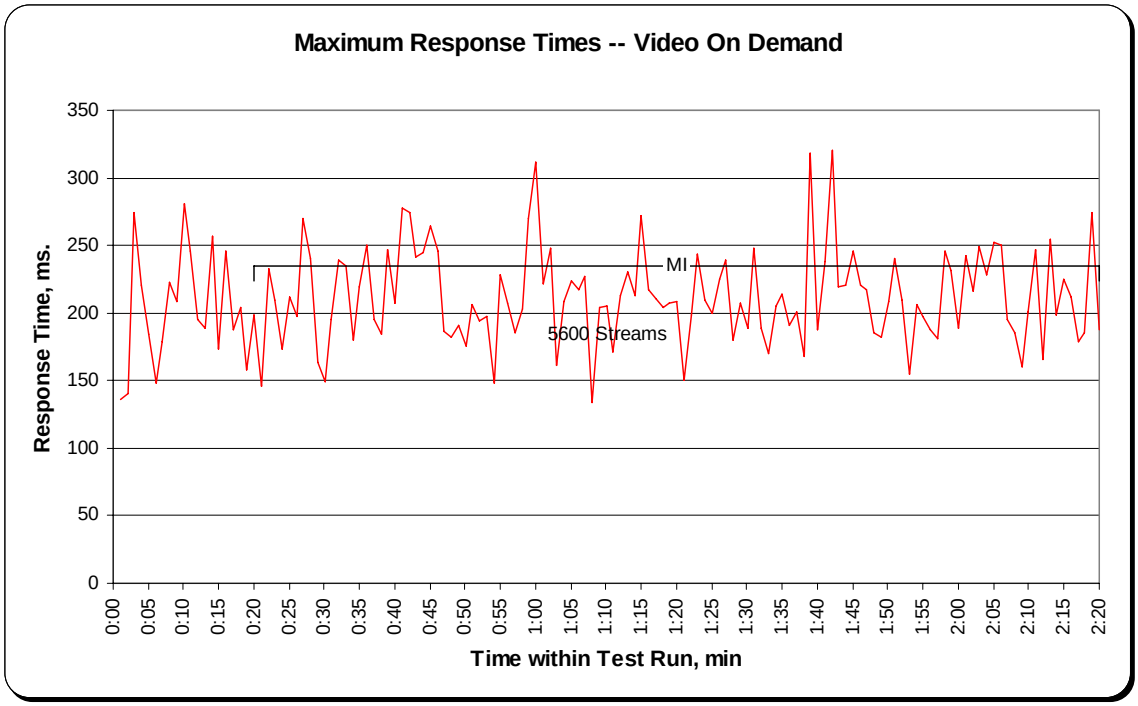
SPC-2 Video on Demand Delivery Average Data Rate per Stream Graph



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 111.

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	310,247
Total Number of Logical Blocks Re-referenced	1,042
Total Number of Logical Blocks Verified	310,247
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 4.1, 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 Remote Audit of the IBM System Storage SAN Volume Controller 4.1.

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:

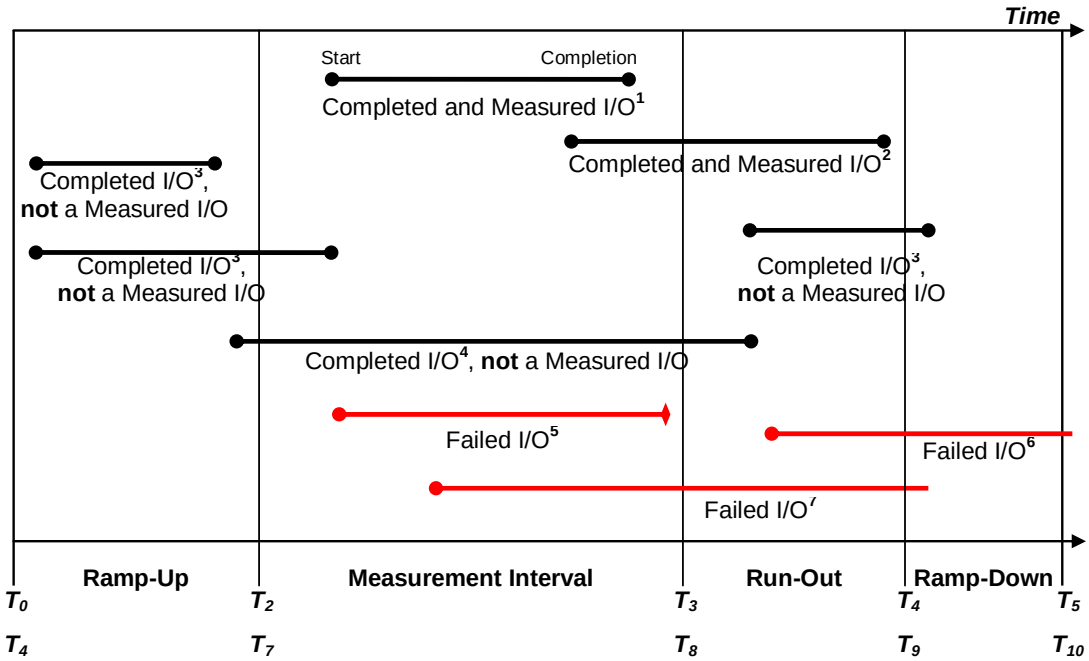
- Test Run 1: Maximum number of Streams, which is selected by the Test Sponsor
- Test Run 2: 50% of the maximum number of Streams used in Test Run 1.
- Test Run 3: 25% of the maximum number of Streams used in Test Run 1.
- Test Run 4: 12.5% of the maximum number of Streams used in Test Run 1.
- Test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

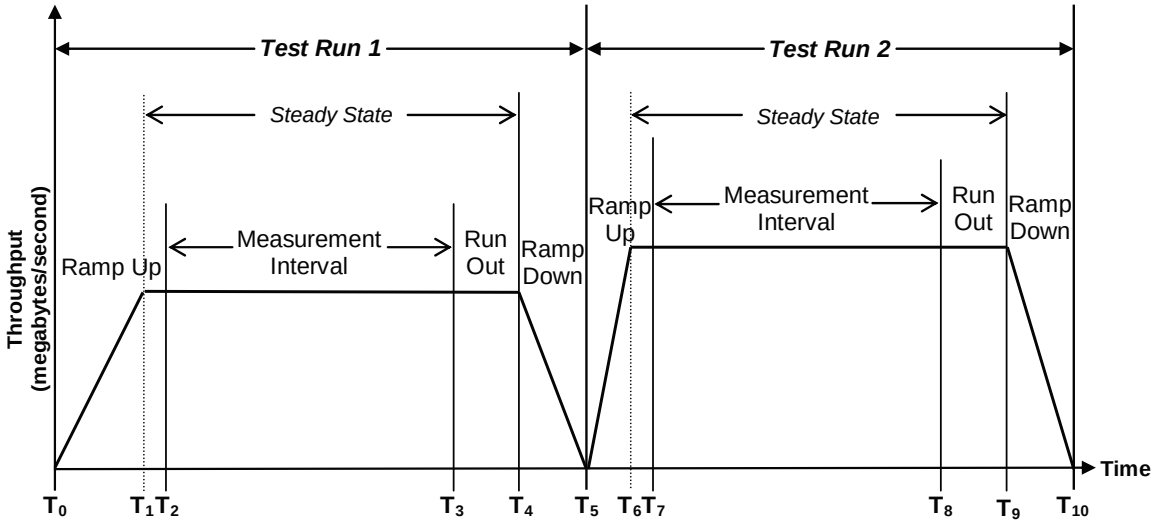
Transfer Size: The Transfer Size parameter specifies the number of bytes in KiB to transfer. *(Clause 3.4.7 of the SPC-2 Benchmark Specification)*

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:

cache block size from 4 KB to 16 KB
*(see **defineRAID5seq_a.script** and **defineRAID5seq_a.script** in Appendix C)*

queue_depth from 20 to 256
*(see **chqdepth.dat** in Appendix C)*

APPENDIX C: TESTED STORAGE CONFIGURATION (TSC) CREATION

Define RAID 5 Arrays (mDisks)

The following script and subroutines define 32 RAID-5 arrays, each containing 1 LUN. The LUNs are defined in four groups, depending upon the switch that they use for "good path" access.

