SPC BENCHMARK 2™
FULL DISCLOSURE REPORT

IBM CORPORATION
IBM SYSTEM STORAGE DS8870

SPC-2™ V1.3

Submitted for Review: October 3, 2012
Submission Identifier: B00062

First Edition – October 2012

Trademarks

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AUDIT CERTIFICATION

Bruce McNutt
IBM Corporation
IBM ARC
650 Harry Road
San Jose, CA 95120

October 1, 2012

The SPC Benchmark 2™ Reported Data listed below for the **IBM System Storage DS8870** was produced in compliance with the SPC Benchmark 2™ V1.3 Remote Audit requirements.

SPC Benchmark 2™ V1.3 Reported Data	
Tested Storage Product (TSP) Name: IBM System Storage DS8870	
Metric	**Reported Result**
SPC-2 MBPS™	15,423.66
SPC-2 Price-Performance	$131.21/SPC-2 MBPS™
ASU Capacity	30,923.765 GB
Data Protection Level	Protected *(RAID-5)*
Total Price (including three-year maintenance)	$2,023,742.10

The following SPC Benchmark 2™ Remote Audit requirements were reviewed and found compliant with V1.3 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.
- The Application Storage Unit (ASU) Capacity was filled with random data prior to the execution of the SPC-2 Tests.
- An appropriate diagram of the Benchmark Configuration (BC)/Tested Storage Configuration (TSC).

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AUDIT CERTIFICATION *(CONT.)*

- Listings and commands used to create and configure the Benchmark Configuration/Tested Storage Configuration.
- Documentation that no customer tunable parameter or option was changed from its default value.
- The following Host System items were verified by documentation supplied by IBM Corporation:
  - ✓ Required Host System configuration information.
  - ✓ The TSC boundary within the 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 from IBM Corporation for each of the following were authentic, accurate, and compliant with all of the requirements and constraints of Clauses 6 and 7 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 and the Priced Storage Configuration.
- The submitted pricing information 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.
- This successfully audited SPC measurement is not subject to an SPC Confidential Review.

Audit Notes:

There were no audit notes or exceptions.

Respectfully,

Walter E. Baker

Walter E. Baker
SPC Auditor

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LETTER OF GOOD FAITH

Vice President and Disk Storage Business Line Executive

IBM Technology & Systems Group
650 Harry Road, Almaden Research Center
San Jose CA 95120-6099

Phone: 1-408-927-0623

September 12, 2012

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 DS8870.

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 1.3 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,

Laura Guio
Vice President, Business Line Executive Storage Systems
IBM Systems and Technology Group

EXECUTIVE SUMMARY

Test Sponsor and Contact Information

Test Sponsor and Contact Information	
Test Sponsor Primary Contact	IBM Corporation – http://www.ibm.com Bruce McNutt – bmcnutt@us.ibm.com IBM ARC 650 Harry Road San Jose, CA 95120 Phone: (408) 927-2717 FAX: (408) 927-2050
Test Sponsor Alternate Contact	IBM Corporation – http://www.ibm.com David Whitworth –davidw@us.ibm.com 11501 Burnet Rd. Austin, TX 78758 Phone: (512) 286-9218
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	V1.3
SPC-2 Workload Generator revision number	V1.1
Date Results were first used publicly	October 3, 2012
Date FDR was submitted to the SPC	October 3, 2012
Date the TSC will be available for shipment to customers	October 19, 2012
Date the TSC completed audit certification	October 1, 2012

Tested Storage Product (TSP) Description

The DS8870 represents the latest in this series of enterprise disk storage systems designed for high-performance, high-capacity and resiliency. New with the 8870 are a major upgrade of the processing complex and system bandwidth.

SPC-2 Reported Data

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

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

SPC-2 Reported Data				
IBM System Storage DS8870				
SPC-2 MBPS™	**SPC-2 Price-Performance**	**ASU Capacity (GB)**	**Total Price**	**Data Protection Level**
15,423.66	$131.21	30,923.765	$2,023,742.10	Protected *(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	14,508.33			$139.49
Write Only:				
1024 KiB Transfer	11,212.14	192	58.40	
256 KiB Transfer	11,270.31	192	58.70	
Read-Write:				
1024 KiB Transfer	13,983.66	192	72.83	
256 KiB Transfer	13,909.56	192	72.45	
Read Only:				
1024 KiB Transfer	18,435.57	192	96.02	
256 KiB Transfer	18,238.73	192	94.99	
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	17,607.02			$114.94
1024 KiB Transfer Size				
4 I/Os Outstanding	17,966.58	192	93.58	
1 I/O Outstanding	18,309.61	192	95.36	
64 KiB Transfer Size				
4 I/Os Outstanding	17,206.58	192	89.62	
1 I/O Outstanding	16,945.32	192	88.26	
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**
	14,155.62	18,000	0.79	$142.96

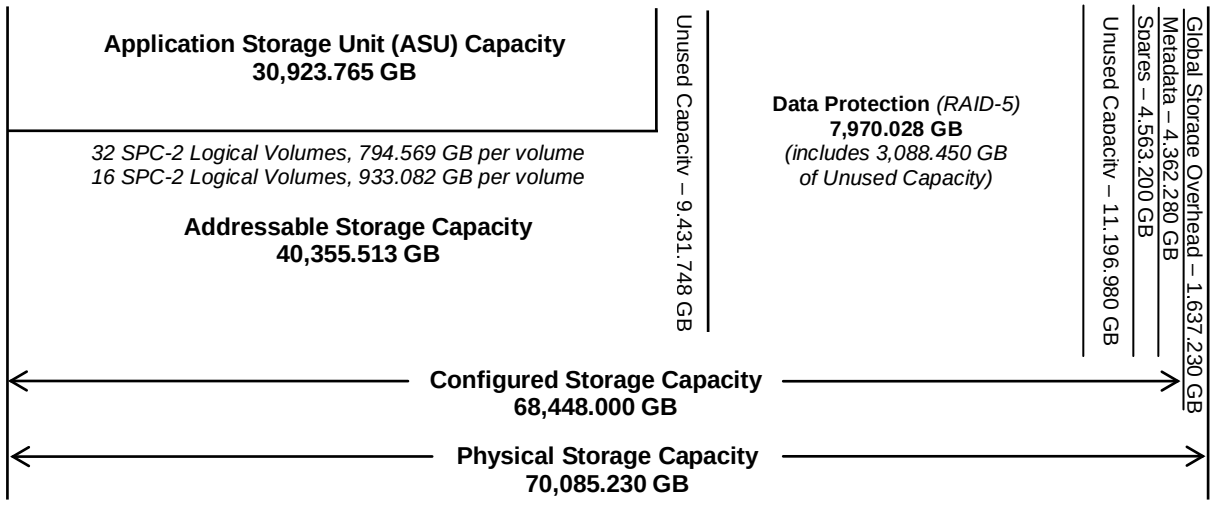
SPC-2 MBPS™ represents the aggregate data rate, in megabytes per second, of all three SPC-2 workloads: Large File Processing (LFP), Large Database Query (LDQ), and Video on Demand (VOD).

ASU *(Application Storage Unit)* **Capacity** represents the total storage capacity read and written in the course of executing the SPC-2 benchmark.

A **Data Protection Level** of **Protected** using ***RAID-5*** provides data protection by distributing check data corresponding to user data across multiple disks in the form of bit-by-bit parity.

Storage Capacities and Relationships

The following diagram *(not to scale)* and table document the various storage capacities, used in this benchmark, and their relationships, as well as the storage utilization values required to be reported.



SPC-2 Storage Capacity Utilization	
Application Utilization	44.12%
Protected Application Utilization	51.09%
Unused Storage Ratio	33.84%

Application Utilization: Total ASU Capacity *(30,923.765 GB)* divided by Physical Storage Capacity *(70,085.230 GB)*

Protected Application Utilization: Total ASU Capacity *(30,923.765 GB)* plus total Data Protection Capacity *(7,970.028 GB)* minus unused Data Protection Capacity *(3,088.450 GB)* divided by Physical Storage Capacity *(70,085.230 GB)*.

Unused Storage Ratio: Total Unused Capacity *(23,717.178 GB)* divided by Physical Storage Capacity *(70,085.230 GB)* and may not exceed 45%.

Detailed information for the various storage capacities and utilizations is available on pages 24-25 in the Full Disclosure Report.

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

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

Priced Storage Configuration Pricing

Product	Description	Serial	Qty	Unit Price	List Price	% disc't	Ext. Price
2423-961	IBM System Storage DS8870		1	$ 72,419.00	$ 72,419.00	50%	$ 36,209.50
1	9xE factory merge		1	$ -	$ -	50%	$ -
100	Eligible for EU Shipment		1	$ -	$ -	50%	$ -
201	Storage Enclosure Infrastructure		1	$ -	$ -	50%	$ -
351	961 - 96E Position 1		1	$ -	$ -	50%	$ -
700	OEL Indicator		1	$ -	$ -	50%	$ -
713	IBM System Storage Easy Tier Indicator		1	$ -	$ -	50%	$ -
820	50.1 to 75.0 TB capacity		1	$ -	$ -	50%	$ -
900	Non-Standby CoD		1	$ -	$ -	50%	$ -
1051	Battery Assembly		2	$ 16,200.00	$ 32,400.00	50%	$ 16,200.00
1082	Line Cord (US/LA/AP/Canada)		1	$ 7,000.00	$ 7,000.00	50%	$ 3,500.00
1120	Management Console - English Laptop Internal		1	$ 9,160.00	$ 9,160.00	50%	$ 4,580.00
1241	Disk Enclosure Pair		5	$ 20,000.00	$ 100,000.00	50%	$ 50,000.00
1242	HD STD Enclosure Indicator		5	$ -	$ -	50%	$ -
1246	HD Disk Drive Cable Group 1		1	$ 7,000.00	$ 7,000.00	50%	$ 3,500.00
1301	I/O Enclosure Pair PCIE		2	$ 11,780.00	$ 23,560.00	50%	$ 11,780.00
1321	PCI-E Cable Group 2		1	$ 4,100.00	$ 4,100.00	50%	$ 2,050.00
1731	DS8000 LMC R7.0		1	$ 40,000.00	$ 40,000.00	50%	$ 20,000.00
5108	146 GB 15K Drive Set FDE		15	$ 53,909.00	$ 808,635.00	50%	$ 404,317.50
3053	Device Adapter Pair I		4	$ 15,000.00	$ 60,000.00	50%	$ 30,000.00
3153	8 Gb 4 port SW FCP/FICON Adapter PCIE		8	$ 37,312.00	$ 298,496.00	50%	$ 149,248.00
4315	256 GB Processor Memory (8-core)		1	$ 339,960.00	$ 339,960.00	50%	$ 169,980.00
4403	8-core Processor Card		1	$ 170,210.00	$ 170,210.00	50%	$ 85,105.00
7031	OEL - 1 TB		1	$ -	$ -	50%	$ -
7033	OEL - 10 TB		2	$ -	$ -	50%	$ -
7035	OEL - 50 TB		1	$ -	$ -	50%	$ -
7051	OEL - 1 Value Unit		4	$ -	$ -	50%	$ -
7052	OEL - 5 Value Unit		1	$ -	$ -	50%	$ -
7053	OEL - 10 Value Unit		1	$ -	$ -	50%	$ -
7054	OEL - 25 Value Unit		1	$ -	$ -	50%	$ -
7060	OEL - 100 Value Unit		1	$ -	$ -	50%	$ -
7083	IBM System Storage Easy Tier indicator		1	$ -	$ -	50%	$ -
2398-LFA	DS8000 Function Authorization		1	$ -	$ -	40%	$ -
7031	OEL - 1 TB		1	$ -	$ -	40%	$ -
7033	OEL - 10 TB		2	$ -	$ -	40%	$ -
7035	OEL - 50 TB		1	$ -	$ -	40%	$ -
7051	OEL - 1 Value Unit		4	$ 6,666.00	$ 26,664.00	40%	$ 15,998.40
7052	OEL - 5 Value Unit		1	$ 26,829.00	$ 26,829.00	40%	$ 16,097.40
7053	OEL - 10 Value Unit		1	$ 53,659.00	$ 53,659.00	40%	$ 32,195.40
7054	OEL - 25 Value Unit		1	$ 85,397.00	$ 85,397.00	40%	$ 51,238.20
7060	OEL - 100 Value Unit		1	$ 226,588.00	$ 226,588.00	40%	$ 135,952.80
7083	IBM System Storage Easy Tier		1	$ -	$ -	40%	$ -

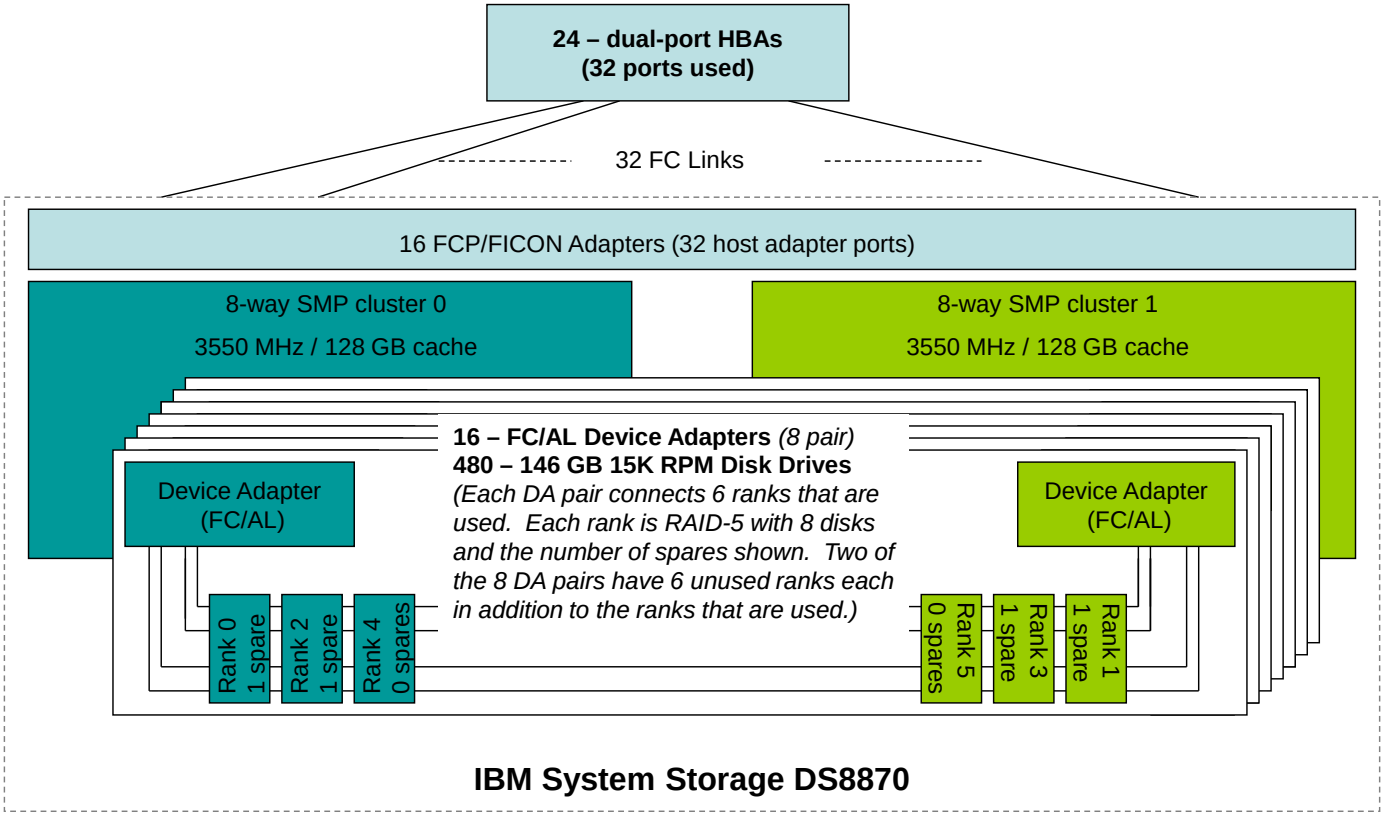
Priced Storage Configuration Pricing *(continued)*

Product	Description	Serial	Qty	Unit Price	List Price	% disc't	Ext. Price
2423-96E	IBM System Storage DS8800 Expansion Unit		1	$ 73,500.00	$ 73,500.00	50%	$ 36,750.00
1	9xE factory merge		1	$ -	$ -	50%	$ -
100	Eligible for EU Shipment		1	$ -	$ -	50%	$ -
201	Storage Enclosure Infrastructure		1	$ -	$ -	50%	$ -
351	961 - 96E Position 1		1	$ -	$ -	50%	$ -
820	50.1 to 75.0 TB capacity		1	$ -	$ -	50%	$ -
1051	Battery Assembly		2	$ 16,200.00	$ 32,400.00	50%	$ 16,200.00
1082	Line Cord (US/LA/AP/Canada)		1	$ 7,000.00	$ 7,000.00	50%	$ 3,500.00
1241	Disk Enclosure Pair		5	$ 20,000.00	$ 100,000.00	50%	$ 50,000.00
1242	HD STD Enclosure Indicator		5	$ -	$ -	50%	$ -
1247	HD Disk Drive Cable Group 2		1	$ 9,000.00	$ 9,000.00	50%	$ 4,500.00
1301	I/O Enclosure Pair PCIE		2	$ 11,780.00	$ 23,560.00	50%	$ 11,780.00
1322	PCIE Cable Group 3		1	$ 5,000.00	$ 5,000.00	50%	$ 2,500.00
1831	DS8000 LMC R7.0 indicator		1	$ -	$ -	50%	$ -
5108	146 GB 15K Drive Set		15	$ 53,909.00	$ 808,635.00	50%	$ 404,317.50
3053	Device Adapter Pair I		4	$ 15,000.00	$ 60,000.00	50%	$ 30,000.00
3153	8 Gb 4 port SW FCP/FICON Adapter PCIE		8	$ 37,312.00	$ 298,496.00	50%	$ 149,248.00
9117-5735	8 Gbps dual port FC adapter		24	$ 4,583.00	$ 109,992.00	30%	$ 76,994.40
	TOTAL						**$2,023,742.10**

The above pricing includes the following:

- Acknowledgement of new and existing hardware and/or software problems within four hours.
- Onsite presence of a qualified maintenance engineer or provision of a customer replaceable part within four hours of the above acknowledgement for any hardware failure that results in an inoperative Priced Storage Configuration component.

Priced Storage Configuration Diagram



Priced Storage Configuration Components

Priced Storage Configuration:
24 – 8 Gbps dual port FC HBAs
IBM System Storage DS8870 2 –SMP processing clusters Each cluster contains: 8 – processor cores 128 GB – processor memory *(256 GB total)*
16 – 8 Gb, 4 port SW FCP/FICON adapter pairs *(128 host port front-end connections, 32 used)*
8 – 4 port, 8 Gb FC-AL device adapter pairs *(4 adapter pair/cluster)* *(64 backend connections, 64 used)*
1 – Management Console *(internal laptop)*
1 – DS8870 Expansion Unit
10 – Disk Enclosure pairs *(48 disk drives per enclosure pair)*
480 – 146 GB, 15K RPM, 2.5” disk drives

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 10.6.6

The FDR 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 21.

Storage Network Configuration

Clause 10.6.6.1

If a storage network was configured as a part of the Tested Storage Configuration and the Benchmark Configuration described in Clause 10.6.6 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 10.11.

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

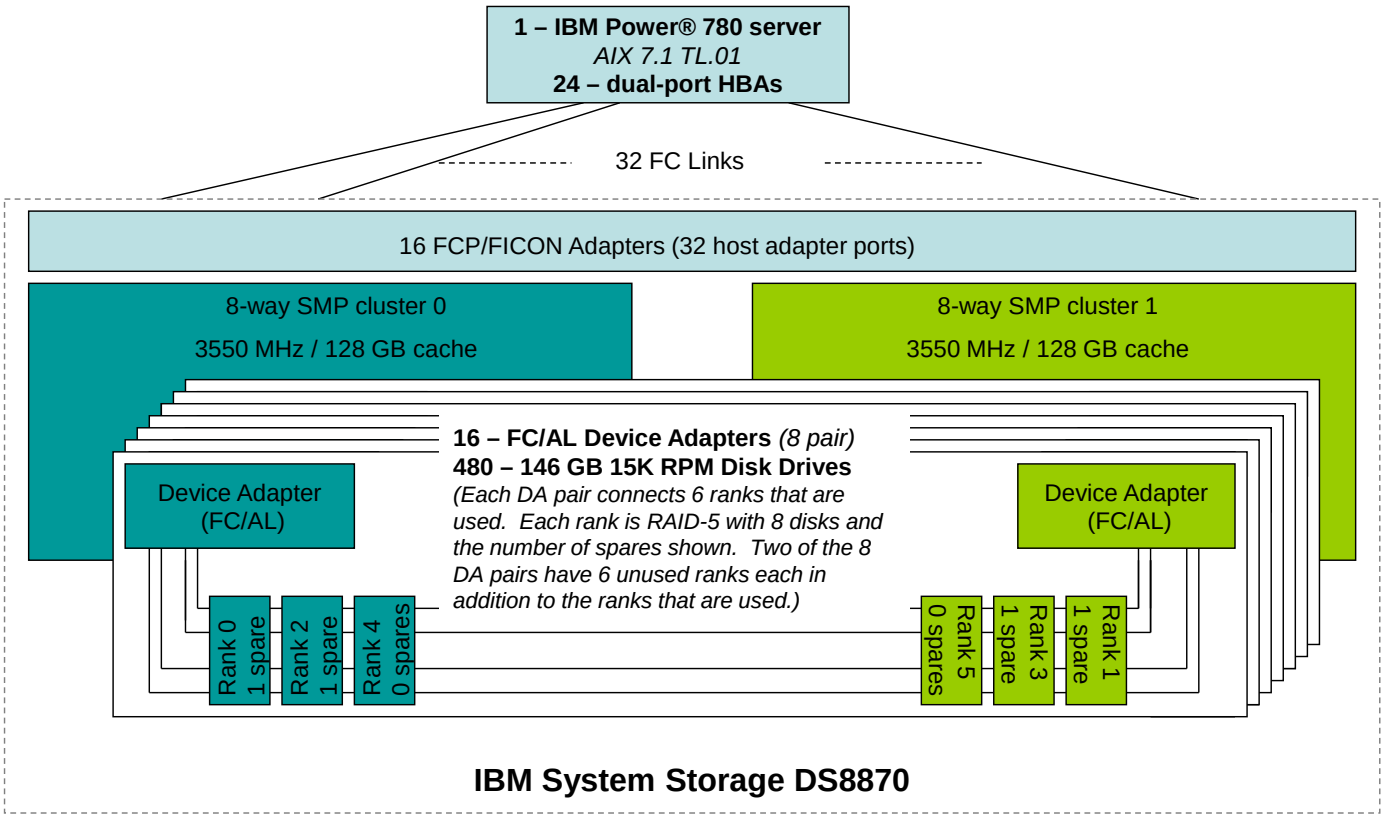
Host System and Tested Storage Configuration Table

Clause 10.6.6.2

The FDR 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 22.

Benchmark Configuration/Tested Storage Configuration Diagram



Host System and Tested Storage Configuration Components

Host System:	Tested Storage Configuration (TSC)
IBM Power® 780 server 64 CPUs (cores) each core: 3.92 GHz, 256 KB L2 cache 4 MiB L3 cache 512 GiB main memory AIX 7.1 PCIe	24 – 8 Gbps dual port FC HBAs
	IBM System Storage DS8870 2 –SMP processing clusters Each cluster contains: 8 – processor cores 128 GB – processor memory *(256 GB total)*
	16 – 8 Gb, 4 port SW FCP/FICON adapter pairs *(128 host port front-end connection, 32 used)*
	8 – 8 Gb, 4 port FC-AL device adapter pairs *(4 adapter pair/cluster)* *(64 backend connections, 64 used)*
	1 – Management Console *(internal laptop)*
	1 – DS8870 Expansion Unit
	10 – Disk Enclosure pairs *(48 disk drives per enclosure pair)*
	480 – 146 GB, 15K RPM, 2.5” disk drives

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 99 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 100 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 107.

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 94 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)	30,923.765
Addressable Storage Capacity	Gigabytes (GB)	40,355.513
Configured Storage Capacity	Gigabytes (GB)	68,448.000
Physical Storage Capacity	Gigabytes (GB)	70,085.230
Data Protection *(RAID-5)*	Gigabytes (GB)	7,970.028
Required Storage *(sparing, metadata)*	Gigabytes (GB)	8,925.480
Global Storage Overhead	Gigabytes (GB)	1,637.230
Total Unused Storage	Gigabytes (GB)	23,717.178

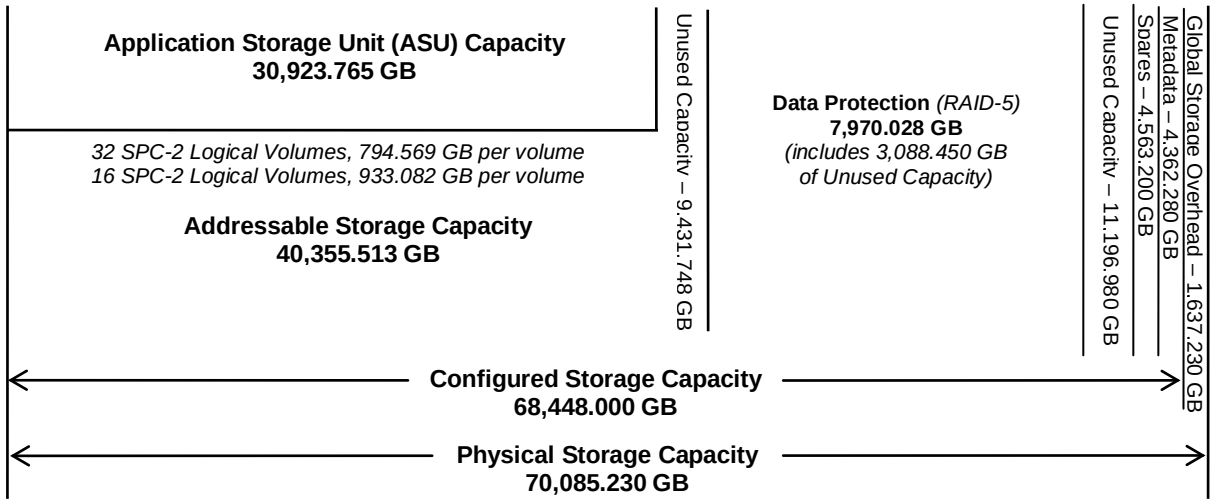
SPC-2 Storage Hierarchy Ratios

	Addressable Storage Capacity	Configured Storage Capacity	Physical Storage Capacity
Total ASU Capacity	76.63%	45.18%	44.12%
Data Protection *(RAID-5)*		11.64%	11.37%
Addressable Storage Capacity		58.96%	57.58%
Required Storage		13.04%	12.74%
Configured Storage Capacity			97.66%
Global Storage Overhead			2.34%
Unused Storage:			
Addressable	23.37%		
Configured		16.36%	
Physical			0.00%

The Physical Storage Capacity consisted of 70,085.230 GB distributed over 480 disk drives each with a formatted capacity of 146.011 GB. There was 0.00 GB (0.00%) of Unused Storage within the Physical Storage Capacity. Global Storage Overhead consisted of 1,637.230 GB (2.34%) of the Physical Storage Capacity. There was 11,196.980 GB (16.36%) of Unused Storage within the Configured Storage Capacity. The Total ASU Capacity utilized 76.63% of the Addressable Storage Capacity resulting in 9,431.748 GB (23.37%) of Unused Storage within the Addressable Storage Capacity. The Data Protection *(RAID-5)* capacity was 7,970.028 GB of which 4,881.578 GB was utilized. The total Unused Storage was 23,717.178 GB.

SPC-2 Storage Capacities and Relationships Illustration

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



Storage Capacity Utilization

Clause 10.6.8.2

The FDR will include a table illustrating the storage capacity utilization values defined for Application Utilization (Clause 2.8.1), Protected Application Utilization (Clause 2.8.2), and Unused Storage Ratio (Clause 2.8.3).

Clause 2,8.1

***Application Utilization** is defined as Total ASU Capacity divided by Physical Storage Capacity.*

Clause 2,8.2

***Protected Application Utilization** is defined as (Total ASU Capacity plus total Data Protection Capacity minus unused Data Protection Capacity) divided by Physical Storage Capacity.*

Clause 2,8.3

***Unused Storage Ratio** is defined as Total Unused Capacity divided by Physical Storage Capacity and may not exceed 45%.*

SPC-2 Storage Capacity Utilization	
Application Utilization	44.12%
Protected Application Utilization	51.09%
Unused Storage Ratio	33.84%

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 (30,923.765 GB)			
	Total Capacity *(GB)*	Capacity Used *(GB)*	Capacity Unused *(GB)*
Logical Volumes 1-32	794.569 per LV	644.245 per LV	150.324 per LV
Logical Volumes 33-48	933.082 per LV	644.245 per LV	288.837 per LV

See the Storage Definition (sd) entries in "Appendix D: SPC-2 Workload Generator Storage Commands and Parameters" on page 107 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 95 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 113.

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.

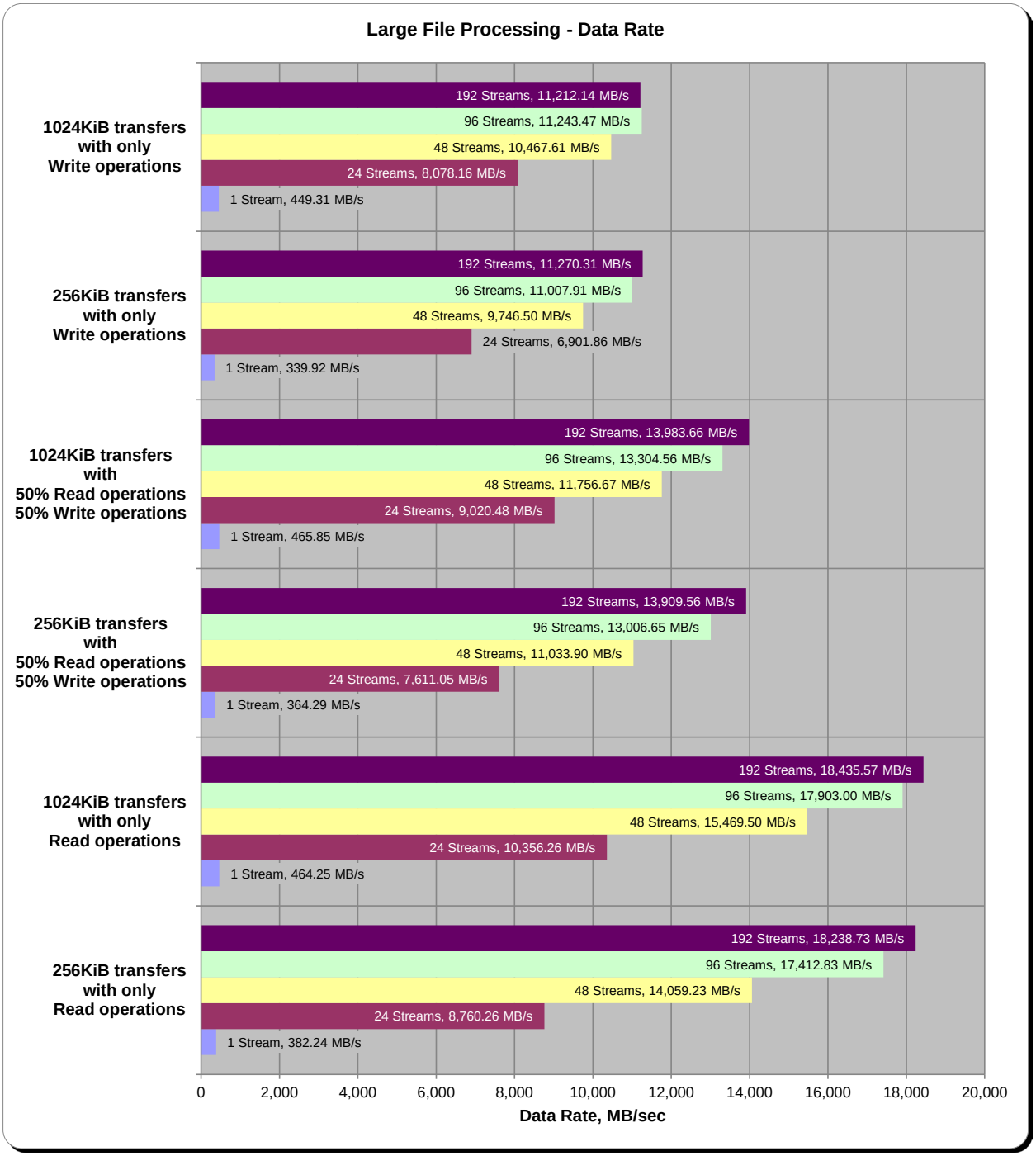
SPC-2 Large File Processing Test Results File

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	24 Streams	48 Streams	96 Streams	192 Streams
Write 1024KiB	449.31	8,078.16	10,467.61	11,243.47	11,212.14
Write 256KiB	339.92	6,901.86	9,746.50	11,007.91	11,270.31
Read/Write 1024KiB	465.85	9,020.48	11,756.67	13,304.56	13,983.66
Read/Write 256KiB	364.29	7,611.05	11,033.90	13,006.65	13,909.56
Read 1024KiB	464.25	10,356.26	15,469.50	17,903.00	18,435.57
Read 256KiB	382.24	8,760.26	14,059.23	17,412.83	18,238.73

SPC-2 Large File Processing Average Data Rates Graph

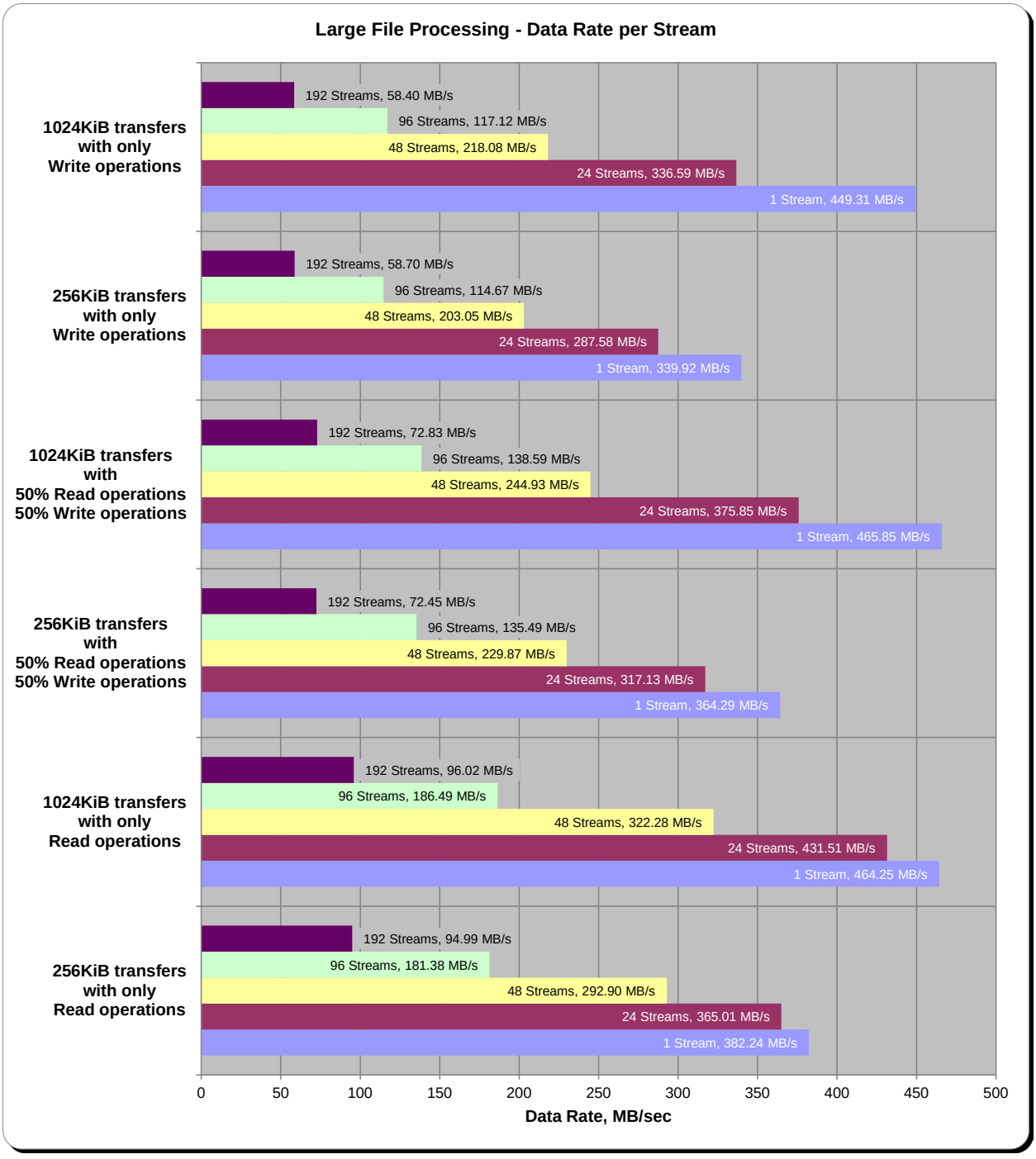


SPC-2 Large File Processing Average Data Rate per Stream

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	24 Streams	48 Streams	96 Streams	192 Streams
Write 1024KiB	449.31	336.59	218.08	117.12	58.40
Write 256KiB	339.92	287.58	203.05	114.67	58.70
Read/Write 1024KiB	465.85	375.85	244.93	138.59	72.83
Read/Write 256KiB	364.29	317.13	229.87	135.49	72.45
Read 1024KiB	464.25	431.51	322.28	186.49	96.02
Read 256KiB	382.24	365.01	292.90	181.38	94.99

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

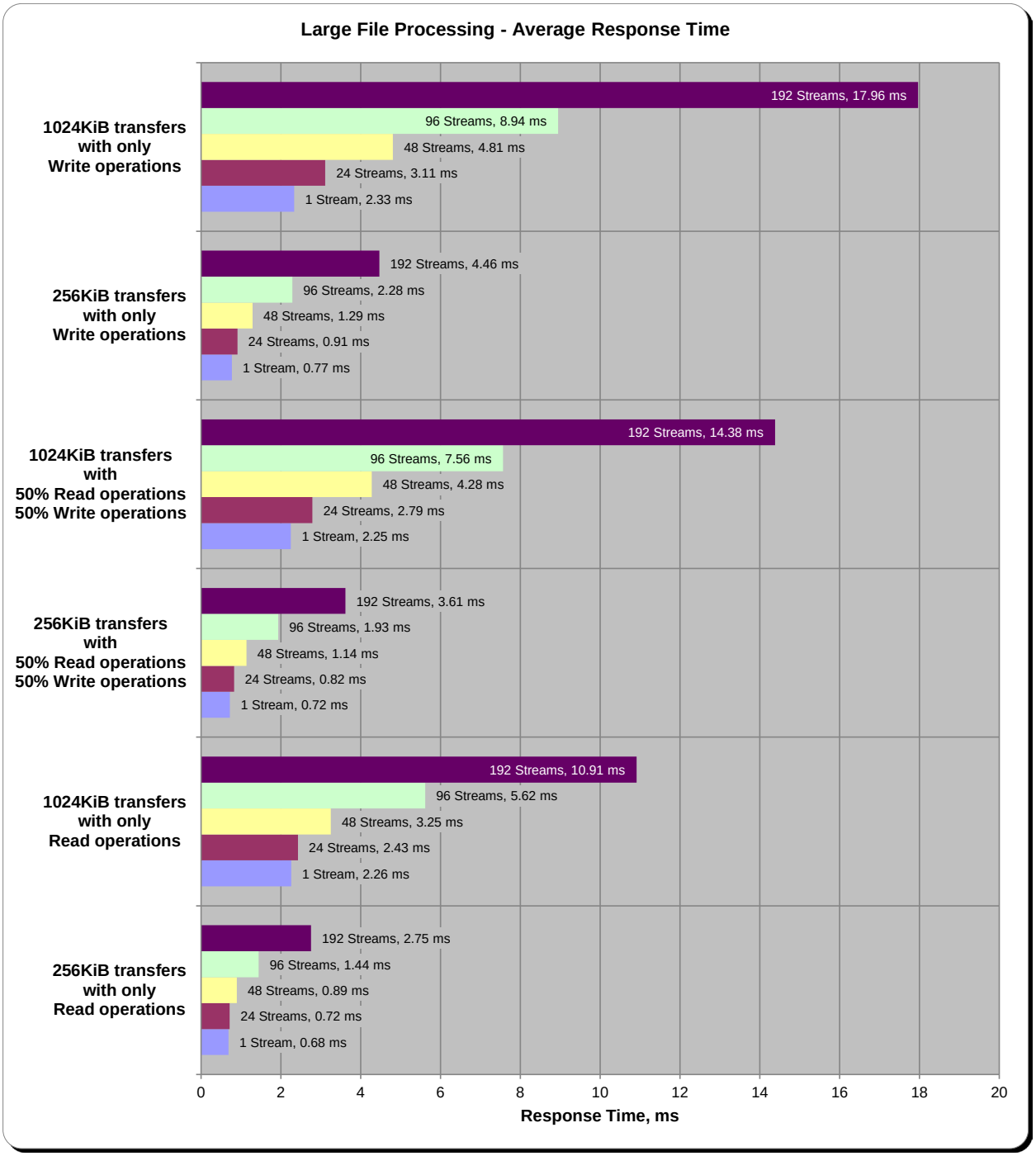


SPC-2 Large File Processing Average Response Time

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

Test Run Sequence	1 Stream	24 Streams	48 Streams	96 Streams	192 Streams
Write 1024KiB	2.33	3.11	4.81	8.94	17.96
Write 256KiB	0.77	0.91	1.29	2.28	4.46
Read/Write 1024KiB	2.25	2.79	4.28	7.56	14.38
Read/Write 256KiB	0.72	0.82	1.14	1.93	3.61
Read 1024KiB	2.26	2.43	3.25	5.62	10.91
Read 256KiB	0.68	0.72	0.89	1.44	2.75

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.

