SPC BENCHMARK 2™
FULL DISCLOSURE REPORT

IBM CORPORATION
IBM SYSTEM STORAGE DS5020 EXPRESS *(RAID-6)*

SPC-2™ V1.3

Submitted for Review: October 8, 2009
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First Edition – October 2009

Trademarks

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AUDIT CERTIFICATION

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

October 7, 2009

The SPC Benchmark 2™ results listed below for the IBM System Storage DS5020 Express *(RAID-6)* produced in compliance with the SPC Benchmark 2™ V1.3 Remote Audit requirements.

SPC Benchmark 2™ V1.3 Results	
Tested Storage Product (TSP) Name: IBM System Storage DS5020 Express *(RAID-6)*	
Metric	**Reported Result**
SPC-2 MBPS™	1,286.74
SPC-2 Price-Performance	$87.04/SPC-2 MBPS™
ASU Capacity	3,504.693 GB
Data Protection Level	Protected *(RAID-6)*
Total Price (including three-year maintenance)	$112,002

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.
- An appropriate diagram of the Benchmark Configuration (BC)/Tested Storage Configuration (TSC).
- Listings and commands used to create and configure the Benchmark Configuration/Tested Storage Configuration.
- Documentation of each customer tunable parameter or option that was changed from its default value.

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

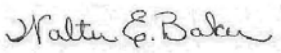
AUDIT CERTIFICATION *(CONT.)*

- The following Host System items were verified by documentation supplied by IBM Corporation:
  - ✓ Required Host System configuration information.
  - ✓ The TSC boundary within each Host System.
- The following SPC-2 Workload Generator information was verified by documentation supplied by IBM Corporation:
  - ✓ The presence and version number of the Workload Generator on each Host System.
  - ✓ Commands and parameters used to configure the SPC-2 Workload Generator.
- The Test Results Files and resultant Summary Results Files received for each of the following were authentic, accurate, and compliant with all of the requirements and constraints of Clauses 5 and 6 of the SPC-2 Benchmark Specification:
  - ✓ Data Persistence Test
  - ✓ Large File Processing Test
  - ✓ Large Database Query Test
  - ✓ Video on Demand Delivery Test
- The differences between the Tested Storage Configuration (TSC) used for the benchmark and Priced Storage Configuration were documented and, if applied to the TSC, would not have an impact on the reported SPC-2 performance.
- 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.

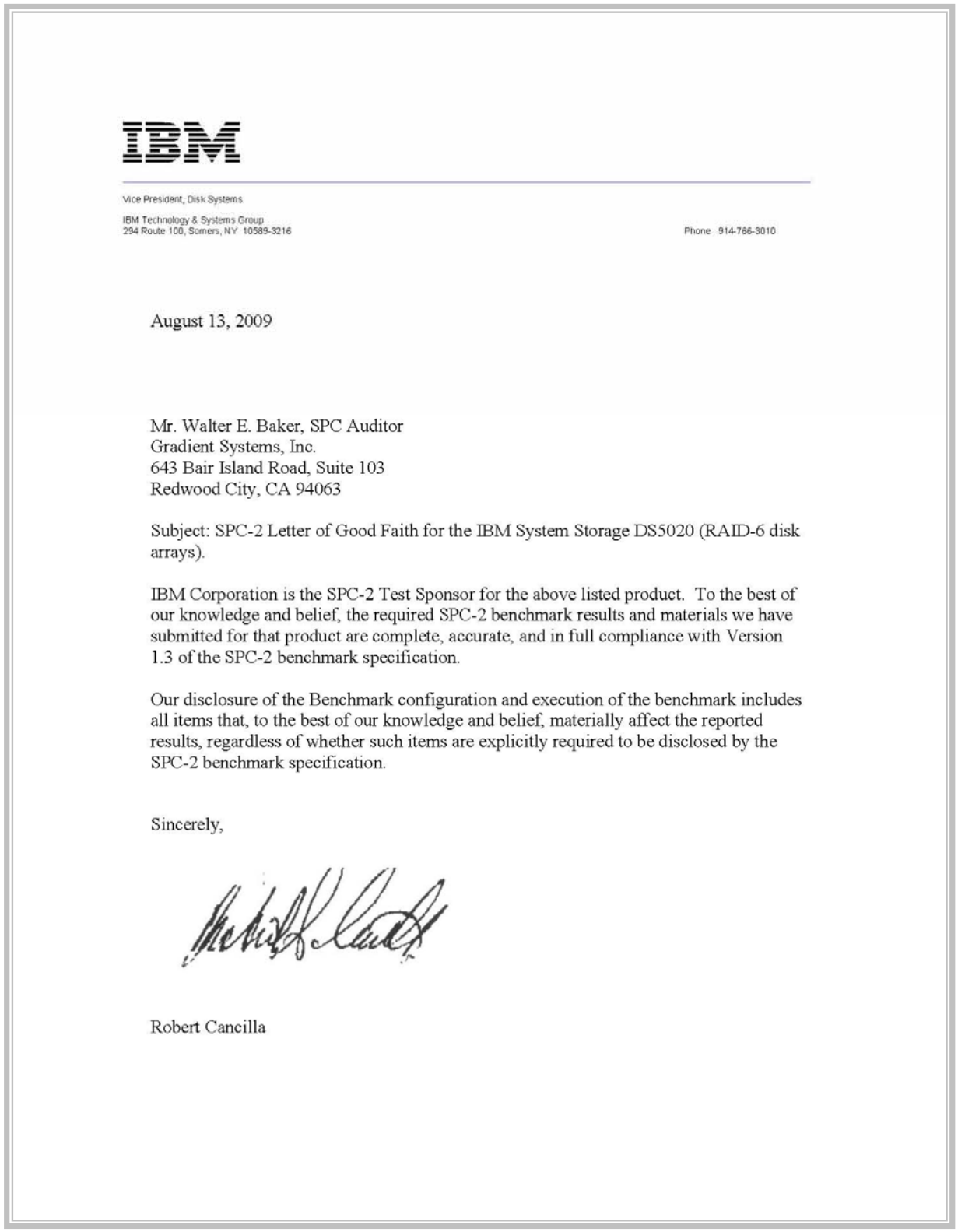
Respectfully,



Walter E. Baker
SPC Auditor

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

LETTER OF GOOD FAITH



IBM

Vice President, Disk Systems

IBM Technology & Systems Group
294 Route 100, Somers, NY 10589-3216

Phone 914-766-3010

August 13, 2009

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 DS5020 (RAID-6 disk arrays).

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,

Robert Cancilla

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 650 Harry Road San Jose, CA 9120 Phone: (408) 927-2717
Test Sponsor Alternate Contact	IBM Corporation – http://www.ibm.com Vernon Miller – millerv@us.ibm.com KBV/9062-2 9000 South Rita Road Tucson, AZ 85744 Phone: (520) 799-4849 FAX: (520) 799-2009
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	V1.0
Date Results were first used publicly	October 8, 2009
Date FDR was submitted to the SPC	October 8, 2009
Date revised FDR was submitted to the SPC Revised Total TSP Price and SPC-2 Price-Performance *(page 13)* Revised pricing *(page 16)* Revised TSC/Priced Storage Configuration differences *(page 16)* Revised TSC component table (*page 17)* *(revisions highlighted in red on the above pages)*	March 11, 2010
Date the TSC will be available for shipment to customers	September 4, 2009
Date the TSC completed audit certification	October 7, 2009

Tested Storage Product (TSP) Description

The IBM DS5020 storage system is designed to provide midrange customers with the performance, reliability, and robust functionality enterprise customers are accustomed to – at an affordable price. Its core features and dynamic flexibility make it a great fit for a wide range of requirements, providing peace of mind and exceptional return on investment. The System Storage DS5020 Express disk system includes an industry leading 8 Gbps Fibre Channel (FC) as well as iSCSI host capability that seamlessly integrates into existing and new infrastructures, while providing the balanced performance needed to satisfy the mixed workloads created by consolidation. Its modular architecture and efficiencies help lower acquisition and operational costs as performance and configuration requirements can be met with minimal raw capacity. And when it's time to expand, the DS5020 can add incremental capacity with no downtime.

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 DS5020 Express *(RAID-6)*				
SPC-2 MBPS™	**SPC-2 Price-Performance**	**ASU Capacity (GB)**	**Total Price**	**Data Protection Level**
1,286.74	$93.26	3,504.693	$120,002	RAID-6
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	1,009.98			$118.82
Write Only:				
1024 KiB Transfer	864.81	32	27.03	
256 KiB Transfer	383.30	32	11.98	
Read-Write:				
1024 KiB Transfer	1,071.56	32	33.49	
256 KiB Transfer	574.05	32	17.94	
Read Only:				
1024 KiB Transfer	1,580.42	32	49.39	
256 KiB Transfer	1,585.74	32	49.55	
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	1,466.08			$81.85
1024 KiB Transfer Size				
4 I/Os Outstanding	1,541.69	32	48.18	
1 I/O Outstanding	1,532.52	32	47.89	
64 KiB Transfer Size				
4 I/Os Outstanding	1,405.70	32	43.93	
1 I/O Outstanding	1,384.43	32	43.26	
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**
	1,384.16	1,760	0.79	$86.70

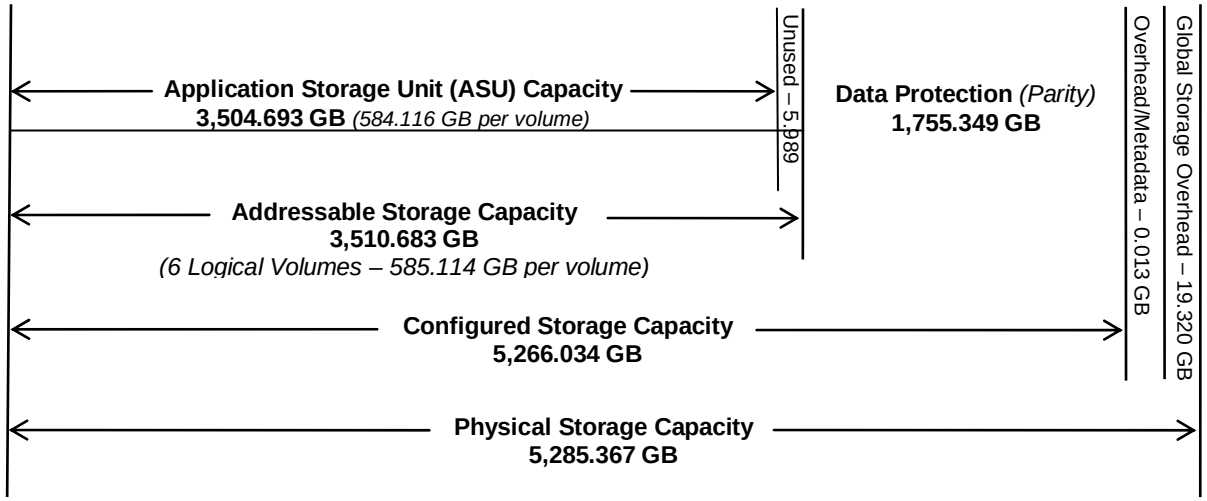
SPC-2 MBPS™ represents the aggregate data rate, in megabytes per second, of all three SPC-2 workloads: Large File Processing (LFP), Large Database Query (LDQ), and Video on Demand (VOD).

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-6*** provides simultaneous drive failure protection. RAID 6 stripes both user data and redundancy data (parity) across the drives. RAID 6 uses the equivalent of the capacity of two drives (in a volume group) for redundancy data. RAID 6 protects against simultaneous failure of two volume group member drives by using two independent error-correction schemes.

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-1 Storage Capacity Utilization	
Application Utilization	66.31%
Protected Application Utilization	99.52%
Unused Storage Ratio	0.11%

Application Utilization: Total ASU Capacity *(3,504.693 GB)* divided by Physical Storage Capacity *(5,285.367 GB)*

Protected Application Utilization: (Total ASU Capacity *(3,504.693 GB)* plus total Data Protection Capacity *(1,755.349 GB)* minus unused Data Protection Capacity *(0.000 GB)*) divided by Physical Storage Capacity *(5,285.367 GB)*

Unused Storage Ratio: Total Unused Capacity *(5.989 GB)* divided by Physical Storage Capacity *(5,285.367 GB)* and may not exceed 45%.

Detailed information for the various storage capacities and utilizations is available on pages 22-23 in the Full Disclosure Report.

Priced Storage Configuration Pricing

Description	Unit Price	Quantity	Extended Price
IBM DS5020 storage system			
DS5020 disk storage array (MTM 1814-20A) Note- this includes 1 GB RAM per controller, four 8 Gb FC host connections with SFPs four 4 Gb FC drive connections with SFPs	$ 22,500.00	1	$ 22,500.00
Feature #2080 -DS5020 two dual 8 Gbps host cards with SFPs	$ 8,000.00	1	$ 8,000.00
Feature #7393 -DS5020 33-64 Disk Drive Att	$ 4,000.00	1	$ 4,000.00
Feature #2070 - DS5020 Additional 2GB Cache Memory	$ 4,000.00	1	$ 4,000.00
Feature #7801 - DS5020 - Windows Host Kit	$ 1,250.00	1	$ 1,250.00
Feature #8700 - DS5020 - 2 Storage Partitions - Plant	$ 1,500.00	1	$ 1,500.00
Feature #3605 - 5m FC cable	$ 129.00	8	$ 1,032.00
EXP520 expansion units (MTM 1814-52A) incl 2 x 4 Gb SFPs	$ 6,000.00	2	$ 12,000.00
Feature #4200 - DS5020 146.8GB/15K 4GB/S FC DDM	$ 1,605.00	36	$ 57,780.00
HBA model 42D0485	$ 1,299.00	4	$ 5,196.00
Maintenance (3 years, 24x7 with 4 hour response)	$ 2,744.00	1	$ 2,744.00
			$ 120,002.00

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

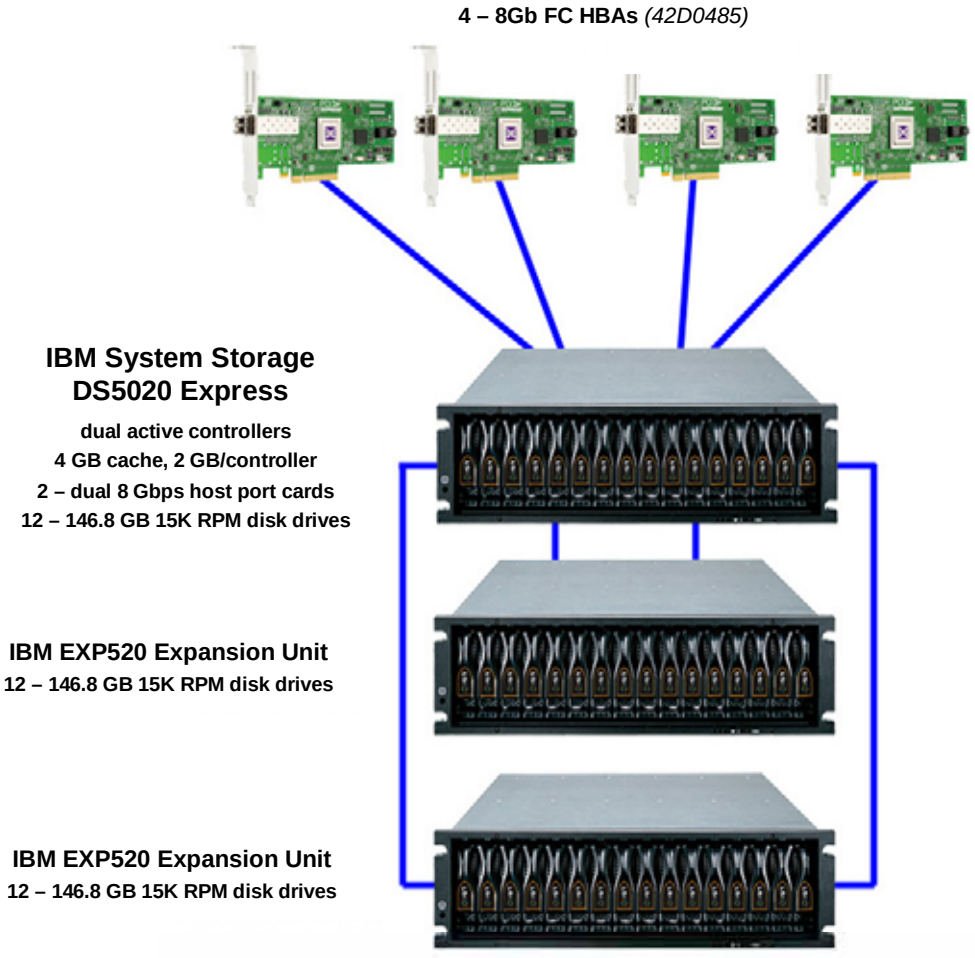
The difference between the Tested Storage Configuration and Priced Storage Configuration is that the priced disk drives are mounted in an IBM drive carrier and each disk drive is configured to self-identify as a DS5020 brand.

The differences between the TSC and Priced Storage Configuration consisted of the following:

- The priced disk drives are mounted in an IBM drive carrier and each disk drive is configured to self-identify as a DS5020 brand.
- The TSC was configured with 12 4Gbps SFPs, of which 8 were used. The Priced Storage Configuration only included the required 8 SFPs.

The above differences, if applied to the TSC, would not have a negative impact on the reported SPC-1 performance.

Priced Storage Configuration Diagram



Priced Configuration Components

Priced Storage Configuration:
4 – 8Gb FC HBAs *(42D0485)*
SC-1/SC-2: IBM System Storage DS5020 Express **2 – dual-active controllers with:** 4 GB cache, 2 GB per controller 2 – dual 8 Gbps host cards with 4 SFPs 4 – 8 Gb Fibre Channel front-end connections per controller *(8 total, 4 used – 2 per controller)* 4 – 4 Gb Fibre Channel backend connection *(4 used)*
2 – IBM EXP520 expansion units with 2 SFPs *(4 Gbps)* per unit
36 – 146.8 GB 15K RPM FC 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 10.6.5.7

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

The Benchmark Configuration (BC)/Tested Storage Configuration (TSC) is illustrated on page 19 ***(****Benchmark Configuration/Tested Storage Configuration Diagram****)***.

Storage Network Configuration

Clause 9.2.4.4.2

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

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

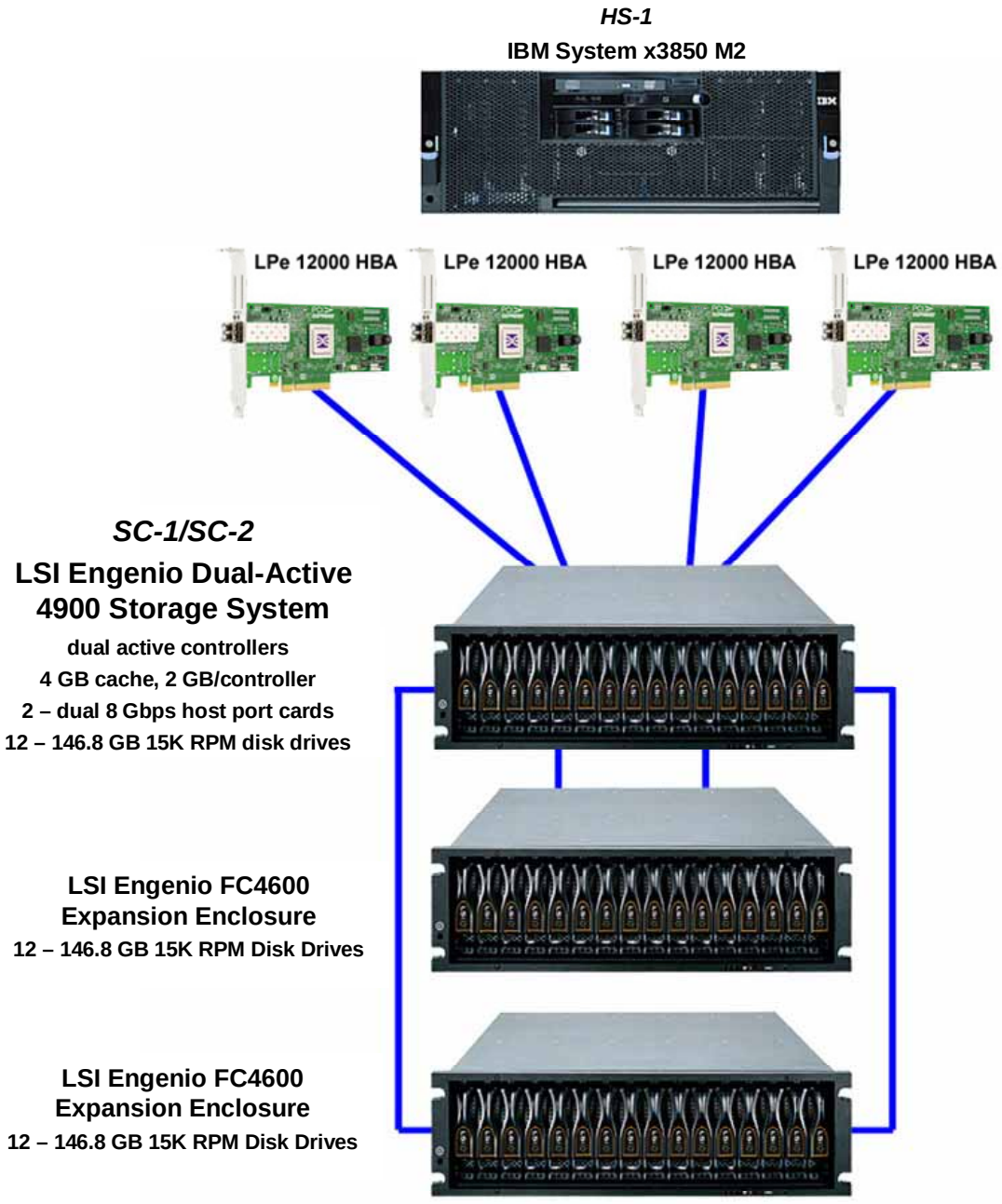
Host System and Tested Storage Configuration Table

Clause 10.6.5.9

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

The components that comprise each Host System and the Tested Storage Configuration are listed in the table that appears on page 20 *(Host System(s) and Tested Storage Configuration Components).*

Benchmark Configuration/Tested Storage Configuration Diagram



Host System(s) and Tested Storage Configuration Components

Host System:	Tested Storage Configuration (TSC):
HS-1: IBM System x3850 M2	4 – 8Gb Emulex LPe12000 8Gb FC HBAs
2 – 2.4 GHz Dual Xeon Processors with 4 MB L2 cache/CPU	**SC-1/SC-2: LSI Engenio 4900 Storge System** **2 – LSI 4988 FCdual-active controllers with:** 4 GB cache, 2 GB per controller 2 – dual 8 Gbps host cards with 4 SFPs 4 – 8 Gb FC Host connections per controller *(8 total, 4 used – 2 per controller)* 4 – 4 Gb FC drive connections *(4 used)*
8 GB main memory	
Windows Server 2003 Enterprise Edition with SP2	
PCIe	
WG	
	2 – LSI Engenio FC4600 expansion enclosure with 4 SFPs *(4 Gbps)* per enclosure
	36 – 146.8 GB 15K RPM FC 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 97 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 98 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 98.

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 92 contains definitions of terms specific to the SPC-2 Data Repository.

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

SPC-2 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)	3,504.693
Addressable Storage Capacity	Gigabytes (GB)	3,510.683
Configured Storage Capacity	Gigabytes (GB)	5,266.034
Physical Storage Capacity	Gigabytes (GB)	5,285.367
Data Protection *(RAID-6 parity)*	Gigabytes (GB)	1,755.349
Required Storage *(overhead/metatdata)*	Gigabytes (GB)	0.013
Global Storage Overhead	Gigabytes (GB)	19.320
Total Unused Storage	Gigabytes (GB)	5.989

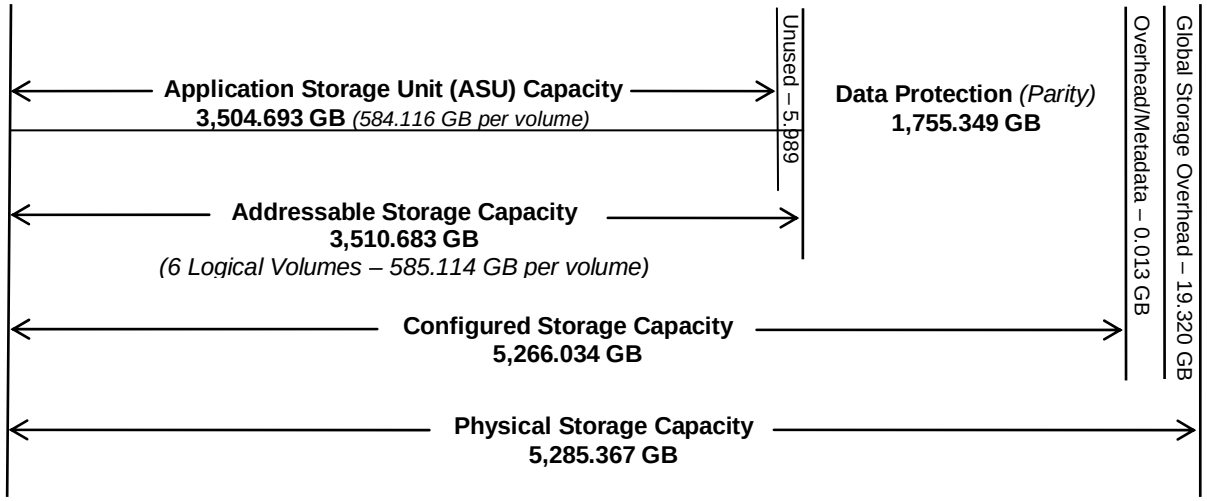
SPC-2 Storage Hierarchy Ratios

	Addressable Storage Capacity	Configured Storage Capacity	Physical Storage Capacity
Total ASU Capacity	99.83%	66.55%	66.31%
Data Protection *(RAID-6 parity)*		33.33%	33.21%
Addressable Storage Capacity		66.67%	66.42%
Required Storage		0.00%	0.00%
Configured Storage Capacity			99.67%
Global Storage Overhead			0.37%
Unused Storage:			
Addressable	0.17%		
Configured		0.00%	
Physical			0.00%

The Physical Storage Capacity consisted of 5,285.367 GB distributed over 36 disk drives each with a formatted capacity of 146.816 GB. There was 0.000 GB (0.00%) of Unused Storage within the Physical Storage Capacity. Global Storage Overhead consisted of 19.320 GB (0.37%) of Physical Storage Capacity. There was 0.000 GB (0.00%) of Unused Storage within the Configured Storage Capacity. The Total ASU Capacity utilized 99.3%% of the Addressable Storage Capacity resulting in 5.989 GB (0.17%) of Unused Storage within the Addressable Storage Capacity. The Data Protection *(RAID-6 parity)* capacity was 1,755.349 GB of which 1,755.349 GB was utilized. The total Unused Storage was 5.989 GB.

SPC-2 Storage Capacities and Relationships Illustration

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



Logical Volume Capacity and ASU Mapping

Clause 10.6.7.2

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

Logical Volume (LV) Capacity and Mapping			
ASU (GB)			
	Total Capacity *(GB)*	Capacity Used *(GB)*	Capacity Unused *(GB)*
Logical Volumes	per LV	per LV	per LV

See the Storage Definition (sd) entries in "Appendix D: SPC-2 Workload Generator Storage Commands and Parameters" on page 98 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 93 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 108.

SPC-2 Test Results File

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

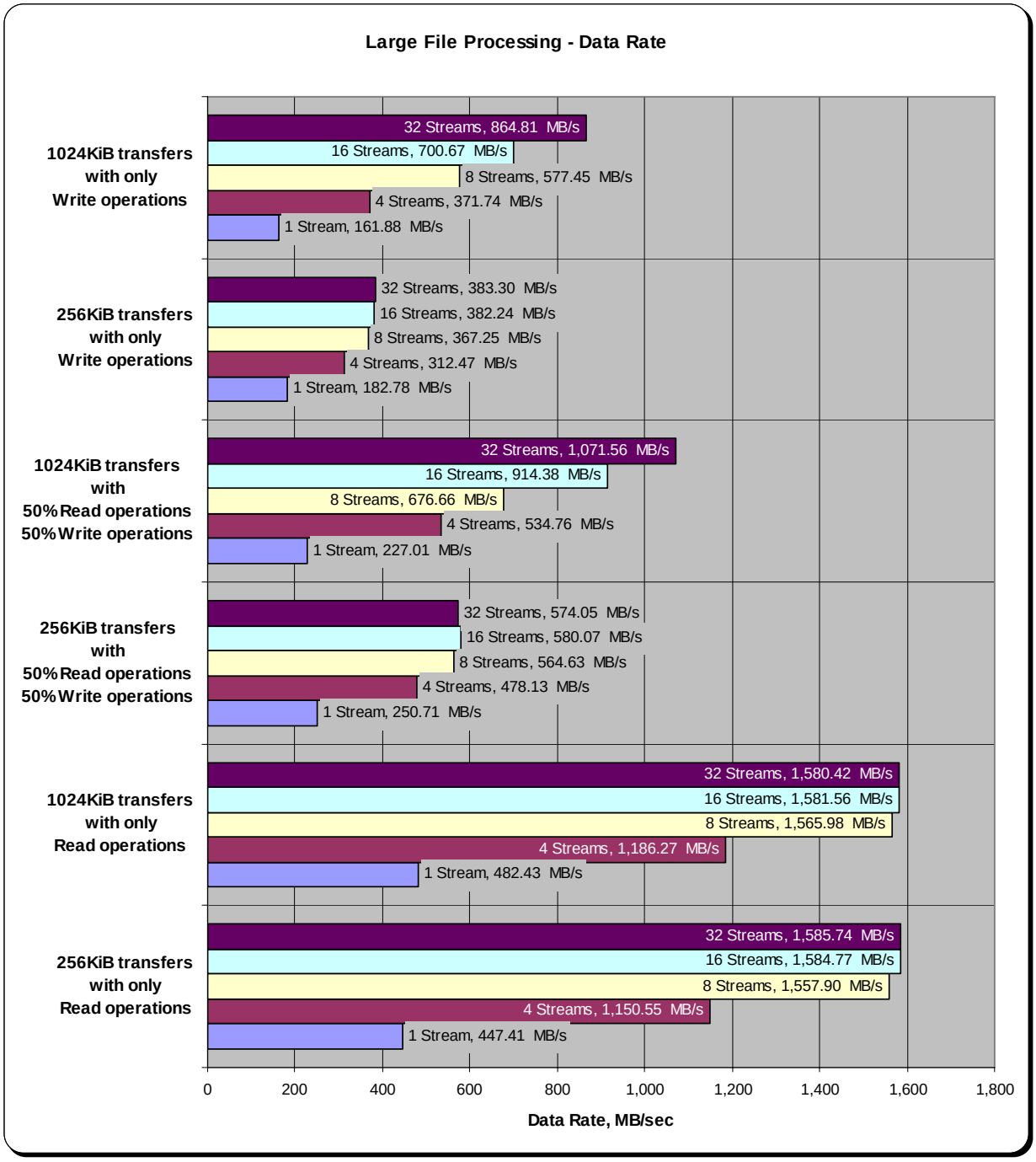
SPC-2 Large File Processing Test Results File

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

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

Test Run Sequence	1 Stream	4 Streams	8 Streams	16 Streams	32 Streams
Write 1024KiB	161.88	371.74	577.45	700.67	864.81
Write 256KiB	182.78	312.47	367.25	382.24	383.30
Read/Write 1024KiB	227.01	534.76	676.66	914.38	1,071.56
Read/Write 256KiB	250.71	478.13	564.63	580.07	574.05
Read 1024KiB	482.43	1,186.27	1,565.98	1,581.56	1,580.42
Read 256KiB	447.41	1,150.55	1,557.90	1,584.77	1,585.74

SPC-2 Large File Processing Average Data Rates Graph

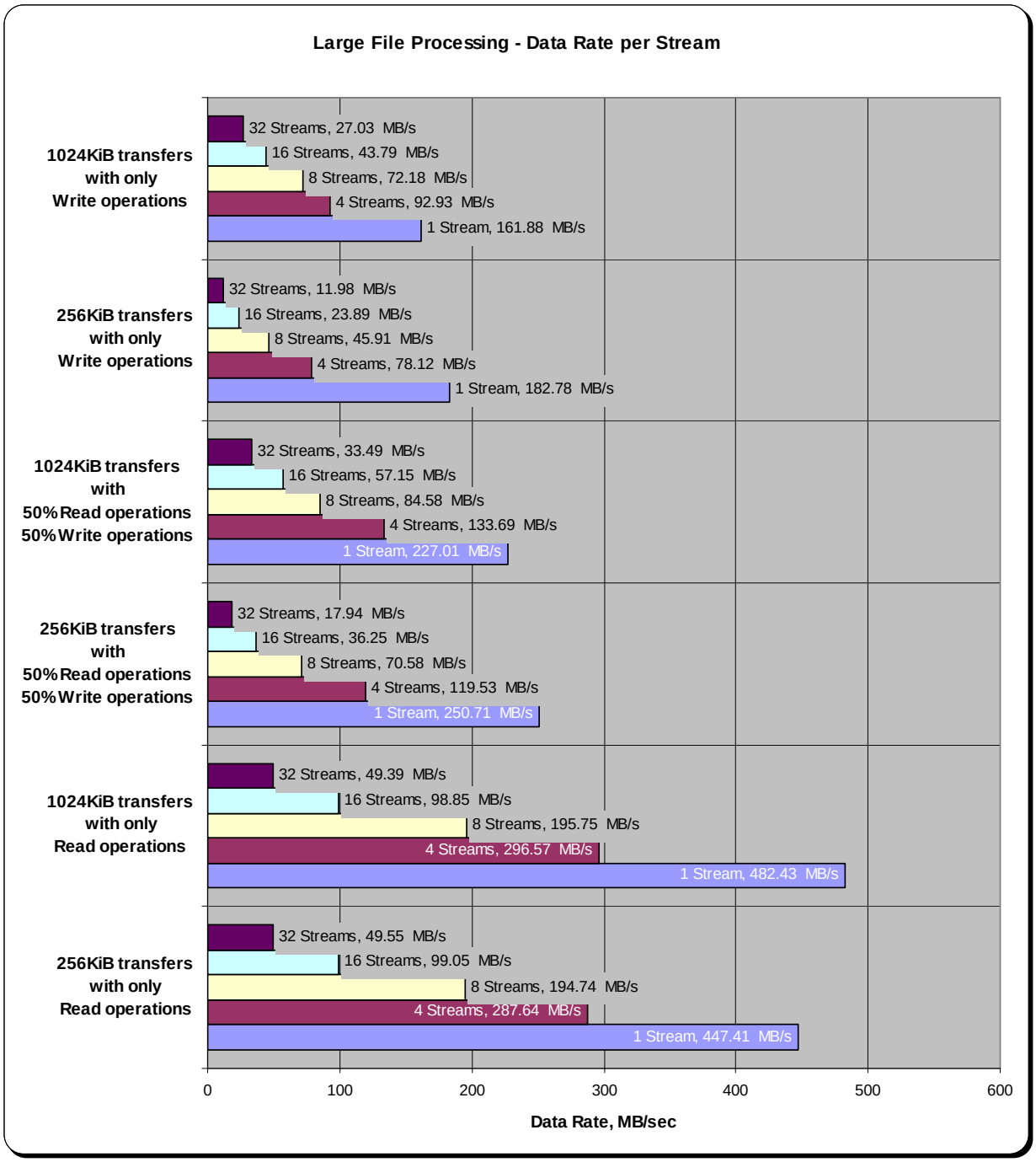


SPC-2 Large File Processing Average Data Rate per Stream

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

Test Run Sequence	1 Stream	4 Streams	8 Streams	16 Streams	32 Streams
Write 1024KiB	161.88	92.93	72.18	43.79	27.03
Write 256KiB	182.78	78.12	45.91	23.89	11.98
Read/Write 1024KiB	227.01	133.69	84.58	57.15	33.49
Read/Write 256KiB	250.71	119.53	70.58	36.25	17.94
Read 1024KiB	482.43	296.57	195.75	98.85	49.39
Read 256KiB	447.41	287.64	194.74	99.05	49.55

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

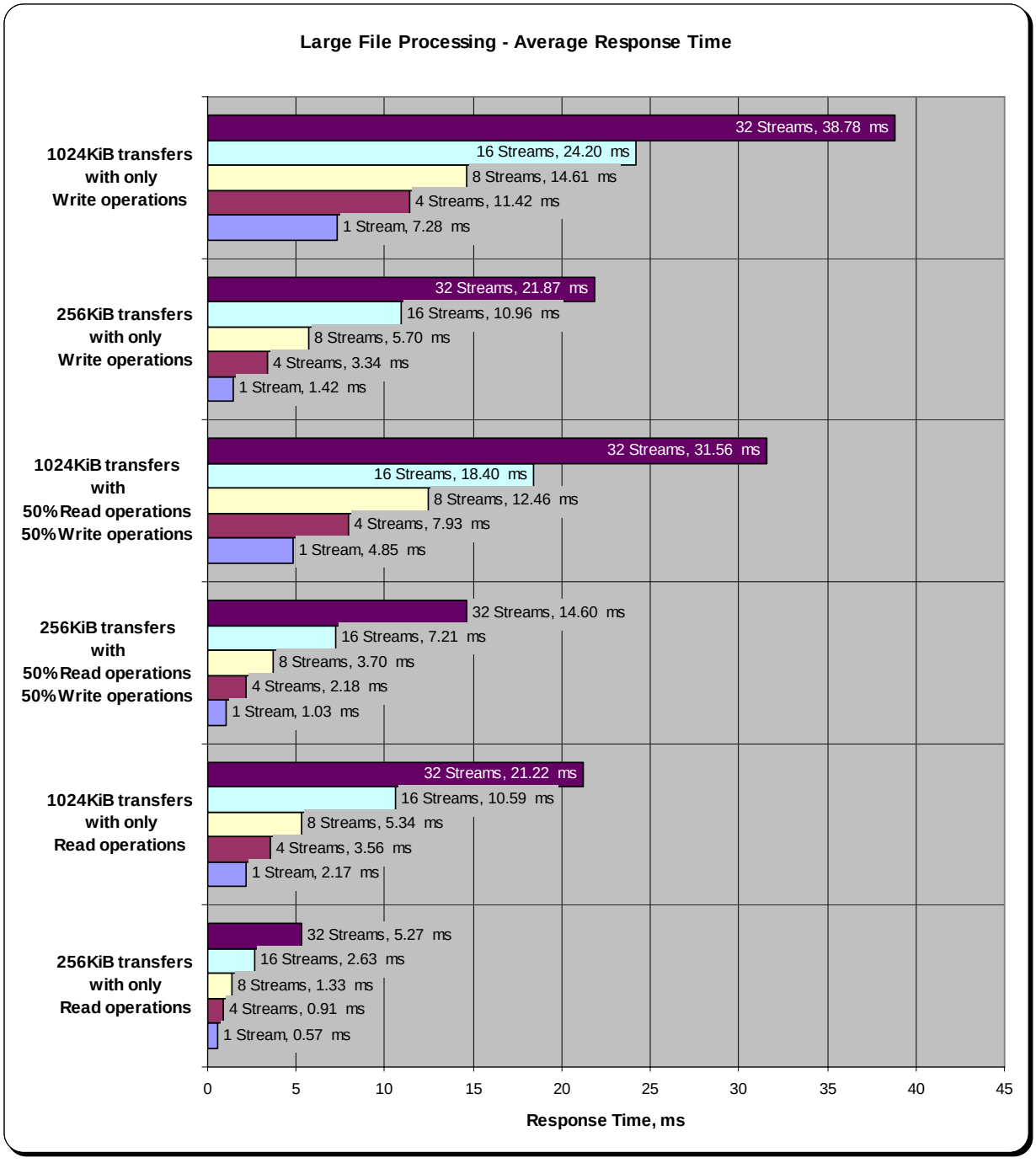


SPC-2 Large File Processing Average Response Time

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	4 Streams	8 Streams	16 Streams	32 Streams
Write 1024KiB	7.28	11.42	14.61	24.20	38.78
Write 256KiB	1.42	3.34	5.70	10.96	21.87
Read/Write 1024KiB	4.85	7.93	12.46	18.40	31.56
Read/Write 256KiB	1.03	2.18	3.70	7.21	14.60
Read 1024KiB	2.17	3.56	5.34	10.59	21.22
Read 256KiB	0.57	0.91	1.33	2.63	5.27