defineRAID5seq.bat

```
SMcli -n "A" -f defineRAID5seq_b.script

SMcli -n "B" -f defineRAID5seq_b.script

ping 192.168.1.31

@rem ping local address for short delay

plink perfclus_local svctask detectmdisk


SMcli -n "A" -f defineRAID5seq_a.script

SMcli -n "B" -f defineRAID5seq_a.script

ping 192.168.1.31

plink perfclus_local svctask detectmdisk


SMcli -n "C" -f defineRAID5seq_b.script

SMcli -n "D" -f defineRAID5seq_b.script

ping 192.168.1.31

plink perfclus_local svctask detectmdisk


SMcli -n "C" -f defineRAID5seq_a.script

SMcli -n "D" -f defineRAID5seq_a.script

ping 192.168.1.31

plink perfclus_local svctask detectmdisk
```

defineRAID5seq_a.script

```
set drives[13,1 13,12 33,5 33,16] hotSpare=TRUE;

create logicalDrive drives=(11,1 11,2 11,3 11,4
                                          12,1 12,2 12,3 12,4
                                               13,2 13,3 13,4
                                          31,1 31,2 31,3 31,4
                                          32,1 32,2 32,3 32,4
```

```
                                              33,1 33,2 33,3 33,4)
  RAIDLevel=5
  segmentSize=512
  userLabel="1"
  owner=a;
  set logicalDrive["1"] logicalUnitNumber=1 hostGroup=defaultGroup;

  create logicalDrive drives=(11,5 11,6 11,7 11,8
                                              12,5 12,6 12,7 12,8
                                              13,5 13,6 13,7 13,8
                                              31,5 31,6 31,7 31,8
                                              32,5 32,6 32,7 32,8
                                                   33,6 33,7 33,8)
  RAIDLevel=5
  segmentSize=512
  userLabel="3"
  owner=a;
  set logicalDrive["3"] logicalUnitNumber=3 hostGroup=defaultGroup;

  create logicalDrive drives=(11,9 11,10 11,11 11,12
                                              12,9 12,10 12,11 12,12
                                              13,9 13,10 13,11
                                              31,9 31,10 31,11 31,12
                                              32,9 32,10 32,11 32,12
                                              33,9 33,10 33,11 33,12)
  RAIDLevel=5
  segmentSize=512
  userLabel="5"
  owner=a;
  set logicalDrive["5"] logicalUnitNumber=5 hostGroup=defaultGroup;

  create logicalDrive drives=(11,13 11,14 11,15 11,16
                                              12,13 12,14 12,15 12,16
                                              13,13 13,14 13,15 13,16
                                              31,13 31,14 31,15 31,16
                                              32,13 32,14 32,15 32,16
                                              33,13 33,14 33,15)
  RAIDLevel=5
  segmentSize=512
  userLabel="7"
  owner=a;
  set logicalDrive["7"] logicalUnitNumber=7 hostGroup=defaultGroup;

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

defineRAID5seq_b.script

```
  set drives[23,1 23,12 43,5 43,16] hotSpare=TRUE;

  create logicalDrive drives=(21,1 21,2 21,3 21,4
                                              22,1 22,2 22,3 22,4
                                                   23,2 23,3 23,4
                                              41,1 41,2 41,3 41,4
                                              42,1 42,2 42,3 42,4
                                              43,1 43,2 43,3 43,4)
  RAIDLevel=5
  segmentSize=512
  userLabel="2"
  owner=b;
  set logicalDrive["2"] logicalUnitNumber=2 hostGroup=defaultGroup;
```

```
create logicalDrive drives=(21,5 21,6 21,7 21,8
                                            22,5 22,6 22,7 22,8
                                            23,5 23,6 23,7 23,8
                                            41,5 41,6 41,7 41,8
                                            42,5 42,6 42,7 42,8
                                                 43,6 43,7 43,8)
RAIDLevel=5
segmentSize=512
userLabel="4"
owner=b;
set logicalDrive["4"] logicalUnitNumber=4 hostGroup=defaultGroup;

create logicalDrive drives=(21,9 21,10 21,11 21,12
                                            22,9 22,10 22,11 22,12
                                            23,9 23,10 23,11
                                            41,9 41,10 41,11 41,12
                                            42,9 42,10 42,11 42,12
                                            43,9 43,10 43,11 43,12)
RAIDLevel=5
segmentSize=512
userLabel="6"
owner=b;
set logicalDrive["6"] logicalUnitNumber=6 hostGroup=defaultGroup;