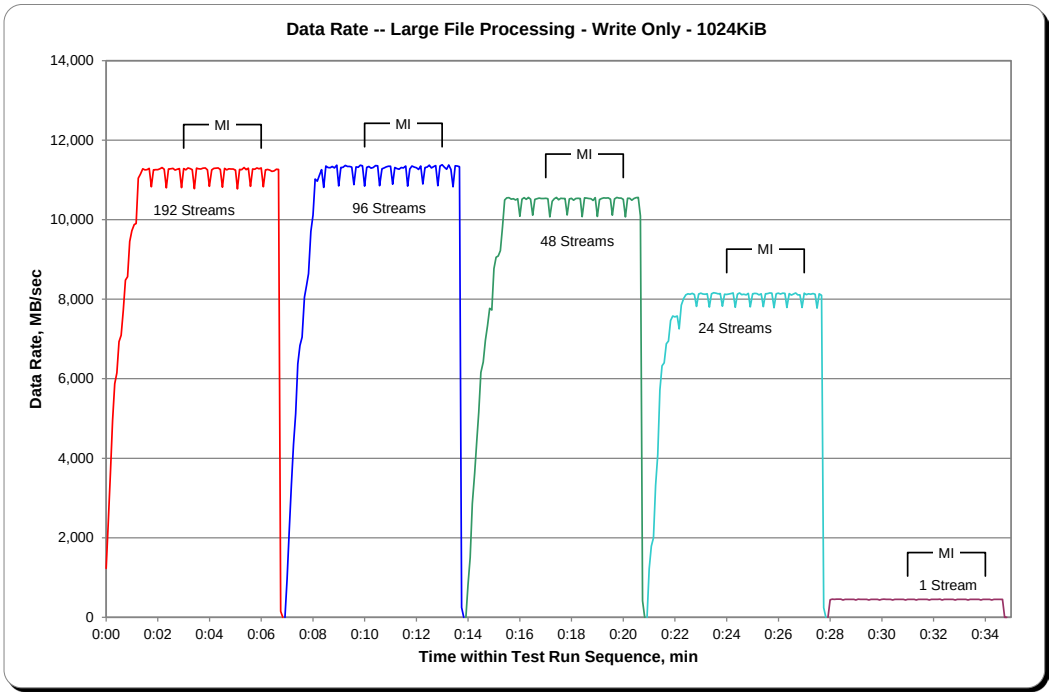
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR1	192 Streams			TR2	96 Streams			TR3	48 Streams			TR4	24 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	1,231.87	61.59	8.99	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
0:00:05	2,282.96	60.08	12.79	0:07:00	964.90	96.49	4.86	0:14:00	828.79	207.20	3.08	0:21:00	1,217.19	243.44	2.89	0:28:00	437.68	437.68	2.32
0:00:10	3,638.77	61.67	14.11	0:07:05	2,178.94	121.05	7.00	0:14:05	1,503.66	167.07	4.25	0:21:05	1,788.24	357.65	2.90	0:28:05	455.92	455.92	2.32
0:00:15	4,954.94	63.52	15.14	0:07:10	3,323.36	114.60	7.44	0:14:10	2,856.95	204.07	4.38	0:21:10	1,998.38	285.48	3.00	0:28:10	453.40	453.40	2.32
0:00:20	5,872.24	64.53	15.41	0:07:15	4,352.01	120.89	7.94	0:14:15	3,627.44	213.38	4.30	0:21:15	3,321.26	332.13	2.99	0:28:15	454.03	454.03	2.33
0:00:25	6,146.96	62.09	16.53	0:07:20	5,119.99	113.78	7.97	0:14:20	4,446.59	211.74	4.48	0:21:20	4,088.61	272.57	3.02	0:28:20	454.87	454.87	2.32
0:00:30	6,932.97	63.61	15.79	0:07:25	6,370.52	124.91	8.08	0:14:25	5,155.43	198.29	4.52	0:21:25	5,716.84	336.28	3.06	0:28:25	454.87	454.87	2.32
0:00:35	7,090.05	59.08	17.09	0:07:30	6,832.94	126.54	8.09	0:14:30	6,159.96	228.15	4.49	0:21:30	6,323.96	332.84	3.06	0:28:30	434.74	434.74	2.32
0:00:40	7,723.39	58.51	16.55	0:07:35	7,041.61	115.44	8.44	0:14:35	6,418.54	229.23	4.56	0:21:35	6,400.09	320.00	3.05	0:28:35	452.78	452.78	2.33
0:00:45	8,481.30	62.36	16.82	0:07:40	8,051.39	121.99	8.33	0:14:40	6,963.38	224.63	4.62	0:21:40	6,879.92	344.00	3.06	0:28:40	452.98	452.98	2.33
0:00:50	8,565.61	59.07	17.19	0:07:45	8,350.86	121.03	8.42	0:14:45	7,334.79	215.73	4.62	0:21:45	6,946.40	330.78	3.07	0:28:45	451.52	451.52	2.33
0:00:55	9,452.07	62.60	16.57	0:07:50	8,642.36	115.23	8.55	0:14:50	7,771.21	228.56	4.62	0:21:50	7,463.13	339.23	3.07	0:28:50	451.10	451.10	2.34
0:01:00	9,717.57	61.50	16.87	0:07:55	9,702.68	121.28	8.48	0:14:55	7,729.05	203.40	4.66	0:21:55	7,578.06	344.46	3.06	0:28:55	451.73	451.73	2.34
0:01:05	9,874.23	59.84	17.16	0:08:00	10,109.95	116.21	8.66	0:15:00	8,768.82	224.84	4.65	0:22:00	7,553.52	343.34	3.06	0:29:00	434.53	434.53	2.32
0:01:10	9,903.38	57.24	17.27	0:08:05	11,021.16	123.83	8.46	0:15:05	9,052.78	226.32	4.66	0:22:05	7,578.69	344.49	3.06	0:29:05	454.03	454.03	2.33
0:01:15	11,041.71	62.03	16.84	0:08:10	10,969.15	121.88	8.54	0:15:10	9,085.70	221.60	4.65	0:22:10	7,253.63	329.71	3.06	0:29:10	452.15	452.15	2.33
0:01:20	11,141.54	60.22	17.19	0:08:15	11,116.79	120.83	8.65	0:15:15	9,220.55	219.54	4.78	0:22:15	7,849.01	341.26	3.07	0:29:15	451.94	451.94	2.34
0:01:25	11,280.79	58.75	17.60	0:08:20	11,256.04	119.75	8.74	0:15:20	9,818.66	208.91	4.70	0:22:20	8,017.83	334.08	3.09	0:29:20	453.40	453.40	2.32
0:01:30	11,249.33	58.59	18.00	0:08:25	10,809.35	112.60	8.93	0:15:25	10,494.36	218.63	4.79	0:22:25	8,106.96	337.79	3.11	0:29:25	451.73	451.73	2.34
0:01:35	11,257.93	58.64	17.95	0:08:30	11,346.85	118.20	8.92	0:15:30	10,545.53	219.70	4.81	0:22:30	8,132.97	338.87	3.12	0:29:30	434.53	434.53	2.33
0:01:40	11,288.55	58.79	17.97	0:08:35	11,308.68	117.80	8.93	0:15:35	10,555.39	219.90	4.80	0:22:35	8,126.88	338.62	3.11	0:29:35	452.78	452.78	2.33
0:01:45	10,825.71	56.38	17.96	0:08:40	11,306.38	117.77	8.95	0:15:40	10,514.49	219.05	4.80	0:22:40	8,147.44	339.48	3.11	0:29:40	453.19	453.19	2.33
0:01:50	11,252.48	58.61	17.99	0:08:45	11,339.09	118.12	8.94	0:15:45	10,524.56	219.26	4.81	0:22:45	8,119.12	338.30	3.11	0:29:45	453.19	453.19	2.33
0:01:55	11,259.19	58.64	17.99	0:08:50	11,299.66	117.70	8.92	0:15:50	10,495.62	218.66	4.81	0:22:50	7,820.07	325.84	3.11	0:29:50	453.19	453.19	2.33
0:02:00	11,256.88	58.63	17.95	0:08:55	11,367.61	118.41	8.92	0:15:55	10,526.03	219.29	4.81	0:22:55	8,127.93	338.66	3.11	0:29:55	434.11	434.11	2.33
0:02:05	11,277.85	58.74	17.99	0:09:00	10,848.15	113.00	8.96	0:16:00	10,084.37	210.09	4.81	0:23:00	8,150.58	339.61	3.11	0:30:00	453.19	453.19	2.33
0:02:10	11,312.88	58.92	17.93	0:09:05	11,311.83	117.83	8.95	0:16:05	10,513.86	219.04	4.81	0:23:05	8,127.30	338.64	3.11	0:30:05	454.45	454.45	2.32
0:02:15	11,268.21	58.69	17.97	0:09:10	11,315.39	117.87	8.94	0:16:10	10,552.45	219.84	4.81	0:23:10	8,122.69	338.45	3.11	0:30:10	452.36	452.36	2.33
0:02:20	10,799.28	56.25	17.97	0:09:15	11,364.89	118.38	8.91	0:16:15	10,509.88	218.96	4.80	0:23:15	8,137.37	339.06	3.11	0:30:15	453.40	453.40	2.33
0:02:25	11,274.08	58.72	17.96	0:09:20	11,336.36	118.09	8.93	0:16:20	10,558.32	219.97	4.80	0:23:20	7,801.82	325.08	3.11	0:30:20	451.73	451.73	2.33
0:02:30	11,279.53	58.75	17.95	0:09:25	11,336.78	118.09	8.93	0:16:25	10,516.59	219.10	4.80	0:23:25	8,136.11	339.00	3.11	0:30:25	432.64	432.64	2.33
0:02:35	11,286.66	58.78	17.97	0:09:30	11,323.99	117.96	8.94	0:16:30	10,111.00	210.65	4.80	0:23:30	8,160.23	340.01	3.11	0:30:30	453.19	453.19	2.33
0:02:40	11,245.77	58.57	17.98	0:09:35	10,881.91	113.35	8.93	0:16:35	10,507.78	218.91	4.81	0:23:35	8,153.73	339.74	3.11	0:30:35	451.31	451.31	2.34
0:02:45	11,265.69	58.68	17.97	0:09:40	11,326.51	117.98	8.94	0:16:40	10,525.82	219.29	4.81	0:23:40	8,132.55	338.86	3.11	0:30:40	452.15	452.15	2.33
0:02:50	11,281.42	58.76	17.95	0:09:45	11,316.65	117.88	8.96	0:16:45	10,539.87	219.58	4.80	0:23:45	8,141.14	339.21	3.11	0:30:45	452.15	452.15	2.33
0:02:55	10,806.20	56.28	17.96	0:09:50	11,369.71	118.43	8.92	0:16:50	10,530.85	219.39	4.81	0:23:50	7,822.59	325.94	3.10	0:30:50	452.98	452.98	2.33
				0:09:55	11,351.46	118.24	8.93	0:16:55	10,533.16	219.44	4.81	0:23:55	8,124.79	338.53	3.11	0:30:55	434.11	434.11	2.33

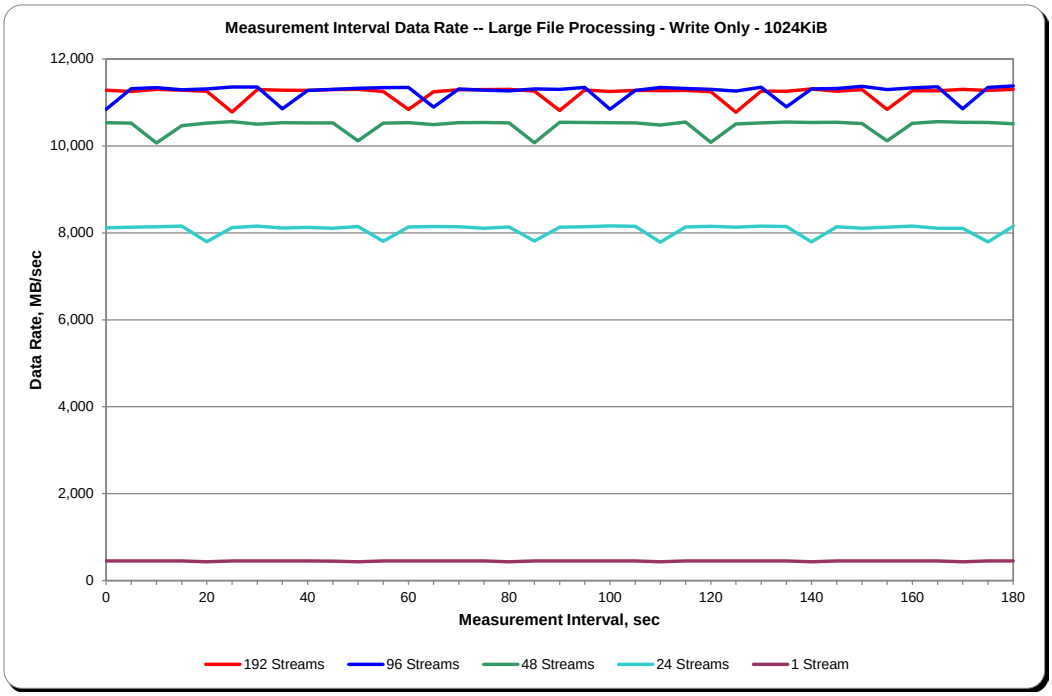
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	192 Streams			TR2	96 Streams			TR3	48 Streams			TR4	24 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	11,282.89	58.77	17.98	0:10:00	10,845.00	112.97	8.93	0:17:00	10,535.25	219.48	4.80	0:24:00	8,118.29	338.26	3.11	0:31:00	453.40	453.40	2.32
0:03:05	11,252.90	58.61	17.96	0:10:05	11,316.23	117.88	8.96	0:17:05	10,523.72	219.24	4.81	0:24:05	8,129.82	338.74	3.11	0:31:05	453.61	453.61	2.33
0:03:10	11,299.87	58.85	17.95	0:10:10	11,339.30	118.12	8.93	0:17:10	10,067.80	209.75	4.81	0:24:10	8,141.14	339.21	3.11	0:31:10	453.40	453.40	2.33
0:03:15	11,282.68	58.76	17.95	0:10:15	11,292.53	117.63	8.96	0:17:15	10,464.16	218.00	4.81	0:24:15	8,155.82	339.83	3.11	0:31:15	452.36	452.36	2.33
0:03:20	11,258.56	58.64	17.98	0:10:20	11,310.57	117.82	8.95	0:17:20	10,525.40	219.28	4.81	0:24:20	7,796.58	324.86	3.11	0:31:20	433.90	433.90	2.33
0:03:25	10,780.41	56.15	17.96	0:10:25	11,357.13	118.30	8.93	0:17:25	10,558.95	219.98	4.80	0:24:25	8,121.85	338.41	3.12	0:31:25	453.19	453.19	2.33
0:03:30	11,294.84	58.83	17.96	0:10:30	11,354.82	118.28	8.93	0:17:30	10,500.23	218.75	4.81	0:24:30	8,155.82	339.83	3.11	0:31:30	452.98	452.98	2.33
0:03:35	11,280.16	58.75	17.95	0:10:35	10,853.18	113.05	8.96	0:17:35	10,534.20	219.46	4.81	0:24:35	8,111.36	337.97	3.11	0:31:35	453.19	453.19	2.32
0:03:40	11,275.13	58.72	17.96	0:10:40	11,277.64	117.48	8.98	0:17:40	10,529.59	219.37	4.80	0:24:40	8,123.74	338.49	3.12	0:31:40	452.98	452.98	2.33
0:03:45	11,296.94	58.84	17.95	0:10:45	11,302.18	117.73	8.98	0:17:45	10,530.64	219.39	4.80	0:24:45	8,106.96	337.79	3.11	0:31:45	450.47	450.47	2.34
0:03:50	11,301.97	58.86	17.95	0:10:50	11,324.83	117.97	8.93	0:17:50	10,115.19	210.73	4.80	0:24:50	8,144.08	339.34	3.11	0:31:50	433.48	433.48	2.33
0:03:55	11,252.27	58.61	17.96	0:10:55	11,340.56	118.13	8.94	0:17:55	10,523.30	219.24	4.81	0:24:55	7,808.54	325.36	3.11	0:31:55	451.94	451.94	2.34
0:04:00	10,838.92	56.45	17.94	0:11:00	11,345.17	118.18	8.94	0:18:00	10,535.04	219.48	4.80	0:25:00	8,134.43	338.93	3.11	0:32:00	452.36	452.36	2.33
0:04:05	11,249.75	58.59	17.96	0:11:05	10,891.14	113.45	8.92	0:18:05	10,489.74	218.54	4.80	0:25:05	8,147.44	339.48	3.11	0:32:05	451.73	451.73	2.33
0:04:10	11,289.18	58.80	17.97	0:11:10	11,309.52	117.81	8.95	0:18:10	10,533.58	219.45	4.81	0:25:10	8,139.89	339.16	3.11	0:32:10	452.15	452.15	2.33
0:04:15	11,294.42	58.83	17.97	0:11:15	11,282.05	117.52	8.96	0:18:15	10,538.61	219.55	4.80	0:25:15	8,108.64	337.86	3.11	0:32:15	453.82	453.82	2.33
0:04:20	11,299.04	58.85	17.96	0:11:20	11,268.42	117.38	8.98	0:18:20	10,530.01	219.38	4.81	0:25:20	8,134.64	338.94	3.12	0:32:20	433.48	433.48	2.33
0:04:25	11,262.55	58.66	17.97	0:11:25	11,309.10	117.80	8.93	0:18:25	10,073.25	209.86	4.80	0:25:25	7,813.99	325.58	3.11	0:32:25	452.15	452.15	2.33
0:04:30	10,816.69	56.34	17.98	0:11:30	11,301.97	117.73	8.94	0:18:30	10,546.37	219.72	4.81	0:25:30	8,133.17	338.88	3.11	0:32:30	452.78	452.78	2.33
0:04:35	11,287.71	58.79	17.97	0:11:35	11,348.11	118.21	8.92	0:18:35	10,541.54	219.62	4.80	0:25:35	8,141.77	339.24	3.11	0:32:35	451.10	451.10	2.34
0:04:40	11,251.64	58.60	17.96	0:11:40	10,842.70	112.94	8.95	0:18:40	10,533.16	219.44	4.80	0:25:40	8,158.76	339.95	3.11	0:32:40	452.57	452.57	2.33
0:04:45	11,275.97	58.73	17.96	0:11:45	11,275.34	117.45	8.94	0:18:45	10,527.49	219.32	4.81	0:25:45	8,151.42	339.64	3.11	0:32:45	451.52	451.52	2.33
0:04:50	11,273.66	58.72	17.96	0:11:50	11,347.69	118.21	8.94	0:18:50	10,481.57	218.37	4.81	0:25:50	7,787.77	324.49	3.11	0:32:50	432.85	432.85	2.33
0:04:55	11,275.13	58.72	17.99	0:11:55	11,322.94	117.95	8.96	0:18:55	10,550.35	219.80	4.81	0:25:55	8,136.11	339.00	3.12	0:32:55	451.73	451.73	2.34
0:05:00	11,248.28	58.58	17.97	0:12:00	11,302.81	117.74	8.97	0:19:00	10,081.22	210.03	4.81	0:26:00	8,149.32	339.56	3.11	0:33:00	453.40	453.40	2.33
0:05:05	10,774.33	56.12	17.97	0:12:05	11,262.34	117.32	8.95	0:19:05	10,507.15	218.90	4.80	0:26:05	8,132.13	338.84	3.11	0:33:05	451.94	451.94	2.33
0:05:10	11,264.22	58.67	17.98	0:12:10	11,350.21	118.23	8.94	0:19:10	10,532.11	219.42	4.80	0:26:10	8,153.52	339.73	3.11	0:33:10	452.98	452.98	2.33
0:05:15	11,256.67	58.63	17.99	0:12:15	10,896.17	113.50	8.90	0:19:15	10,547.84	219.75	4.81	0:26:15	8,144.50	339.35	3.11	0:33:15	451.52	451.52	2.34
0:05:20	11,311.83	58.92	17.94	0:12:20	11,310.78	117.82	8.95	0:19:20	10,540.08	219.58	4.81	0:26:20	7,793.44	324.73	3.11	0:33:20	433.90	433.90	2.33
0:05:25	11,257.09	58.63	17.99	0:12:25	11,321.48	117.93	8.94	0:19:25	10,546.58	219.72	4.81	0:26:25	8,140.51	339.19	3.11	0:33:25	452.98	452.98	2.33
0:05:30	11,294.21	58.82	17.96	0:12:30	11,368.03	118.42	8.92	0:19:30	10,513.44	219.03	4.80	0:26:30	8,105.07	337.71	3.12	0:33:30	453.19	453.19	2.33
0:05:35	10,840.39	56.46	17.94	0:12:35	11,298.41	117.69	8.94	0:19:35	10,114.77	210.72	4.80	0:26:35	8,129.19	338.72	3.11	0:33:35	453.61	453.61	2.33
0:05:40	11,271.56	58.71	17.96	0:12:40	11,333.64	118.06	8.93	0:19:40	10,520.78	219.18	4.81	0:26:40	8,157.71	339.90	3.11	0:33:40	451.10	451.10	2.34
0:05:45	11,266.74	58.68	17.97	0:12:45	11,361.32	118.35	8.93	0:19:45	10,557.48	219.95	4.80	0:26:45	8,108.64	337.86	3.11	0:33:45	452.15	452.15	2.34
0:05:50	11,301.13	58.86	17.95	0:12:50	10,853.81	113.06	8.94	0:19:50	10,543.85	219.66	4.81	0:26:50	8,106.75	337.78	3.11	0:33:50	433.27	433.27	2.34
0:05:55	11,277.23	58.74	17.95	0:12:55	11,347.69	118.21	8.94	0:19:55	10,539.66	219.58	4.81	0:26:55	7,790.92	324.62	3.11	0:33:55	452.15	452.15	2.33
0:06:00	11,301.13	58.86	17.96	0:13:00	11,380.20	118.54	8.89	0:20:00	10,510.30	218.96	4.81	0:27:00	8,149.95	339.58	3.11	0:34:00	453.40	453.40	2.33
0:06:05	10,828.64	56.40	17.95	0:13:05	11,316.65	117.88	8.94	0:20:05	10,070.10	209.79	4.81	0:27:05	8,111.99	338.00	3.11	0:34:05	453.19	453.19	2.33
0:06:10	11,254.16	58.62	17.96	0:13:10	11,268.84	117.38	8.98	0:20:10	10,538.40	219.55	4.80	0:27:10	8,133.59	338.90	3.11	0:34:10	453.19	453.19	2.33
0:06:15	11,263.59	58.66	17.98	0:13:15	11,376.84	118.51	8.92	0:20:15	10,535.25	219.48	4.80	0:27:15	8,125.83	338.58	3.11	0:34:15	433.69	433.69	2.33
0:06:20	11,245.14	58.57	17.97	0:13:20	11,260.87	117.30	8.95	0:20:20	10,488.49	218.51	4.81	0:27:20	8,139.26	339.14	3.11	0:34:20	452.78	452.78	2.33
0:06:25	11,214.31	58.41	17.98	0:13:25	10,827.60	112.79	8.96	0:20:25	10,532.32	219.42	4.80	0:27:25	8,123.74	338.49	3.11	0:34:25	451.73	451.73	2.34
0:06:30	11,224.17	58.46	17.97	0:13:30	11,355.87	118.29	8.93	0:20:30	10,551.40	219.82	4.81	0:27:30	7,777.50	324.06	3.12	0:34:30	453.19	453.19	2.33
0:06:35	11,269.47	58.70	17.97	0:13:35	11,350.84	118.24	8.93	0:20:35	10,556.64	219.93	4.80	0:27:35	8,134.85	338.95	3.12	0:34:35	452.57	452.57	2.33
0:06:40	11,264.64	62.93	17.96	0:13:40	11,334.69	118.07	8.91	0:20:40	10,091.91	210.25	4.81	0:27:40	8,099.62	337.48	3.11	0:34:40	449.63	0.00	2.34
0:06:45	148.90	0.00	11.64	0:13:45	247.88	0.00	7.17	0:20:45	412.30	0.00	4.50	0:27:45	243.48	0.00	3.05	0:34:45	0.21	0.00	2.33
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

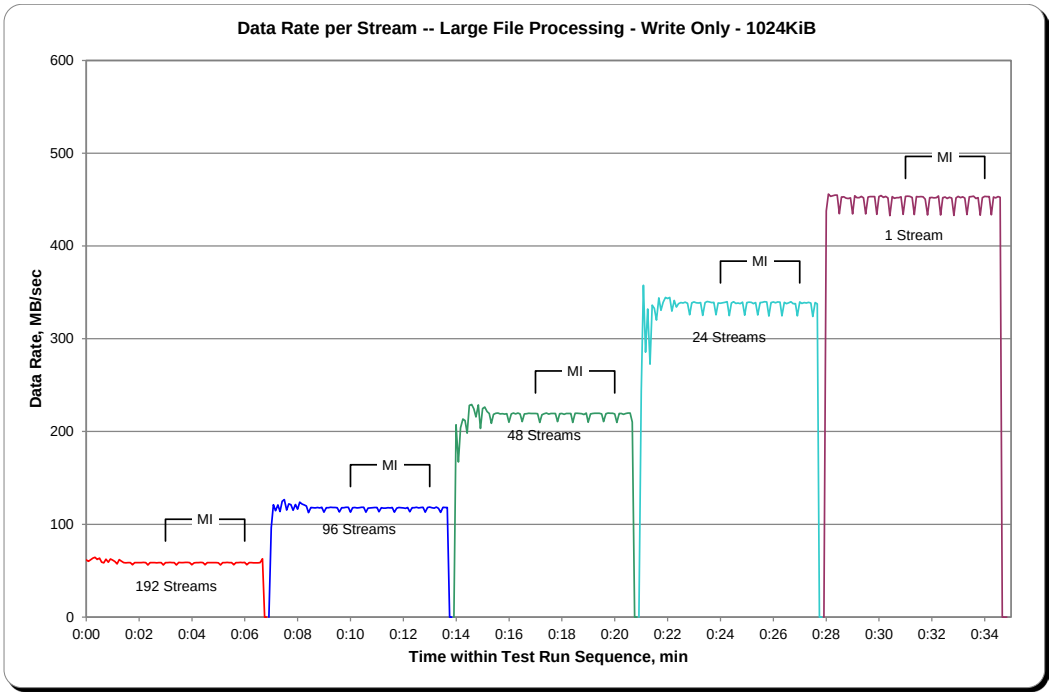
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



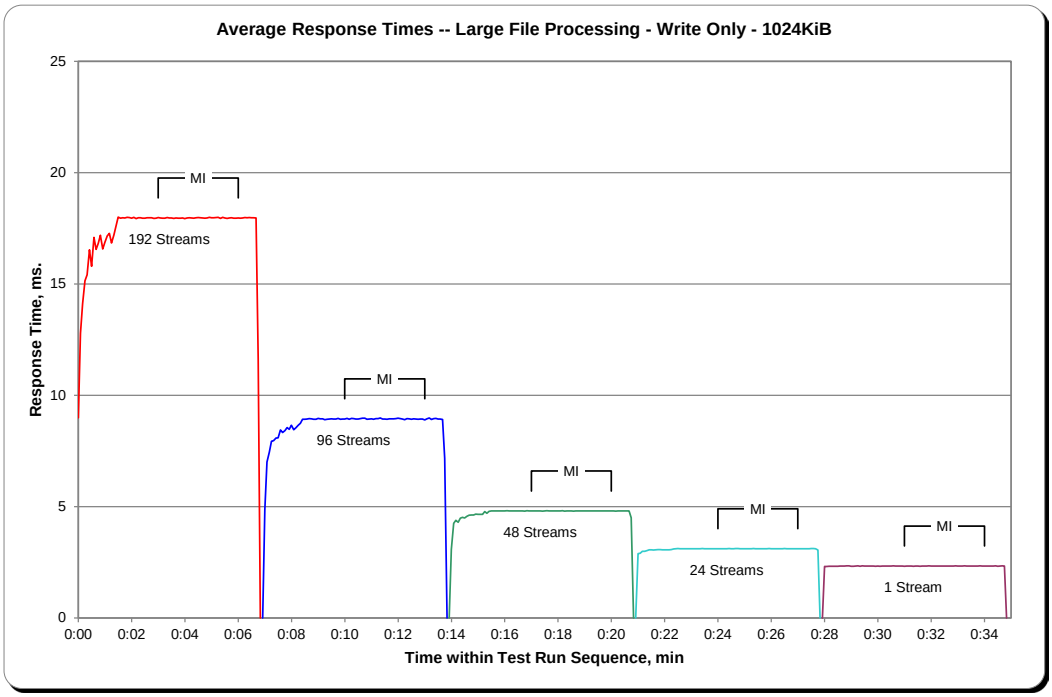
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



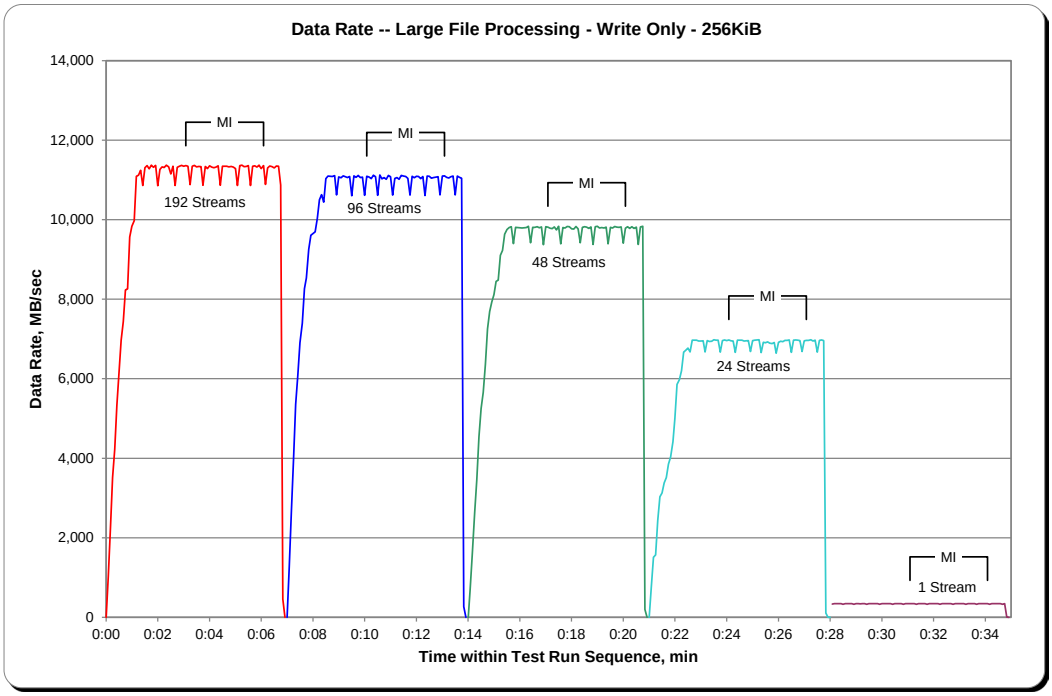
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR6	192 Streams			TR7	96 Streams			TR8	48 Streams			TR9	24 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	0.00	0.00	0.00	0:07:00	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	334.29	334.29	0.77
0:00:05	1,038.35	57.69	1.80	0:07:05	1,263.01	90.21	1.47	0:14:05	714.66	119.11	0.99	0:21:05	767.40	153.48	0.86	0:28:10	342.73	342.73	0.77
0:00:10	2,242.38	59.01	3.23	0:07:10	2,659.61	102.29	1.94	0:14:10	1,601.65	200.21	1.16	0:21:10	1,511.84	302.37	0.87	0:28:15	343.78	343.78	0.77
0:00:15	3,520.07	65.19	3.64	0:07:15	3,967.29	110.20	1.98	0:14:15	2,632.24	188.02	1.18	0:21:15	1,568.20	261.37	0.87	0:28:20	341.31	341.31	0.77
0:00:20	4,223.19	63.03	3.67	0:07:20	5,354.50	116.40	2.05	0:14:20	3,465.91	192.55	1.21	0:21:20	2,436.84	270.76	0.89	0:28:25	342.83	342.83	0.77
0:00:25	5,330.59	64.22	3.75	0:07:25	6,080.69	112.61	2.11	0:14:25	4,538.34	189.10	1.23	0:21:25	3,031.59	275.60	0.89	0:28:30	329.41	329.41	0.77
0:00:30	6,154.14	60.93	3.91	0:07:30	6,905.76	119.06	2.17	0:14:30	5,252.16	202.01	1.25	0:21:30	3,126.64	284.24	0.89	0:28:35	341.84	341.84	0.77
0:00:35	6,971.46	61.69	4.02	0:07:35	7,394.03	113.75	2.18	0:14:35	5,655.39	195.01	1.24	0:21:35	3,379.35	281.61	0.89	0:28:40	342.15	342.15	0.77
0:00:40	7,434.09	60.44	4.23	0:07:40	8,261.78	114.75	2.21	0:14:40	6,355.31	192.59	1.26	0:21:40	3,511.52	270.12	0.90	0:28:45	342.67	342.67	0.77
0:00:45	8,231.48	60.53	4.08	0:07:45	8,533.68	113.78	2.19	0:14:45	7,251.90	196.00	1.25	0:21:45	3,852.84	296.37	0.89	0:28:50	341.68	341.68	0.77
0:00:50	8,257.85	56.18	4.32	0:07:50	9,253.00	118.63	2.17	0:14:50	7,688.32	207.79	1.26	0:21:50	4,027.06	287.65	0.89	0:28:55	327.47	327.47	0.77
0:00:55	9,564.48	62.51	4.14	0:07:55	9,605.38	118.58	2.21	0:14:55	7,930.33	208.69	1.25	0:21:55	4,418.86	259.93	0.90	0:29:00	342.73	342.73	0.77
0:01:00	9,833.07	60.33	4.25	0:08:00	9,651.25	116.28	2.25	0:15:00	8,113.30	208.03	1.25	0:22:00	5,001.71	250.09	0.90	0:29:05	342.15	342.15	0.77
0:01:05	9,970.18	58.65	4.37	0:08:05	9,691.94	115.38	2.27	0:15:05	8,445.49	205.99	1.26	0:22:05	5,857.61	292.88	0.90	0:29:10	340.37	340.37	0.77
0:01:10	11,091.73	62.31	4.18	0:08:10	10,027.17	116.59	2.23	0:15:10	8,476.53	197.13	1.27	0:22:10	5,972.85	284.42	0.90	0:29:15	342.26	342.26	0.77
0:01:15	11,114.64	61.07	4.27	0:08:15	10,499.29	120.68	2.18	0:15:15	9,102.43	206.87	1.26	0:22:15	6,199.92	281.81	0.90	0:29:20	342.31	342.31	0.77
0:01:20	11,242.31	60.44	4.32	0:08:20	10,627.27	116.78	2.19	0:15:20	9,226.63	205.04	1.26	0:22:20	6,665.43	289.80	0.90	0:29:25	327.00	327.00	0.77
0:01:25	10,859.21	57.46	4.38	0:08:25	10,440.78	111.07	2.22	0:15:25	9,636.05	205.02	1.27	0:22:25	6,715.71	291.99	0.90	0:29:30	344.04	344.04	0.77
0:01:30	11,303.65	58.87	4.43	0:08:30	11,031.23	114.91	2.27	0:15:30	9,753.64	203.20	1.28	0:22:30	6,770.66	282.11	0.90	0:29:35	341.99	341.99	0.77
0:01:35	11,357.18	59.15	4.46	0:08:35	11,093.99	115.56	2.28	0:15:35	9,800.78	204.18	1.29	0:22:35	6,670.94	277.96	0.91	0:29:40	341.68	341.68	0.77
0:01:40	11,278.75	58.74	4.46	0:08:40	11,091.21	115.53	2.28	0:15:40	9,822.06	204.63	1.29	0:22:40	6,968.21	290.34	0.91	0:29:45	341.68	341.68	0.77
0:01:45	11,370.13	59.22	4.46	0:08:45	11,086.59	115.49	2.29	0:15:45	9,397.65	195.78	1.29	0:22:45	6,969.67	290.40	0.91	0:29:50	343.62	343.62	0.77
0:01:50	11,314.66	58.93	4.46	0:08:50	11,105.94	115.69	2.28	0:15:50	9,808.28	204.34	1.29	0:22:50	6,969.88	290.41	0.91	0:29:55	328.89	328.89	0.77
0:01:55	11,361.79	59.18	4.46	0:08:55	10,621.81	110.64	2.28	0:15:55	9,801.67	204.20	1.29	0:22:55	6,947.86	289.49	0.91	0:30:00	341.63	341.63	0.77
0:02:00	10,852.81	56.53	4.47	0:09:00	11,076.06	115.38	2.28	0:16:00	9,796.53	204.09	1.29	0:23:00	6,945.14	289.38	0.91	0:30:05	343.25	343.25	0.77
0:02:05	11,262.28	58.66	4.47	0:09:05	11,053.83	115.14	2.29	0:16:05	9,791.97	204.00	1.29	0:23:05	6,952.74	289.70	0.91	0:30:10	342.73	342.73	0.77
0:02:10	11,329.39	59.01	4.47	0:09:10	11,099.44	115.62	2.28	0:16:10	9,793.75	204.04	1.29	0:23:10	6,675.50	278.15	0.91	0:30:15	342.73	342.73	0.77
0:02:15	11,308.05	58.90	4.47	0:09:15	11,081.46	115.43	2.28	0:16:15	9,800.10	204.17	1.29	0:23:15	6,960.45	290.02	0.91	0:30:20	342.62	342.62	0.77
0:02:20	11,371.96	59.23	4.46	0:09:20	11,056.71	115.17	2.29	0:16:20	9,833.55	204.87	1.29	0:23:20	6,934.70	288.95	0.91	0:30:25	328.57	328.57	0.77
0:02:25	11,327.29	59.00	4.47	0:09:25	11,086.70	115.49	2.29	0:16:25	9,420.09	196.25	1.29	0:23:25	6,940.68	289.20	0.91	0:30:30	343.72	343.72	0.77
0:02:30	11,150.40	58.07	4.54	0:09:30	10,602.62	110.44	2.28	0:16:30	9,804.19	204.25	1.29	0:23:30	6,979.48	290.81	0.91	0:30:35	342.26	342.26	0.77
0:02:35	11,344.02	59.08	4.46	0:09:35	11,098.97	115.61	2.28	0:16:35	9,803.66	204.24	1.29	0:23:35	6,970.93	290.46	0.91	0:30:40	343.62	343.62	0.77
0:02:40	10,861.52	56.57	4.46	0:09:40	11,065.26	115.26	2.29	0:16:40	9,824.42	204.68	1.29	0:23:40	6,969.52	290.40	0.91	0:30:45	342.62	342.62	0.77
0:02:45	11,313.87	58.93	4.46	0:09:45	11,109.45	115.72	2.28	0:16:45	9,793.86	204.04	1.29	0:23:45	6,668.68	277.86	0.91	0:30:50	328.15	328.15	0.77
0:02:50	11,342.66	59.08	4.46	0:09:50	11,058.28	115.19	2.29	0:16:50	9,819.34	204.57	1.29	0:23:50	6,956.20	289.84	0.91	0:30:55	343.25	343.25	0.77
0:02:55	11,362.21	59.18	4.46	0:09:55	11,070.03	115.31	2.28	0:16:55	9,372.64	195.26	1.29	0:23:55	6,975.08	290.63	0.91	0:31:00	343.30	343.30	0.77
0:03:00	11,341.08	59.07	4.47	0:10:00	10,610.33	110.52	2.28	0:17:00	9,823.79	204.66	1.29	0:24:00	6,960.34	290.01	0.91				

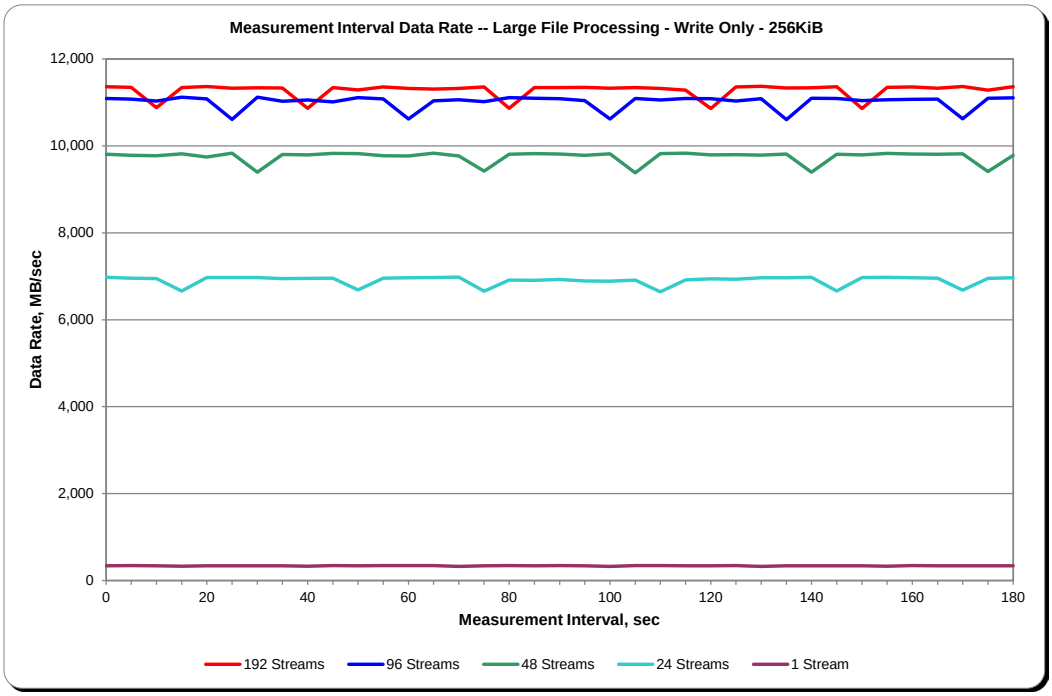
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	192 Streams			TR7	96 Streams			TR8	48 Streams			TR9	24 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:05	11,361.58	59.17	4.46	0:10:05	11,091.84	115.54	2.28	0:17:05	9,809.32	204.36	1.29	0:24:05	6,976.39	290.68	0.91	0:31:05	342.31	342.31	0.77
0:03:10	11,344.44	59.09	4.46	0:10:10	11,076.79	115.38	2.29	0:17:10	9,782.01	203.79	1.29	0:24:10	6,954.73	289.78	0.91	0:31:10	342.94	342.94	0.77
0:03:15	10,880.13	56.67	4.46	0:10:15	11,030.91	114.91	2.29	0:17:15	9,773.83	203.62	1.29	0:24:15	6,947.55	289.48	0.91	0:31:15	341.57	341.57	0.77
0:03:20	11,341.76	59.07	4.46	0:10:20	11,119.36	115.83	2.28	0:17:20	9,815.41	204.49	1.29	0:24:20	6,660.71	277.53	0.91	0:31:20	328.31	328.31	0.77
0:03:25	11,362.89	59.18	4.46	0:10:25	11,078.73	115.40	2.28	0:17:25	9,741.74	202.95	1.29	0:24:25	6,970.99	290.46	0.91	0:31:25	341.47	341.47	0.77
0:03:30	11,325.09	58.98	4.47	0:10:30	10,609.60	110.52	2.28	0:17:30	9,832.13	204.84	1.29	0:24:30	6,971.14	290.46	0.91	0:31:30	341.63	341.63	0.77
0:03:35	11,336.57	59.04	4.46	0:10:35	11,121.83	115.85	2.28	0:17:35	9,392.57	195.68	1.29	0:24:35	6,970.51	290.44	0.91	0:31:35	341.47	341.47	0.77
0:03:40	11,332.49	59.02	4.47	0:10:40	11,024.99	114.84	2.29	0:17:40	9,801.83	204.20	1.29	0:24:40	6,947.65	289.49	0.91	0:31:40	341.57	341.57	0.77
0:03:45	10,863.51	56.58	4.46	0:10:45	11,057.92	115.19	2.29	0:17:45	9,791.86	204.00	1.29	0:24:45	6,950.28	289.59	0.91	0:31:45	328.83	328.83	0.77
0:03:50	11,338.93	59.06	4.46	0:10:50	11,012.93	114.72	2.29	0:17:50	9,827.15	204.73	1.29	0:24:50	6,956.31	289.85	0.91	0:31:50	343.46	343.46	0.77
0:03:55	11,284.46	58.77	4.47	0:10:55	11,111.97	115.75	2.28	0:17:55	9,824.11	204.67	1.29	0:24:55	6,684.20	278.51	0.91	0:31:55	341.57	341.57	0.77
0:04:00	11,353.25	59.13	4.47	0:11:00	11,078.00	115.40	2.28	0:18:00	9,770.95	203.56	1.29	0:25:00	6,957.14	289.88	0.91	0:32:00	342.78	342.78	0.77
0:04:05	11,320.27	58.96	4.46	0:11:05	10,619.66	110.62	2.29	0:18:05	9,765.60	203.45	1.29	0:25:05	6,966.58	290.27	0.91	0:32:05	343.20	343.20	0.77
0:04:10	11,304.38	58.88	4.47	0:11:10	11,037.31	114.97	2.29	0:18:10	9,830.19	204.80	1.29	0:25:10	6,972.51	290.52	0.91	0:32:10	342.88	342.88	0.77
0:04:15	11,320.22	58.96	4.46	0:11:15	11,059.33	115.20	2.28	0:18:15	9,766.59	203.47	1.29	0:25:15	6,981.00	290.87	0.91	0:32:15	327.84	327.84	0.77
0:04:20	11,355.29	59.14	4.47	0:11:20	11,014.77	114.74	2.29	0:18:20	9,420.14	196.25	1.29	0:25:20	6,655.94	277.33	0.91	0:32:20	341.94	341.94	0.77
0:04:25	10,862.04	56.57	4.46	0:11:25	11,111.81	115.75	2.28	0:18:25	9,806.96	204.31	1.29	0:25:25	6,914.10	288.09	0.91	0:32:25	342.94	342.94	0.77
0:04:30	11,340.87	59.07	4.47	0:11:30	11,093.15	115.55	2.28	0:18:30	9,823.69	204.66	1.29	0:25:30	6,905.29	287.72	0.91	0:32:30	341.52	341.52	0.77
0:04:35	11,342.03	59.07	4.46	0:11:35	11,084.86	115.47	2.28	0:18:35	9,812.31	204.42	1.29	0:25:35	6,927.78	288.66	0.91	0:32:35	342.99	342.99	0.77
0:04:40	11,343.50	59.08	4.46	0:11:40	11,038.99	114.99	2.29	0:18:40	9,780.38	203.76	1.29	0:25:40	6,894.81	287.28	0.92	0:32:40	342.57	342.57	0.77
0:04:45	11,326.77	58.99	4.47	0:11:45	10,618.30	110.61	2.28	0:18:45	9,818.24	204.55	1.29	0:25:45	6,885.21	286.88	0.92	0:32:45	327.73	327.73	0.77
0:04:50	11,339.46	59.06	4.46	0:11:50	11,087.64	115.50	2.28	0:18:50	9,377.78	195.37	1.29	0:25:50	6,911.90	288.00	0.92	0:32:50	343.20	343.20	0.77
0:04:55	11,322.63	58.97	4.46	0:11:55	11,054.04	115.15	2.28	0:18:55	9,820.75	204.60	1.29	0:25:55	6,642.83	276.78	0.91	0:32:55	343.15	343.15	0.77
0:05:00	11,283.62	58.77	4.47	0:12:00	11,091.31	115.53	2.28	0:19:00	9,831.97	204.83	1.29	0:26:00	6,917.09	288.21	0.91	0:33:00	341.31	341.31	0.77
0:05:05	10,859.63	56.56	4.47	0:12:05	11,086.96	115.49	2.28	0:19:05	9,791.08	203.98	1.29	0:26:05	6,941.00	289.21	0.91	0:33:05	342.52	342.52	0.77
0:05:10	11,357.65	59.15	4.46	0:12:10	11,029.76	114.89	2.29	0:19:10	9,798.16	204.13	1.29	0:26:10	6,933.29	288.89	0.91	0:33:10	343.30	343.30	0.77
0:05:15	11,368.45	59.21	4.46	0:12:15	11,087.07	115.49	2.29	0:19:15	9,788.09	203.92	1.29	0:26:15	6,964.80	290.20	0.91	0:33:15	327.73	327.73	0.77
0:05:20	11,332.69	59.02	4.47	0:12:20	10,605.09	110.47	2.29	0:19:20	9,812.57	204.43	1.29	0:26:20	6,964.59	290.19	0.91	0:33:20	341.99	341.99	0.77
0:05:25	11,337.31	59.05	4.46	0:12:25	11,096.08	115.58	2.28	0:19:25	9,394.19	195.71	1.29	0:26:25	6,975.44	290.64	0.91	0:33:25	341.52	341.52	0.77
0:05:30	11,360.22	59.17	4.46	0:12:30	11,090.42	115.53	2.28	0:19:30	9,808.64	204.35	1.29	0:26:30	6,661.97	277.58	0.91	0:33:30	341.42	341.42	0.77
0:05:35	10,856.64	56.55	4.47	0:12:35	11,042.92	115.03	2.29	0:19:35	9,791.13	203.98	1.29	0:26:35	6,968.99	290.37	0.91	0:33:35	341.47	341.47	0.77
0:05:40	11,344.07	59.08	4.46	0:12:40	11,059.23	115.20	2.28	0:19:40	9,825.63	204.70	1.29	0:26:40	6,976.70	290.70	0.91	0:33:40	328.15	328.15	0.77
0:05:45	11,354.40	59.14	4.47	0:12:45	11,068.93	115.30	2.28	0:19:45	9,810.90	204.39	1.29	0:26:45	6,967.94	290.33	0.91	0:33:45	343.09	343.09	0.77
0:05:50	11,323.62	58.98	4.47	0:12:50	11,077.68	115.39	2.28	0:19:50	9,808.12	204.34	1.29	0:26:50	6,957.30	289.89	0.91	0:33:50	342.05	342.05	0.77
0:05:55	11,367.14	59.20	4.46	0:12:55	10,621.18	110.64	2.28	0:19:55	9,819.13	204.57	1.29	0:26:55	6,682.05	278.42	0.91	0:33:55	342.67	342.67	0.77
0:06:00	11,283.25	58.77	4.47	0:13:00	11,093.41	115.56	2.28	0:20:00	9,408.92	196.02	1.29	0:27:00	6,950.22	289.59	0.91	0:34:00	342.05	342.05	0.77
0:06:05	11,359.80	59.17	4.47	0:13:05	11,103.48	115.66	2.28	0:20:05	9,783.42	203.82	1.29	0:27:05	6,966.21	290.26	0.91	0:34:05	341.99	341.99	0.77
0:06:10	10,884.17	56.69	4.46	0:13:10	11,064.21	115.25	2.28	0:20:10	9,822.75	204.64	1.29	0:27:10	6,965.17	290.22	0.91	0:34:10	327.84	327.84	0.77
0:06:15	11,301.87	58.86	4.46	0:13:15	11,047.38	115.08	2.28	0:20:15	9,781.69	203.79	1.29	0:27:15	6,978.17	290.76	0.91	0:34:15	341.63	341.63	0.77
0:06:20	11,346.06	59.09	4.46	0:13:20	11,081.61	115.43	2.28	0:20:20	9,823.95	204.67	1.29	0:27:20	6,945.45	289.39	0.91	0:34:20	341.99	341.99	0.77
0:06:25	11,332.07	59.02	4.47	0:13:25	11,096.77	115.59	2.28	0:20:25	9,778.60	203.72	1.29	0:27:25	6,967.53	290.31	0.91	0:34:25	343.62	343.62	0.77
0:06:30	11,297.57	58.84	4.47	0:13:30	10,622.49	110.65	2.28	0:20:30	9,811.53	204.41	1.29	0:27:30	6,667.84	277.83	0.91	0:34:30	342.20	342.20	0.77
0:06:35	11,349.79	59.11	4.47	0:13:35	11,096.66	115.59	2.28	0:20:35	9,373.95	195.29	1.29	0:27:35	6,964.85	290.20	0.91	0:34:35	342.67	342.67	0.77
0:06:40	11,343.39	59.08	4.46	0:13:40	11,062.21	115.23	2.28	0:20:40	9,816.98	204.52	1.29	0:27:40	6,974.39	290.60	0.91	0:34:40	328.10	328.10	0.77
0:06:45	10,869.17	56.61	4.46	0:13:45	11,041.77	115.02	2.29	0:20:45	9,830.71	204.81	1.29	0:27:45	6,956.78	289.87	0.91	0:34:45	342.88	342.88	0.77
0:06:50	457.02	0.00	3.95	0:13:50	267.54	0.00	1.99	0:20:50	199.49	0.00	1.19	0:27:50	106.75	0.00	0.88	0:34:50	6.34	0.00	0.76
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				

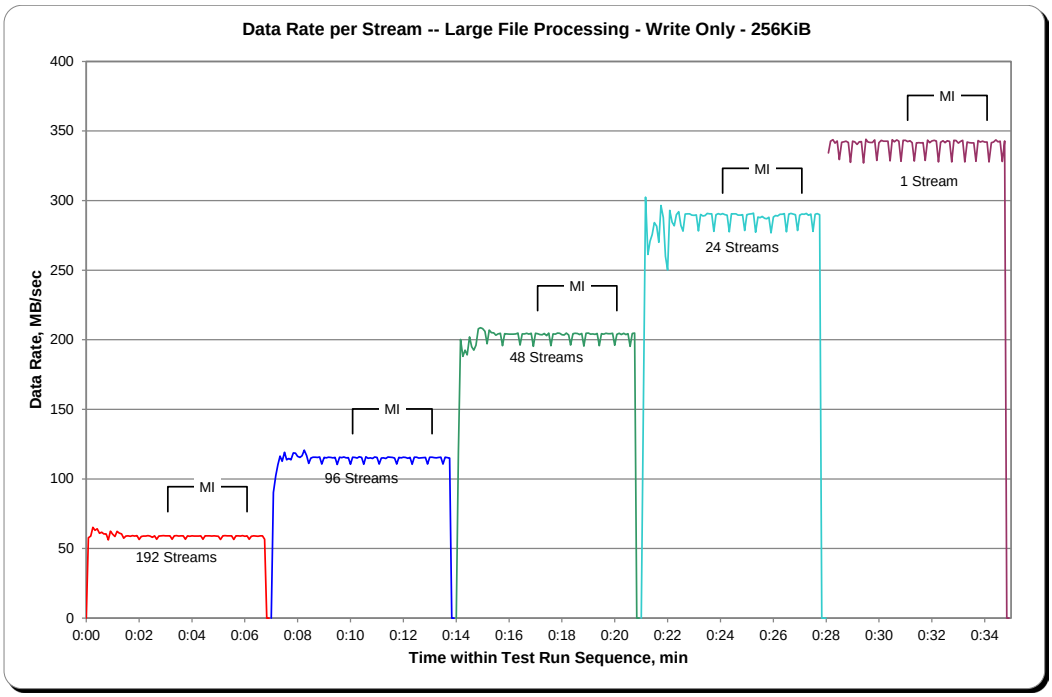
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



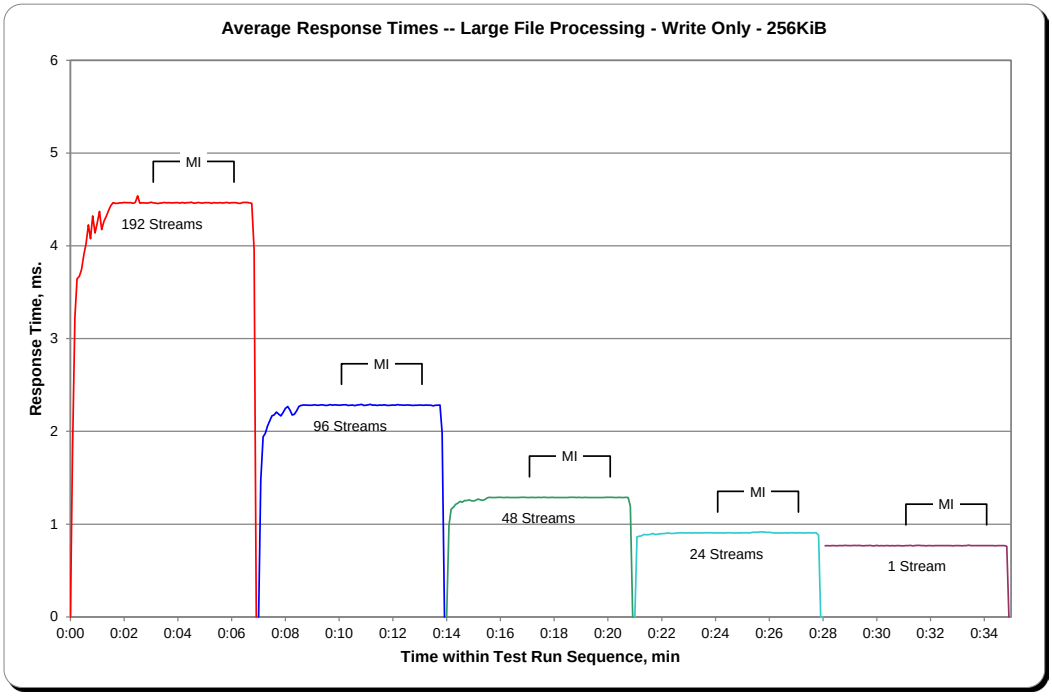
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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.