SPC-2 Large File Processing Average Response Time Graph



Large File Processing Test – WRITE ONLY Test Phase

Clause 10.6.8.1.1

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

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

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

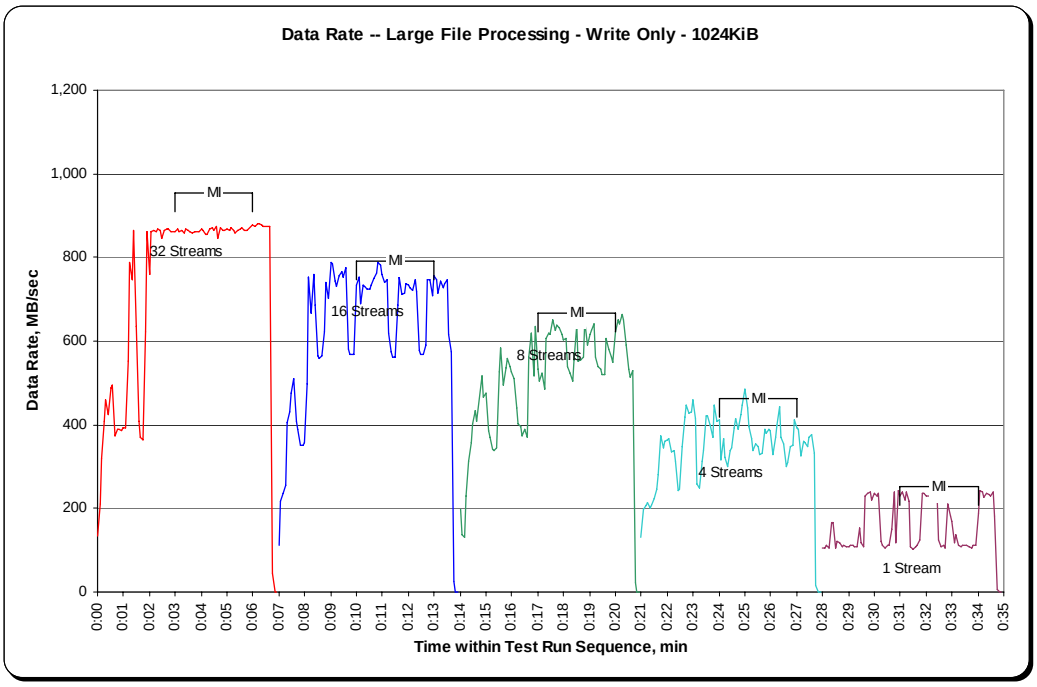
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR1	32 Streams			TR2	16 Streams			TR3	8 Streams			TR4	4 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	132.75	22.12	24.64	0:07:00	112.41	37.47	17.18	0:14:00	198.60	99.30	9.55	0:21:00	131.07	65.54	9.32	0:28:00	104.65	104.65	9.59
0:00:05	210.13	30.02	32.33	0:07:05	217.89	54.47	18.62	0:14:05	136.31	68.16	15.39	0:21:05	197.55	98.78	10.61	0:28:05	105.28	105.28	9.94
0:00:10	317.93	28.90	31.77	0:07:10	236.56	47.31	18.77	0:14:10	130.65	65.33	16.06	0:21:10	207.62	103.81	10.09	0:28:10	110.73	110.73	9.45
0:00:15	407.90	33.99	29.22	0:07:15	253.97	42.33	23.33	0:14:15	228.59	57.15	12.60	0:21:15	214.12	107.06	9.77	0:28:15	103.81	103.81	10.09
0:00:20	458.65	30.58	30.33	0:07:20	406.64	58.09	15.91	0:14:20	312.48	78.12	13.42	0:21:20	201.33	100.66	10.41	0:28:20	167.14	167.14	6.26
0:00:25	424.67	26.54	39.47	0:07:25	430.96	53.87	18.77	0:14:25	358.19	71.64	12.93	0:21:25	206.99	103.49	10.12	0:28:25	166.09	166.09	6.30
0:00:30	489.06	28.77	36.26	0:07:30	475.84	52.87	19.32	0:14:30	401.39	80.28	13.06	0:21:30	224.40	112.20	9.33	0:28:30	104.44	104.44	10.01
0:00:35	494.30	29.08	36.04	0:07:35	510.66	51.07	20.24	0:14:35	435.37	87.07	12.01	0:21:35	246.63	123.31	8.48	0:28:35	121.63	121.63	8.62
0:00:40	374.97	19.74	49.55	0:07:40	407.69	37.06	26.01	0:14:40	407.27	81.45	12.87	0:21:40	280.60	70.15	13.80	0:28:40	116.60	116.60	8.98
0:00:45	389.86	20.52	51.29	0:07:45	389.02	32.42	30.56	0:14:45	463.89	66.27	13.35	0:21:45	372.24	93.06	11.26	0:28:45	109.89	109.89	9.53
0:00:50	389.65	18.55	55.52	0:07:50	351.69	27.05	36.01	0:14:50	515.69	73.67	14.26	0:21:50	345.61	86.40	12.13	0:28:50	111.15	111.15	9.42
0:00:55	387.13	18.43	56.57	0:07:55	352.53	27.12	38.79	0:14:55	466.83	58.35	17.44	0:21:55	359.45	89.86	11.65	0:28:55	108.00	108.00	9.70
0:01:00	393.64	17.11	58.24	0:08:00	358.19	23.88	40.92	0:15:00	476.89	59.61	17.57	0:22:00	364.90	91.23	11.48	0:29:00	109.47	109.47	9.56
0:01:05	392.80	16.37	62.32	0:08:05	497.23	31.08	33.17	0:15:05	384.62	48.08	21.78	0:22:05	368.26	92.06	11.38	0:29:05	112.62	112.62	9.29
0:01:10	553.23	22.13	46.62	0:08:10	751.62	46.98	22.33	0:15:10	369.10	46.14	22.74	0:22:10	335.33	83.83	12.48	0:29:10	110.31	110.31	9.49
0:01:15	788.32	28.15	36.47	0:08:15	668.15	41.76	25.07	0:15:15	342.46	42.81	24.48	0:22:15	338.90	84.72	12.37	0:29:15	107.16	107.16	9.78
0:01:20	747.22	23.35	41.37	0:08:20	760.64	47.54	22.03	0:15:20	338.06	42.26	24.78	0:22:20	313.73	78.43	13.35	0:29:20	108.00	108.00	9.69
0:01:25	865.08	27.03	38.79	0:08:25	686.40	42.90	24.42	0:15:25	344.98	43.12	24.31	0:22:25	242.43	60.61	17.29	0:29:25	154.14	154.14	6.79
0:01:30	633.97	19.81	52.53	0:08:30	565.60	35.35	29.67	0:15:30	526.18	65.77	15.94	0:22:30	245.16	61.29	16.91	0:29:30	117.65	117.65	8.89
0:01:35	408.94	12.78	82.10	0:08:35	559.10	34.94	29.97	0:15:35	583.64	72.95	14.35	0:22:35	347.29	86.82	12.19	0:29:35	109.47	109.47	9.57
0:01:40	369.94	11.56	90.56	0:08:40	565.39	35.34	29.66	0:15:40	494.09	61.76	16.96	0:22:40	417.33	104.33	10.04	0:29:40	230.27	230.27	4.54
0:01:45	365.32	11.42	92.08	0:08:45	622.02	38.88	26.97	0:15:45	537.71	67.21	15.59	0:22:45	446.27	111.57	9.38	0:29:45	237.40	237.40	4.40
0:01:50	621.18	19.41	54.30	0:08:50	741.55	46.35	22.61	0:15:50	559.73	69.97	14.97	0:22:50	427.19	106.80	9.80	0:29:50	237.82	237.82	4.39
0:01:55	861.51	26.92	38.93	0:08:55	700.66	43.79	23.92	0:15:55	540.02	67.50	15.53	0:22:55	430.13	107.53	9.74	0:29:55	219.78	219.78	4.75
0:02:00	760.85	23.78	44.03	0:09:00	788.32	49.27	21.31	0:16:00	526.80	65.85	15.89	0:23:00	460.53	115.13	9.10	0:30:00	236.77	236.77	4.41
0:02:05	863.19	26.97	38.89	0:09:05	786.64	49.17	21.27	0:16:05	511.50	63.94	16.40	0:23:05	415.87	103.97	10.09	0:30:05	229.01	229.01	4.56
0:02:10	864.03	27.00	38.86	0:09:10	743.44	46.47	22.56	0:16:10	441.87	55.23	18.95	0:23:10	257.11	64.28	16.25	0:30:10	237.19	237.19	4.41
0:02:15	862.77	26.96	38.82	0:09:15	731.91	45.74	22.92	0:16:15	402.65	50.33	20.82	0:23:15	248.93	62.23	16.84	0:30:15	122.68	122.68	8.53
0:02:20	866.54	27.08	38.75	0:09:20	757.49	47.34	22.13	0:16:20	396.99	49.62	21.13	0:23:20	313.94	78.49	13.34	0:30:20	110.73	110.73	9.46
0:02:25	864.66	27.02	38.75	0:09:25	766.30	47.89	21.86	0:16:25	373.29	46.66	22.44	0:23:25	337.64	84.41	12.41	0:30:25	106.54	106.54	9.83
0:02:30	845.57	26.42	39.69	0:09:30	753.93	47.12	22.24	0:16:30	390.91	48.86	21.46	0:23:30	422.79	105.70	9.91	0:30:30	110.73	110.73	9.45
0:02:35	865.91	27.06	38.74	0:09:35	775.11	48.44	21.63	0:16:35	369.73	46.22	22.67	0:23:35	420.27	105.07	9.96	0:30:35	111.57	111.57	9.37
0:02:40	867.17	27.10	38.66	0:09:40	582.17	36.39	28.80	0:16:40	563.09	70.39	14.90	0:23:40	398.88	99.72	10.50	0:30:40	151.20	151.20	6.93
0:02:45	868.22	27.13	38.67	0:09:45	567.49	35.47	29.51	0:16:45	618.03	77.25	13.56	0:23:45	371.20	92.80	11.29	0:30:45	239.29	239.29	4.37
0:02:50	860.88	26.90	38.90	0:09:50	566.86	35.43	29.64	0:16:50	518.42	64.80	16.17	0:23:50	445.64	111.41	9.40	0:30:50	119.12	119.12	8.78
0:02:55	860.25	26.88	38.99	0:09:55	567.28	35.45	29.54	0:16:55	634.60	79.32	13.21	0:23:55	407.27	101.82	10.28	0:30:55	242.01	242.01	4.32

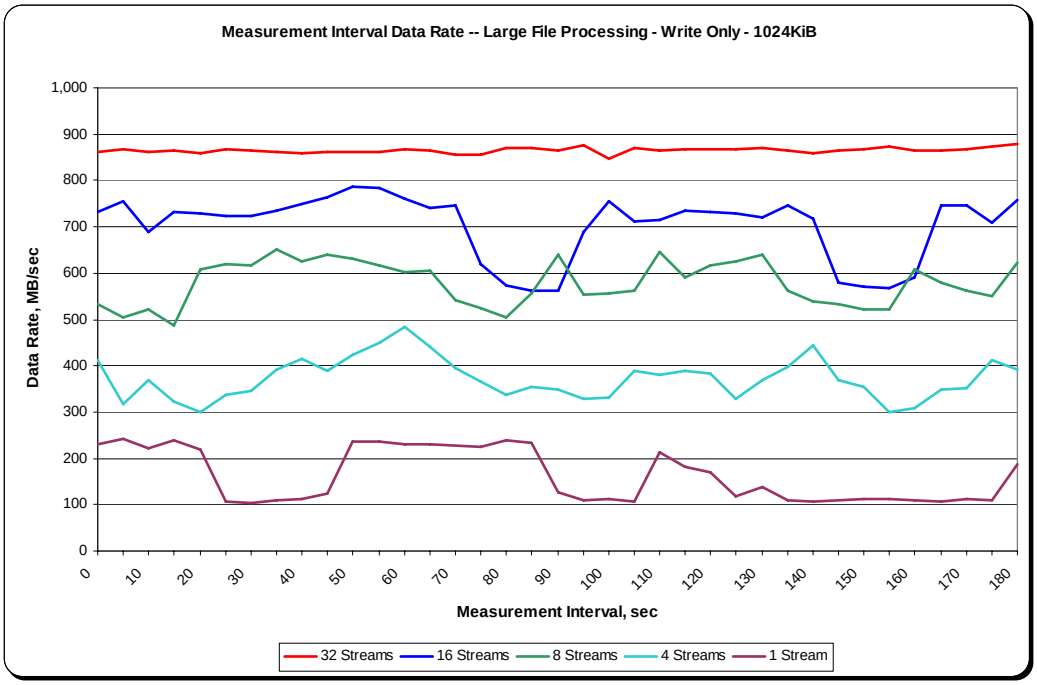
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	32 Streams			TR2	16 Streams			TR3	8 Streams			TR4	4 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	862.98	26.97	38.89	0:10:00	733.16	45.82	22.90	0:17:00	532.47	66.56	15.74	0:24:00	411.46	102.87	10.19	0:31:00	230.90	230.90	4.53
0:03:05	866.96	27.09	38.78	0:10:05	754.77	47.17	22.21	0:17:05	504.99	63.12	16.59	0:24:05	316.04	79.01	13.25	0:31:05	240.75	240.75	4.34
0:03:10	862.77	26.96	38.75	0:10:10	688.70	43.04	24.30	0:17:10	521.98	65.25	16.05	0:24:10	368.05	92.01	11.38	0:31:10	221.67	221.67	4.71
0:03:15	863.40	26.98	38.85	0:10:15	732.54	45.78	22.89	0:17:15	485.91	60.74	17.26	0:24:15	322.96	80.74	12.97	0:31:15	240.33	240.33	4.35
0:03:20	859.62	26.86	39.06	0:10:20	730.44	45.65	22.97	0:17:20	607.96	76.00	13.78	0:24:20	300.10	75.03	13.90	0:31:20	218.52	218.52	4.78
0:03:25	867.80	27.12	38.60	0:10:25	723.10	45.19	23.21	0:17:25	618.24	77.28	13.56	0:24:25	338.48	84.62	12.43	0:31:25	106.95	106.95	9.78
0:03:30	865.91	27.06	38.72	0:10:30	724.57	45.29	23.12	0:17:30	616.98	77.12	13.58	0:24:30	344.56	86.14	12.17	0:31:30	103.60	103.60	10.20
0:03:35	861.72	26.93	38.95	0:10:35	735.05	45.94	22.79	0:17:35	650.75	81.34	12.87	0:24:35	391.96	97.99	10.68	0:31:35	109.68	109.68	9.46
0:03:40	858.99	26.84	39.04	0:10:40	750.57	46.91	22.37	0:17:40	624.11	78.01	13.43	0:24:40	414.40	103.60	10.11	0:31:40	111.57	111.57	9.38
0:03:45	862.56	26.95	38.90	0:10:45	762.94	47.68	21.97	0:17:45	638.79	79.85	13.12	0:24:45	389.86	97.47	10.74	0:31:45	124.57	124.57	8.41
0:03:50	860.46	26.89	38.95	0:10:50	786.85	49.18	21.25	0:17:50	632.08	79.01	13.25	0:24:50	424.04	106.01	9.88	0:31:50	235.09	235.09	4.44
0:03:55	862.14	26.94	38.92	0:10:55	783.50	48.97	21.40	0:17:55	615.51	76.94	13.61	0:24:55	448.37	112.09	9.34	0:31:55	234.88	234.88	4.45
0:04:00	866.96	27.09	38.69	0:11:00	759.59	47.47	22.06	0:18:00	602.30	75.29	13.92	0:25:00	484.44	121.11	8.65	0:32:00	230.90	230.90	4.53
0:04:05	863.82	26.99	38.82	0:11:05	739.67	46.23	22.67	0:18:05	605.03	75.63	13.86	0:25:05	441.45	110.36	9.48	0:32:05	230.69	230.69	4.53
0:04:10	855.01	26.72	39.25	0:11:10	745.33	46.58	22.48	0:18:10	540.44	67.55	15.49	0:25:10	394.26	98.57	10.64	0:32:10	228.38	228.38	4.58
0:04:15	856.90	26.78	39.10	0:11:15	618.24	38.64	27.11	0:18:15	524.08	65.51	15.97	0:25:15	365.95	91.49	11.42	0:32:15	224.40	224.40	4.66
0:04:20	869.06	27.16	38.64	0:11:20	573.99	35.87	29.23	0:18:20	504.37	63.05	16.62	0:25:20	338.48	84.62	12.38	0:32:20	240.54	240.54	4.34
0:04:25	871.58	27.24	38.55	0:11:25	561.83	35.11	29.85	0:18:25	556.58	69.57	15.07	0:25:25	353.79	88.45	11.84	0:32:25	233.41	233.41	4.48
0:04:30	865.91	27.06	38.61	0:11:30	560.57	35.04	29.91	0:18:30	638.37	79.80	13.11	0:25:30	348.55	87.14	12.02	0:32:30	125.83	125.83	8.31
0:04:35	875.14	27.35	38.49	0:11:35	687.45	42.97	24.41	0:18:35	552.81	69.10	15.16	0:25:35	327.78	81.95	12.78	0:32:35	108.42	108.42	9.66
0:04:40	847.04	26.47	39.44	0:11:40	754.14	47.13	22.24	0:18:40	555.95	69.49	15.08	0:25:40	331.14	82.79	12.65	0:32:40	112.62	112.62	9.29
0:04:45	870.11	27.19	38.62	0:11:45	713.24	44.58	23.49	0:18:45	560.99	70.12	14.94	0:25:45	388.39	97.10	10.78	0:32:45	105.91	105.91	9.88
0:04:50	865.91	27.06	38.70	0:11:50	715.55	44.72	23.41	0:18:50	646.55	80.82	12.95	0:25:50	379.17	94.79	11.05	0:32:50	212.02	212.02	4.94
0:04:55	866.12	27.07	38.69	0:11:55	735.89	45.99	22.80	0:18:55	591.40	73.92	14.18	0:25:55	389.65	97.41	10.75	0:32:55	180.56	180.56	5.78
0:05:00	866.75	27.09	38.73	0:12:00	733.16	45.82	22.86	0:19:00	616.35	77.04	13.54	0:26:00	384.62	96.15	10.89	0:33:00	168.61	168.61	6.20
0:05:05	866.33	27.07	38.67	0:12:05	729.18	45.57	23.00	0:19:05	626.21	78.28	13.38	0:26:05	329.25	82.31	12.73	0:33:05	116.81	116.81	8.97
0:05:10	870.32	27.20	38.51	0:12:10	720.79	45.05	23.25	0:19:10	641.10	80.14	13.10	0:26:10	369.94	92.48	11.32	0:33:10	138.62	138.62	7.54
0:05:15	864.24	27.01	38.89	0:12:15	747.01	46.69	22.45	0:19:15	561.62	70.20	14.89	0:26:15	398.04	99.51	10.53	0:33:15	110.31	110.31	9.50
0:05:20	858.78	26.84	38.99	0:12:20	718.90	44.93	23.27	0:19:20	539.60	67.45	15.53	0:26:20	442.50	110.62	9.47	0:33:20	108.00	108.00	9.69
0:05:25	864.45	27.01	38.70	0:12:25	577.98	36.12	29.08	0:19:25	531.84	66.48	15.76	0:26:25	368.68	92.17	11.36	0:33:25	110.73	110.73	9.44
0:05:30	868.64	27.15	38.73	0:12:30	569.59	35.60	29.41	0:19:30	521.56	65.20	16.07	0:26:30	355.68	88.92	11.77	0:33:30	112.41	112.41	9.32
0:05:35	872.21	27.26	38.44	0:12:35	566.65	35.42	29.59	0:19:35	521.77	65.22	16.06	0:26:35	298.63	74.66	14.02	0:33:35	113.25	113.25	9.24
0:05:40	865.08	27.03	38.69	0:12:40	589.72	36.86	28.47	0:19:40	607.75	75.97	13.79	0:26:40	309.33	77.33	13.56	0:33:40	108.42	108.42	9.66
0:05:45	865.70	27.05	38.78	0:12:45	745.54	46.60	22.49	0:19:45	579.65	72.46	14.46	0:26:45	347.92	86.98	12.04	0:33:45	106.33	106.33	9.84
0:05:50	868.43	27.14	38.65	0:12:50	746.17	46.64	22.32	0:19:50	562.67	70.33	14.89	0:26:50	351.48	87.87	11.93	0:33:50	111.15	111.15	9.42
0:05:55	873.25	27.29	38.31	0:12:55	707.79	44.24	23.84	0:19:55	549.45	68.68	15.25	0:26:55	413.14	103.28	10.14	0:33:55	110.73	110.73	9.45
0:06:00	878.71	27.46	38.29	0:13:00	757.07	47.32	22.15	0:20:00	622.43	77.80	13.46	0:27:00	391.96	97.99	10.69	0:34:00	188.74	188.74	5.55
0:06:05	873.04	27.28	38.41	0:13:05	746.59	46.66	22.45	0:20:05	650.12	81.26	12.89	0:27:05	389.02	97.26	10.76	0:34:05	241.59	241.59	4.32
0:06:10	881.43	27.54	38.01	0:13:10	714.29	44.64	23.48	0:20:10	642.99	80.37	13.04	0:27:10	325.27	81.32	12.88	0:34:10	239.49	239.49	4.36
0:06:15	879.76	27.49	38.18	0:13:15	744.28	46.52	22.52	0:20:15	664.17	83.02	12.61	0:27:15	359.24	89.81	11.67	0:34:15	228.17	228.17	4.50
0:06:20	876.40	27.39	38.23	0:13:20	728.34	45.52	23.02	0:20:20	649.91	81.24	12.90	0:27:20	359.03	89.76	11.66	0:34:20	235.72	235.72	4.51
0:06:25	875.98	27.37	38.30	0:13:25	736.10	46.01	22.77	0:20:25	591.61	73.95	14.16	0:27:25	346.45	86.61	12.05	0:34:25	233.20	233.20	4.48
0:06:30	873.25	27.29	38.37	0:13:30	745.54	46.60	22.50	0:20:30	534.56	66.82	15.68	0:27:30	368.89	92.22	11.41	0:34:30	230.90	230.90	4.53
0:06:35	874.30	27.32	38.34	0:13:35	615.93	38.50	27.19	0:20:35	514.64	64.33	16.29	0:27:35	375.39	93.85	11.08	0:34:35	240.75	240.75	4.34
0:06:40	874.09	27.32	38.39	0:13:40	574.83	35.93	29.18	0:20:40	528.48	66.06	15.86	0:27:40	333.03	83.26	12.66	0:34:40	181.40	181.40	5.76
0:06:45	43.20	0.00	38.53	0:13:45	26.21	0.00	29.81	0:20:45	22.23	0.00	16.80	0:27:45	16.78	0.00	11.13	0:34:45	5.03	0.00	9.36
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

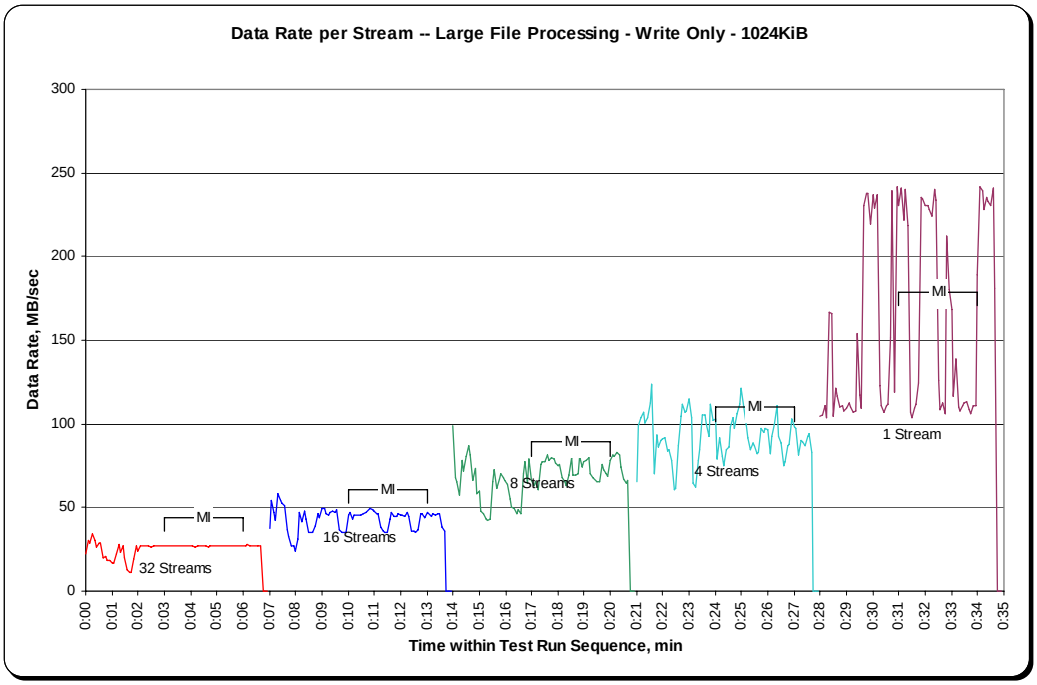
SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



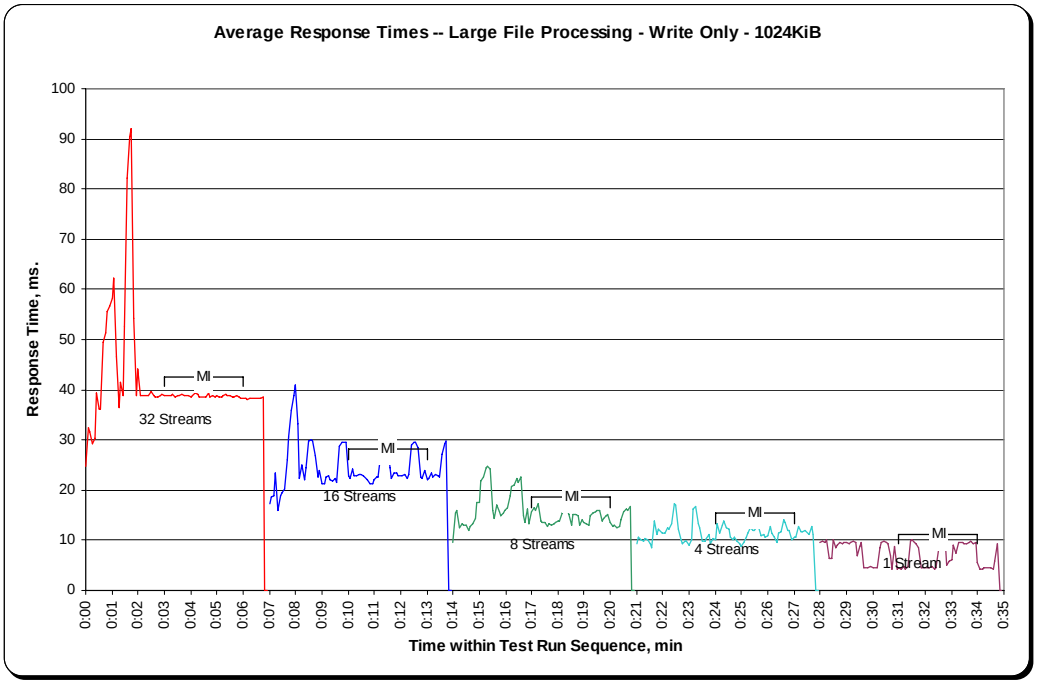
SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



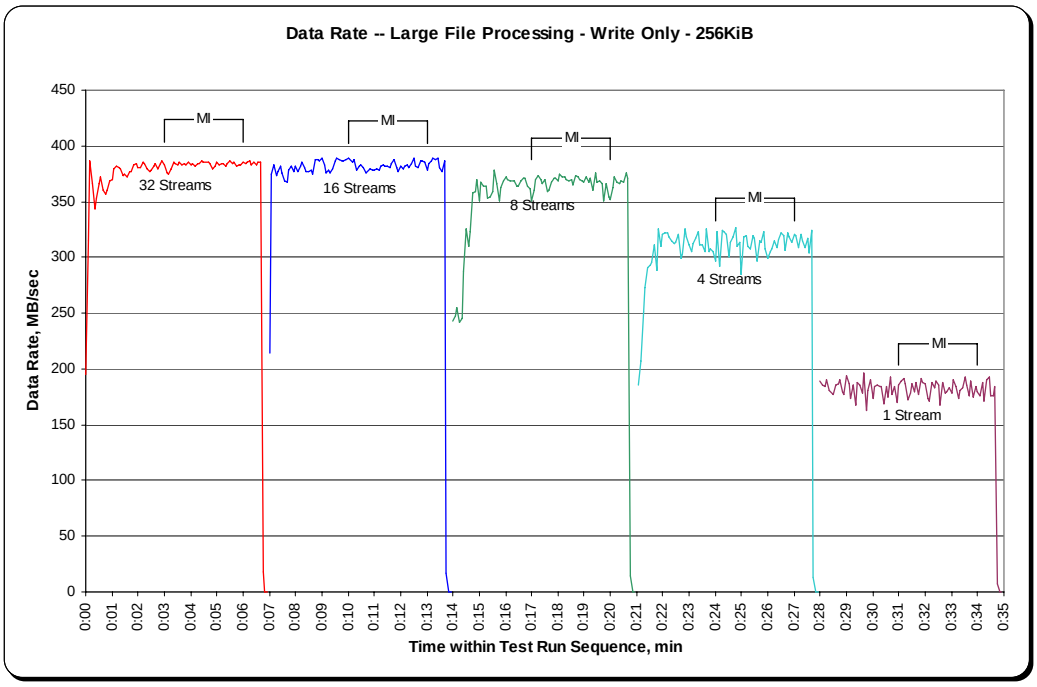
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR6	32 Streams			TR7	16 Streams			TR8	8 Streams			TR9	4 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	194.67	97.33	1.51	0:07:00	214.80	53.70	1.86	0:14:00	242.64	121.32	1.80	0:21:05	185.60	185.60	1.40	0:28:00	189.11	189.11	1.32
0:00:05	314.42	34.94	4.46	0:07:05	374.60	53.51	3.74	0:14:05	247.15	123.57	2.11	0:21:10	206.99	103.49	1.59	0:28:05	185.65	185.65	1.40
0:00:10	386.98	27.64	8.11	0:07:10	382.52	54.65	4.78	0:14:10	255.17	127.59	2.04	0:21:15	251.61	125.80	2.07	0:28:10	183.87	183.87	1.41
0:00:15	366.48	24.43	10.34	0:07:15	373.35	46.67	5.57	0:14:15	242.27	121.14	2.15	0:21:20	273.00	91.00	2.53	0:28:15	189.95	189.95	1.37
0:00:20	343.46	21.47	11.91	0:07:20	377.07	41.90	6.18	0:14:20	245.73	122.87	2.12	0:21:25	290.87	96.96	2.69	0:28:20	180.46	180.46	1.44
0:00:25	352.95	19.61	12.68	0:07:25	381.37	42.37	6.17	0:14:25	287.05	95.68	2.64	0:21:30	293.65	73.41	3.29	0:28:25	178.52	178.52	1.46
0:00:30	365.69	17.41	13.60	0:07:30	375.50	41.72	6.27	0:14:30	325.48	81.37	3.19	0:21:35	295.59	73.90	3.53	0:28:30	177.63	177.63	1.46
0:00:35	372.30	16.19	16.02	0:07:35	368.10	40.90	6.39	0:14:35	309.70	77.42	3.37	0:21:40	311.16	77.79	3.36	0:28:35	186.07	186.07	1.40
0:00:40	360.34	13.35	18.50	0:07:40	367.32	36.73	6.54	0:14:40	323.59	53.93	3.56	0:21:45	288.62	72.16	3.62	0:28:40	186.75	186.75	1.39
0:00:45	356.88	12.31	20.70	0:07:45	378.33	34.39	7.12	0:14:45	358.04	59.67	4.38	0:21:50	325.64	81.41	3.21	0:28:45	190.63	190.63	1.36
0:00:50	360.08	12.00	21.29	0:07:50	382.36	29.41	7.96	0:14:50	358.61	51.23	4.86	0:21:55	310.27	77.57	3.36	0:28:50	179.62	179.62	1.45
0:00:55	368.42	12.28	21.36	0:07:55	377.43	29.03	9.01	0:14:55	370.20	52.89	4.93	0:22:00	320.60	80.15	3.26	0:28:55	177.37	177.37	1.46
0:01:00	370.36	12.35	21.22	0:08:00	382.05	27.29	8.95	0:15:00	351.17	43.90	5.78	0:22:05	321.86	80.47	3.24	0:29:00	194.04	194.04	1.34
0:01:05	379.58	12.24	21.26	0:08:05	377.49	26.96	9.70	0:15:05	367.84	45.98	5.69	0:22:10	321.70	80.43	3.25	0:29:05	186.70	186.70	1.39
0:01:10	381.73	12.31	21.26	0:08:10	381.21	25.41	9.79	0:15:10	363.59	45.45	5.75	0:22:15	317.93	79.48	3.28	0:29:10	173.07	173.07	1.50
0:01:15	380.06	12.26	21.35	0:08:15	385.25	24.08	10.58	0:15:15	364.33	45.54	5.74	0:22:20	315.31	78.83	3.31	0:29:15	185.86	185.86	1.40
0:01:20	378.80	12.22	21.44	0:08:20	380.00	23.75	11.03	0:15:20	352.90	44.11	5.93	0:22:25	312.53	78.13	3.34	0:29:20	167.77	167.77	1.55
0:01:25	373.50	11.67	22.41	0:08:25	376.44	23.53	11.12	0:15:25	354.63	44.33	5.90	0:22:30	314.10	78.53	3.32	0:29:25	187.64	187.64	1.38
0:01:30	374.34	11.70	22.41	0:08:30	376.75	23.55	11.11	0:15:30	358.98	44.87	5.82	0:22:35	320.24	80.06	3.26	0:29:30	185.91	185.91	1.40
0:01:35	372.51	11.64	22.49	0:08:35	378.22	23.64	11.07	0:15:35	378.17	47.27	5.53	0:22:40	299.74	74.93	3.49	0:29:35	177.94	177.94	1.46
0:01:40	377.02	11.78	22.23	0:08:40	374.55	23.41	11.18	0:15:40	366.22	45.78	5.71	0:22:45	302.30	75.58	3.45	0:29:40	196.08	196.08	1.32
0:01:45	377.38	11.79	22.20	0:08:45	387.92	24.25	10.80	0:15:45	351.12	43.89	5.96	0:22:50	325.06	81.26	3.21	0:29:45	162.79	162.79	1.56
0:01:50	382.57	11.96	21.94	0:08:50	387.45	24.22	10.81	0:15:50	362.70	45.34	5.74	0:22:55	318.19	79.55	3.28	0:29:50	180.30	180.30	1.44
0:01:55	384.46	12.01	21.80	0:08:55	387.08	24.19	10.82	0:15:55	369.15	46.14	5.69	0:23:00	310.59	77.65	3.36	0:29:55	189.74	189.74	1.37
0:02:00	380.74	11.90	22.02	0:09:00	388.44	24.28	10.78	0:16:00	372.56	46.57	5.61	0:23:05	305.40	76.35	3.42	0:30:00	173.64	173.64	1.50
0:02:05	380.42	11.89	22.06	0:09:05	383.41	23.96	10.92	0:16:05	369.52	46.19	5.66	0:23:10	312.95	78.24	3.34	0:30:05	184.08	184.08	1.41
0:02:10	385.93	12.06	21.71	0:09:10	375.70	23.48	11.15	0:16:10	368.73	46.09	5.67	0:23:15	317.67	79.42	3.29	0:30:10	185.55	185.55	1.40
0:02:15	383.94	12.00	21.81	0:09:15	377.85	23.62	11.08	0:16:15	368.57	46.07	5.67	0:23:20	323.01	80.75	3.23	0:30:15	184.71	184.71	1.41
0:02:20	379.64	11.86	22.10	0:09:20	375.76	23.48	11.15	0:16:20	368.52	46.07	5.68	0:23:25	311.74	77.94	3.35	0:30:20	184.50	184.50	1.41
0:02:25	376.96	11.78	22.20	0:09:25	379.90	23.74	11.02	0:16:25	363.33	45.42	5.76	0:23:30	310.96	77.74	3.36	0:30:25	169.35	169.35	1.53
0:02:30	378.22	11.82	22.17	0:09:30	386.92	24.18	10.83	0:16:30	363.54	45.44	5.75	0:23:35	305.71	76.43	3.42	0:30:30	184.76	184.76	1.41
0:02:35	381.42	11.92	22.00	0:09:35	388.44	24.28	10.79	0:16:35	368.52	46.07	5.67	0:23:40	325.48	81.37	3.21	0:30:35	174.69	174.69	1.49
0:02:40	384.36	12.01	21.80	0:09:40	387.40	24.21	10.81	0:16:40	371.56	46.45	5.63	0:23:45	305.76	76.44	3.42	0:30:40	192.15	192.15	1.35
0:02:45	379.48	11.86	22.08	0:09:45	386.09	24.13	10.85	0:16:45	371.09	46.39	5.63	0:23:50	307.65	76.91	3.39	0:30:45	177.26	177.26	1.47
0:02:50	384.51	12.02	21.80	0:09:50	386.35	24.15	10.84	0:16:50	364.07	45.51	5.75	0:23:55	304.93	76.23	3.43	0:30:50	184.81	184.81	1.40
0:02:55	386.71	12.08	21.68	0:09:55	387.82	24.24	10.80	0:16:55	361.71	45.21	5.78					0:30:55	170.45	170.45	1.52