create logicalDrive drives=(21,13 21,14 21,15 21,16
                                            22,13 22,14 22,15 22,16
                                            23,13 23,14 23,15 23,16
                                            41,13 41,14 41,15 41,16
                                            42,13 42,14 42,15 42,16
                                            43,13 43,14 43,15)
RAIDLevel=5
segmentSize=512
userLabel="8"
owner=b;
set logicalDrive["8"] logicalUnitNumber=8 hostGroup=defaultGroup;

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

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

os.system('plink perfclus_local svctask mkmdiskgrp -name thebiggroup -ext 256 -mdisk
md0:md1:md2:md3:md4:md5:md6:md7:md8:md9:md10:md11:md12:md13:md14:md15:md16:md17:md18
:md19:md20:md21:md22:md23:md24:md25:md26:md27:md28:md29:md30:md31')
```

Define the vDisks (LUNs)

The vDisks that are presented to the AIX Host System are defined based upon the mDisk. SVC allows this to be done with either a striped or non-striped layout. The following script uses a non-striped scheme where each mDisk provides the storage for two specific vDisks.

mk64vd_8node_seq.py

```
import os,time


outfile = 'mk32vd_8node_seq.tmp'

reffile = 'mk32vd_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(32):

    j=(i%4)*8 + (i/4)

    #select an mDisk so a node's 4 utilized mDisks connect via different ports.

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

    cmdstr = 'svctask mkvdisk -vtype seq -mdisk md' + str(j) + \
        ' -size 746 -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+32
    print ("ii=" + str(ii) + " j=" + str(j))
    cmdstr = 'svctask mkvdisk -vtype seq -mdisk md' + str(j) + \
        ' -size 746 -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

f.close()

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

os.remove(outfile)
```

Define vDisk Paths

Each of the resulting set of 64 vDisks is associated with a pair of host paths. This is done by first defining the paths by giving their WWW name, then assigning the pair of paths that should be used by each vDisk. Those two steps are done by the following two scripts, respectively.

mkhost_perfsh1b.bat