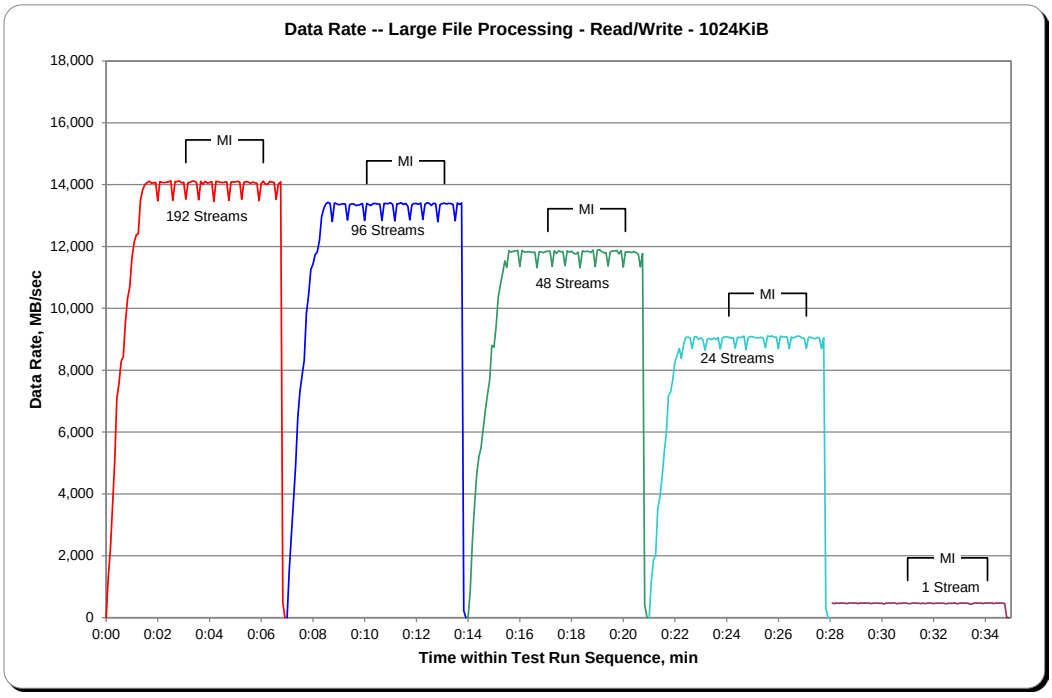
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR11	192 Streams			TR12	96 Streams			TR13	48 Streams			TR14	24 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	0:28:05	467.87	467.87	2.25
0:00:05	1,323.51	77.85	7.08	0:07:05	1,525.68	127.14	5.53	0:14:05	838.02	167.60	2.99	0:21:05	1,176.71	294.18	2.61	0:28:10	452.36	452.36	2.24
0:00:10	2,238.50	74.62	10.54	0:07:10	2,669.88	148.33	6.04	0:14:10	2,447.38	203.95	3.86	0:21:10	1,873.18	374.64	2.67	0:28:15	473.96	473.96	2.22
0:00:15	3,639.82	75.83	11.66	0:07:15	3,789.76	135.35	6.64	0:14:15	3,694.13	230.88	4.03	0:21:15	2,013.69	251.71	2.68	0:28:20	459.91	459.91	2.30
0:00:20	5,069.45	69.44	12.17	0:07:20	4,947.39	130.19	6.65	0:14:20	4,677.07	246.16	4.06	0:21:20	3,500.36	350.04	2.73	0:28:25	474.80	474.80	2.22
0:00:25	7,104.94	81.67	12.22	0:07:25	6,484.39	144.10	6.70	0:14:25	5,210.79	248.13	4.05	0:21:25	3,918.11	356.19	2.70	0:28:30	471.02	471.02	2.24
0:00:30	7,579.53	79.78	12.51	0:07:30	7,315.08	146.30	7.00	0:14:30	5,471.26	248.69	4.02	0:21:30	4,511.39	347.03	2.73	0:28:35	472.70	472.70	2.23
0:00:35	8,285.85	76.02	13.03	0:07:35	7,885.71	138.35	7.08	0:14:35	6,104.60	244.18	4.13	0:21:35	5,321.31	332.58	2.74	0:28:40	456.97	456.97	2.21
0:00:40	8,440.62	72.14	13.57	0:07:40	8,324.23	128.07	7.33	0:14:40	6,724.52	249.06	4.10	0:21:40	5,971.22	351.25	2.74	0:28:45	473.75	473.75	2.23
0:00:45	9,558.61	73.53	13.75	0:07:45	9,831.24	140.45	7.26	0:14:45	7,222.59	249.05	4.14	0:21:45	7,182.33	378.02	2.75	0:28:50	473.96	473.96	2.22
0:00:50	10,319.67	72.67	13.71	0:07:50	10,405.44	135.14	7.37	0:14:50	7,674.53	225.72	4.16	0:21:50	7,295.57	383.98	2.75	0:28:55	471.02	471.02	2.24
0:00:55	10,690.02	73.72	14.18	0:07:55	11,266.53	142.61	7.31	0:14:55	8,799.65	251.42	4.19	0:21:55	7,689.63	366.17	2.77	0:29:00	473.75	473.75	2.23
0:01:00	11,599.35	74.83	13.74	0:08:00	11,433.46	141.15	7.32	0:15:00	8,744.08	236.33	4.22	0:22:00	8,260.47	375.48	2.77	0:29:05	455.71	455.71	2.22
0:01:05	12,141.88	74.49	13.80	0:08:05	11,734.19	141.38	7.42	0:15:05	9,412.44	229.57	4.19	0:22:05	8,492.21	369.23	2.77	0:29:10	477.73	477.73	2.21
0:01:10	12,380.96	73.26	14.09	0:08:10	11,824.16	137.49	7.46	0:15:10	10,356.79	246.59	4.23	0:22:10	8,707.38	378.58	2.78	0:29:15	471.86	471.86	2.24
0:01:15	12,408.64	70.50	13.90	0:08:15	12,190.12	136.97	7.33	0:15:15	10,762.16	250.28	4.21	0:22:15	8,384.83	364.56	2.78	0:29:20	474.17	474.17	2.24
0:01:20	13,489.51	74.94	13.90	0:08:20	12,952.43	142.33	7.36	0:15:20	11,124.76	247.22	4.19	0:22:20	8,843.06	368.46	2.78	0:29:25	468.08	468.08	2.24
0:01:25	13,854.42	74.09	13.94	0:08:25	13,222.12	139.18	7.42	0:15:25	11,540.42	240.43	4.20	0:22:25	9,061.58	377.57	2.79	0:29:30	473.96	473.96	2.23
0:01:30	14,002.05	72.93	14.20	0:08:30	13,380.25	139.38	7.54	0:15:30	11,327.56	235.99	4.28	0:22:30	9,069.34	377.89	2.79	0:29:35	455.71	455.71	2.22
0:01:35	14,065.81	73.26	14.40	0:08:35	13,427.44	139.87	7.55	0:15:35	11,868.62	247.26	4.27	0:22:35	9,052.99	377.21	2.80	0:29:40	471.65	471.65	2.23
0:01:40	14,114.46	73.51	14.37	0:08:40	13,389.06	139.47	7.58	0:15:40	11,819.34	246.24	4.28	0:22:40	8,707.79	362.82	2.79	0:29:45	472.07	472.07	2.24
0:01:45	14,053.02	73.19	14.38	0:08:45	12,806.47	133.40	7.56	0:15:45	11,847.23	246.82	4.28	0:22:45	9,074.80	378.12	2.79	0:29:50	474.17	474.17	2.23
0:01:50	14,058.05	73.22	14.37	0:08:50	13,410.45	139.69	7.56	0:15:50	11,858.77	247.06	4.27	0:22:50	9,081.51	378.40	2.79	0:29:55	464.94	464.94	2.27
0:01:55	14,070.42	73.28	14.39	0:08:55	13,380.04	139.38	7.56	0:15:55	11,878.69	247.47	4.27	0:22:55	9,003.28	375.14	2.80	0:30:00	472.70	472.70	2.23
0:02:00	13,478.82	70.20	14.36	0:09:00	13,351.31	139.08	7.57	0:16:00	11,356.29	236.59	4.27	0:23:00	9,049.42	377.06	2.80	0:30:05	444.18	444.18	2.27
0:02:05	14,100.62	73.44	14.39	0:09:05	13,369.97	139.27	7.56	0:16:05	11,873.24	247.36	4.27	0:23:05	8,978.96	374.12	2.82	0:30:10	472.49	472.49	2.23
0:02:10	14,072.10	73.29	14.39	0:09:10	13,384.65	139.42	7.58	0:16:10	11,828.99	246.44	4.29	0:23:10	8,647.82	360.33	2.81	0:30:15	475.00	475.00	2.22
0:02:15	14,068.95	73.28	14.36	0:09:15	13,372.91	139.30	7.57	0:16:15	11,819.76	246.24	4.27	0:23:15	9,001.40	375.06	2.81	0:30:20	471.44	471.44	2.24
0:02:20	14,081.54	73.34	14.39	0:09:20	12,853.65	133.89	7.56	0:16:20	11,834.02	246.54	4.27	0:23:20	9,031.18	376.30	2.81	0:30:25	472.91	472.91	2.23
0:02:25	14,093.07	73.40	14.39	0:09:25	13,356.34	139.13	7.56	0:16:25	11,818.08	246.21	4.28	0:23:25	8,985.67	374.40	2.82	0:30:30	476.05	476.05	2.21
0:02:30	14,127.25	73.58	14.36	0:09:30	13,379.20	139.37	7.57	0:16:30	11,811.79	246.08	4.28	0:23:30	9,040.40	376.68	2.80	0:30:35	451.10	451.10	2.24
0:02:35	13,495.17	70.29	14.38	0:09:35	13,371.86	139.29	7.57	0:16:35	11,818.50	246.22	4.26	0:23:35	8,997.83	374.91	2.81	0:30:40	468.50	468.50	2.25
0:02:40	14,102.93	73.45	14.38	0:09:40	13,329.50	138.85	7.57	0:16:40	11,315.81	235.75	4.28	0:23:40	9,057.81	377.41	2.80	0:30:45	459.07	459.07	2.30
0:02:45	14,099.57	73.44	14.39	0:09:45	13,342.92	138.99	7.57	0:16:45	11,836.96	246.60	4.27	0:23:45	8,682.84	361.78	2.79	0:30:50	474.17	474.17	2.22
0:02:50	14,119.70	73.54	14.37	0:09:50	13,360.33	139.17	7.56	0:16:50	11,825.00	246.35	4.28	0:23:50	9,036.21	376.51	2.79	0:30:55	478.99	478.99	2.20
0:02:55	14,060.77	73.23	14.37	0:09:55	13,388.43	139.46	7.56	0:16:55	11,800.46	245.84	4.28	0:23:55	9,081.72	378.40	2.79				
0:03:00	14,077.34	73.32	14.35	0:10:00	12,845.48	133.81	7.57	0:17:00	11,840.10	246.67	4.27	0:24:00	9,080.25	378.34	2.79				

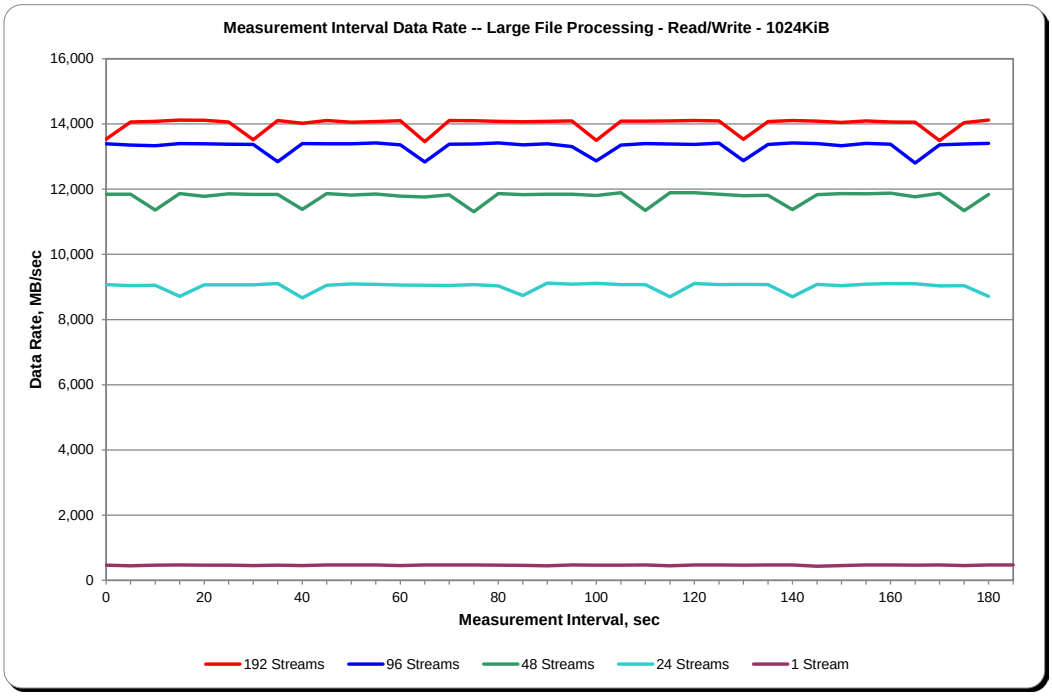
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	192 Streams			TR12	96 Streams			TR13	48 Streams			TR14	24 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	13,535.23	70.50	14.40	0:10:05	13,392.62	139.51	7.57	0:17:05	11,845.76	246.79	4.27	0:24:05	9,069.13	377.88	2.79	0:31:00	465.78	465.78	2.25
0:03:10	14,057.00	73.21	14.38	0:10:10	13,350.68	139.07	7.57	0:17:10	11,844.71	246.76	4.27	0:24:10	9,038.93	376.62	2.80	0:31:05	449.21	449.21	2.27
0:03:15	14,078.60	73.33	14.39	0:10:15	13,328.66	138.84	7.57	0:17:15	11,357.76	236.62	4.28	0:24:15	9,054.87	377.29	2.79	0:31:10	467.87	467.87	2.26
0:03:20	14,115.72	73.52	14.37	0:10:20	13,394.51	139.53	7.57	0:17:20	11,864.43	247.18	4.27	0:24:20	8,711.99	363.00	2.79	0:31:15	474.59	474.59	2.22
0:03:25	14,114.25	73.51	14.38	0:10:25	13,388.43	139.46	7.56	0:17:25	11,779.91	245.41	4.29	0:24:25	9,067.04	377.79	2.80	0:31:20	468.50	468.50	2.25
0:03:30	14,062.24	73.24	14.40	0:10:30	13,377.73	139.35	7.57	0:17:30	11,858.98	247.06	4.28	0:24:30	9,063.47	377.64	2.80	0:31:25	468.71	468.71	2.25
0:03:35	13,514.89	70.39	14.39	0:10:35	13,372.91	139.30	7.57	0:17:35	11,836.12	246.59	4.28	0:24:35	9,066.83	377.78	2.79	0:31:30	453.19	453.19	2.23
0:03:40	14,103.98	73.46	14.38	0:10:40	12,840.23	133.75	7.55	0:17:40	11,835.07	246.56	4.27	0:24:40	9,106.25	379.43	2.78	0:31:35	466.83	466.83	2.26
0:03:45	14,018.62	73.01	14.39	0:10:45	13,398.28	139.57	7.57	0:17:45	11,378.10	237.04	4.27	0:24:45	8,666.06	361.09	2.79	0:31:40	456.55	456.55	2.31
0:03:50	14,107.12	73.47	14.38	0:10:50	13,388.43	139.46	7.56	0:17:50	11,860.65	247.10	4.27	0:24:50	9,055.08	377.30	2.79	0:31:45	472.49	472.49	2.24
0:03:55	14,050.71	73.18	14.38	0:10:55	13,391.15	139.49	7.56	0:17:55	11,819.97	246.25	4.27	0:24:55	9,093.67	378.90	2.79	0:31:50	474.17	474.17	2.22
0:04:00	14,074.83	73.31	14.38	0:11:00	13,416.95	139.76	7.56	0:18:00	11,850.59	246.89	4.27	0:25:00	9,081.30	378.39	2.79	0:31:55	470.39	470.39	2.25
0:04:05	14,100.20	73.44	14.39	0:11:05	13,360.12	139.17	7.58	0:18:05	11,785.78	245.54	4.29	0:25:05	9,059.70	377.49	2.79	0:32:00	453.61	453.61	2.23
0:04:10	13,455.96	70.08	14.39	0:11:10	12,831.84	133.67	7.56	0:18:10	11,757.89	244.96	4.30	0:25:10	9,052.15	377.17	2.78	0:32:05	471.65	471.65	2.23
0:04:15	14,103.98	73.46	14.39	0:11:15	13,380.88	139.38	7.57	0:18:15	11,821.23	246.28	4.28	0:25:15	9,048.16	377.01	2.79	0:32:10	472.70	472.70	2.23
0:04:20	14,098.94	73.43	14.37	0:11:20	13,385.49	139.43	7.56	0:18:20	11,308.89	235.60	4.30	0:25:20	9,070.18	377.92	2.79	0:32:15	470.39	470.39	2.24
0:04:25	14,078.81	73.33	14.38	0:11:25	13,416.11	139.75	7.56	0:18:25	11,861.28	247.11	4.27	0:25:25	9,035.37	376.47	2.79	0:32:20	469.55	469.55	2.25
0:04:30	14,066.44	73.26	14.40	0:11:30	13,358.65	139.15	7.56	0:18:30	11,833.60	246.53	4.27	0:25:30	8,735.27	363.97	2.78	0:32:25	463.47	463.47	2.27
0:04:35	14,078.81	73.33	14.38	0:11:35	13,392.41	139.50	7.58	0:18:35	11,846.60	246.80	4.28	0:25:35	9,114.64	379.78	2.78	0:32:30	446.06	446.06	2.27
0:04:40	14,089.93	73.39	14.37	0:11:40	13,305.80	138.60	7.58	0:18:40	11,843.04	246.73	4.27	0:25:40	9,084.02	378.50	2.78	0:32:35	472.07	472.07	2.24
0:04:45	13,492.87	70.28	14.39	0:11:45	12,863.30	133.99	7.56	0:18:45	11,806.97	245.98	4.28	0:25:45	9,111.92	379.66	2.78	0:32:40	465.78	465.78	2.26
0:04:50	14,084.68	73.36	14.37	0:11:50	13,354.45	139.11	7.55	0:18:50	11,891.27	247.73	4.25	0:25:50	9,069.97	377.92	2.79	0:32:45	469.34	469.34	2.25
0:04:55	14,086.15	73.37	14.37	0:11:55	13,395.77	139.54	7.57	0:18:55	11,348.74	236.43	4.27	0:25:55	9,073.96	378.08	2.79	0:32:50	473.33	473.33	2.23
0:05:00	14,090.55	73.39	14.40	0:12:00	13,385.70	139.43	7.56	0:19:00	11,890.01	247.71	4.26	0:26:00	8,699.83	362.49	2.79	0:32:55	449.21	449.21	2.25
0:05:05	14,106.28	73.47	14.35	0:12:05	13,371.23	139.28	7.57	0:19:05	11,893.16	247.77	4.26	0:26:05	9,101.85	379.24	2.78	0:33:00	472.28	472.28	2.23
0:05:10	14,089.09	73.38	14.37	0:12:10	13,410.03	139.69	7.56	0:19:10	11,843.04	246.73	4.27	0:26:10	9,072.49	378.02	2.79	0:33:05	474.80	474.80	2.22
0:05:15	13,525.79	70.45	14.38	0:12:15	12,874.42	134.11	7.55	0:19:15	11,800.46	245.84	4.29	0:26:15	9,077.10	378.21	2.79	0:33:10	469.97	469.97	2.25
0:05:20	14,071.26	73.29	14.37	0:12:20	13,368.30	139.25	7.57	0:19:20	11,809.69	246.04	4.28	0:26:20	9,074.80	378.12	2.79	0:33:15	471.23	471.23	2.24
0:05:25	14,102.93	73.45	14.39	0:12:25	13,418.63	139.78	7.56	0:19:25	11,369.92	236.87	4.27	0:26:25	8,698.78	362.45	2.79	0:33:20	470.81	470.81	2.24
0:05:30	14,088.25	73.38	14.37	0:12:30	13,396.82	139.55	7.56	0:19:30	11,828.36	246.42	4.28	0:26:30	9,078.57	378.27	2.79	0:33:25	436.21	436.21	2.32
0:05:35	14,043.79	73.14	14.39	0:12:35	13,329.71	138.85	7.58	0:19:35	11,861.07	247.11	4.27	0:26:35	9,042.29	376.76	2.80	0:33:30	451.73	451.73	2.33
0:05:40	14,089.72	73.38	14.37	0:12:40	13,401.85	139.60	7.57	0:19:40	11,856.04	247.00	4.28	0:26:40	9,085.91	378.58	2.78	0:33:35	474.38	474.38	2.23
0:05:45	14,056.79	73.21	14.38	0:12:45	13,380.25	139.38	7.57	0:19:45	11,874.28	247.38	4.27	0:26:45	9,101.85	379.24	2.78	0:33:40	476.05	476.05	2.22
0:05:50	14,053.43	73.19	14.38	0:12:50	12,800.18	133.34	7.56	0:19:50	11,768.38	245.17	4.28	0:26:50	9,100.17	379.17	2.78	0:33:45	467.46	467.46	2.26
0:05:55	13,486.78	70.24	14.39	0:12:55	13,356.13	139.13	7.56	0:19:55	11,871.77	247.33	4.27	0:26:55	9,035.37	376.47	2.79	0:33:50	476.26	476.26	2.21
0:06:00	14,037.08	73.11	14.39	0:13:00	13,385.49	139.43	7.58	0:20:00	11,336.57	236.18	4.28	0:27:00	9,038.31	376.60	2.79	0:33:55	455.71	455.71	2.22
0:06:05	14,116.56	73.52	14.38	0:13:05	13,400.80	139.59	7.57	0:20:05	11,836.33	246.59	4.28	0:27:05	8,713.46	363.06	2.79	0:34:00	474.17	474.17	2.23
0:06:10	14,016.73	73.00	14.39	0:13:10	13,374.80	139.32	7.56	0:20:10	11,819.97	246.25	4.28	0:27:10	9,060.95	377.54	2.80	0:34:05	472.70	472.70	2.23
0:06:15	14,010.86	72.97	14.37	0:13:15	13,394.93	139.53	7.55	0:20:15	11,824.58	246.35	4.28	0:27:15	9,073.75	378.07	2.79	0:34:10	478.15	478.15	2.21
0:06:20	14,110.06	73.49	14.38	0:13:20	13,389.06	139.47	7.56	0:20:20	11,805.71	245.95	4.29	0:27:20	9,034.32	376.43	2.79	0:34:15	476.47	476.47	2.22
0:06:25	14,080.91	73.34	14.38	0:13:25	13,360.54	139.17	7.58	0:20:25	11,843.04	246.73	4.28	0:27:25	9,023.00	375.96	2.80	0:34:20	454.45	454.45	2.23
0:06:30	14,072.73	73.30	14.39	0:13:30	12,833.73	133.68	7.56	0:20:30	11,799.84	245.83	4.28	0:27:30	9,065.57	377.73	2.79	0:34:25	477.10	477.10	2.21
0:06:35	13,524.74	70.44	14.38	0:13:35	13,408.35	139.67	7.56	0:20:35	11,760.41	245.01	4.28	0:27:35	9,042.50	376.77	2.80	0:34:30	467.66	467.66	2.26
0:06:40	14,016.53	73.00	14.39	0:13:40	13,357.81	139.14	7.58	0:20:40	11,342.45	236.30	4.27	0:27:40	8,700.87	362.54	2.79	0:34:35	474.80	474.80	2.22
0:06:45	14,090.34	73.39	14.38	0:13:45	13,410.66	139.69	7.55	0:20:45	11,772.99	245.27	4.28	0:27:45	9,049.84	377.08	2.79	0:34:40	470.81	470.81	2.24
0:06:50	491.57	0.00	13.06	0:13:50	228.38	0.00	6.27	0:20:50	407.69	0.00	4.17	0:27:50	307.86	0.00	2.73	0:34:45	464.73	0.00	2.26
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	0:34:50	0.21	0.00	3.47
												0:28:00	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

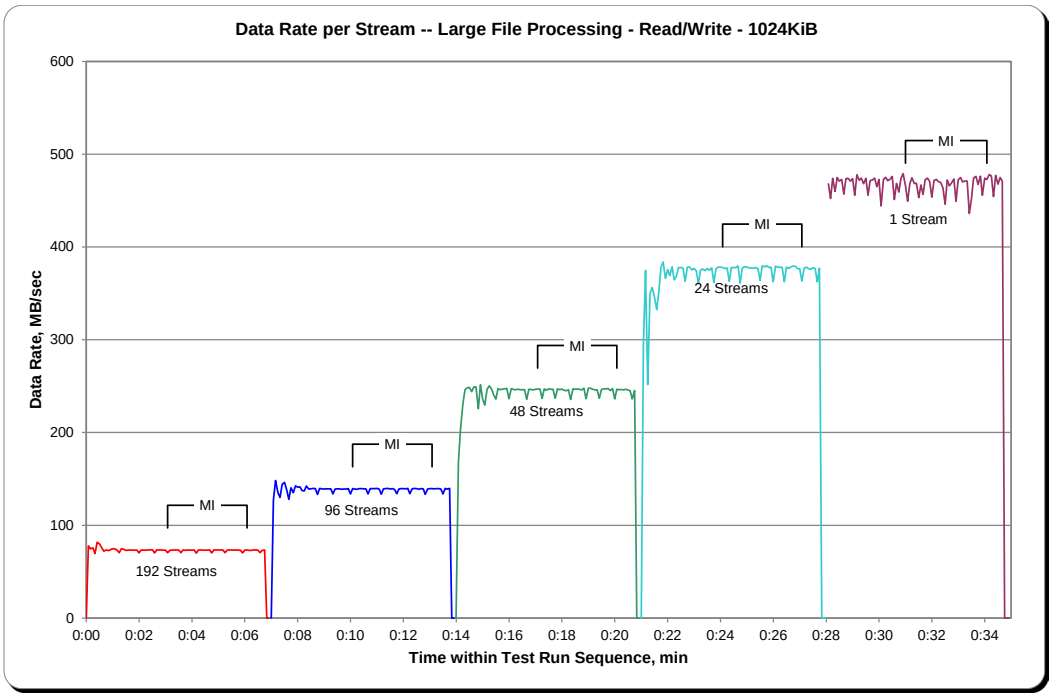
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



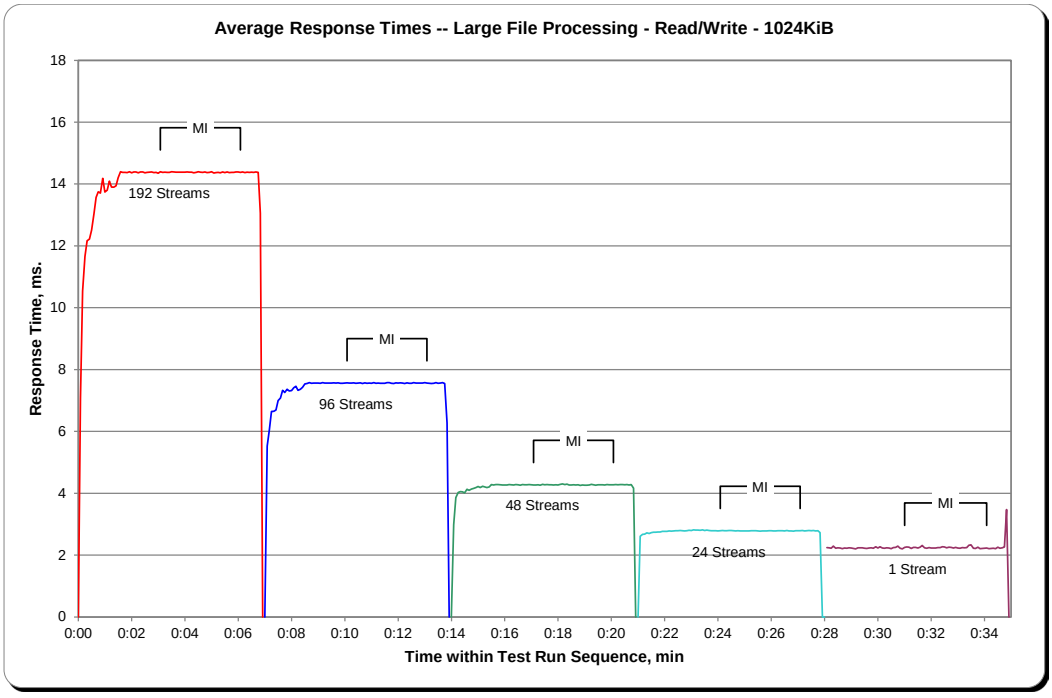
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



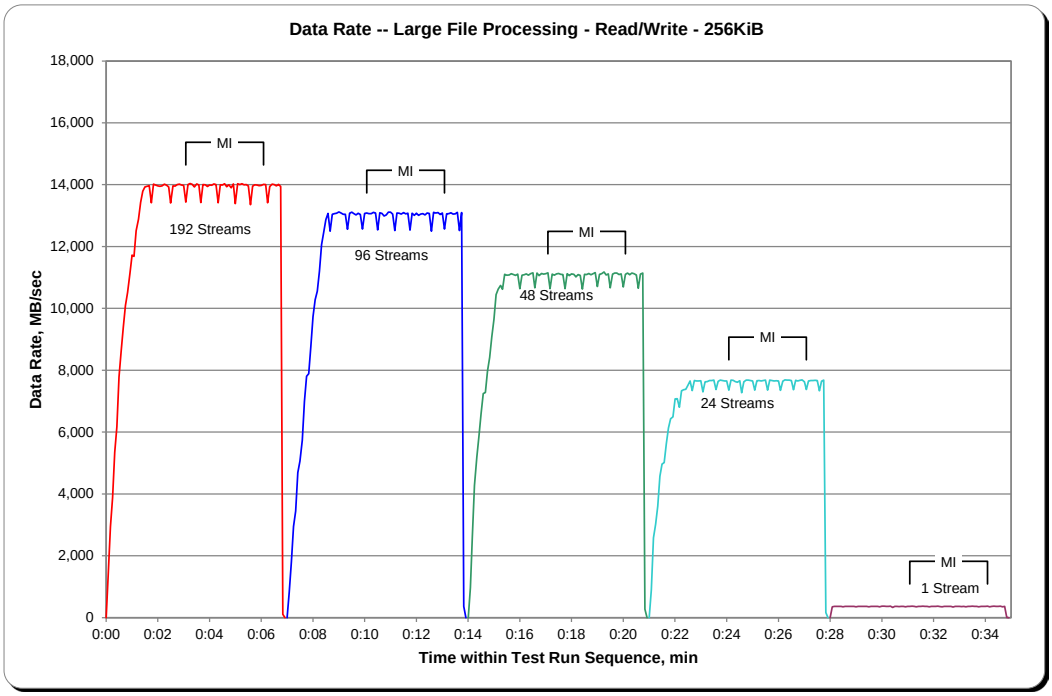
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR16	192 Streams			TR17	96 Streams			TR18	48 Streams			TR19	24 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	1,452.28	53.79	2.25	0:07:05	827.48	118.21	1.12	0:14:05	968.57	138.37	0.94	0:21:05	899.10	179.82	0.79	0:28:05	354.47	354.47	0.72
0:00:10	2,945.97	79.62	2.78	0:07:10	1,799.41	119.96	1.60	0:14:10	2,607.13	186.22	1.06	0:21:10	2,582.80	286.98	0.80	0:28:10	367.47	367.47	0.72
0:00:15	3,879.36	71.84	2.94	0:07:15	2,952.89	128.39	1.63	0:14:15	4,274.26	213.71	1.10	0:21:15	3,019.01	301.90	0.81	0:28:15	366.42	366.42	0.72
0:00:20	5,347.63	77.50	3.05	0:07:20	3,445.78	123.06	1.76	0:14:20	5,186.41	225.50	1.09	0:21:20	3,605.00	300.42	0.81	0:28:20	368.00	368.00	0.72
0:00:25	6,166.31	73.41	3.11	0:07:25	4,692.69	142.20	1.72	0:14:25	5,869.46	234.78	1.11	0:21:25	4,573.57	304.90	0.81	0:28:25	364.85	364.85	0.72
0:00:30	7,788.35	74.89	3.18	0:07:30	5,066.72	144.76	1.74	0:14:30	6,607.65	220.26	1.10	0:21:30	4,965.58	310.35	0.81	0:28:30	353.63	353.63	0.71
0:00:35	8,611.33	72.36	3.41	0:07:35	5,743.89	136.76	1.76	0:14:35	7,249.59	233.86	1.12	0:21:35	5,016.81	295.11	0.81	0:28:35	367.42	367.42	0.72
0:00:40	9,385.96	72.76	3.47	0:07:40	6,999.82	137.25	1.79	0:14:40	7,283.88	220.72	1.12	0:21:40	5,623.62	312.42	0.82	0:28:40	367.89	367.89	0.72
0:00:45	10,092.44	74.21	3.44	0:07:45	7,803.50	136.90	1.81	0:14:45	7,976.36	227.90	1.12	0:21:45	6,132.23	306.61	0.82	0:28:45	368.84	368.84	0.71
0:00:50	10,516.59	72.03	3.53	0:07:50	7,886.55	131.44	1.88	0:14:50	8,412.04	221.37	1.12	0:21:50	6,430.34	321.52	0.82	0:28:50	369.15	369.15	0.71
0:00:55	11,129.27	73.70	3.49	0:07:55	8,783.61	135.13	1.87	0:14:55	9,084.50	232.94	1.11	0:21:55	6,493.88	309.23	0.82	0:28:55	366.27	366.27	0.72
0:01:00	11,721.09	74.66	3.46	0:08:00	9,732.41	133.32	1.89	0:15:00	9,643.54	224.27	1.12	0:22:00	7,072.07	321.46	0.82	0:29:00	353.74	353.74	0.71
0:01:05	11,684.39	70.81	3.51	0:08:05	10,281.65	138.94	1.88	0:15:05	10,448.27	232.18	1.12	0:22:05	7,079.51	321.80	0.82	0:29:05	368.05	368.05	0.71
0:01:10	12,513.81	73.61	3.54	0:08:10	10,558.69	137.13	1.87	0:15:10	10,625.01	236.11	1.12	0:22:10	6,803.06	309.23	0.82	0:29:10	367.95	367.95	0.72
0:01:15	12,885.22	73.21	3.51	0:08:15	11,200.10	136.59	1.87	0:15:15	10,744.08	223.83	1.12	0:22:15	7,336.36	318.97	0.82	0:29:15	368.36	368.36	0.72
0:01:20	13,431.79	74.21	3.50	0:08:20	12,061.56	137.06	1.89	0:15:20	10,616.41	221.18	1.14	0:22:20	7,370.39	320.45	0.82	0:29:20	368.78	368.78	0.71
0:01:25	13,786.52	74.12	3.50	0:08:25	12,461.80	138.46	1.89	0:15:25	11,099.12	231.23	1.14	0:22:25	7,386.75	321.16	0.82	0:29:25	369.15	369.15	0.71
0:01:30	13,928.23	72.54	3.56	0:08:30	12,867.86	134.04	1.89	0:15:30	11,075.53	230.74	1.14	0:22:30	7,515.72	313.16	0.82	0:29:30	354.16	354.16	0.71
0:01:35	13,950.62	72.66	3.62	0:08:35	13,068.87	136.13	1.93	0:15:35	11,083.92	230.92	1.14	0:22:35	7,656.91	319.04	0.82	0:29:35	367.16	367.16	0.72
0:01:40	13,965.72	72.74	3.62	0:08:40	12,499.92	130.21	1.93	0:15:40	11,119.31	231.65	1.14	0:22:40	7,342.65	305.94	0.83	0:29:40	367.58	367.58	0.72
0:01:45	13,416.95	69.88	3.61	0:08:45	13,042.76	135.86	1.94	0:15:45	11,096.08	231.17	1.14	0:22:45	7,669.28	319.55	0.82	0:29:45	366.74	366.74	0.72
0:01:50	14,016.37	73.00	3.62	0:08:50	13,066.93	136.11	1.93	0:15:50	11,064.31	230.51	1.14	0:22:50	7,657.38	319.06	0.83	0:29:50	367.63	367.63	0.72
0:01:55	13,989.16	72.86	3.62	0:08:55	13,076.69	136.22	1.93	0:15:55	11,111.24	231.48	1.14	0:22:55	7,653.35	318.89	0.82	0:29:55	352.69	352.69	0.72
0:02:00	13,960.58	72.71	3.62	0:09:00	13,121.98	136.69	1.93	0:16:00	10,638.12	221.63	1.14	0:23:00	7,660.32	319.18	0.83	0:30:00	370.25	370.25	0.71
0:02:05	13,947.79	72.64	3.61	0:09:05	13,083.50	136.29	1.93	0:16:05	11,075.11	230.73	1.14	0:23:05	7,303.44	304.31	0.83	0:30:05	369.41	369.41	0.71
0:02:10	13,963.73	72.73	3.62	0:09:10	13,042.61	135.86	1.93	0:16:10	11,086.80	230.98	1.14	0:23:10	7,624.09	317.67	0.83	0:30:10	366.27	366.27	0.72
0:02:15	14,015.63	73.00	3.61	0:09:15	13,043.97	135.87	1.93	0:16:15	11,115.59	231.57	1.14	0:23:15	7,633.95	318.08	0.83	0:30:15	367.84	367.84	0.72
0:02:20	13,984.60	72.84	3.62	0:09:20	12,561.00	130.84	1.93	0:16:20	11,074.38	230.72	1.14	0:23:20	7,664.99	319.37	0.83	0:30:20	370.51	370.51	0.71
0:02:25	13,926.14	72.53	3.61	0:09:25	13,078.68	136.24	1.93	0:16:25	11,119.36	231.65	1.14	0:23:25	7,665.09	319.38	0.82	0:30:25	330.72	330.72	0.76
0:02:30	13,410.34	69.85	3.62	0:09:30	13,112.86	136.59	1.93	0:16:30	11,152.34	232.34	1.14	0:23:30	7,680.71	320.03	0.82	0:30:30	368.73	368.73	0.71
0:02:35	13,960.95	72.71	3.62	0:09:35	13,066.78	136.11	1.94	0:16:35	10,667.22	222.23	1.14	0:23:35	7,376.89	307.37	0.82	0:30:35	366.32	366.32	0.72
0:02:40	13,956.34	72.69	3.62	0:09:40	13,021.22	135.64	1.93	0:16:40	11,141.07	232.11	1.13	0:23:40	7,642.23	318.43	0.82	0:30:40	362.02	362.02	0.73
0:02:45	14,003.94	72.94	3.61	0:09:45	13,079.83	136.25	1.94	0:16:45	11,062.27	230.46	1.14	0:23:45	7,680.66	320.03	0.82	0:30:45	367.53	367.53	0.72
0:02:50	14,017.89	73.01	3.62	0:09:50	13,039.09	135.82	1.94	0:16:50	11,130.84	231.89	1.14	0:23:50	7,666.51	319.44	0.83	0:30:50	367.26	367.26	0.72
0:02:55	13,987.16	72.85	3.62	0:09:55	12,563.09	130.87	1.93	0:16:55	11,108.46	231.43	1.14	0:23:55	7,657.12	319.05	0.83	0:30:55	352.32	352.32	0.72
0:03:00	13,976.84	72.80	3.61	0:10:00	13,072.28	136.17	1.93	0:17:00	11,119.52	231.66	1.14	0:24:00	7,652.61	318.86	0.82	0:31:00	366.37	366.37	0.72

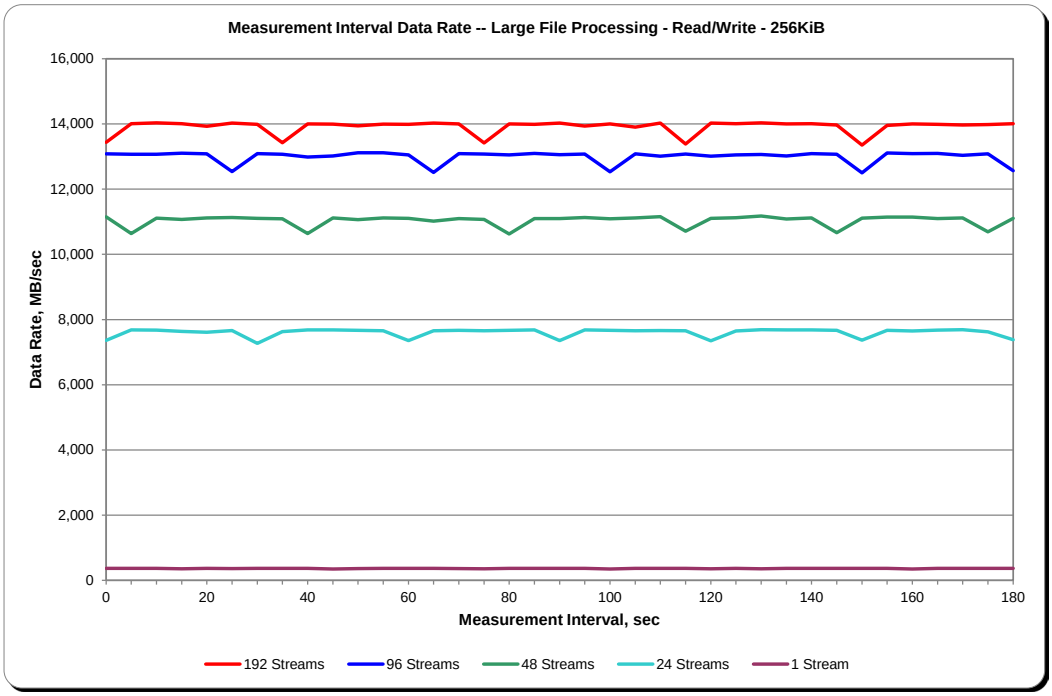
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR16	192 Streams			TR17	96 Streams			TR18	48 Streams			TR19	24 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	13,435.72	69.98	3.62	0:10:05	13,083.61	136.29	1.93	0:17:05	11,147.46	232.24	1.14	0:24:05	7,359.33	306.64	0.82	0:31:05	368.47	368.47	0.71
0:03:10	14,004.26	72.94	3.61	0:10:10	13,067.20	136.12	1.94	0:17:10	10,641.16	221.69	1.14	0:24:10	7,680.19	320.01	0.82	0:31:10	369.57	369.57	0.71
0:03:15	14,034.56	73.10	3.61	0:10:15	13,067.20	136.12	1.94	0:17:15	11,111.08	231.48	1.14	0:24:15	7,676.57	319.86	0.82	0:31:15	367.68	367.68	0.72
0:03:20	14,008.87	72.96	3.61	0:10:20	13,102.27	136.48	1.93	0:17:20	11,072.49	230.68	1.14	0:24:20	7,636.04	318.17	0.83	0:31:20	353.00	353.00	0.72
0:03:25	13,928.65	72.55	3.62	0:10:25	13,081.56	136.27	1.94	0:17:25	11,115.33	231.57	1.14	0:24:25	7,612.66	317.19	0.83	0:31:25	367.42	367.42	0.72
0:03:30	14,027.01	73.06	3.61	0:10:30	12,536.36	130.59	1.93	0:17:30	11,127.91	231.83	1.14	0:24:30	7,661.58	319.23	0.83	0:31:30	362.49	362.49	0.73
0:03:35	13,986.43	72.85	3.62	0:10:35	13,092.47	136.38	1.93	0:17:35	11,102.27	231.30	1.14	0:24:35	7,271.61	302.98	0.83	0:31:35	369.89	369.89	0.71
0:03:40	13,424.24	69.92	3.61	0:10:40	13,069.29	136.14	1.93	0:17:40	11,092.73	231.10	1.14	0:24:40	7,629.44	317.89	0.83	0:31:40	368.31	368.31	0.71
0:03:45	14,000.43	72.92	3.61	0:10:45	12,984.88	135.26	1.94	0:17:45	10,638.49	221.64	1.14	0:24:45	7,682.34	320.10	0.82	0:31:45	368.73	368.73	0.71
0:03:50	13,993.77	72.88	3.62	0:10:50	13,020.38	135.63	1.93	0:17:50	11,119.68	231.66	1.14	0:24:50	7,681.61	320.07	0.82	0:31:50	350.49	350.49	0.72
0:03:55	13,944.02	72.63	3.61	0:10:55	13,113.75	136.60	1.93	0:17:55	11,061.27	230.44	1.14	0:24:55	7,667.92	319.50	0.82	0:31:55	364.22	364.22	0.72
0:04:00	13,991.10	72.87	3.62	0:11:00	13,112.55	136.59	1.93	0:18:00	11,117.89	231.62	1.14	0:25:00	7,655.02	318.96	0.82	0:32:00	368.05	368.05	0.72
0:04:05	13,985.59	72.84	3.62	0:11:05	13,048.43	135.92	1.93	0:18:05	11,102.64	231.30	1.14	0:25:05	7,356.08	306.50	0.82	0:32:05	366.69	366.69	0.72
0:04:10	14,023.66	73.04	3.61	0:11:10	12,515.54	130.37	1.94	0:18:10	11,018.07	229.54	1.14	0:25:10	7,658.33	319.10	0.82	0:32:10	370.51	370.51	0.71
0:04:15	14,000.53	72.92	3.61	0:11:15	13,086.81	136.32	1.93	0:18:15	11,097.87	231.21	1.14	0:25:15	7,670.54	319.61	0.82	0:32:15	360.45	360.45	0.73
0:04:20	13,418.99	69.89	3.61	0:11:20	13,076.27	136.21	1.93	0:18:20	11,067.51	230.57	1.14	0:25:20	7,657.33	319.06	0.82	0:32:20	352.64	352.64	0.72
0:04:25	13,999.54	72.91	3.61	0:11:25	13,050.84	135.95	1.93	0:18:25	10,624.80	221.35	1.14	0:25:25	7,667.03	319.46	0.83	0:32:25	368.05	368.05	0.72
0:04:30	13,988.95	72.86	3.62	0:11:30	13,096.50	136.42	1.93	0:18:30	11,100.07	231.25	1.14	0:25:30	7,680.82	320.03	0.82	0:32:30	365.90	365.90	0.72
0:04:35	14,029.11	73.07	3.61	0:11:35	13,054.19	135.98	1.93	0:18:35	11,096.97	231.19	1.14	0:25:35	7,357.18	306.55	0.82	0:32:35	365.69	365.69	0.72
0:04:40	13,932.69	72.57	3.62	0:11:40	13,075.43	136.20	1.93	0:18:40	11,131.00	231.90	1.13	0:25:40	7,682.60	320.11	0.82	0:32:40	367.26	367.26	0.72
0:04:45	13,999.07	72.91	3.61	0:11:45	12,535.15	130.57	1.94	0:18:45	11,087.90	231.00	1.14	0:25:45	7,671.12	319.63	0.82	0:32:45	347.18	347.18	0.73
0:04:50	13,901.08	72.40	3.62	0:11:50	13,079.67	136.25	1.93	0:18:50	11,119.73	231.66	1.14	0:25:50	7,656.13	319.01	0.82	0:32:50	368.73	368.73	0.71
0:04:55	14,025.02	73.05	3.61	0:11:55	13,009.68	135.52	1.94	0:18:55	11,158.32	232.46	1.13	0:25:55	7,663.78	319.32	0.83	0:32:55	369.05	369.05	0.71
0:05:00	13,386.96	69.72	3.61	0:12:00	13,077.32	136.22	1.93	0:19:00	10,708.37	223.09	1.13	0:26:00	7,655.18	318.97	0.83	0:33:00	368.21	368.21	0.72
0:05:05	14,029.68	73.07	3.61	0:12:05	13,007.48	135.49	1.94	0:19:05	11,100.38	231.26	1.14	0:26:05	7,349.57	306.23	0.82	0:33:05	355.78	355.78	0.74
0:05:10	14,006.46	72.95	3.61	0:12:10	13,048.17	135.92	1.93	0:19:10	11,122.19	231.71	1.14	0:26:10	7,647.84	318.66	0.83	0:33:10	366.01	366.01	0.72
0:05:15	14,030.42	73.08	3.61	0:12:15	13,064.10	136.08	1.94	0:19:15	11,174.52	232.80	1.13	0:26:15	7,690.36	320.43	0.82	0:33:15	352.95	352.95	0.72
0:05:20	13,997.70	72.90	3.61	0:12:20	13,018.96	135.61	1.93	0:19:20	11,081.88	230.87	1.14	0:26:20	7,684.28	320.18	0.82	0:33:20	366.42	366.42	0.72
0:05:25	14,004.83	72.94	3.61	0:12:25	13,087.07	136.32	1.93	0:19:25	11,114.22	231.55	1.14	0:26:25	7,683.70	320.15	0.82	0:33:25	366.79	366.79	0.72
0:05:30	13,964.52	72.73	3.62	0:12:30	13,068.19	136.13	1.93	0:19:30	10,667.58	222.24	1.14	0:26:30	7,668.13	319.51	0.82	0:33:30	369.57	369.57	0.71
0:05:35	13,352.09	69.54	3.62	0:12:35	12,497.72	130.18	1.93	0:19:35	11,109.77	231.45	1.14	0:26:35	7,368.08	307.00	0.82	0:33:35	367.89	367.89	0.72
0:05:40	13,953.66	72.68	3.62	0:12:40	13,107.57	136.54	1.93	0:19:40	11,141.33	232.11	1.14	0:26:40	7,672.48	319.69	0.82	0:33:40	367.37	367.37	0.72
0:05:45	13,998.96	72.91	3.61	0:12:45	13,087.49	136.33	1.93	0:19:45	11,142.80	232.14	1.14	0:26:45	7,651.67	318.82	0.82	0:33:45	349.33	349.33	0.72
0:05:50	13,989.47	72.86	3.62	0:12:50	13,095.19	136.41	1.93	0:19:50	11,093.78	231.12	1.14	0:26:50	7,673.74	319.74	0.82	0:33:50	369.15	369.15	0.71
0:05:55	13,968.45	72.75	3.62	0:12:55	13,036.00	135.79	1.94	0:19:55	11,117.32	231.61	1.14	0:26:55	7,690.62	320.44	0.82	0:33:55	366.84	366.84	0.72
0:06:00	13,977.73	72.80	3.61	0:13:00	13,084.13	136.29	1.93	0:20:00	10,693.80	222.79	1.13	0:27:00	7,626.77	317.78	0.82	0:34:00	367.47	367.47	0.72
0:06:05	14,007.45	72.96	3.62	0:13:05	12,565.56	130.89	1.94	0:20:05	11,101.01	231.27	1.14	0:27:05	7,378.46	307.44	0.82	0:34:05	371.46	371.46	0.71
0:06:10	14,006.46	72.95	3.62	0:13:10	13,058.91	136.03	1.94	0:20:10	11,143.69	232.16	1.14	0:27:10	7,654.50	318.94	0.82	0:34:10	352.32	352.32	0.72
0:06:15	13,416.48	69.88	3.62	0:13:15	13,064.84	136.09	1.94	0:20:15	11,090.68	231.06	1.14	0:27:15	7,667.82	319.49	0.83	0:34:15	368.73	368.73	0.71
0:06:20	13,941.03	72.61	3.61	0:13:20	13,091.84	136.37	1.94	0:20:20	11,140.02	232.08	1.14	0:27:20	7,668.29	319.51	0.82	0:34:20	370.78	370.78	0.71
0:06:25	14,014.01	72.99	3.62	0:13:25	13,048.64	135.92	1.94	0:20:25	11,121.41	231.70	1.14	0:27:25	7,675.84	319.83	0.82	0:34:25	366.42	366.42	0.72
0:06:30	14,002.68	72.93	3.61	0:13:30	13,060.33	136.05	1.94	0:20:30	11,079.15	230.82	1.14	0:27:30	7,665.61	319.40	0.82	0:34:30	367.11	367.11	0.72
0:06:35	13,959.48	72.71	3.62	0:13:35	13,105.21	136.51	1.93	0:20:35	10,654.79	221.97	1.14	0:27:35	7,336.47	305.69	0.83	0:34:35	369.57	369.57	0.71
0:06:40	14,007.30	72.95	3.62	0:13:40	12,519.74	130.41	1.94	0:20:40	11,110.61	231.47	1.14	0:27:40	7,648.99	318.71	0.82	0:34:40	354.63	354.63	0.71
0:06:45	13,940.50	80.58	3.61	0:13:45	13,096.71	136.42	1.93	0:20:45	11,142.06	232.13	1.14	0:27:45	7,681.92	320.08	0.82	0:34:45	369.05	369.05	0.71
0:06:50	109.63	0.00	2.18	0:13:50	363.96	0.00	1.73	0:20:50	273.89	0.00	1.06	0:27:50	164.05	0.00	0.81	0:34:50	6.40	0.00	0.92
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