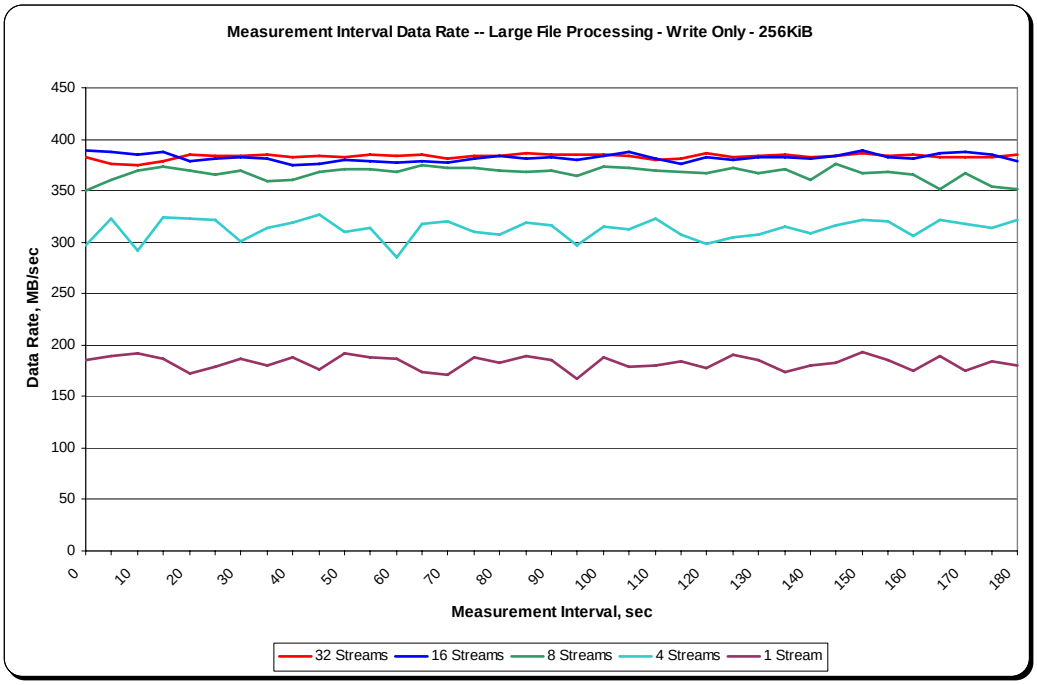
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	32 Streams			TR7	16 Streams			TR8	8 Streams			TR9	4 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	383.15	11.97	21.87	0:10:00	389.28	24.33	10.76	0:17:00	350.70	43.84	5.97	0:24:00	297.17	74.29	3.51	0:31:00	184.92	184.92	1.40
0:03:05	375.44	11.73	22.34	0:10:05	388.29	24.27	10.78	0:17:05	360.40	45.05	5.78	0:24:05	323.17	80.79	3.23	0:31:05	188.80	188.80	1.38
0:03:10	374.71	11.71	22.37	0:10:10	385.04	24.06	10.88	0:17:10	369.89	46.24	5.69	0:24:10	291.92	72.98	3.58	0:31:10	191.63	191.63	1.35
0:03:15	379.01	11.84	22.12	0:10:15	387.71	24.23	10.80	0:17:15	373.92	46.74	5.58	0:24:15	324.53	81.13	3.22	0:31:15	186.23	186.23	1.39
0:03:20	384.98	12.03	21.77	0:10:20	378.33	23.65	11.08	0:17:20	369.57	46.20	5.66	0:24:20	322.86	80.71	3.23	0:31:20	172.70	172.70	1.50
0:03:25	383.94	12.00	21.81	0:10:25	381.79	23.86	10.97	0:17:25	365.69	45.71	5.72	0:24:25	321.13	80.28	3.25	0:31:25	178.89	178.89	1.45
0:03:30	383.25	11.98	21.87	0:10:30	382.84	23.93	10.94	0:17:30	369.68	46.21	5.65	0:24:30	300.31	75.08	3.48	0:31:30	187.22	187.22	1.39
0:03:35	384.93	12.03	21.78	0:10:35	380.69	23.79	11.01	0:17:35	359.19	44.90	5.82	0:24:35	313.89	78.47	3.33	0:31:35	179.62	179.62	1.45
0:03:40	382.57	11.96	21.91	0:10:40	375.39	23.46	11.15	0:17:40	360.13	45.02	5.81	0:24:40	318.82	79.70	3.27	0:31:40	188.38	188.38	1.38
0:03:45	383.78	11.99	21.86	0:10:45	376.70	23.54	11.12	0:17:45	367.89	45.99	5.68	0:24:45	326.21	81.55	3.20	0:31:45	176.89	176.89	1.47
0:03:50	382.52	11.95	21.91	0:10:50	379.43	23.71	11.04	0:17:50	370.99	46.37	5.64	0:24:50	309.85	77.46	3.37	0:31:50	191.37	191.37	1.36
0:03:55	385.09	12.03	21.75	0:10:55	378.59	23.66	11.06	0:17:55	370.88	46.36	5.64	0:24:55	313.63	78.41	3.33	0:31:55	187.43	187.43	1.39
0:04:00	383.52	11.98	21.88	0:11:00	377.85	23.62	11.09	0:18:00	368.57	46.07	5.68	0:25:00	285.42	71.36	3.66	0:32:00	186.23	186.23	1.39
0:04:05	384.51	12.02	21.81	0:11:05	379.06	23.69	11.05	0:18:05	374.60	46.83	5.58	0:25:05	317.82	79.46	3.28	0:32:05	173.96	173.96	1.49
0:04:10	381.42	11.92	21.97	0:11:10	377.70	23.61	11.09	0:18:10	372.56	46.57	5.61	0:25:10	320.03	80.01	3.26	0:32:10	171.23	171.23	1.52
0:04:15	383.62	11.99	21.84	0:11:15	381.84	23.86	10.96	0:18:15	371.67	46.46	5.63	0:25:15	309.75	77.44	3.37	0:32:15	187.43	187.43	1.38
0:04:20	384.46	12.01	21.81	0:11:20	383.46	23.97	10.92	0:18:20	369.68	46.21	5.65	0:25:20	307.44	76.86	3.40	0:32:20	182.66	182.66	1.42
0:04:25	386.82	12.09	21.67	0:11:25	381.47	23.84	10.98	0:18:25	368.78	46.10	5.67	0:25:25	319.66	79.91	3.27	0:32:25	188.69	188.69	1.38
0:04:30	385.56	12.05	21.73	0:11:30	382.15	23.88	10.96	0:18:30	370.09	46.26	5.65	0:25:30	316.93	79.23	3.29	0:32:30	185.91	185.91	1.40
0:04:35	385.40	12.04	21.77	0:11:35	380.06	23.75	11.02	0:18:35	364.85	45.61	5.73	0:25:35	296.69	74.17	3.52	0:32:35	167.61	167.61	1.55
0:04:40	385.77	12.06	21.74	0:11:40	384.46	24.03	10.89	0:18:40	373.87	46.73	5.59	0:25:40	314.63	78.66	3.32	0:32:40	188.01	188.01	1.38
0:04:45	384.25	12.01	21.81	0:11:45	387.97	24.25	10.80	0:18:45	371.62	46.45	5.63	0:25:45	313.05	78.26	3.33	0:32:45	178.42	178.42	1.46
0:04:50	379.43	11.86	22.06	0:11:50	380.90	23.81	11.00	0:18:50	370.09	46.26	5.67	0:25:50	322.96	80.74	3.23	0:32:50	179.62	179.62	1.45
0:04:55	381.84	11.93	21.97	0:11:55	376.70	23.54	11.11	0:18:55	368.05	46.01	5.67	0:25:55	307.39	76.85	3.40	0:32:55	183.55	183.55	1.41
0:05:00	385.82	12.06	21.72	0:12:00	382.10	23.88	10.96	0:19:00	367.42	45.93	5.69	0:26:00	298.74	74.68	3.49	0:33:00	178.05	178.05	1.46
0:05:05	383.10	11.97	21.87	0:12:05	379.37	23.71	11.04	0:19:05	372.30	46.54	5.62	0:26:05	304.98	76.24	3.42	0:33:05	190.26	190.26	1.36
0:05:10	384.15	12.00	21.84	0:12:10	382.21	23.89	10.96	0:19:10	367.26	45.91	5.69	0:26:10	307.76	76.94	3.39	0:33:10	184.81	184.81	1.40
0:05:15	384.72	12.02	21.75	0:12:15	382.99	23.94	10.94	0:19:15	371.20	46.40	5.63	0:26:15	315.10	78.77	3.31	0:33:15	174.12	174.12	1.49
0:05:20	382.10	11.94	21.95	0:12:20	381.05	23.82	10.99	0:19:20	360.50	45.06	5.80	0:26:20	308.86	77.21	3.38	0:33:20	180.15	180.15	1.44
0:05:25	384.30	12.01	21.82	0:12:25	384.20	24.01	10.90	0:19:25	376.39	47.05	5.55	0:26:25	316.51	79.13	3.30	0:33:25	183.13	183.13	1.42
0:05:30	386.98	12.09	21.68	0:12:30	389.44	24.34	10.76	0:19:30	366.84	45.86	5.70	0:26:30	321.76	80.44	3.24	0:33:30	192.83	192.83	1.35
0:05:35	384.15	12.00	21.81	0:12:35	382.10	23.88	10.96	0:19:35	368.47	46.06	5.67	0:26:35	319.71	79.93	3.27	0:33:35	185.02	185.02	1.40
0:05:40	385.67	12.05	21.75	0:12:40	381.00	23.81	11.00	0:19:40	366.06	45.76	5.72	0:26:40	305.87	76.47	3.41	0:33:40	175.53	175.53	1.48
0:05:45	382.21	11.94	21.91	0:12:45	385.98	24.12	10.84	0:19:45	350.91	43.86	5.96	0:26:45	322.02	80.50	3.24	0:33:45	189.32	189.32	1.37
0:05:50	382.78	11.96	21.91	0:12:50	387.13	24.20	10.82	0:19:50	366.53	45.82	5.71	0:26:50	318.24	79.56	3.28	0:33:50	175.11	175.11	1.48
0:05:55	382.99	11.97	21.87	0:12:55	385.25	24.08	10.87	0:19:55	353.68	44.21	5.91	0:26:55	313.94	78.49	3.32	0:33:55	184.23	184.23	1.41
0:06:00	385.04	12.03	21.74	0:13:00	378.59	23.66	11.07	0:20:00	351.95	43.99	5.94	0:27:00	321.23	80.31	3.25	0:34:00	179.94	179.94	1.44
0:06:05	384.09	12.00	21.87	0:13:05	384.51	24.03	10.89	0:20:05	362.75	45.34	5.76	0:27:05	319.61	79.90	3.27	0:34:05	176.42	176.42	1.47
0:06:10	385.61	12.05	21.71	0:13:10	386.14	24.13	10.85	0:20:10	372.30	46.54	5.62	0:27:10	308.75	77.19	3.38	0:34:10	187.54	187.54	1.38
0:06:15	386.24	12.07	21.72	0:13:15	389.28	24.33	10.75	0:20:15	366.95	45.87	5.70	0:27:15	320.29	80.07	3.26	0:34:15	171.34	171.34	1.52
0:06:20	382.57	11.96	21.90	0:13:20	387.76	24.24	10.81	0:20:20	366.06	45.76	5.71	0:27:20	314.21	78.55	3.32	0:34:20	190.68	190.68	1.36
0:06:25	385.51	12.05	21.77	0:13:25	389.02	24.31	10.76	0:20:25	368.89	46.11	5.67	0:27:25	309.33	77.33	3.38	0:34:25	192.99	192.99	1.34
0:06:30	382.89	11.97	21.87	0:13:30	380.95	23.81	11.00	0:20:30	367.21	45.90	5.69	0:27:30	317.67	79.42	3.29	0:34:30	175.95	175.95	1.48
0:06:35	385.61	12.05	21.75	0:13:35	376.96	23.56	11.11	0:20:35	375.29	46.91	5.58	0:27:35	304.09	76.02	3.43	0:34:35	176.11	176.11	1.47
0:06:40	385.72	12.05	21.71	0:13:40	386.61	24.16	10.83	0:20:40	370.46	46.31	5.65	0:27:40	324.48	81.12	3.22	0:34:40	183.71	183.71	1.41
0:06:45	17.98	0.00	21.70	0:13:45	16.78	0.00	11.06	0:20:45	13.89	0.00	5.58	0:27:45	13.05	0.00	3.15	0:34:45	7.29	0.00	1.42
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

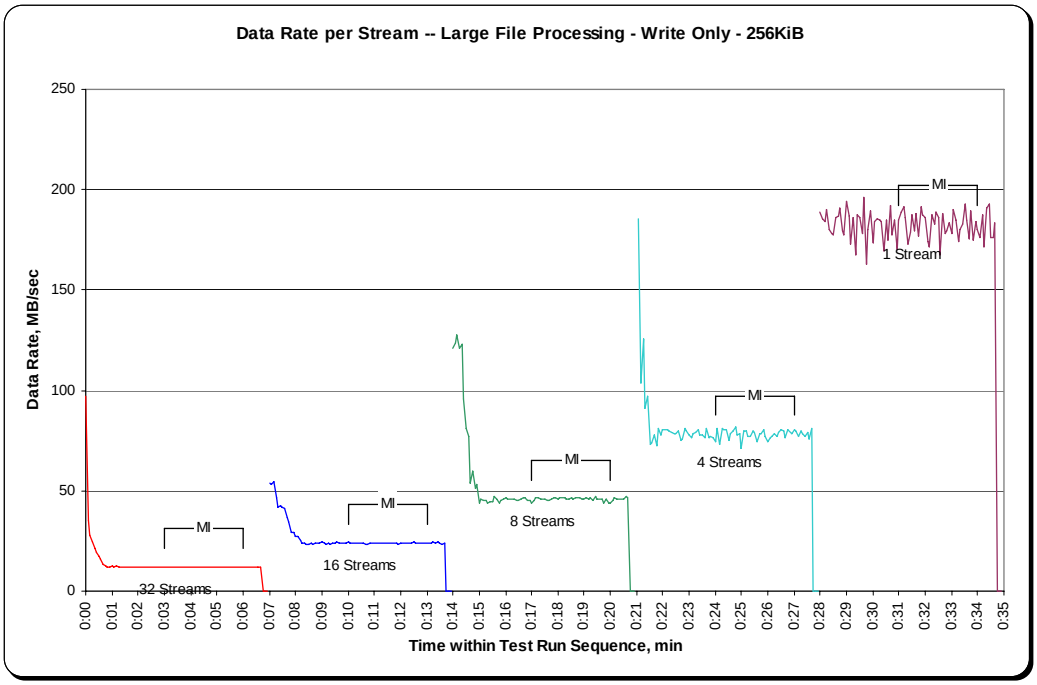
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



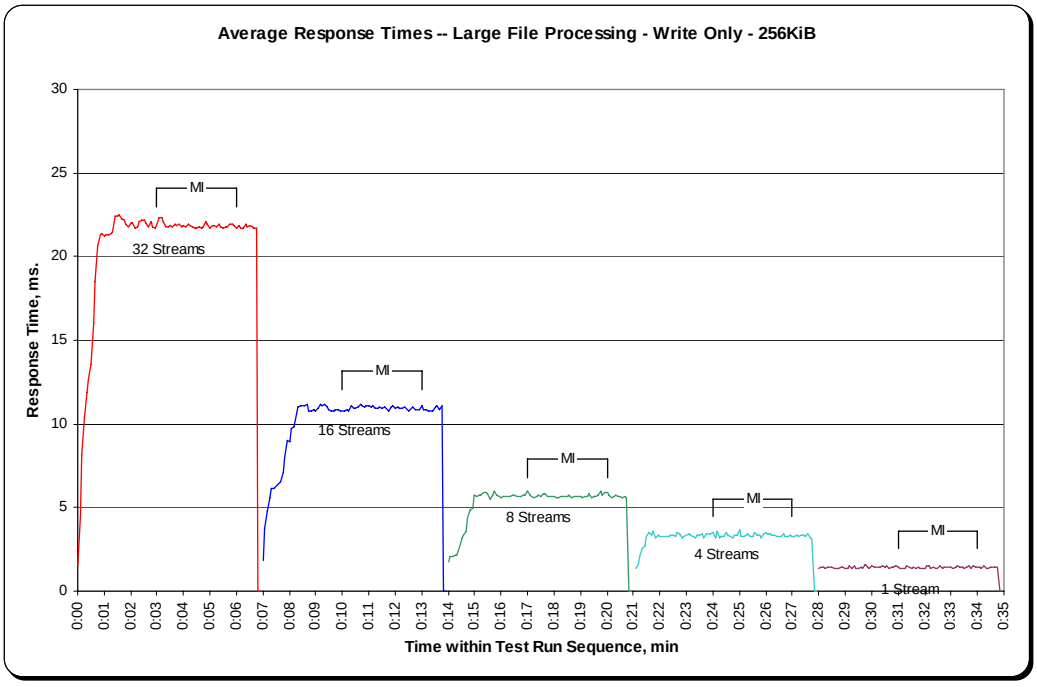
SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



Large File Processing Test – READ-WRITE Test Phase

Clause 10.6.8.1.2

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

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

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

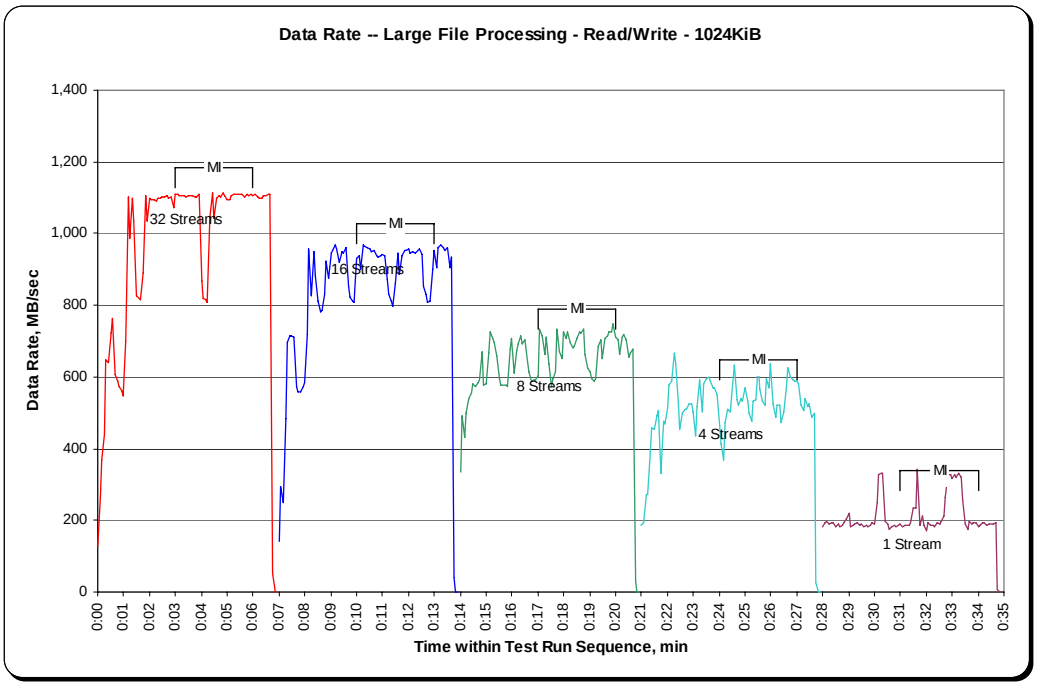
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR11	32 Streams			TR12	16 Streams			TR13	8 Streams			TR14	4 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	125.20	41.73	13.15	0:07:00	139.88	46.63	11.87	0:14:00	334.71	111.57	4.97	0:21:00	186.02	186.02	5.39	0:28:00	182.24	182.24	5.48
0:00:05	267.18	38.17	20.16	0:07:05	295.70	98.57	10.59	0:14:05	493.25	164.42	6.34	0:21:05	192.94	192.94	5.42	0:28:05	192.10	192.10	5.45
0:00:10	368.05	46.01	20.85	0:07:10	249.56	41.59	16.69	0:14:10	430.13	143.38	7.30	0:21:10	270.53	270.53	3.86	0:28:10	195.87	195.87	5.34
0:00:15	439.14	36.60	23.16	0:07:15	483.18	53.69	15.87	0:14:15	498.70	124.68	7.70	0:21:15	271.58	271.58	3.85	0:28:15	188.74	188.74	5.54
0:00:20	649.49	40.59	21.93	0:07:20	694.58	77.18	13.58	0:14:20	540.65	135.16	7.76	0:21:20	390.07	195.04	4.64	0:28:20	192.10	192.10	5.44
0:00:25	639.21	39.95	26.24	0:07:25	716.18	59.68	15.37	0:14:25	554.07	110.81	8.47	0:21:25	456.55	228.27	4.58	0:28:25	194.20	194.20	5.39
0:00:30	723.31	36.17	25.91	0:07:30	716.18	59.68	17.56	0:14:30	582.17	116.43	9.00	0:21:30	452.98	150.99	4.66	0:28:30	183.71	183.71	5.69
0:00:35	763.78	36.37	28.22	0:07:35	710.10	54.62	18.35	0:14:35	572.73	95.46	9.96	0:21:35	491.15	163.72	6.38	0:28:35	190.00	190.00	5.51
0:00:40	605.24	26.31	37.47	0:07:40	574.20	44.17	23.70	0:14:40	585.11	97.52	10.72	0:21:40	506.88	168.96	6.18	0:28:40	182.87	182.87	5.72
0:00:45	586.78	24.45	42.49	0:07:45	559.10	43.01	24.33	0:14:45	592.45	98.74	10.61	0:21:45	331.98	82.99	9.65	0:28:45	184.55	184.55	5.67
0:00:50	572.73	23.86	43.93	0:07:50	557.21	39.80	25.88	0:14:50	668.36	95.48	10.55	0:21:50	478.36	119.59	8.68	0:28:50	193.99	193.99	5.39
0:00:55	561.41	22.46	44.82	0:07:55	573.99	38.27	26.01	0:14:55	577.35	82.48	12.61	0:21:55	470.18	117.55	8.98	0:28:55	204.05	204.05	5.12
0:01:00	545.89	20.22	50.11	0:08:00	583.01	38.87	26.92	0:15:00	581.54	83.08	12.70	0:22:00	512.75	128.19	8.16	0:29:00	221.25	221.25	4.73
0:01:05	698.77	24.10	42.35	0:08:05	718.69	44.92	23.08	0:15:05	665.01	83.13	12.27	0:22:05	576.51	144.13	7.26	0:29:05	183.92	183.92	5.68
0:01:10	1,101.84	36.73	28.36	0:08:10	956.51	59.78	17.52	0:15:10	724.36	90.54	11.57	0:22:10	589.30	147.32	7.11	0:29:10	184.55	184.55	5.67
0:01:15	987.34	31.85	32.16	0:08:15	826.07	51.63	20.30	0:15:15	708.42	88.55	11.83	0:22:15	666.06	166.51	6.29	0:29:15	191.26	191.26	5.48
0:01:20	1,097.44	35.40	29.79	0:08:20	950.64	59.41	17.66	0:15:20	697.30	87.16	12.00	0:22:20	638.58	159.65	6.54	0:29:20	193.78	193.78	5.39
0:01:25	1,036.41	32.39	31.92	0:08:25	882.69	55.17	18.96	0:15:25	660.81	82.60	12.68	0:22:25	527.01	131.75	7.95	0:29:25	186.23	186.23	5.62
0:01:30	826.07	25.81	40.42	0:08:30	810.13	50.63	20.67	0:15:30	597.06	74.63	14.03	0:22:30	453.82	113.46	9.21	0:29:30	191.26	191.26	5.47
0:01:35	818.94	25.59	41.14	0:08:35	781.19	48.82	21.46	0:15:35	578.60	72.33	14.50	0:22:35	497.44	124.36	8.43	0:29:35	183.29	183.29	5.71
0:01:40	814.53	25.45	41.22	0:08:40	785.59	49.10	21.35	0:15:40	578.18	72.27	14.48	0:22:40	510.66	127.66	8.19	0:29:40	184.76	184.76	5.67
0:01:45	890.45	27.83	37.73	0:08:45	828.58	51.79	20.24	0:15:45	576.09	72.01	14.57	0:22:45	508.98	127.24	8.23	0:29:45	183.08	183.08	5.70
0:01:50	1,104.57	34.52	30.38	0:08:50	923.17	57.70	18.17	0:15:50	573.99	71.75	14.58	0:22:50	523.66	130.91	7.99	0:29:50	185.39	185.39	5.64
0:01:55	1,033.48	32.30	32.46	0:08:55	873.46	54.59	19.19	0:15:55	677.80	84.72	12.37	0:22:55	524.08	131.02	7.98	0:29:55	193.36	193.36	5.42
0:02:00	1,099.75	34.37	30.45	0:09:00	946.03	59.13	17.70	0:16:00	706.32	88.29	11.87	0:23:00	502.06	125.51	8.34	0:30:00	189.58	189.58	5.51
0:02:05	1,094.71	34.21	30.69	0:09:05	952.95	59.56	17.61	0:16:05	612.16	76.52	13.67	0:23:05	434.53	108.63	9.63	0:30:05	250.82	250.82	4.17
0:02:10	1,095.55	34.24	30.57	0:09:10	966.58	60.41	17.34	0:16:10	673.40	84.17	12.43	0:23:10	518.84	129.71	8.08	0:30:10	328.83	328.83	3.18
0:02:15	1,090.73	34.09	30.74	0:09:15	957.35	59.83	17.50	0:16:15	691.22	86.40	12.13	0:23:15	591.40	147.85	7.07	0:30:15	331.98	331.98	3.14
0:02:20	1,098.91	34.34	30.57	0:09:20	918.97	57.44	18.23	0:16:20	714.08	89.26	11.74	0:23:20	502.90	125.72	8.33	0:30:20	332.40	332.40	3.14
0:02:25	1,098.28	34.32	30.52	0:09:25	948.12	59.26	17.65	0:16:25	691.43	86.43	12.10	0:23:25	580.91	145.23	7.21	0:30:25	196.71	196.71	5.32
0:02:30	1,100.59	34.39	30.48	0:09:30	943.93	59.00	17.81	0:16:30	702.34	87.79	11.94	0:23:30	594.54	148.64	7.04	0:30:30	190.00	190.00	5.50
0:02:35	1,101.21	34.41	30.42	0:09:35	959.24	59.95	17.47	0:16:35	643.20	80.40	13.02	0:23:35	598.32	149.58	6.99	0:30:35	174.06	174.06	6.01
0:02:40	1,105.41	34.54	30.36	0:09:40	853.54	53.35	19.62	0:16:40	614.88	76.86	13.61	0:23:40	586.57	146.64	7.13	0:30:40	183.50	183.50	5.71
0:02:45	1,098.49	34.33	30.48	0:09:45	823.97	51.50	20.32	0:16:45	589.51	73.69	14.25	0:23:45	568.54	142.13	7.37	0:30:45	186.86	186.86	5.60
0:02:50	1,102.89	34.47	30.42	0:09:50	810.55	50.66	20.70	0:16:50	593.70	74.21	14.09	0:23:50	570.43	142.61	7.33	0:30:50	184.13	184.13	5.67
0:02:55	1,073.11	33.53	31.30	0:09:55	806.77	50.42	20.77	0:16:55	592.86	74.11	14.16	0:23:55	551.55	137.89	7.59	0:30:55	185.81	185.81	5.63

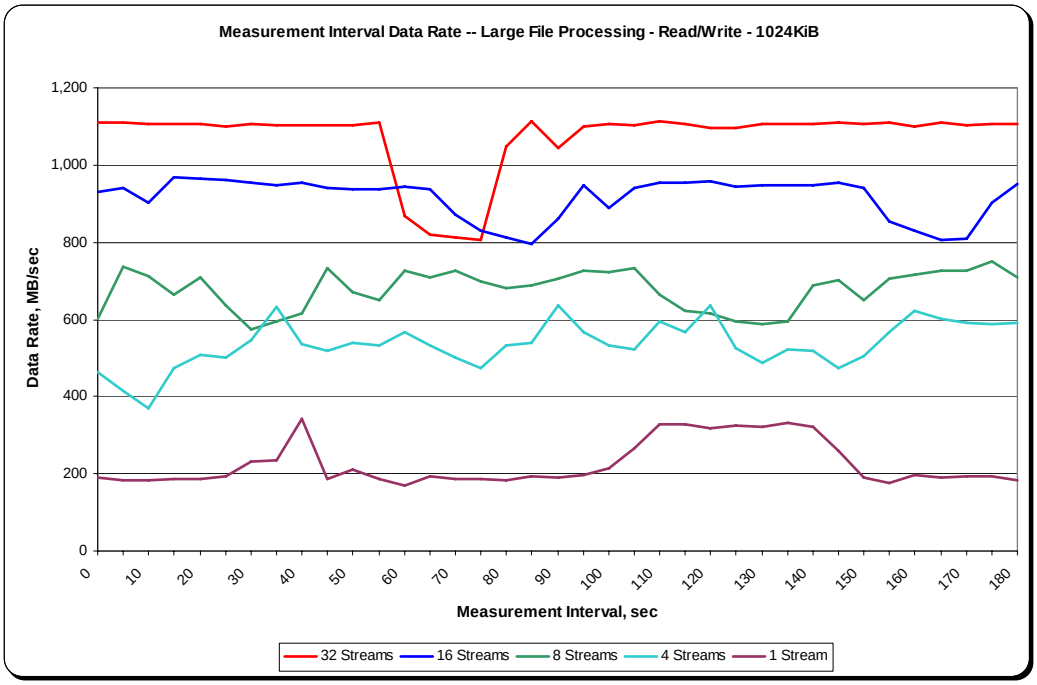
SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	32 Streams			TR12	16 Streams			TR13	8 Streams			TR14	4 Streams			TR15	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	1,110.02	34.69	30.15	0:10:00	931.14	58.20	18.01	0:17:00	602.72	75.34	13.90	0:24:00	463.68	115.92	9.03	0:31:00	190.84	190.84	5.48
0:03:05	1,110.86	34.71	30.26	0:10:05	939.10	58.69	17.82	0:17:05	735.26	91.91	11.39	0:24:05	413.35	103.34	10.11	0:31:05	182.03	182.03	5.75
0:03:10	1,105.41	34.54	30.32	0:10:10	901.15	56.32	18.64	0:17:10	714.08	89.26	11.72	0:24:10	369.52	92.38	11.34	0:31:10	184.97	184.97	5.65
0:03:15	1,107.51	34.61	30.27	0:10:15	968.67	60.54	17.27	0:17:15	662.28	82.79	12.65	0:24:15	472.28	118.07	8.86	0:31:15	187.07	187.07	5.60
0:03:20	1,104.99	34.53	30.31	0:10:20	963.64	60.23	17.42	0:17:20	710.10	88.76	11.81	0:24:20	509.40	127.35	8.22	0:31:20	187.49	187.49	5.57
0:03:25	1,100.38	34.39	30.47	0:10:25	962.38	60.15	17.40	0:17:25	635.86	79.48	13.16	0:24:25	503.11	125.78	8.33	0:31:25	193.57	193.57	5.41
0:03:30	1,106.67	34.58	30.39	0:10:30	956.09	59.76	17.55	0:17:30	574.41	71.80	14.61	0:24:30	546.52	136.63	7.66	0:31:30	233.41	233.41	4.48
0:03:35	1,104.78	34.52	30.38	0:10:35	948.54	59.28	17.68	0:17:35	594.12	74.27	14.08	0:24:35	633.34	158.33	6.60	0:31:35	233.62	233.62	4.48
0:03:40	1,104.57	34.52	30.29	0:10:40	954.62	59.66	17.55	0:17:40	614.47	76.81	13.66	0:24:40	535.61	133.90	7.83	0:31:40	341.21	341.21	3.06
0:03:45	1,101.63	34.43	30.49	0:10:45	939.73	58.73	17.82	0:17:45	732.95	91.62	11.43	0:24:45	519.67	129.92	8.04	0:31:45	186.86	186.86	5.59
0:03:50	1,101.63	34.43	30.43	0:10:50	935.96	58.50	17.93	0:17:50	669.83	83.73	12.44	0:24:50	538.55	134.64	7.78	0:31:50	212.65	212.65	4.92
0:03:55	1,108.55	34.64	30.25	0:10:55	938.89	58.68	17.85	0:17:55	650.54	81.32	12.94	0:24:55	532.68	133.17	7.86	0:31:55	187.49	187.49	5.57
0:04:00	869.27	27.16	38.50	0:11:00	943.72	58.98	17.76	0:18:00	725.20	90.65	11.55	0:25:00	568.33	142.08	7.36	0:32:00	171.13	171.13	6.12
0:04:05	819.57	25.61	40.72	0:11:05	937.64	58.60	17.87	0:18:05	708.21	88.53	11.83	0:25:05	533.93	133.48	7.85	0:32:05	192.52	192.52	5.43
0:04:10	814.32	25.45	41.44	0:11:10	870.32	54.39	19.27	0:18:10	726.24	90.78	11.54	0:25:10	500.38	125.10	8.36	0:32:10	186.23	186.23	5.61
0:04:15	806.98	25.22	41.58	0:11:15	831.10	51.94	20.13	0:18:15	697.30	87.16	12.00	0:25:15	475.21	118.80	8.81	0:32:15	187.49	187.49	5.58
0:04:20	1,046.90	32.72	32.00	0:11:20	811.18	50.70	20.68	0:18:20	681.57	85.20	12.30	0:25:20	531.84	132.96	7.87	0:32:20	184.13	184.13	5.68
0:04:25	1,114.43	34.83	30.13	0:11:25	795.45	49.72	21.11	0:18:25	686.82	85.85	12.21	0:25:25	537.92	134.48	7.79	0:32:25	192.73	192.73	5.43
0:04:30	1,043.12	32.60	32.18	0:11:30	861.93	53.87	19.46	0:18:30	706.74	88.34	11.86	0:25:30	636.70	159.17	6.57	0:32:30	189.37	189.37	5.52
0:04:35	1,099.12	34.35	30.44	0:11:35	946.23	59.14	17.69	0:18:35	724.99	90.62	11.55	0:25:35	566.86	141.72	7.37	0:32:35	196.29	196.29	5.33
0:04:40	1,106.25	34.57	30.40	0:11:40	887.51	55.47	18.90	0:18:40	723.52	90.44	11.57	0:25:40	534.14	133.54	7.84	0:32:40	213.49	213.49	4.90
0:04:45	1,103.94	34.50	30.36	0:11:45	939.52	58.72	17.84	0:18:45	731.91	91.49	11.43	0:25:45	522.82	130.70	8.01	0:32:45	264.66	264.66	3.95
0:04:50	1,115.06	34.85	30.09	0:11:50	953.58	59.60	17.59	0:18:50	664.38	83.05	12.63	0:25:50	595.59	148.90	7.02	0:32:50	328.20	328.20	3.18
0:04:55	1,105.41	34.54	30.32	0:11:55	954.20	59.64	17.53	0:18:55	623.69	77.96	13.40	0:25:55	567.91	141.98	7.38	0:32:55	327.16	327.16	3.18
0:05:00	1,094.92	34.22	30.64	0:12:00	957.56	59.85	17.51	0:19:00	615.51	76.94	13.63	0:26:00	636.28	159.07	6.57	0:33:00	318.35	318.35	3.29
0:05:05	1,094.71	34.21	30.54	0:12:05	944.35	59.02	17.75	0:19:05	595.59	74.45	14.07	0:26:05	525.13	131.28	7.96	0:33:05	326.74	326.74	3.20
0:05:10	1,107.30	34.60	30.35	0:12:10	948.96	59.31	17.69	0:19:10	589.51	73.69	14.20	0:26:10	488.01	122.00	8.59	0:33:10	320.03	320.03	3.26
0:05:15	1,107.72	34.62	30.28	0:12:15	946.44	59.15	17.69	0:19:15	596.43	74.55	14.05	0:26:15	522.40	130.60	8.01	0:33:15	331.14	331.14	3.15
0:05:20	1,108.14	34.63	30.28	0:12:20	948.54	59.28	17.65	0:19:20	686.82	85.85	12.22	0:26:20	519.88	129.97	8.06	0:33:20	321.07	321.07	3.25
0:05:25	1,109.60	34.68	30.18	0:12:25	955.88	59.74	17.55	0:19:25	701.92	87.74	11.93	0:26:25	472.49	118.12	8.87	0:33:25	258.58	258.58	4.04
0:05:30	1,108.34	34.64	30.22	0:12:30	941.62	58.85	17.81	0:19:30	650.12	81.26	12.88	0:26:30	503.53	125.88	8.31	0:33:30	191.26	191.26	5.47
0:05:35	1,110.86	34.71	30.21	0:12:35	852.70	53.29	19.65	0:19:35	706.53	88.32	11.87	0:26:35	567.91	141.98	7.38	0:33:35	176.58	176.58	5.92
0:05:40	1,100.80	34.40	30.49	0:12:40	830.26	51.89	20.23	0:19:40	716.39	89.55	11.69	0:26:40	624.11	156.03	6.70	0:33:40	196.29	196.29	5.33
0:05:45	1,110.02	34.69	30.19	0:12:45	806.98	50.44	20.76	0:19:45	726.03	90.75	11.54	0:26:45	600.83	150.21	6.97	0:33:45	191.68	191.68	5.45
0:05:50	1,104.78	34.52	30.36	0:12:50	809.92	50.62	20.68	0:19:50	727.50	90.94	11.51	0:26:50	592.03	148.01	7.07	0:33:50	192.10	192.10	5.45
0:05:55	1,107.72	34.62	30.32	0:12:55	901.99	56.37	18.59	0:19:55	750.15	93.77	11.18	0:26:55	589.30	147.32	7.10	0:33:55	193.99	193.99	5.40
0:06:00	1,107.30	34.60	30.24	0:13:00	952.11	59.51	17.63	0:20:00	710.31	88.79	11.78	0:27:00	589.93	147.48	7.09	0:34:00	183.92	183.92	5.69
0:06:05	1,107.72	34.62	30.34	0:13:05	904.29	56.52	18.54	0:20:05	703.59	87.95	11.91	0:27:05	580.91	145.23	7.21	0:34:05	184.97	184.97	5.65
0:06:10	1,102.26	34.45	30.41	0:13:10	961.75	60.11	17.42	0:20:10	663.33	82.92	12.63	0:27:10	520.51	130.13	8.04	0:34:10	194.20	194.20	5.38
0:06:15	1,099.54	34.36	30.47	0:13:15	969.09	60.57	17.29	0:20:15	711.14	88.89	11.79	0:27:15	505.62	126.41	8.29	0:34:15	192.10	192.10	5.45
0:06:20	1,099.54	34.36	30.49	0:13:20	958.82	59.93	17.51	0:20:20	718.90	89.86	11.64	0:27:20	541.69	135.42	7.72	0:34:20	187.90	187.90	5.57
0:06:25	1,106.88	34.59	30.29	0:13:25	951.90	59.49	17.58	0:20:25	703.80	87.98	11.91	0:27:25	517.16	129.29	8.11	0:34:25	190.00	190.00	5.50
0:06:30	1,104.57	34.52	30.37	0:13:30	961.12	60.07	17.45	0:20:30	657.04	82.13	12.75	0:27:30	525.97	131.49	7.96	0:34:30	189.16	189.16	5.53
0:06:35	1,110.86	34.71	30.15	0:13:35	905.97	56.62	18.50	0:20:35	665.43	83.18	12.59	0:27:35	487.38	121.84	8.59	0:34:35	188.32	188.32	5.55
0:06:40	1,111.28	34.73	30.24	0:13:40	934.91	58.43	17.92	0:20:40	675.91	84.49	12.39	0:27:40	498.70	124.68	8.40	0:34:40	192.10	192.10	5.45
0:06:45	50.33	0.00	33.26	0:13:45	39.64	0.00	19.53	0:20:45	29.78	0.00	13.62	0:27:45	25.17	0.00	7.34	0:34:45	6.92	0.00	6.36
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

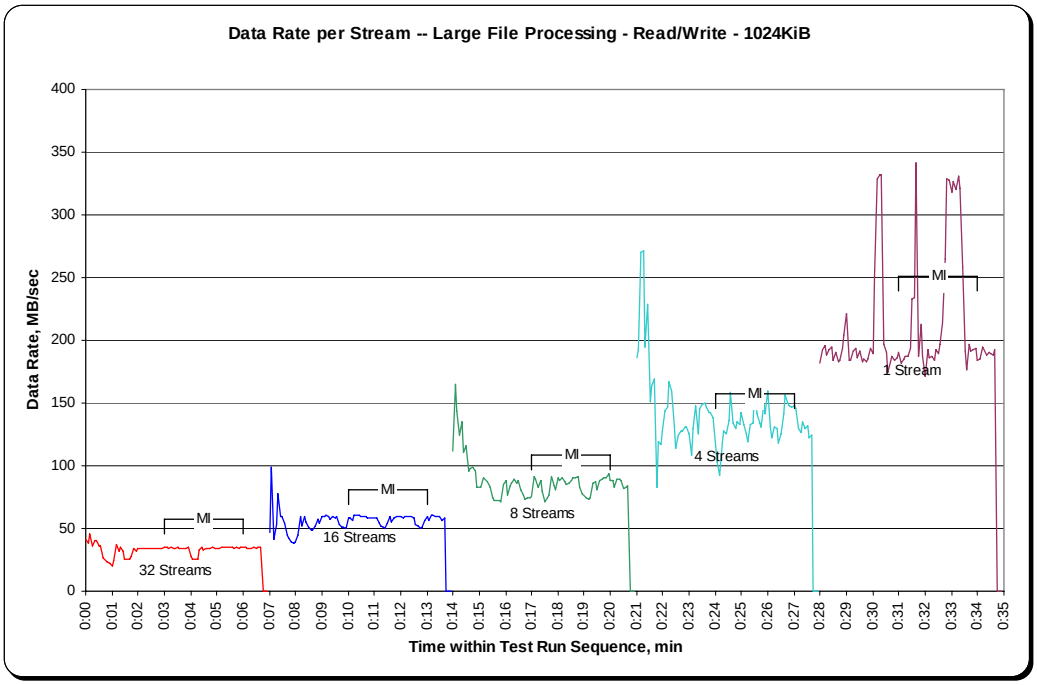
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



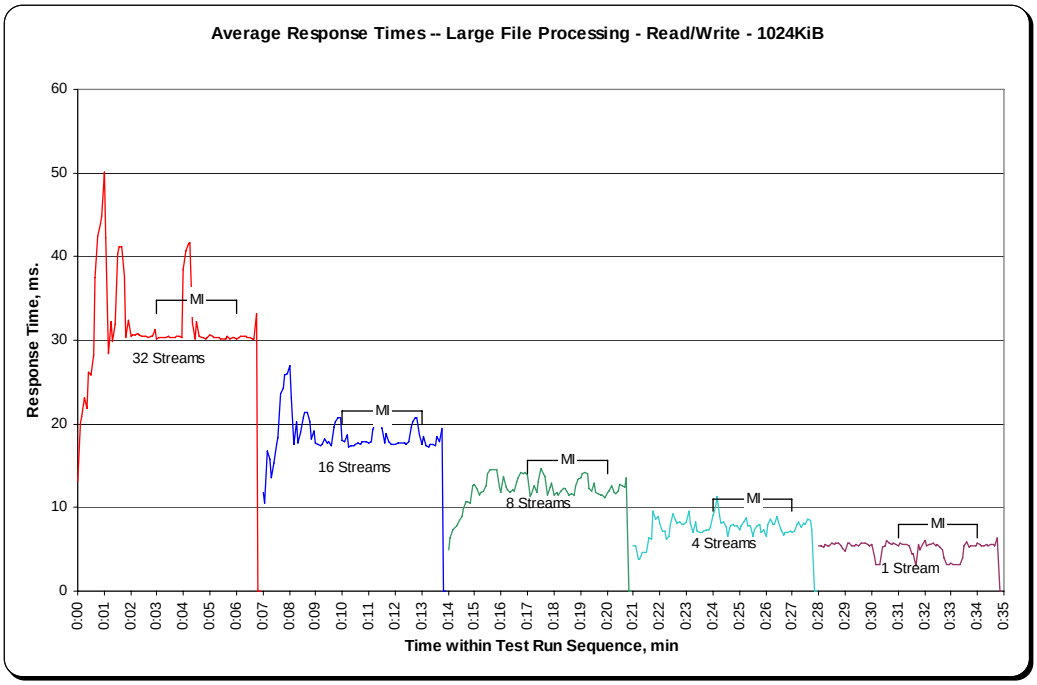
SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