```
plink perfclus_local svctask mkhost -force -name B0 -hbawwpn 10000000C95283CE
plink perfclus_local svctask mkhost -force -name B1 -hbawwpn 10000000C952E8F1
plink perfclus_local svctask mkhost -force -name B2 -hbawwpn 10000000C952E364
plink perfclus_local svctask mkhost -force -name B3 -hbawwpn 10000000C952DF42
plink perfclus_local svctask mkhost -force -name B4 -hbawwpn 10000000C95283C2
plink perfclus_local svctask mkhost -force -name B5 -hbawwpn 10000000C9506E47
plink perfclus_local svctask mkhost -force -name B6 -hbawwpn 10000000C952832D
plink perfclus_local svctask mkhost -force -name B7 -hbawwpn 10000000C9509CD2
plink perfclus_local svctask mkhost -force -name B8 -hbawwpn 10000000C952E632
plink perfclus_local svctask mkhost -force -name B9 -hbawwpn 10000000C95285B0
plink perfclus_local svctask mkhost -force -name B10 -hbawwpn 10000000C9528440
plink perfclus_local svctask mkhost -force -name B11 -hbawwpn 10000000C952817D
plink perfclus_local svctask mkhost -force -name B12 -hbawwpn 10000000C952E4AE
plink perfclus_local svctask mkhost -force -name B13 -hbawwpn 10000000C9528408
plink perfclus_local svctask mkhost -force -name B14 -hbawwpn 10000000C9509CF8
plink perfclus_local svctask mkhost -force -name B15 -hbawwpn 10000000C95283DD
plink perfclus_local svctask mkhost -force -name B16 -hbawwpn 10000000C9509CD3
plink perfclus_local svctask mkhost -force -name B17 -hbawwpn 10000000C9507797
plink perfclus_local svctask mkhost -force -name B18 -hbawwpn 10000000C9528573
plink perfclus_local svctask mkhost -force -name B19 -hbawwpn 10000000C95077B7
plink perfclus_local svctask mkhost -force -name B20 -hbawwpn 10000000C9506E59
plink perfclus_local svctask mkhost -force -name B21 -hbawwpn 10000000C9509B7C
plink perfclus_local svctask mkhost -force -name B22 -hbawwpn 10000000C9528189
plink perfclus_local svctask mkhost -force -name B23 -hbawwpn 10000000C952E891
plink perfclus_local svctask mkhost -force -name B24 -hbawwpn 10000000C9509B50
plink perfclus_local svctask mkhost -force -name B25 -hbawwpn 10000000C952E449
plink perfclus_local svctask mkhost -force -name B26 -hbawwpn 10000000C950B566
plink perfclus_local svctask mkhost -force -name B27 -hbawwpn 10000000C952E89B
plink perfclus_local svctask mkhost -force -name B28 -hbawwpn 10000000C9509D12
plink perfclus_local svctask mkhost -force -name B29 -hbawwpn 10000000C9528591
plink perfclus_local svctask mkhost -force -name B30 -hbawwpn 10000000C95283DB
plink perfclus_local svctask mkhost -force -name B31 -hbawwpn 10000000C952E8E7
```

mapfcsgroups_double1b.py

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


import os, time




outfile = 'mapfcsgroups.tmp'

reffile = 'mapfcsgroups_perfsh1b.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 = [28,15,8,17,  22,24,9,13, \

            29,6,0,12,     30,25,3,27, \

            23,5,2,16,  31,4,11,19, \

            21,14,10,26, 20,7,1,18]



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



f = open(outfile, 'w')
g = open(reffile, 'w')
g.write('Created by script: mapfcsgroups_perfsh1b.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
    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')

    ii=i+32

    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)
    aj=(k%4)*8 + k/8 + (1-(i/4)%2)*4
    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

The LUNs are discovered by the AIX Host System by executing the command **cfgfcs 0 31**, which invokes the following script to perform discovery on each of the 32 fibre channel paths. This causes a set of 64 MPIO-enabled volumes to be defined to AIX, which are automatically assigned the values "hdisk4", "hdisk5",...,"hdisk67" *(the first four available "hdisk" values are reserved for use by the Host System)*. The corresponding "raw" volumes, "rhdisk4", "rhdisk5",..."rhdisk67" are the device names specified to the SPC-2 Workload Generator.

cfgfcs

```
if [[ $# -lt 2 ]]
then
     echo "usage: cfgfcs start_fcs end_fcs"
     exit
fi

i=$1
while [[ $i -le $2 ]]
do
     cfgmgr -vl fcs$i > fcs$i.cfg
     i=$((i+1))
done
```

Increase hdisk queue depth

After the 64 hdisks are defined, the following script changes the queue depth of each hdisk to 256.

chqdepth

```
if [[ $# -lt 3 ]]
then
     echo "usage: chqdepth start_hdisk end_hdisk value"
     exit
fi

i=$1
n=$2
v=$3

while [[ $i -le $n ]]
do
     chdev -l hdisk$i -a queue_depth=$v
     i=$((i+1))
done
```

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

Large File Processing Test *(LFP)*

```
maxlatestart=0
host=localhost,jvms=12,maxstreams=200
reportinginterval=5
segmentlength=512m
sd=default,host=localhost,size=746g
sd=sd1,lun=/dev/rhdisk4
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
rd=default,rampup=180,measurement=180,runout=45,rampdown=15,buffers=1,periods=90
rd=default,rdpct=0,xfersize=1024k,streams=32
rd=TR1_SPC-2-FP,streams=32
rd=TR2_SPC-2-FP,streams=16
rd=TR3_SPC-2-FP,streams=8
rd=TR4_SPC-2-FP,streams=4
rd=TR5_SPC-2-FP,streams=1
rd=default,rdpct=0,xfersize=256k,streams=32
rd=TR6_SPC-2-FP,streams=32
rd=TR7_SPC-2-FP,streams=16
rd=TR8_SPC-2-FP,streams=8
rd=TR9_SPC-2-FP,streams=4
rd=TR10_SPC-2-FP,streams=1
rd=default,rdpct=50,xfersize=1024k,streams=64
rd=TR11_SPC-2-FP,streams=64
rd=TR12_SPC-2-FP,streams=32
rd=TR13_SPC-2-FP,streams=16
rd=TR14_SPC-2-FP,streams=8
rd=TR15_SPC-2-FP,streams=1
rd=default,rdpct=50,xfersize=256k,streams=64
rd=TR16_SPC-2-FP,streams=64
rd=TR17_SPC-2-FP,streams=32
rd=TR18_SPC-2-FP,streams=16
rd=TR19_SPC-2-FP,streams=8
rd=TR20_SPC-2-FP,streams=1
rd=default,rdpct=100,xfersize=1024k,streams=128
rd=TR21_SPC-2-FP,streams=128
rd=TR22_SPC-2-FP,streams=64
rd=TR23_SPC-2-FP,streams=32
rd=TR24_SPC-2-FP,streams=16
rd=TR25_SPC-2-FP,streams=1
rd=default,rdpct=100,xfersize=256k,streams=128
rd=TR26_SPC-2-FP,streams=128
rd=TR27_SPC-2-FP,streams=64
rd=TR28_SPC-2-FP,streams=32
rd=TR29_SPC-2-FP,streams=16
rd=TR30_SPC-2-FP,streams=1
```

Large Database Query Test *(LDQ)*