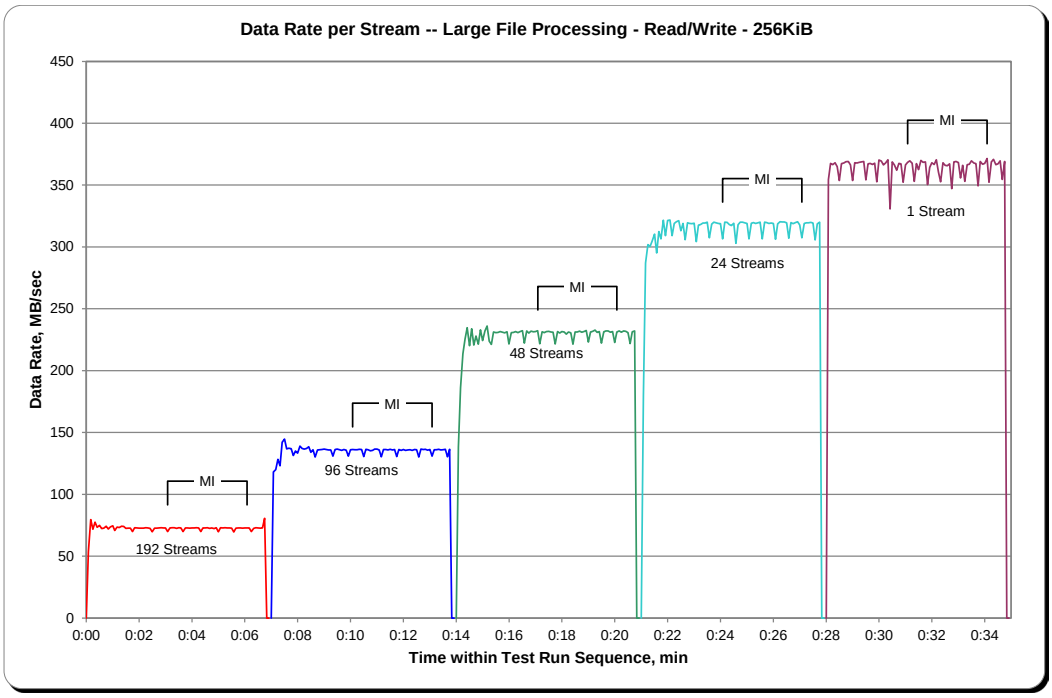
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



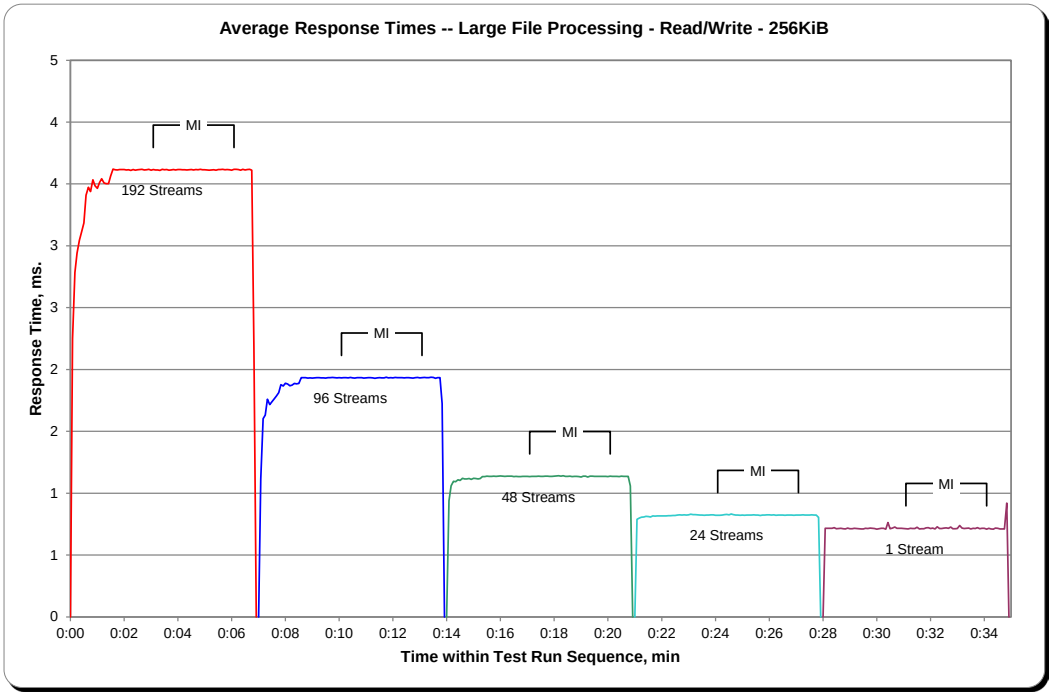
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



Large File Processing Test – READ ONLY Test Phase

Clause 10.6.8.1.3

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

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

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

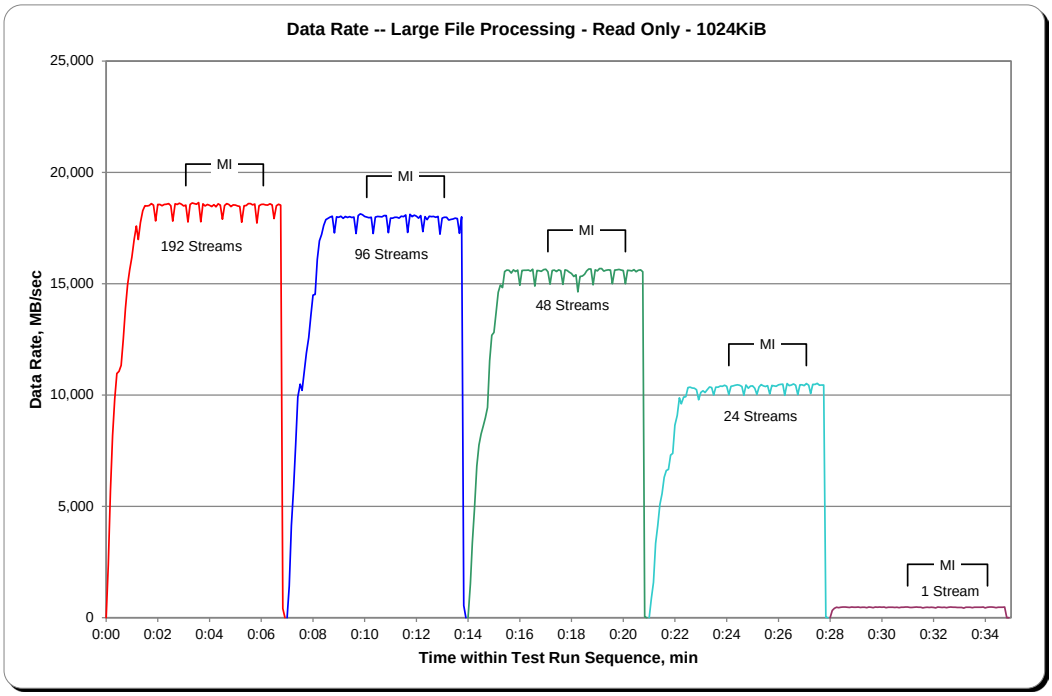
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period

TR21	192 Streams			TR22	96 Streams			TR23	48 Streams			TR24	24 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	0:28:00	0.00	0.00	0.00
0:00:05	2,391.80	72.48	7.37	0:07:05	1,418.51	109.12	4.07	0:14:05	1,518.76	216.97	2.69	0:21:05	857.11	285.70	2.37	0:28:05	327.58	327.58	3.18
0:00:10	5,689.78	107.35	7.83	0:07:10	4,135.79	187.99	4.47	0:14:10	3,343.49	303.95	2.95	0:21:10	1,583.77	226.25	2.40	0:28:10	420.90	420.90	2.51
0:00:15	8,182.04	116.89	7.97	0:07:15	5,765.91	186.00	4.68	0:14:15	4,878.39	286.96	2.97	0:21:15	3,343.07	417.88	2.38	0:28:15	468.71	468.71	2.25
0:00:20	9,820.54	111.60	8.29	0:07:20	7,764.08	199.08	4.63	0:14:20	6,815.11	324.53	3.00	0:21:20	4,134.95	413.50	2.38	0:28:20	455.08	455.08	2.21
0:00:25	10,964.12	110.75	8.94	0:07:25	9,915.54	206.57	4.82	0:14:25	7,757.16	352.60	2.97	0:21:25	5,083.92	423.66	2.38	0:28:25	472.70	472.70	2.23
0:00:30	11,060.59	106.35	9.68	0:07:30	10,485.55	201.65	5.00	0:14:30	8,250.20	330.01	3.04	0:21:30	5,560.39	397.17	2.39	0:28:30	477.94	477.94	2.21
0:00:35	11,335.11	89.25	10.65	0:07:35	10,213.13	179.18	5.26	0:14:35	8,604.61	344.18	3.06	0:21:35	6,301.10	420.07	2.44	0:28:35	479.20	479.20	2.20
0:00:40	12,513.92	92.01	10.82	0:07:40	11,044.86	178.14	5.64	0:14:40	8,977.91	309.58	3.11	0:21:40	6,613.58	413.35	2.43	0:28:40	469.97	469.97	2.25
0:00:45	13,886.08	95.11	10.74	0:07:45	11,883.09	180.05	5.61	0:14:45	9,441.17	295.04	3.22	0:21:45	6,654.47	415.90	2.43	0:28:45	460.12	460.12	2.20
0:00:50	14,948.08	97.70	10.53	0:07:50	12,574.94	182.25	5.60	0:14:50	11,546.92	312.08	3.20	0:21:50	7,303.75	429.63	2.43	0:28:50	475.84	475.84	2.21
0:00:55	15,629.65	98.30	10.46	0:07:55	13,562.91	183.28	5.56	0:14:55	12,685.46	325.27	3.20	0:21:55	7,377.57	409.87	2.46	0:28:55	471.86	471.86	2.24
0:01:00	16,187.71	99.31	10.45	0:08:00	14,485.66	185.71	5.54	0:15:00	12,812.13	328.52	3.20	0:22:00	8,646.98	411.76	2.43	0:29:00	473.54	473.54	2.23
0:01:05	17,001.61	99.42	10.41	0:08:05	14,514.39	179.19	5.53	0:15:05	13,700.27	311.37	3.20	0:22:05	9,083.39	432.54	2.43	0:29:05	475.00	475.00	2.22
0:01:10	17,584.20	101.06	10.40	0:08:10	16,093.75	184.99	5.52	0:15:10	14,609.81	324.66	3.21	0:22:10	9,872.34	429.23	2.43	0:29:10	460.74	460.74	2.20
0:01:15	16,987.35	95.43	10.50	0:08:15	16,928.63	188.10	5.58	0:15:15	14,940.53	324.79	3.21	0:22:15	9,608.73	417.77	2.42	0:29:15	472.49	472.49	2.23
0:01:20	17,741.07	98.02	10.70	0:08:20	17,205.03	189.07	5.56	0:15:20	14,827.07	308.90	3.23	0:22:20	9,914.50	431.07	2.44	0:29:20	473.33	473.33	2.23
0:01:25	18,276.47	99.33	10.60	0:08:25	17,612.51	187.37	5.55	0:15:25	15,540.94	323.77	3.25	0:22:25	9,924.98	413.54	2.45	0:29:25	454.45	454.45	2.32
0:01:30	18,498.98	96.35	10.71	0:08:30	17,876.96	186.22	5.59	0:15:30	15,614.55	325.30	3.25	0:22:30	10,332.46	430.52	2.45	0:29:30	478.15	478.15	2.21
0:01:35	18,489.54	96.30	10.94	0:08:35	17,933.59	186.81	5.62	0:15:35	15,606.17	325.13	3.24	0:22:35	10,351.33	431.31	2.44	0:29:35	472.49	472.49	2.23
0:01:40	18,512.19	96.42	10.88	0:08:40	17,993.56	187.43	5.61	0:15:40	15,473.00	322.35	3.25	0:22:40	10,310.23	429.59	2.45	0:29:40	446.90	446.90	2.26
0:01:45	18,597.12	96.86	10.91	0:08:45	18,029.64	187.81	5.61	0:15:45	15,625.25	325.53	3.24	0:22:45	10,307.71	429.49	2.45	0:29:45	475.21	475.21	2.22
0:01:50	18,531.06	96.52	10.90	0:08:50	17,284.31	180.04	5.61	0:15:50	15,546.19	323.88	3.24	0:22:50	10,234.10	426.42	2.47	0:29:50	469.13	469.13	2.25
0:01:55	17,816.77	92.80	10.89	0:08:55	17,995.45	187.45	5.61	0:15:55	15,609.73	325.20	3.25	0:22:55	9,791.39	407.97	2.48	0:29:55	476.05	476.05	2.22
0:02:00	18,556.44	96.65	10.89	0:09:00	17,977.00	187.26	5.62	0:16:00	14,928.16	311.00	3.25	0:23:00	10,112.68	421.36	2.50	0:30:00	467.25	467.25	2.26
0:02:05	18,553.50	96.63	10.91	0:09:05	18,031.73	187.83	5.61	0:16:05	15,588.76	324.77	3.25	0:23:05	10,186.29	424.43	2.48	0:30:05	475.63	475.63	2.22
0:02:10	18,503.38	96.37	10.92	0:09:10	17,930.86	186.78	5.62	0:16:10	15,596.73	324.93	3.24	0:23:10	10,110.79	421.28	2.50	0:30:10	450.26	450.26	2.24
0:02:15	18,559.59	96.66	10.91	0:09:15	18,016.00	187.67	5.62	0:16:15	15,597.99	324.96	3.24	0:23:15	10,235.99	426.50	2.47	0:30:15	472.28	472.28	2.23
0:02:20	18,571.12	96.72	10.88	0:09:20	17,967.98	187.17	5.62	0:16:20	15,615.39	325.32	3.25	0:23:20	10,361.19	431.72	2.44	0:30:20	472.49	472.49	2.23
0:02:25	18,597.54	96.86	10.91	0:09:25	18,009.50	187.60	5.62	0:16:25	15,558.77	324.14	3.25	0:23:25	10,330.78	430.45	2.44	0:30:25	472.49	472.49	2.23
0:02:30	18,495.20	96.33	10.90	0:09:30	17,973.64	187.23	5.61	0:16:30	15,653.14	326.11	3.24	0:23:30	9,996.70	416.53	2.43	0:30:30	460.53	460.53	2.29
0:02:35	17,809.01	92.76	10.92	0:09:35	17,994.61	187.44	5.61	0:16:35	14,887.47	310.16	3.25	0:23:35	10,357.41	431.56	2.44	0:30:35	465.99	465.99	2.27
0:02:40	18,584.75	96.80	10.92	0:09:40	17,250.96	179.70	5.61	0:16:40	15,587.08	324.73	3.25	0:23:40	10,352.80	431.37	2.43	0:30:40	448.16	448.16	2.26
0:02:45	18,561.26	96.67	10.91	0:09:45	18,053.75	188.06	5.59	0:16:45	15,580.58	324.60	3.24	0:23:45	10,399.36	433.31	2.44	0:30:45	470.39	470.39	2.24
0:02:50	18,610.97	96.93	10.90	0:09:50	18,137.22	188.93	5.59	0:16:50	15,551.22	323.98	3.25	0:23:50	10,394.53	433.11	2.44	0:30:50	474.17	474.17	2.23
0:02:55	18,571.12	96.72	10.90	0:09:55	18,098.42	188.53	5.60	0:16:55	15,634.06	325.71	3.24	0:23:55	10,440.88	435.04	2.42	0:30:55	478.99	478.99	2.20
0:03:00	18,494.15	96.32	10.89	0:10:00	18,015.58	187.66	5.61	0:17:00	15,644.75	325.93	3.24	0:24:00	10,388.66	432.86	2.43				

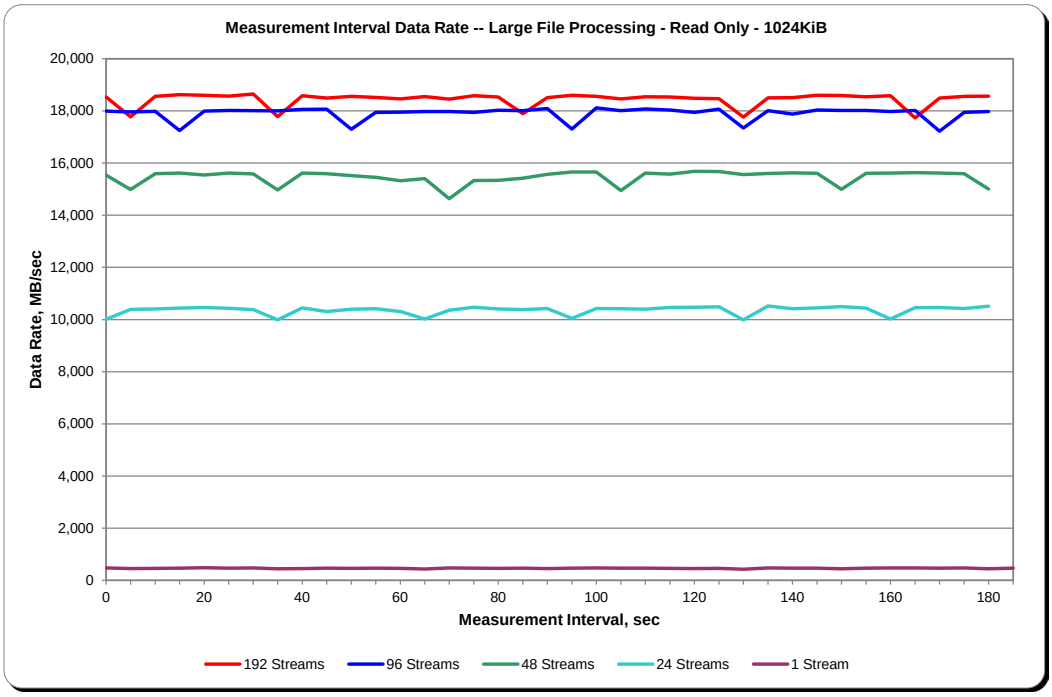
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR21	192 Streams			TR22	96 Streams			TR23	48 Streams			TR24	24 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	18,528.97	96.51	10.92	0:10:05	17,990.21	187.40	5.62	0:17:05	15,536.54	323.68	3.25	0:24:05	10,014.11	417.25	2.43	0:31:00	474.80	474.80	2.22
0:03:10	17,770.43	92.55	10.92	0:10:10	17,960.64	187.09	5.62	0:17:10	14,982.05	312.13	3.24	0:24:10	10,388.45	432.85	2.43	0:31:05	455.50	455.50	2.22
0:03:15	18,558.54	96.66	10.91	0:10:15	17,985.59	187.35	5.61	0:17:15	15,595.26	324.90	3.24	0:24:15	10,409.42	433.73	2.43	0:31:10	463.68	463.68	2.28
0:03:20	18,626.48	97.01	10.89	0:10:20	17,248.87	179.68	5.61	0:17:20	15,613.51	325.28	3.25	0:24:20	10,437.74	434.91	2.43	0:31:15	468.08	468.08	2.25
0:03:25	18,595.45	96.85	10.91	0:10:25	17,990.63	187.40	5.62	0:17:25	15,540.94	323.77	3.26	0:24:25	10,461.01	435.88	2.42	0:31:20	481.93	481.93	2.19
0:03:30	18,563.57	96.69	10.89	0:10:30	18,019.57	187.70	5.62	0:17:30	15,617.91	325.37	3.25	0:24:30	10,434.59	434.77	2.42	0:31:25	471.44	471.44	2.24
0:03:35	18,646.20	97.12	10.88	0:10:35	18,007.62	187.58	5.62	0:17:35	15,586.66	324.72	3.25	0:24:35	10,385.31	432.72	2.44	0:31:30	473.54	473.54	2.23
0:03:40	17,778.82	92.60	10.92	0:10:40	18,002.79	187.53	5.61	0:17:40	14,965.28	311.78	3.25	0:24:40	9,984.54	416.02	2.43	0:31:35	443.55	443.55	2.28
0:03:45	18,581.40	96.78	10.90	0:10:45	18,053.75	188.06	5.62	0:17:45	15,617.49	325.36	3.23	0:24:45	10,445.49	435.23	2.43	0:31:40	456.55	456.55	2.31
0:03:50	18,487.86	96.29	10.91	0:10:50	18,061.93	188.15	5.61	0:17:50	15,595.05	324.90	3.25	0:24:50	10,308.55	429.52	2.45	0:31:45	471.86	471.86	2.24
0:03:55	18,559.17	96.66	10.91	0:10:55	17,292.91	180.13	5.62	0:17:55	15,518.51	323.30	3.26	0:24:55	10,397.05	433.21	2.44	0:31:50	464.73	464.73	2.27
0:04:00	18,518.06	96.45	10.91	0:11:00	17,943.23	186.91	5.63	0:18:00	15,454.33	321.97	3.27	0:25:00	10,412.15	433.84	2.43	0:31:55	468.92	468.92	2.25
0:04:05	18,456.62	96.13	10.91	0:11:05	17,947.43	186.95	5.63	0:18:05	15,325.15	319.27	3.29	0:25:05	10,303.73	429.32	2.44	0:32:00	458.44	458.44	2.30
0:04:10	18,548.26	96.61	10.92	0:11:10	17,977.63	187.27	5.63	0:18:10	15,403.79	320.91	3.29	0:25:10	10,024.39	417.68	2.44	0:32:05	436.42	436.42	2.32
0:04:15	18,451.79	96.10	10.93	0:11:15	17,976.58	187.26	5.62	0:18:15	14,636.86	304.93	3.31	0:25:15	10,359.09	431.63	2.43	0:32:10	480.04	480.04	2.19
0:04:20	18,581.19	96.78	10.92	0:11:20	17,942.81	186.90	5.63	0:18:20	15,326.41	319.30	3.29	0:25:20	10,468.35	436.18	2.42	0:32:15	471.23	471.23	2.24
0:04:25	18,532.53	96.52	10.90	0:11:25	18,026.07	187.77	5.62	0:18:25	15,337.94	319.54	3.29	0:25:25	10,409.21	433.72	2.43	0:32:20	464.52	464.52	2.27
0:04:30	17,890.38	93.18	10.88	0:11:30	18,006.57	187.57	5.61	0:18:30	15,423.50	321.32	3.27	0:25:30	10,385.31	432.72	2.44	0:32:25	467.66	467.66	2.25
0:04:35	18,510.51	96.41	10.91	0:11:35	18,087.31	188.41	5.60	0:18:35	15,569.26	324.36	3.25	0:25:35	10,422.43	434.27	2.43	0:32:30	449.21	449.21	2.26
0:04:40	18,599.85	96.87	10.91	0:11:40	17,301.92	180.23	5.61	0:18:40	15,657.55	326.20	3.24	0:25:40	10,042.42	418.43	2.42	0:32:35	469.76	469.76	2.25
0:04:45	18,557.28	96.65	10.91	0:11:45	18,117.93	188.73	5.60	0:18:45	15,657.55	326.20	3.24	0:25:45	10,426.20	434.43	2.42	0:32:40	475.63	475.63	2.22
0:04:50	18,457.03	96.13	10.90	0:11:50	18,008.87	187.59	5.61	0:18:50	14,945.98	311.37	3.24	0:25:50	10,410.68	433.78	2.43	0:32:45	470.39	470.39	2.24
0:04:55	18,537.78	96.55	10.92	0:11:55	18,073.89	188.27	5.60	0:18:55	15,617.07	325.36	3.24	0:25:55	10,395.79	433.16	2.43	0:32:50	468.71	468.71	2.25
0:05:00	18,529.81	96.51	10.93	0:12:00	18,033.62	187.85	5.61	0:19:00	15,571.35	324.40	3.24	0:26:00	10,462.06	435.92	2.41	0:32:55	461.58	461.58	2.29
0:05:05	18,485.56	96.28	10.91	0:12:05	17,940.93	186.88	5.62	0:19:05	15,680.82	326.68	3.23	0:26:05	10,475.27	436.47	2.41	0:33:00	455.50	455.50	2.22
0:05:10	18,470.88	96.20	10.92	0:12:10	18,062.35	188.15	5.61	0:19:10	15,676.00	326.58	3.23	0:26:10	10,489.53	437.06	2.41	0:33:05	457.81	457.81	2.31
0:05:15	17,764.35	92.52	10.92	0:12:15	17,342.19	180.65	5.60	0:19:15	15,558.98	324.15	3.24	0:26:15	9,992.09	416.34	2.43	0:33:10	429.29	429.29	2.46
0:05:20	18,502.96	96.37	10.92	0:12:20	18,008.24	187.59	5.61	0:19:20	15,598.41	324.97	3.23	0:26:20	10,518.89	438.29	2.41	0:33:15	474.38	474.38	2.22
0:05:25	18,505.06	96.38	10.92	0:12:25	17,873.61	186.18	5.62	0:19:25	15,621.69	325.45	3.24	0:26:25	10,416.34	434.01	2.43	0:33:20	469.55	469.55	2.25
0:05:30	18,599.01	96.87	10.89	0:12:30	18,031.73	187.83	5.61	0:19:30	15,607.01	325.15	3.24	0:26:30	10,447.80	435.33	2.42	0:33:25	472.28	472.28	2.24
0:05:35	18,590.41	96.83	10.91	0:12:35	18,013.70	187.64	5.62	0:19:35	14,992.54	312.34	3.24	0:26:35	10,499.39	437.47	2.41	0:33:30	448.16	448.16	2.26
0:05:40	18,540.50	96.57	10.92	0:12:40	18,019.57	187.70	5.62	0:19:40	15,610.99	325.23	3.24	0:26:40	10,438.57	434.94	2.43	0:33:35	468.08	468.08	2.25
0:05:45	18,579.09	96.77	10.92	0:12:45	17,978.05	187.27	5.62	0:19:45	15,616.02	325.33	3.24	0:26:45	10,017.26	417.39	2.42	0:33:40	473.96	473.96	2.23
0:05:50	17,726.39	92.32	10.92	0:12:50	18,018.52	187.69	5.63	0:19:50	15,636.57	325.76	3.24	0:26:50	10,454.93	435.62	2.42	0:33:45	473.33	473.33	2.23
0:05:55	18,495.20	96.33	10.93	0:12:55	17,218.88	179.36	5.63	0:19:55	15,615.60	325.33	3.24	0:26:55	10,462.69	435.95	2.42	0:33:50	467.04	467.04	2.26
0:06:00	18,553.29	96.63	10.91	0:13:00	17,941.76	186.89	5.62	0:20:00	15,591.28	324.82	3.24	0:27:00	10,424.31	434.35	2.43	0:33:55	476.68	476.68	2.21
0:06:05	18,562.31	96.68	10.93	0:13:05	17,976.58	187.26	5.63	0:20:05	15,000.93	312.52	3.24	0:27:05	10,512.81	438.03	2.41	0:34:00	443.13	443.13	2.28
0:06:10	18,534.00	96.53	10.92	0:13:10	17,979.51	187.29	5.63	0:20:10	15,606.17	325.13	3.24	0:27:10	10,442.35	435.10	2.42	0:34:05	470.39	470.39	2.24
0:06:15	18,531.90	96.52	10.90	0:13:15	17,852.64	185.96	5.66	0:20:15	15,589.18	324.77	3.24	0:27:15	10,060.88	419.20	2.41	0:34:10	478.99	478.99	2.20
0:06:20	18,586.01	96.80	10.92	0:13:20	17,884.09	186.29	5.66	0:20:20	15,570.93	324.39	3.24	0:27:20	10,477.37	436.56	2.41	0:34:15	481.30	481.30	2.19
0:06:25	18,533.16	96.53	10.90	0:13:25	17,901.08	186.47	5.64	0:20:25	15,628.82	325.60	3.24	0:27:25	10,477.37	436.56	2.42	0:34:20	471.86	471.86	2.24
0:06:30	17,923.52	93.35	10.86	0:13:30	17,944.70	186.92	5.64	0:20:30	15,538.85	323.73	3.24	0:27:30	10,529.38	438.72	2.41	0:34:25	454.45	454.45	2.22
0:06:35	18,501.07	96.36	10.91	0:13:35	17,918.91	186.66	5.64	0:20:35	15,601.34	325.03	3.24	0:27:35	10,435.01	434.79	2.41	0:34:30	468.50	468.50	2.25
0:06:40	18,565.25	96.69	10.88	0:13:40	17,263.55	179.83	5.62	0:20:40	15,620.22	325.42	3.25	0:27:40	10,451.16	435.46	2.42	0:34:35	474.38	474.38	2.23
0:06:45	18,523.72	96.48	10.93	0:13:45	18,000.48	187.51	5.62	0:20:45	15,537.38	647.39	3.24	0:27:45	10,446.33	870.53	2.41	0:34:40	470.18	470.18	2.24
0:06:50	413.14	0.00	9.49	0:13:50	547.99	0.00	5.17	0:20:50	41.10	0.00	3.66	0:27:50	19.50	0.00	2.66	0:34:45	476.68	476.68	2.21
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:50	0.21	0.00	2.12
																0:34:55	0.00	0.00	0.00

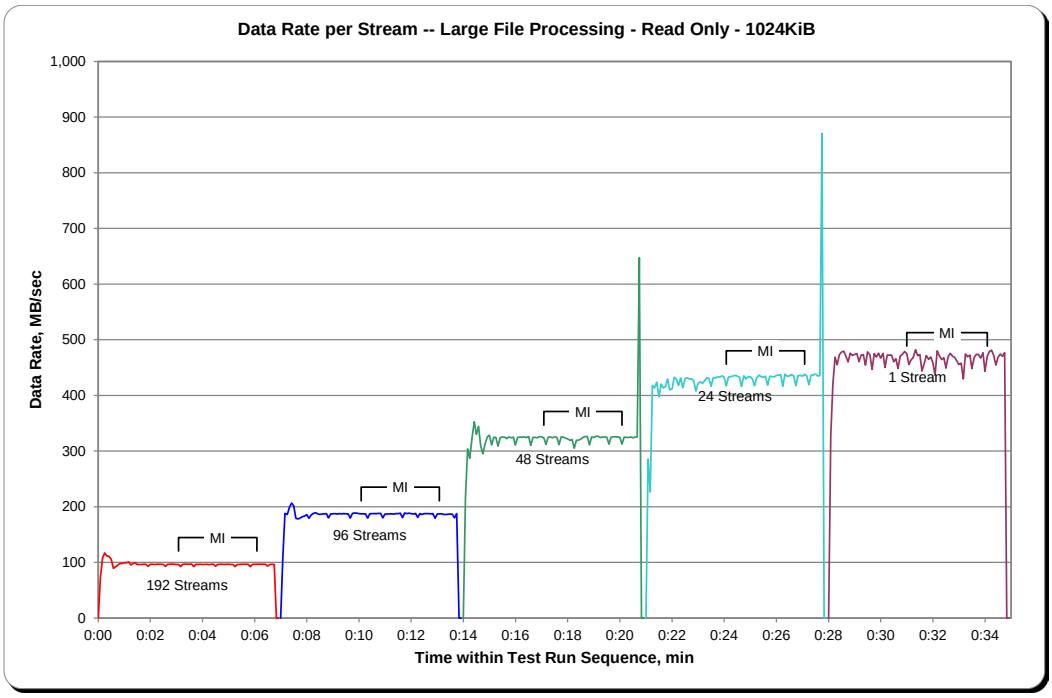
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



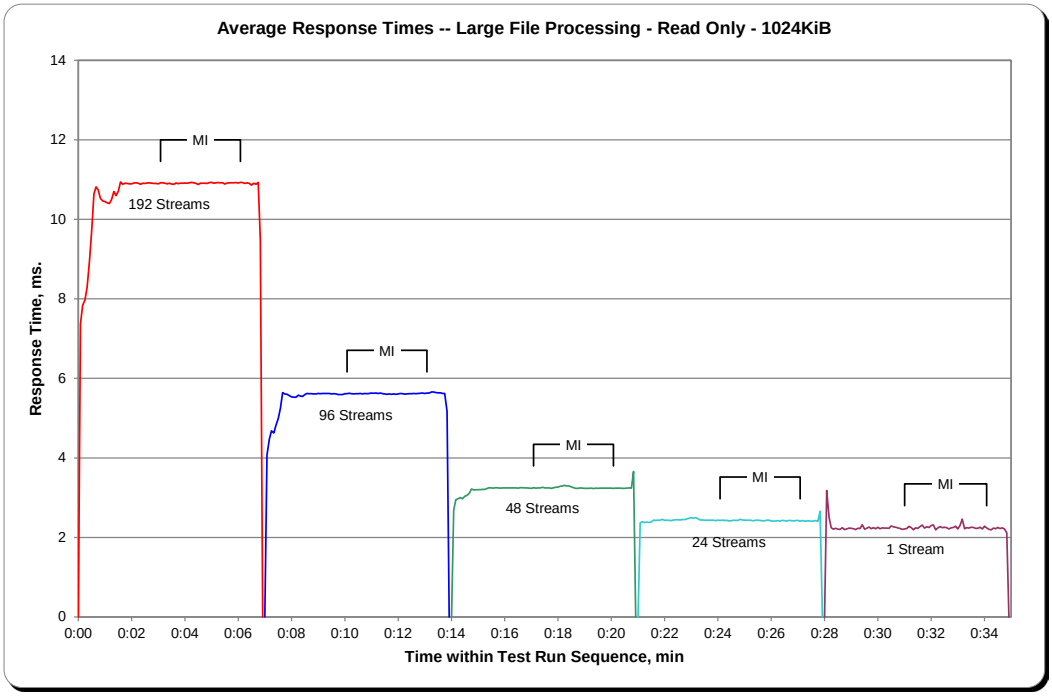
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



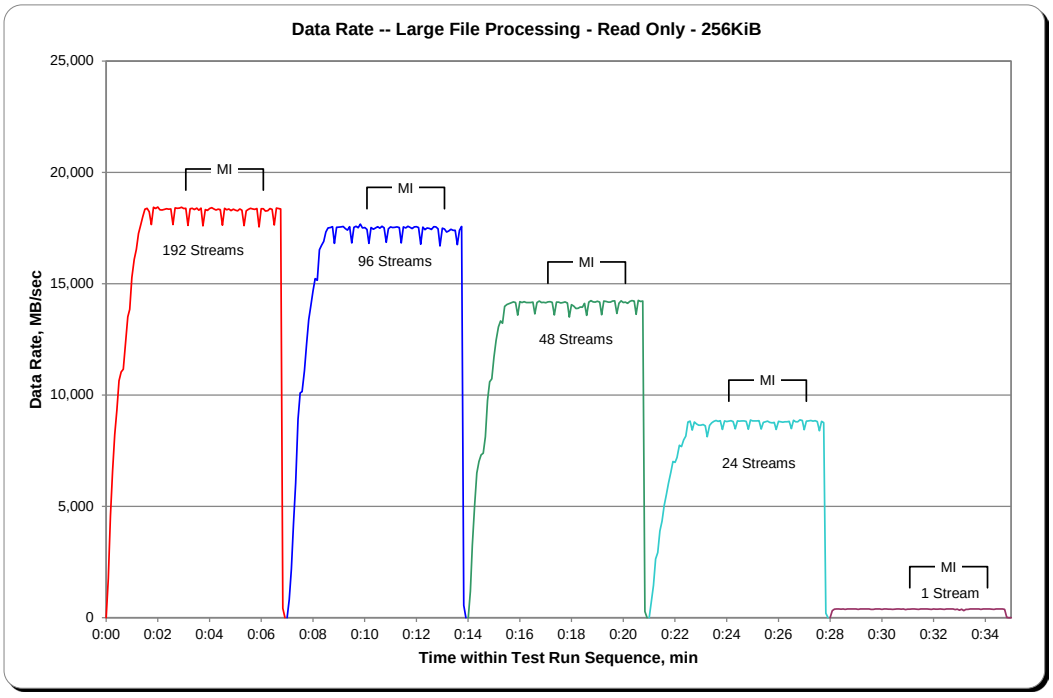
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR26	192 Streams			TR27	96 Streams			TR28	48 Streams			TR29	24 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	1,757.89	83.71	1.79	0:07:05	817.89	136.31	0.92	0:14:05	1,189.24	169.89	0.76	0:21:05	716.33	238.78	0.69	0:28:05	317.77	317.77	0.80
0:00:10	4,565.87	106.18	1.94	0:07:10	2,189.53	145.97	1.13	0:14:10	3,244.45	231.75	0.83	0:21:10	1,443.78	240.63	0.70	0:28:10	384.83	384.83	0.68
0:00:15	6,591.72	122.07	1.99	0:07:15	4,240.70	184.38	1.17	0:14:15	5,074.22	253.71	0.83	0:21:15	2,637.22	376.75	0.70	0:28:15	392.11	392.11	0.67
0:00:20	8,221.31	117.45	2.03	0:07:20	6,048.34	168.01	1.22	0:14:20	6,499.28	309.49	0.84	0:21:20	2,924.74	324.97	0.70	0:28:20	391.07	391.07	0.67
0:00:25	9,314.92	110.89	2.10	0:07:25	8,917.51	189.73	1.23	0:14:25	7,013.77	304.95	0.84	0:21:25	3,895.83	354.17	0.70	0:28:25	383.15	383.15	0.69
0:00:30	10,640.95	109.70	2.27	0:07:30	10,097.42	186.99	1.31	0:14:30	7,306.32	304.43	0.85	0:21:30	4,339.64	333.82	0.71	0:28:30	388.60	388.60	0.68
0:00:35	11,029.55	100.27	2.50	0:07:35	10,156.04	172.14	1.41	0:14:35	7,391.62	295.66	0.86	0:21:35	5,036.63	359.76	0.70	0:28:35	374.81	374.81	0.67
0:00:40	11,154.12	92.18	2.73	0:07:40	11,087.12	173.24	1.45	0:14:40	8,128.56	262.21	0.87	0:21:40	5,521.54	345.10	0.71	0:28:40	390.54	390.54	0.67
0:00:45	12,283.75	90.99	2.75	0:07:45	12,292.93	175.61	1.42	0:14:45	9,754.54	278.70	0.88	0:21:45	6,034.71	354.98	0.71	0:28:45	393.22	393.22	0.67
0:00:50	13,509.22	94.47	2.70	0:07:50	13,388.90	180.93	1.43	0:14:50	10,588.78	294.13	0.87	0:21:50	6,523.66	343.35	0.71	0:28:50	390.75	390.75	0.67
0:00:55	13,842.09	91.67	2.67	0:07:55	14,015.16	179.68	1.42	0:14:55	10,724.84	289.86	0.88	0:21:55	7,011.41	369.02	0.71	0:28:55	389.28	389.28	0.68
0:01:00	15,273.98	97.91	2.65	0:08:00	14,666.90	181.07	1.42	0:15:00	11,694.24	285.23	0.88	0:22:00	6,971.20	348.56	0.72	0:29:00	390.80	390.80	0.67
0:01:05	16,092.29	97.53	2.63	0:08:05	15,230.46	181.32	1.43	0:15:05	12,456.61	289.69	0.88	0:22:05	7,199.05	342.81	0.71	0:29:05	372.61	372.61	0.68
0:01:10	16,544.69	97.90	2.63	0:08:10	15,147.47	170.20	1.42	0:15:10	13,058.07	296.77	0.88	0:22:10	7,740.38	368.59	0.71	0:29:10	390.49	390.49	0.67
0:01:15	17,251.75	98.58	2.63	0:08:15	16,519.11	183.55	1.43	0:15:15	13,323.05	296.07	0.88	0:22:15	7,689.57	366.17	0.72	0:29:15	389.07	389.07	0.68
0:01:20	17,629.60	97.40	2.66	0:08:20	16,726.83	183.81	1.43	0:15:20	13,226.48	281.41	0.88	0:22:20	7,985.33	362.97	0.71	0:29:20	392.43	392.43	0.67
0:01:25	18,007.62	97.34	2.67	0:08:25	16,900.42	183.70	1.43	0:15:25	13,982.18	297.49	0.88	0:22:25	8,151.42	370.52	0.71	0:29:25	392.64	392.64	0.67
0:01:30	18,343.47	95.54	2.70	0:08:30	17,320.85	180.43	1.44	0:15:30	14,069.79	293.12	0.89	0:22:30	8,784.55	366.02	0.72	0:29:30	390.38	390.38	0.67
0:01:35	18,384.89	95.75	2.75	0:08:35	17,502.78	182.32	1.44	0:15:35	14,105.92	293.87	0.89	0:22:35	8,827.70	367.82	0.72	0:29:35	374.66	374.66	0.67
0:01:40	18,226.61	94.93	2.75	0:08:40	17,524.75	182.55	1.44	0:15:40	14,147.02	294.73	0.89	0:22:40	8,427.77	351.16	0.72	0:29:40	378.38	378.38	0.70
0:01:45	17,650.89	91.93	2.75	0:08:45	17,562.97	182.95	1.44	0:15:45	14,178.16	295.38	0.89	0:22:45	8,790.58	366.27	0.72	0:29:45	389.97	389.97	0.68
0:01:50	18,428.99	95.98	2.75	0:08:50	16,810.67	175.11	1.44	0:15:50	14,157.09	294.94	0.89	0:22:50	8,701.77	362.57	0.72	0:29:50	392.85	392.85	0.67
0:01:55	18,374.98	95.70	2.75	0:08:55	17,533.76	182.64	1.44	0:15:55	13,588.60	283.10	0.89	0:22:55	8,648.86	360.37	0.73	0:29:55	390.33	390.33	0.67
0:02:00	18,440.26	96.04	2.75	0:09:00	17,537.75	182.68	1.44	0:16:00	14,192.74	295.68	0.89	0:23:00	8,642.99	360.12	0.73	0:30:00	375.44	375.44	0.67
0:02:05	18,316.11	95.40	2.75	0:09:05	17,552.43	182.84	1.44	0:16:05	14,150.32	294.80	0.89	0:23:05	8,671.83	361.33	0.73	0:30:05	388.65	388.65	0.68
0:02:10	18,310.13	95.37	2.75	0:09:10	17,569.89	183.02	1.44	0:16:10	14,191.17	295.65	0.89	0:23:10	8,620.61	359.19	0.73	0:30:10	389.91	389.91	0.67
0:02:15	18,338.81	95.51	2.75	0:09:15	17,470.85	181.99	1.44	0:16:15	14,153.89	294.87	0.89	0:23:15	8,125.57	338.57	0.74	0:30:15	388.03	388.03	0.68
0:02:20	18,363.82	95.64	2.75	0:09:20	17,407.15	181.32	1.44	0:16:20	14,154.20	294.88	0.89	0:23:20	8,631.41	359.64	0.73	0:30:20	387.61	387.61	0.68
0:02:25	18,346.57	95.56	2.75	0:09:25	17,556.99	182.89	1.44	0:16:25	14,156.14	294.92	0.89	0:23:25	8,752.78	364.70	0.72	0:30:25	371.67	371.67	0.68
0:02:30	18,354.17	95.59	2.75	0:09:30	16,833.94	175.35	1.44	0:16:30	14,172.82	295.27	0.89	0:23:30	8,820.52	367.52	0.72	0:30:30	385.77	385.77	0.68
0:02:35	17,656.24	91.96	2.75	0:09:35	17,532.66	182.63	1.44	0:16:35	13,642.39	284.22	0.89	0:23:35	8,853.86	368.91	0.71	0:30:35	390.18	390.18	0.68
0:02:40	18,401.41	95.84	2.75	0:09:40	17,579.17	183.12	1.44	0:16:40	14,154.41	294.88	0.89	0:23:40	8,814.80	367.28	0.72	0:30:40	390.86	390.86	0.67
0:02:45	18,384.53	95.75	2.75	0:09:45	17,506.76	182.36	1.44	0:16:45	14,221.15	296.27	0.89	0:23:45	8,845.94	368.58	0.71	0:30:45	385.72	385.72	0.68
0:02:50	18,395.96	95.81	2.75	0:09:50	17,671.86	184.08	1.43	0:16:50	14,155.62	294.91	0.89	0:23:50	8,457.24	352.38	0.72	0:30:50	389.97	389.97	0.68
0:02:55	18,427.73	95.98	2.75	0:09:55	17,503.20	182.32	1.44	0:16:55	14,157.98	294.96	0.89	0:23:55	8,837.66	368.24	0.71	0:30:55	368.52	368.52	0.69
0:03:00	18,370.74	95.68	2.75	0:10:00	17,524.64	182.55	1.44	0:17:00	14,138.84	294.56	0.89	0:24:00	8,812.70	367.20	0.72	0:31:00	386.66	386.66	0.68