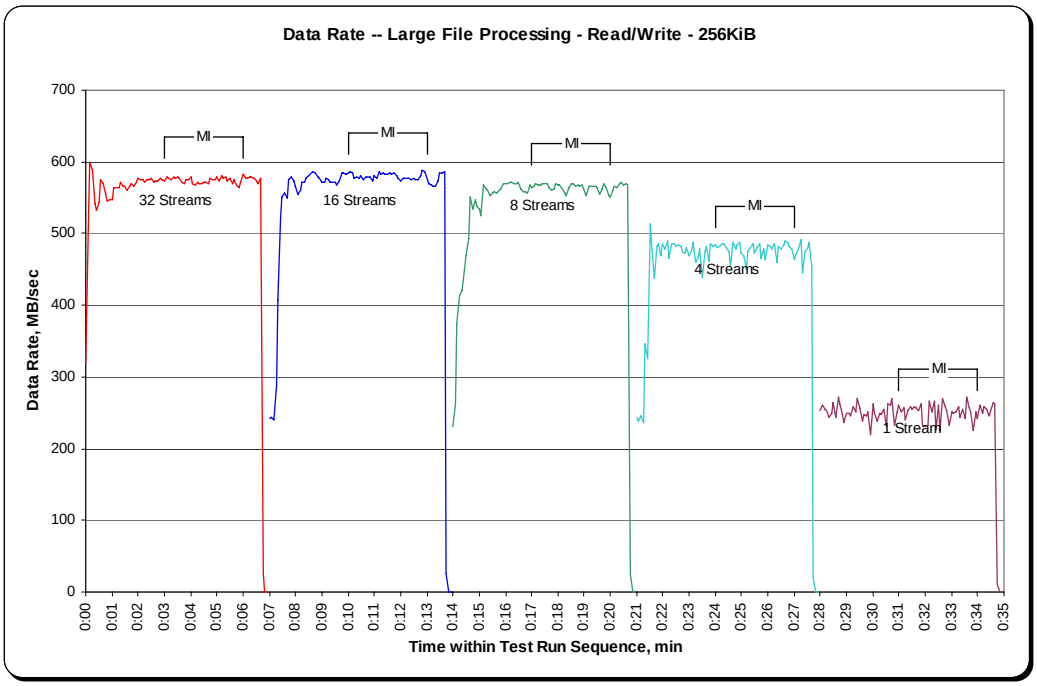
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR16	32 Streams			TR17	16 Streams			TR18	8 Streams			TR19	4 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	318.50	63.70	2.15	0:07:00	242.69	242.69	1.02	0:14:00	231.32	231.32	1.07	0:21:00	244.79	244.79	1.01	0:28:00	252.86	252.86	0.98
0:00:05	518.47	51.85	3.91	0:07:05	242.96	242.96	1.07	0:14:05	262.56	131.28	1.27	0:21:05	238.66	238.66	1.08	0:28:05	260.36	260.36	0.99
0:00:10	599.42	54.49	4.62	0:07:10	239.55	239.55	1.08	0:14:10	373.40	186.70	1.39	0:21:10	245.79	245.79	1.05	0:28:10	255.70	255.70	1.01
0:00:15	588.78	42.06	5.20	0:07:15	289.30	96.43	1.70	0:14:15	414.03	138.01	1.81	0:21:15	236.24	118.12	1.11	0:28:15	253.81	253.81	1.02
0:00:20	542.01	33.88	7.10	0:07:20	407.90	135.97	1.91	0:14:20	421.53	140.51	1.85	0:21:20	345.77	172.88	1.50	0:28:20	242.96	242.96	1.07
0:00:25	532.31	33.27	7.87	0:07:25	522.72	65.34	3.05	0:14:25	437.99	109.50	2.00	0:21:25	325.27	108.42	1.68	0:28:25	248.72	248.72	1.04
0:00:30	544.53	28.66	8.31	0:07:30	550.82	61.20	3.95	0:14:30	468.35	117.09	2.23	0:21:30	514.22	128.56	1.98	0:28:30	265.08	265.08	0.98
0:00:35	574.88	24.99	9.52	0:07:35	556.95	61.88	4.22	0:14:35	492.62	82.10	2.48	0:21:35	483.39	120.85	2.15	0:28:35	243.90	243.90	1.06
0:00:40	569.85	23.74	10.83	0:07:40	549.98	61.11	4.27	0:14:40	550.24	78.61	3.04	0:21:40	438.10	109.52	2.38	0:28:40	272.00	272.00	0.95
0:00:45	553.96	22.16	11.58	0:07:45	574.99	57.50	4.45	0:14:45	535.19	76.46	3.41	0:21:45	481.82	120.46	2.16	0:28:45	262.56	262.56	0.98
0:00:50	546.10	21.00	12.35	0:07:50	578.18	57.82	4.51	0:14:50	547.78	78.25	3.33	0:21:50	486.22	121.56	2.14	0:28:50	246.73	246.73	1.05
0:00:55	547.36	20.27	12.58	0:07:55	572.94	47.75	5.27	0:14:55	537.50	76.79	3.40	0:21:55	468.92	117.23	2.22	0:28:55	235.77	235.77	1.10
0:01:00	548.14	20.30	12.91	0:08:00	565.23	43.48	5.93	0:15:00	534.93	76.42	3.42	0:22:00	486.33	121.58	2.14	0:29:00	248.98	248.98	1.04
0:01:05	564.34	19.46	13.22	0:08:05	554.64	39.62	6.24	0:15:05	524.18	65.52	3.63	0:22:05	478.88	119.72	2.17	0:29:05	249.14	249.14	1.04
0:01:10	564.66	19.47	13.44	0:08:10	561.30	40.09	6.52	0:15:10	566.91	70.86	3.68	0:22:10	489.00	122.25	2.13	0:29:10	245.37	245.37	1.05
0:01:15	564.97	19.48	13.45	0:08:15	572.26	38.15	6.85	0:15:15	561.46	70.18	3.72	0:22:15	466.25	116.56	2.23	0:29:15	258.16	258.16	1.00
0:01:20	570.74	17.84	13.88	0:08:20	571.37	38.09	6.86	0:15:20	561.09	70.14	3.72	0:22:20	486.12	121.53	2.14	0:29:20	251.92	251.92	1.03
0:01:25	566.55	17.70	14.78	0:08:25	576.82	36.05	7.14	0:15:25	552.55	69.07	3.78	0:22:25	486.70	121.67	2.14	0:29:25	269.33	269.33	0.96
0:01:30	565.34	17.67	14.81	0:08:30	580.75	36.30	7.20	0:15:30	556.43	69.55	3.75	0:22:30	482.92	120.73	2.16	0:29:30	256.69	256.69	1.01
0:01:35	560.88	17.53	14.94	0:08:35	585.26	36.58	7.16	0:15:35	558.16	69.77	3.74	0:22:35	484.44	121.11	2.15	0:29:35	237.50	237.50	1.09
0:01:40	566.44	17.70	14.81	0:08:40	585.58	36.60	7.14	0:15:40	556.27	69.53	3.75	0:22:40	483.03	120.76	2.16	0:29:40	246.94	246.94	1.05
0:01:45	569.11	17.78	14.72	0:08:45	583.95	36.50	7.16	0:15:45	560.78	70.10	3.72	0:22:45	475.06	118.76	2.19	0:29:45	245.68	245.68	1.05
0:01:50	565.23	17.66	14.81	0:08:50	579.65	36.23	7.22	0:15:50	561.77	70.22	3.72	0:22:50	473.75	118.44	2.20	0:29:50	250.71	250.71	1.03
0:01:55	570.95	17.84	14.67	0:08:55	576.66	36.04	7.26	0:15:55	569.53	71.19	3.67	0:22:55	481.09	120.27	2.16	0:29:55	220.31	220.31	1.18
0:02:00	577.03	18.03	14.53	0:09:00	571.47	35.72	7.31	0:16:00	570.16	71.27	3.66	0:23:00	468.50	117.13	2.22	0:30:00	262.72	262.72	0.98
0:02:05	575.25	17.98	14.56	0:09:05	571.00	35.69	7.34	0:16:05	570.06	71.26	3.66	0:23:05	476.42	119.11	2.19	0:30:05	250.30	250.30	1.03
0:02:10	574.51	17.95	14.56	0:09:10	576.93	36.06	7.25	0:16:10	571.68	71.46	3.65	0:23:10	487.01	121.75	2.14	0:30:10	238.87	238.87	1.08
0:02:15	570.64	17.83	14.71	0:09:15	575.72	35.98	7.27	0:16:15	571.32	71.41	3.66	0:23:15	460.64	115.16	2.26	0:30:15	249.82	249.82	1.04
0:02:20	575.88	18.00	14.55	0:09:20	571.32	35.71	7.32	0:16:20	568.90	71.11	3.67	0:23:20	466.98	116.75	2.23	0:30:20	248.25	248.25	1.04
0:02:25	576.19	18.01	14.56	0:09:25	571.05	35.69	7.33	0:16:25	569.32	71.17	3.67	0:23:25	479.15	119.79	2.17	0:30:25	255.49	255.49	1.01
0:02:30	577.56	18.05	14.49	0:09:30	571.26	35.70	7.33	0:16:30	571.00	71.38	3.66	0:23:30	439.30	109.83	2.37	0:30:30	231.42	231.42	1.12
0:02:35	572.00	17.87	14.65	0:09:35	568.22	35.51	7.37	0:16:35	562.93	70.37	3.71	0:23:35	473.85	118.46	2.20	0:30:35	261.93	261.93	0.99
0:02:40	573.47	17.92	14.62	0:09:40	573.78	35.86	7.29	0:16:40	558.37	69.80	3.74	0:23:40	482.66	120.66	2.16	0:30:40	261.31	261.31	0.99
0:02:45	572.52	17.89	14.64	0:09:45	585.32	36.58	7.15	0:16:45	557.84	69.73	3.75	0:23:45	462.00	115.50	2.25	0:30:45	269.17	269.17	0.96
0:02:50	577.56	18.05	14.49	0:09:50	585.37	36.59	7.15	0:16:50	556.01	69.50	3.75	0:23:50	486.80	121.70	2.14	0:30:50	232.05	232.05	1.12
0:02:55	574.62	17.96	14.59	0:09:55	582.01	36.38	7.18	0:16:55	567.91	70.99	3.67	0:23:55	481.98	120.49	2.16	0:30:55	251.13	251.13	1.03

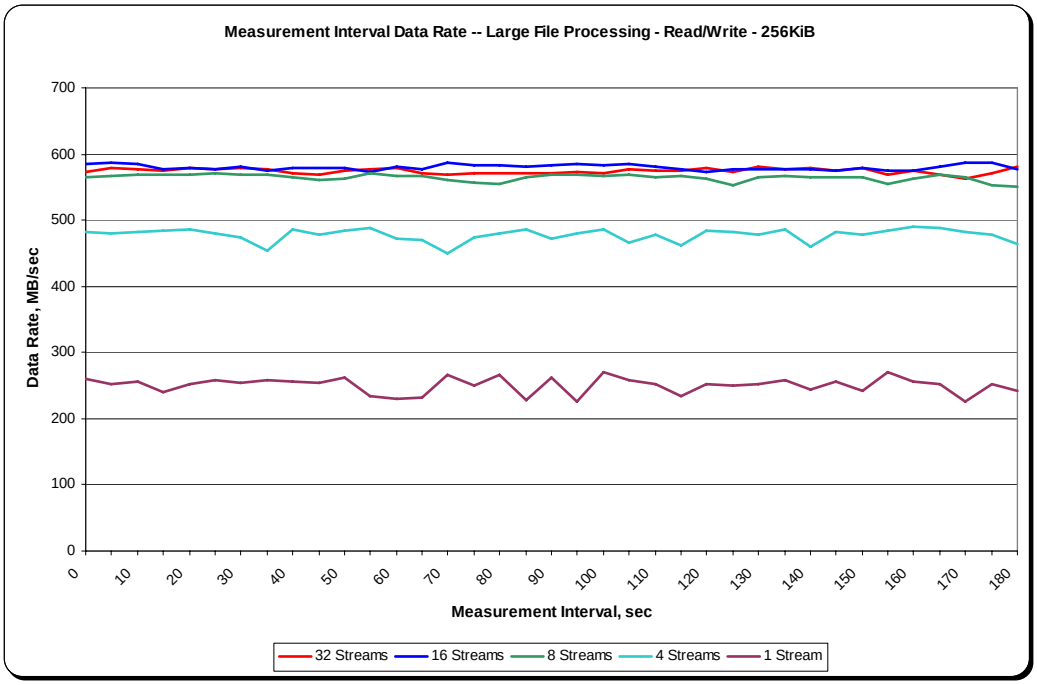
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR16	32 Streams			TR17	16 Streams			TR18	8 Streams			TR19	4 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	573.10	17.91	14.64	0:10:00	584.06	36.50	7.17	0:17:00	564.29	70.54	3.70	0:24:00	483.13	120.78	2.15	0:31:00	261.15	261.15	0.99
0:03:05	578.29	18.07	14.50	0:10:05	587.20	36.70	7.13	0:17:05	565.86	70.73	3.69	0:24:05	480.77	120.19	2.17	0:31:05	251.50	251.50	1.03
0:03:10	577.87	18.06	14.47	0:10:10	584.11	36.51	7.16	0:17:10	568.85	71.11	3.67	0:24:10	481.66	120.42	2.16	0:31:10	256.11	256.11	1.01
0:03:15	575.93	18.00	14.56	0:10:15	577.77	36.11	7.25	0:17:15	568.12	71.01	3.67	0:24:15	485.02	121.25	2.15	0:31:15	239.55	239.55	1.08
0:03:20	578.60	18.08	14.45	0:10:20	578.45	36.15	7.23	0:17:20	568.38	71.05	3.67	0:24:20	486.33	121.58	2.14	0:31:20	252.97	252.97	1.02
0:03:25	577.08	18.03	14.55	0:10:25	576.93	36.06	7.26	0:17:25	570.43	71.30	3.66	0:24:25	479.62	119.90	2.17	0:31:25	259.16	259.16	1.00
0:03:30	578.66	18.08	14.48	0:10:30	580.91	36.31	7.20	0:17:30	569.43	71.18	3.67	0:24:30	474.17	118.54	2.20	0:31:30	254.80	254.80	1.02
0:03:35	576.72	18.02	14.51	0:10:35	575.20	35.95	7.27	0:17:35	569.64	71.20	3.66	0:24:35	453.51	113.38	2.30	0:31:35	257.95	257.95	1.00
0:03:40	571.05	17.85	14.68	0:10:40	579.23	36.20	7.23	0:17:40	564.61	70.58	3.70	0:24:40	486.85	121.71	2.14	0:31:40	256.59	256.59	1.01
0:03:45	569.64	17.80	14.72	0:10:45	579.02	36.19	7.23	0:17:45	561.04	70.13	3.72	0:24:45	478.57	119.64	2.18	0:31:45	253.55	253.55	1.02
0:03:50	575.20	17.97	14.57	0:10:50	578.50	36.16	7.23	0:17:50	562.61	70.33	3.71	0:24:50	484.34	121.08	2.15	0:31:50	262.46	262.46	0.99
0:03:55	575.98	18.00	14.53	0:10:55	572.78	35.80	7.30	0:17:55	570.27	71.28	3.66	0:24:55	487.48	121.87	2.14	0:31:55	233.10	233.10	1.11
0:04:00	578.34	18.07	14.50	0:11:00	581.33	36.33	7.21	0:18:00	567.65	70.96	3.68	0:25:00	472.65	118.16	2.20	0:32:00	230.16	230.16	1.13
0:04:05	570.58	17.83	14.69	0:11:05	577.29	36.08	7.25	0:18:05	567.59	70.95	3.68	0:25:05	469.76	117.44	2.22	0:32:05	232.15	232.15	1.11
0:04:10	567.96	17.75	14.75	0:11:10	586.26	36.64	7.14	0:18:10	561.77	70.22	3.72	0:25:10	450.21	112.55	2.32	0:32:10	266.39	266.39	0.97
0:04:15	570.90	17.84	14.67	0:11:15	582.54	36.41	7.19	0:18:15	556.11	69.51	3.75	0:25:15	474.48	118.62	2.19	0:32:15	251.13	251.13	1.03
0:04:20	570.53	17.83	14.68	0:11:20	583.95	36.50	7.16	0:18:20	553.75	69.22	3.77	0:25:20	480.20	120.05	2.17	0:32:20	265.66	265.66	0.97
0:04:25	570.32	17.82	14.72	0:11:25	581.91	36.37	7.20	0:18:25	564.55	70.57	3.70	0:25:25	486.38	121.60	2.14	0:32:25	227.75	227.75	1.14
0:04:30	570.79	17.84	14.65	0:11:30	582.38	36.40	7.18	0:18:30	569.17	71.15	3.67	0:25:30	471.96	117.99	2.21	0:32:30	261.25	261.25	0.99
0:04:35	572.00	17.87	14.63	0:11:35	584.27	36.52	7.16	0:18:35	568.90	71.11	3.67	0:25:35	480.82	120.21	2.17	0:32:35	226.13	226.13	1.15
0:04:40	570.53	17.83	14.69	0:11:40	582.27	36.39	7.18	0:18:40	566.65	70.83	3.68	0:25:40	485.86	121.46	2.14	0:32:40	270.74	270.74	0.95
0:04:45	576.93	18.03	14.55	0:11:45	585.47	36.59	7.15	0:18:45	568.38	71.05	3.67	0:25:45	465.15	116.29	2.24	0:32:45	258.74	258.74	1.00
0:04:50	574.62	17.96	14.57	0:11:50	581.59	36.35	7.20	0:18:50	565.50	70.69	3.69	0:25:50	477.63	119.41	2.18	0:32:50	252.55	252.55	1.02
0:04:55	575.35	17.98	14.57	0:11:55	576.82	36.05	7.26	0:18:55	567.17	70.90	3.68	0:25:55	462.68	115.67	2.25	0:32:55	233.41	233.41	1.11
0:05:00	579.76	18.12	14.45	0:12:00	573.73	35.86	7.30	0:19:00	562.40	70.30	3.71	0:26:00	484.65	121.16	2.15	0:33:00	251.19	251.19	1.03
0:05:05	573.89	17.93	14.60	0:12:05	577.08	36.07	7.25	0:19:05	552.55	69.07	3.78	0:26:05	481.77	120.44	2.16	0:33:05	250.09	250.09	1.03
0:05:10	580.54	18.14	14.42	0:12:10	576.30	36.02	7.26	0:19:10	565.55	70.69	3.69	0:26:10	477.84	119.46	2.18	0:33:10	251.71	251.71	1.03
0:05:15	577.29	18.04	14.51	0:12:15	577.87	36.12	7.24	0:19:15	565.97	70.75	3.69	0:26:15	485.70	121.43	2.14	0:33:15	258.58	258.58	1.00
0:05:20	578.18	18.07	14.51	0:12:20	577.66	36.10	7.25	0:19:20	565.71	70.71	3.69	0:26:20	460.17	115.04	2.26	0:33:20	244.63	244.63	1.06
0:05:25	574.20	17.94	14.58	0:12:25	574.99	35.94	7.27	0:19:25	565.39	70.67	3.69	0:26:25	481.87	120.47	2.16	0:33:25	255.90	255.90	1.01
0:05:30	577.98	18.06	14.50	0:12:30	577.98	36.12	7.24	0:19:30	564.34	70.54	3.70	0:26:30	479.09	119.77	2.17	0:33:30	242.38	242.38	1.07
0:05:35	568.85	17.78	14.71	0:12:35	575.88	35.99	7.27	0:19:35	555.12	69.39	3.76	0:26:35	484.86	121.22	2.15	0:33:35	271.27	271.27	0.95
0:05:40	574.83	17.96	14.56	0:12:40	575.25	35.95	7.27	0:19:40	562.40	70.30	3.71	0:26:40	489.48	122.37	2.13	0:33:40	257.11	257.11	1.01
0:05:45	568.64	17.77	14.80	0:12:45	580.81	36.30	7.20	0:19:45	569.53	71.19	3.67	0:26:45	488.22	122.05	2.13	0:33:45	251.34	251.34	1.03
0:05:50	563.61	17.61	14.84	0:12:50	587.78	36.74	7.12	0:19:50	564.87	70.61	3.69	0:26:50	481.30	120.32	2.16	0:33:50	225.08	225.08	1.15
0:05:55	570.95	17.84	14.69	0:12:55	586.89	36.68	7.13	0:19:55	552.13	69.02	3.78	0:26:55	478.47	119.62	2.18	0:33:55	251.29	251.29	1.03
0:06:00	581.85	18.18	14.40	0:13:00	576.14	36.01	7.27	0:20:00	550.97	68.87	3.79	0:27:00	464.10	116.02	2.24	0:34:00	241.91	241.91	1.07
0:06:05	577.14	18.04	14.52	0:13:05	569.53	35.60	7.35	0:20:05	560.15	70.02	3.73	0:27:05	470.76	117.69	2.21	0:34:05	260.31	260.31	0.99
0:06:10	576.98	18.03	14.51	0:13:10	567.65	35.48	7.37	0:20:10	565.13	70.64	3.70	0:27:10	477.99	119.50	2.18	0:34:10	249.67	249.67	1.04
0:06:15	579.18	18.10	14.47	0:13:15	566.65	35.42	7.39	0:20:15	563.30	70.41	3.71	0:27:15	490.63	122.66	2.12	0:34:15	259.47	259.47	1.00
0:06:20	579.86	18.12	14.46	0:13:20	565.23	35.33	7.40	0:20:20	569.64	71.20	3.67	0:27:20	444.49	111.12	2.34	0:34:20	255.33	255.33	1.01
0:06:25	577.98	18.06	14.49	0:13:25	572.52	35.78	7.32	0:20:25	571.58	71.45	3.65	0:27:25	474.43	118.61	2.19	0:34:25	246.21	246.21	1.05
0:06:30	574.04	17.94	14.59	0:13:30	584.11	36.51	7.16	0:20:30	568.59	71.07	3.67	0:27:30	479.46	119.87	2.17	0:34:30	253.76	253.76	1.02
0:06:35	570.37	17.82	14.70	0:13:35	585.32	36.58	7.15	0:20:35	570.06	71.26	3.66	0:27:35	488.53	122.13	2.13	0:34:35	264.71	264.71	0.98
0:06:40	576.35	18.01	14.53	0:13:40	587.25	36.70	7.12	0:20:40	567.49	70.94	3.68	0:27:40	454.87	113.72	2.29	0:34:40	263.35	263.35	0.98
0:06:45	25.22	0.00	15.82	0:13:45	25.64	0.00	7.39	0:20:45	23.49	0.00	3.73	0:27:45	21.23	0.00	2.00	0:34:45	10.43	0.00	0.99
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	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

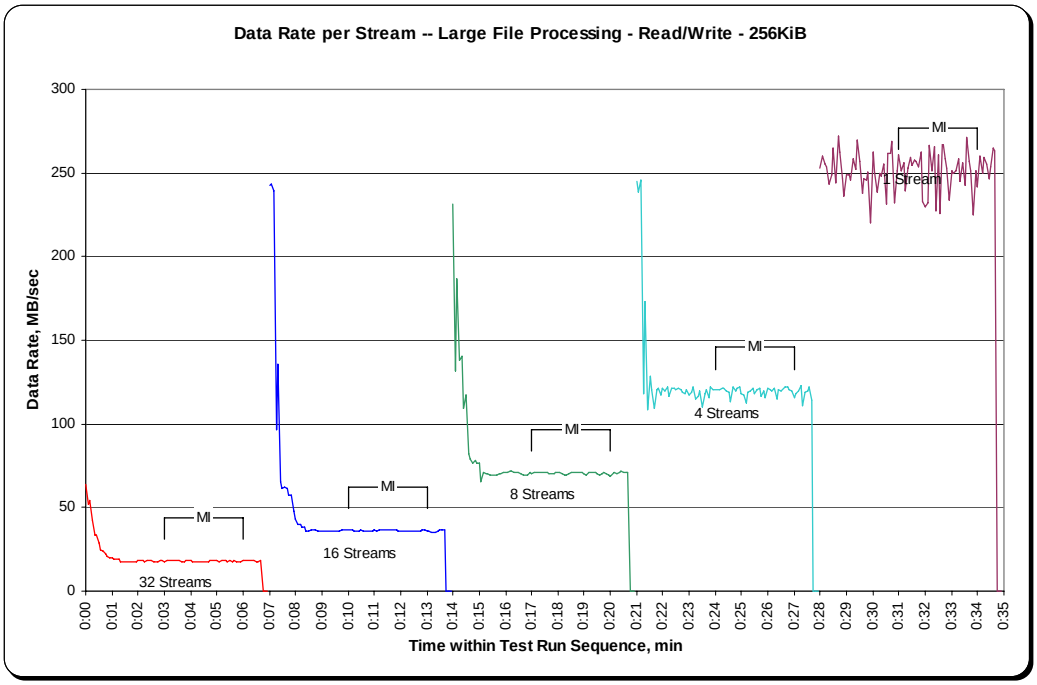
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



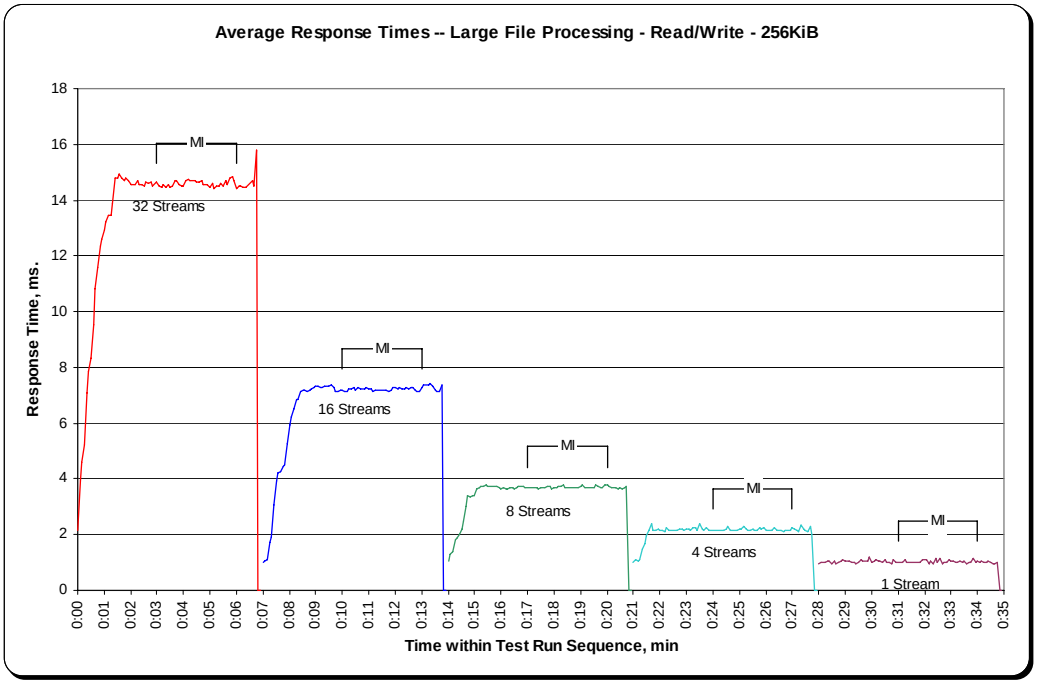
SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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.

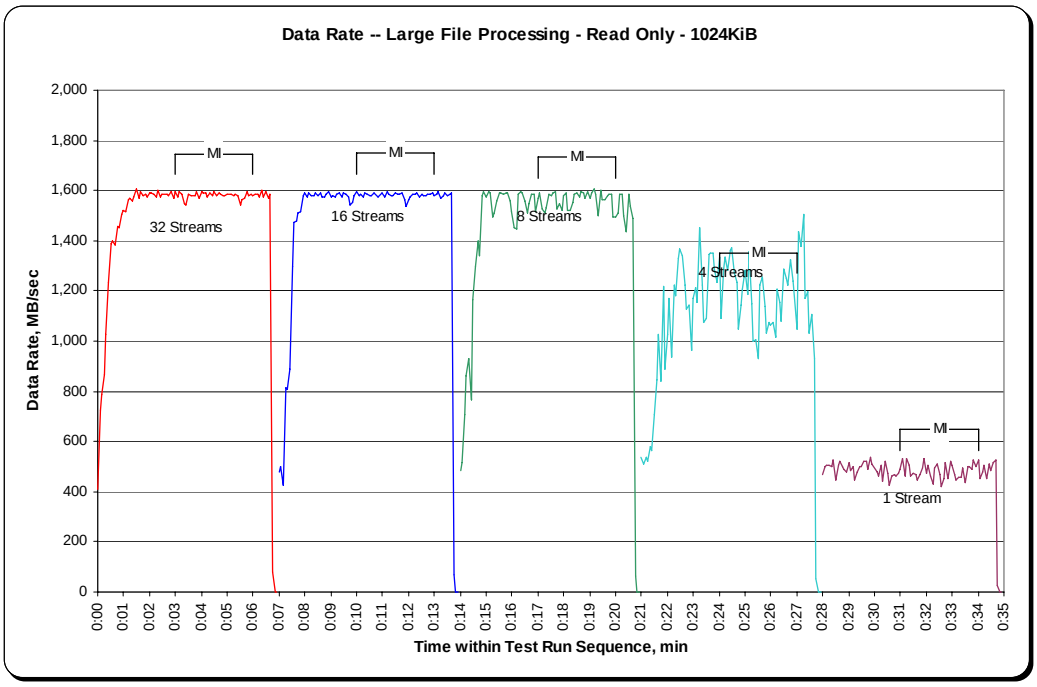
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period

TR21	32 Streams			TR22	16 Streams			TR23	8 Streams			TR24	4 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	408.53	81.71	6.32	0:07:00	476.89	476.89	2.09	0:14:00	485.28	485.28	2.06	0:21:00	537.50	537.50	1.86	0:28:00	467.46	467.46	2.14
0:00:05	724.78	90.60	9.52	0:07:05	502.48	502.48	2.07	0:14:05	515.06	515.06	2.02	0:21:05	513.17	513.17	2.03	0:28:05	500.38	500.38	2.08
0:00:10	789.79	87.75	11.15	0:07:10	423.21	141.07	5.17	0:14:10	705.90	235.30	3.12	0:21:10	537.92	537.92	1.94	0:28:10	506.88	506.88	2.05
0:00:15	868.64	78.97	11.95	0:07:15	814.74	203.69	4.86	0:14:15	862.14	287.38	3.64	0:21:15	519.05	519.05	2.01	0:28:15	505.41	505.41	2.06
0:00:20	1,027.60	85.63	11.75	0:07:20	809.29	161.86	6.15	0:14:20	928.41	232.10	4.34	0:21:20	577.77	288.88	3.14	0:28:20	499.54	499.54	2.09
0:00:25	1,235.43	68.64	13.45	0:07:25	886.47	110.81	7.40	0:14:25	766.72	191.68	5.45	0:21:25	566.44	283.22	3.69	0:28:25	527.22	527.22	1.97
0:00:30	1,388.31	73.07	13.91	0:07:30	1,295.41	117.76	7.59	0:14:30	1,166.02	233.20	4.09	0:21:30	706.95	353.47	2.95	0:28:30	444.18	444.18	2.35
0:00:35	1,397.33	66.54	14.60	0:07:35	1,475.98	123.00	8.46	0:14:35	1,296.88	259.38	4.03	0:21:35	844.94	281.65	2.69	0:28:35	506.88	506.88	2.06
0:00:40	1,384.96	65.95	15.94	0:07:40	1,479.33	113.79	8.66	0:14:40	1,398.17	233.03	3.91	0:21:40	1,026.77	256.69	3.34	0:28:40	520.30	520.30	2.00
0:00:45	1,457.94	66.27	15.46	0:07:45	1,512.47	108.03	8.97	0:14:45	1,339.24	191.32	4.68	0:21:45	838.65	209.66	4.99	0:28:45	499.96	499.96	2.08
0:00:50	1,454.37	63.23	16.31	0:07:50	1,514.14	94.63	9.89	0:14:50	1,582.30	197.79	4.70	0:21:50	1,218.45	304.61	3.43	0:28:50	491.99	491.99	2.12
0:00:55	1,504.50	60.18	16.98	0:07:55	1,581.67	98.85	10.60	0:14:55	1,594.88	199.36	5.25	0:21:55	890.45	222.61	4.70	0:28:55	478.36	478.36	2.18
0:01:00	1,521.48	58.52	17.84	0:08:00	1,590.48	99.41	10.54	0:15:00	1,574.33	196.79	5.31	0:22:00	1,025.30	256.32	4.07	0:29:00	514.22	514.22	2.03
0:01:05	1,515.61	54.13	18.21	0:08:05	1,575.80	98.49	10.60	0:15:05	1,594.67	199.33	5.24	0:22:05	1,172.31	293.08	3.56	0:29:05	485.91	485.91	2.14
0:01:10	1,564.69	55.88	18.73	0:08:10	1,592.37	99.52	10.53	0:15:10	1,589.64	198.71	5.27	0:22:10	938.06	234.51	4.45	0:29:10	497.44	497.44	2.09
0:01:15	1,567.83	50.58	20.12	0:08:15	1,580.83	98.80	10.58	0:15:15	1,497.16	187.14	5.58	0:22:15	1,223.27	305.82	3.42	0:29:15	449.00	449.00	2.32
0:01:20	1,558.18	50.26	20.74	0:08:20	1,577.27	98.58	10.56	0:15:20	1,508.27	188.53	5.54	0:22:20	1,181.33	295.33	3.53	0:29:20	481.30	481.30	2.16
0:01:25	1,576.64	49.27	21.12	0:08:25	1,590.06	99.38	10.61	0:15:25	1,561.12	195.14	5.36	0:22:25	1,329.17	332.29	3.14	0:29:25	499.96	499.96	2.08
0:01:30	1,608.10	50.25	20.84	0:08:30	1,581.04	98.82	10.57	0:15:30	1,588.17	198.52	5.27	0:22:30	1,367.76	341.94	3.05	0:29:30	498.07	498.07	2.09
0:01:35	1,566.99	48.97	21.43	0:08:35	1,591.32	99.46	10.53	0:15:35	1,591.74	198.97	5.24	0:22:35	1,340.71	335.18	3.12	0:29:35	520.72	520.72	2.00
0:01:40	1,593.21	49.79	21.08	0:08:40	1,576.64	98.54	10.62	0:15:40	1,587.54	198.44	5.28	0:22:40	1,226.00	306.50	3.41	0:29:40	520.09	520.09	2.00
0:01:45	1,577.90	49.31	21.19	0:08:45	1,576.43	98.53	10.59	0:15:45	1,591.32	198.91	5.25	0:22:45	1,128.06	282.01	3.70	0:29:45	486.75	486.75	2.14
0:01:50	1,587.33	49.60	21.16	0:08:50	1,587.54	99.22	10.61	0:15:50	1,590.27	198.78	5.25	0:22:50	1,144.42	286.10	3.65	0:29:50	538.55	538.55	1.93
0:01:55	1,573.70	49.18	21.30	0:08:55	1,596.98	99.81	10.50	0:15:55	1,556.09	194.51	5.38	0:22:55	963.01	240.75	4.34	0:29:55	512.12	512.12	2.03
0:02:00	1,588.17	49.63	21.14	0:09:00	1,576.85	98.55	10.64	0:16:00	1,513.51	189.19	5.52	0:23:00	1,169.37	292.34	3.58	0:30:00	494.51	494.51	2.11
0:02:05	1,589.43	49.67	21.03	0:09:05	1,579.16	98.70	10.58	0:16:05	1,452.91	181.61	5.76	0:23:05	1,212.99	303.25	3.44	0:30:05	479.83	479.83	2.17
0:02:10	1,586.08	49.56	21.14	0:09:10	1,575.80	98.49	10.66	0:16:10	1,446.41	180.80	5.79	0:23:10	1,151.76	287.94	3.63	0:30:10	463.05	463.05	2.25
0:02:15	1,575.17	49.22	21.35	0:09:15	1,584.19	99.01	10.54	0:16:15	1,584.19	198.02	5.28	0:23:15	1,453.12	363.28	2.87	0:30:15	503.95	503.95	2.07
0:02:20	1,601.18	50.04	20.89	0:09:20	1,593.00	99.56	10.54	0:16:20	1,594.46	199.31	5.24	0:23:20	1,225.37	306.34	3.41	0:30:20	443.76	443.76	2.35
0:02:25	1,575.80	49.24	21.27	0:09:25	1,573.91	98.37	10.62	0:16:25	1,588.80	198.60	5.27	0:23:25	1,074.16	268.54	3.89	0:30:25	520.30	520.30	2.00
0:02:30	1,584.61	49.52	21.13	0:09:30	1,589.43	99.34	10.56	0:16:30	1,559.02	194.88	5.36	0:23:30	1,088.00	272.00	3.84	0:30:30	476.05	476.05	2.18
0:02:35	1,584.40	49.51	21.26	0:09:35	1,583.56	98.97	10.57	0:16:35	1,512.05	189.01	5.53	0:23:35	1,344.48	336.12	3.10	0:30:35	427.40	427.40	2.44
0:02:40	1,585.03	49.53	21.02	0:09:40	1,576.01	98.50	10.62	0:16:40	1,546.86	193.36	5.41	0:23:40	1,352.24	338.06	3.09	0:30:40	463.26	463.26	2.24
0:02:45	1,579.78	49.37	21.26	0:09:45	1,543.92	96.50	10.84	0:16:45	1,583.14	197.89	5.28	0:23:45	1,350.99	337.75	3.09	0:30:45	468.71	468.71	2.22
0:02:50	1,594.46	49.83	21.00	0:09:50	1,554.83	97.18	10.78	0:16:50	1,584.61	198.08	5.29	0:23:50	1,286.60	321.65	3.25	0:30:50	461.16	461.16	2.25
0:02:55	1,569.30	49.04	21.40	0:09:55	1,581.04	98.82	10.53	0:16:55	1,513.93	189.24	5.52	0:23:55	1,233.96	308.49	3.40	0:30:55	471.23	471.23	2.21