```
maxlatestart=0
host=localhost,jvms=12,maxstreams=200
reportinginterval=5
segmentlength=512m
sd=default,host=localhost,size=746g
sd=sd1,lun=/dev/rhdisk4
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
  rd=default,rdpct=99,rampup=180,measurement=180,runout=45,rampdown=15,periods=90
  rd=default,xfersize=1024k,buffers=4,streams=128
```

```
rd=TR11_SPC-2-DQ,streams=128
rd=TR12_SPC-2-DQ,streams=64
rd=TR13_SPC-2-DQ,streams=32
rd=TR14_SPC-2-DQ,streams=16
rd=TR15_SPC-2-DQ,streams=1
rd=default,xfersize=1024k,buffers=1,streams=128
rd=TR16_SPC-2-DQ,streams=128
rd=TR17_SPC-2-DQ,streams=64
rd=TR18_SPC-2-DQ,streams=32
rd=TR19_SPC-2-DQ,streams=16
rd=TR20_SPC-2-DQ,streams=1
rd=default,xfersize=64k,buffers=4,streams=128
rd=TR1_SPC-2-DQ,streams=128
rd=TR2_SPC-2-DQ,streams=64
rd=TR3_SPC-2-DQ,streams=32
rd=TR4_SPC-2-DQ,streams=16
rd=TR5_SPC-2-DQ,streams=1
rd=default,xfersize=64k,buffers=1,streams=128
rd=TR6_SPC-2-DQ,streams=128
rd=TR7_SPC-2-DQ,streams=64
rd=TR8_SPC-2-DQ,streams=32
rd=TR9_SPC-2-DQ,streams=16
rd=TR10_SPC-2-DQ,streams=1
```

Video on Demand Delivery Test *(VOD)*

```
maxlatestart=0
host=localhost,jvms=48,maxstreams=400
reportinginterval=5
videosegmentduration=600
maxlatevod=0
sd=default,host=localhost,size=746g
sd=sd1,lun=/dev/rhdisk4
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
rd=default,measurement=7200,rampup=1200,runout=45,rampdown=15,periods=600
rd=TR1_SPC-2-VOD,streams=5600,buffers=8
```

Persistence Test Run 1 *(write phase)*

```
* Persistence Test Run 1
host=localhost,jvms=2,maxstreams=500

sd=default,host=localhost,size=746g
sd=sd1,lun=/dev/rhdisk4
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
  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=TR1-32s_SPC-2-persist-w,streams=32
```

Persistence Test Run 2 *(read phase)*

```
  * Persistence Test Run 2

  host=localhost,jvms=1,maxstreams=500

  sd=default,host=localhost,size=746g
  sd=sd1,lun=/dev/rhdisk4
```

```
  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
```

```
maxlatestart=1
reportinginterval=5
segmentlength=512m

maxpersistenceerrors=10
*corruptstreams=3

rd=default,buffers=1,rdpct=100,xfersize=1024k
rd=TR1-32s_SPC-2-persist-r
```

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

"runthem.sh

```
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
```

"javaopts.cfg"

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

"runpersist2.sh

```
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
```