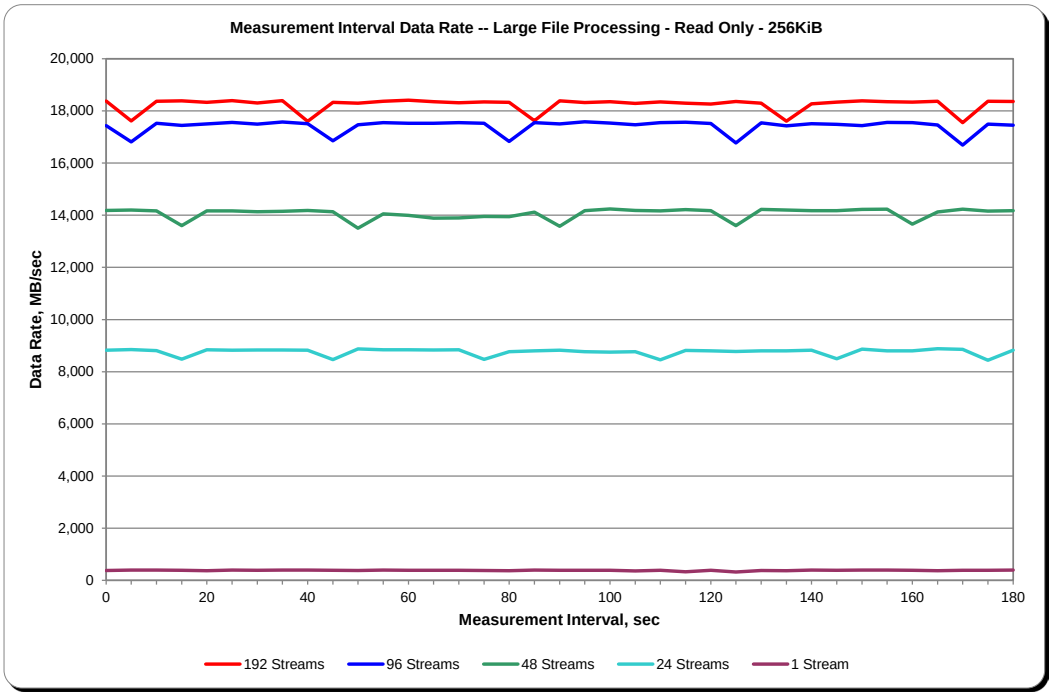
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR26	192 Streams			TR27	96 Streams			TR28	48 Streams			TR29	24 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	18,379.28	95.73	2.75	0:10:05	17,434.15	181.61	1.44	0:17:05	14,182.57	295.47	0.89	0:24:05	8,822.35	367.60	0.72	0:31:05	382.05	382.05	0.69
0:03:10	17,612.56	91.73	2.75	0:10:10	16,812.82	175.13	1.44	0:17:10	14,195.36	295.74	0.89	0:24:10	8,847.36	368.64	0.71	0:31:10	392.59	392.59	0.67
0:03:15	18,369.27	95.67	2.75	0:10:15	17,525.17	182.55	1.44	0:17:15	14,166.68	295.14	0.89	0:24:15	8,807.62	366.98	0.72	0:31:15	393.32	393.32	0.67
0:03:20	18,386.05	95.76	2.75	0:10:20	17,446.84	181.74	1.44	0:17:20	13,597.72	283.29	0.89	0:24:20	8,480.73	353.36	0.71	0:31:20	383.20	383.20	0.69
0:03:25	18,327.17	95.45	2.75	0:10:25	17,499.32	182.28	1.44	0:17:25	14,167.94	295.17	0.89	0:24:25	8,839.08	368.29	0.72	0:31:25	374.08	374.08	0.68
0:03:30	18,391.34	95.79	2.76	0:10:30	17,559.87	182.92	1.44	0:17:30	14,168.46	295.18	0.89	0:24:30	8,825.03	367.71	0.72	0:31:30	393.27	393.27	0.67
0:03:35	18,299.12	95.31	2.75	0:10:35	17,491.24	182.20	1.44	0:17:35	14,136.17	294.50	0.89	0:24:35	8,832.99	368.04	0.72	0:31:35	388.39	388.39	0.68
0:03:40	18,390.40	95.78	2.75	0:10:40	17,576.39	183.09	1.44	0:17:40	14,152.21	294.84	0.89	0:24:40	8,832.10	368.00	0.72	0:31:40	392.22	392.22	0.67
0:03:45	17,596.05	91.65	2.75	0:10:45	17,509.33	182.39	1.44	0:17:45	14,182.04	295.46	0.89	0:24:45	8,821.41	367.56	0.72	0:31:45	391.70	391.70	0.67
0:03:50	18,327.75	95.46	2.75	0:10:50	16,855.18	175.57	1.44	0:17:50	14,129.35	294.36	0.89	0:24:50	8,462.95	352.62	0.72	0:31:50	388.03	388.03	0.68
0:03:55	18,292.20	95.27	2.75	0:10:55	17,464.51	181.92	1.44	0:17:55	13,502.83	281.31	0.90	0:24:55	8,873.21	369.72	0.71	0:31:55	375.44	375.44	0.67
0:04:00	18,371.94	95.69	2.75	0:11:00	17,547.40	182.79	1.44	0:18:00	14,052.65	292.76	0.90	0:25:00	8,841.07	368.38	0.72	0:32:00	394.32	394.32	0.67
0:04:05	18,412.47	95.90	2.75	0:11:05	17,522.02	182.52	1.44	0:18:05	13,990.21	291.46	0.90	0:25:05	8,838.92	368.29	0.71	0:32:05	386.82	386.82	0.68
0:04:10	18,351.97	95.58	2.75	0:11:10	17,527.94	182.58	1.44	0:18:10	13,885.66	289.28	0.91	0:25:10	8,836.98	368.21	0.72	0:32:10	384.83	384.83	0.68
0:04:15	18,307.67	95.35	2.76	0:11:15	17,550.02	182.81	1.44	0:18:15	13,891.80	289.41	0.91	0:25:15	8,843.53	368.48	0.71	0:32:15	389.70	389.70	0.68
0:04:20	18,347.77	95.56	2.76	0:11:20	17,522.86	182.53	1.44	0:18:20	13,949.10	290.61	0.91	0:25:20	8,471.39	352.97	0.71	0:32:20	379.64	379.64	0.69
0:04:25	18,329.27	95.46	2.75	0:11:25	16,829.17	175.30	1.44	0:18:25	13,943.96	290.50	0.90	0:25:25	8,767.14	365.30	0.72	0:32:25	373.87	373.87	0.68
0:04:30	17,621.90	91.78	2.76	0:11:30	17,548.34	182.80	1.44	0:18:30	14,115.04	294.06	0.90	0:25:30	8,803.01	366.79	0.72	0:32:30	392.06	392.06	0.67
0:04:35	18,387.25	95.77	2.75	0:11:35	17,503.09	182.32	1.44	0:18:35	13,579.37	282.90	0.89	0:25:35	8,827.70	367.82	0.71	0:32:35	388.65	388.65	0.68
0:04:40	18,317.89	95.41	2.76	0:11:40	17,579.59	183.12	1.43	0:18:40	14,175.86	295.33	0.89	0:25:40	8,768.09	365.34	0.72	0:32:40	388.81	388.81	0.68
0:04:45	18,351.23	95.58	2.76	0:11:45	17,534.34	182.65	1.44	0:18:45	14,238.14	296.63	0.89	0:25:45	8,747.59	364.48	0.72	0:32:45	389.91	389.91	0.68
0:04:50	18,282.92	95.22	2.76	0:11:50	17,471.06	181.99	1.44	0:18:50	14,178.58	295.39	0.89	0:25:50	8,770.18	365.42	0.72	0:32:50	359.66	359.66	0.70
0:04:55	18,346.51	95.55	2.75	0:11:55	17,548.18	182.79	1.44	0:18:55	14,167.26	295.15	0.89	0:25:55	8,454.14	352.26	0.72	0:32:55	383.52	383.52	0.69
0:05:00	18,294.14	95.28	2.76	0:12:00	17,563.02	182.95	1.44	0:19:00	14,214.39	296.13	0.89	0:26:00	8,814.85	367.29	0.72	0:33:00	330.77	330.77	0.80
0:05:05	18,265.56	95.13	2.76	0:12:05	17,518.77	182.49	1.44	0:19:05	14,172.92	295.27	0.89	0:26:05	8,801.69	366.74	0.72	0:33:05	385.25	385.25	0.68
0:05:10	18,356.84	95.61	2.76	0:12:10	16,773.39	174.72	1.44	0:19:10	13,603.33	283.40	0.89	0:26:10	8,774.64	365.61	0.72	0:33:10	320.71	320.71	0.82
0:05:15	18,294.03	95.28	2.75	0:12:15	17,542.10	182.73	1.44	0:19:15	14,221.68	296.28	0.89	0:26:15	8,797.92	366.58	0.72	0:33:15	375.29	375.29	0.70
0:05:20	17,610.31	91.72	2.76	0:12:20	17,427.07	181.53	1.44	0:19:20	14,198.56	295.80	0.89	0:26:20	8,799.44	366.64	0.72	0:33:20	373.87	373.87	0.68
0:05:25	18,273.06	95.17	2.76	0:12:25	17,505.24	182.35	1.44	0:19:25	14,172.61	295.26	0.89	0:26:25	8,820.94	367.54	0.72	0:33:25	395.10	395.10	0.67
0:05:30	18,339.70	95.52	2.76	0:12:30	17,482.91	182.11	1.44	0:19:30	14,172.45	295.26	0.89	0:26:30	8,494.15	353.92	0.71	0:33:30	388.81	388.81	0.68
0:05:35	18,387.15	95.77	2.75	0:12:35	17,435.77	181.62	1.44	0:19:35	14,222.57	296.30	0.89	0:26:35	8,868.44	369.52	0.71	0:33:35	391.17	391.17	0.67
0:05:40	18,355.58	95.60	2.76	0:12:40	17,555.21	182.87	1.44	0:19:40	14,232.16	296.50	0.89	0:26:40	8,802.32	366.76	0.72	0:33:40	391.07	391.07	0.67
0:05:45	18,332.15	95.48	2.76	0:12:45	17,551.17	182.82	1.44	0:19:45	13,661.74	284.62	0.89	0:26:45	8,797.55	366.56	0.72	0:33:45	389.60	389.60	0.67
0:05:50	18,370.89	95.68	2.75	0:12:50	17,460.94	181.88	1.44	0:19:50	14,126.94	294.31	0.89	0:26:50	8,880.55	370.02	0.71	0:33:50	372.30	372.30	0.68
0:05:55	17,546.24	91.39	2.76	0:12:55	16,691.49	173.87	1.45	0:19:55	14,228.60	296.43	0.89	0:26:55	8,858.95	369.12	0.71	0:33:55	389.55	389.55	0.68
0:06:00	18,368.80	95.67	2.76	0:13:00	17,496.01	182.25	1.45	0:20:00	14,155.25	294.90	0.89	0:27:00	8,443.34	351.81	0.72	0:34:00	390.96	390.96	0.67
0:06:05	18,364.29	95.65	2.76	0:13:05	17,453.02	181.80	1.45	0:20:05	14,173.08	295.27	0.89	0:27:05	8,823.77	367.66	0.71	0:34:05	391.54	391.54	0.67
0:06:10	18,256.13	95.08	2.76	0:13:10	17,323.73	180.46	1.45	0:20:10	14,116.40	294.09	0.89	0:27:10	8,832.10	368.00	0.71	0:34:10	390.80	390.80	0.67
0:06:15	18,281.82	95.22	2.76	0:13:15	17,365.41	180.89	1.45	0:20:15	14,195.73	295.74	0.89	0:27:15	8,856.64	369.03	0.71	0:34:15	387.40	387.40	0.68
0:06:20	18,369.74	95.68	2.76	0:13:20	17,442.28	181.69	1.45	0:20:20	14,235.10	296.56	0.89	0:27:20	8,829.38	367.89	0.71	0:34:20	375.44	375.44	0.67
0:06:25	18,335.40	95.50	2.76	0:13:25	17,394.46	181.19	1.45	0:20:25	14,222.83	296.31	0.89	0:27:25	8,849.30	368.72	0.71	0:34:25	390.96	390.96	0.67
0:06:30	17,632.28	91.83	2.75	0:13:30	17,398.18	181.23	1.45	0:20:30	13,623.62	283.83	0.89	0:27:30	8,807.62	366.98	0.72	0:34:30	392.32	392.32	0.67
0:06:35	18,395.54	95.81	2.76	0:13:35	16,754.83	174.53	1.45	0:20:35	14,246.79	296.81	0.89	0:27:35	8,393.01	349.71	0.72	0:34:35	388.60	388.60	0.68
0:06:40	18,377.55	95.72	2.75	0:13:40	17,392.31	181.17	1.44	0:20:40	14,195.94	295.75	0.89	0:27:40	8,821.51	367.56	0.72	0:34:40	394.47	394.47	0.67
0:06:45	18,351.18	95.58	2.76	0:13:45	17,568.94	183.01	1.44	0:20:45	14,221.84	296.29	0.89	0:27:45	8,764.47	365.19	0.72	0:34:45	372.30	372.30	0.68
0:06:50	417.39	0.00	2.40	0:13:50	553.18	0.00	1.32	0:20:50	282.43	0.00	0.84	0:27:50	200.38	0.00	0.71	0:34:50	12.16	0.00	0.65
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

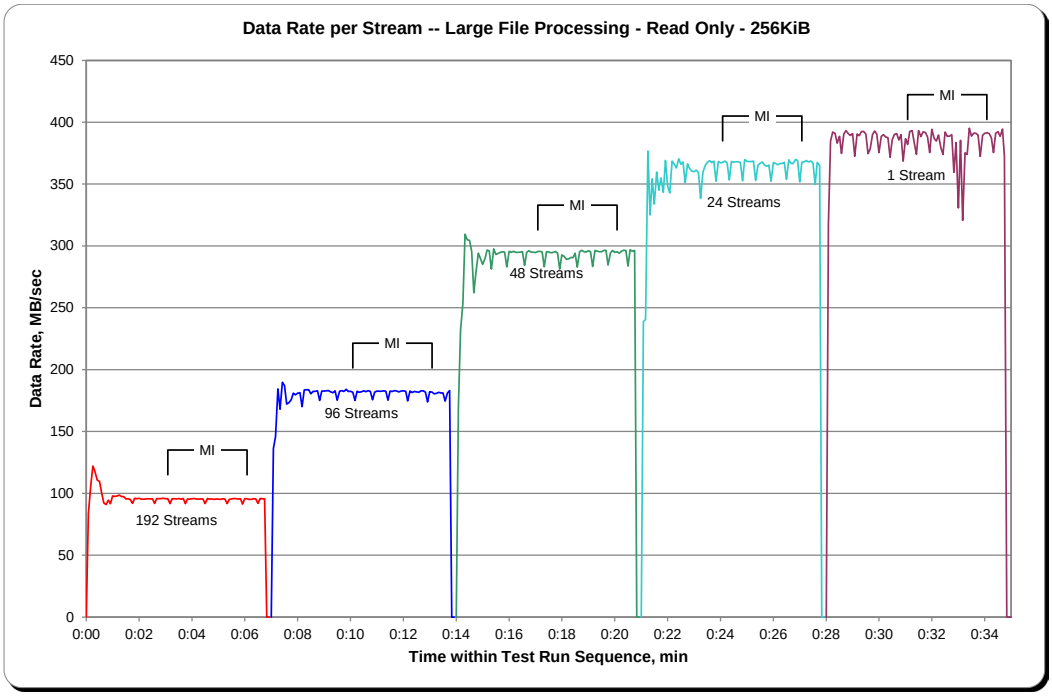
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



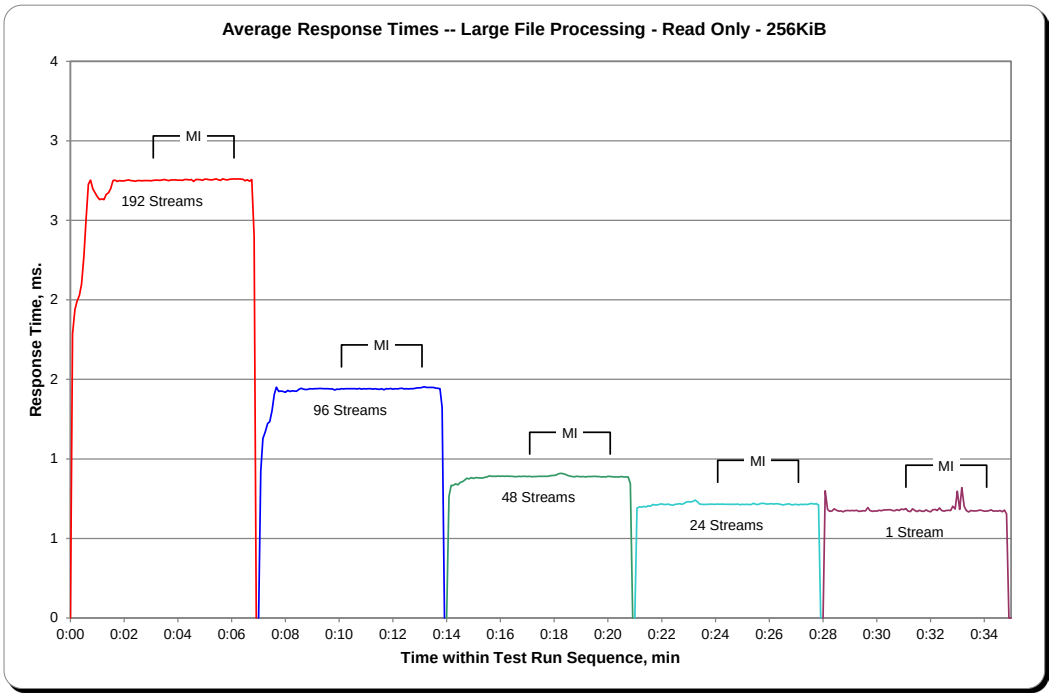
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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 113.

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.

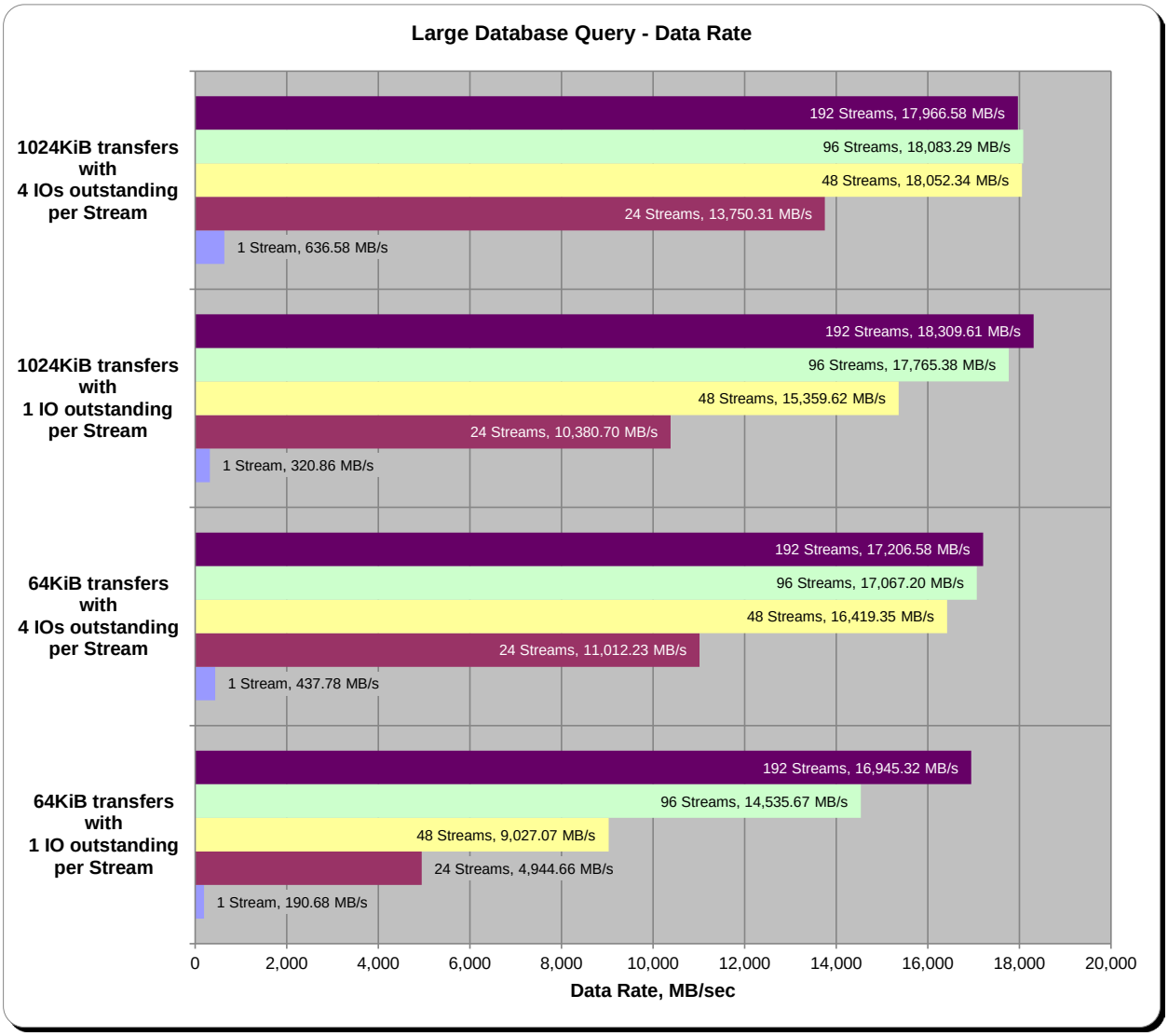
SPC-2 Large Database Query Test Results File

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	24 Streams	48 Streams	96 Streams	192 Streams
1024KiB w/ 4 IOs/Stream	636.58	13,750.31	18,052.34	18,083.29	17,966.58
1024KiB w/ 1 IO/Stream	320.86	10,380.70	15,359.62	17,765.38	18,309.61
64KiB w/ 4 IOs/Stream	437.78	11,012.23	16,419.35	17,067.20	17,206.58
64KiB w/ 1 IO/Stream	190.68	4,944.66	9,027.07	14,535.67	16,945.32

SPC-2 Large Database Query Average Data Rates Graph

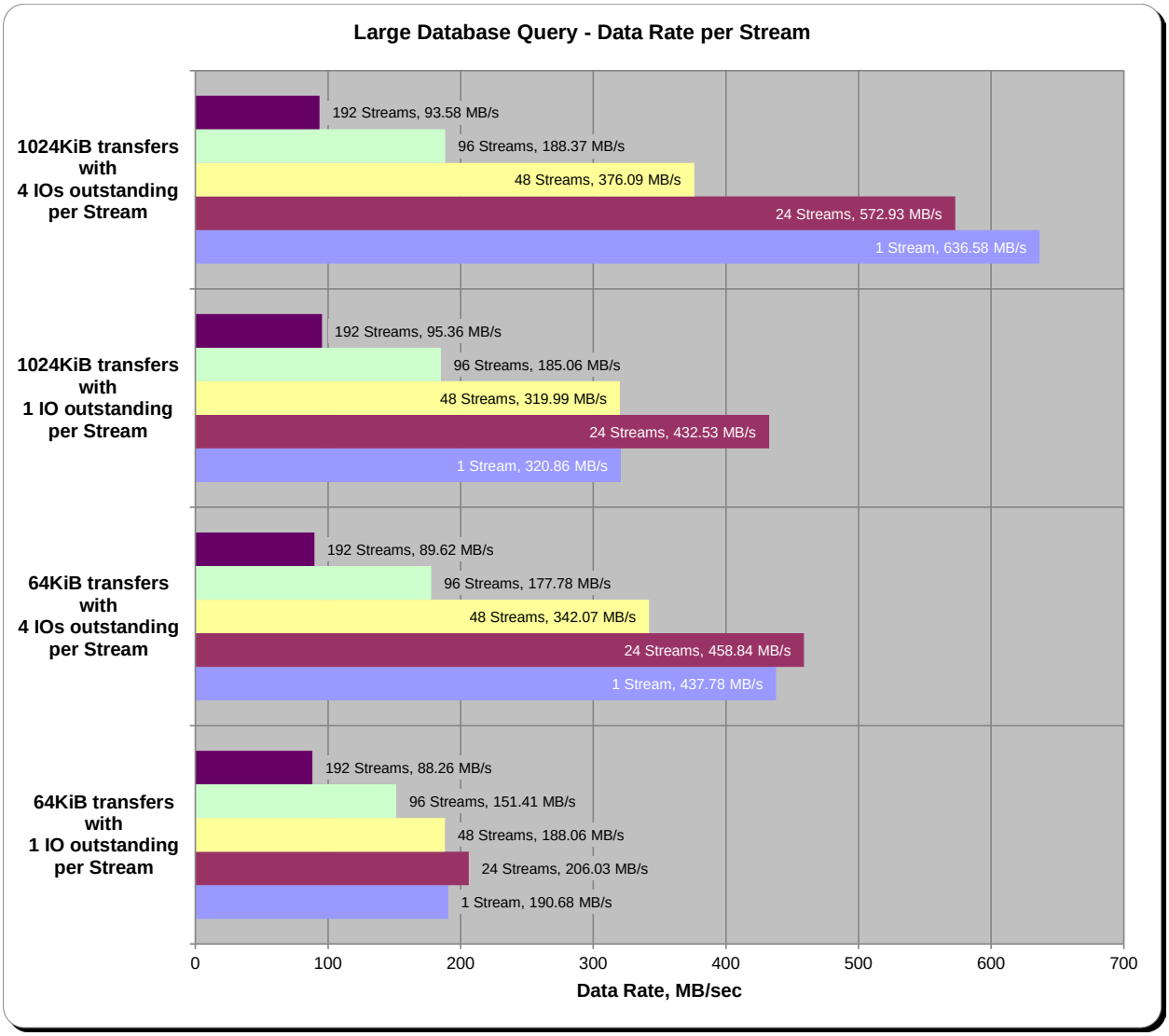


SPC-2 Large Database Query Average Data Rate per Stream

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	24 Streams	48 Streams	96 Streams	192 Streams
1024KiB w/ 4 IOs/Stream	636.58	572.93	376.09	188.37	93.58
1024KiB w/ 1 IO/Stream	320.86	432.53	319.99	185.06	95.36
64KiB w/ 4 IOs/Stream	437.78	458.84	342.07	177.78	89.62
64KiB w/ 1 IO/Stream	190.68	206.03	188.06	151.41	88.26

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

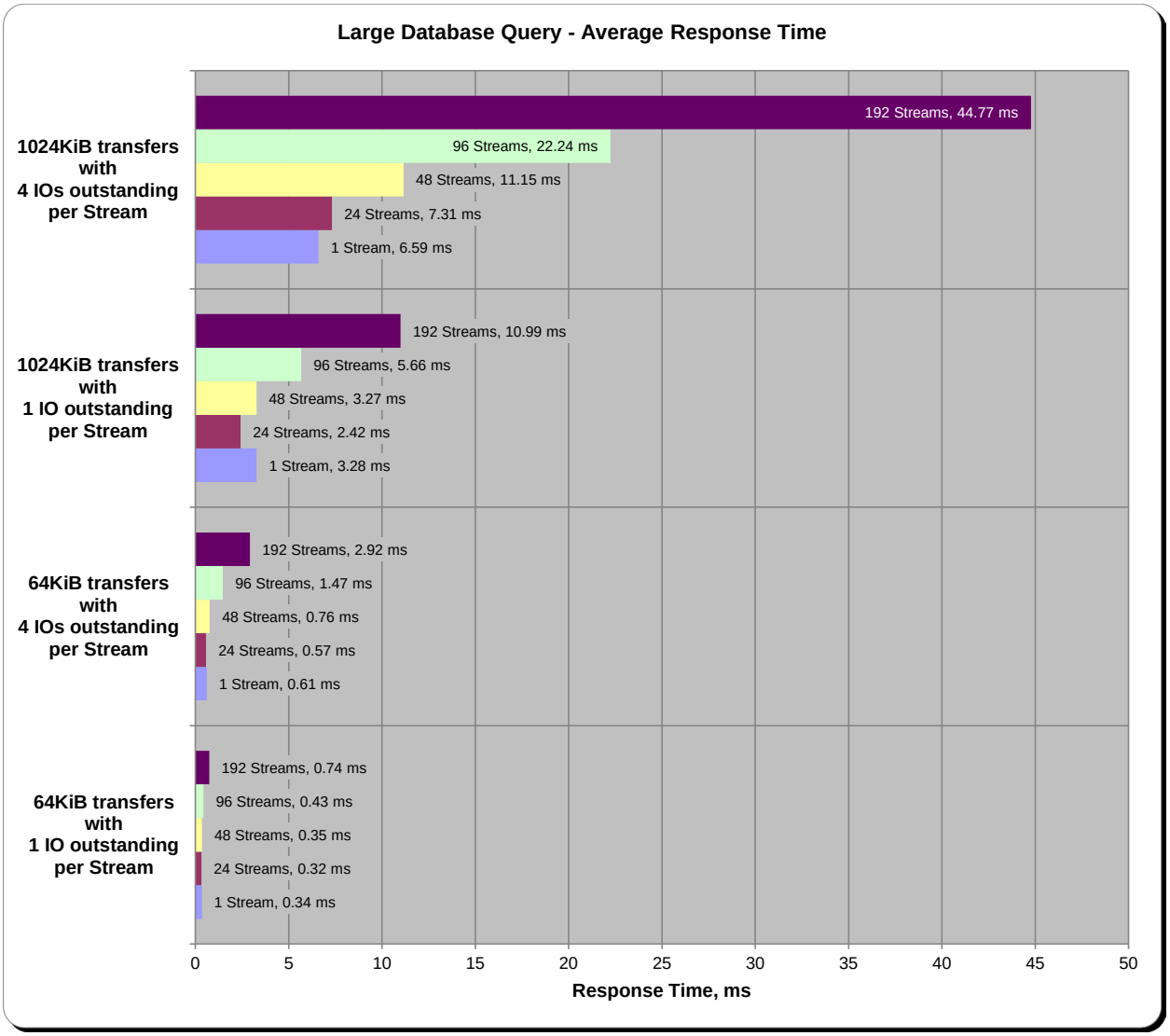


SPC-2 Large Database Query Average Response Time

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	24 Streams	48 Streams	96 Streams	192 Streams
1024KiB w/ 4 IOs/Stream	6.59	7.31	11.15	22.24	44.77
1024KiB w/ 1 IO/Stream	3.28	2.42	3.27	5.66	10.99
64KiB w/ 4 IOs/Stream	0.61	0.57	0.76	1.47	2.92
64KiB w/ 1 IO/Stream	0.34	0.32	0.35	0.43	0.74

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

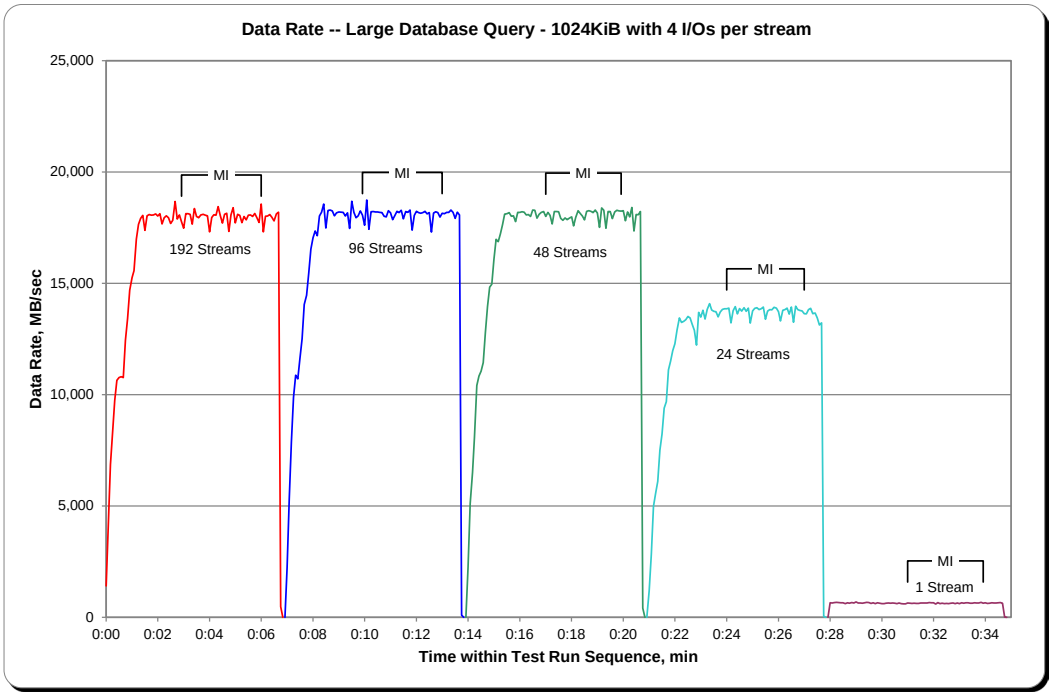
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR1	192 Streams			TR2	96 Streams			TR3	48 Streams			TR4	24 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	1,405.30	82.66	24.06	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
0:00:05	4,147.33	94.26	30.39	0:07:00	2,234.31	148.95	15.01	0:14:00	2,231.16	247.91	8.25	0:21:00	1,202.93	400.98	6.83	0:28:00	648.44	648.44	6.39
0:00:10	6,857.69	120.31	31.29	0:07:05	5,307.89	204.15	15.84	0:14:05	5,102.37	463.85	8.67	0:21:05	2,825.28	470.88	6.98	0:28:05	641.73	641.73	6.58
0:00:15	8,301.58	112.18	32.13	0:07:10	7,871.24	212.74	16.14	0:14:10	6,507.67	406.73	8.65	0:21:10	4,981.57	553.51	6.98	0:28:10	665.85	665.85	6.34
0:00:20	9,740.01	114.59	34.65	0:07:15	9,887.02	219.71	16.95	0:14:15	8,089.97	385.24	8.81	0:21:15	5,567.31	556.73	7.09	0:28:15	668.15	668.15	6.31
0:00:25	10,643.68	112.04	36.07	0:07:20	10,872.68	209.09	18.83	0:14:20	10,414.46	416.58	9.37	0:21:20	6,103.97	554.91	7.02	0:28:20	657.25	657.25	6.16
0:00:30	10,765.73	105.55	38.91	0:07:25	10,704.28	175.48	21.71	0:14:25	10,834.94	386.96	10.43	0:21:25	7,500.46	535.75	7.07	0:28:25	653.68	653.68	6.47
0:00:35	10,804.32	94.77	41.67	0:07:30	11,630.80	184.62	22.49	0:14:30	11,055.14	368.50	11.21	0:21:30	8,231.53	587.97	7.17	0:28:30	655.15	655.15	6.43
0:00:40	10,763.42	86.11	44.64	0:07:35	12,506.37	183.92	22.27	0:14:35	11,439.75	369.02	11.30	0:21:35	9,392.93	552.53	7.29	0:28:35	612.37	612.37	6.90
0:00:45	12,445.13	92.19	43.89	0:07:40	14,050.71	189.87	21.71	0:14:40	12,789.06	355.25	11.13	0:21:40	9,676.89	537.60	7.27	0:28:40	651.17	651.17	6.50
0:00:50	13,416.95	93.17	43.54	0:07:45	14,455.88	190.21	21.80	0:14:45	13,957.18	357.88	11.02	0:21:45	11,106.31	555.32	7.23	0:28:45	629.57	629.57	6.43
0:00:55	14,686.36	98.57	43.24	0:07:50	15,446.57	186.10	21.55	0:14:50	14,826.45	380.17	10.96	0:21:50	11,503.30	547.78	7.38	0:28:50	665.01	665.01	6.32
0:01:00	15,256.78	96.56	42.61	0:07:55	16,535.20	194.53	21.33	0:14:55	14,956.47	364.79	10.93	0:21:55	11,970.54	570.03	7.41	0:28:55	645.92	645.92	6.55
0:01:05	15,567.16	94.92	42.49	0:08:00	17,040.83	191.47	21.43	0:15:00	16,078.03	373.91	10.95	0:22:00	12,278.62	558.12	7.35	0:29:00	690.17	690.17	6.13
0:01:10	16,979.17	94.33	42.97	0:08:05	17,343.87	190.59	21.75	0:15:05	16,975.40	385.80	10.87	0:22:05	12,892.24	560.53	7.33	0:29:05	642.99	642.99	6.56
0:01:15	17,645.44	95.38	43.86	0:08:10	17,132.68	184.22	21.68	0:15:10	16,868.02	374.84	10.90	0:22:10	13,447.15	584.66	7.30	0:29:10	645.50	645.50	6.54
0:01:20	17,913.87	94.28	44.11	0:08:15	18,021.88	191.72	21.76	0:15:15	17,212.58	382.50	11.03	0:22:15	13,244.35	575.84	7.31	0:29:15	632.92	632.92	6.39
0:01:25	18,044.73	93.98	44.55	0:08:20	18,194.26	189.52	22.16	0:15:20	17,627.19	375.05	11.00	0:22:20	13,285.67	553.57	7.34	0:29:20	647.60	647.60	6.54
0:01:30	17,374.07	90.49	44.77	0:08:25	18,554.97	193.28	22.17	0:15:25	18,107.44	377.24	11.06	0:22:25	13,365.99	556.92	7.37	0:29:25	669.62	669.62	6.30
0:01:35	18,030.89	93.91	44.76	0:08:30	17,484.17	182.13	22.24	0:15:30	18,125.27	377.61	11.15	0:22:30	13,514.05	563.09	7.49	0:29:30	666.27	666.27	6.34
0:01:40	18,081.85	94.18	44.77	0:08:35	18,269.55	190.31	22.17	0:15:35	18,176.65	378.68	11.14	0:22:35	13,440.65	560.03	7.56	0:29:35	626.84	626.84	6.74
0:01:45	18,061.72	94.07	44.77	0:08:40	18,284.65	190.47	22.15	0:15:40	18,011.81	375.25	11.11	0:22:40	13,154.81	548.12	7.66	0:29:40	652.00	652.00	6.47
0:01:50	18,064.24	94.08	44.82	0:08:45	18,250.26	190.11	22.23	0:15:45	18,027.12	375.56	11.09	0:22:45	12,884.48	536.85	7.87	0:29:45	614.05	614.05	6.58
0:01:55	18,111.21	94.33	44.82	0:08:50	18,027.96	187.79	22.24	0:15:50	17,773.57	370.28	11.15	0:22:50	12,223.25	509.30	7.95	0:29:50	648.44	648.44	6.52
0:02:00	18,015.58	93.83	44.78	0:08:55	18,165.74	189.23	22.25	0:15:55	18,183.99	378.83	11.13	0:22:55	13,694.19	570.59	7.56	0:29:55	630.82	630.82	6.69
0:02:05	18,121.91	94.38	44.70	0:09:00	18,199.09	189.57	22.26	0:16:00	18,185.45	378.86	11.13	0:23:00	13,483.85	561.83	7.27	0:30:00	611.32	611.32	6.91
0:02:10	17,662.42	91.99	44.83	0:09:05	18,190.07	189.48	22.26	0:16:05	18,213.97	379.46	11.14	0:23:05	13,789.19	574.55	7.30	0:30:05	614.68	614.68	6.87
0:02:15	17,939.04	93.43	44.82	0:09:10	18,186.92	189.45	22.22	0:16:10	18,188.39	378.92	11.11	0:23:10	13,397.03	558.21	7.49	0:30:10	628.31	628.31	6.45
0:02:20	18,024.60	93.88	44.75	0:09:15	18,017.47	187.68	22.30	0:16:15	18,066.55	376.39	11.11	0:23:15	13,828.83	576.20	7.30	0:30:15	639.42	639.42	6.60
0:02:25	17,941.35	93.44	44.81	0:09:20	18,165.53	189.22	22.20	0:16:20	18,083.95	376.75	11.13	0:23:20	14,080.70	586.70	7.31	0:30:20	635.23	635.23	6.65
0:02:30	17,685.49	92.11	44.79	0:09:25	17,460.89	181.88	22.27	0:16:25	17,999.44	374.99	11.08	0:23:25	13,799.26	574.97	7.32	0:30:25	642.99	642.99	6.57
0:02:35	17,830.83	92.87	44.82	0:09:30	18,678.07	194.56	22.28	0:16:30	18,290.94	381.06	11.11	0:23:30	13,735.93	572.33	7.31	0:30:30	635.86	635.86	6.67
0:02:40	18,676.61	97.27	44.81	0:09:35	18,183.15	189.41	22.23	0:16:35	18,274.37	380.72	11.10	0:23:35	13,717.47	571.56	7.30	0:30:35	608.80	608.80	6.78
0:02:45	17,888.92	93.17	44.74	0:09:40	17,944.70	186.92	22.19	0:16:40	17,927.71	373.49	11.07	0:23:40	13,491.19	562.13	7.34	0:30:40	639.21	639.21	6.61
0:02:50	18,069.90	94.11	44.85	0:09:45	18,031.73	187.83	22.17	0:16:45	18,094.86	376.98	11.09	0:23:45	13,710.97	571.29	7.34	0:30:45	615.93	615.93	6.86
				0:09:50	18,253.19	190.14	22.23	0:16:50	18,178.32	378.72	11.12	0:23:50	13,829.67	576.24	7.33	0:30:50	607.13	607.13	6.91
								0:16:55	18,218.38	379.55	11.09	0:23:55	13,851.48	577.14	7.30	0:30:55	604.61	604.61	6.69