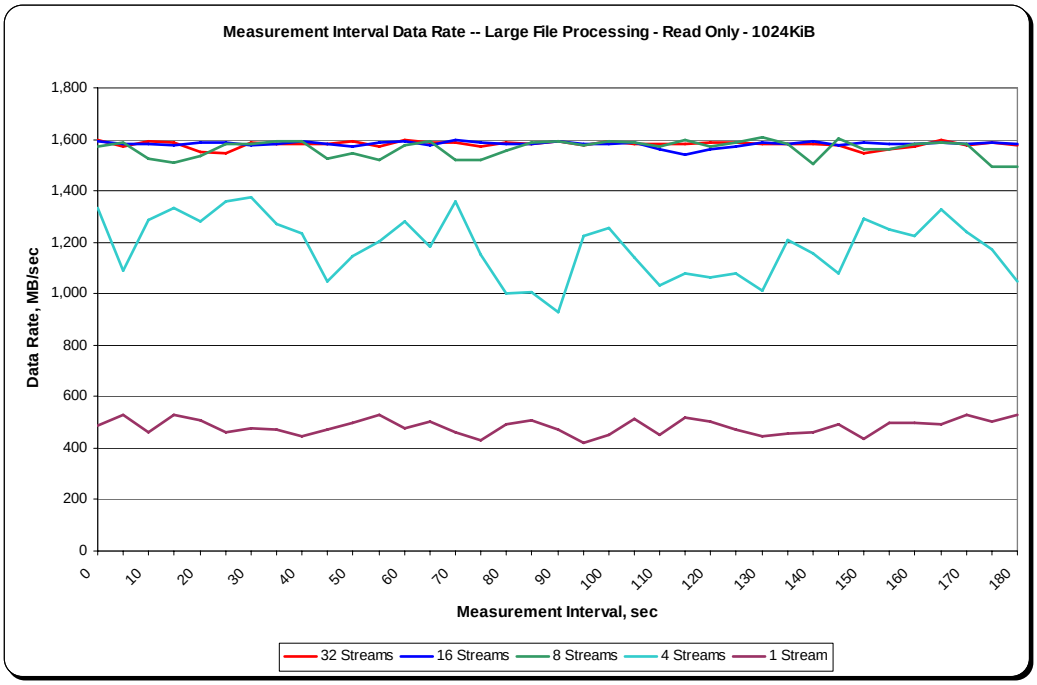
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR21	32 Streams			TR22	16 Streams			TR23	8 Streams			TR24	4 Streams			TR25	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	1,597.40	49.92	21.02	0:10:00	1,594.67	99.67	10.58	0:17:00	1,570.35	196.29	5.33	0:24:00	1,333.37	333.34	3.11	0:31:00	489.48	489.48	2.13
0:03:05	1,572.23	49.13	21.32	0:10:05	1,580.41	98.78	10.61	0:17:05	1,589.43	198.68	5.26	0:24:05	1,091.78	272.94	3.83	0:31:05	531.63	531.63	1.96
0:03:10	1,593.21	49.79	21.06	0:10:10	1,582.72	98.92	10.57	0:17:10	1,527.36	190.92	5.47	0:24:10	1,287.44	321.86	3.24	0:31:10	462.63	462.63	2.25
0:03:15	1,585.87	49.56	21.12	0:10:15	1,576.43	98.53	10.61	0:17:15	1,511.63	188.95	5.54	0:24:15	1,334.63	333.66	3.13	0:31:15	531.00	531.00	1.96
0:03:20	1,549.38	48.42	21.63	0:10:20	1,588.17	99.26	10.55	0:17:20	1,533.23	191.65	5.46	0:24:20	1,281.36	320.34	3.26	0:31:20	507.72	507.72	2.05
0:03:25	1,543.50	48.23	21.70	0:10:25	1,586.29	99.14	10.56	0:17:25	1,582.93	197.87	5.28	0:24:25	1,360.84	340.21	3.07	0:31:25	462.00	462.00	2.26
0:03:30	1,587.12	49.60	21.26	0:10:30	1,578.95	98.68	10.60	0:17:30	1,581.88	197.74	5.28	0:24:30	1,372.80	343.20	3.04	0:31:30	474.80	474.80	2.19
0:03:35	1,581.25	49.41	21.09	0:10:35	1,580.20	98.76	10.57	0:17:35	1,593.00	199.12	5.25	0:24:35	1,268.78	317.19	3.29	0:31:35	470.18	470.18	2.22
0:03:40	1,581.46	49.42	21.26	0:10:40	1,590.27	99.39	10.58	0:17:40	1,593.42	199.18	5.26	0:24:40	1,235.85	308.96	3.38	0:31:40	445.02	445.02	2.34
0:03:45	1,580.83	49.40	21.17	0:10:45	1,580.83	98.80	10.55	0:17:45	1,526.31	190.79	5.48	0:24:45	1,046.90	261.72	3.99	0:31:45	469.97	469.97	2.22
0:03:50	1,594.46	49.83	21.06	0:10:50	1,573.91	98.37	10.67	0:17:50	1,546.02	193.25	5.41	0:24:50	1,145.67	286.42	3.65	0:31:50	497.23	497.23	2.09
0:03:55	1,570.35	49.07	21.34	0:10:55	1,586.29	99.14	10.57	0:17:55	1,520.85	190.11	5.50	0:24:55	1,205.86	301.47	3.46	0:31:55	530.16	530.16	1.96
0:04:00	1,596.35	49.89	21.01	0:11:00	1,590.27	99.39	10.55	0:18:00	1,578.74	197.34	5.30	0:25:00	1,280.10	320.03	3.26	0:32:00	476.05	476.05	2.19
0:04:05	1,588.59	49.64	21.06	0:11:05	1,576.64	98.54	10.58	0:18:05	1,590.27	198.78	5.26	0:25:05	1,184.26	296.07	3.52	0:32:05	505.41	505.41	2.06
0:04:10	1,587.96	49.62	21.17	0:11:10	1,596.77	99.80	10.49	0:18:10	1,520.44	190.05	5.50	0:25:10	1,358.12	339.53	3.07	0:32:10	462.00	462.00	2.26
0:04:15	1,572.23	49.13	21.27	0:11:15	1,585.24	99.08	10.59	0:18:15	1,522.32	190.29	5.50	0:25:15	1,150.29	287.57	3.64	0:32:15	431.59	431.59	2.42
0:04:20	1,589.22	49.66	21.04	0:11:20	1,579.99	98.75	10.56	0:18:20	1,555.04	194.38	5.38	0:25:20	1,001.81	250.45	4.14	0:32:20	492.62	492.62	2.11
0:04:25	1,582.09	49.44	21.26	0:11:25	1,579.99	98.75	10.67	0:18:25	1,586.29	198.29	5.27	0:25:25	1,005.58	251.40	4.16	0:32:25	510.45	510.45	2.04
0:04:30	1,593.84	49.81	21.12	0:11:30	1,590.69	99.42	10.51	0:18:30	1,591.74	198.97	5.25	0:25:30	930.72	232.68	4.49	0:32:30	470.60	470.60	2.21
0:04:35	1,578.53	49.33	21.14	0:11:35	1,583.98	99.00	10.58	0:18:35	1,574.75	196.84	5.32	0:25:35	1,222.43	305.61	3.42	0:32:35	418.80	418.80	2.49
0:04:40	1,592.37	49.76	21.01	0:11:40	1,582.51	98.91	10.60	0:18:40	1,594.05	199.26	5.25	0:25:40	1,254.31	313.58	3.33	0:32:40	453.82	453.82	2.30
0:04:45	1,583.77	49.49	21.24	0:11:45	1,588.80	99.30	10.54	0:18:45	1,589.85	198.73	5.25	0:25:45	1,139.59	284.90	3.67	0:32:45	514.01	514.01	2.03
0:04:50	1,581.88	49.43	21.13	0:11:50	1,563.01	97.69	10.71	0:18:50	1,570.77	196.35	5.33	0:25:50	1,033.06	258.26	4.04	0:32:50	452.15	452.15	2.30
0:04:55	1,581.67	49.43	21.23	0:11:55	1,539.31	96.21	10.87	0:18:55	1,596.98	199.62	5.24	0:25:55	1,076.68	269.17	3.88	0:32:55	520.93	520.93	2.00
0:05:00	1,584.82	49.53	21.17	0:12:00	1,562.17	97.64	10.73	0:19:00	1,570.98	196.37	5.32	0:26:00	1,065.35	266.34	3.93	0:33:00	504.16	504.16	2.07
0:05:05	1,585.45	49.55	21.13	0:12:05	1,573.49	98.34	10.64	0:19:05	1,589.85	198.73	5.26	0:26:05	1,076.47	269.12	3.88	0:33:05	469.76	469.76	2.22
0:05:10	1,582.72	49.46	21.16	0:12:10	1,586.50	99.16	10.53	0:19:10	1,608.73	201.09	5.20	0:26:10	1,013.76	253.44	4.12	0:33:10	447.74	447.74	2.33
0:05:15	1,579.99	49.37	21.34	0:12:15	1,584.40	99.02	10.60	0:19:15	1,582.93	197.87	5.28	0:26:15	1,207.12	301.78	3.46	0:33:15	456.97	456.97	2.28
0:05:20	1,582.51	49.45	21.12	0:12:20	1,590.69	99.42	10.54	0:19:20	1,502.40	187.80	5.57	0:26:20	1,155.95	288.99	3.63	0:33:20	459.49	459.49	2.27
0:05:25	1,578.74	49.34	21.26	0:12:25	1,576.01	98.50	10.61	0:19:25	1,600.76	200.09	5.22	0:26:25	1,081.08	270.27	3.85	0:33:25	495.35	495.35	2.10
0:05:30	1,545.18	48.29	21.66	0:12:30	1,585.45	99.09	10.59	0:19:30	1,561.75	195.22	5.36	0:26:30	1,289.12	322.28	3.24	0:33:30	435.37	435.37	2.39
0:05:35	1,562.17	48.82	21.41	0:12:35	1,580.62	98.79	10.62	0:19:35	1,562.17	195.27	5.35	0:26:35	1,251.37	312.84	3.32	0:33:35	498.28	498.28	2.09
0:05:40	1,569.30	49.04	21.35	0:12:40	1,579.99	98.75	10.58	0:19:40	1,581.25	197.66	5.29	0:26:40	1,223.90	305.97	3.43	0:33:40	498.91	498.91	2.09
0:05:45	1,595.30	49.85	21.04	0:12:45	1,587.54	99.22	10.55	0:19:45	1,587.12	198.39	5.27	0:26:45	1,326.87	331.72	3.15	0:33:45	491.78	491.78	2.12
0:05:50	1,577.69	49.30	21.33	0:12:50	1,583.77	98.99	10.59	0:19:50	1,583.35	197.92	5.29	0:26:50	1,241.30	310.33	3.36	0:33:50	527.01	527.01	1.98
0:05:55	1,585.66	49.55	21.15	0:12:55	1,589.01	99.31	10.54	0:19:55	1,496.32	187.04	5.59	0:26:55	1,171.05	292.76	3.56	0:33:55	502.27	502.27	2.07
0:06:00	1,579.16	49.35	21.16	0:13:00	1,579.99	98.75	10.61	0:20:00	1,492.54	186.57	5.61	0:27:00	1,045.85	261.46	4.00	0:34:00	527.01	527.01	1.98
0:06:05	1,585.24	49.54	21.18	0:13:05	1,583.35	98.96	10.51	0:20:05	1,511.84	188.98	5.53	0:27:05	1,433.61	358.40	2.91	0:34:05	454.66	454.66	2.29
0:06:10	1,583.98	49.50	21.20	0:13:10	1,593.63	99.60	10.57	0:20:10	1,582.51	197.81	5.29	0:27:10	1,375.10	343.78	3.04	0:34:10	477.52	477.52	2.18
0:06:15	1,572.03	49.13	21.21	0:13:15	1,567.83	97.99	10.64	0:20:15	1,587.54	198.44	5.26	0:27:15	1,505.13	376.28	2.77	0:34:15	503.74	503.74	2.07
0:06:20	1,601.80	50.06	21.02	0:13:20	1,581.67	98.85	10.61	0:20:20	1,499.88	187.49	5.58	0:27:20	1,171.47	292.87	3.56	0:34:20	452.98	452.98	2.30
0:06:25	1,575.80	49.24	21.28	0:13:25	1,592.79	99.55	10.52	0:20:25	1,435.29	179.41	5.84	0:27:25	1,198.94	299.74	3.49	0:34:25	511.91	511.91	2.03
0:06:30	1,597.61	49.93	21.02	0:13:30	1,581.46	98.84	10.59	0:20:30	1,587.75	198.47	5.27	0:27:30	1,032.43	258.11	4.04	0:34:30	485.28	485.28	2.15
0:06:35	1,571.19	49.10	21.26	0:13:35	1,583.56	98.97	10.60	0:20:35	1,538.89	192.36	5.43	0:27:35	1,106.25	276.56	3.77	0:34:35	516.74	516.74	2.02
0:06:40	1,584.40	49.51	21.24	0:13:40	1,589.22	99.33	10.54	0:20:40	1,489.61	186.20	5.62	0:27:40	931.35	232.84	4.48	0:34:40	524.29	524.29	1.99
0:06:45	81.79	0.00	26.20	0:13:45	68.16	0.00	11.51	0:20:45	62.08	0.00	5.79	0:27:45	52.64	0.00	3.68	0:34:45	24.75	0.00	1.76
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

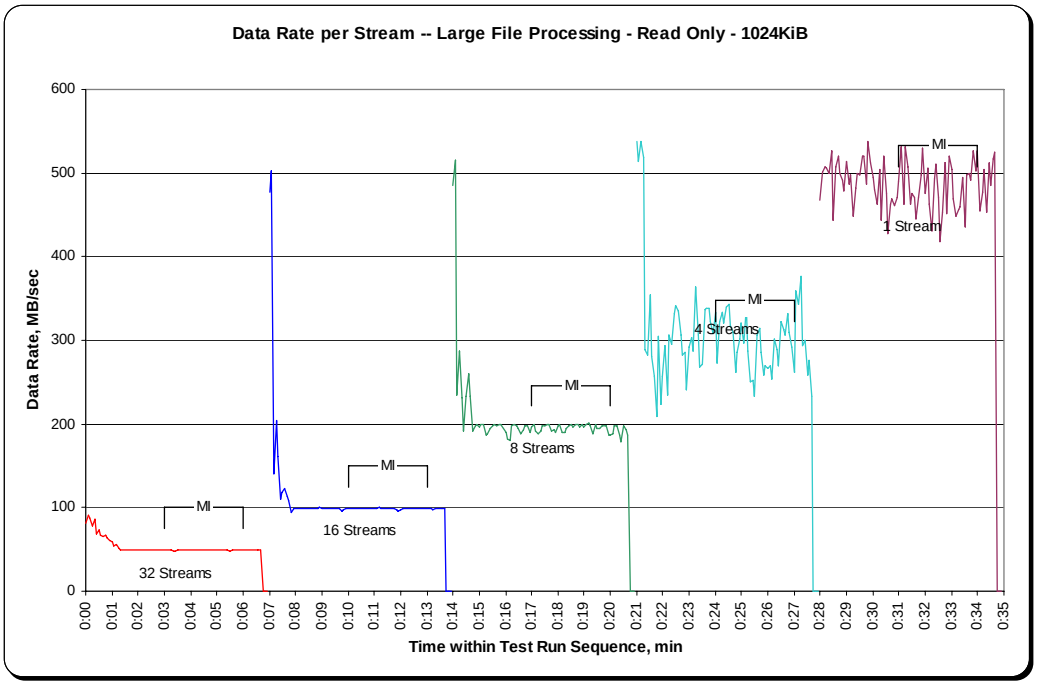
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



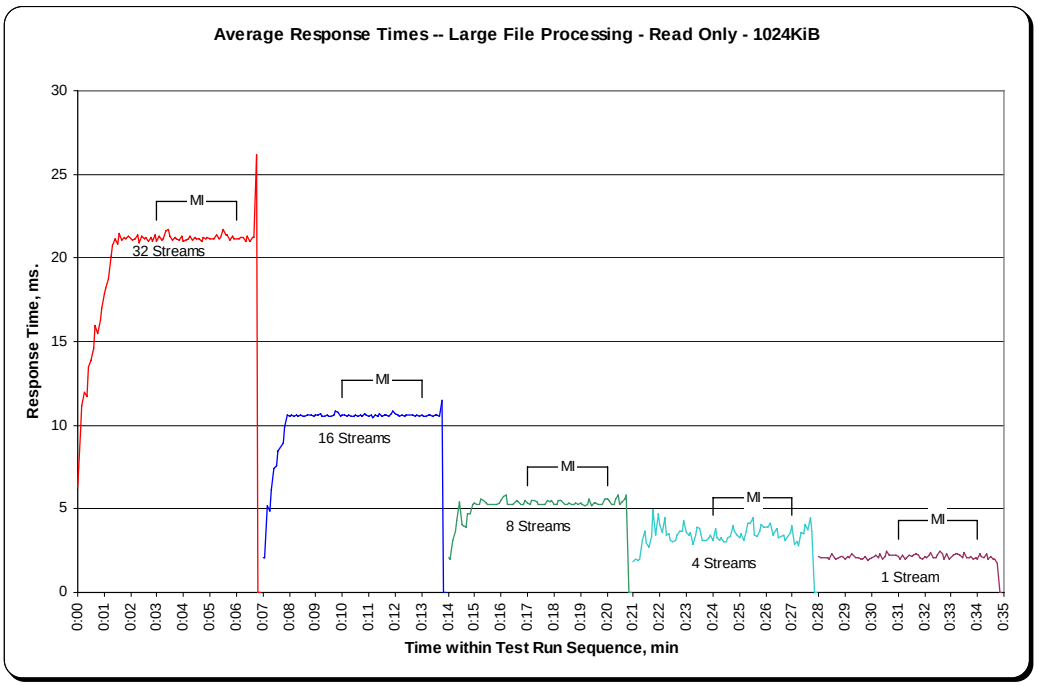
SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



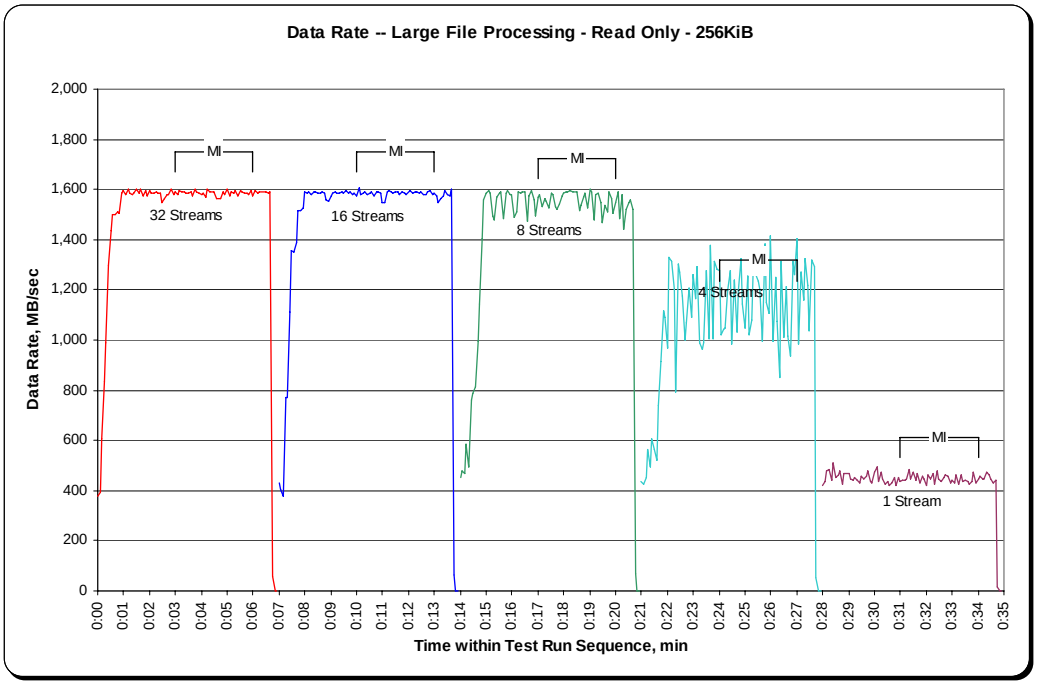
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

TR26	32 Streams			TR27	16 Streams			TR28	8 Streams			TR29	4 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	378.48	75.70	2.35	0:07:00	431.80	215.90	0.75	0:14:00	454.40	454.40	0.54	0:21:00	438.78	438.78	0.56	0:28:00	420.85	420.85	0.58
0:00:05	391.49	78.30	3.34	0:07:05	403.13	201.56	1.28	0:14:05	479.99	479.99	0.53	0:21:05	426.77	426.77	0.60	0:28:05	438.46	438.46	0.58
0:00:10	607.44	67.49	2.92	0:07:10	378.27	94.57	1.75	0:14:10	468.24	468.24	0.55	0:21:10	451.73	451.73	0.57	0:28:10	480.09	480.09	0.53
0:00:15	834.98	69.58	3.12	0:07:15	773.12	128.85	1.66	0:14:15	585.94	292.97	0.53	0:21:15	566.34	283.17	0.55	0:28:15	483.08	483.08	0.53
0:00:20	990.80	66.05	3.50	0:07:20	772.49	128.75	2.02	0:14:20	494.88	247.44	1.04	0:21:20	497.29	248.64	1.03	0:28:20	439.56	439.56	0.58
0:00:25	1,297.30	64.86	3.44	0:07:25	1,114.27	123.81	1.81	0:14:25	761.90	253.97	0.88	0:21:25	607.86	303.93	0.85	0:28:25	508.19	508.19	0.50
0:00:30	1,437.13	65.32	3.78	0:07:30	1,354.45	135.44	1.76	0:14:30	789.63	197.41	1.03	0:21:30	565.55	282.77	0.91	0:28:30	451.20	451.20	0.57
0:00:35	1,500.20	62.51	4.05	0:07:35	1,352.24	135.22	1.93	0:14:35	816.00	204.00	1.27	0:21:35	521.40	260.70	0.99	0:28:35	464.83	464.83	0.55
0:00:40	1,502.19	62.59	4.20	0:07:40	1,389.00	126.27	1.94	0:14:40	996.72	199.34	1.12	0:21:40	738.88	369.44	0.70	0:28:40	478.57	478.57	0.53
0:00:45	1,511.63	58.14	4.35	0:07:45	1,515.35	126.28	1.96	0:14:45	1,145.52	190.92	1.24	0:21:45	914.20	304.73	0.70	0:28:45	426.98	426.98	0.60
0:00:50	1,505.13	55.75	4.64	0:07:50	1,514.09	108.15	2.08	0:14:50	1,404.88	234.15	1.10	0:21:50	1,116.52	372.17	0.69	0:28:50	466.35	466.35	0.55
0:00:55	1,585.97	52.87	4.73	0:07:55	1,525.57	101.70	2.41	0:14:55	1,558.76	194.85	1.19	0:21:55	1,092.41	273.10	0.94	0:28:55	469.24	469.24	0.55
0:01:00	1,596.98	53.23	4.93	0:08:00	1,590.01	106.00	2.46	0:15:00	1,584.77	198.10	1.31	0:22:00	968.62	242.16	1.07	0:29:00	467.30	467.30	0.55
0:01:05	1,581.57	52.72	4.94	0:08:05	1,583.30	105.55	2.46	0:15:05	1,593.47	199.18	1.30	0:22:05	1,329.38	332.35	0.77	0:29:05	449.37	449.37	0.57
0:01:10	1,598.71	51.57	4.96	0:08:10	1,591.84	106.12	2.46	0:15:10	1,584.56	198.07	1.30	0:22:10	1,315.91	328.98	0.78	0:29:10	441.56	441.56	0.58
0:01:15	1,587.49	49.61	5.24	0:08:15	1,579.78	105.32	2.47	0:15:15	1,496.37	187.05	1.39	0:22:15	1,203.14	300.78	0.85	0:29:15	453.04	453.04	0.56
0:01:20	1,581.72	49.43	5.28	0:08:20	1,592.26	106.15	2.45	0:15:20	1,476.66	184.58	1.40	0:22:20	795.14	198.78	1.31	0:29:20	439.98	439.98	0.58
0:01:25	1,584.82	49.53	5.27	0:08:25	1,591.69	99.48	2.54	0:15:25	1,570.03	196.25	1.32	0:22:25	1,303.69	325.92	0.79	0:29:25	432.80	432.80	0.59
0:01:30	1,599.08	49.97	5.22	0:08:30	1,583.82	98.99	2.63	0:15:30	1,585.29	198.16	1.31	0:22:30	1,270.93	317.73	0.81	0:29:30	459.12	459.12	0.56
0:01:35	1,583.14	49.47	5.30	0:08:35	1,584.45	99.03	2.63	0:15:35	1,588.17	198.52	1.30	0:22:35	1,173.62	293.40	0.88	0:29:35	446.17	446.17	0.57
0:01:40	1,600.81	50.03	5.23	0:08:40	1,591.84	99.49	2.62	0:15:40	1,483.79	185.47	1.40	0:22:40	997.93	249.48	1.03	0:29:40	458.86	458.86	0.56
0:01:45	1,576.90	49.28	5.29	0:08:45	1,583.14	98.95	2.62	0:15:45	1,586.76	198.34	1.30	0:22:45	1,067.29	266.82	0.97	0:29:45	476.68	476.68	0.54
0:01:50	1,597.56	49.92	5.25	0:08:50	1,558.03	97.38	2.68	0:15:50	1,596.14	199.52	1.30	0:22:50	1,207.28	301.82	0.85	0:29:50	438.67	438.67	0.57
0:01:55	1,576.59	49.27	5.29	0:08:55	1,554.20	97.14	2.68	0:15:55	1,579.73	197.47	1.31	0:22:55	1,090.83	272.71	0.95	0:29:55	432.54	432.54	0.59
0:02:00	1,596.56	49.89	5.24	0:09:00	1,571.82	98.24	2.65	0:16:00	1,577.84	197.23	1.31	0:23:00	1,260.34	315.08	0.82	0:30:00	471.44	471.44	0.54
0:02:05	1,585.24	49.54	5.27	0:09:05	1,583.04	98.94	2.63	0:16:05	1,490.39	186.30	1.39	0:23:05	1,166.65	291.66	0.88	0:30:05	493.15	493.15	0.52
0:02:10	1,584.56	49.52	5.26	0:09:10	1,588.80	99.30	2.61	0:16:10	1,509.84	188.73	1.37	0:23:10	1,292.00	323.00	0.79	0:30:10	434.27	434.27	0.59
0:02:15	1,591.69	49.74	5.28	0:09:15	1,584.71	99.04	2.64	0:16:15	1,590.90	198.86	1.30	0:23:15	987.13	246.78	1.05	0:30:15	472.44	472.44	0.54
0:02:20	1,583.56	49.49	5.28	0:09:20	1,587.12	99.20	2.63	0:16:20	1,586.86	198.36	1.31	0:23:20	961.65	240.41	1.07	0:30:20	447.90	447.90	0.57
0:02:25	1,586.91	49.59	5.27	0:09:25	1,589.90	99.37	2.61	0:16:25	1,589.85	198.73	1.30	0:23:25	986.97	246.74	1.05	0:30:25	427.92	427.92	0.60
0:02:30	1,545.81	48.31	5.41	0:09:30	1,583.35	98.96	2.62	0:16:30	1,591.32	198.91	1.30	0:23:30	1,276.43	319.11	0.80	0:30:30	434.37	434.37	0.59
0:02:35	1,561.59	48.80	5.31	0:09:35	1,593.21	99.58	2.63	0:16:35	1,473.93	184.24	1.41	0:23:35	1,003.75	250.94	1.03	0:30:35	421.11	421.11	0.61
0:02:40	1,581.31	49.42	5.34	0:09:40	1,586.65	99.17	2.63	0:16:40	1,576.74	197.09	1.31	0:23:40	1,379.66	344.92	0.74	0:30:40	433.38	433.38	0.59
0:02:45	1,582.35	49.45	5.27	0:09:45	1,588.80	99.30	2.62	0:16:45	1,597.82	199.73	1.30	0:23:45	1,003.33	250.83	1.03	0:30:45	453.67	453.67	0.56
0:02:50	1,603.17	50.10	5.22	0:09:50	1,582.20	98.89	2.63	0:16:50	1,557.29	194.66	1.33	0:23:50	1,312.50	328.13	0.78	0:30:50	419.85	419.85	0.61
0:02:55	1,581.04	49.41	5.28	0:09:55	1,584.56	99.03	2.63	0:16:55	1,494.43	186.80	1.39	0:23:55	1,283.61	320.90	0.80	0:30:55	451.88	451.88	0.57

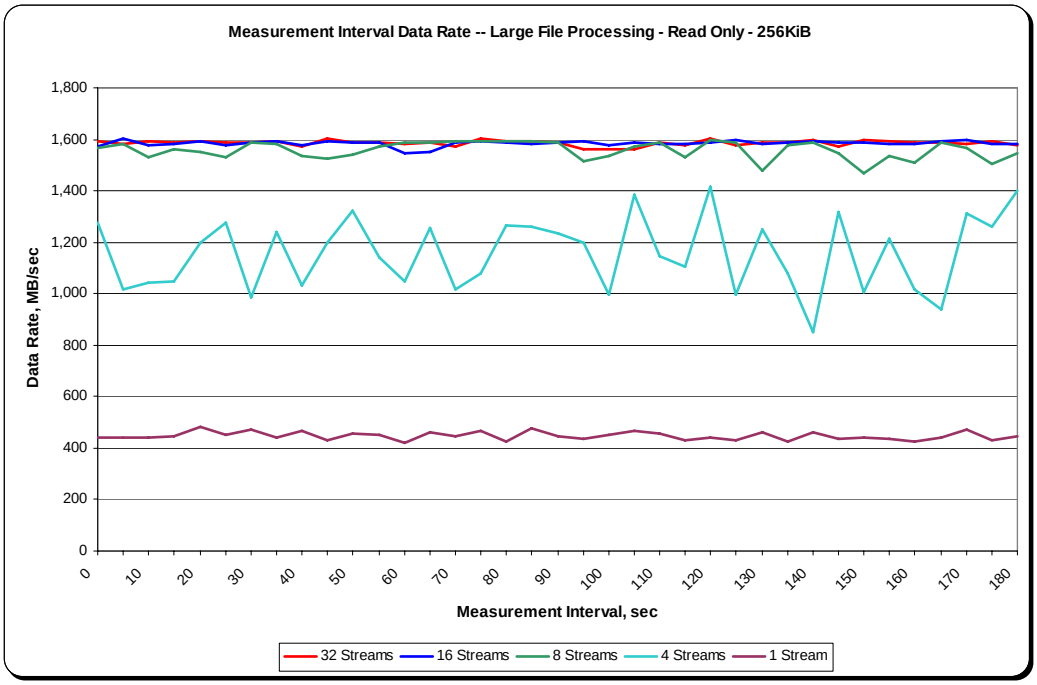
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR26	32 Streams			TR27	16 Streams			TR28	8 Streams			TR29	4 Streams			TR30	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	1,591.79	49.74	5.26	0:10:00	1,573.86	98.37	2.64	0:17:00	1,567.99	196.00	1.32	0:24:00	1,275.54	318.89	0.80	0:31:00	438.83	438.83	0.58
0:03:05	1,580.94	49.40	5.26	0:10:05	1,603.90	100.24	2.61	0:17:05	1,579.94	197.49	1.31	0:24:05	1,019.11	254.78	1.02	0:31:05	439.72	439.72	0.58
0:03:10	1,594.10	49.82	5.27	0:10:10	1,579.10	98.69	2.62	0:17:10	1,530.13	191.27	1.35	0:24:10	1,041.50	260.37	0.99	0:31:10	441.40	441.40	0.58
0:03:15	1,589.80	49.68	5.27	0:10:15	1,582.98	98.94	2.65	0:17:15	1,562.95	195.37	1.32	0:24:15	1,045.90	261.48	0.98	0:31:15	445.80	445.80	0.57
0:03:20	1,590.11	49.69	5.26	0:10:20	1,592.05	99.50	2.62	0:17:20	1,551.84	193.98	1.33	0:24:20	1,198.73	299.68	0.86	0:31:20	484.28	484.28	0.53
0:03:25	1,586.97	49.59	5.26	0:10:25	1,579.42	98.71	2.63	0:17:25	1,527.78	190.97	1.36	0:24:25	1,274.86	318.71	0.81	0:31:25	448.84	448.84	0.57
0:03:30	1,585.97	49.56	5.29	0:10:30	1,584.98	99.06	2.63	0:17:30	1,586.08	198.26	1.31	0:24:30	985.66	246.42	1.05	0:31:30	471.44	471.44	0.54
0:03:35	1,591.00	49.72	5.21	0:10:35	1,591.37	99.46	2.62	0:17:35	1,581.67	197.71	1.31	0:24:35	1,239.84	309.96	0.83	0:31:35	440.24	440.24	0.58
0:03:40	1,573.02	49.16	5.34	0:10:40	1,576.06	98.50	2.64	0:17:40	1,534.38	191.80	1.35	0:24:40	1,031.80	257.95	1.00	0:31:40	469.03	469.03	0.55
0:03:45	1,602.28	50.07	5.21	0:10:45	1,591.90	99.49	2.62	0:17:45	1,522.90	190.36	1.36	0:24:45	1,196.01	299.00	0.86	0:31:45	433.01	433.01	0.59
0:03:50	1,587.81	49.62	5.29	0:10:50	1,589.90	99.37	2.62	0:17:50	1,541.88	192.73	1.35	0:24:50	1,323.88	330.97	0.78	0:31:50	459.07	459.07	0.56
0:03:55	1,585.60	49.55	5.28	0:10:55	1,584.87	99.05	2.63	0:17:55	1,574.07	196.76	1.31	0:24:55	1,142.00	285.50	0.90	0:31:55	449.21	449.21	0.57
0:04:00	1,581.88	49.43	5.27	0:11:00	1,545.65	96.60	2.70	0:18:00	1,586.02	198.25	1.31	0:25:00	1,048.68	262.17	0.99	0:32:00	419.74	419.74	0.61
0:04:05	1,586.44	49.58	5.27	0:11:05	1,549.43	96.84	2.69	0:18:05	1,588.91	198.61	1.30	0:25:05	1,252.79	313.20	0.82	0:32:05	464.05	464.05	0.55
0:04:10	1,571.61	49.11	5.30	0:11:10	1,589.80	99.36	2.62	0:18:10	1,592.42	199.05	1.30	0:25:10	1,019.27	254.82	1.01	0:32:10	446.06	446.06	0.57
0:04:15	1,600.86	50.03	5.21	0:11:15	1,593.78	99.61	2.61	0:18:15	1,593.36	199.17	1.30	0:25:15	1,080.71	270.18	0.95	0:32:15	466.30	466.30	0.55
0:04:20	1,592.11	49.75	5.28	0:11:20	1,589.33	99.33	2.61	0:18:20	1,592.68	199.09	1.30	0:25:20	1,263.43	315.86	0.81	0:32:20	425.09	425.09	0.60
0:04:25	1,590.85	49.71	5.27	0:11:25	1,583.61	98.98	2.64	0:18:25	1,591.27	198.91	1.30	0:25:25	1,261.59	315.40	0.82	0:32:25	477.99	477.99	0.53
0:04:30	1,588.44	49.64	5.26	0:11:30	1,588.54	99.28	2.63	0:18:30	1,588.96	198.62	1.30	0:25:30	1,236.38	309.09	0.83	0:32:30	445.85	445.85	0.57
0:04:35	1,563.69	48.87	5.34	0:11:35	1,591.37	99.46	2.61	0:18:35	1,515.40	189.43	1.37	0:25:35	1,199.62	299.91	0.86	0:32:35	435.95	435.95	0.59
0:04:40	1,563.79	48.87	5.35	0:11:40	1,578.21	98.64	2.64	0:18:40	1,536.43	192.05	1.35	0:25:40	993.58	248.39	1.04	0:32:40	451.78	451.78	0.57
0:04:45	1,563.58	48.86	5.35	0:11:45	1,588.44	99.28	2.63	0:18:45	1,571.34	196.42	1.32	0:25:45	1,384.91	346.23	0.74	0:32:45	465.31	465.31	0.55
0:04:50	1,588.54	49.64	5.28	0:11:50	1,582.77	98.92	2.63	0:18:50	1,585.18	198.15	1.30	0:25:50	1,147.98	287.00	0.90	0:32:50	455.03	455.03	0.56
0:04:55	1,577.48	49.30	5.26	0:11:55	1,581.93	98.87	2.64	0:18:55	1,529.19	191.15	1.36	0:25:55	1,105.67	276.42	0.93	0:32:55	431.44	431.44	0.59
0:05:00	1,601.54	50.05	5.25	0:12:00	1,588.12	99.26	2.62	0:19:00	1,599.71	199.96	1.29	0:26:00	1,415.26	353.82	0.72	0:33:00	440.14	440.14	0.58
0:05:05	1,576.22	49.26	5.31	0:12:05	1,596.35	99.77	2.61	0:19:05	1,588.44	198.55	1.30	0:26:05	993.84	248.46	1.04	0:33:05	429.86	429.86	0.60
0:05:10	1,588.96	49.65	5.26	0:12:10	1,584.08	99.01	2.63	0:19:10	1,479.38	184.92	1.40	0:26:10	1,248.54	312.13	0.82	0:33:10	463.10	463.10	0.55
0:05:15	1,585.76	49.56	5.25	0:12:15	1,589.27	99.33	2.63	0:19:15	1,579.31	197.41	1.31	0:26:15	1,076.42	269.10	0.96	0:33:15	424.10	424.10	0.60
0:05:20	1,596.14	49.88	5.26	0:12:20	1,591.69	99.48	2.61	0:19:20	1,587.54	198.44	1.30	0:26:20	852.07	213.02	1.22	0:33:20	462.79	462.79	0.55
0:05:25	1,572.18	49.13	5.31	0:12:25	1,586.39	99.15	2.63	0:19:25	1,545.50	193.19	1.34	0:26:25	1,316.33	329.08	0.78	0:33:25	434.01	434.01	0.59
0:05:30	1,596.61	49.89	5.23	0:12:30	1,588.49	99.28	2.63	0:19:30	1,468.79	183.60	1.41	0:26:30	1,008.52	252.13	1.02	0:33:30	442.08	442.08	0.58
0:05:35	1,591.79	49.74	5.26	0:12:35	1,582.20	98.89	2.63	0:19:35	1,536.16	192.02	1.35	0:26:35	1,211.89	302.97	0.85	0:33:35	436.52	436.52	0.59
0:05:40	1,587.33	49.60	5.27	0:12:40	1,581.83	98.86	2.62	0:19:40	1,508.53	188.57	1.37	0:26:40	1,015.49	253.87	1.02	0:33:40	427.56	427.56	0.60
0:05:45	1,586.71	49.58	5.26	0:12:45	1,591.16	99.45	2.64	0:19:45	1,588.23	198.53	1.30	0:26:45	938.79	234.70	1.10	0:33:45	438.62	438.62	0.58
0:05:50	1,580.73	49.40	5.30	0:12:50	1,597.19	99.82	2.61	0:19:50	1,565.37	195.67	1.32	0:26:50	1,311.66	327.92	0.79	0:33:50	472.80	472.80	0.54
0:05:55	1,593.89	49.81	5.24	0:12:55	1,581.72	98.86	2.64	0:19:55	1,504.60	188.08	1.38	0:26:55	1,261.65	315.41	0.82	0:33:55	429.86	429.86	0.60
0:06:00	1,575.85	49.25	5.29	0:13:00	1,582.98	98.94	2.62	0:20:00	1,547.59	193.45	1.34	0:27:00	1,402.05	350.51	0.73	0:34:00	448.16	448.16	0.57
0:06:05	1,598.34	49.95	5.25	0:13:05	1,576.38	98.52	2.65	0:20:05	1,591.74	198.97	1.30	0:27:05	985.29	246.32	1.04	0:34:05	456.13	456.13	0.56
0:06:10	1,587.75	49.62	5.26	0:13:10	1,546.96	96.69	2.70	0:20:10	1,483.21	185.40	1.40	0:27:10	1,270.82	317.71	0.81	0:34:10	444.18	444.18	0.58
0:06:15	1,588.65	49.65	5.28	0:13:15	1,563.22	97.70	2.67	0:20:15	1,579.68	197.46	1.31	0:27:15	1,161.77	290.44	0.89	0:34:15	444.81	444.81	0.58
0:06:20	1,592.89	49.78	5.24	0:13:20	1,576.53	98.53	2.64	0:20:20	1,444.05	180.51	1.44	0:27:20	1,323.88	330.97	0.78	0:34:20	475.74	475.74	0.54
0:06:25	1,589.85	49.68	5.26	0:13:25	1,593.47	99.59	2.60	0:20:25	1,520.38	190.05	1.36	0:27:25	1,218.81	304.70	0.84	0:34:25	462.42	462.42	0.55
0:06:30	1,589.27	49.66	5.28	0:13:30	1,581.57	98.85	2.64	0:20:30	1,548.27	193.53	1.34	0:27:30	1,036.57	259.14	1.00	0:34:30	449.37	449.37	0.57
0:06:35	1,584.82	49.53	5.26	0:13:35	1,576.48	98.53	2.64	0:20:35	1,556.24	194.53	1.33	0:27:35	1,318.74	329.69	0.78	0:34:35	432.75	432.75	0.59
0:06:40	1,592.84	49.78	5.25	0:13:40	1,603.59	100.22	2.61	0:20:40	1,520.17	190.02	1.36	0:27:40	1,293.05	323.26	0.79	0:34:40	442.29	442.29	0.58
0:06:45	59.82	0.00	8.06	0:13:45	65.27	0.00	3.25	0:20:45	66.79	0.00	1.32	0:27:45	52.01	0.00	0.83	0:34:45	16.99	0.00	0.63
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

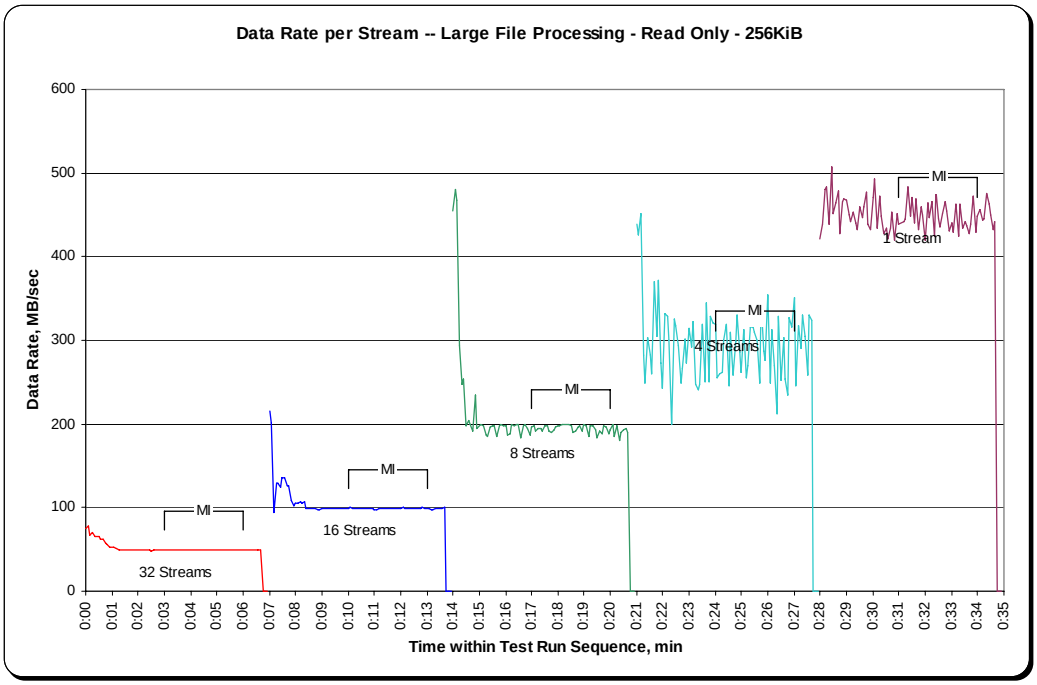
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



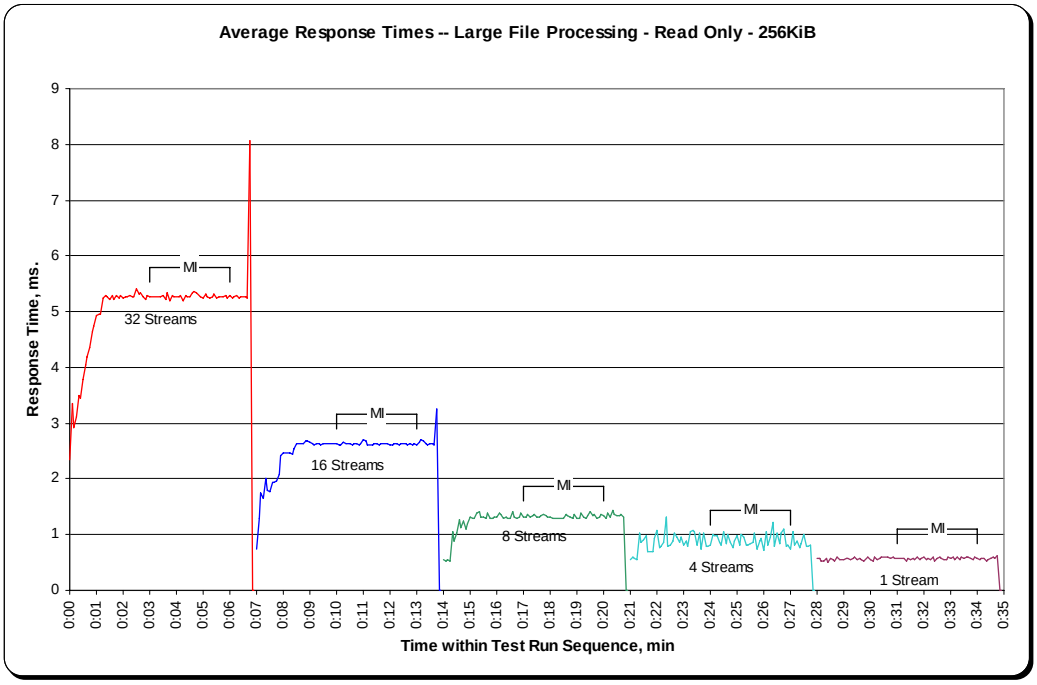
SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



Large Database Query Test

Clause 6.4.3.1

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

Clause 6.4.3.2

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

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

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

Clause 10.6.8.2

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

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

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Large Database Query Test Runs are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 108.

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.