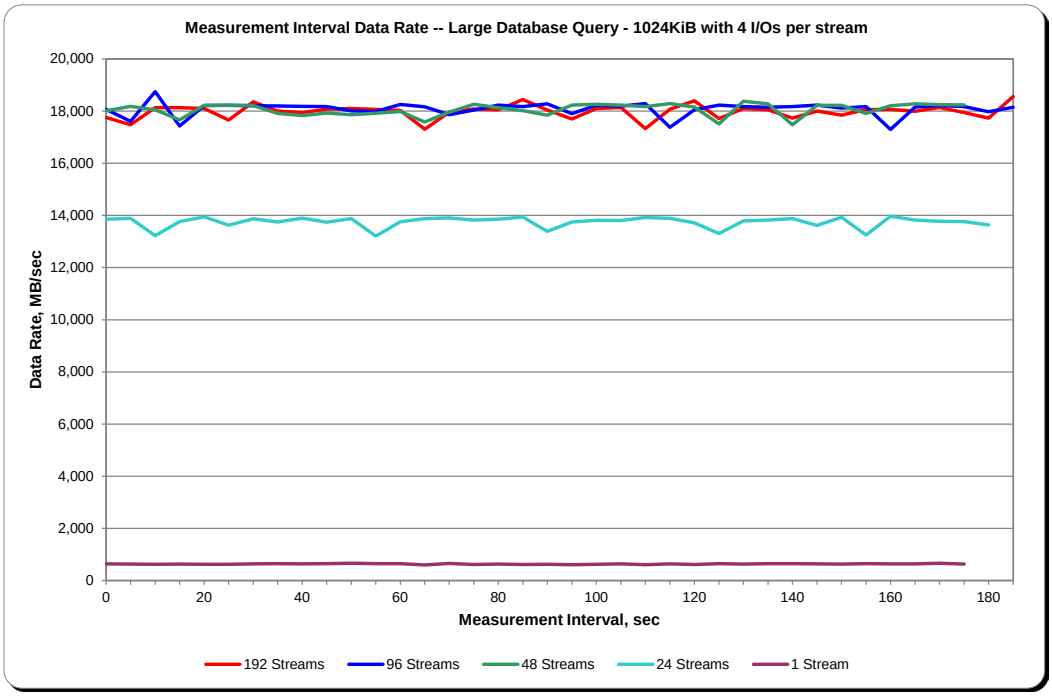
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	192 Streams			TR2	96 Streams			TR3	48 Streams			TR4	24 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
0:02:55	17,757.84	92.49	44.86	0:09:55	18,062.14	188.15	22.25	0:17:00	18,004.47	375.09	11.14	0:24:00	13,852.74	577.20	7.33	0:31:00	642.15	642.15	6.75
0:03:00	17,473.26	91.01	44.88	0:10:00	17,603.07	183.37	22.28	0:17:05	18,182.73	378.81	11.13	0:24:05	13,886.71	578.61	7.29	0:31:05	635.02	635.02	6.63
0:03:05	18,129.46	94.42	44.78	0:10:05	18,743.51	195.24	22.21	0:17:10	18,045.57	375.95	11.13	0:24:10	13,225.27	551.05	7.33	0:31:10	626.21	626.21	6.45
0:03:10	18,127.36	94.41	44.79	0:10:10	17,424.82	181.51	22.27	0:17:15	17,662.42	367.97	11.11	0:24:15	13,766.96	573.62	7.30	0:31:15	633.34	633.34	6.68
0:03:15	18,099.68	94.27	44.75	0:10:15	18,214.18	189.73	22.24	0:17:20	18,224.04	379.67	11.13	0:24:20	13,948.16	581.17	7.27	0:31:20	626.84	626.84	6.73
0:03:20	17,656.97	91.96	44.68	0:10:20	18,223.41	189.83	22.18	0:17:25	18,217.96	379.54	11.11	0:24:25	13,627.71	567.82	7.30	0:31:25	623.69	623.69	6.78
0:03:25	18,355.95	95.60	44.82	0:10:25	18,203.49	189.62	22.25	0:17:30	18,215.23	379.48	11.14	0:24:30	13,869.31	577.89	7.27	0:31:30	638.37	638.37	6.62
0:03:30	17,999.86	93.75	44.74	0:10:30	18,197.20	189.55	22.25	0:17:35	17,913.24	373.19	11.21	0:24:35	13,751.03	572.96	7.36	0:31:35	646.34	646.34	6.27
0:03:35	17,939.46	93.43	44.72	0:10:35	18,178.53	189.36	22.19	0:17:40	17,829.15	371.44	11.25	0:24:40	13,899.08	579.13	7.42	0:31:40	644.04	644.04	6.55
0:03:40	18,071.58	94.12	44.73	0:10:40	18,170.14	189.27	22.24	0:17:45	17,928.34	373.51	11.27	0:24:45	13,742.43	572.60	7.31	0:31:45	646.34	646.34	6.54
0:03:45	18,095.28	94.25	44.76	0:10:45	18,009.50	187.60	22.26	0:17:50	17,858.30	372.05	11.33	0:24:50	13,883.36	578.47	7.28	0:31:50	666.06	666.06	6.35
0:03:50	18,062.56	94.08	44.67	0:10:50	17,985.39	187.35	22.21	0:17:55	17,920.37	373.34	11.30	0:24:55	13,210.59	550.44	7.36	0:31:55	651.79	651.79	6.47
0:03:55	18,025.44	93.88	44.94	0:10:55	18,256.76	190.17	22.23	0:18:00	17,980.98	374.60	11.26	0:25:00	13,756.69	573.20	7.33	0:32:00	648.86	648.86	6.51
0:04:00	17,307.59	90.14	44.75	0:11:00	18,161.34	189.18	22.34	0:18:05	17,580.63	366.26	11.25	0:25:05	13,876.85	578.20	7.29	0:32:05	597.90	597.90	6.77
0:04:05	17,955.61	93.52	44.75	0:11:05	17,861.02	186.05	22.20	0:18:10	17,961.06	374.19	11.12	0:25:10	13,904.75	579.36	7.26	0:32:10	660.39	660.39	6.40
0:04:10	18,081.43	94.17	44.80	0:11:10	18,043.06	187.95	22.25	0:18:15	18,262.42	380.47	11.11	0:25:15	13,818.97	575.79	7.30	0:32:15	617.61	617.61	6.83
0:04:15	18,053.12	94.03	44.78	0:11:15	18,227.19	189.87	22.26	0:18:20	18,134.49	377.80	11.14	0:25:20	13,855.04	577.29	7.30	0:32:20	630.61	630.61	6.70
0:04:20	18,443.61	96.06	44.89	0:11:20	18,168.47	189.25	22.25	0:18:25	18,015.16	375.32	11.11	0:25:25	13,935.16	580.63	7.31	0:32:25	612.79	612.79	6.90
0:04:25	18,038.02	93.95	44.74	0:11:25	18,274.79	190.36	22.16	0:18:30	17,843.20	371.73	11.11	0:25:30	13,386.12	557.76	7.38	0:32:30	622.64	622.64	6.77
0:04:30	17,699.75	92.19	44.74	0:11:30	17,898.98	186.45	22.22	0:18:35	18,229.70	379.79	11.09	0:25:35	13,744.94	572.71	7.35	0:32:35	611.53	611.53	6.62
0:04:35	18,098.42	94.26	44.76	0:11:35	18,217.33	189.76	22.23	0:18:40	18,262.21	380.46	11.08	0:25:40	13,815.20	575.63	7.31	0:32:40	628.31	628.31	6.73
0:04:40	18,139.95	94.48	44.75	0:11:40	18,186.92	189.45	22.26	0:18:45	18,227.82	379.75	11.13	0:25:45	13,806.39	575.27	7.29	0:32:45	644.66	644.66	6.54
0:04:45	17,325.41	90.24	44.70	0:11:45	18,286.33	190.48	22.19	0:18:50	18,169.10	378.52	11.10	0:25:50	13,917.54	579.90	7.27	0:32:50	610.06	610.06	6.93
0:04:50	18,072.63	94.13	44.84	0:11:50	17,381.41	181.06	22.32	0:18:55	18,287.17	380.98	11.09	0:25:55	13,888.18	578.67	7.29	0:32:55	639.00	639.00	6.59
0:04:55	18,389.72	95.78	44.75	0:11:55	18,049.77	188.02	22.31	0:19:00	18,151.90	378.16	11.13	0:26:00	13,718.94	571.62	7.35	0:33:00	615.51	615.51	6.60
0:05:00	17,715.69	92.27	44.80	0:12:00	18,230.75	189.90	22.26	0:19:05	17,509.33	364.78	11.14	0:26:05	13,309.16	554.55	7.30	0:33:05	648.44	648.44	6.50
0:05:05	18,099.47	94.27	44.74	0:12:05	18,176.02	189.33	22.24	0:19:10	18,379.44	382.91	11.15	0:26:10	13,788.56	574.52	7.36	0:33:10	634.81	634.81	6.65
0:05:10	18,051.03	94.02	44.71	0:12:10	18,144.14	189.00	22.28	0:19:15	18,278.15	380.79	11.10	0:26:15	13,821.28	575.89	7.31	0:33:15	651.38	651.38	6.49
0:05:15	17,726.18	92.32	44.83	0:12:15	18,170.35	189.27	22.29	0:19:20	17,474.31	364.05	11.12	0:26:20	13,879.16	578.30	7.31	0:33:20	651.17	651.17	6.48
0:05:20	17,996.08	93.73	44.73	0:12:20	18,226.56	189.86	22.26	0:19:25	18,220.48	379.59	11.11	0:26:25	13,617.65	567.40	7.40	0:33:25	637.11	637.11	6.62
0:05:25	17,848.44	92.96	44.81	0:12:25	18,113.73	188.68	22.23	0:19:30	18,223.41	379.65	11.13	0:26:30	13,930.33	580.43	7.28	0:33:30	631.45	631.45	6.43
0:05:30	18,055.01	94.04	44.86	0:12:30	18,175.60	189.33	22.28	0:19:35	17,905.90	373.04	11.15	0:26:35	13,250.23	552.09	7.34	0:33:35	652.63	652.63	6.47
0:05:35	18,065.29	94.09	44.75	0:12:35	17,297.31	180.18	22.31	0:19:40	18,205.80	379.29	11.12	0:26:40	13,969.76	582.07	7.26	0:33:40	644.45	644.45	6.55
0:05:40	17,995.66	93.73	44.83	0:12:40	18,156.09	189.13	22.24	0:19:45	18,279.41	380.82	11.10	0:26:45	13,820.65	575.86	7.31	0:33:45	640.89	640.89	6.60
0:05:45	18,136.80	94.46	44.76	0:12:45	18,214.60	189.74	22.19	0:19:50	18,247.95	380.17	11.10	0:26:50	13,774.72	573.95	7.36	0:33:50	667.73	667.73	6.32
0:05:50	17,946.59	93.47	44.77	0:12:50	18,172.87	189.30	22.25	0:19:55	18,238.09	379.96	11.06	0:26:55	13,761.51	573.40	7.28	0:33:55	632.92	632.92	6.55
0:05:55	17,727.44	92.33	44.71	0:12:55	17,975.11	187.24	22.21	0:20:00	18,260.53	380.43	11.13	0:27:00	13,632.75	568.03	7.32	0:34:00	652.84	652.84	6.31
0:06:00	18,556.86	96.65	44.86	0:13:00	18,147.08	189.03	22.32	0:20:05	17,810.27	371.05	11.14	0:27:05	13,627.50	567.81	7.34	0:34:05	622.64	622.64	6.79
0:06:05	17,313.46	90.17	44.82	0:13:05	18,126.52	188.82	22.30	0:20:10	18,205.59	379.28	11.12	0:27:10	13,819.39	575.81	7.34	0:34:10	629.15	629.15	6.70
0:06:10	18,005.52	93.78	44.81	0:13:10	18,183.15	189.41	22.24	0:20:15	17,978.88	374.56	11.12	0:27:15	13,871.82	577.99	7.28	0:34:15	649.49	649.49	6.51
0:06:15	18,021.04	93.86	44.86	0:13:15	18,181.26	189.39	22.27	0:20:20	18,407.54	383.49	11.10	0:27:20	13,638.41	568.27	7.30	0:34:20	646.76	646.76	6.53
0:06:20	18,083.95	94.19	44.79	0:13:20	18,289.05	190.51	22.19	0:20:25	17,347.01	361.40	11.17	0:27:25	13,666.93	569.46	7.42	0:34:25	639.21	639.21	6.34
0:06:25	17,964.41	93.56	44.68	0:13:25	18,181.68	189.39	22.23	0:20:30	18,087.31	376.82	11.14	0:27:30	13,444.00	560.17	7.53	0:34:30	654.52	654.52	6.44
0:06:30	17,794.12	92.68	44.76	0:13:30	17,911.98	186.58	22.30	0:20:35	18,075.35	376.57	11.14	0:27:35	13,126.07	546.92	7.70	0:34:35	658.30	658.30	6.41
0:06:35	18,116.67	94.36	44.81	0:13:35	18,189.44	189.47	22.22	0:20:40	18,216.70	379.51	11.11	0:27:40	13,219.40	1,468.82	7.64	0:34:40	630.82	630.82	6.68
0:06:40	18,187.55	94.73	44.44	0:13:40	18,068.43	334.60	22.24	0:20:45	415.87	0.00	10.40	0:27:45	38.59	0.00	8.36	0:34:45	4.40	0.00	6.16
0:06:45	483.18	0.00	42.64	0:13:45	97.10	0.00	19.64	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
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00												

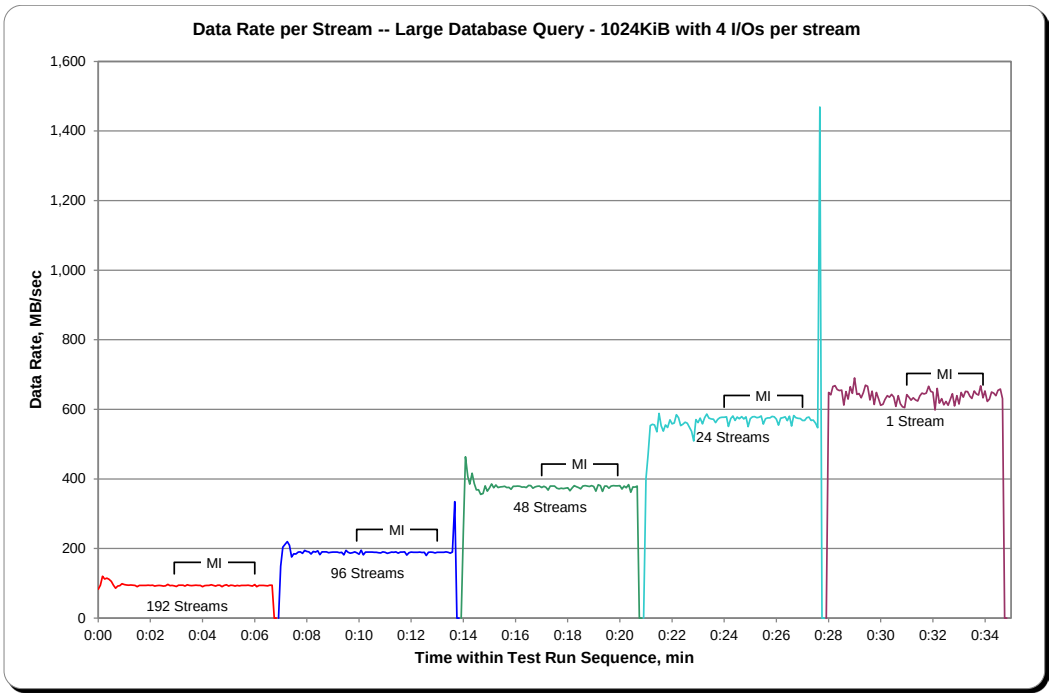
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



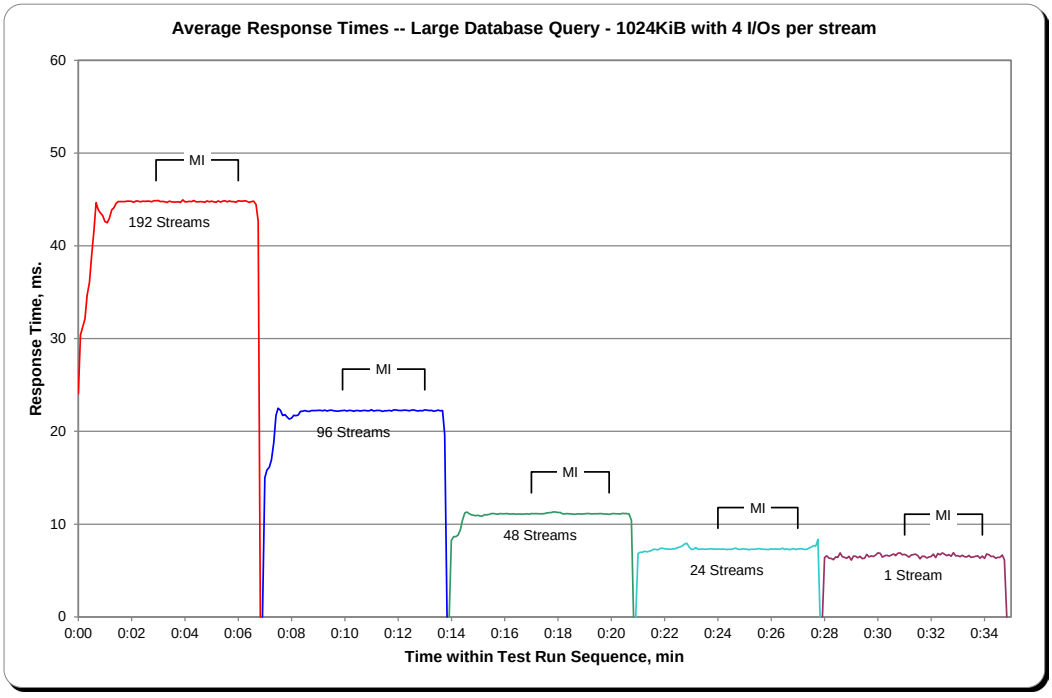
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



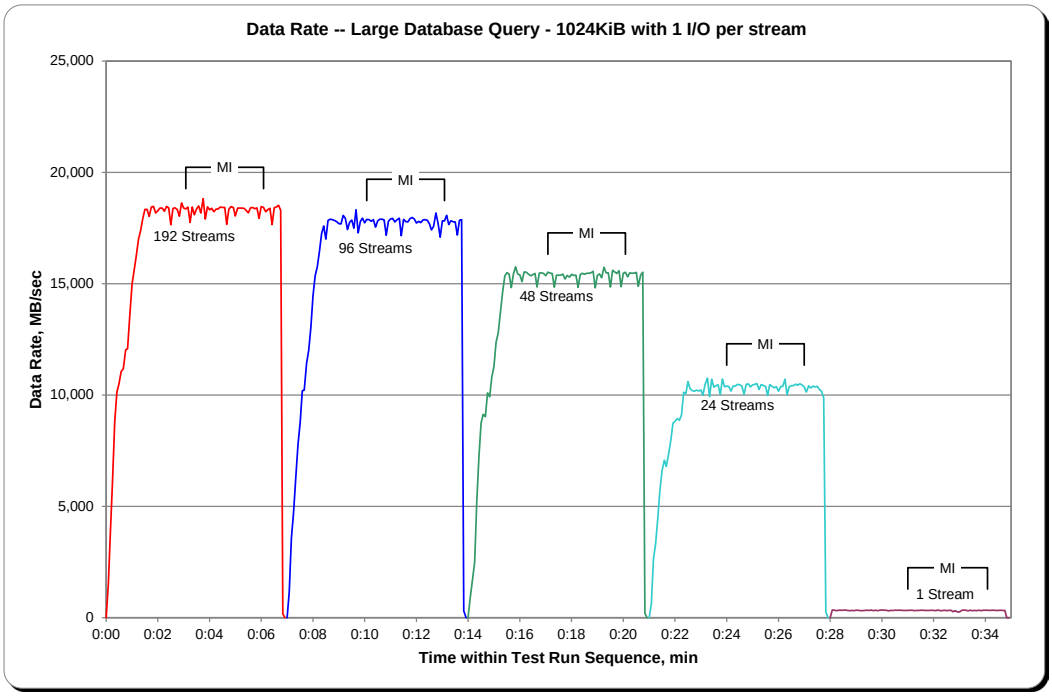
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR6	192 Streams			TR7	96 Streams			TR8	48 Streams			TR9	24 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	0.00	0.00	0.00	0:07:00	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	1,477.86	86.93	6.71	0:07:05	1,149.03	143.63	3.76	0:14:05	885.21	221.30	2.49	0:21:05	618.03	206.01	2.25	0:28:05	344.98	344.98	3.06
0:00:10	3,881.20	104.90	7.49	0:07:10	3,565.79	209.75	4.39	0:14:10	1,712.32	342.46	2.58	0:21:10	2,634.86	376.41	2.35	0:28:10	335.54	335.54	3.15
0:00:15	6,208.41	112.88	7.80	0:07:15	4,694.89	213.40	4.49	0:14:15	2,500.43	250.04	2.88	0:21:15	3,318.32	414.79	2.38	0:28:15	314.57	314.57	3.22
0:00:20	8,795.46	120.49	7.97	0:07:20	6,360.24	198.76	4.54	0:14:20	5,261.96	292.33	3.00	0:21:20	4,454.35	404.94	2.36	0:28:20	333.03	333.03	3.17
0:00:25	10,119.39	111.20	8.47	0:07:25	7,787.35	216.32	4.55	0:14:25	7,242.93	314.91	2.98	0:21:25	5,707.61	407.69	2.38	0:28:25	332.61	332.61	3.17
0:00:30	10,506.73	101.03	9.40	0:07:30	8,760.22	203.73	4.66	0:14:30	8,749.95	324.07	3.11	0:21:30	6,596.80	412.30	2.38	0:28:30	338.69	338.69	3.12
0:00:35	11,051.36	96.94	10.29	0:07:35	10,190.06	195.96	5.00	0:14:35	9,132.68	326.17	3.15	0:21:35	7,068.66	441.79	2.38	0:28:35	346.45	346.45	3.05
0:00:40	11,182.43	90.91	11.11	0:07:40	10,223.20	173.27	5.42	0:14:40	9,032.01	311.45	3.14	0:21:40	6,795.82	424.74	2.38	0:28:40	324.43	324.43	3.25
0:00:45	12,025.91	95.44	11.02	0:07:45	11,431.16	181.45	5.67	0:14:45	10,092.33	325.56	3.24	0:21:45	7,310.25	430.01	2.37	0:28:45	313.73	313.73	3.23
0:00:50	12,083.37	88.85	10.91	0:07:50	12,009.97	181.97	5.65	0:14:50	9,925.61	310.18	3.21	0:21:50	7,966.87	419.31	2.39	0:28:50	329.88	329.88	3.20
0:00:55	13,520.97	93.90	10.84	0:07:55	13,035.27	176.15	5.66	0:14:55	10,807.88	327.51	3.21	0:21:55	8,727.72	436.39	2.40	0:28:55	320.24	320.24	3.29
0:01:00	14,984.57	97.30	10.58	0:08:00	14,457.98	185.36	5.56	0:15:00	11,287.92	305.08	3.22	0:22:00	8,829.43	441.47	2.39	0:29:00	334.71	334.71	3.15
0:01:05	15,618.12	97.01	10.50	0:08:05	15,348.01	191.85	5.56	0:15:05	12,370.05	325.53	3.20	0:22:05	8,942.05	425.81	2.42	0:29:05	331.77	331.77	3.18
0:01:10	16,269.50	98.60	10.44	0:08:10	15,754.43	185.35	5.56	0:15:10	12,792.63	319.82	3.21	0:22:10	8,866.55	422.22	2.40	0:29:10	315.62	315.62	3.21
0:01:15	16,991.34	99.36	10.49	0:08:15	16,442.72	182.70	5.54	0:15:15	13,692.72	318.44	3.22	0:22:15	9,105.62	413.89	2.43	0:29:15	313.31	313.31	3.36
0:01:20	17,386.44	97.68	10.51	0:08:20	17,240.90	185.39	5.61	0:15:20	14,660.35	311.92	3.22	0:22:20	10,120.02	421.67	2.42	0:29:20	325.27	325.27	3.25
0:01:25	17,927.29	97.43	10.68	0:08:25	17,592.38	187.15	5.59	0:15:25	15,353.46	319.86	3.24	0:22:25	10,052.28	418.84	2.41	0:29:25	332.19	332.19	3.18
0:01:30	18,335.61	95.50	10.86	0:08:30	17,004.55	177.13	5.61	0:15:30	15,495.65	322.83	3.27	0:22:30	10,604.46	441.85	2.43	0:29:30	327.58	327.58	3.22
0:01:35	18,334.98	95.49	10.99	0:08:35	17,833.76	185.77	5.66	0:15:35	15,414.91	321.14	3.27	0:22:35	10,288.42	428.68	2.44	0:29:35	340.58	340.58	3.10
0:01:40	18,019.36	93.85	11.00	0:08:40	17,898.77	186.45	5.65	0:15:40	14,819.94	308.75	3.27	0:22:40	10,203.06	425.13	2.46	0:29:40	318.56	318.56	3.27
0:01:45	18,440.26	96.04	11.00	0:08:45	17,876.12	186.21	5.65	0:15:45	15,436.09	321.59	3.28	0:22:45	10,170.35	423.76	2.47	0:29:45	331.77	331.77	3.18
0:01:50	18,469.83	96.20	10.98	0:08:50	17,839.00	185.82	5.64	0:15:50	15,752.76	328.18	3.27	0:22:50	10,220.05	425.84	2.47	0:29:50	314.99	314.99	3.21
0:01:55	18,176.65	94.67	11.01	0:08:55	17,776.72	185.17	5.67	0:15:55	15,437.97	321.62	3.27	0:22:55	10,176.85	424.04	2.48	0:29:55	333.45	333.45	3.16
0:02:00	18,264.31	95.13	11.01	0:09:00	17,694.93	184.32	5.67	0:16:00	15,390.79	320.64	3.27	0:23:00	10,228.86	426.20	2.47	0:30:00	341.21	341.21	3.09
0:02:05	18,396.64	95.82	10.98	0:09:05	17,683.40	184.20	5.67	0:16:05	15,091.73	314.41	3.27	0:23:05	9,990.62	416.28	2.42	0:30:05	331.56	331.56	3.18
0:02:10	18,397.06	95.82	11.01	0:09:10	18,067.38	188.20	5.66	0:16:10	15,521.86	323.37	3.28	0:23:10	10,477.37	436.56	2.41	0:30:10	334.92	334.92	3.15
0:02:15	18,248.37	95.04	10.99	0:09:15	17,929.60	186.77	5.66	0:16:15	15,512.42	323.18	3.27	0:23:15	10,759.23	448.30	2.42	0:30:15	306.18	306.18	3.30
0:02:20	18,469.62	96.20	11.00	0:09:20	17,435.09	181.62	5.67	0:16:20	15,428.12	321.42	3.26	0:23:20	9,933.16	413.88	2.44	0:30:20	325.48	325.48	3.24
0:02:25	18,404.61	95.86	10.98	0:09:25	17,756.17	184.96	5.67	0:16:25	15,347.80	319.75	3.27	0:23:25	10,704.28	446.01	2.41	0:30:25	329.25	329.25	3.21
0:02:30	17,643.13	91.89	11.00	0:09:30	17,855.36	185.99	5.66	0:16:30	15,410.08	321.04	3.26	0:23:30	10,348.40	431.18	2.44	0:30:30	330.72	330.72	3.18
0:02:35	18,381.96	95.74	10.99	0:09:35	17,492.55	182.21	5.67	0:16:35	15,455.59	321.99	3.27	0:23:35	10,419.28	434.14	2.41	0:30:35	330.51	330.51	3.22
0:02:40	18,400.62	95.84	11.00	0:09:40	18,315.06	190.78	5.66	0:16:40	14,853.29	309.44	3.26	0:23:40	10,459.34	435.81	2.41	0:30:40	330.51	330.51	3.10
0:02:45	18,328.90	95.46	11.01	0:09:45	17,285.36	180.06	5.64	0:16:45	15,478.87	322.48	3.26	0:23:45	10,028.58	417.86	2.41	0:30:45	332.19	332.19	3.18
0:02:50	18,025.44	93.88	11.01	0:09:50	17,793.92	185.35	5.66	0:16:50	15,484.11	322.59	3.27	0:23:50	10,716.66	446.53	2.41	0:30:50	325.27	325.27	3.25
0:02:55	18,623.76	97.00	11.00	0:09:55	17,938.62	186.86	5.63	0:16:55	15,453.49	321.95	3.28	0:23:55	10,374.40	432.27	2.42	0:30:55	325.90	325.90	3.22
0:03:00	18,391.18	95.79	11.00	0:10:00	17,729.95	184.69	5.65	0:17:00	15,360.80	320.02	3.27								

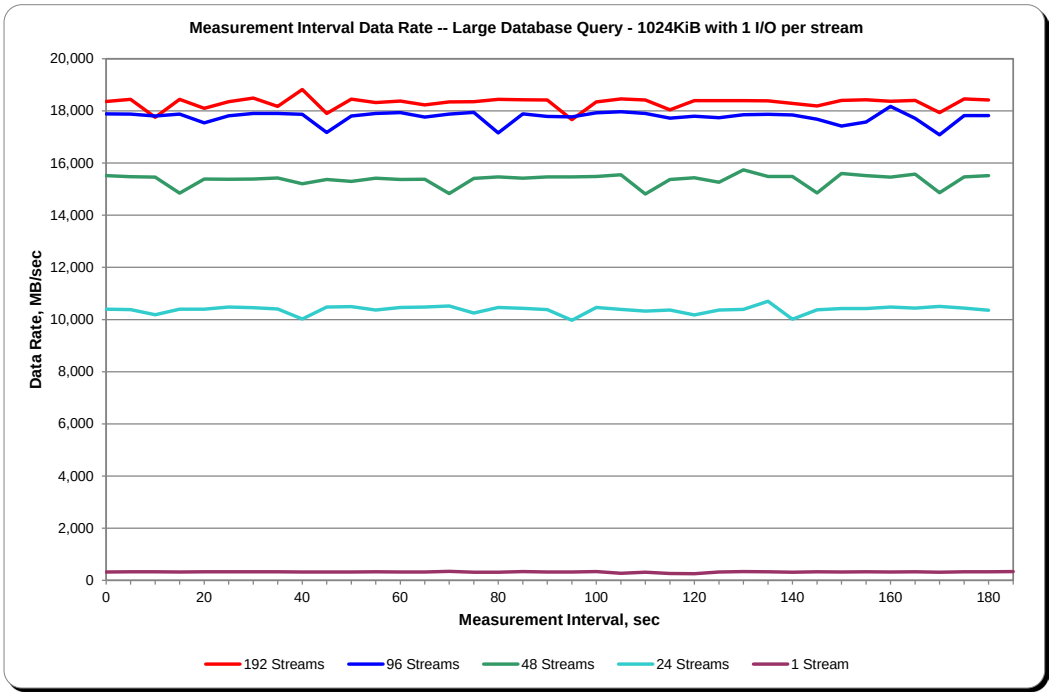
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	192 Streams			TR7	96 Streams			TR8	48 Streams			TR9	24 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:05	18,359.94	95.62	11.01	0:10:05	17,881.37	186.26	5.65	0:17:05	15,514.31	323.21	3.26	0:24:00	10,398.10	433.25	2.42	0:31:00	322.54	322.54	3.24
0:03:10	18,446.34	96.07	11.00	0:10:10	17,876.54	186.21	5.66	0:17:10	15,473.63	322.37	3.26	0:24:05	10,383.63	432.65	2.41	0:31:05	331.35	331.35	3.22
0:03:15	17,752.60	92.46	10.99	0:10:15	17,802.72	185.45	5.67	0:17:15	15,458.53	322.05	3.28	0:24:10	10,183.14	424.30	2.43	0:31:10	332.19	332.19	3.07
0:03:20	18,440.47	96.04	10.98	0:10:20	17,878.01	186.23	5.66	0:17:20	14,844.90	309.27	3.27	0:24:15	10,399.78	433.32	2.44	0:31:15	320.44	320.44	3.28
0:03:25	18,094.44	94.24	10.99	0:10:25	17,541.84	182.73	5.65	0:17:25	15,383.66	320.49	3.28	0:24:20	10,396.84	433.20	2.43	0:31:20	327.58	327.58	3.22
0:03:30	18,350.92	95.58	11.01	0:10:30	17,814.47	185.57	5.67	0:17:30	15,377.58	320.37	3.28	0:24:25	10,479.68	436.65	2.41	0:31:25	329.25	329.25	3.20
0:03:35	18,491.22	96.31	10.97	0:10:35	17,899.19	186.45	5.67	0:17:35	15,384.50	320.51	3.28	0:24:30	10,457.45	435.73	2.42	0:31:30	332.19	332.19	3.18
0:03:40	18,174.76	94.66	10.95	0:10:40	17,898.14	186.44	5.66	0:17:40	15,427.70	321.41	3.29	0:24:35	10,403.76	433.49	2.43	0:31:35	331.98	331.98	3.05
0:03:45	18,816.70	98.00	10.96	0:10:45	17,868.99	186.14	5.66	0:17:45	15,204.56	316.76	3.29	0:24:40	10,023.76	417.66	2.42	0:31:40	322.54	322.54	3.27
0:03:50	17,900.24	93.23	10.97	0:10:50	17,176.72	178.92	5.66	0:17:50	15,368.14	320.17	3.29	0:24:45	10,479.89	436.66	2.41	0:31:45	322.96	322.96	3.26
0:03:55	18,447.81	96.08	10.98	0:10:55	17,799.58	185.41	5.66	0:17:55	15,294.32	318.63	3.29	0:24:50	10,493.73	437.24	2.42	0:31:50	325.48	325.48	3.24
0:04:00	18,320.72	95.42	10.99	0:11:00	17,900.03	186.46	5.66	0:18:00	15,419.73	321.24	3.29	0:24:55	10,363.50	431.81	2.44	0:31:55	330.51	330.51	3.20
0:04:05	18,380.70	95.73	11.01	0:11:05	17,937.78	186.85	5.65	0:18:05	15,373.17	320.27	3.29	0:25:00	10,459.55	435.81	2.41	0:32:00	321.49	321.49	3.28
0:04:10	18,226.98	94.93	11.00	0:11:10	17,765.60	185.06	5.66	0:18:10	15,379.46	320.41	3.28	0:25:05	10,476.74	436.53	2.41	0:32:05	319.40	319.40	3.17
0:04:15	18,345.47	95.55	10.99	0:11:15	17,877.38	186.22	5.66	0:18:15	14,829.38	308.95	3.27	0:25:10	10,519.94	438.33	2.41	0:32:10	347.29	347.29	3.10
0:04:20	18,353.23	95.59	11.01	0:11:20	17,941.97	186.90	5.65	0:18:20	15,411.97	321.08	3.28	0:25:15	10,249.62	427.07	2.42	0:32:15	315.41	315.41	3.34
0:04:25	18,439.63	96.04	11.01	0:11:25	17,154.28	178.69	5.67	0:18:25	15,466.92	322.23	3.26	0:25:20	10,466.68	436.11	2.42	0:32:20	315.41	315.41	3.24
0:04:30	18,426.42	95.97	11.01	0:11:30	17,887.66	186.33	5.66	0:18:30	15,419.94	321.25	3.27	0:25:25	10,430.19	434.59	2.42	0:32:25	336.17	336.17	3.17
0:04:35	18,417.82	95.93	10.99	0:11:35	17,788.67	185.30	5.67	0:18:35	15,470.48	322.30	3.27	0:25:30	10,381.95	432.58	2.43	0:32:30	318.98	318.98	3.22
0:04:40	17,667.04	92.02	10.98	0:11:40	17,772.52	185.13	5.66	0:18:40	15,469.64	322.28	3.27	0:25:35	9,974.68	415.61	2.43	0:32:35	323.38	323.38	3.26
0:04:45	18,345.89	95.55	10.99	0:11:45	17,924.36	186.71	5.65	0:18:45	15,484.53	322.59	3.27	0:25:40	10,466.89	436.12	2.42	0:32:40	337.22	337.22	3.12
0:04:50	18,459.76	96.14	10.99	0:11:50	17,968.61	187.17	5.63	0:18:50	15,548.91	323.94	3.26	0:25:45	10,392.02	433.00	2.43	0:32:45	268.44	268.44	3.94
0:04:55	18,419.71	95.94	10.99	0:11:55	17,904.02	186.50	5.65	0:18:55	14,816.17	308.67	3.28	0:25:50	10,320.71	430.03	2.45	0:32:50	313.73	313.73	3.36
0:05:00	18,040.54	93.96	10.98	0:12:00	17,722.40	184.61	5.64	0:19:00	15,374.43	320.30	3.27	0:25:55	10,367.48	431.98	2.44	0:32:55	262.77	262.77	3.85
0:05:05	18,391.60	95.79	11.00	0:12:05	17,798.95	185.41	5.68	0:19:05	15,437.76	321.62	3.27	0:26:00	10,174.75	423.95	2.43	0:33:00	255.01	255.01	4.14
0:05:10	18,391.60	95.79	11.01	0:12:10	17,738.55	184.78	5.67	0:19:10	15,265.38	318.03	3.27	0:26:05	10,367.69	431.99	2.43	0:33:05	323.38	323.38	3.26
0:05:15	18,390.35	95.78	10.99	0:12:15	17,853.05	185.97	5.67	0:19:15	15,738.50	327.89	3.26	0:26:10	10,387.82	432.83	2.42	0:33:10	340.37	340.37	3.10
0:05:20	18,386.36	95.76	10.99	0:12:20	17,872.56	186.17	5.66	0:19:20	15,482.43	322.55	3.27	0:26:15	10,704.70	446.03	2.42	0:33:15	330.51	330.51	3.20
0:05:25	18,286.96	95.24	11.01	0:12:25	17,844.88	185.88	5.65	0:19:25	15,483.90	322.58	3.27	0:26:20	10,016.63	417.36	2.42	0:33:20	310.59	310.59	3.26
0:05:30	18,185.24	94.71	11.01	0:12:30	17,682.56	184.19	5.67	0:19:30	14,851.19	309.40	3.26	0:26:25	10,375.87	432.33	2.42	0:33:25	333.66	333.66	3.16
0:05:35	18,405.44	95.86	10.99	0:12:35	17,417.69	181.43	5.67	0:19:35	15,602.18	325.05	3.26	0:26:30	10,422.64	434.28	2.41	0:33:30	319.82	319.82	3.30
0:05:40	18,422.01	95.95	10.97	0:12:40	17,572.67	183.05	5.68	0:19:40	15,519.97	323.33	3.27	0:26:35	10,422.01	434.25	2.41	0:33:35	325.69	325.69	3.24
0:05:45	18,367.70	95.67	11.00	0:12:45	18,170.98	189.28	5.67	0:19:45	15,461.25	322.11	3.27	0:26:40	10,482.40	436.77	2.42	0:33:40	317.72	317.72	3.32
0:05:50	18,402.09	95.84	11.00	0:12:50	17,711.29	184.49	5.68	0:19:50	15,577.44	324.53	3.27	0:26:45	10,435.85	434.83	2.42	0:33:45	331.14	331.14	3.19
0:05:55	17,937.15	93.42	10.99	0:12:55	17,085.50	177.97	5.68	0:19:55	14,863.36	309.65	3.27	0:26:50	10,504.21	437.68	2.41	0:33:50	311.85	311.85	3.25
0:06:00	18,460.18	96.15	10.99	0:13:00	17,822.23	185.65	5.68	0:20:00	15,466.50	322.22	3.27	0:26:55	10,440.88	435.04	2.43	0:33:55	332.61	332.61	3.18
0:06:05	18,418.03	95.93	11.02	0:13:05	17,822.02	185.65	5.69	0:20:05	15,515.15	323.23	3.27	0:27:00	10,359.30	431.64	2.41	0:34:00	330.72	330.72	3.19
0:06:10	18,233.90	94.97	11.00	0:13:10	18,071.16	188.24	5.70	0:20:10	15,307.95	318.92	3.27	0:27:05	10,128.20	422.01	2.42	0:34:05	333.87	333.87	3.16
0:06:15	18,330.37	95.47	11.01	0:13:15	17,656.55	183.92	5.68	0:20:15	15,488.10	322.67	3.26	0:27:10	10,410.47	433.77	2.43	0:34:10	322.54	322.54	3.27
0:06:20	18,379.65	95.73	11.01	0:13:20	17,829.15	185.72	5.67	0:20:20	15,464.19	322.17	3.27	0:27:15	10,315.89	429.83	2.45	0:34:15	335.96	335.96	3.13
0:06:25	17,658.44	91.97	11.01	0:13:25	17,778.61	185.19	5.65	0:20:25	15,478.03	322.46	3.27	0:27:20	10,399.36	433.31	2.44	0:34:20	336.59	336.59	3.14
0:06:30	18,417.40	95.92	11.02	0:13:30	17,771.27	185.12	5.66	0:20:30	15,503.83	323.00	3.27	0:27:25	10,364.13	431.84	2.44	0:34:25	324.85	324.85	3.12
0:06:35	18,442.35	96.05	10.98	0:13:35	17,189.31	179.06	5.65	0:20:35	14,879.50	309.99	3.26	0:27:30	10,394.74	433.11	2.42	0:34:30	325.69	325.69	3.24
0:06:40	18,516.38	96.44	10.96	0:13:40	17,845.92	185.90	5.67	0:20:40	15,383.24	320.48	3.28	0:27:35	10,242.91	426.79	2.46	0:34:35	332.82	332.82	3.17
0:06:45	18,294.72	112.24	10.98	0:13:45	17,875.91	186.21	5.66	0:20:45	15,510.75	323.14	3.27	0:27:40	10,172.86	423.87	2.48	0:34:40	330.09	330.09	3.20
0:06:50	167.98	0.00	8.50	0:13:50	305.14	0.00	5.01	0:20:50	202.17	0.00	3.02	0:27:45	9,873.81	411.41	2.45	0:34:45	326.32	0.00	3.19
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	0:27:50	254.59	0.00	2.70	0:34:50	0.21	0.00	2.01
												0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

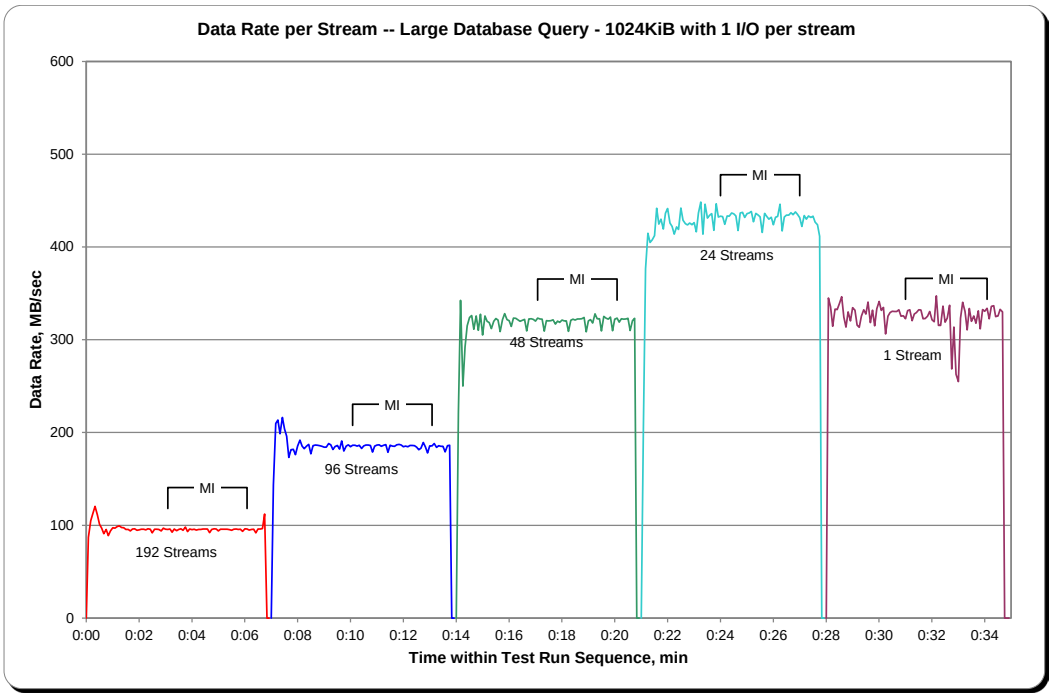
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



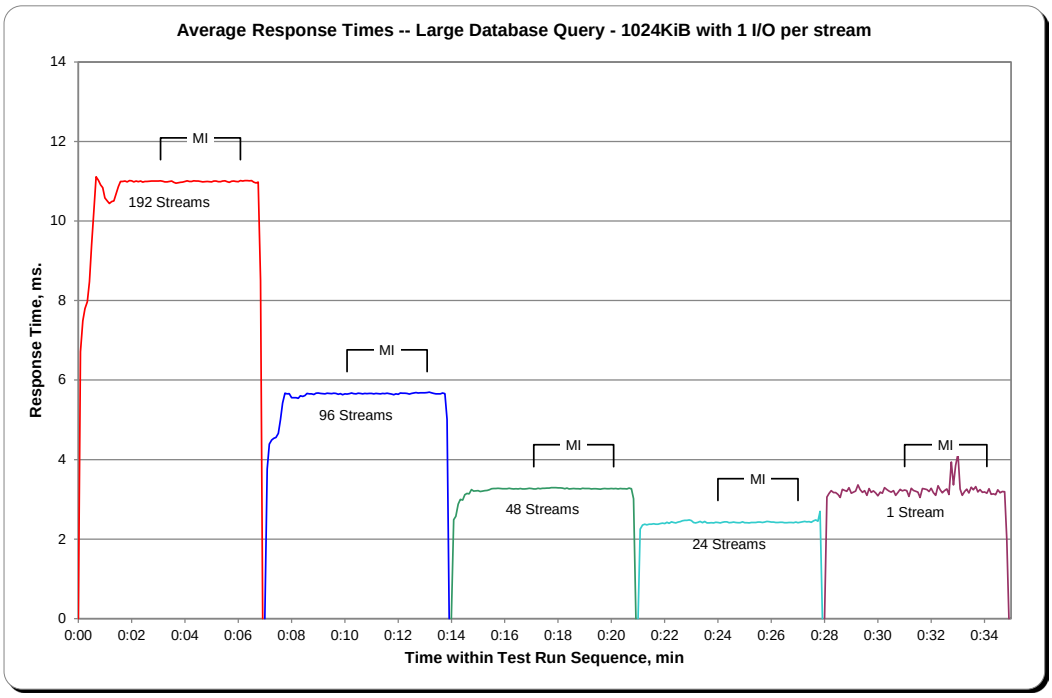
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



Large Database Query Test – 64 KIB TRANSFER SIZE Test Phase

Clause 10.6.8.2.1

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

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

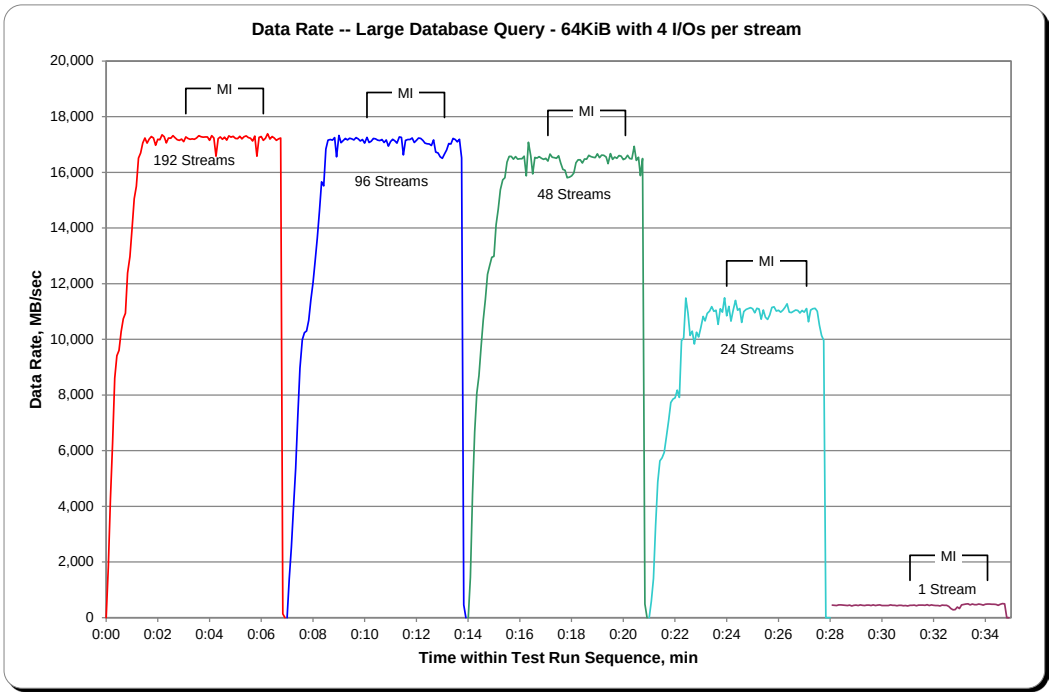
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR11	192 Streams			TR12	96 Streams			TR13	48 Streams			TR14	24 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	0:28:05	449.01	449.01	0.58
0:00:05	1,809.89	69.61	1.96	0:07:05	1,394.02	154.89	1.14	0:14:05	1,450.79	241.80	0.59	0:21:05	590.47	295.24	0.50	0:28:10	443.24	443.24	0.59
0:00:10	4,274.94	109.61	1.99	0:07:10	2,533.70	168.91	1.19	0:14:10	4,442.65	317.33	0.63	0:21:10	1,404.86	351.22	0.54	0:28:15	438.42	438.42	0.57
0:00:15	6,273.13	102.84	2.05	0:07:15	3,972.17	189.15	1.21	0:14:15	6,672.47	351.18	0.64	0:21:15	3,313.67	368.19	0.54	0:28:20	457.48	457.48	0.57
0:00:20	8,602.09	111.72	2.12	0:07:20	5,353.98	178.47	1.25	0:14:20	8,069.41	384.26	0.64	0:21:20	4,872.02	406.00	0.56	0:28:25	457.55	457.55	0.57
0:00:25	9,412.16	112.05	2.26	0:07:25	7,242.11	185.70	1.23	0:14:25	8,697.74	347.91	0.66	0:21:25	5,637.36	469.78	0.56	0:28:30	453.83	453.83	0.58
0:00:30	9,601.96	95.07	2.39	0:07:30	8,962.80	194.84	1.25	0:14:30	9,729.42	360.35	0.72	0:21:30	5,743.38	478.61	0.55	0:28:35	445.17	445.17	0.59
0:00:35	10,281.30	92.62	2.73	0:07:35	9,990.10	188.49	1.28	0:14:35	10,694.37	324.07	0.76	0:21:35	5,935.06	456.54	0.54	0:28:40	434.97	434.97	0.60
0:00:40	10,740.89	91.02	2.83	0:07:40	10,242.68	176.60	1.43	0:14:40	11,439.86	346.66	0.75	0:21:40	6,476.22	431.75	0.55	0:28:45	455.45	455.45	0.58
0:00:45	10,936.95	84.13	2.93	0:07:45	10,299.07	174.56	1.48	0:14:45	12,333.33	342.59	0.75	0:21:45	7,095.88	473.06	0.56	0:28:50	424.31	424.31	0.59
0:00:50	12,379.23	88.42	2.88	0:07:50	10,682.93	169.57	1.51	0:14:50	12,652.97	341.97	0.75	0:21:50	7,732.30	454.84	0.56	0:28:55	443.21	443.21	0.59
0:00:55	12,969.42	88.83	2.87	0:07:55	11,421.99	167.97	1.51	0:14:55	12,951.05	350.03	0.75	0:21:55	7,855.83	462.11	0.56	0:29:00	451.25	451.25	0.58
0:01:00	13,986.83	89.66	2.82	0:08:00	12,030.73	167.09	1.50	0:15:00	12,977.48	341.51	0.75	0:22:00	7,898.36	464.61	0.56	0:29:05	437.03	437.03	0.59
0:01:05	15,053.00	91.23	2.81	0:08:05	12,817.47	173.21	1.50	0:15:05	14,115.62	336.09	0.75	0:22:05	8,174.55	454.14	0.57	0:29:10	462.82	462.82	0.57
0:01:10	15,495.07	91.15	2.74	0:08:10	13,637.11	174.83	1.48	0:15:10	14,678.92	341.37	0.75	0:22:10	7,910.08	395.50	0.59	0:29:15	444.82	444.82	0.59
0:01:15	16,507.42	93.79	2.76	0:08:15	14,596.72	171.73	1.46	0:15:15	15,377.53	341.72	0.75	0:22:15	9,959.31	452.70	0.58	0:29:20	439.87	439.87	0.60
0:01:20	16,697.72	92.25	2.81	0:08:20	15,659.35	177.95	1.45	0:15:20	15,731.83	349.60	0.75	0:22:20	10,047.66	418.65	0.59	0:29:25	452.92	452.92	0.58
0:01:25	17,058.22	91.22	2.84	0:08:25	15,514.54	174.32	1.47	0:15:25	15,807.05	336.32	0.75	0:22:25	11,485.62	478.57	0.57	0:29:30	455.28	455.28	0.58
0:01:30	17,235.30	89.77	2.87	0:08:30	16,831.79	175.33	1.46	0:15:30	16,361.48	340.86	0.75	0:22:30	10,954.05	456.42	0.57	0:29:35	436.77	436.77	0.58
0:01:35	17,050.36	88.80	2.92	0:08:35	17,158.06	178.73	1.47	0:15:35	16,570.14	345.21	0.76	0:22:35	10,138.87	422.45	0.60	0:29:40	458.23	458.23	0.57
0:01:40	17,192.40	89.54	2.92	0:08:40	17,181.28	178.97	1.46	0:15:40	16,570.28	345.21	0.76	0:22:40	10,291.98	428.83	0.63	0:29:45	436.89	436.89	0.60
0:01:45	17,287.08	90.04	2.92	0:08:45	17,159.55	178.75	1.46	0:15:45	16,474.95	343.23	0.76	0:22:45	9,830.27	409.59	0.63	0:29:50	454.56	454.56	0.58
0:01:50	17,231.35	89.75	2.92	0:08:50	17,249.76	179.68	1.46	0:15:50	16,568.40	345.18	0.76	0:22:50	10,252.88	427.20	0.61	0:29:55	463.45	463.45	0.57
0:01:55	16,969.92	88.39	2.92	0:08:55	16,560.88	172.51	1.46	0:15:55	16,474.38	343.22	0.76	0:22:55	10,086.78	420.28	0.62	0:30:00	437.47	437.47	0.60
0:02:00	17,186.73	89.51	2.93	0:09:00	17,323.40	180.45	1.46	0:16:00	16,486.95	343.48	0.76	0:23:00	10,417.33	434.06	0.60	0:30:05	433.33	433.33	0.58
0:02:05	17,171.27	89.43	2.92	0:09:05	17,062.34	177.73	1.47	0:16:05	16,488.56	343.51	0.76	0:23:05	10,824.79	451.03	0.58	0:30:10	436.90	436.90	0.60
0:02:10	17,350.06	90.36	2.91	0:09:10	17,143.27	178.58	1.47	0:16:10	16,581.02	345.44	0.76	0:23:10	10,662.07	444.25	0.57	0:30:15	436.96	436.96	0.60
0:02:15	17,280.12	90.00	2.92	0:09:15	17,219.03	179.36	1.46	0:16:15	15,876.58	330.76	0.76	0:23:15	10,933.59	455.57	0.57	0:30:20	462.21	462.21	0.57
0:02:20	17,059.13	88.85	2.93	0:09:20	17,164.55	178.80	1.46	0:16:20	17,076.99	355.77	0.76	0:23:20	11,017.49	459.06	0.57	0:30:25	445.01	445.01	0.59
0:02:25	17,229.67	89.74	2.92	0:09:25	17,228.63	179.46	1.47	0:16:25	16,585.03	345.52	0.76	0:23:25	11,173.53	465.56	0.57	0:30:30	441.26	441.26	0.59
0:02:30	17,228.42	89.73	2.92	0:09:30	17,199.88	179.17	1.46	0:16:30	15,944.42	332.18	0.76	0:23:30	11,005.69	458.57	0.57	0:30:35	432.68	432.68	0.58
0:02:35	17,315.91	90.19	2.92	0:09:35	17,164.56	178.80	1.46	0:16:35	16,532.42	344.43	0.76	0:23:35	11,044.38	460.18	0.57	0:30:40	444.43	444.43	0.59
0:02:40	17,238.99	89.79	2.92	0:09:40	17,250.39	179.69	1.47	0:16:40	16,510.69	343.97	0.76	0:23:40	10,535.92	439.00	0.57	0:30:45	447.54	447.54	0.59
0:02:45	17,170.75	89.43	2.93	0:09:45	17,202.90	179.20	1.46	0:16:45	16,566.82	345.14	0.76	0:23:45	11,098.65	462.44	0.57	0:30:50	431.72	431.72	0.59
0:02:50	17,152.08	89.33	2.92	0:09:50	17,122.51	178.36	1.47	0:16:50	16,506.96	343.89	0.76	0:23:50	10,976.76	457.36	0.57	0:30:55	440.07	440.07	0.60
0:02:55	17,191.42	89.54	2.92	0:09:55	17,176.81	178.93	1.46	0:16:55	16,464.00	343.00	0.76	0:23:55	11,488.76	478.70	0.56	0:31:00	424.72	424.72	0.62
0:03:00	17,105.23	89.09	2.92	0:10:00	17,049.52	177.60	1.46	0:17:00	16,506.57	343.89	0.76								