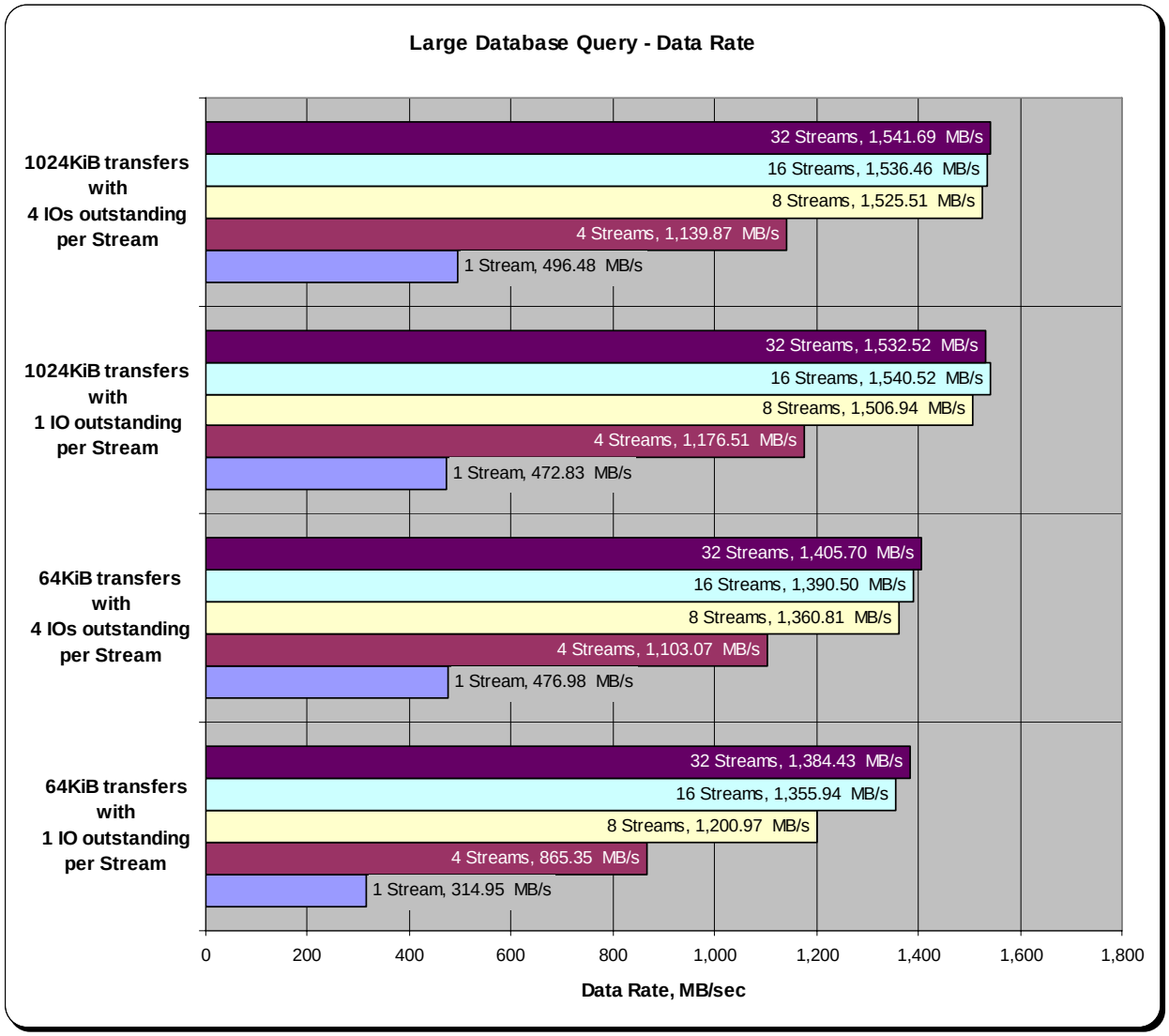
SPC-2 Large Database Query Test Results File

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	4 Streams	8 Streams	16 Streams	32 Streams
1024KiB w/ 4 IOs/Stream	496.48	1,139.87	1,525.51	1,536.46	1,541.69
1024KiB w/ 1 IO/Stream	472.83	1,176.51	1,506.94	1,540.52	1,532.52
64KiB w/ 4 IOs/Stream	476.98	1,103.07	1,360.81	1,390.50	1,405.70
64KiB w/ 1 IO/Stream	314.95	865.35	1,200.97	1,355.94	1,384.43

SPC-2 Large Database Query Average Data Rates Graph

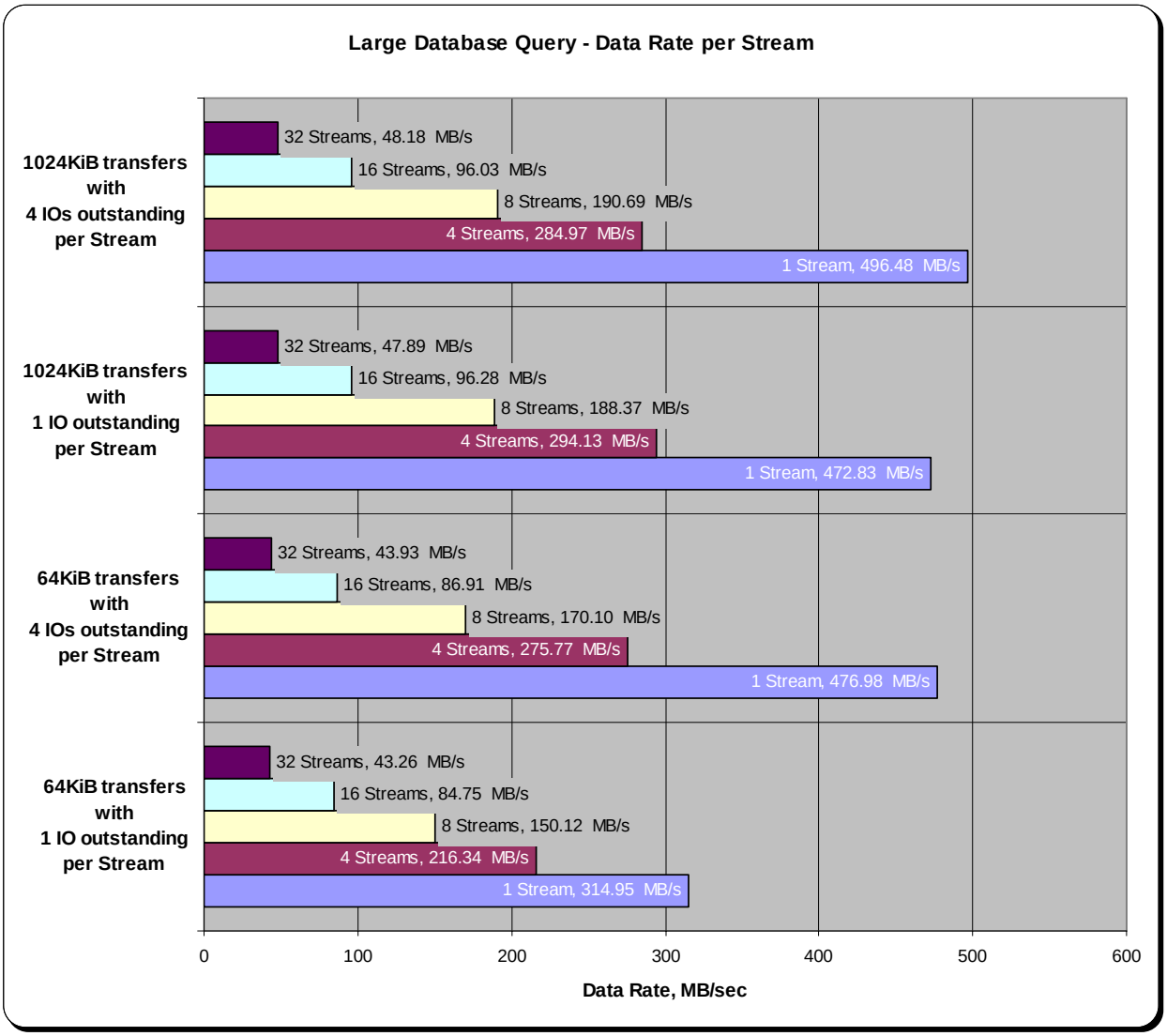


SPC-2 Large Database Query Average Data Rate per Stream

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

Test Run Sequence	1 Stream	4 Streams	8 Streams	16 Streams	32 Streams
1024KiB w/ 4 IOs/Stream	496.48	284.97	190.69	96.03	48.18
1024KiB w/ 1 IO/Stream	472.83	294.13	188.37	96.28	47.89
64KiB w/ 4 IOs/Stream	476.98	275.77	170.10	86.91	43.93
64KiB w/ 1 IO/Stream	314.95	216.34	150.12	84.75	43.26

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

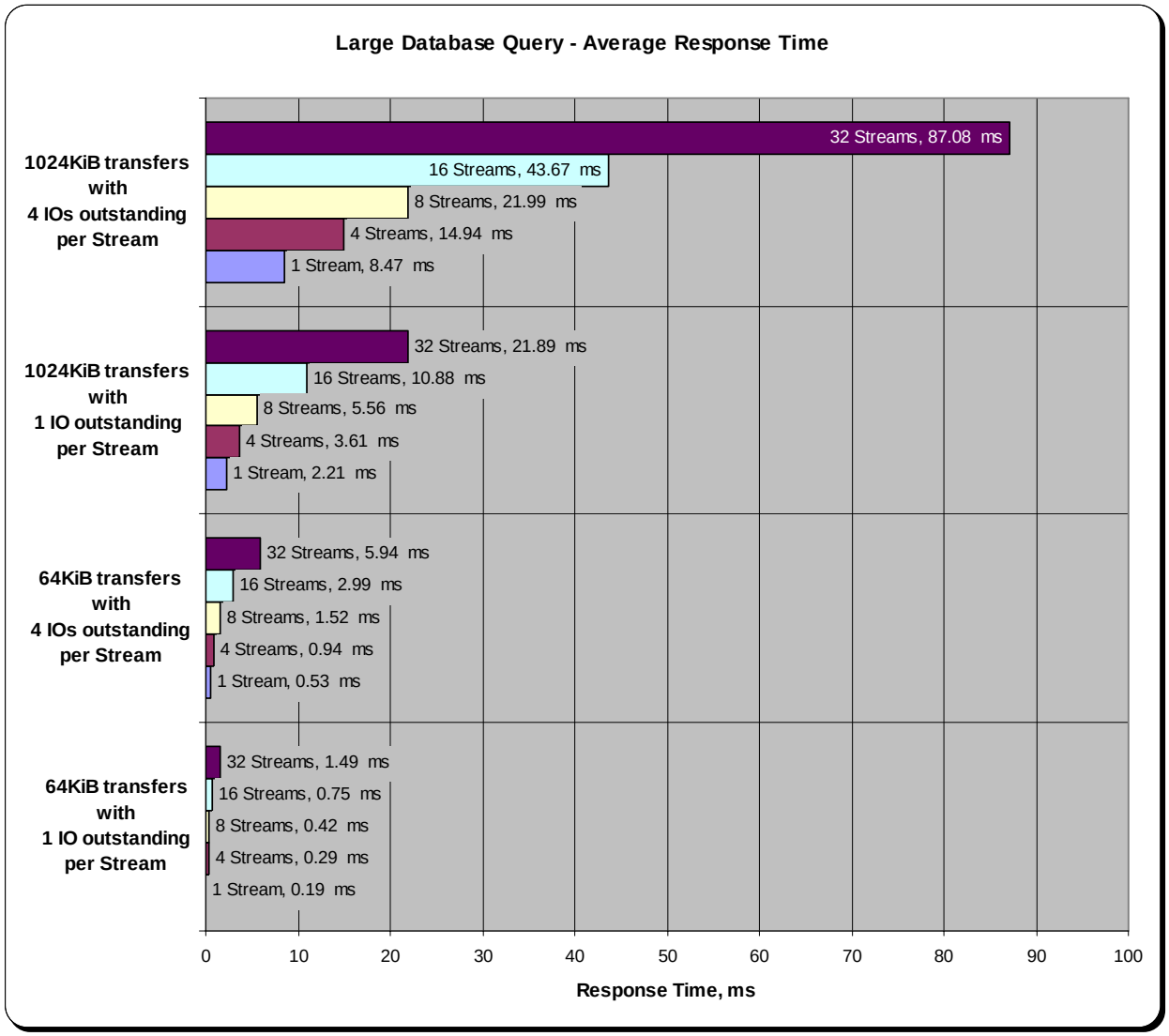


SPC-2 Large Database Query Average Response Time

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	4 Streams	8 Streams	16 Streams	32 Streams
1024KiB w/ 4 IOs/Stream	8.47	14.94	21.99	43.67	87.08
1024KiB w/ 1 IO/Stream	2.21	3.61	5.56	10.88	21.89
64KiB w/ 4 IOs/Stream	0.53	0.94	1.52	2.99	5.94
64KiB w/ 1 IO/Stream	0.19	0.29	0.42	0.75	1.49

SPC-2 Large Database Query Average Response Time Graph



Large Database Query Test – 1024 KIB TRANSFER SIZE Test Phase

Clause 10.6.8.2.1

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

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

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

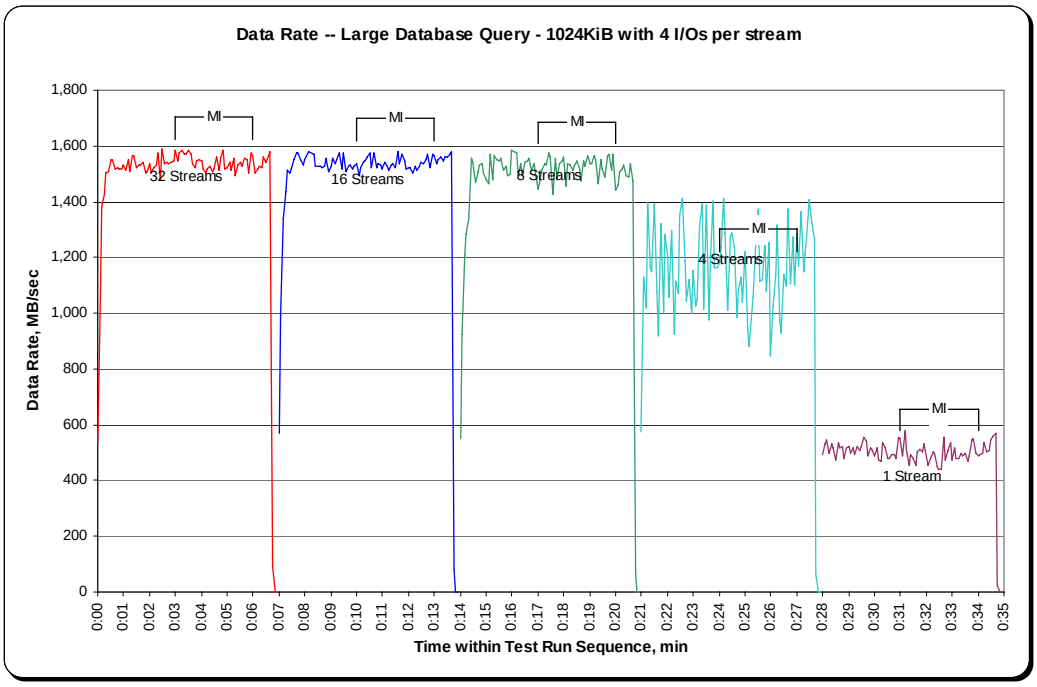
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR1	32 Streams			TR2	16 Streams			TR3	8 Streams			TR4	4 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	529.32	48.12	42.14	0:07:00	568.33	113.67	19.00	0:14:00	549.66	274.83	11.45	0:21:00	576.51	288.25	8.34	0:28:00	493.88	493.88	8.11
0:00:05	1,065.56	66.60	55.12	0:07:05	993.84	124.23	31.73	0:14:05	925.89	231.47	16.63	0:21:05	1,128.48	282.12	12.50	0:28:05	529.74	529.74	7.90
0:00:10	1,381.39	76.74	53.75	0:07:10	1,341.34	134.13	28.35	0:14:10	1,205.02	241.00	16.57	0:21:10	1,018.17	254.54	16.47	0:28:10	543.58	543.58	7.70
0:00:15	1,427.53	62.07	57.97	0:07:15	1,435.71	119.64	30.13	0:14:15	1,281.15	256.23	16.43	0:21:15	1,395.65	348.91	11.99	0:28:15	498.28	498.28	8.38
0:00:20	1,504.92	55.74	71.74	0:07:20	1,511.21	125.93	33.47	0:14:20	1,342.18	167.77	20.18	0:21:20	1,161.61	290.40	14.37	0:28:20	529.95	529.95	7.92
0:00:25	1,505.96	53.78	76.07	0:07:25	1,501.98	115.54	33.85	0:14:25	1,557.14	194.64	21.53	0:21:25	1,149.87	287.47	14.64	0:28:25	519.05	519.05	8.06
0:00:30	1,548.96	49.97	78.48	0:07:30	1,517.50	101.17	38.55	0:14:30	1,543.08	192.89	21.73	0:21:30	1,393.98	348.49	12.01	0:28:30	475.00	475.00	8.82
0:00:35	1,552.31	48.51	85.66	0:07:35	1,550.01	96.88	40.98	0:14:35	1,471.57	183.95	22.74	0:21:35	1,079.19	269.80	15.52	0:28:35	535.40	535.40	7.81
0:00:40	1,517.08	47.41	88.64	0:07:40	1,573.07	98.32	42.45	0:14:40	1,508.06	188.51	22.28	0:21:40	919.18	229.80	18.26	0:28:40	518.42	518.42	8.07
0:00:45	1,523.58	47.61	87.94	0:07:45	1,574.33	98.40	42.73	0:14:45	1,532.18	191.52	21.86	0:21:45	1,322.67	330.67	12.65	0:28:45	521.77	521.77	8.02
0:00:50	1,518.97	47.47	88.14	0:07:50	1,551.47	96.97	43.26	0:14:50	1,537.42	192.18	21.81	0:21:50	1,005.79	251.45	16.65	0:28:50	480.46	480.46	8.70
0:00:55	1,518.76	47.46	88.49	0:07:55	1,533.23	95.83	43.78	0:14:55	1,503.66	187.96	22.30	0:21:55	1,283.46	320.86	13.07	0:28:55	516.11	516.11	8.12
0:01:00	1,530.08	47.82	87.84	0:08:00	1,549.17	96.82	43.15	0:15:00	1,481.01	185.13	22.65	0:22:00	1,206.07	301.52	13.87	0:29:00	522.61	522.61	8.01
0:01:05	1,514.77	47.34	88.21	0:08:05	1,570.77	98.17	42.86	0:15:05	1,462.76	182.85	22.93	0:22:05	1,057.80	264.45	15.84	0:29:05	496.19	496.19	8.43
0:01:10	1,551.68	48.49	86.55	0:08:10	1,579.37	98.71	42.45	0:15:10	1,569.51	196.19	21.34	0:22:10	1,297.30	324.32	12.92	0:29:10	515.48	515.48	8.11
0:01:15	1,509.53	47.17	89.00	0:08:15	1,577.06	98.57	42.53	0:15:15	1,477.86	184.73	22.66	0:22:15	924.42	231.11	18.11	0:29:15	491.15	491.15	8.53
0:01:20	1,563.85	48.87	85.90	0:08:20	1,572.03	98.25	42.71	0:15:20	1,567.41	195.93	21.38	0:22:20	1,116.10	279.03	15.04	0:29:20	519.67	519.67	8.05
0:01:25	1,567.62	48.99	85.75	0:08:25	1,528.61	95.54	43.85	0:15:25	1,550.63	193.83	21.68	0:22:25	1,073.11	268.28	15.58	0:29:25	506.25	506.25	8.27
0:01:30	1,521.48	47.55	87.96	0:08:30	1,528.40	95.53	43.97	0:15:30	1,544.97	193.12	21.67	0:22:30	1,350.36	337.59	12.44	0:29:30	519.88	519.88	8.05
0:01:35	1,529.66	47.80	87.78	0:08:35	1,526.10	95.38	43.87	0:15:35	1,557.35	194.67	21.47	0:22:35	1,412.85	353.21	11.85	0:29:35	553.86	553.86	7.57
0:01:40	1,531.13	47.85	87.91	0:08:40	1,522.95	95.18	44.02	0:15:40	1,513.30	189.16	22.21	0:22:40	1,186.78	296.69	14.11	0:29:40	539.39	539.39	7.74
0:01:45	1,541.41	48.17	87.14	0:08:45	1,525.26	95.33	44.10	0:15:45	1,526.52	190.81	21.95	0:22:45	1,043.12	260.78	16.05	0:29:45	489.68	489.68	8.54
0:01:50	1,503.24	46.98	88.76	0:08:50	1,556.09	97.26	43.09	0:15:50	1,492.33	186.54	22.50	0:22:50	1,119.88	279.97	14.99	0:29:50	518.21	518.21	8.08
0:01:55	1,509.53	47.17	88.99	0:08:55	1,507.43	94.21	44.47	0:15:55	1,498.00	187.25	22.37	0:22:55	998.24	249.56	16.45	0:29:55	513.59	513.59	8.15
0:02:00	1,536.16	48.01	87.24	0:09:00	1,526.73	95.42	43.98	0:16:00	1,586.91	198.36	21.15	0:23:00	1,153.22	288.31	14.78	0:30:00	489.27	489.27	8.55
0:02:05	1,502.61	46.96	89.39	0:09:05	1,555.04	97.19	43.16	0:16:05	1,579.37	197.42	21.33	0:23:05	1,025.09	256.27	16.32	0:30:05	514.64	514.64	8.13
0:02:10	1,522.11	47.57	88.30	0:09:10	1,538.89	96.18	43.42	0:16:10	1,573.28	196.66	21.16	0:23:10	1,047.53	261.88	16.03	0:30:10	472.70	472.70	8.86
0:02:15	1,534.28	47.95	87.23	0:09:15	1,551.47	96.97	43.12	0:16:15	1,492.75	186.59	22.46	0:23:15	1,317.01	329.25	12.75	0:30:15	470.81	470.81	8.89
0:02:20	1,573.28	49.17	85.30	0:09:20	1,575.38	98.46	42.59	0:16:20	1,536.37	192.05	21.81	0:23:20	1,392.30	348.07	12.00	0:30:20	535.40	535.40	7.81
0:02:25	1,480.59	46.27	90.30	0:09:25	1,517.08	94.82	44.11	0:16:25	1,492.54	186.57	22.48	0:23:25	1,015.86	253.97	16.48	0:30:25	516.53	516.53	8.10
0:02:30	1,591.11	49.72	84.31	0:09:30	1,576.43	98.53	42.40	0:16:30	1,540.57	192.57	21.79	0:23:30	1,386.01	346.50	12.11	0:30:30	479.41	479.41	8.73
0:02:35	1,535.74	47.99	87.81	0:09:35	1,507.01	94.19	44.89	0:16:35	1,545.18	193.15	21.67	0:23:35	974.34	243.58	17.20	0:30:35	476.68	476.68	8.77
0:02:40	1,542.25	48.20	87.00	0:09:40	1,527.15	95.45	43.91	0:16:40	1,558.18	194.77	21.50	0:23:40	1,189.09	297.27	14.10	0:30:40	491.57	491.57	8.52
0:02:45	1,538.26	48.07	87.26	0:09:45	1,533.23	95.83	43.73	0:16:45	1,511.84	188.98	22.17	0:23:45	1,404.04	351.01	11.92	0:30:45	494.93	494.93	8.45
0:02:50	1,542.87	48.21	86.51	0:09:50	1,515.61	94.73	44.22	0:16:50	1,534.70	191.84	21.88	0:23:50	1,165.60	291.40	14.35	0:30:50	478.78	478.78	8.74
0:02:55	1,545.60	48.30	86.98	0:09:55	1,529.45	95.59	43.90	0:16:55	1,496.32	187.04	22.37	0:23:55	1,164.13	291.03	14.39	0:30:55	556.16	556.16	7.52

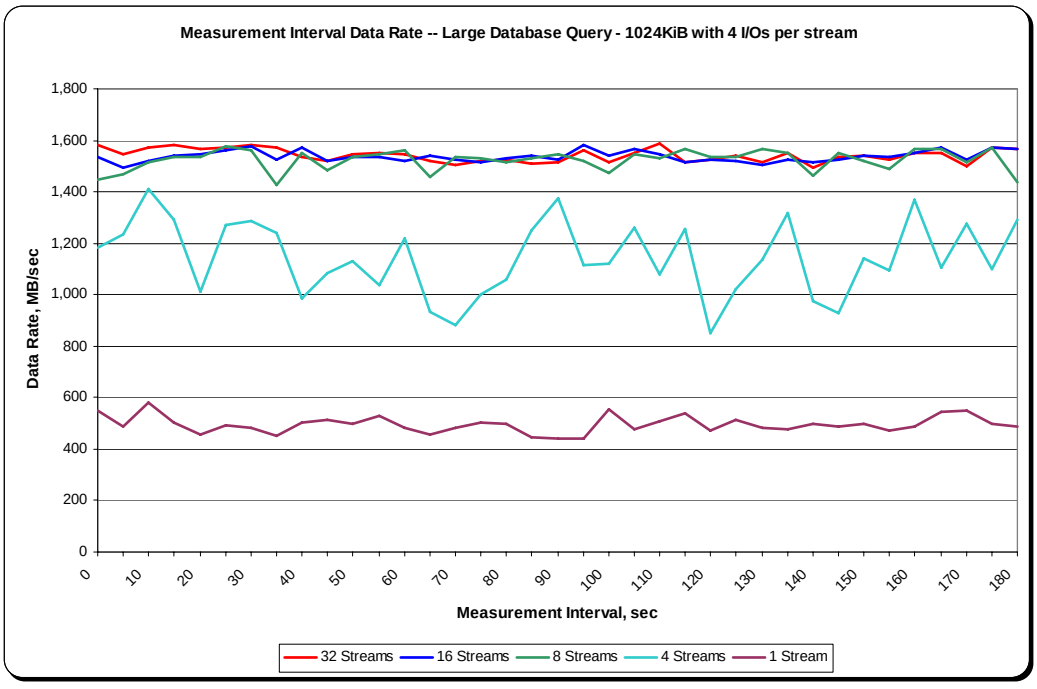
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR1	32 Streams			TR2	16 Streams			TR3	8 Streams			TR4	4 Streams			TR5	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	1,582.30	49.45	84.78	0:10:00	1,535.32	95.96	43.75	0:17:00	1,446.62	180.83	23.16	0:24:00	1,183.00	295.75	14.19	0:31:00	552.39	552.39	7.57
0:03:05	1,544.55	48.27	87.19	0:10:05	1,493.80	93.36	44.88	0:17:05	1,468.22	183.53	22.81	0:24:05	1,234.80	308.70	13.56	0:31:05	486.96	486.96	8.60
0:03:10	1,574.12	49.19	85.09	0:10:10	1,520.02	95.00	44.14	0:17:10	1,516.24	189.53	22.08	0:24:10	1,409.92	352.48	11.89	0:31:10	580.49	580.49	7.21
0:03:15	1,582.30	49.45	84.73	0:10:15	1,541.62	96.35	43.38	0:17:15	1,535.53	191.94	21.94	0:24:15	1,289.96	322.49	12.96	0:31:15	505.41	505.41	8.30
0:03:20	1,568.88	49.03	85.47	0:10:20	1,548.33	96.77	43.43	0:17:20	1,533.02	191.63	21.85	0:24:20	1,010.83	252.71	16.41	0:31:20	456.55	456.55	9.15
0:03:25	1,571.82	49.12	85.65	0:10:25	1,560.70	97.54	42.94	0:17:25	1,576.22	197.03	21.29	0:24:25	1,271.92	317.98	13.32	0:31:25	494.72	494.72	8.45
0:03:30	1,583.56	49.49	84.42	0:10:30	1,575.80	98.49	42.17	0:17:30	1,562.59	195.32	21.33	0:24:30	1,285.97	321.49	13.02	0:31:30	479.83	479.83	8.79
0:03:35	1,571.40	49.11	85.78	0:10:35	1,522.74	95.17	44.59	0:17:35	1,428.16	178.52	23.52	0:24:35	1,240.05	310.01	13.40	0:31:35	453.19	453.19	9.17
0:03:40	1,536.37	48.01	87.19	0:10:40	1,572.86	98.30	42.39	0:17:40	1,553.57	194.20	21.58	0:24:40	987.97	246.99	17.12	0:31:40	503.32	503.32	8.32
0:03:45	1,521.90	47.56	87.70	0:10:45	1,521.06	95.07	44.22	0:17:45	1,484.99	185.62	22.65	0:24:45	1,083.39	270.85	15.44	0:31:45	514.43	514.43	8.13
0:03:50	1,543.92	48.25	87.47	0:10:50	1,535.95	96.00	43.71	0:17:50	1,535.32	191.92	21.82	0:24:50	1,129.32	282.33	14.81	0:31:50	500.38	500.38	8.37
0:03:55	1,550.21	48.44	86.53	0:10:55	1,534.28	95.89	43.79	0:17:55	1,547.70	193.46	21.66	0:24:55	1,038.93	259.73	16.09	0:31:55	529.74	529.74	7.90
0:04:00	1,544.13	48.25	86.86	0:11:00	1,517.92	94.87	44.16	0:18:00	1,560.91	195.11	21.48	0:25:00	1,220.96	305.24	13.80	0:32:00	481.72	481.72	8.69
0:04:05	1,519.60	47.49	88.49	0:11:05	1,542.04	96.38	43.43	0:18:05	1,456.05	182.01	23.02	0:25:05	935.96	233.99	17.88	0:32:05	454.66	454.66	9.21
0:04:10	1,503.66	46.99	89.24	0:11:10	1,526.31	95.39	44.03	0:18:10	1,536.37	192.05	21.81	0:25:10	882.27	220.57	19.00	0:32:10	480.88	480.88	8.71
0:04:15	1,519.39	47.48	88.10	0:11:15	1,512.68	94.54	44.32	0:18:15	1,531.13	191.39	21.88	0:25:15	1,000.13	250.03	16.75	0:32:15	503.32	503.32	8.31
0:04:20	1,525.89	47.68	88.30	0:11:20	1,532.18	95.76	43.83	0:18:20	1,514.77	189.35	22.15	0:25:20	1,056.34	264.08	15.86	0:32:20	499.96	499.96	8.37
0:04:25	1,508.48	47.14	88.61	0:11:25	1,538.68	96.17	43.58	0:18:25	1,527.78	190.97	21.92	0:25:25	1,247.81	311.95	13.44	0:32:25	448.37	448.37	9.33
0:04:30	1,516.45	47.39	88.66	0:11:30	1,524.21	95.26	43.75	0:18:30	1,544.97	193.12	21.73	0:25:30	1,374.05	343.51	12.18	0:32:30	440.82	440.82	9.49
0:04:35	1,558.81	48.71	86.03	0:11:35	1,580.83	98.80	42.48	0:18:35	1,518.55	189.82	21.94	0:25:35	1,115.89	278.97	15.00	0:32:35	442.29	442.29	9.47
0:04:40	1,514.14	47.32	88.43	0:11:40	1,538.05	96.13	43.83	0:18:40	1,474.51	184.31	22.88	0:25:40	1,120.93	280.23	14.98	0:32:40	557.00	557.00	7.52
0:04:45	1,553.57	48.55	86.50	0:11:45	1,568.25	98.02	42.79	0:18:45	1,547.28	193.41	21.66	0:25:45	1,262.07	315.52	13.26	0:32:45	475.21	475.21	8.81
0:04:50	1,585.87	49.56	85.04	0:11:50	1,544.76	96.55	43.44	0:18:50	1,527.98	191.00	21.95	0:25:50	1,078.57	269.64	15.53	0:32:50	506.67	506.67	8.26
0:04:55	1,517.29	47.42	88.01	0:11:55	1,517.08	94.82	44.18	0:18:55	1,565.52	195.69	21.38	0:25:55	1,252.84	313.21	13.35	0:32:55	537.71	537.71	7.78
0:05:00	1,522.95	47.59	88.30	0:12:00	1,524.42	95.28	43.99	0:19:00	1,534.49	191.81	21.88	0:26:00	848.30	212.07	19.81	0:33:00	474.59	474.59	8.81
0:05:05	1,540.15	48.13	87.25	0:12:05	1,521.48	95.09	44.09	0:19:05	1,535.74	191.97	21.82	0:26:05	1,023.83	255.96	16.34	0:33:05	515.27	515.27	8.12
0:05:10	1,513.72	47.30	88.49	0:12:10	1,504.50	94.03	44.54	0:19:10	1,566.36	195.80	21.43	0:26:10	1,137.29	284.32	14.75	0:33:10	480.25	480.25	8.72
0:05:15	1,553.57	48.55	86.30	0:12:15	1,525.89	95.37	43.94	0:19:15	1,549.80	193.72	21.61	0:26:15	1,318.06	329.52	12.70	0:33:15	477.31	477.31	8.77
0:05:20	1,491.70	46.62	89.88	0:12:20	1,514.35	94.65	44.02	0:19:20	1,465.28	183.16	22.85	0:26:20	977.69	244.42	17.13	0:33:20	499.54	499.54	8.32
0:05:25	1,533.23	47.91	87.72	0:12:25	1,526.73	95.42	44.11	0:19:25	1,549.80	193.72	21.67	0:26:25	928.41	232.10	18.08	0:33:25	486.75	486.75	8.65
0:05:30	1,539.94	48.12	86.95	0:12:30	1,539.10	96.19	43.69	0:19:30	1,519.18	189.90	22.07	0:26:30	1,140.43	285.11	14.68	0:33:30	499.12	499.12	8.38
0:05:35	1,525.26	47.66	87.93	0:12:35	1,535.12	95.94	43.70	0:19:35	1,487.72	185.96	22.50	0:26:35	1,095.55	273.89	15.31	0:33:35	471.23	471.23	8.85
0:05:40	1,553.57	48.55	86.05	0:12:40	1,549.38	96.84	43.28	0:19:40	1,565.73	195.72	21.45	0:26:40	1,371.96	342.99	12.21	0:33:40	488.22	488.22	8.58
0:05:45	1,552.73	48.52	86.93	0:12:45	1,571.61	98.23	42.61	0:19:45	1,568.25	196.03	21.39	0:26:45	1,106.04	276.51	15.13	0:33:45	544.42	544.42	7.70
0:05:50	1,501.14	46.91	89.21	0:12:50	1,522.95	95.18	44.16	0:19:50	1,512.47	189.06	22.02	0:26:50	1,273.60	318.40	13.08	0:33:50	550.71	550.71	7.60
0:05:55	1,574.33	49.20	85.51	0:12:55	1,571.40	98.21	42.71	0:19:55	1,569.51	196.19	21.46	0:26:55	1,100.17	275.04	15.30	0:33:55	499.75	499.75	8.37
0:06:00	1,564.48	48.89	85.81	0:13:00	1,565.94	97.87	42.81	0:20:00	1,439.07	179.88	23.32	0:27:00	1,289.33	322.33	13.02	0:34:00	489.68	489.68	8.55
0:06:05	1,500.93	46.90	89.29	0:13:05	1,534.70	95.92	43.75	0:20:05	1,459.62	182.45	22.96	0:27:05	1,168.95	292.24	14.33	0:34:05	491.36	491.36	8.51
0:06:10	1,516.45	47.39	88.44	0:13:10	1,550.21	96.89	43.23	0:20:10	1,505.76	188.22	22.26	0:27:10	1,364.62	341.15	12.26	0:34:10	496.82	496.82	8.42
0:06:15	1,526.31	47.70	87.89	0:13:15	1,561.54	97.60	42.99	0:20:15	1,518.76	189.84	22.04	0:27:15	1,149.66	287.41	14.56	0:34:15	537.29	537.29	7.79
0:06:20	1,522.32	47.57	87.73	0:13:20	1,544.76	96.55	43.20	0:20:20	1,529.87	191.23	21.96	0:27:20	1,211.94	302.99	13.83	0:34:20	502.27	502.27	8.32
0:06:25	1,558.81	48.71	86.55	0:13:25	1,563.01	97.69	42.97	0:20:25	1,493.80	186.73	22.40	0:27:25	1,331.27	332.82	12.60	0:34:25	506.67	506.67	8.27
0:06:30	1,541.41	48.17	87.04	0:13:30	1,562.80	97.67	42.85	0:20:30	1,488.14	186.02	22.53	0:27:30	1,406.14	351.54	11.91	0:34:30	544.84	544.84	7.68
0:06:35	1,563.22	48.85	85.78	0:13:35	1,568.67	98.04	42.87	0:20:35	1,535.32	191.92	21.86	0:27:35	1,325.82	331.45	12.63	0:34:35	561.20	561.20	7.45
0:06:40	1,577.69	49.30	84.99	0:13:40	1,579.16	98.70	42.57	0:20:40	1,472.41	184.05	22.80	0:27:40	1,262.70	315.67	13.28	0:34:40	570.22	570.22	7.34
0:06:45	90.39	0.00	116.40	0:13:45	79.48	0.00	48.54	0:20:45	66.90	0.00	23.53	0:27:45	61.24	0.00	11.97	0:34:45	23.91	0.00	7.29
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

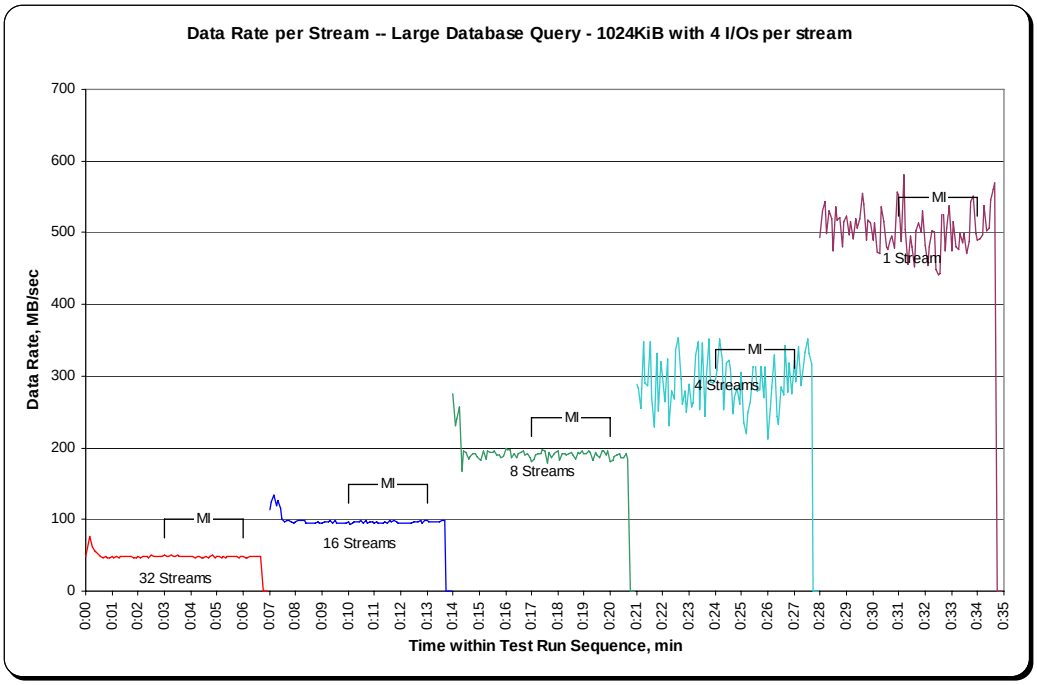
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



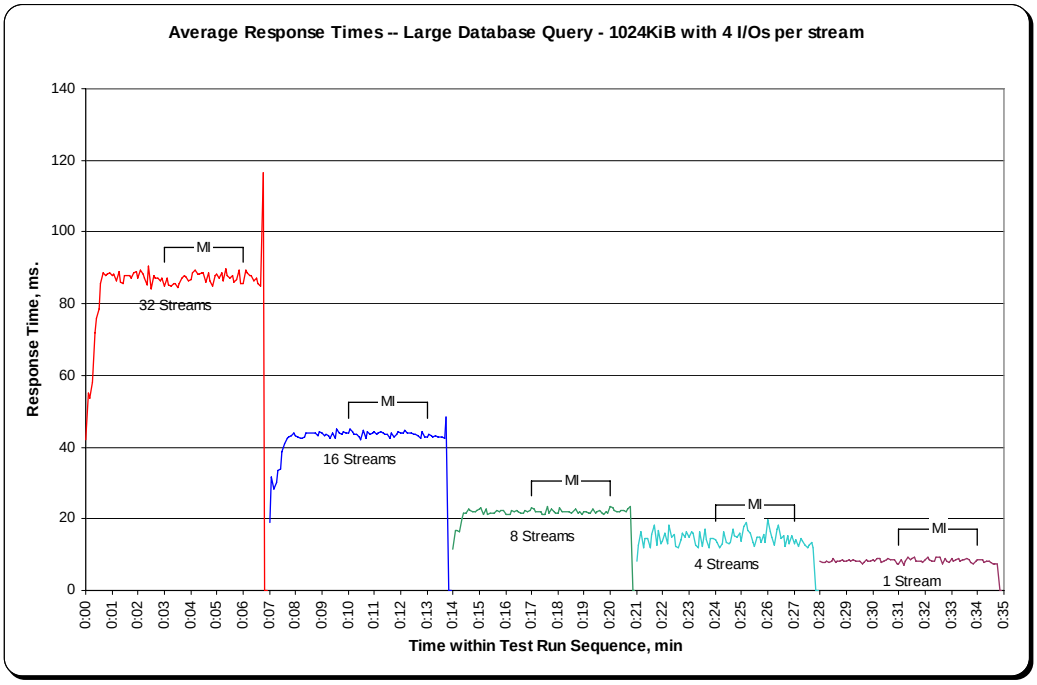
SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



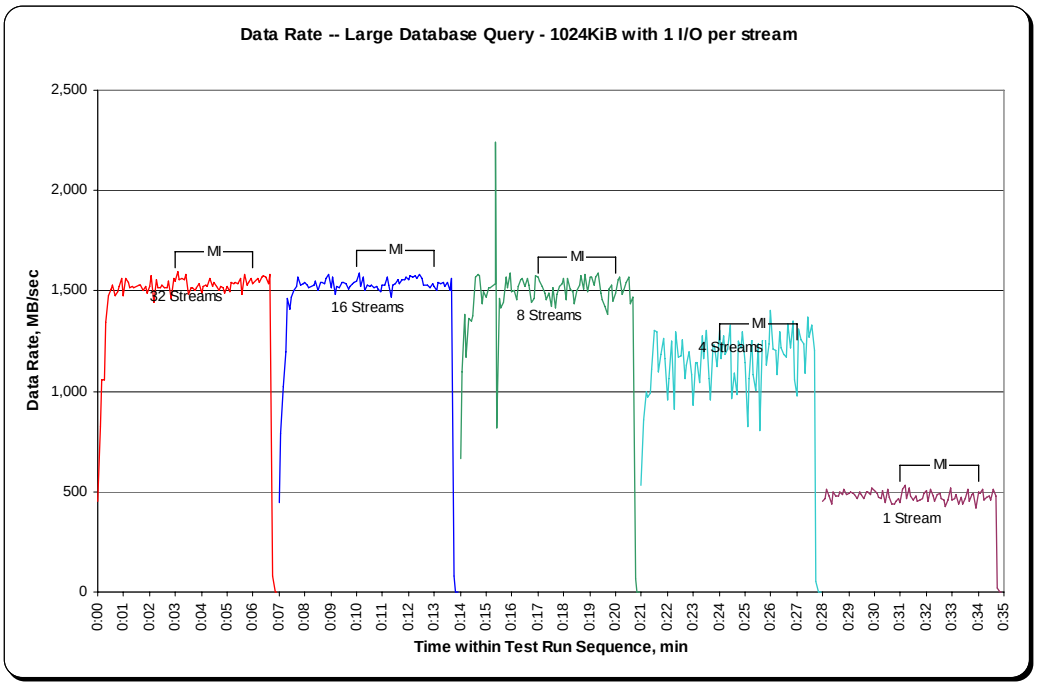
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR6	32 Streams			TR7	16 Streams			TR8	8 Streams			TR9	4 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:00:00	453.40	64.77	8.75	0:07:00	444.18	88.84	4.91	0:14:00	662.49	165.62	3.03	0:21:00	533.10	266.55	2.99	0:28:00	452.57	452.57	2.21
0:00:05	824.39	68.70	11.32	0:07:05	791.26	113.04	7.77	0:14:05	1,094.50	218.90	4.28	0:21:05	858.78	286.26	3.02	0:28:05	465.15	465.15	2.24
0:00:10	1,059.48	75.68	13.05	0:07:10	1,026.35	146.62	7.17	0:14:10	1,380.97	276.19	3.78	0:21:10	999.29	333.10	3.13	0:28:10	511.50	511.50	2.04
0:00:15	1,058.01	70.53	14.47	0:07:15	1,199.78	133.31	6.96	0:14:15	1,172.73	167.53	5.30	0:21:15	970.14	242.54	4.05	0:28:15	476.47	476.47	2.19
0:00:20	1,339.87	66.99	14.49	0:07:20	1,460.25	132.75	7.68	0:14:20	1,359.79	194.26	5.37	0:21:20	987.55	246.89	4.23	0:28:20	436.00	436.00	2.39
0:00:25	1,479.33	59.17	16.75	0:07:25	1,407.19	117.27	8.36	0:14:25	1,347.00	192.43	5.43	0:21:25	1,107.72	276.93	3.78	0:28:25	499.33	499.33	2.09
0:00:30	1,506.59	51.95	19.35	0:07:30	1,470.52	105.04	8.88	0:14:30	1,374.47	196.35	5.33	0:21:30	1,303.17	325.79	3.19	0:28:30	478.78	478.78	2.18
0:00:35	1,528.82	49.32	20.60	0:07:35	1,503.66	100.24	10.03	0:14:35	1,569.72	196.21	5.11	0:21:35	1,298.35	324.59	3.22	0:28:35	480.25	480.25	2.17
0:00:40	1,477.86	46.18	22.29	0:07:40	1,520.02	95.00	10.63	0:14:40	1,581.88	197.74	5.28	0:21:40	1,100.38	275.09	3.79	0:28:40	498.07	498.07	2.09
0:00:45	1,499.25	46.85	22.31	0:07:45	1,568.25	98.02	10.70	0:14:45	1,577.90	197.24	5.30	0:21:45	1,186.57	296.64	3.52	0:28:45	486.96	486.96	2.14
0:00:50	1,522.74	47.59	22.10	0:07:50	1,529.66	95.60	10.99	0:14:50	1,434.24	179.28	5.82	0:21:50	1,265.21	316.30	3.29	0:28:50	509.61	509.61	2.04
0:00:55	1,564.27	48.88	21.41	0:07:55	1,536.79	96.05	10.88	0:14:55	1,494.22	186.78	5.60	0:21:55	1,166.44	291.61	3.58	0:28:55	482.76	482.76	2.16
0:01:00	1,478.28	46.20	22.63	0:08:00	1,541.62	96.35	10.87	0:15:00	1,471.36	183.92	5.70	0:22:00	955.46	238.87	4.37	0:29:00	490.52	490.52	2.12
0:01:05	1,560.28	48.76	21.44	0:08:05	1,526.94	95.43	11.01	0:15:05	1,517.29	189.66	5.51	0:22:05	1,063.47	265.87	3.92	0:29:05	498.49	498.49	2.09
0:01:10	1,540.78	48.15	21.82	0:08:10	1,512.68	94.54	11.03	0:15:10	1,517.92	189.74	5.52	0:22:10	1,252.42	313.10	3.34	0:29:10	490.10	490.10	2.13
0:01:15	1,514.98	47.34	22.21	0:08:15	1,525.47	95.34	11.00	0:15:22	1,538.05	192.26	5.42	0:22:15	907.86	226.96	4.60	0:29:15	485.07	485.07	2.15
0:01:20	1,523.16	47.60	21.92	0:08:20	1,526.31	95.39	10.99	0:15:22	2,237.66	279.71	5.51	0:22:20	1,299.19	324.80	3.21	0:29:20	464.52	464.52	2.24
0:01:25	1,517.08	47.41	22.15	0:08:25	1,552.10	97.01	10.78	0:15:25	815.16	101.90	5.40	0:22:25	1,173.36	293.34	3.55	0:29:25	497.44	497.44	2.09
0:01:30	1,523.37	47.61	21.98	0:08:30	1,502.19	93.89	11.16	0:15:30	1,464.86	183.11	5.72	0:22:30	1,180.07	295.02	3.53	0:29:30	486.33	486.33	2.14
0:01:35	1,526.73	47.71	21.97	0:08:35	1,544.13	96.51	10.83	0:15:35	1,414.32	176.79	5.92	0:22:35	1,258.08	314.52	3.33	0:29:35	464.10	464.10	2.25
0:01:40	1,526.52	47.70	22.02	0:08:40	1,543.50	96.47	10.90	0:15:40	1,445.57	180.70	5.78	0:22:40	1,063.05	265.76	3.92	0:29:40	501.85	501.85	2.07
0:01:45	1,505.55	47.05	22.20	0:08:45	1,534.49	95.91	10.86	0:15:45	1,567.83	195.98	5.34	0:22:45	1,130.57	282.64	3.70	0:29:45	498.49	498.49	2.10
0:01:50	1,522.53	47.58	22.10	0:08:50	1,563.85	97.74	10.64	0:15:50	1,516.87	189.61	5.52	0:22:50	1,194.75	298.69	3.49	0:29:50	487.38	487.38	2.14
0:01:55	1,488.98	46.53	22.43	0:08:55	1,583.98	99.00	10.68	0:15:55	1,586.08	198.26	5.27	0:22:55	1,085.49	271.37	3.85	0:29:55	515.48	515.48	2.02
0:02:00	1,525.89	47.68	21.92	0:09:00	1,517.92	94.87	11.03	0:16:00	1,496.32	187.04	5.58	0:23:00	930.72	232.68	4.49	0:30:00	504.78	504.78	2.06
0:02:05	1,572.86	49.15	21.48	0:09:05	1,569.09	98.07	10.67	0:16:05	1,505.76	188.22	5.57	0:23:05	1,143.16	285.79	3.64	0:30:05	489.27	489.27	2.13
0:02:10	1,445.99	45.19	23.13	0:09:10	1,483.74	92.73	11.32	0:16:10	1,452.91	181.61	5.78	0:23:10	1,146.72	286.68	3.66	0:30:10	473.96	473.96	2.19
0:02:15	1,552.94	48.53	21.46	0:09:15	1,522.95	95.18	10.96	0:16:15	1,524.63	190.58	5.46	0:23:15	1,041.45	260.36	4.01	0:30:15	463.47	463.47	2.25
0:02:20	1,517.71	47.43	22.23	0:09:20	1,514.98	94.69	11.05	0:16:20	1,555.67	194.46	5.38	0:23:20	1,278.21	319.55	3.27	0:30:20	502.06	502.06	2.07
0:02:25	1,517.08	47.41	22.11	0:09:25	1,540.78	96.30	10.88	0:16:25	1,559.65	194.96	5.35	0:23:25	1,162.66	290.67	3.59	0:30:25	443.97	443.97	2.35
0:02:30	1,529.24	47.79	21.89	0:09:30	1,540.78	96.30	10.89	0:16:30	1,522.32	190.29	5.51	0:23:30	1,300.23	325.06	3.21	0:30:30	508.98	508.98	2.05
0:02:35	1,518.97	47.47	22.11	0:09:35	1,538.89	96.18	10.87	0:16:35	1,560.91	195.11	5.35	0:23:35	1,060.53	265.13	3.93	0:30:35	471.23	471.23	2.21
0:02:40	1,519.18	47.47	21.94	0:09:40	1,512.05	94.50	11.07	0:16:40	1,530.29	191.29	5.47	0:23:40	957.98	239.49	4.36	0:30:40	437.26	437.26	2.38
0:02:45	1,550.01	48.44	21.75	0:09:45	1,525.68	95.35	10.99	0:16:45	1,442.42	180.30	5.79	0:23:45	1,229.14	307.29	3.40	0:30:45	440.82	440.82	2.37
0:02:50	1,465.07	45.78	22.87	0:09:50	1,537.00	96.06	10.90	0:16:50	1,465.91	183.24	5.71	0:23:50	1,233.34	308.33	3.39	0:30:50	451.31	451.31	2.31
0:02:55	1,561.96	48.81	21.34	0:09:55	1,543.50	96.47	10.83	0:16:55	1,574.75	196.84	5.31	0:23:55	1,123.65	280.91	3.69	0:30:55	467.25	467.25	2.22

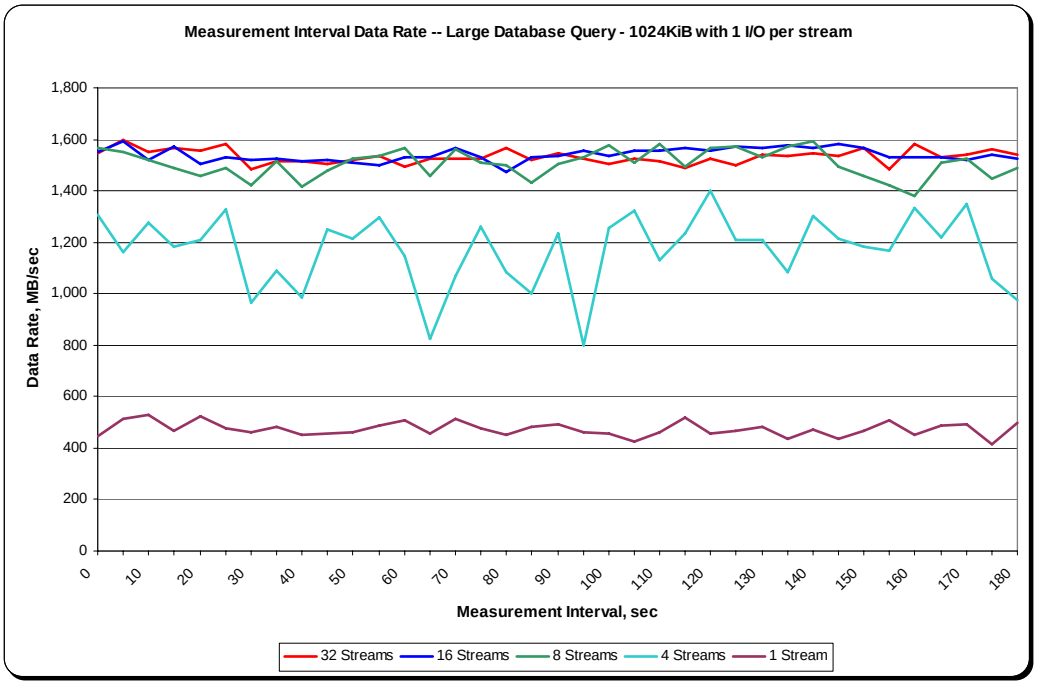
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR6	32 Streams			TR7	16 Streams			TR8	8 Streams			TR9	4 Streams			TR10	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	1,548.33	48.39	21.50	0:10:00	1,548.54	96.78	10.83	0:17:00	1,567.20	195.90	5.33	0:24:00	1,306.32	326.58	3.21	0:31:00	443.97	443.97	2.36
0:03:05	1,598.87	49.96	21.23	0:10:05	1,591.11	99.44	10.56	0:17:05	1,552.31	194.04	5.39	0:24:05	1,162.03	290.51	3.60	0:31:05	511.29	511.29	2.04
0:03:10	1,552.94	48.53	21.62	0:10:10	1,522.11	95.13	10.97	0:17:10	1,522.32	190.29	5.50	0:24:10	1,276.96	319.24	3.27	0:31:10	530.37	530.37	1.96
0:03:15	1,565.31	48.92	21.34	0:10:15	1,571.82	98.24	10.69	0:17:15	1,487.72	185.96	5.61	0:24:15	1,181.12	295.28	3.54	0:31:15	464.31	464.31	2.24
0:03:20	1,556.09	48.63	21.43	0:10:20	1,503.03	93.94	11.15	0:17:20	1,458.99	182.37	5.74	0:24:20	1,209.64	302.41	3.45	0:31:20	521.77	521.77	2.00
0:03:25	1,583.77	49.49	21.37	0:10:25	1,529.87	95.62	10.95	0:17:25	1,486.67	185.83	5.62	0:24:25	1,328.55	332.14	3.14	0:31:25	475.42	475.42	2.19
0:03:30	1,481.85	46.31	22.57	0:10:30	1,520.23	95.01	11.03	0:17:30	1,421.87	177.73	5.89	0:24:30	963.22	240.81	4.35	0:31:30	461.79	461.79	2.26
0:03:35	1,515.40	47.36	22.13	0:10:35	1,526.52	95.41	10.94	0:17:35	1,517.08	189.63	5.52	0:24:35	1,088.42	272.11	3.84	0:31:35	481.93	481.93	2.16
0:03:40	1,514.14	47.32	22.20	0:10:40	1,513.72	94.61	11.06	0:17:40	1,414.32	176.79	5.90	0:24:40	985.45	246.36	4.24	0:31:40	449.42	449.42	2.32
0:03:45	1,502.19	46.94	22.27	0:10:45	1,519.81	94.99	11.05	0:17:45	1,480.59	185.07	5.66	0:24:45	1,248.85	312.21	3.34	0:31:45	457.39	457.39	2.28
0:03:50	1,518.55	47.45	22.09	0:10:50	1,509.11	94.32	11.08	0:17:50	1,522.95	190.37	5.49	0:24:50	1,214.67	303.67	3.44	0:31:50	462.84	462.84	2.25
0:03:55	1,536.79	48.02	21.82	0:10:55	1,497.16	93.57	11.21	0:17:55	1,535.12	191.89	5.45	0:24:55	1,295.62	323.91	3.22	0:31:55	488.85	488.85	2.13
0:04:00	1,491.49	46.61	22.47	0:11:00	1,531.76	95.73	10.93	0:18:00	1,565.10	195.64	5.34	0:25:00	1,146.72	286.68	3.63	0:32:00	508.14	508.14	2.05
0:04:05	1,525.68	47.68	21.95	0:11:05	1,532.18	95.76	10.93	0:18:05	1,455.84	181.98	5.74	0:25:05	822.29	205.57	5.08	0:32:05	454.66	454.66	2.29
0:04:10	1,526.10	47.69	22.08	0:11:10	1,568.46	98.03	10.65	0:18:10	1,563.43	195.43	5.35	0:25:10	1,066.61	266.65	3.93	0:32:10	511.29	511.29	2.04
0:04:15	1,524.84	47.65	21.96	0:11:15	1,532.39	95.77	11.00	0:18:15	1,510.16	188.77	5.53	0:25:15	1,262.07	315.52	3.30	0:32:15	477.31	477.31	2.18
0:04:20	1,565.31	48.92	21.35	0:11:20	1,471.36	91.96	11.33	0:18:20	1,496.95	187.12	5.59	0:25:20	1,084.65	271.16	3.86	0:32:20	450.05	450.05	2.32
0:04:25	1,521.69	47.55	21.86	0:11:25	1,528.40	95.53	11.00	0:18:25	1,433.61	179.20	5.84	0:25:25	1,002.23	250.56	4.16	0:32:25	483.81	483.81	2.15
0:04:30	1,544.76	48.27	21.90	0:11:30	1,537.63	96.10	10.89	0:18:30	1,502.61	187.83	5.57	0:25:30	1,234.59	308.65	3.39	0:32:30	490.73	490.73	2.12
0:04:35	1,522.53	47.58	22.11	0:11:35	1,554.62	97.16	10.78	0:18:35	1,532.18	191.52	5.46	0:25:35	801.32	200.33	5.22	0:32:35	463.68	463.68	2.25
0:04:40	1,503.87	47.00	22.17	0:11:40	1,537.00	96.06	10.89	0:18:40	1,577.06	197.13	5.31	0:25:40	1,253.05	313.26	3.33	0:32:40	455.92	455.92	2.29
0:04:45	1,523.37	47.61	22.01	0:11:45	1,558.18	97.39	10.75	0:18:45	1,507.22	188.40	5.55	0:25:45	1,322.25	330.56	3.15	0:32:45	424.88	424.88	2.45
0:04:50	1,516.24	47.38	22.12	0:11:50	1,557.55	97.35	10.72	0:18:50	1,580.41	197.55	5.29	0:25:50	1,132.46	283.12	3.68	0:32:50	459.28	459.28	2.27
0:04:55	1,490.03	46.56	22.55	0:11:55	1,566.78	97.92	10.74	0:18:55	1,494.01	186.75	5.59	0:25:55	1,236.90	309.23	3.39	0:32:55	518.63	518.63	2.01
0:05:00	1,524.21	47.63	22.00	0:12:00	1,556.09	97.26	10.73	0:19:00	1,566.15	195.77	5.35	0:26:00	1,402.78	350.70	2.97	0:33:00	456.55	456.55	2.28
0:05:05	1,497.37	46.79	22.31	0:12:05	1,573.70	98.36	10.67	0:19:05	1,572.03	196.50	5.31	0:26:05	1,210.90	302.72	3.45	0:33:05	464.31	464.31	2.24
0:05:10	1,542.67	48.21	21.75	0:12:10	1,568.46	98.03	10.68	0:19:10	1,530.29	191.29	5.47	0:26:10	1,206.49	301.62	3.46	0:33:10	484.65	484.65	2.15
0:05:15	1,537.63	48.05	21.85	0:12:15	1,576.64	98.54	10.60	0:19:15	1,570.35	196.29	5.32	0:26:15	1,083.39	270.85	3.86	0:33:15	435.79	435.79	2.39
0:05:20	1,543.29	48.23	21.72	0:12:20	1,564.06	97.75	10.66	0:19:20	1,590.69	198.84	5.25	0:26:20	1,299.81	324.95	3.21	0:33:20	469.55	469.55	2.22
0:05:25	1,533.23	47.91	21.79	0:12:25	1,581.88	98.87	10.66	0:19:25	1,492.54	186.57	5.61	0:26:25	1,215.51	303.88	3.44	0:33:25	436.63	436.63	2.39
0:05:30	1,565.52	48.92	21.48	0:12:30	1,565.73	97.86	10.64	0:19:30	1,458.36	182.29	5.73	0:26:30	1,182.79	295.70	3.53	0:33:30	464.73	464.73	2.24
0:05:35	1,483.11	46.35	22.55	0:12:35	1,527.78	95.49	11.02	0:19:35	1,419.98	177.50	5.90	0:26:35	1,168.11	292.03	3.58	0:33:35	509.82	509.82	2.04
0:05:40	1,582.93	49.47	21.17	0:12:40	1,528.82	95.55	10.93	0:19:40	1,381.18	172.65	6.03	0:26:40	1,334.00	333.50	3.13	0:33:40	452.98	452.98	2.30
0:05:45	1,530.08	47.82	22.02	0:12:45	1,529.24	95.58	10.97	0:19:45	1,507.22	188.40	5.58	0:26:45	1,218.66	304.66	3.43	0:33:45	487.38	487.38	2.14
0:05:50	1,540.57	48.14	21.75	0:12:50	1,517.71	94.86	11.00	0:19:50	1,527.57	190.95	5.47	0:26:50	1,349.31	337.33	3.09	0:33:50	494.93	494.93	2.10
0:05:55	1,559.86	48.75	21.42	0:12:55	1,539.10	96.19	10.87	0:19:55	1,447.87	180.98	5.78	0:26:55	1,056.75	264.19	3.94	0:33:55	416.70	416.70	2.50
0:06:00	1,538.47	48.08	21.95	0:13:00	1,523.37	95.21	11.05	0:20:00	1,488.98	186.12	5.62	0:27:00	975.80	243.95	4.28	0:34:00	497.03	497.03	2.10
0:06:05	1,548.75	48.40	21.64	0:13:05	1,500.30	93.77	11.19	0:20:05	1,556.30	194.54	5.37	0:27:05	1,306.95	326.74	3.19	0:34:05	492.62	492.62	2.12
0:06:10	1,563.64	48.86	21.34	0:13:10	1,540.36	96.27	10.84	0:20:10	1,571.40	196.42	5.33	0:27:10	1,259.13	314.78	3.32	0:34:10	511.71	511.71	2.04
0:06:15	1,541.83	48.18	21.83	0:13:15	1,536.79	96.05	10.91	0:20:15	1,485.83	185.73	5.62	0:27:15	1,238.79	309.70	3.36	0:34:15	460.74	460.74	2.26
0:06:20	1,567.20	48.98	21.44	0:13:20	1,542.67	96.42	10.87	0:20:20	1,501.98	187.75	5.57	0:27:20	1,093.46	273.36	3.83	0:34:20	470.39	470.39	2.21
0:06:25	1,574.96	49.22	21.19	0:13:25	1,520.02	95.00	11.00	0:20:25	1,542.04	192.75	5.41	0:27:25	1,369.02	342.26	3.05	0:34:25	479.83	479.83	2.17
0:06:30	1,572.44	49.14	21.35	0:13:30	1,544.13	96.51	10.86	0:20:30	1,569.72	196.21	5.33	0:27:30	1,271.29	317.82	3.29	0:34:30	460.74	460.74	2.26
0:06:35	1,534.70	47.96	21.67	0:13:35	1,505.55	94.10	11.13	0:20:35	1,433.40	179.18	5.83	0:27:35	1,331.90	332.98	3.13	0:34:35	511.29	511.29	2.04
0:06:40	1,583.56	49.49	21.20	0:13:40	1,561.12	97.57	10.70	0:20:40	1,470.94	183.87	5.70	0:27:40	1,201.04	300.26	3.48	0:34:40	477.94	477.94	2.18
0:06:45	77.38	0.00	30.48	0:13:45	76.76	0.00	11.25	0:20:45	65.43	0.00	5.48	0:27:45	51.17	0.00	3.37	0:34:45	20.34	0.00	1.99
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

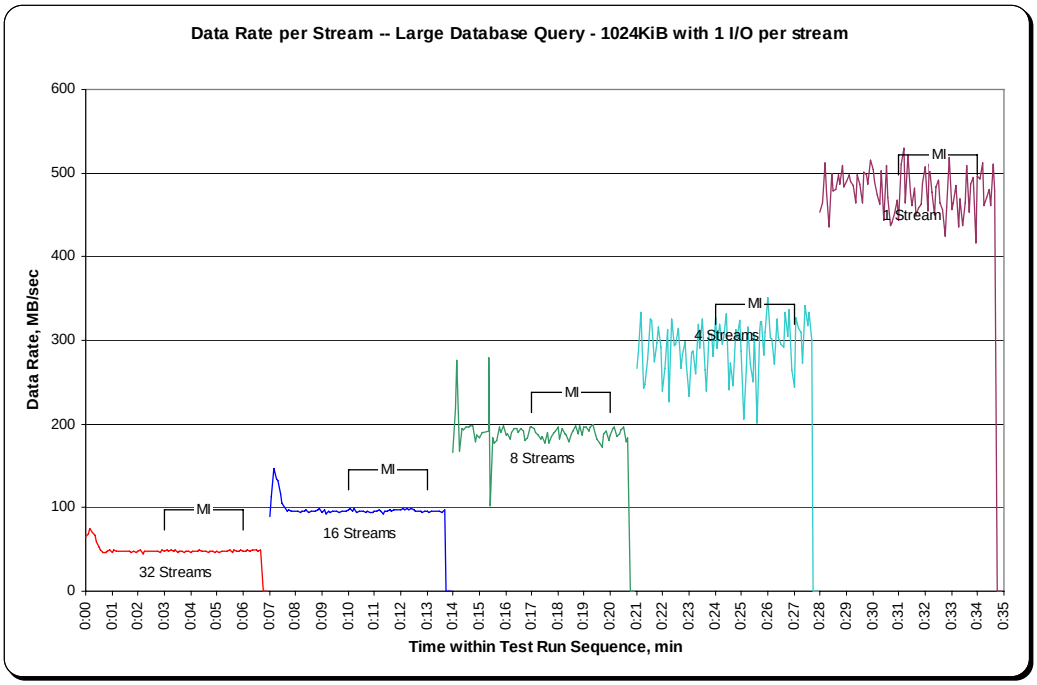
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



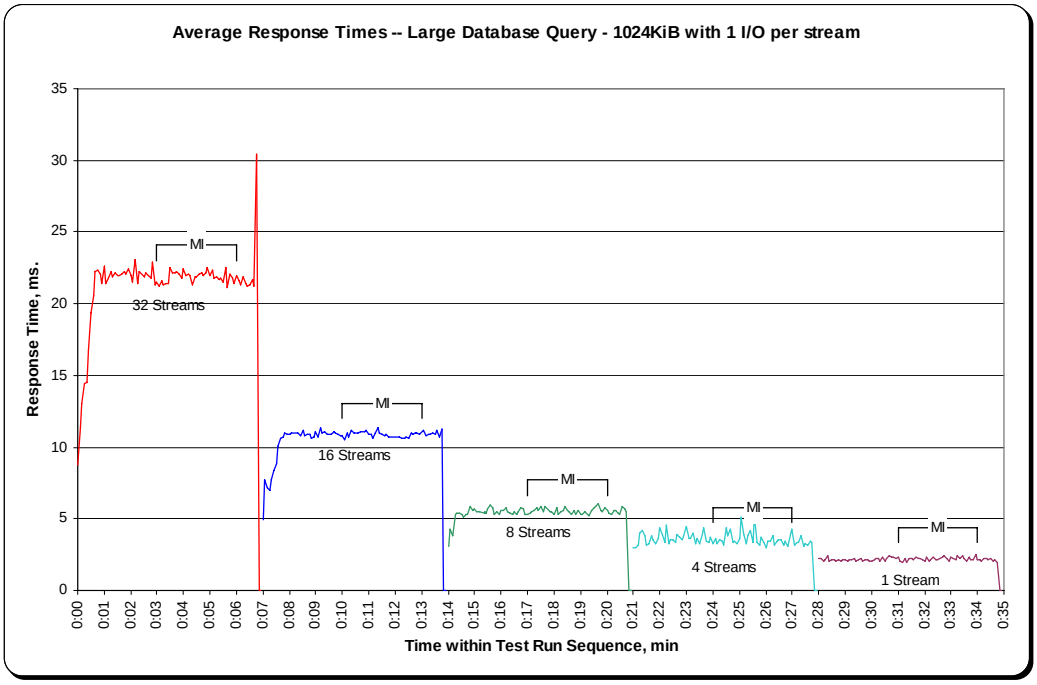
SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



Large Database Query Test – 64 KIB TRANSFER SIZE Test Phase

Clause 10.6.8.2.1

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

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

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

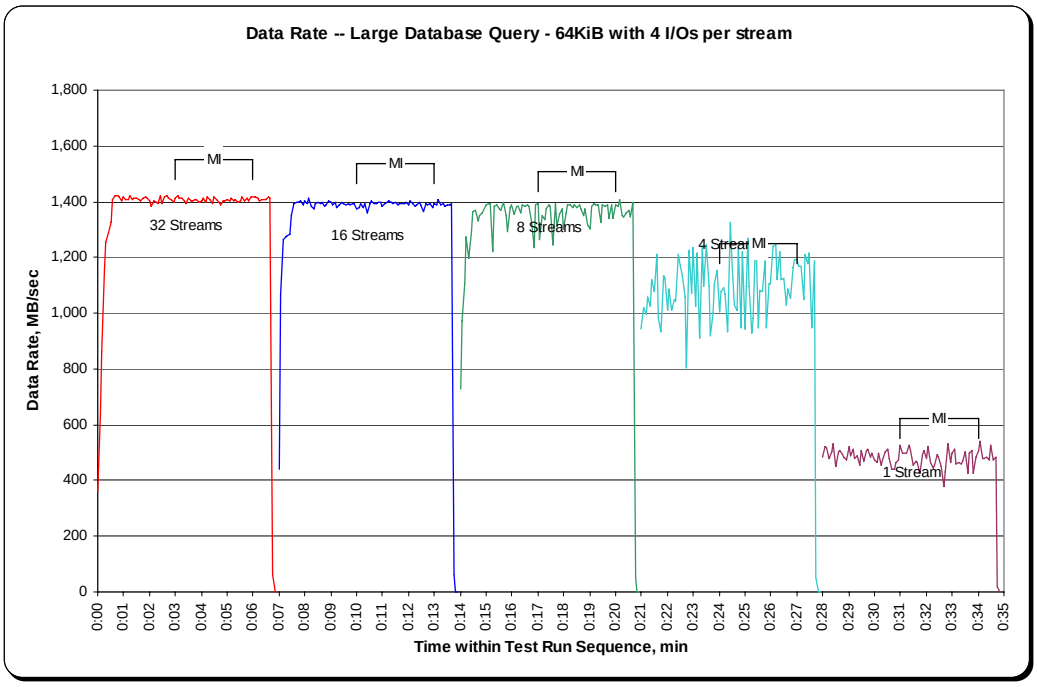
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

TR11	32 Streams			TR12	16 Streams			TR13	8 Streams			TR14	4 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	360.76	60.13	1.70	0:07:00	439.45	73.24	1.66	0:14:00	726.98	181.74	0.88	0:21:00	942.16	314.05	0.61	0:28:00	483.58	483.58	0.50
0:00:05	639.57	71.06	3.16	0:07:05	1,065.44	88.79	2.26	0:14:05	973.75	162.29	1.43	0:21:05	1,019.21	339.74	0.75	0:28:05	520.70	520.70	0.48
0:00:10	860.31	66.18	3.60	0:07:10	1,263.41	105.28	2.47	0:14:10	1,106.71	184.45	1.40	0:21:10	995.50	331.83	0.77	0:28:10	517.03	517.03	0.49
0:00:15	1,152.51	60.66	3.79	0:07:15	1,272.60	106.05	2.45	0:14:15	1,273.29	212.21	1.21	0:21:15	1,059.49	353.16	0.72	0:28:15	480.92	480.92	0.53
0:00:20	1,255.29	59.78	4.24	0:07:20	1,276.33	91.17	2.66	0:14:20	1,195.33	170.76	1.50	0:21:20	1,022.72	255.68	0.99	0:28:20	502.57	502.57	0.50
0:00:25	1,288.78	53.70	4.38	0:07:25	1,281.89	91.56	2.84	0:14:25	1,294.87	161.86	1.40	0:21:25	1,121.65	280.41	0.91	0:28:25	532.83	532.83	0.47
0:00:30	1,325.76	49.10	5.04	0:07:30	1,349.50	89.97	2.76	0:14:30	1,364.85	170.61	1.51	0:21:30	1,077.98	269.49	0.95	0:28:30	448.92	448.92	0.56
0:00:35	1,408.81	45.45	5.19	0:07:35	1,395.12	93.01	2.80	0:14:35	1,371.50	171.44	1.50	0:21:35	1,212.84	303.21	0.84	0:28:35	501.41	501.41	0.50
0:00:40	1,423.45	44.48	5.71	0:07:40	1,399.35	87.46	2.92	0:14:40	1,332.17	166.52	1.55	0:21:40	982.81	245.70	1.04	0:28:40	505.89	505.89	0.50
0:00:45	1,420.62	44.39	5.88	0:07:45	1,395.81	87.24	2.98	0:14:45	1,350.63	168.83	1.53	0:21:45	932.41	233.10	1.10	0:28:45	494.80	494.80	0.51
0:00:50	1,417.16	44.29	5.88	0:07:50	1,403.32	87.71	2.97	0:14:50	1,358.05	169.76	1.52	0:21:50	1,133.35	283.34	0.90	0:28:50	481.36	481.36	0.53
0:00:55	1,402.32	43.82	5.97	0:07:55	1,390.24	86.89	3.00	0:14:55	1,368.37	171.05	1.51	0:21:55	1,127.14	281.78	0.91	0:28:55	475.03	475.03	0.53
0:01:00	1,418.07	44.31	5.87	0:08:00	1,402.69	87.67	2.97	0:15:00	1,389.01	173.63	1.49	0:22:00	1,012.04	253.01	1.01	0:29:00	522.27	522.27	0.48
0:01:05	1,409.59	44.05	5.95	0:08:05	1,393.02	87.06	2.98	0:15:05	1,391.61	173.95	1.48	0:22:05	1,085.48	271.37	0.94	0:29:05	488.44	488.44	0.52
0:01:10	1,406.27	43.95	5.94	0:08:10	1,410.48	88.16	2.95	0:15:10	1,390.88	173.86	1.48	0:22:10	1,008.31	252.08	1.02	0:29:10	510.60	510.60	0.49
0:01:15	1,420.13	44.38	5.88	0:08:15	1,384.52	86.53	3.01	0:15:15	1,222.70	152.84	1.69	0:22:15	1,046.12	261.53	0.98	0:29:15	478.80	478.80	0.53
0:01:20	1,405.07	43.91	5.92	0:08:20	1,374.17	85.89	3.02	0:15:20	1,383.58	172.95	1.49	0:22:20	1,043.00	260.75	0.98	0:29:20	489.37	489.37	0.52
0:01:25	1,412.98	44.16	5.94	0:08:25	1,390.73	86.92	3.00	0:15:25	1,388.92	173.62	1.49	0:22:25	1,209.30	302.33	0.84	0:29:25	455.80	455.80	0.56
0:01:30	1,412.97	44.16	5.90	0:08:30	1,397.73	87.36	2.98	0:15:30	1,376.31	172.04	1.50	0:22:30	1,180.82	295.21	0.86	0:29:30	506.47	506.47	0.50
0:01:35	1,409.31	44.04	5.95	0:08:35	1,395.39	87.21	2.98	0:15:35	1,369.21	171.15	1.51	0:22:35	1,136.44	284.11	0.90	0:29:35	468.20	468.20	0.54
0:01:40	1,403.44	43.86	5.92	0:08:40	1,400.17	87.51	2.97	0:15:40	1,396.62	174.58	1.48	0:22:40	1,058.18	264.55	0.97	0:29:40	506.24	506.24	0.50
0:01:45	1,409.96	44.06	5.94	0:08:45	1,384.41	86.53	3.01	0:15:45	1,349.98	168.75	1.53	0:22:45	802.50	200.62	1.29	0:29:45	514.41	514.41	0.49
0:01:50	1,415.05	44.22	5.88	0:08:50	1,389.82	86.86	2.99	0:15:50	1,294.48	161.81	1.59	0:22:50	1,227.38	306.84	0.83	0:29:50	484.53	484.53	0.52
0:01:55	1,412.10	44.13	5.94	0:08:55	1,401.34	87.58	2.97	0:15:55	1,378.76	172.35	1.50	0:22:55	1,071.69	267.92	0.96	0:29:55	497.50	497.50	0.51
0:02:00	1,405.01	43.91	5.95	0:09:00	1,395.67	87.23	2.98	0:16:00	1,389.00	173.62	1.49	0:23:00	1,233.17	308.29	0.83	0:30:00	476.24	476.24	0.53
0:02:05	1,385.13	43.29	6.00	0:09:05	1,389.70	86.86	2.99	0:16:05	1,352.96	169.12	1.52	0:23:05	1,022.49	255.62	1.00	0:30:05	462.36	462.36	0.55
0:02:10	1,403.46	43.86	5.98	0:09:10	1,396.64	87.29	2.98	0:16:10	1,383.68	172.96	1.49	0:23:10	1,216.54	304.13	0.84	0:30:10	497.64	497.64	0.51
0:02:15	1,399.59	43.74	5.94	0:09:15	1,377.89	86.12	3.02	0:16:15	1,384.41	173.05	1.49	0:23:15	908.78	227.19	1.13	0:30:15	452.57	452.57	0.56
0:02:20	1,393.15	43.54	6.01	0:09:20	1,388.50	86.78	2.99	0:16:20	1,358.42	169.80	1.52	0:23:20	1,242.13	310.53	0.82	0:30:20	473.96	473.96	0.53
0:02:25	1,423.09	44.47	5.92	0:09:25	1,395.96	87.25	2.98	0:16:25	1,388.46	173.56	1.49	0:23:25	1,094.40	273.60	0.94	0:30:25	500.71	500.71	0.50
0:02:30	1,392.83	43.53	6.00	0:09:30	1,391.17	86.95	2.99	0:16:30	1,384.67	173.08	1.49	0:23:30	1,245.58	311.40	0.82	0:30:30	511.37	511.37	0.49
0:02:35	1,416.67	44.27	5.88	0:09:35	1,387.87	86.74	3.00	0:16:35	1,389.47	173.68	1.49	0:23:35	1,094.71	273.68	0.93	0:30:35	479.05	479.05	0.53
0:02:40	1,420.00	44.38	5.88	0:09:40	1,392.01	87.00	2.99	0:16:40	1,384.70	173.09	1.49	0:23:40	919.73	229.93	1.12	0:30:40	439.48	439.48	0.58
0:02:45	1,411.45	44.11	5.95	0:09:45	1,389.34	86.83	3.00	0:16:45	1,331.60	166.45	1.55	0:23:45	998.72	249.68	1.03	0:30:45	439.10	439.10	0.58
0:02:50	1,409.10	44.03	5.89	0:09:50	1,392.88	87.05	2.99	0:16:50	1,235.11	154.39	1.67	0:23:50	1,107.78	276.94	0.92	0:30:50	465.24	465.24	0.54
0:02:55	1,395.82	43.62	6.01	0:09:55	1,395.18	87.20	2.98	0:16:55	1,389.27	173.66	1.48	0:23:55	1,154.44	288.61	0.89	0:30:55	473.07	473.07	0.54

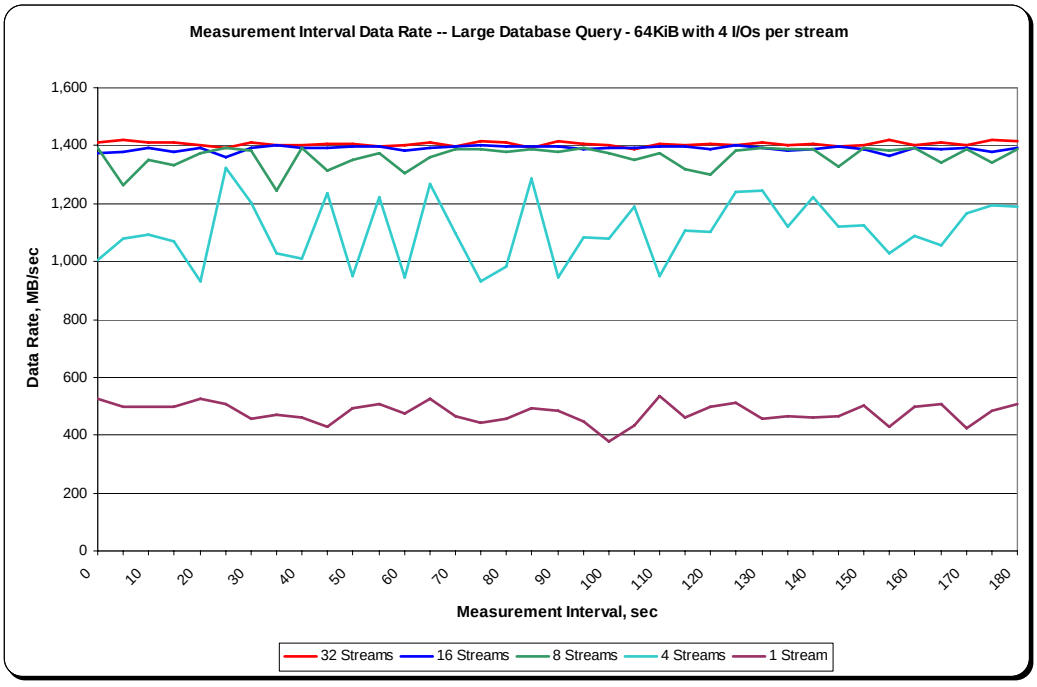
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