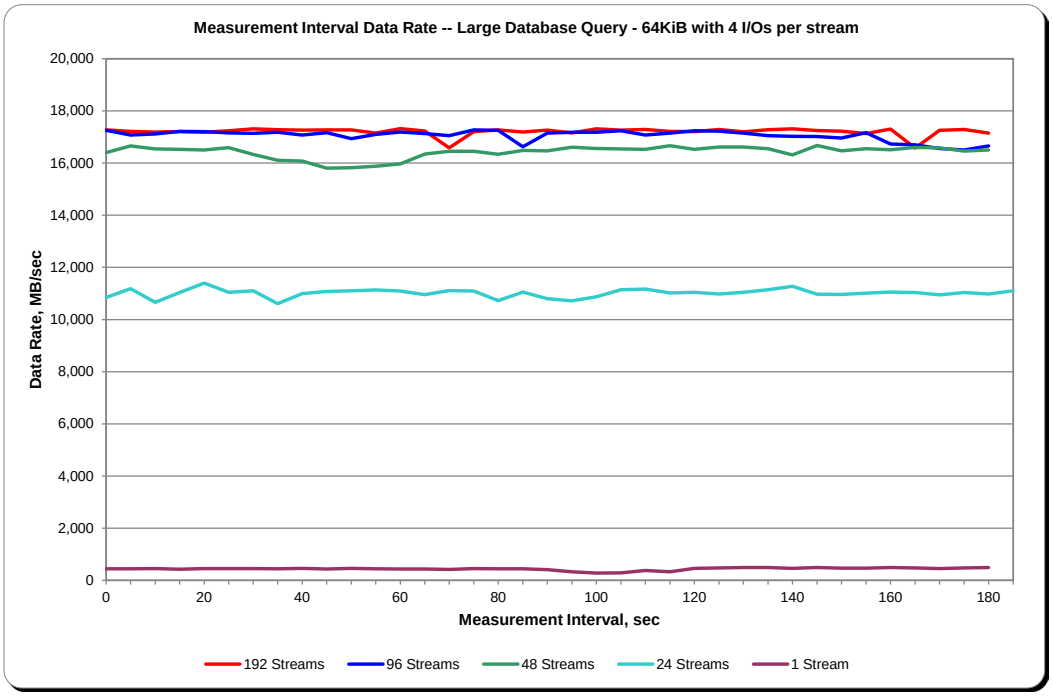
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	192 Streams			TR12	96 Streams			TR13	48 Streams			TR14	24 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	17,274.13	89.97	2.92	0:10:05	17,253.42	179.72	1.46	0:17:05	16,404.75	341.77	0.76	0:24:00	10,845.73	451.91	0.57	0:31:05	441.19	441.19	0.60
0:03:10	17,216.78	89.67	2.93	0:10:10	17,073.27	177.85	1.46	0:17:10	16,656.20	347.00	0.76	0:24:05	11,180.45	465.85	0.57	0:31:10	442.25	442.25	0.59
0:03:15	17,187.22	89.52	2.92	0:10:15	17,114.29	178.27	1.47	0:17:15	16,540.91	344.60	0.76	0:24:10	10,656.89	444.04	0.56	0:31:15	448.94	448.94	0.59
0:03:20	17,201.70	89.59	2.92	0:10:20	17,216.34	179.34	1.47	0:17:20	16,526.91	344.31	0.76	0:24:15	11,037.00	459.87	0.57	0:31:20	426.90	426.90	0.59
0:03:25	17,184.89	89.50	2.92	0:10:25	17,204.36	179.21	1.46	0:17:25	16,500.81	343.77	0.76	0:24:20	11,400.55	475.02	0.56	0:31:25	456.18	456.18	0.58
0:03:30	17,235.45	89.77	2.92	0:10:30	17,155.69	178.71	1.47	0:17:30	16,593.10	345.69	0.76	0:24:25	11,045.99	460.25	0.57	0:31:30	455.72	455.72	0.58
0:03:35	17,314.08	90.18	2.92	0:10:35	17,141.58	178.56	1.47	0:17:35	16,325.28	340.11	0.77	0:24:30	11,105.66	462.74	0.57	0:31:35	450.25	450.25	0.58
0:03:40	17,279.47	90.00	2.93	0:10:40	17,178.76	178.95	1.47	0:17:40	16,106.54	335.55	0.77	0:24:35	10,610.25	442.09	0.57	0:31:40	445.54	445.54	0.59
0:03:45	17,260.66	89.90	2.92	0:10:45	17,074.26	177.86	1.47	0:17:45	16,075.59	334.91	0.78	0:24:40	10,999.82	458.33	0.57	0:31:45	464.16	464.16	0.57
0:03:50	17,270.97	89.95	2.91	0:10:50	17,167.37	178.83	1.47	0:17:50	15,805.51	329.28	0.79	0:24:45	11,079.89	461.66	0.57	0:31:50	433.42	433.42	0.58
0:03:55	17,272.87	89.96	2.92	0:10:55	16,938.27	176.44	1.47	0:17:55	15,824.48	329.68	0.80	0:24:50	11,104.34	462.68	0.57	0:31:55	461.28	461.28	0.57
0:04:00	17,151.19	89.33	2.92	0:11:00	17,101.54	178.14	1.47	0:18:00	15,875.81	330.75	0.79	0:24:55	11,139.06	464.13	0.56	0:32:00	443.21	443.21	0.59
0:04:05	17,316.29	90.19	2.91	0:11:05	17,188.51	179.05	1.47	0:18:05	15,972.06	332.75	0.78	0:25:00	11,096.02	462.33	0.56	0:32:05	438.94	438.94	0.60
0:04:10	17,229.17	89.74	2.92	0:11:10	17,132.03	178.46	1.46	0:18:10	16,343.62	340.49	0.77	0:25:05	10,953.45	456.39	0.57	0:32:10	437.26	437.26	0.60
0:04:15	16,582.76	86.37	2.92	0:11:15	17,052.28	177.63	1.46	0:18:15	16,450.46	342.72	0.76	0:25:10	11,113.22	463.05	0.57	0:32:15	419.22	419.22	0.60
0:04:20	17,208.38	89.63	2.92	0:11:20	17,272.46	179.92	1.46	0:18:20	16,447.92	342.67	0.75	0:25:15	11,090.77	462.12	0.57	0:32:20	453.67	453.67	0.58
0:04:25	17,269.23	89.94	2.92	0:11:25	17,258.63	179.78	1.46	0:18:25	16,337.02	340.35	0.76	0:25:20	10,722.38	446.77	0.56	0:32:25	444.29	444.29	0.59
0:04:30	17,187.23	89.52	2.92	0:11:30	16,623.23	173.16	1.46	0:18:30	16,480.66	343.35	0.76	0:25:25	11,053.29	460.55	0.57	0:32:30	446.33	446.33	0.59
0:04:35	17,260.45	89.90	2.92	0:11:35	17,145.29	178.60	1.46	0:18:35	16,469.05	343.11	0.76	0:25:30	10,795.93	449.83	0.58	0:32:35	408.69	408.69	0.64
0:04:40	17,155.63	89.35	2.92	0:11:40	17,179.66	178.95	1.47	0:18:40	16,610.70	346.06	0.75	0:25:35	10,718.65	446.61	0.59	0:32:40	330.31	330.31	0.79
0:04:45	17,311.26	90.16	2.92	0:11:45	17,182.01	178.98	1.47	0:18:45	16,562.17	345.05	0.76	0:25:40	10,875.78	453.16	0.57	0:32:45	283.01	283.01	0.91
0:04:50	17,260.56	89.90	2.91	0:11:50	17,236.02	179.54	1.46	0:18:50	16,538.68	344.56	0.76	0:25:45	11,141.92	464.25	0.56	0:32:50	290.89	290.89	0.90
0:04:55	17,290.69	90.06	2.92	0:11:55	17,072.33	177.84	1.47	0:18:55	16,524.43	344.26	0.76	0:25:50	11,171.91	465.50	0.56	0:32:55	381.53	381.53	0.69
0:05:00	17,217.35	89.67	2.92	0:12:00	17,148.33	178.63	1.46	0:19:00	16,662.59	347.14	0.76	0:25:55	11,016.98	459.04	0.57	0:33:00	333.22	333.22	0.79
0:05:05	17,208.62	89.63	2.92	0:12:05	17,235.02	179.53	1.46	0:19:05	16,525.98	344.29	0.76	0:26:00	11,044.67	460.19	0.57	0:33:05	463.83	463.83	0.57
0:05:10	17,290.83	90.06	2.92	0:12:10	17,220.29	179.38	1.46	0:19:10	16,618.45	346.22	0.76	0:26:05	10,979.60	457.48	0.57	0:33:10	479.12	479.12	0.53
0:05:15	17,201.07	89.59	2.92	0:12:15	17,144.53	178.59	1.46	0:19:15	16,614.69	346.14	0.75	0:26:10	11,048.63	460.36	0.57	0:33:15	489.45	489.45	0.54
0:05:20	17,275.27	89.98	2.92	0:12:20	17,052.09	177.63	1.47	0:19:20	16,548.47	344.76	0.76	0:26:15	11,144.71	464.36	0.56	0:33:20	496.71	496.71	0.53
0:05:25	17,308.47	90.15	2.92	0:12:25	17,025.26	177.35	1.47	0:19:25	16,312.02	339.83	0.76	0:26:20	11,277.98	469.92	0.56	0:33:25	463.24	463.24	0.57
0:05:30	17,245.17	89.82	2.93	0:12:30	17,017.22	177.26	1.47	0:19:30	16,671.88	347.33	0.75	0:26:25	10,974.98	457.29	0.57	0:33:30	489.48	489.48	0.54
0:05:35	17,222.57	89.70	2.92	0:12:35	16,962.82	176.70	1.48	0:19:35	16,468.21	343.09	0.76	0:26:30	10,961.12	456.71	0.57	0:33:35	469.46	469.46	0.56
0:05:40	17,127.95	89.21	2.92	0:12:40	17,163.51	178.79	1.47	0:19:40	16,550.31	344.80	0.76	0:26:35	11,008.96	458.71	0.57	0:33:40	470.76	470.76	0.53
0:05:45	17,301.28	90.11	2.92	0:12:45	16,729.69	174.27	1.50	0:19:45	16,506.49	343.89	0.76	0:26:40	11,050.88	460.45	0.57	0:33:45	493.51	493.51	0.53
0:05:50	16,578.15	86.34	2.92	0:12:50	16,697.36	173.93	1.51	0:19:50	16,601.56	345.87	0.76	0:26:45	11,039.32	459.97	0.57	0:33:50	477.53	477.53	0.55
0:05:55	17,255.21	89.87	2.92	0:12:55	16,559.33	172.49	1.52	0:19:55	16,583.97	345.50	0.76	0:26:50	10,949.29	456.22	0.57	0:33:55	450.27	450.27	0.58
0:06:00	17,283.76	90.02	2.93	0:13:00	16,502.16	171.90	1.51	0:20:00	16,459.49	342.91	0.76	0:26:55	11,039.16	459.96	0.57	0:34:00	480.48	480.48	0.55
0:06:05	17,147.24	89.31	2.93	0:13:05	16,653.36	173.47	1.51	0:20:05	16,498.34	343.72	0.76	0:27:00	10,977.44	457.39	0.57	0:34:05	493.47	493.47	0.53
0:06:10	17,223.30	89.70	2.92	0:13:10	16,799.59	175.00	1.50	0:20:10	16,607.60	345.99	0.76	0:27:05	11,103.63	462.65	0.57	0:34:10	491.67	491.67	0.52
0:06:15	17,383.84	90.54	2.91	0:13:15	17,034.02	177.44	1.47	0:20:15	16,492.31	343.59	0.76	0:27:10	10,630.09	442.92	0.57	0:34:15	481.09	481.09	0.55
0:06:20	17,196.67	89.57	2.92	0:13:20	17,020.29	177.29	1.48	0:20:20	16,480.85	343.35	0.76	0:27:15	11,052.87	460.54	0.57	0:34:20	486.11	486.11	0.54
0:06:25	17,288.70	90.05	2.92	0:13:25	17,214.58	179.32	1.46	0:20:25	16,936.14	352.84	0.76	0:27:20	11,096.26	462.34	0.56	0:34:25	477.68	477.68	0.55
0:06:30	17,230.77	89.74	2.92	0:13:30	17,180.07	178.96	1.46	0:20:30	16,423.20	342.15	0.76	0:27:25	11,113.61	463.07	0.56	0:34:30	447.84	447.84	0.56
0:06:35	17,148.46	89.31	2.92	0:13:35	17,094.81	178.07	1.47	0:20:35	16,540.08	344.59	0.76	0:27:30	11,010.36	458.77	0.58	0:34:35	483.48	483.48	0.54
0:06:40	17,199.98	89.58	2.93	0:13:40	17,184.07	179.00	1.47	0:20:40	15,882.58	330.89	0.76	0:27:35	10,510.74	437.95	0.60	0:34:40	504.56	504.56	0.52
0:06:45	17,235.02	92.66	2.93	0:13:45	16,522.64	172.11	1.46	0:20:45	16,496.82	343.68	0.76	0:27:40	10,137.01	422.38	0.62	0:34:45	496.71	0.00	0.52
0:06:50	140.55	0.00	2.61	0:13:50	462.34	0.00	1.35	0:20:50	493.73	0.00	0.71	0:27:45	9,960.21	0.00	0.62	0:34:50	0.06	0.00	0.34
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	0:27:50	1.67	0.00	3.57	0:34:55	0.00	0.00	0.00
												0:27:55	0.00	0.00	0.00				
												0:28:00	0.00	0.00	0.00				

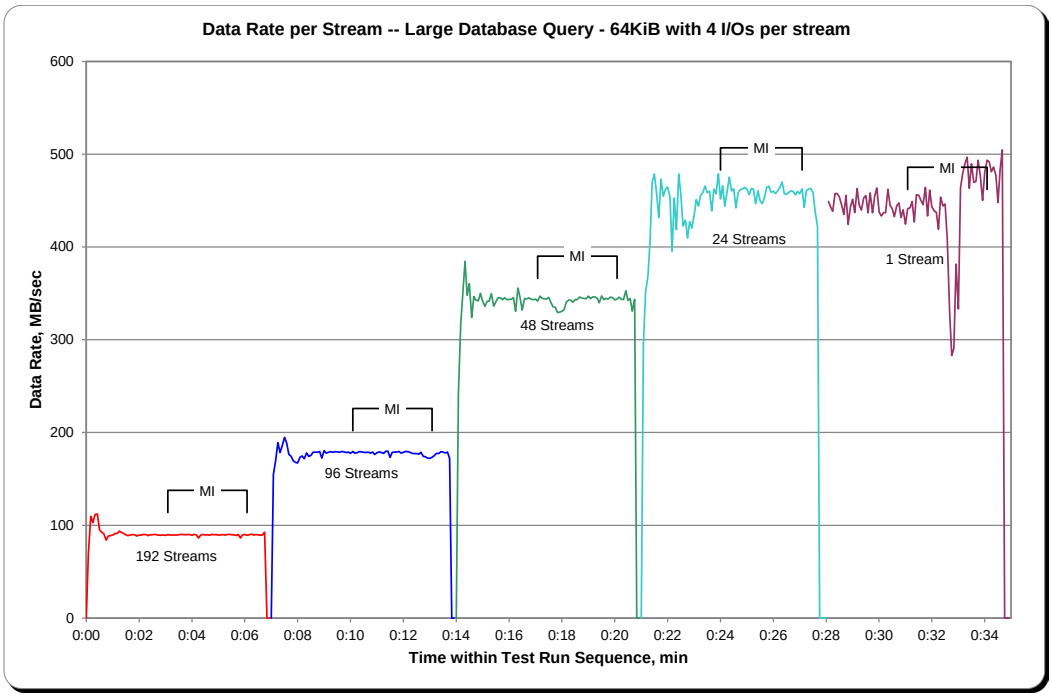
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



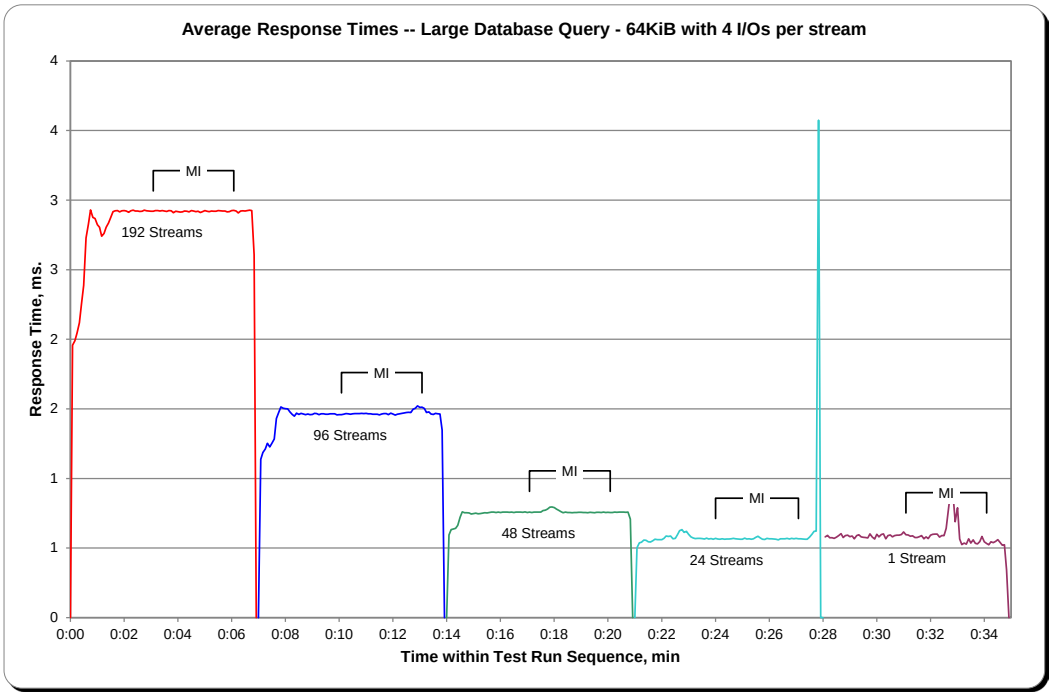
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



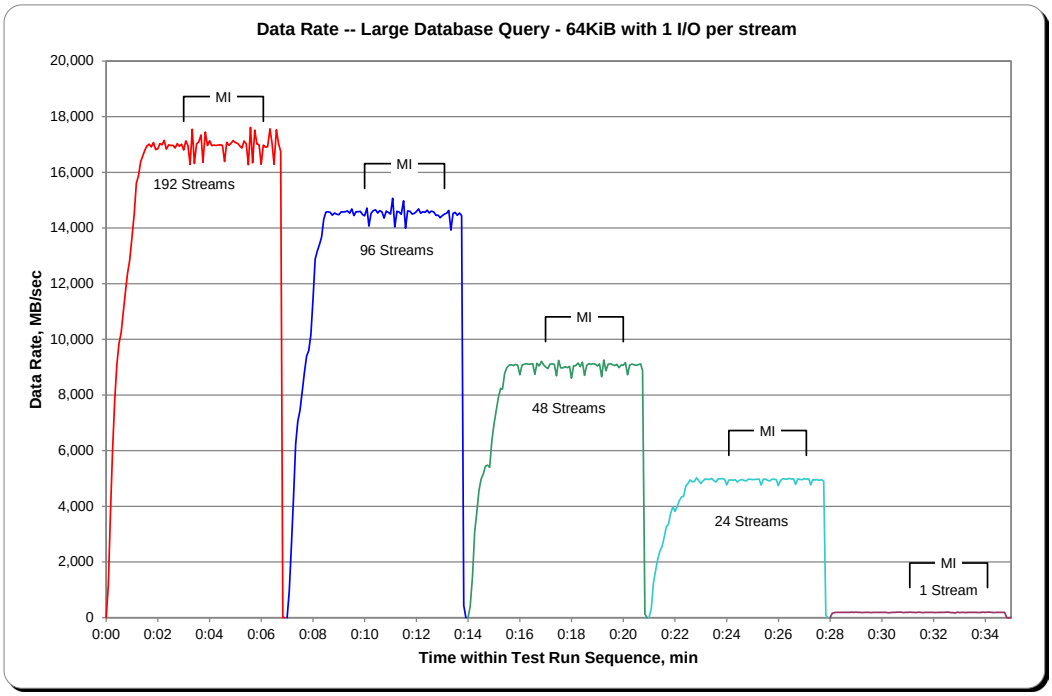
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR16	192 Streams			TR17	96 Streams			TR18	48 Streams			TR19	24 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	1,157.77	55.13	0.51	0:07:05	944.60	85.87	0.37	0:14:05	406.47	101.62	0.31	0:21:05	339.09	84.77	0.31	0:28:05	164.08	164.08	0.40
0:00:10	3,743.88	83.20	0.56	0:07:10	2,572.07	122.48	0.39	0:14:10	1,500.13	115.39	0.33	0:21:10	1,253.67	179.10	0.31	0:28:10	186.90	186.90	0.34
0:00:15	6,039.96	99.02	0.58	0:07:15	4,316.03	139.23	0.39	0:14:15	3,088.32	181.67	0.33	0:21:15	1,694.10	169.41	0.31	0:28:15	189.11	189.11	0.35
0:00:20	7,821.91	99.01	0.58	0:07:20	6,230.05	148.33	0.40	0:14:20	3,711.71	176.75	0.34	0:21:20	2,103.39	191.22	0.31	0:28:20	192.58	192.58	0.34
0:00:25	9,105.46	94.85	0.61	0:07:25	7,061.72	156.93	0.40	0:14:25	4,565.31	182.61	0.34	0:21:25	2,398.37	199.86	0.31	0:28:25	194.10	194.10	0.34
0:00:30	9,855.44	91.25	0.67	0:07:30	7,436.06	158.21	0.40	0:14:30	4,980.37	191.55	0.34	0:21:30	2,552.85	196.37	0.31	0:28:30	189.94	189.94	0.35
0:00:35	10,242.99	86.08	0.72	0:07:35	8,080.33	155.39	0.41	0:14:35	5,157.34	191.01	0.34	0:21:35	2,887.99	180.50	0.31	0:28:35	190.36	190.36	0.35
0:00:40	10,983.36	86.48	0.74	0:07:40	8,822.42	149.53	0.42	0:14:40	5,441.81	194.35	0.34	0:21:40	3,268.42	204.28	0.31	0:28:40	187.72	187.72	0.34
0:00:45	11,705.53	86.71	0.73	0:07:45	9,397.23	151.57	0.42	0:14:45	5,477.99	188.90	0.34	0:21:45	3,352.86	197.23	0.31	0:28:45	194.34	194.34	0.34
0:00:50	12,380.64	88.43	0.73	0:07:50	9,595.73	145.39	0.43	0:14:50	5,405.12	174.36	0.34	0:21:50	3,746.16	197.17	0.31	0:28:50	196.65	196.65	0.33
0:00:55	12,846.82	88.60	0.73	0:07:55	10,160.26	149.42	0.43	0:14:55	6,337.48	186.40	0.34	0:21:55	3,984.89	209.73	0.31	0:28:55	193.76	193.76	0.34
0:01:00	13,700.57	87.82	0.72	0:08:00	11,437.29	142.97	0.42	0:15:00	6,936.74	187.48	0.34	0:22:00	3,818.35	200.97	0.31	0:29:00	195.61	195.61	0.34
0:01:05	14,498.64	87.87	0.72	0:08:05	12,879.98	155.18	0.43	0:15:05	7,415.79	185.39	0.34	0:22:05	3,977.77	209.36	0.31	0:29:05	194.97	194.97	0.34
0:01:10	15,611.53	91.30	0.71	0:08:10	13,171.88	148.00	0.43	0:15:10	7,884.64	187.73	0.34	0:22:10	4,213.26	200.63	0.31	0:29:10	188.05	188.05	0.35
0:01:15	15,880.12	89.72	0.71	0:08:15	13,405.52	150.62	0.43	0:15:15	8,234.35	187.14	0.34	0:22:15	4,335.67	206.46	0.31	0:29:15	185.30	185.30	0.34
0:01:20	16,379.16	89.50	0.72	0:08:20	13,674.31	150.27	0.43	0:15:20	8,214.57	182.55	0.34	0:22:20	4,367.69	207.99	0.31	0:29:20	192.72	192.72	0.34
0:01:25	16,585.10	89.17	0.72	0:08:25	14,308.44	150.62	0.43	0:15:25	8,781.08	190.89	0.34	0:22:25	4,727.63	205.55	0.31	0:29:25	189.92	189.92	0.35
0:01:30	16,799.38	87.50	0.73	0:08:30	14,566.52	151.73	0.43	0:15:30	8,983.47	187.16	0.34	0:22:30	4,816.84	200.70	0.31	0:29:30	189.01	189.01	0.35
0:01:35	16,954.30	88.30	0.74	0:08:35	14,584.62	151.92	0.43	0:15:35	9,072.41	189.01	0.35	0:22:35	4,949.72	206.24	0.32	0:29:35	187.06	187.06	0.35
0:01:40	17,007.46	88.58	0.74	0:08:40	14,563.26	151.70	0.43	0:15:40	9,085.05	189.27	0.35	0:22:40	4,879.59	203.32	0.32	0:29:40	195.14	195.14	0.34
0:01:45	16,909.21	88.07	0.74	0:08:45	14,458.71	150.61	0.43	0:15:45	9,053.78	188.62	0.35	0:22:45	4,894.02	203.92	0.32	0:29:45	188.14	188.14	0.33
0:01:50	17,070.52	88.91	0.74	0:08:50	14,534.78	151.40	0.43	0:15:50	9,098.34	189.55	0.35	0:22:50	5,027.60	209.48	0.32	0:29:50	192.36	192.36	0.34
0:01:55	16,819.54	87.60	0.74	0:08:55	14,495.66	151.00	0.43	0:15:55	9,072.47	189.01	0.35	0:22:55	4,933.89	205.58	0.32	0:29:55	191.98	191.98	0.34
0:02:00	16,839.34	87.70	0.74	0:09:00	14,473.73	150.77	0.43	0:16:00	8,726.44	181.80	0.35	0:23:00	4,817.53	200.73	0.32	0:30:00	192.50	192.50	0.34
0:02:05	17,036.54	88.73	0.74	0:09:05	14,578.26	151.86	0.43	0:16:05	9,074.64	189.05	0.35	0:23:05	4,913.64	204.73	0.32	0:30:05	188.68	188.68	0.35
0:02:10	16,988.46	88.48	0.74	0:09:10	14,579.91	151.87	0.43	0:16:10	9,100.02	189.58	0.35	0:23:10	4,982.04	207.58	0.32	0:30:10	191.83	191.83	0.34
0:02:15	17,145.48	89.30	0.74	0:09:15	14,583.19	151.91	0.43	0:16:15	9,125.85	190.12	0.34	0:23:15	4,976.85	207.37	0.32	0:30:15	179.35	179.35	0.35
0:02:20	16,830.76	87.66	0.74	0:09:20	14,613.54	152.22	0.43	0:16:20	9,102.52	189.64	0.35	0:23:20	4,963.73	206.82	0.32	0:30:20	182.24	182.24	0.36
0:02:25	16,988.88	88.48	0.74	0:09:25	14,527.79	151.33	0.43	0:16:25	9,114.41	189.88	0.34	0:23:25	5,002.70	208.45	0.32	0:30:25	191.47	191.47	0.34
0:02:30	16,961.02	88.34	0.74	0:09:30	14,683.06	152.95	0.43	0:16:30	9,125.77	190.12	0.35	0:23:30	4,930.43	205.43	0.32	0:30:30	190.01	190.01	0.34
0:02:35	16,974.01	88.41	0.74	0:09:35	14,446.65	150.49	0.43	0:16:35	8,739.51	182.07	0.34	0:23:35	4,874.04	203.09	0.32	0:30:35	197.67	197.67	0.33
0:02:40	16,868.74	87.86	0.74	0:09:40	14,581.71	151.89	0.43	0:16:40	9,138.82	190.39	0.34	0:23:40	4,986.55	207.77	0.32	0:30:40	195.97	195.97	0.34
0:02:45	17,035.85	88.73	0.74	0:09:45	14,583.12	151.91	0.43	0:16:45	9,038.87	188.31	0.35	0:23:45	4,992.21	208.01	0.31	0:30:45	197.12	197.12	0.33
0:02:50	16,933.83	88.20	0.74	0:09:50	14,597.14	152.05	0.43	0:16:50	9,212.41	191.93	0.35	0:23:50	4,993.43	208.06	0.32	0:30:50	182.50	182.50	0.34
0:02:55	17,007.70	88.58	0.74	0:09:55	14,485.41	150.89	0.43	0:16:55	9,077.17	189.11	0.34	0:23:55	4,970.02	207.08	0.32	0:30:55	191.89	191.89	0.34
												0:24:00	4,773.94	198.91	0.32	0:31:00	192.25	192.25	0.34

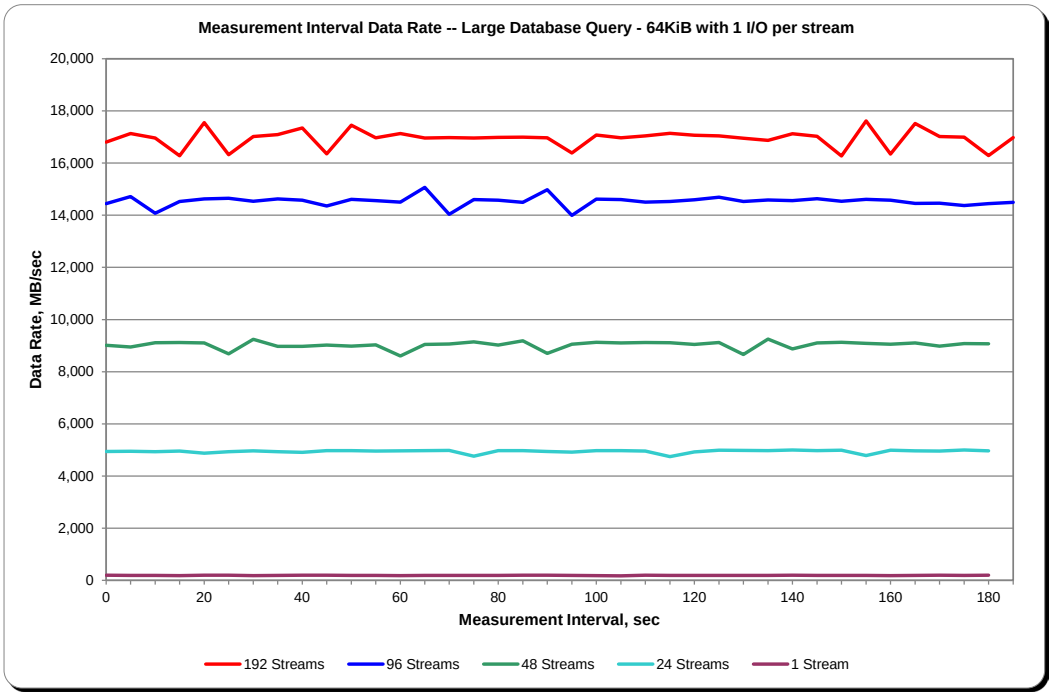
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period

TR16	192 Streams			TR17	96 Streams			TR18	48 Streams			TR19	24 Streams			TR20	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	16,800.23	87.50	0.74	0:10:00	14,441.50	150.43	0.43	0:17:00	9,009.95	187.71	0.34	0:24:05	4,940.00	205.83	0.32	0:31:05	195.40	195.40	0.33
0:03:05	17,131.32	89.23	0.74	0:10:05	14,714.52	153.28	0.43	0:17:05	8,948.32	186.42	0.35	0:24:10	4,950.70	206.28	0.32	0:31:10	190.19	190.19	0.35
0:03:10	16,959.97	88.33	0.74	0:10:10	14,072.63	146.59	0.43	0:17:10	9,114.41	189.88	0.35	0:24:15	4,934.16	205.59	0.32	0:31:15	191.98	191.98	0.34
0:03:15	16,283.09	84.81	0.74	0:10:15	14,523.84	151.29	0.43	0:17:15	9,117.99	189.96	0.35	0:24:20	4,961.92	206.75	0.32	0:31:20	185.30	185.30	0.34
0:03:20	17,549.40	91.40	0.74	0:10:20	14,622.51	152.32	0.43	0:17:20	9,105.22	189.69	0.35	0:24:25	4,873.79	203.07	0.32	0:31:25	199.94	199.94	0.33
0:03:25	16,322.64	85.01	0.74	0:10:25	14,651.95	152.62	0.43	0:17:25	8,685.72	180.95	0.35	0:24:30	4,933.02	205.54	0.32	0:31:30	194.74	194.74	0.34
0:03:30	17,019.07	88.64	0.74	0:10:30	14,536.92	151.43	0.43	0:17:30	9,244.55	192.59	0.35	0:24:35	4,966.50	206.94	0.32	0:31:35	185.16	185.16	0.34
0:03:35	17,089.59	89.01	0.74	0:10:35	14,625.35	152.35	0.43	0:17:35	8,976.08	187.00	0.35	0:24:40	4,937.51	205.73	0.32	0:31:40	191.52	191.52	0.34
0:03:40	17,343.26	90.33	0.74	0:10:40	14,575.19	151.82	0.43	0:17:40	8,972.37	186.92	0.35	0:24:45	4,908.86	204.54	0.32	0:31:45	194.74	194.74	0.34
0:03:45	16,357.52	85.20	0.74	0:10:45	14,355.24	149.53	0.43	0:17:45	9,017.71	187.87	0.35	0:24:50	4,973.54	207.23	0.32	0:31:50	194.67	194.67	0.34
0:03:50	17,447.80	90.87	0.74	0:10:50	14,609.83	152.19	0.43	0:17:50	8,979.91	187.08	0.35	0:24:55	4,973.46	207.23	0.32	0:31:55	192.79	192.79	0.34
0:03:55	16,967.64	88.37	0.74	0:10:55	14,563.10	151.70	0.43	0:17:55	9,029.62	188.12	0.35	0:25:00	4,958.50	206.60	0.32	0:32:00	190.20	190.20	0.35
0:04:00	17,135.11	89.25	0.74	0:11:00	14,503.06	151.07	0.43	0:18:00	8,600.94	179.19	0.35	0:25:05	4,963.67	206.82	0.32	0:32:05	185.22	185.22	0.34
0:04:05	16,957.55	88.32	0.74	0:11:05	15,069.71	156.98	0.43	0:18:05	9,046.50	188.47	0.35	0:25:10	4,974.96	207.29	0.32	0:32:10	189.04	189.04	0.35
0:04:10	16,976.56	88.42	0.74	0:11:10	14,038.80	146.24	0.43	0:18:10	9,059.97	188.75	0.35	0:25:15	4,981.18	207.55	0.32	0:32:15	193.58	193.58	0.34
0:04:15	16,961.39	88.34	0.74	0:11:15	14,598.78	152.07	0.43	0:18:15	9,147.08	190.56	0.35	0:25:20	4,765.58	198.57	0.32	0:32:20	189.60	189.60	0.35
0:04:20	16,981.56	88.45	0.74	0:11:20	14,579.14	151.87	0.43	0:18:20	9,022.72	187.97	0.35	0:25:25	4,970.73	207.11	0.32	0:32:25	192.89	192.89	0.34
0:04:25	16,988.99	88.48	0.74	0:11:25	14,492.43	150.96	0.43	0:18:25	9,183.73	191.33	0.35	0:25:30	4,977.80	207.41	0.32	0:32:30	196.98	196.98	0.33
0:04:30	16,968.80	88.38	0.74	0:11:30	14,975.59	156.00	0.43	0:18:30	8,704.98	181.35	0.35	0:25:35	4,938.02	205.75	0.32	0:32:35	195.71	195.71	0.33
0:04:35	16,389.37	85.36	0.74	0:11:35	13,990.65	145.74	0.43	0:18:35	9,054.85	188.64	0.35	0:25:40	4,916.12	204.84	0.32	0:32:40	187.07	187.07	0.34
0:04:40	17,076.02	88.94	0.74	0:11:40	14,612.76	152.22	0.43	0:18:40	9,128.70	190.18	0.34	0:25:45	4,975.28	207.30	0.32	0:32:45	185.50	185.50	0.35
0:04:45	16,970.36	88.39	0.74	0:11:45	14,598.34	152.07	0.43	0:18:45	9,100.29	189.59	0.35	0:25:50	4,977.11	207.38	0.32	0:32:50	170.31	170.31	0.39
0:04:50	17,039.40	88.75	0.74	0:11:50	14,501.59	151.06	0.43	0:18:50	9,116.93	189.94	0.34	0:25:55	4,954.72	206.45	0.32	0:32:55	195.89	195.89	0.33
0:04:55	17,137.86	89.26	0.74	0:11:55	14,526.59	151.32	0.43	0:18:55	9,114.84	189.89	0.34	0:26:00	4,744.60	197.69	0.32	0:33:00	187.15	187.15	0.35
0:05:00	17,067.31	88.89	0.74	0:12:00	14,590.09	151.98	0.43	0:19:00	9,044.03	188.42	0.35	0:26:05	4,928.41	205.35	0.32	0:33:05	192.92	192.92	0.34
0:05:05	17,039.09	88.75	0.74	0:12:05	14,687.51	152.99	0.43	0:19:05	9,119.19	189.98	0.34	0:26:10	4,994.63	208.11	0.32	0:33:10	191.49	191.49	0.34
0:05:10	16,952.21	88.29	0.74	0:12:10	14,529.50	151.35	0.43	0:19:10	8,659.76	180.41	0.35	0:26:15	4,984.72	207.70	0.31	0:33:15	187.36	187.36	0.34
0:05:15	16,870.28	87.87	0.74	0:12:15	14,581.75	151.89	0.43	0:19:15	9,254.77	192.81	0.35	0:26:20	4,971.28	207.14	0.31	0:33:20	189.98	189.98	0.35
0:05:20	17,122.16	89.18	0.74	0:12:20	14,561.38	151.68	0.43	0:19:20	8,873.83	184.87	0.35	0:26:25	5,002.64	208.44	0.31	0:33:25	194.50	194.50	0.34
0:05:25	17,022.59	88.66	0.74	0:12:25	14,635.10	152.45	0.43	0:19:25	9,101.41	189.61	0.35	0:26:30	4,978.32	207.43	0.32	0:33:30	192.79	192.79	0.34
0:05:30	16,274.32	84.76	0.74	0:12:30	14,538.28	151.44	0.43	0:19:30	9,125.43	190.11	0.35	0:26:35	4,992.74	208.03	0.32	0:33:35	189.73	189.73	0.35
0:05:35	17,617.15	91.76	0.74	0:12:35	14,605.38	152.14	0.43	0:19:35	9,089.07	189.36	0.35	0:26:40	4,790.17	199.59	0.32	0:33:40	190.20	190.20	0.35
0:05:40	16,345.33	85.13	0.74	0:12:40	14,579.18	151.87	0.43	0:19:40	9,054.02	188.63	0.35	0:26:45	4,991.95	208.00	0.31	0:33:45	182.77	182.77	0.34
0:05:45	17,513.09	91.21	0.74	0:12:45	14,452.83	150.55	0.43	0:19:45	9,106.56	189.72	0.35	0:26:50	4,964.07	206.84	0.32	0:33:50	189.91	189.91	0.34
0:05:50	17,014.19	88.62	0.74	0:12:50	14,461.86	150.64	0.43	0:19:50	8,982.82	187.14	0.34	0:26:55	4,960.54	206.69	0.32	0:33:55	196.10	196.10	0.34
0:05:55	16,995.66	88.52	0.74	0:12:55	14,373.23	149.72	0.43	0:19:55	9,080.30	189.17	0.35	0:27:00	4,996.67	208.19	0.32	0:34:00	191.10	191.10	0.34
0:06:00	16,288.92	84.84	0.74	0:13:00	14,443.81	150.46	0.43	0:20:00	9,067.19	188.90	0.35	0:27:05	4,969.98	207.08	0.32	0:34:05	195.88	195.88	0.33
0:06:05	16,979.05	88.43	0.74	0:13:05	14,497.10	151.01	0.43	0:20:05	9,161.53	190.87	0.34	0:27:10	4,985.47	207.73	0.32	0:34:10	195.51	195.51	0.33
0:06:10	16,905.96	88.05	0.74	0:13:10	14,533.12	151.39	0.43	0:20:10	8,723.96	181.75	0.35	0:27:15	4,775.68	198.99	0.32	0:34:15	192.85	192.85	0.34
0:06:15	16,920.57	88.13	0.74	0:13:15	14,632.76	152.42	0.43	0:20:15	9,073.35	189.03	0.35	0:27:20	4,958.81	206.62	0.32	0:34:20	184.18	184.18	0.34
0:06:20	17,565.84	91.49	0.74	0:13:20	13,927.27	145.08	0.43	0:20:20	9,114.68	189.89	0.35	0:27:25	4,949.74	206.24	0.32	0:34:25	190.00	190.00	0.34
0:06:25	17,026.45	88.68	0.74	0:13:25	14,526.80	151.32	0.43	0:20:25	9,089.12	189.36	0.35	0:27:30	4,956.62	206.53	0.32	0:34:30	192.69	192.69	0.34
0:06:30	16,286.63	84.83	0.74	0:13:30	14,560.51	151.67	0.43	0:20:30	9,062.52	188.80	0.35	0:27:35	4,931.78	205.49	0.32	0:34:35	189.67	189.67	0.35
0:06:35	17,531.88	91.31	0.74	0:13:35	14,456.59	150.59	0.43	0:20:35	9,088.44	189.34	0.35	0:27:40	4,957.84	206.58	0.32	0:34:40	193.10	193.10	0.34
0:06:40	17,032.44	88.71	0.74	0:13:40	14,541.95	151.48	0.43	0:20:40	9,121.84	190.04	0.35	0:27:45	4,902.22	204.26	0.32	0:34:45	188.01	0.00	0.34
0:06:45	16,751.01	0.00	0.74	0:13:45	14,449.68	150.52	0.43	0:20:45	8,875.76	184.91	0.35	0:27:50	88.37	0.00	0.31	0:34:50	0.01	0.00	5.14
0:06:50	8.68	0.00	1.56	0:13:50	439.96	0.00	0.42	0:20:50	127.62	0.00	0.34	0:27:55	0.00	0.00	0.00	0:34:55	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					0:35:00	0.00	0.00	0.00

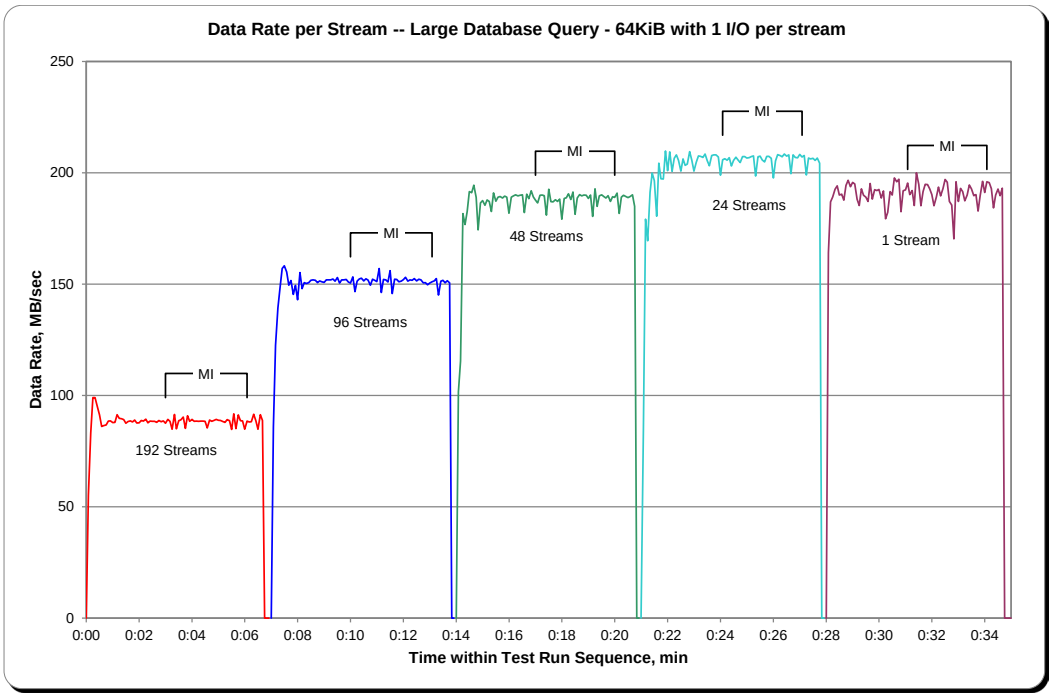
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



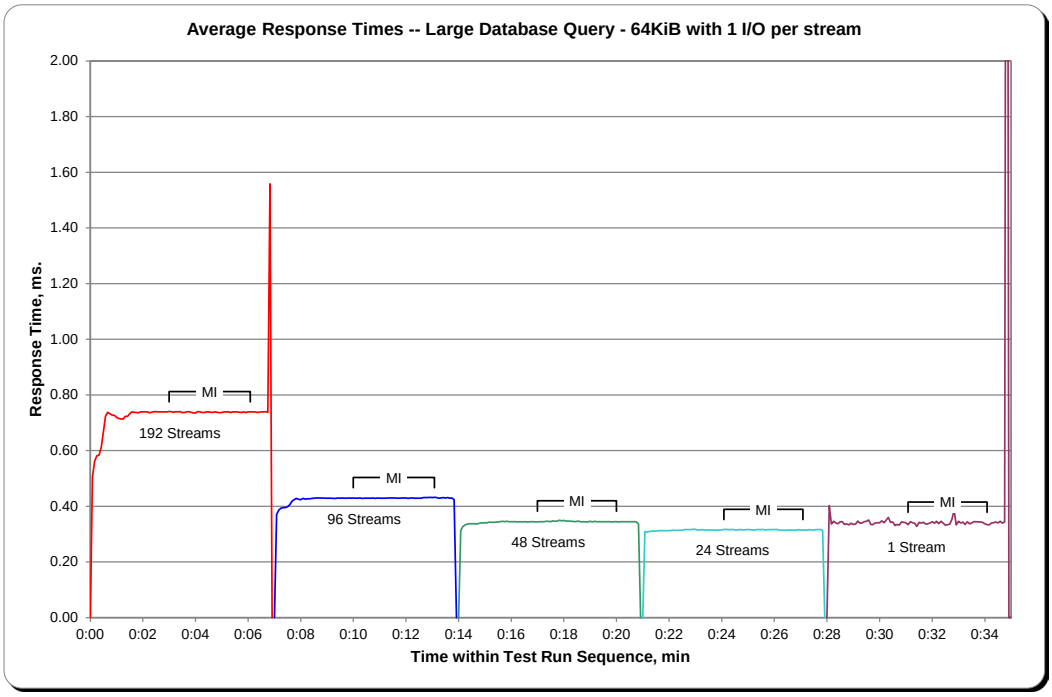
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



Video on Demand Delivery Test

Clause 6.4.4.1

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

Clause 6.4.2.2

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

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

Clause 10.6.8.3

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

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

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Video on Demand Delivery Test Run are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 113.

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.

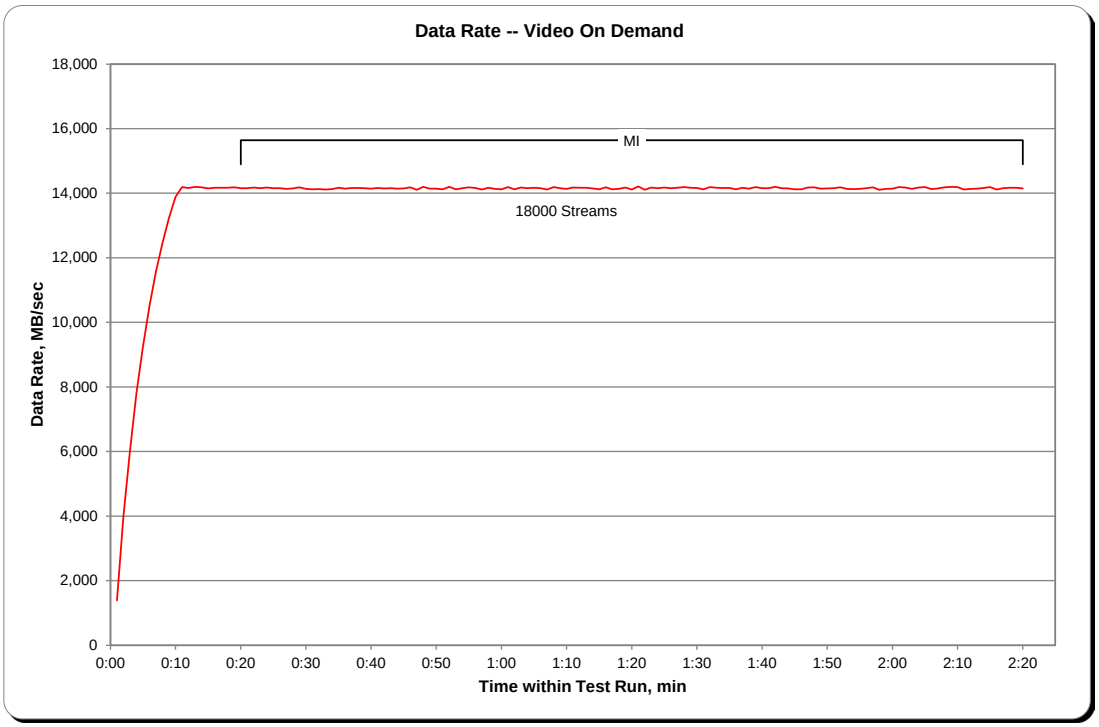
SPC-2-VOD	TR1
Number of Streams	18000
Ramp-up Time, sec	1200
Measurement Interval, sec	7201
Average Data Rate, MB/sec	14,155.62
Per Stream Data Rate, MB/sec	0.79
Average Response Time, ms	4.31
Average Max Response Time, ms	338.86

Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL

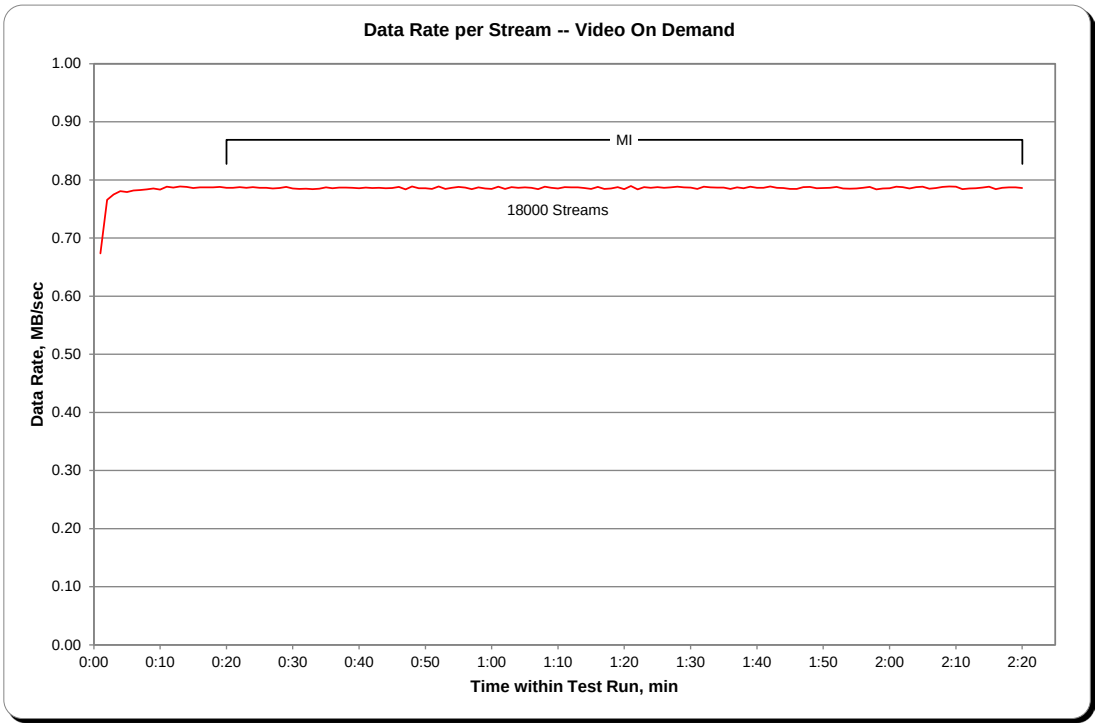
The SPC-2 Video on Demand Delivery Test Run data is contained in the table that appears below. That table is followed by graphs illustrating the average Data Rate and average Data Rate per Stream produced by the same Test Runs. The table and graphs present the data at sixty second intervals.

TR1	18000 Streams				TR1	18000 Streams				TR1	18000 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	1,391.61	0.67	1.24	59.17	0:48:00	14,195.59	0.79	3.86	386.39	1:35:00	14,160.89	0.79	4.88	364.60
0:02:00	3,998.64	0.77	0.99	45.31	0:49:00	14,140.32	0.79	3.96	403.28	1:36:00	14,121.87	0.78	4.05	369.04
0:03:00	6,004.78	0.77	1.24	47.65	0:50:00	14,141.53	0.79	3.95	381.83	1:37:00	14,168.94	0.79	4.00	332.68
0:04:00	7,802.36	0.78	1.61	64.70	0:51:00	14,121.67	0.78	3.85	384.85	1:38:00	14,138.17	0.79	3.89	278.99
0:05:00	9,233.93	0.78	2.01	74.11	0:52:00	14,194.84	0.79	3.75	312.07	1:39:00	14,191.71	0.79	3.88	332.33
0:06:00	10,530.58	0.78	2.41	93.12	0:53:00	14,120.10	0.78	3.69	321.87	1:40:00	14,153.51	0.79	3.89	313.01
0:07:00	11,589.73	0.78	3.09	281.38	0:54:00	14,158.61	0.79	3.67	310.45	1:41:00	14,152.95	0.79	3.89	340.32
0:08:00	12,472.32	0.78	3.79	369.69	0:55:00	14,181.86	0.79	3.67	280.41	1:42:00	14,199.76	0.79	3.86	359.60
0:09:00	13,241.80	0.79	4.98	376.44	0:56:00	14,165.05	0.79	3.67	287.94	1:43:00	14,155.58	0.79	3.97	327.72
0:10:00	13,887.34	0.78	8.22	436.39	0:57:00	14,114.36	0.78	3.68	289.72	1:44:00	14,145.76	0.79	3.92	331.47
0:11:00	14,190.86	0.79	10.46	425.34	0:58:00	14,171.19	0.79	3.67	301.53	1:45:00	14,122.42	0.78	4.22	342.84
0:12:00	14,160.94	0.79	10.82	425.07	0:59:00	14,133.75	0.79	4.59	321.06	1:46:00	14,118.98	0.78	4.10	309.15
0:13:00	14,195.04	0.79	6.83	422.84	1:00:00	14,121.65	0.78	3.86	348.05	1:47:00	14,176.80	0.79	3.71	266.09
0:14:00	14,186.24	0.79	6.07	409.49	1:01:00	14,189.58	0.79	3.96	387.54	1:48:00	14,184.04	0.79	3.64	215.37
0:15:00	14,148.09	0.79	6.23	389.22	1:02:00	14,117.62	0.78	4.26	465.76	1:49:00	14,141.80	0.79	3.62	205.03
0:16:00	14,167.12	0.79	5.70	395.51	1:03:00	14,177.04	0.79	8.40	826.37	1:50:00	14,147.48	0.79	3.65	211.32
0:17:00	14,168.48	0.79	5.98	409.17	1:04:00	14,158.70	0.79	7.49	794.20	1:51:00	14,158.50	0.79	3.71	184.38
0:18:00	14,167.87	0.79	5.86	424.93	1:05:00	14,168.93	0.79	3.93	340.75	1:52:00	14,184.23	0.79	3.86	266.04
0:19:00	14,186.21	0.79	6.50	390.68	1:06:00	14,155.83	0.79	3.84	351.14	1:53:00	14,132.76	0.79	3.86	272.37
0:20:00	14,158.73	0.79	6.13	412.11	1:07:00	14,116.71	0.78	3.84	348.05	1:54:00	14,130.08	0.79	3.91	280.28
0:21:00	14,156.02	0.79	4.28	374.82	1:08:00	14,189.46	0.79	3.76	317.05	1:55:00	14,136.69	0.79	3.90	287.67
0:22:00	14,175.67	0.79	4.02	324.03	1:09:00	14,154.03	0.79	3.76	302.88	1:56:00	14,152.91	0.79	3.91	293.24
0:23:00	14,153.03	0.79	4.11	359.44	1:10:00	14,137.16	0.79	3.73	329.45	1:57:00	14,181.66	0.79	3.91	326.21
0:24:00	14,176.44	0.79	3.84	327.82	1:11:00	14,174.21	0.79	3.71	360.66	1:58:00	14,107.24	0.78	3.89	290.65
0:25:00	14,158.27	0.79	3.76	261.81	1:12:00	14,171.24	0.79	3.69	315.83	1:59:00	14,137.21	0.79	3.83	280.12
0:26:00	14,153.33	0.79	3.79	305.25	1:13:00	14,165.83	0.79	3.70	311.62	2:00:00	14,142.97	0.79	3.74	197.10
0:27:00	14,137.76	0.79	3.98	369.92	1:14:00	14,151.59	0.79	3.71	402.57	2:01:00	14,186.73	0.79	3.71	198.43
0:28:00	14,150.74	0.79	4.05	398.87	1:15:00	14,119.71	0.78	3.68	293.72	2:02:00	14,176.36	0.79	3.70	212.60
0:29:00	14,183.10	0.79	4.13	417.80	1:16:00	14,179.57	0.79	3.68	332.36	2:03:00	14,134.81	0.79	3.75	231.05
0:30:00	14,132.87	0.79	4.25	433.19	1:17:00	14,119.72	0.78	3.68	348.56	2:04:00	14,176.27	0.79	4.03	272.78
0:31:00	14,120.30	0.78	4.30	432.25	1:18:00	14,137.59	0.79	3.67	335.45	2:05:00	14,189.82	0.79	4.93	316.16
0:32:00	14,127.45	0.78	4.24	400.24	1:19:00	14,174.24	0.79	3.68	307.74	2:06:00	14,126.85	0.78	5.85	356.39
0:33:00	14,116.74	0.78	4.06	395.02	1:20:00	14,115.10	0.78	3.68	275.37	2:07:00	14,150.59	0.79	5.38	334.19
0:34:00	14,127.37	0.78	3.90	367.95	1:21:00	14,207.56	0.79	3.85	360.30	2:08:00	14,180.81	0.79	5.78	339.02
0:35:00	14,172.25	0.79	3.72	280.50	1:22:00	14,109.31	0.78	3.75	269.26	2:09:00	14,194.20	0.79	4.88	314.86
0:36:00	14,142.67	0.79	3.74	309.89	1:23:00	14,177.58	0.79	3.68	222.53	2:10:00	14,191.98	0.79	4.65	289.81
0:37:00	14,160.79	0.79	3.88	402.73	1:24:00	14,157.69	0.79	3.65	211.95	2:11:00	14,114.61	0.78	4.75	313.74
0:38:00	14,163.29	0.79	3.84	398.14	1:25:00	14,176.39	0.79	3.68	205.51	2:12:00	14,136.02	0.79	7.11	385.37
0:39:00	14,155.49	0.79	3.99	419.04	1:26:00	14,153.02	0.79	4.07	273.99	2:13:00	14,143.63	0.79	6.19	364.23
0:40:00	14,143.87	0.79	3.97	407.00	1:27:00	14,165.83	0.79	4.06	286.04	2:14:00	14,159.80	0.79	6.19	303.89
0:41:00	14,160.57	0.79	4.06	400.63	1:28:00	14,186.58	0.79	4.41	353.39	2:15:00	14,187.01	0.79	5.60	352.99
0:42:00	14,148.34	0.79	3.88	399.42	1:29:00	14,165.86	0.79	5.58	377.57	2:16:00	14,111.68	0.78	6.17	351.22
0:43:00	14,155.90	0.79	3.88	358.99	1:30:00	14,160.72	0.79	6.02	363.30	2:17:00	14,155.82	0.79	6.10	358.75
0:44:00	14,140.13	0.79	3.86	399.23	1:31:00	14,122.03	0.78	6.01	389.20	2:18:00	14,166.15	0.79	6.00	317.19
0:45:00	14,151.83	0.79	3.82	390.08	1:32:00	14,188.28	0.79	6.07	395.20	2:19:00	14,169.67	0.79	6.37	320.96
0:46:00	14,184.25	0.79	3.90	357.00	1:33:00	14,166.05	0.79	6.38	416.45	2:20:00	14,147.92	0.79	6.47	334.35
0:47:00	14,108.43	0.78	4.00	429.20	1:34:00	14,161.73	0.79	5.46	411.36	0:00:00	0.00	0.00	0.00	0.00

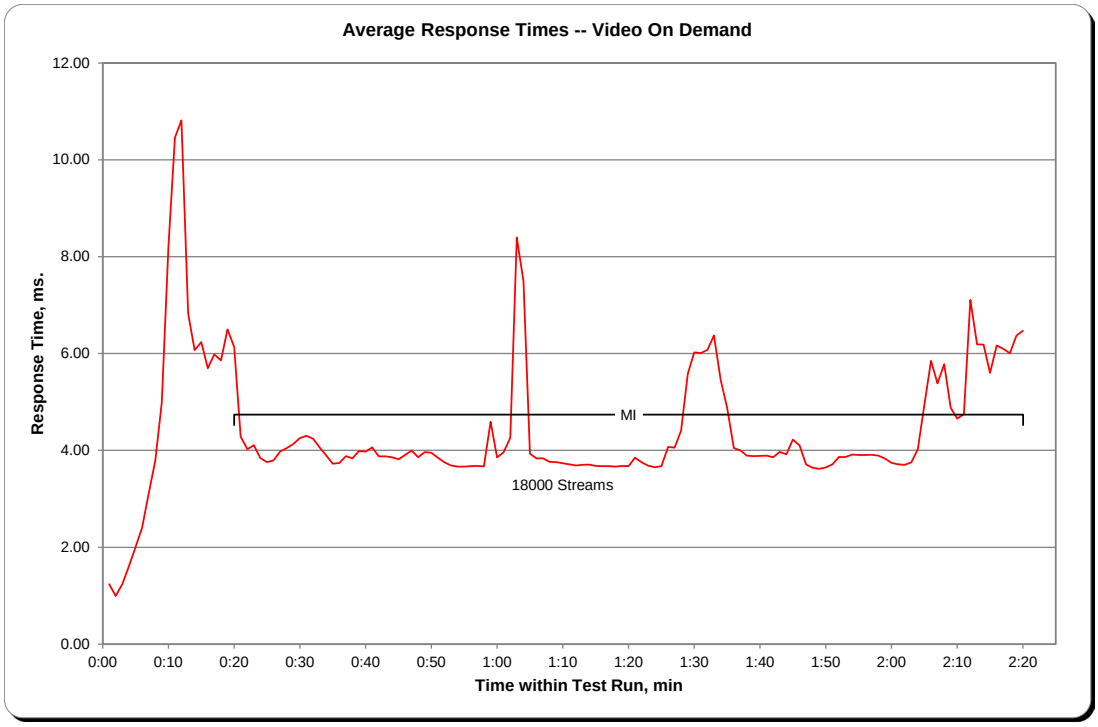
SPC-2 Video on Demand Delivery Average Data Rate Graph



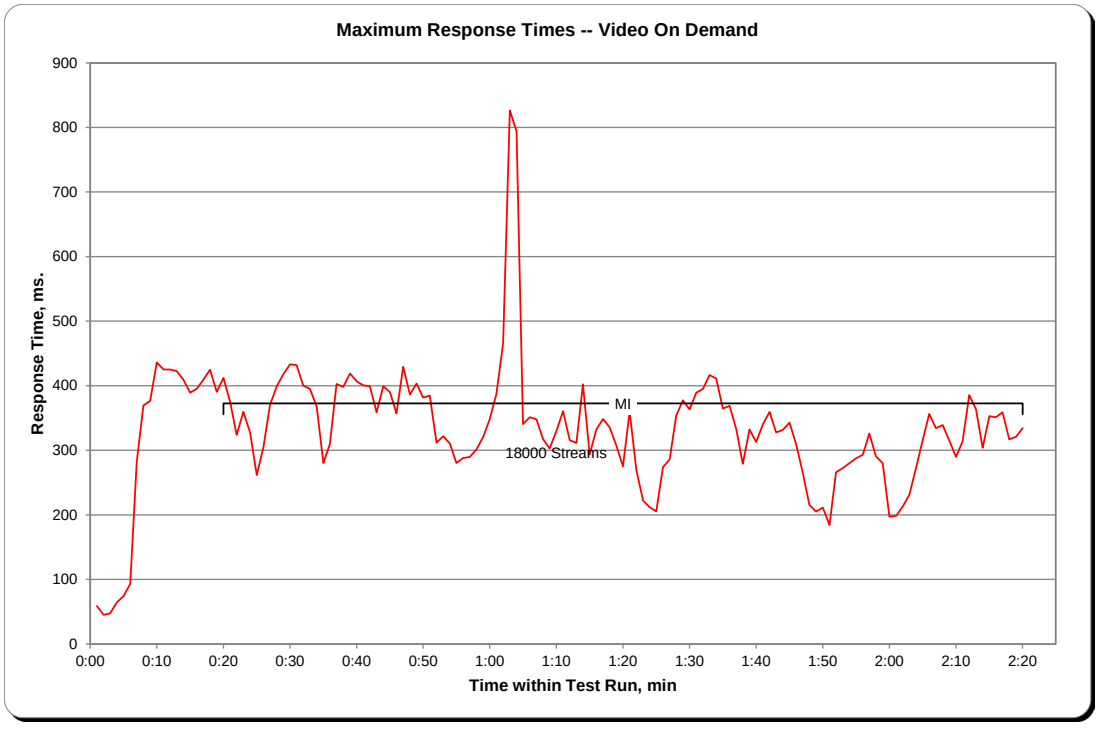
SPC-2 Video on Demand Delivery Average Data Rate per Stream Graph



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 113.

Data Persistence Test Results File

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

Persistence 1 Test Run Results File

Persistence 2 Test Run Results File

Data Persistence Test Results

Data Persistence Test Results	
Data Persistence Test Number: 1	
Total Number of Logical Blocks Written	3,695,105
Total Number of Logical Blocks Re-referenced	222,496
Total Number of Logical Blocks Verified	3,472,609
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 DS8870, as documented in this SPC-2 Full Disclosure Report, will become available on October 19, 2012 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 DS8870.

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:

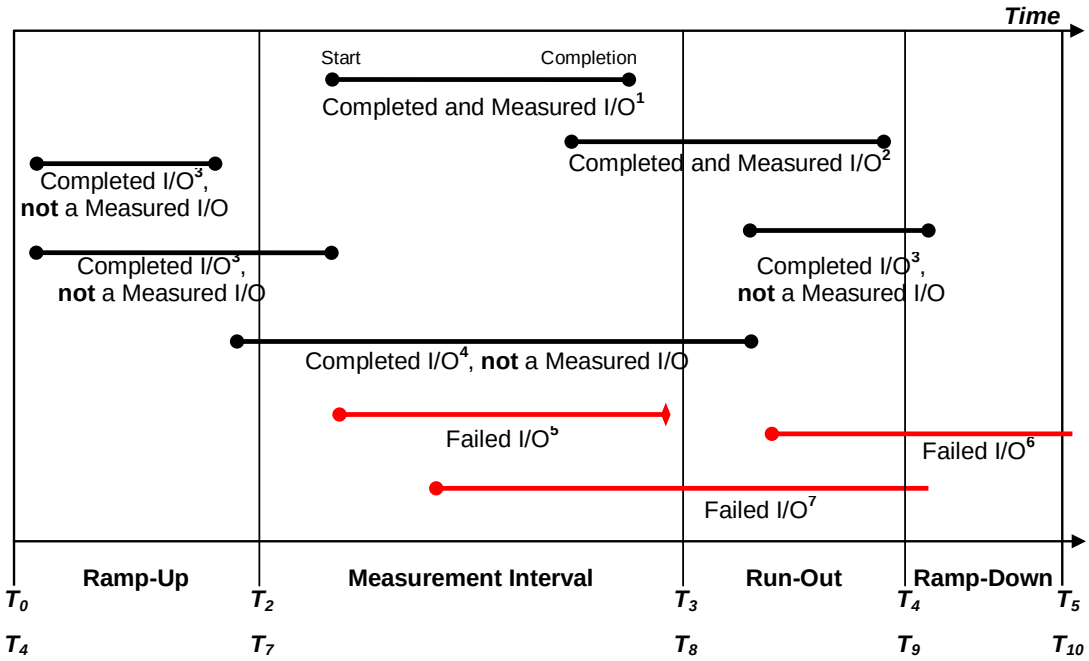
- Test Run 1: Maximum number of Streams, which is selected by the Test Sponsor
- Test Run 2: 50% of the maximum number of Streams used in Test Run 1.
- Test Run 3: 25% of the maximum number of Streams used in Test Run 1.
- Test Run 4: 12.5% of the maximum number of Streams used in Test Run 1.
- Test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

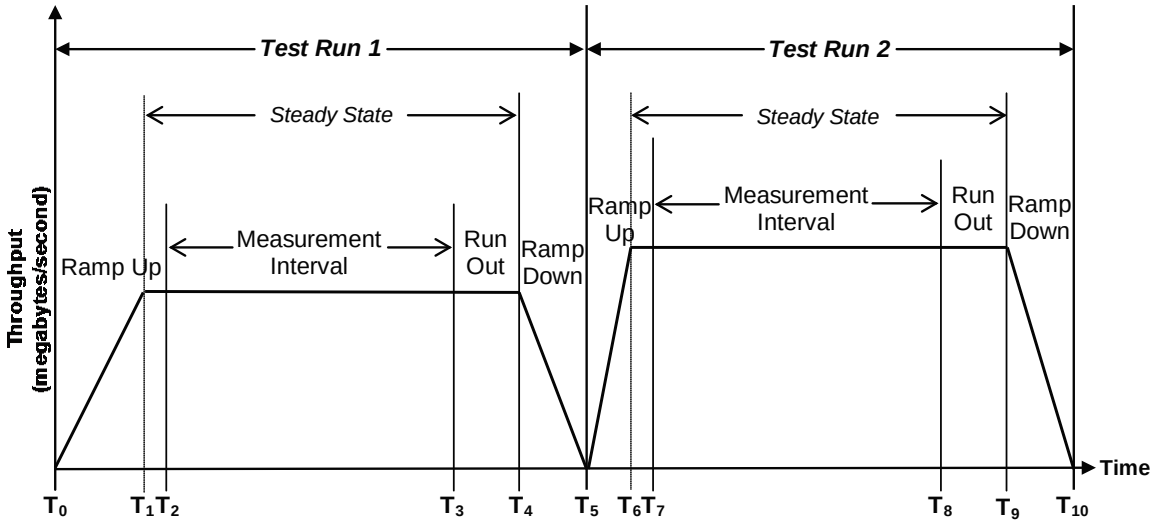
Transfer Size: The Transfer Size parameter specifies the number of bytes in KiB to transfer. *(Clause 3.4.7 of the SPC-2 Benchmark Specification)*

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

There were no customer tunable parameters or options changed from their default values for the SPC-1 measurements.

APPENDIX C: TESTED STORAGE CONFIGURATION (TSC) CREATION

Each script referenced in the following sections appears in the Referenced Scripts section.

- The **step1_makearray.txt**, **step2_mkranks.txt**, **step3_makevols.txt** and **step4_define_paths.txt** scripts are scripts written in the DSCLI command language and executed on the Host System. DSCI was installed and configured to allow management of the DS8870.
- The **step5_discover.sh** script, listed below, is a shell script executed from an AIX command window on each of the four Host Systems.

Create the RAID-5 ranks

The first script, **step1_makearray.txt**, groups the physical volumes into 60 RAID-5 arrays and the system automatically generates a set of array names, A0-A59, of which only 48 of the arrays were used in the benchmark (A5-A53). A predefined set of 8 physical disks is associated with each array in a specified "array site". Each "array site" is associated with a pair of Device Adapters (DA), as shown on page 18.

During the execution of the **step1_makearray.txt** script, 1 of the 8 disks are reserved as spares in the first four "array sites" of a DA pair, as also illustrated on page 18.

The **step1_makearray.txt** script configures all "array site" disks other than the spares into a RAID-5 array. Thus, the effect of the script is to produce a mixture of 6+P+S and 7+P arrays, for a total of 60 RAID-5 arrays.

The next script **step2_mkranks.txt**, defines the arrays, A0-A59, as 60 open system ranks, R0-R59. As in the previous script, the rank names are assigned by the system. Step 2 also defines the ranks R0-R59 to comprise a set of 60 'extentpools" (pools of available storage) with the names P0-P59.

Create the LUNs

The **step3_makevols.txt** script defines 48 LUNs on 48 of the 60 RAID-5 ranks. The LUNs on 6+P arrays have size 740 GiB and the LUNs on 7+P arrays have size 869 GiB. All LUNs were used in the SPC-2 measurements. Each LUN is assigned to one of 8 volume groups, V1-V8, so that paths can be assigned by groups of volumes.

Define the LUN access path

The next step is to define the paths by which each LUN can be accessed by the Host System. The Host System has 32 connections to the DS8870. The path definitions are created by the **step4_define_paths.txt** script. Each host WWPN (total of 32) is assigned to one of the eight volume groups, V1-V8.

Discover the LUNs and create multi-path "hdisks"

The **step5_discover.sh** script performs discovery on each of the Host System paths. In this configuration, AIX MPIO capability is utilized, creating one multi-path hdisk that corresponds to each LUN.

Referenced Scripts

step1_makearray.txt

```
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S1
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S2
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S3
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S4
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S5
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S6
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S7
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S8
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S9
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S10
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S11
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S12
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S13
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S14
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S15
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S16
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S17
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S18
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S19
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S20
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S21
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S22
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S23
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S24
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S25
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S26
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S27
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S28
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S29
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S30
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S31
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S32
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S33
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S34
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S35
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S36
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S37
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S38
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S39
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S40
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S41
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S42
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S43
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S44
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S45
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S46
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S47
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S48
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S49
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S50
```

```
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S51
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S52
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S53
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S54
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S55
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S56
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S57
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S58
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S59
mkarray -dev IBM.2107-75YZ651 -raidtype 5 -arsite S60
```

step2_makeranks.txt

```
mkrank -dev IBM.2107-75YZ651 -array A0 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A1 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A2 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A3 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A4 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A5 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A6 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A7 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A8 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A9 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A10 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A11 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A12 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A13 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A14 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A15 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A16 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A17 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A18 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A19 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A20 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A21 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A22 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A23 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A24 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A25 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A26 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A27 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A28 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A29 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A30 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A31 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A32 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A33 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A34 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A35 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A36 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A37 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A38 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A39 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A40 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A41 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A42 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A43 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A44 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A45 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A46 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A47 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A48 -stgtype fb
```

```
mkrank -dev IBM.2107-75YZ651 -array A49 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A50 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A51 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A52 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A53 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A54 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A55 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A56 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A57 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A58 -stgtype fb
mkrank -dev IBM.2107-75YZ651 -array A59 -stgtype fb

mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool0
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool1
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool2
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool3
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool4
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool5
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool6
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool7
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool8
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool9
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool10
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool11
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool12
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool13
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool14
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool15
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool16
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool17
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool18
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool19
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool20
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool21
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool22
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool23
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool24
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool25
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool26
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool27
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool28
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool29
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool30
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool31
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool32
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool33
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool34
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool35
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool36
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool37
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool38
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool39
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool40
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool41
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool42
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool43
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool44
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool45
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool46
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool47
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool48
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool49
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool50
```

```
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool51
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool52
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool53
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool54
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool55
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool56
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool57
mkextpool -dev IBM.2107-75YZ651 -rankgrp 0 -stgtype fb fb_ext_pool58
mkextpool -dev IBM.2107-75YZ651 -rankgrp 1 -stgtype fb fb_ext_pool59
```

step3_makevols.txt

```
mkfbvol -dev IBM.2107-75YZ651 -extpool P6  -type ds -cap 740 -name da2_#h  1000
mkfbvol -dev IBM.2107-75YZ651 -extpool P8  -type ds -cap 740 -name da2_#h  1001
mkfbvol -dev IBM.2107-75YZ651 -extpool P10 -type ds -cap 869 -name da2_#h  1002
mkfbvol -dev IBM.2107-75YZ651 -extpool P7  -type ds -cap 740 -name da2_#h  1100
mkfbvol -dev IBM.2107-75YZ651 -extpool P9  -type ds -cap 740 -name da2_#h  1101
mkfbvol -dev IBM.2107-75YZ651 -extpool P11 -type ds -cap 869 -name da2_#h  1102

mkfbvol -dev IBM.2107-75YZ651 -extpool P12 -type ds -cap 740 -name da0_#h  1200
mkfbvol -dev IBM.2107-75YZ651 -extpool P14 -type ds -cap 740 -name da0_#h  1201
mkfbvol -dev IBM.2107-75YZ651 -extpool P16 -type ds -cap 869 -name da0_#h  1202
mkfbvol -dev IBM.2107-75YZ651 -extpool P13 -type ds -cap 740 -name da0_#h  1300
mkfbvol -dev IBM.2107-75YZ651 -extpool P15 -type ds -cap 740 -name da0_#h  1301
mkfbvol -dev IBM.2107-75YZ651 -extpool P17 -type ds -cap 869 -name da0_#h  1302

mkfbvol -dev IBM.2107-75YZ651 -extpool P18 -type ds -cap 740 -name da1_#h  1400
mkfbvol -dev IBM.2107-75YZ651 -extpool P20 -type ds -cap 740 -name da1_#h  1401
mkfbvol -dev IBM.2107-75YZ651 -extpool P22 -type ds -cap 869 -name da1_#h  1402
mkfbvol -dev IBM.2107-75YZ651 -extpool P19 -type ds -cap 740 -name da1_#h  1500
mkfbvol -dev IBM.2107-75YZ651 -extpool P21 -type ds -cap 740 -name da1_#h  1501
mkfbvol -dev IBM.2107-75YZ651 -extpool P23 -type ds -cap 869 -name da1_#h  1502

mkfbvol -dev IBM.2107-75YZ651 -extpool P24 -type ds -cap 740 -name da3_#h  1600
mkfbvol -dev IBM.2107-75YZ651 -extpool P26 -type ds -cap 740 -name da3_#h  1601
mkfbvol -dev IBM.2107-75YZ651 -extpool P28 -type ds -cap 869 -name da3_#h  1602
mkfbvol -dev IBM.2107-75YZ651 -extpool P25 -type ds -cap 740 -name da3_#h  1700
mkfbvol -dev IBM.2107-75YZ651 -extpool P27 -type ds -cap 740 -name da3_#h  1701
mkfbvol -dev IBM.2107-75YZ651 -extpool P29 -type ds -cap 869 -name da3_#h  1702

mkfbvol -dev IBM.2107-75YZ651 -extpool P30 -type ds -cap 740 -name da4_#h  1800
mkfbvol -dev IBM.2107-75YZ651 -extpool P32 -type ds -cap 740 -name da4_#h  1801
mkfbvol -dev IBM.2107-75YZ651 -extpool P34 -type ds -cap 869 -name da4_#h  1802
mkfbvol -dev IBM.2107-75YZ651 -extpool P31 -type ds -cap 740 -name da4_#h  1900
mkfbvol -dev IBM.2107-75YZ651 -extpool P33 -type ds -cap 740 -name da4_#h  1901
mkfbvol -dev IBM.2107-75YZ651 -extpool P35 -type ds -cap 869 -name da4_#h  1902

mkfbvol -dev IBM.2107-75YZ651 -extpool P36 -type ds -cap 740 -name da5_#h  1A00
mkfbvol -dev IBM.2107-75YZ651 -extpool P38 -type ds -cap 740 -name da5_#h  1A01
mkfbvol -dev IBM.2107-75YZ651 -extpool P40 -type ds -cap 869 -name da5_#h  1A02
mkfbvol -dev IBM.2107-75YZ651 -extpool P37 -type ds -cap 740 -name da5_#h  1B00
mkfbvol -dev IBM.2107-75YZ651 -extpool P39 -type ds -cap 740 -name da5_#h  1B01
mkfbvol -dev IBM.2107-75YZ651 -extpool P41 -type ds -cap 869 -name da5_#h  1B02

mkfbvol -dev IBM.2107-75YZ651 -extpool P42 -type ds -cap 740 -name da6_#h  1C00
mkfbvol -dev IBM.2107-75YZ651 -extpool P44 -type ds -cap 740 -name da6_#h  1C01
mkfbvol -dev IBM.2107-75YZ651 -extpool P46 -type ds -cap 869 -name da6_#h  1C02
mkfbvol -dev IBM.2107-75YZ651 -extpool P43 -type ds -cap 740 -name da6_#h  1D00
mkfbvol -dev IBM.2107-75YZ651 -extpool P45 -type ds -cap 740 -name da6_#h  1D01
mkfbvol -dev IBM.2107-75YZ651 -extpool P47 -type ds -cap 869 -name da6_#h  1D02

mkfbvol -dev IBM.2107-75YZ651 -extpool P48 -type ds -cap 740 -name da7_#h  1E00
```

```
mkfbvol -dev IBM.2107-75YZ651 -extpool P50 -type ds -cap 740 -name da7_#h  1E01
mkfbvol -dev IBM.2107-75YZ651 -extpool P52 -type ds -cap 869 -name da7_#h  1E02
mkfbvol -dev IBM.2107-75YZ651 -extpool P49 -type ds -cap 740 -name da7_#h  1F00
mkfbvol -dev IBM.2107-75YZ651 -extpool P51 -type ds -cap 740 -name da7_#h  1F01
mkfbvol -dev IBM.2107-75YZ651 -extpool P53 -type ds -cap 869 -name da7_#h  1F02

mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1200-1202,1500-1502
bay_0_volumes
mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1300-1302,1400-1402
bay_1_volumes

mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1000-1002,1700-1702
bay_2_volumes
mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1100-1102,1600-1602
bay_3_volumes

mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1800-1802,1B00-1B02
bay_4_volumes
mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1900-1902,1A00-1A02
bay_5_volumes

mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1C00-1C02,1F00-1F02
bay_6_volumes
mkvolgrp -dev IBM.2107-75YZ651 -hosttype pSeries -volume 1D00-1D02,1E00-1E02
bay_7_volumes
```

step4_define_paths.txt

```
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA0503F7  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V1 FCS7
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCC1FB  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V2 FCS31
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA0506CF  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V3 FCS1
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCF48D  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V4 FCS25
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA04F909  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V5 FCS11
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCF475  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V6 FCS35
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA050257  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V7 FCS9
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD08CF  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V8 FCS33

MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD1CC7  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V1 FCS19
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCEF4B  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V2 FCS43
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD06EB  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V3 FCS13
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD008B  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V4 FCS37
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCC29B  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V5 FCS23
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD0D2D  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V6 FCS47
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD1C8F  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V7 FCS21
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD2053  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V8 FCS45
```

```
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9F66EA0  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V1 FCS28
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA05026C  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V2 FCS4
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCF3E6  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V3 FCS26
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA04FAFC  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V4 FCS2
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCF474  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V5 FCS34
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA04F908  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V6 FCS10
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD08CE  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V7 FCS32
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000090FA050256  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V8 FCS8

MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD1326  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V1 FCS40
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD00A8  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V2 FCS16
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD1308  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V3 FCS38
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCC222  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V4 FCS14
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD0D2C  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V5 FCS46
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FCC29A  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V6 FCS22
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD2052  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V7 FCS44
MKHOSTCONNECT -DEV IBM.2107-75YZ651 -WWNAME 10000000C9FD1C8E  -PROFILE "IBM PSERIES
- AIX" -VOLGRP V8 FCS20
```

step5_discover.sh

```
for i in 7 19 28 40; do cfgmgr -vl fcs$i|grep Comp; done
for i in 31 43 4 16; do cfgmgr -vl fcs$i|grep Comp; done
for i in 1 13 26 38; do cfgmgr -vl fcs$i|grep Comp; done
for i in 25 37 2 14; do cfgmgr -vl fcs$i|grep Comp; done
for i in 11 23 34 46; do cfgmgr -vl fcs$i|grep Comp; done
for i in 35 47 10 22; do cfgmgr -vl fcs$i|grep Comp; done
for i in 9 21 32 44; do cfgmgr -vl fcs$i|grep Comp; done
for i in 33 45 8 20; do cfgmgr -vl fcs$i|grep Comp; done
```

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

ASU Pre-Fill

```
*
* This will produce a random data pattern of the entire LBA range using LSFR 32bit
*
compratio=1
sd=default,host=localhost,size=600g
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

wd=default,rdpct=0,seek=-1,xfersize=256K
```

```
wd=wd1,sd=sd1
wd=wd2,sd=sd2
wd=wd3,sd=sd3
wd=wd4,sd=sd4
wd=wd5,sd=sd5
wd=wd6,sd=sd6
wd=wd7,sd=sd7
wd=wd8,sd=sd8
wd=wd9,sd=sd9
wd=wd10,sd=sd10
wd=wd11,sd=sd11
wd=wd12,sd=sd12
wd=wd13,sd=sd13
wd=wd14,sd=sd14
wd=wd15,sd=sd15
wd=wd16,sd=sd16
wd=wd17,sd=sd17
wd=wd18,sd=sd18
wd=wd19,sd=sd19
wd=wd20,sd=sd20
wd=wd21,sd=sd21
wd=wd22,sd=sd22
wd=wd23,sd=sd23
wd=wd24,sd=sd24
wd=wd25,sd=sd25
wd=wd26,sd=sd26
wd=wd27,sd=sd27
wd=wd28,sd=sd28
wd=wd29,sd=sd29
wd=wd30,sd=sd30
wd=wd31,sd=sd31
wd=wd32,sd=sd32
wd=wd33,sd=sd33
wd=wd34,sd=sd34
wd=wd35,sd=sd35
wd=wd36,sd=sd36
wd=wd37,sd=sd37
wd=wd38,sd=sd38
wd=wd39,sd=sd39
wd=wd40,sd=sd40
wd=wd41,sd=sd41
wd=wd42,sd=sd42
wd=wd43,sd=sd43
wd=wd44,sd=sd44
wd=wd45,sd=sd45
wd=wd46,sd=sd46
wd=wd47,sd=sd47
wd=wd48,sd=sd48

*==================================
* Use 10 hours as a maximum elapsed time,
* which should ensure the entire LBA range
* will be written before the time elapses
*==================================
*
rd=FILLIT,wd=wd*,iorate=max,elapsed=999990,interval=10
```

Common Commands/Parameters

The following command/parameter lines appear each of the command and parameter files for the Large File Processing, Large Database Query, Video on Demand and Persistence Tests. The command lines are only listed below to eliminate redundancy.

```
sd=default,host=localhost,size=600g
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
```

Large File Processing Test *(LFP)*

```
maxlatestart=0
host=localhost,jvms=8,maxstreams=400
reportinginterval=5
segmentlength=512m
```

Common Commands/Parameters

```
rd=default,rampup=180,measurement=180,runout=45,rampdown=15,buffers=1,periods=90
rd=default,rdpct=0,xfersize=1024k
rd=TR1_SPC-2-FP2.0,streams=192
rd=TR2_SPC-2-FP2.0,streams=96
rd=TR3_SPC-2-FP2.0,streams=48
rd=TR4_SPC-2-FP2.0,streams=24
rd=TR5_SPC-2-FP2.0,streams=1
rd=default,rdpct=0,xfersize=256k
rd=TR6_SPC-2-FP2.0,streams=192
rd=TR7_SPC-2-FP2.0,streams=96
rd=TR8_SPC-2-FP2.0,streams=48
rd=TR9_SPC-2-FP2.0,streams=24
rd=TR10_SPC-2-FP2.0,streams=1
rd=default,rdpct=50,xfersize=1024k
rd=TR11_SPC-2-FP2.0,streams=192
rd=TR12_SPC-2-FP2.0,streams=96
rd=TR13_SPC-2-FP2.0,streams=48
rd=TR14_SPC-2-FP2.0,streams=24
rd=TR15_SPC-2-FP2.0,streams=1
rd=default,rdpct=50,xfersize=256k
rd=TR16_SPC-2-FP2.0,streams=192
rd=TR17_SPC-2-FP2.0,streams=96
rd=TR18_SPC-2-FP2.0,streams=48
rd=TR19_SPC-2-FP2.0,streams=24
rd=TR20_SPC-2-FP2.0,streams=1
rd=default,rdpct=100,xfersize=1024k
rd=TR21_SPC-2-FP2.0,streams=192
rd=TR22_SPC-2-FP2.0,streams=96
rd=TR23_SPC-2-FP2.0,streams=48
rd=TR24_SPC-2-FP2.0,streams=24
rd=TR25_SPC-2-FP2.0,streams=1
rd=default,rdpct=100,xfersize=256k
rd=TR26_SPC-2-FP2.0,streams=192
rd=TR27_SPC-2-FP2.0,streams=96
rd=TR28_SPC-2-FP2.0,streams=48
rd=TR29_SPC-2-FP2.0,streams=24
rd=TR30_SPC-2-FP2.0,streams=1
```

Large Database Query Test (LDQ)

```
maxlatestart=0
host=localhost,jvms=8,maxstreams=400
reportinginterval=5
segmentlength=512m
```

Common Commands/Parameters

```
rd=default,rdpct=99,rampup=180,measurement=180,runout=45,rampdown=15,periods=90
rd=default,xfersize=1024k,buffers=4
rd=TR1_SPC-2-DQ2.0,streams=192
rd=TR2_SPC-2-DQ2.0,streams=96
rd=TR3_SPC-2-DQ2.0,streams=48
rd=TR4_SPC-2-DQ2.0,streams=24
```

```
rd=TR5_SPC-2-DQ2.0,streams=1
rd=default,xfersize=1024k,buffers=1
rd=TR6_SPC-2-DQ2.0,streams=192
rd=TR7_SPC-2-DQ2.0,streams=96
rd=TR8_SPC-2-DQ2.0,streams=48
rd=TR9_SPC-2-DQ2.0,streams=24
rd=TR10_SPC-2-DQ2.0,streams=1
rd=default,xfersize=64k,buffers=4
rd=TR11_SPC-2-DQ2.0,streams=192
rd=TR12_SPC-2-DQ2.0,streams=96
rd=TR13_SPC-2-DQ2.0,streams=48
rd=TR14_SPC-2-DQ2.0,streams=24
rd=TR15_SPC-2-DQ2.0,streams=1
rd=default,xfersize=64k,buffers=1
rd=TR16_SPC-2-DQ2.0,streams=192
rd=TR17_SPC-2-DQ2.0,streams=96
rd=TR18_SPC-2-DQ2.0,streams=48
rd=TR19_SPC-2-DQ2.0,streams=24
rd=TR20_SPC-2-DQ2.0,streams=1
```

Video on Demand Delivery *(VOD)*

```
maxlatestart=0
host=localhost,jvms=50,maxstreams=400
reportinginterval=5
videosegmentduration=1200
maxlatevod=0
```

Common Commands/Parameters

```
rd=default,measurement=7200,rampup=1200,runout=45,rampdown=15,periods=600
rd=TR1_SPC-2-VOD11.0,streams=18000,buffers=8
```

Persistence Test Run 1 (write phase)

```
* Persistence Test Run 1
host=localhost,jvms=8,maxstreams=400
```

Common Commands/Parameters

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

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

rd=default,rdpct=0,xfersize=1024k
rd=TR1-5s_SPC-2-persist-w,streams=192
```

Persistence Test Run 2 *(read phase)*

```
* Persistence Test Run 2

host=localhost,jvms=8,maxstreams=400
```

Common Commands/Parameters

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

maxpersistenceerrors=10
*corruptstreams=3

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

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

ASU Pre-Fill, Large File Processing Test, Large Database Query Test, Video on Demand Delivery Test, and Persistence Test Run 1

The following script was used to execute the required ASU pre-fill (runfill.sh), Large File Processing Test, Large Database Query Test, Video on Demand Delivery Test and Persistence Test Run 1.

```
export PATH=/usr/java5/bin:$PATH
export SPC2HOME=/perform/spc2install
export CLASSPATH=$SPC2HOME
export LIBPATH=$SPC2HOME/aix
export IBM_JAVADUMP_OUTOFMEMORY=false
export IBM_HEAPDUMP_OUTOFMEMORY=false

rundir=`pwd`
cd ../fill
rm -fr fill_output
./runfill.sh
cd $rundir

java -Xoptionsfile=javaopts.cfg vdbench -f vod.cfg -o init -init
sleep 120

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

./capdata.sh > capdata.`date +"%m.%d.%Y"`
date > aixdata.list
rawaixcapacity.sh
```

runfill.sh

The script invoked to pre-fill the ASU.

```
#!/usr/bin/ksh
export PATH=$PATH:/usr/java5/bin:/perform/vdbench503
export VDBHOME=/perform/vdbench503
export CLASSPATH=$VDBHOME
export LIBPATH=$VDBHOME/aix
export IBM_JAVADUMP_OUTOFMEMORY=false
export IBM_HEAPDUMP_OUTOFMEMORY=false
rm -fr fill_output
vdbench -f fill.cfg -o fill_output
```

Persistence Test Run 2

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

```
export PATH=$PATH:/usr/java5/bin
export SPC2HOME=/perform/spc2install
export CLASSPATH=$SPC2HOME
export LIBPATH=$SPC2HOME/aix
export IBM_JAVADUMP_OUTOFMEMORY=false
export IBM_HEAPDUMP_OUTOFMEMORY=false
java -Xoptionsfile=javaopts.cfg vdbench -f persistr.cfg -o persist
```

javaopts.cfg

The configuration file used to pass Java parameters to Slave JVMs.

```
-Xms2000m  -Xmx2000m  -Xss128k
```