TR11	32 Streams			TR12	16 Streams			TR13	8 Streams			TR14	4 Streams			TR15	1 Stream		
Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms	Test Run Sequence Time	Data Rate, MB/sec	Data Rate / Stream, MB/sec	Response Time, ms
0:03:00	1,410.44	44.08	5.94	0:10:00	1,376.03	86.00	3.02	0:17:00	1,392.30	174.04	1.48	0:24:00	1,004.48	251.12	1.02	0:31:00	525.15	525.15	0.48
0:03:05	1,421.95	44.44	5.89	0:10:05	1,380.66	86.29	3.01	0:17:05	1,263.65	157.96	1.64	0:24:05	1,077.61	269.40	0.95	0:31:05	499.17	499.17	0.51
0:03:10	1,410.24	44.07	5.92	0:10:10	1,394.69	87.17	2.98	0:17:10	1,350.57	168.82	1.53	0:24:10	1,090.73	272.68	0.94	0:31:10	499.70	499.70	0.51
0:03:15	1,412.45	44.14	5.91	0:10:15	1,377.98	86.12	3.02	0:17:15	1,333.63	166.70	1.55	0:24:15	1,068.52	267.13	0.96	0:31:15	496.35	496.35	0.51
0:03:20	1,400.47	43.76	5.91	0:10:20	1,393.61	87.10	2.98	0:17:20	1,376.27	172.03	1.50	0:24:20	932.14	233.04	1.10	0:31:20	524.29	524.29	0.48
0:03:25	1,391.77	43.49	6.05	0:10:25	1,360.55	85.03	3.07	0:17:25	1,390.21	173.78	1.48	0:24:25	1,325.42	331.36	0.77	0:31:25	505.96	505.96	0.50
0:03:30	1,413.17	44.16	5.92	0:10:30	1,392.89	87.06	2.99	0:17:30	1,385.38	173.17	1.49	0:24:30	1,205.29	301.32	0.85	0:31:30	454.96	454.96	0.56
0:03:35	1,402.55	43.83	5.96	0:10:35	1,400.65	87.54	2.97	0:17:35	1,243.40	155.43	1.66	0:24:35	1,029.50	257.38	1.00	0:31:35	469.68	469.68	0.54
0:03:40	1,402.55	43.83	5.95	0:10:40	1,393.31	87.08	2.98	0:17:40	1,392.87	174.11	1.48	0:24:40	1,009.99	252.50	1.02	0:31:40	463.16	463.16	0.55
0:03:45	1,406.82	43.96	5.93	0:10:45	1,391.66	86.98	2.99	0:17:45	1,314.03	164.25	1.57	0:24:45	1,234.09	308.52	0.83	0:31:45	427.77	427.77	0.59
0:03:50	1,407.55	43.99	5.96	0:10:50	1,398.61	87.41	2.98	0:17:50	1,353.03	169.13	1.53	0:24:50	949.44	237.36	1.08	0:31:50	493.89	493.89	0.51
0:03:55	1,397.07	43.66	5.96	0:10:55	1,398.26	87.39	2.98	0:17:55	1,374.96	171.87	1.50	0:24:55	1,221.02	305.26	0.83	0:31:55	509.13	509.13	0.50
0:04:00	1,402.52	43.83	5.98	0:11:00	1,385.43	86.59	3.00	0:18:00	1,304.23	163.03	1.58	0:25:00	945.46	236.36	1.09	0:32:00	477.14	477.14	0.53
0:04:05	1,413.17	44.16	5.90	0:11:05	1,394.46	87.15	2.98	0:18:05	1,359.44	169.93	1.52	0:25:05	1,269.19	317.30	0.80	0:32:05	523.78	523.78	0.48
0:04:10	1,397.50	43.67	5.97	0:11:10	1,396.27	87.27	2.98	0:18:10	1,389.41	173.68	1.49	0:25:10	1,095.87	273.97	0.93	0:32:10	463.60	463.60	0.55
0:04:15	1,415.48	44.23	5.90	0:11:15	1,401.83	87.61	2.97	0:18:15	1,386.09	173.26	1.49	0:25:15	930.73	232.68	1.10	0:32:15	444.08	444.08	0.57
0:04:20	1,409.70	44.05	5.94	0:11:20	1,398.70	87.42	2.98	0:18:20	1,378.65	172.33	1.50	0:25:20	980.19	245.05	1.05	0:32:20	456.68	456.68	0.55
0:04:25	1,394.24	43.57	5.98	0:11:25	1,395.08	87.19	2.98	0:18:25	1,388.08	173.51	1.49	0:25:25	1,286.76	321.69	0.79	0:32:25	493.47	493.47	0.51
0:04:30	1,414.96	44.22	5.92	0:11:30	1,398.08	87.38	2.98	0:18:30	1,380.18	172.52	1.50	0:25:30	946.97	236.74	1.08	0:32:30	485.82	485.82	0.52
0:04:35	1,405.63	43.93	5.95	0:11:35	1,389.43	86.84	3.00	0:18:35	1,390.52	173.81	1.48	0:25:35	1,081.29	270.32	0.95	0:32:35	448.85	448.85	0.56
0:04:40	1,400.16	43.76	5.97	0:11:40	1,392.94	87.06	2.99	0:18:40	1,376.32	172.04	1.50	0:25:40	1,077.82	269.46	0.95	0:32:40	378.84	378.84	0.67
0:04:45	1,386.24	43.32	6.02	0:11:45	1,394.63	87.16	2.98	0:18:45	1,350.03	168.75	1.53	0:25:45	1,187.45	296.86	0.86	0:32:45	431.79	431.79	0.59
0:04:50	1,404.44	43.89	5.95	0:11:50	1,394.96	87.19	2.98	0:18:50	1,372.88	171.61	1.50	0:25:50	949.37	237.34	1.08	0:32:50	533.54	533.54	0.47
0:04:55	1,400.52	43.77	5.97	0:11:55	1,396.17	87.26	2.98	0:18:55	1,317.83	164.73	1.57	0:25:55	1,107.42	276.86	0.92	0:32:55	462.38	462.38	0.55
0:05:00	1,408.55	44.02	5.93	0:12:00	1,389.34	86.83	2.99	0:19:00	1,301.23	162.65	1.59	0:26:00	1,104.11	276.03	0.93	0:33:00	496.40	496.40	0.51
0:05:05	1,400.60	43.77	5.96	0:12:05	1,400.83	87.55	2.97	0:19:05	1,384.27	173.03	1.49	0:26:05	1,240.04	310.01	0.82	0:33:05	512.01	512.01	0.49
0:05:10	1,410.73	44.09	5.92	0:12:10	1,390.79	86.92	3.00	0:19:10	1,392.71	174.09	1.48	0:26:10	1,243.93	310.98	0.82	0:33:10	457.82	457.82	0.55
0:05:15	1,402.66	43.83	5.94	0:12:15	1,383.03	86.44	3.00	0:19:15	1,389.22	173.65	1.49	0:26:15	1,118.75	279.69	0.91	0:33:15	466.55	466.55	0.54
0:05:20	1,406.92	43.97	5.95	0:12:20	1,386.43	86.65	3.01	0:19:20	1,387.69	173.46	1.49	0:26:20	1,222.16	305.54	0.84	0:33:20	461.25	461.25	0.55
0:05:25	1,399.37	43.73	5.92	0:12:25	1,399.30	87.46	2.97	0:19:25	1,328.23	166.03	1.56	0:26:25	1,119.10	279.78	0.91	0:33:25	467.73	467.73	0.54
0:05:30	1,402.64	43.83	6.02	0:12:30	1,388.55	86.78	3.00	0:19:30	1,390.64	173.83	1.48	0:26:30	1,124.12	281.03	0.91	0:33:30	500.36	500.36	0.50
0:05:35	1,418.00	44.31	5.87	0:12:35	1,365.90	85.37	3.05	0:19:35	1,385.49	173.19	1.49	0:26:35	1,030.10	257.53	0.99	0:33:35	427.69	427.69	0.59
0:05:40	1,402.89	43.84	5.98	0:12:40	1,392.50	87.03	2.99	0:19:40	1,390.37	173.80	1.48	0:26:40	1,088.99	272.25	0.94	0:33:40	496.17	496.17	0.51
0:05:45	1,410.01	44.06	5.86	0:12:45	1,389.63	86.85	2.99	0:19:45	1,342.68	167.84	1.54	0:26:45	1,054.59	263.65	0.97	0:33:45	508.92	508.92	0.50
0:05:50	1,402.32	43.82	6.03	0:12:50	1,394.14	87.13	2.98	0:19:50	1,390.09	173.76	1.49	0:26:50	1,164.46	291.12	0.88	0:33:50	424.37	424.37	0.60
0:05:55	1,418.79	44.34	5.90	0:12:55	1,380.75	86.30	3.02	0:19:55	1,342.76	167.85	1.54	0:26:55	1,193.32	298.33	0.86	0:33:55	482.85	482.85	0.52
0:06:00	1,417.37	44.29	5.89	0:13:00	1,393.79	87.11	2.99	0:20:00	1,387.75	173.47	1.49	0:27:00	1,191.22	297.81	0.86	0:34:00	508.62	508.62	0.50
0:06:05	1,417.52	44.30	5.88	0:13:05	1,388.89	86.81	3.00	0:20:05	1,382.50	172.81	1.49	0:27:05	1,169.46	292.36	0.87	0:34:05	542.54	542.54	0.46
0:06:10	1,412.68	44.15	5.91	0:13:10	1,405.94	87.87	2.95	0:20:10	1,407.49	175.94	1.46	0:27:10	1,169.67	292.42	0.87	0:34:10	479.31	479.31	0.53
0:06:15	1,403.25	43.85	5.95	0:13:15	1,387.88	86.74	3.00	0:20:15	1,351.03	168.88	1.53	0:27:15	1,050.58	262.64	0.98	0:34:15	479.22	479.22	0.53
0:06:20	1,406.40	43.95	5.92	0:13:20	1,393.34	87.08	2.99	0:20:20	1,343.00	167.87	1.54	0:27:20	1,210.57	302.64	0.84	0:34:20	482.26	482.26	0.52
0:06:25	1,405.10	43.91	5.97	0:13:25	1,385.75	86.61	3.00	0:20:25	1,357.72	169.71	1.52	0:27:25	1,177.98	294.50	0.87	0:34:25	471.66	471.66	0.54
0:06:30	1,409.02	44.03	5.94	0:13:30	1,388.27	86.77	3.00	0:20:30	1,367.29	170.91	1.51	0:27:30	1,217.62	304.40	0.84	0:34:30	528.25	528.25	0.48
0:06:35	1,418.67	44.33	5.90	0:13:35	1,386.65	86.67	3.00	0:20:35	1,347.54	168.44	1.53	0:27:35	945.84	236.46	1.08	0:34:35	474.69	474.69	0.53
0:06:40	1,411.76	44.12	5.92	0:13:40	1,391.00	86.94	2.99	0:20:40	1,397.49	174.69	1.48	0:27:40	1,186.56	296.64	0.86	0:34:40	485.17	485.17	0.52
0:06:45	62.33	0.00	6.84	0:13:45	62.22	0.00	3.11	0:20:45	53.96	0.00	1.68	0:27:45	54.74	0.00	0.77	0:34:45	18.82	0.00	0.53
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

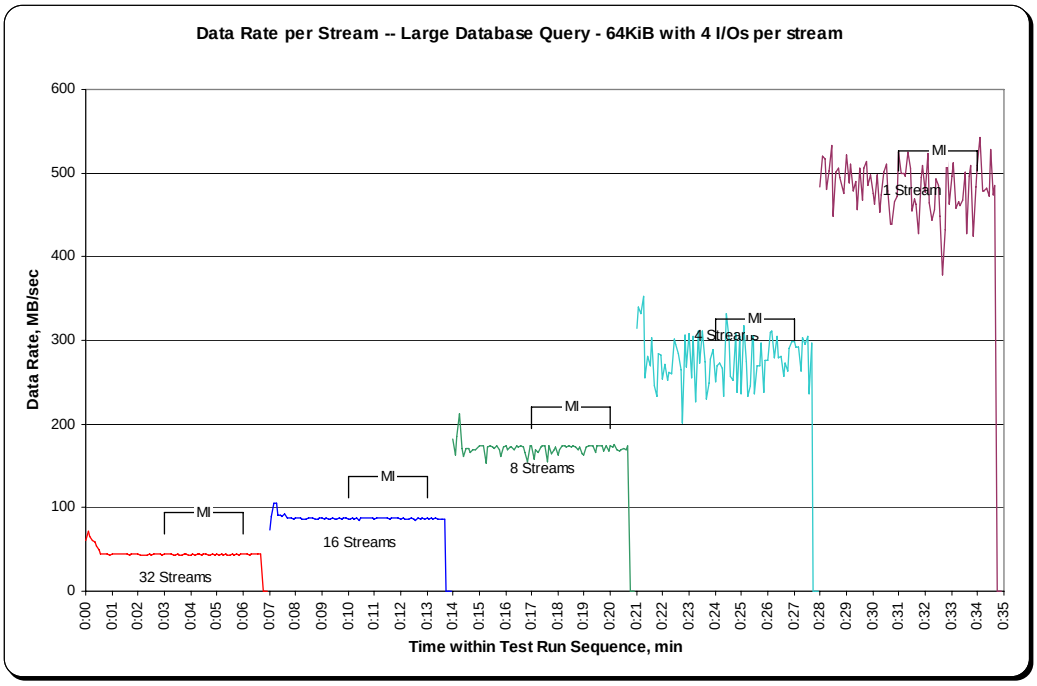
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



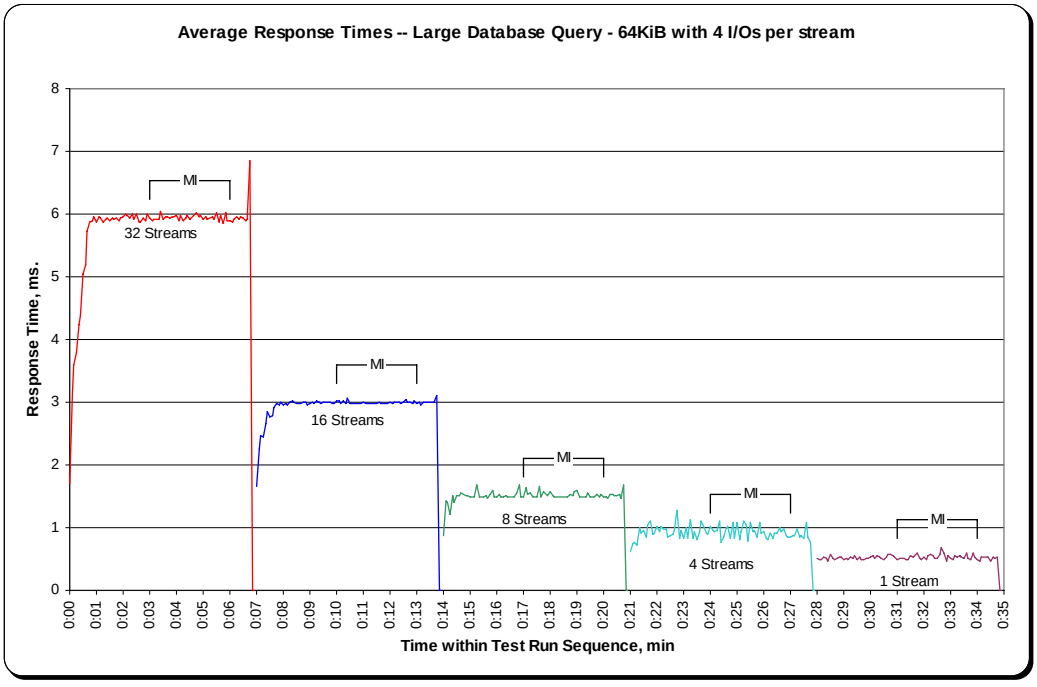
SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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



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



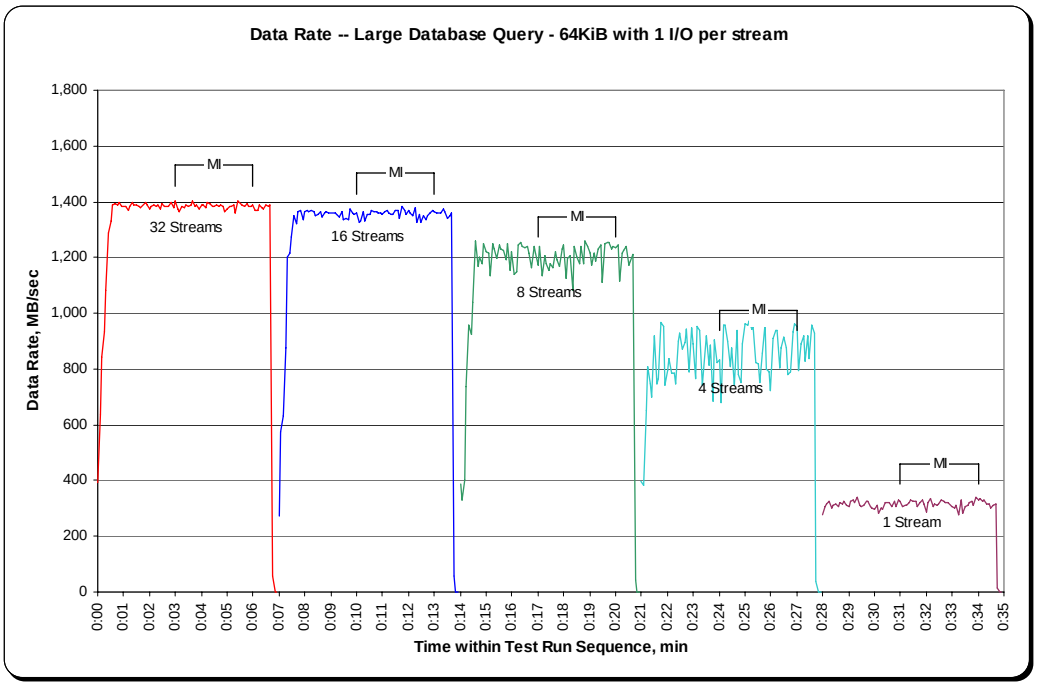
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

TR16	32 Streams			TR17	16 Streams			TR18	8 Streams			TR19	4 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	392.69	39.27	0.76	0:07:00	274.83	54.97	0.60	0:14:00	388.64	194.32	0.21	0:21:00	396.17	198.09	0.21	0:28:00	277.56	277.56	0.21
0:00:05	638.08	63.81	1.00	0:07:05	573.28	95.55	0.58	0:14:05	329.79	164.89	0.38	0:21:05	381.52	190.76	0.33	0:28:05	307.64	307.64	0.20
0:00:10	844.57	60.33	0.94	0:07:10	633.96	90.57	0.62	0:14:10	404.13	134.71	0.38	0:21:10	652.82	217.61	0.23	0:28:10	315.83	315.83	0.19
0:00:15	933.51	62.23	0.97	0:07:15	876.97	87.70	0.57	0:14:15	735.99	147.20	0.32	0:21:15	807.77	201.94	0.24	0:28:15	323.38	323.38	0.19
0:00:20	1,080.03	54.00	1.03	0:07:20	1,201.62	100.13	0.60	0:14:20	957.02	159.50	0.38	0:21:20	747.17	186.79	0.33	0:28:20	300.51	300.51	0.20
0:00:25	1,287.04	51.48	1.10	0:07:25	1,216.30	93.56	0.63	0:14:25	921.82	131.69	0.44	0:21:25	700.66	175.16	0.36	0:28:25	310.40	310.40	0.20
0:00:30	1,333.14	45.97	1.30	0:07:30	1,272.72	90.91	0.67	0:14:30	1,039.58	129.95	0.44	0:21:30	920.94	230.24	0.27	0:28:30	317.41	317.41	0.19
0:00:35	1,388.73	46.29	1.35	0:07:35	1,350.66	84.42	0.72	0:14:35	1,257.67	157.21	0.40	0:21:35	747.74	186.93	0.33	0:28:35	307.77	307.77	0.20
0:00:40	1,395.13	43.60	1.44	0:07:40	1,320.21	82.51	0.77	0:14:40	1,168.43	146.05	0.43	0:21:40	767.13	191.78	0.33	0:28:40	321.05	321.05	0.19
0:00:45	1,386.83	43.34	1.49	0:07:45	1,363.52	85.22	0.75	0:14:45	1,201.13	150.14	0.42	0:21:45	968.41	242.10	0.25	0:28:45	318.30	318.30	0.19
0:00:50	1,396.80	43.65	1.48	0:07:50	1,370.75	85.67	0.74	0:14:50	1,177.88	147.23	0.43	0:21:50	952.75	238.19	0.26	0:28:50	325.48	325.48	0.19
0:00:55	1,384.46	43.26	1.49	0:07:55	1,337.72	83.61	0.76	0:14:55	1,247.53	155.94	0.40	0:21:55	743.06	185.77	0.34	0:28:55	311.49	311.49	0.20
0:01:00	1,382.87	43.21	1.50	0:08:00	1,364.04	85.25	0.75	0:15:00	1,221.82	152.73	0.41	0:22:00	794.76	198.69	0.31	0:29:00	304.62	304.62	0.20
0:01:05	1,381.41	43.17	1.49	0:08:05	1,367.96	85.50	0.74	0:15:05	1,215.47	151.93	0.41	0:22:05	836.70	209.18	0.30	0:29:05	323.76	323.76	0.19
0:01:10	1,369.63	42.80	1.51	0:08:10	1,364.60	85.29	0.75	0:15:10	1,135.13	141.89	0.44	0:22:10	784.07	196.02	0.32	0:29:10	327.93	327.93	0.19
0:01:15	1,384.34	43.26	1.50	0:08:15	1,368.30	85.52	0.74	0:15:15	1,247.55	155.94	0.40	0:22:15	783.14	195.78	0.32	0:29:15	319.82	319.82	0.19
0:01:20	1,398.82	43.71	1.48	0:08:20	1,366.04	85.38	0.75	0:15:20	1,229.85	153.73	0.41	0:22:20	749.16	187.29	0.33	0:29:20	339.70	339.70	0.18
0:01:25	1,387.39	43.36	1.49	0:08:25	1,350.48	84.41	0.76	0:15:25	1,197.58	149.70	0.42	0:22:25	902.19	225.55	0.27	0:29:25	308.90	308.90	0.20
0:01:30	1,389.22	43.41	1.49	0:08:30	1,353.42	84.59	0.75	0:15:30	1,246.35	155.79	0.40	0:22:30	927.16	231.79	0.27	0:29:30	304.95	304.95	0.20
0:01:35	1,383.92	43.25	1.49	0:08:35	1,362.04	85.13	0.75	0:15:35	1,228.56	153.57	0.41	0:22:35	869.54	217.39	0.29	0:29:35	313.53	313.53	0.20
0:01:40	1,381.03	43.16	1.50	0:08:40	1,345.26	84.08	0.76	0:15:40	1,225.46	153.18	0.41	0:22:40	893.19	223.30	0.28	0:29:40	324.10	324.10	0.19
0:01:45	1,388.61	43.39	1.49	0:08:45	1,357.99	84.87	0.75	0:15:45	1,192.03	149.00	0.42	0:22:45	941.99	235.50	0.26	0:29:45	324.35	324.35	0.19
0:01:50	1,397.53	43.67	1.48	0:08:50	1,362.12	85.13	0.75	0:15:50	1,248.73	156.09	0.40	0:22:50	790.84	197.71	0.32	0:29:50	304.05	304.05	0.20
0:01:55	1,387.04	43.34	1.49	0:08:55	1,360.06	85.00	0.75	0:15:55	1,151.56	143.94	0.44	0:22:55	949.08	237.27	0.26	0:29:55	300.84	300.84	0.20
0:02:00	1,375.92	43.00	1.50	0:09:00	1,359.88	84.99	0.75	0:16:00	1,221.23	152.65	0.41	0:23:00	890.79	222.70	0.28	0:30:00	296.75	296.75	0.21
0:02:05	1,385.07	43.28	1.49	0:09:05	1,357.96	84.87	0.75	0:16:05	1,141.42	142.68	0.44	0:23:05	767.73	191.93	0.33	0:30:05	311.99	311.99	0.20
0:02:10	1,390.36	43.45	1.48	0:09:10	1,359.79	84.99	0.75	0:16:10	1,150.73	143.84	0.44	0:23:10	954.60	238.65	0.26	0:30:10	282.39	282.39	0.22
0:02:15	1,382.95	43.22	1.50	0:09:15	1,356.27	84.77	0.75	0:16:15	1,246.00	155.75	0.40	0:23:15	937.32	234.33	0.26	0:30:15	302.56	302.56	0.20
0:02:20	1,388.02	43.38	1.49	0:09:20	1,342.87	83.93	0.76	0:16:20	1,253.78	156.72	0.40	0:23:20	741.29	185.32	0.34	0:30:20	294.48	294.48	0.21
0:02:25	1,376.00	43.00	1.50	0:09:25	1,363.31	85.21	0.75	0:16:25	1,237.68	154.71	0.40	0:23:25	797.14	199.28	0.31	0:30:25	321.47	321.47	0.19
0:02:30	1,391.93	43.50	1.48	0:09:30	1,333.79	83.36	0.76	0:16:30	1,236.61	154.58	0.40	0:23:30	918.35	229.59	0.27	0:30:30	318.55	318.55	0.19
0:02:35	1,383.61	43.24	1.49	0:09:35	1,338.10	83.63	0.76	0:16:35	1,237.93	154.74	0.40	0:23:35	815.11	203.78	0.30	0:30:35	318.65	318.65	0.19
0:02:40	1,382.95	43.22	1.49	0:09:40	1,335.07	83.44	0.76	0:16:40	1,216.89	152.11	0.41	0:23:40	883.87	220.97	0.28	0:30:40	306.97	306.97	0.20
0:02:45	1,383.86	43.25	1.50	0:09:45	1,372.49	85.78	0.74	0:16:45	1,163.27	145.41	0.43	0:23:45	686.24	171.56	0.37	0:30:45	323.65	323.65	0.19
0:02:50	1,398.88	43.72	1.48	0:09:50	1,358.41	84.90	0.75	0:16:50	1,241.21	155.15	0.40	0:23:50	906.97	226.74	0.27	0:30:50	307.18	307.18	0.20
0:02:55	1,378.35	43.07	1.50	0:09:55	1,353.10	84.57	0.75	0:16:55	1,215.98	152.00	0.41	0:23:55	821.06	205.26	0.30	0:30:55	328.71	328.71	0.19

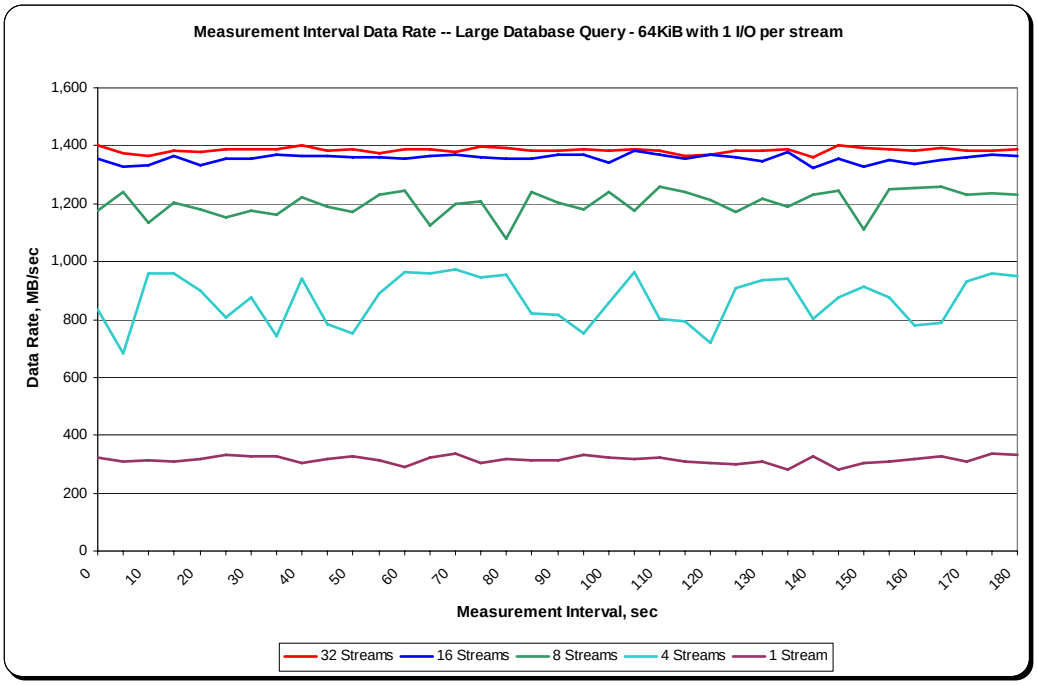
SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period

TR16	32 Streams			TR17	16 Streams			TR18	8 Streams			TR19	4 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	1,401.67	43.80	1.47	0:10:00	1,357.18	84.82	0.75	0:17:00	1,175.26	146.91	0.43	0:24:00	833.82	208.45	0.30	0:31:00	324.90	324.90	0.19
0:03:05	1,372.43	42.89	1.51	0:10:05	1,327.49	82.97	0.77	0:17:05	1,240.73	155.09	0.40	0:24:05	680.95	170.24	0.37	0:31:05	306.75	306.75	0.20
0:03:10	1,365.26	42.66	1.51	0:10:10	1,330.60	83.16	0.77	0:17:10	1,132.40	141.55	0.44	0:24:10	957.12	239.28	0.26	0:31:10	311.68	311.68	0.20
0:03:15	1,382.03	43.19	1.49	0:10:15	1,365.69	85.36	0.75	0:17:15	1,204.27	150.53	0.42	0:24:15	958.04	239.51	0.26	0:31:15	310.01	310.01	0.20
0:03:20	1,377.51	43.05	1.50	0:10:20	1,333.16	83.32	0.77	0:17:20	1,179.28	147.41	0.42	0:24:20	901.00	225.25	0.27	0:31:20	319.75	319.75	0.19
0:03:25	1,389.48	43.42	1.49	0:10:25	1,356.74	84.80	0.75	0:17:25	1,152.71	144.09	0.44	0:24:25	808.26	202.07	0.31	0:31:25	332.00	332.00	0.18
0:03:30	1,385.89	43.31	1.49	0:10:30	1,354.57	84.66	0.75	0:17:30	1,177.60	147.20	0.43	0:24:30	875.27	218.82	0.28	0:31:30	325.89	325.89	0.19
0:03:35	1,387.29	43.35	1.49	0:10:35	1,367.59	85.47	0.74	0:17:35	1,163.00	145.37	0.43	0:24:35	743.02	185.76	0.34	0:31:35	325.73	325.73	0.19
0:03:40	1,400.43	43.76	1.47	0:10:40	1,364.40	85.27	0.75	0:17:40	1,221.84	152.73	0.41	0:24:40	940.42	235.10	0.26	0:31:40	304.76	304.76	0.20
0:03:45	1,381.29	43.17	1.50	0:10:45	1,363.03	85.19	0.75	0:17:45	1,191.82	148.98	0.42	0:24:45	781.97	195.49	0.32	0:31:45	319.61	319.61	0.19
0:03:50	1,388.08	43.38	1.49	0:10:50	1,358.09	84.88	0.75	0:17:50	1,168.94	146.12	0.43	0:24:50	753.18	188.30	0.33	0:31:50	328.81	328.81	0.19
0:03:55	1,372.80	42.90	1.51	0:10:55	1,359.05	84.94	0.75	0:17:55	1,231.24	153.90	0.41	0:24:55	889.45	222.36	0.28	0:31:55	314.31	314.31	0.20
0:04:00	1,387.26	43.35	1.49	0:11:00	1,353.71	84.61	0.75	0:18:00	1,244.46	155.56	0.40	0:25:00	962.26	240.56	0.26	0:32:00	289.30	289.30	0.21
0:04:05	1,386.64	43.33	1.49	0:11:05	1,363.97	85.25	0.75	0:18:05	1,126.25	140.78	0.45	0:25:05	959.17	239.79	0.26	0:32:05	323.12	323.12	0.19
0:04:10	1,379.25	43.10	1.49	0:11:10	1,367.33	85.46	0.74	0:18:10	1,198.67	149.83	0.42	0:25:10	972.19	243.05	0.25	0:32:10	335.02	335.02	0.18
0:04:15	1,396.90	43.65	1.48	0:11:15	1,360.61	85.04	0.75	0:18:15	1,206.97	150.87	0.41	0:25:15	945.06	236.27	0.26	0:32:15	304.95	304.95	0.20
0:04:20	1,392.56	43.52	1.48	0:11:20	1,356.46	84.78	0.75	0:18:20	1,079.97	135.00	0.47	0:25:20	953.99	238.50	0.26	0:32:20	316.93	316.93	0.19
0:04:25	1,383.07	43.22	1.49	0:11:25	1,356.70	84.79	0.75	0:18:25	1,239.63	154.95	0.40	0:25:25	821.09	205.27	0.30	0:32:25	311.86	311.86	0.20
0:04:30	1,381.38	43.17	1.50	0:11:30	1,370.24	85.64	0.74	0:18:30	1,203.78	150.47	0.42	0:25:30	817.64	204.41	0.30	0:32:30	314.01	314.01	0.20
0:04:35	1,389.94	43.44	1.49	0:11:35	1,367.85	85.49	0.75	0:18:35	1,179.10	147.39	0.43	0:25:35	750.63	187.66	0.33	0:32:35	332.07	332.07	0.18
0:04:40	1,383.72	43.24	1.49	0:11:40	1,340.09	83.76	0.76	0:18:40	1,238.91	154.86	0.40	0:25:40	855.45	213.86	0.29	0:32:40	324.31	324.31	0.19
0:04:45	1,388.73	43.40	1.49	0:11:45	1,382.63	86.41	0.74	0:18:45	1,177.59	147.20	0.43	0:25:45	962.97	240.74	0.26	0:32:45	319.23	319.23	0.19
0:04:50	1,381.39	43.17	1.50	0:11:50	1,370.50	85.66	0.74	0:18:50	1,260.37	157.55	0.40	0:25:50	800.05	200.01	0.31	0:32:50	322.44	322.44	0.19
0:04:55	1,366.40	42.70	1.51	0:11:55	1,357.06	84.82	0.75	0:18:55	1,239.20	154.90	0.40	0:25:55	791.57	197.89	0.31	0:32:55	310.70	310.70	0.20
0:05:00	1,371.64	42.86	1.51	0:12:00	1,369.48	85.59	0.75	0:19:00	1,214.65	151.83	0.41	0:26:00	721.02	180.26	0.35	0:33:00	304.21	304.21	0.20
0:05:05	1,384.06	43.25	1.49	0:12:05	1,360.21	85.01	0.75	0:19:05	1,171.42	146.43	0.43	0:26:05	909.60	227.40	0.27	0:33:05	299.83	299.83	0.21
0:05:10	1,384.96	43.28	1.49	0:12:10	1,348.45	84.28	0.76	0:19:10	1,216.77	152.10	0.41	0:26:10	938.06	234.51	0.26	0:33:10	308.86	308.86	0.20
0:05:15	1,386.91	43.34	1.49	0:12:15	1,380.07	86.25	0.74	0:19:15	1,189.36	148.67	0.42	0:26:15	939.38	234.84	0.26	0:33:15	279.86	279.86	0.22
0:05:20	1,361.95	42.56	1.52	0:12:20	1,325.13	82.82	0.77	0:19:20	1,230.52	153.82	0.41	0:26:20	802.12	200.53	0.31	0:33:20	327.97	327.97	0.19
0:05:25	1,402.63	43.83	1.47	0:12:25	1,353.33	84.58	0.75	0:19:25	1,243.20	155.40	0.40	0:26:25	875.36	218.84	0.28	0:33:25	282.09	282.09	0.22
0:05:30	1,392.35	43.51	1.49	0:12:30	1,326.51	82.91	0.77	0:19:30	1,109.71	138.71	0.45	0:26:30	913.53	228.38	0.27	0:33:30	305.35	305.35	0.20
0:05:35	1,389.76	43.43	1.49	0:12:35	1,349.05	84.32	0.76	0:19:35	1,248.63	156.08	0.40	0:26:35	878.16	219.54	0.28	0:33:35	309.28	309.28	0.20
0:05:40	1,383.83	43.24	1.49	0:12:40	1,336.20	83.51	0.76	0:19:40	1,253.30	156.66	0.40	0:26:40	779.53	194.88	0.32	0:33:40	319.33	319.33	0.19
0:05:45	1,391.36	43.48	1.49	0:12:45	1,351.73	84.48	0.75	0:19:45	1,256.56	157.07	0.40	0:26:45	788.20	197.05	0.32	0:33:45	325.53	325.53	0.19
0:05:50	1,383.83	43.24	1.50	0:12:50	1,360.22	85.01	0.75	0:19:50	1,229.04	153.63	0.41	0:26:50	932.29	233.07	0.26	0:33:50	309.10	309.10	0.20
0:05:55	1,384.74	43.27	1.49	0:12:55	1,368.71	85.54	0.74	0:19:55	1,237.91	154.74	0.40	0:26:55	960.80	240.20	0.26	0:33:55	338.82	338.82	0.18
0:06:00	1,386.79	43.34	1.49	0:13:00	1,365.94	85.37	0.75	0:20:00	1,233.36	154.17	0.41	0:27:00	950.31	237.58	0.26	0:34:00	329.80	329.80	0.19
0:06:05	1,368.48	42.76	1.51	0:13:05	1,360.90	85.06	0.75	0:20:05	1,244.26	155.53	0.40	0:27:05	794.23	198.56	0.31	0:34:05	334.10	334.10	0.18
0:06:10	1,370.61	42.83	1.51	0:13:10	1,361.59	85.10	0.75	0:20:10	1,113.80	139.22	0.45	0:27:10	889.18	222.30	0.28	0:34:10	326.36	326.36	0.19
0:06:15	1,387.87	43.37	1.49	0:13:15	1,357.43	84.84	0.75	0:20:15	1,213.74	151.72	0.41	0:27:15	919.17	229.79	0.27	0:34:15	331.96	331.96	0.18
0:06:20	1,380.67	43.15	1.50	0:13:20	1,371.77	85.74	0.74	0:20:20	1,226.42	153.30	0.41	0:27:20	827.26	206.82	0.30	0:34:20	316.57	316.57	0.19
0:06:25	1,375.40	42.98	1.50	0:13:25	1,363.69	85.23	0.75	0:20:25	1,238.33	154.79	0.40	0:27:25	918.72	229.68	0.27	0:34:25	316.94	316.94	0.19
0:06:30	1,387.47	43.36	1.49	0:13:30	1,339.41	83.71	0.76	0:20:30	1,172.57	146.57	0.43	0:27:30	838.73	209.68	0.30	0:34:30	301.15	301.15	0.20
0:06:35	1,384.46	43.26	1.49	0:13:35	1,349.14	84.32	0.76	0:20:35	1,187.03	148.38	0.42	0:27:35	958.36	239.59	0.26	0:34:35	312.22	312.22	0.20
0:06:40	1,389.22	43.41	1.49	0:13:40	1,359.67	84.98	0.75	0:20:40	1,210.80	151.35	0.41	0:27:40	930.53	232.63	0.27	0:34:40	315.57	315.57	0.19
0:06:45	55.97	0.00	1.85	0:13:45	56.04	0.00	0.75	0:20:45	45.09	0.00	0.44	0:27:45	38.95	0.00	0.25	0:34:45	13.25	0.00	0.18
0:06:50	0.00	0.00	0.00	0:13:50	0.00	0.00	0.00	0:20:50	0.00	0.00	0.00	0:27:50	0.00	0.00	0.00	0:34:50	0.00	0.00	0.00
0:06:55	0.00	0.00	0.00	0:13:55	0.00	0.00	0.00	0:20:55	0.00	0.00	0.00	0:27:55	0.00	0.00	0.00	0:34:55	0.00	0.00	0.00

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

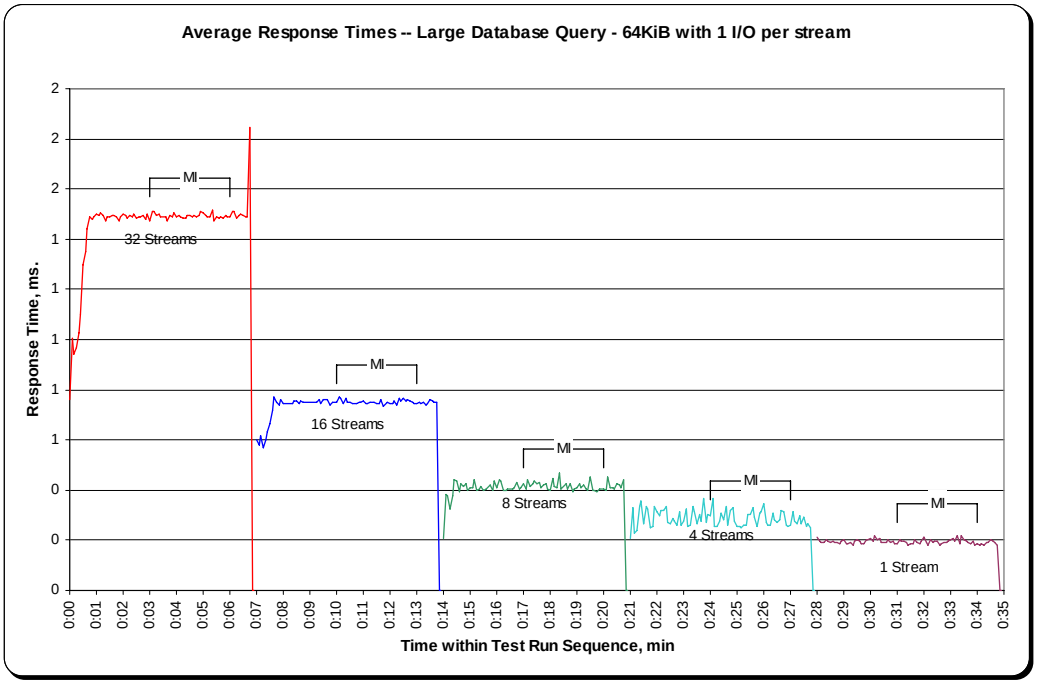


SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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

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



Video on Demand Delivery Test

Clause 6.4.4.1

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

Clause 6.4.2.2

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

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

Clause 10.6.8.3

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

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

SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Video on Demand Delivery Test Run are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 108.

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.

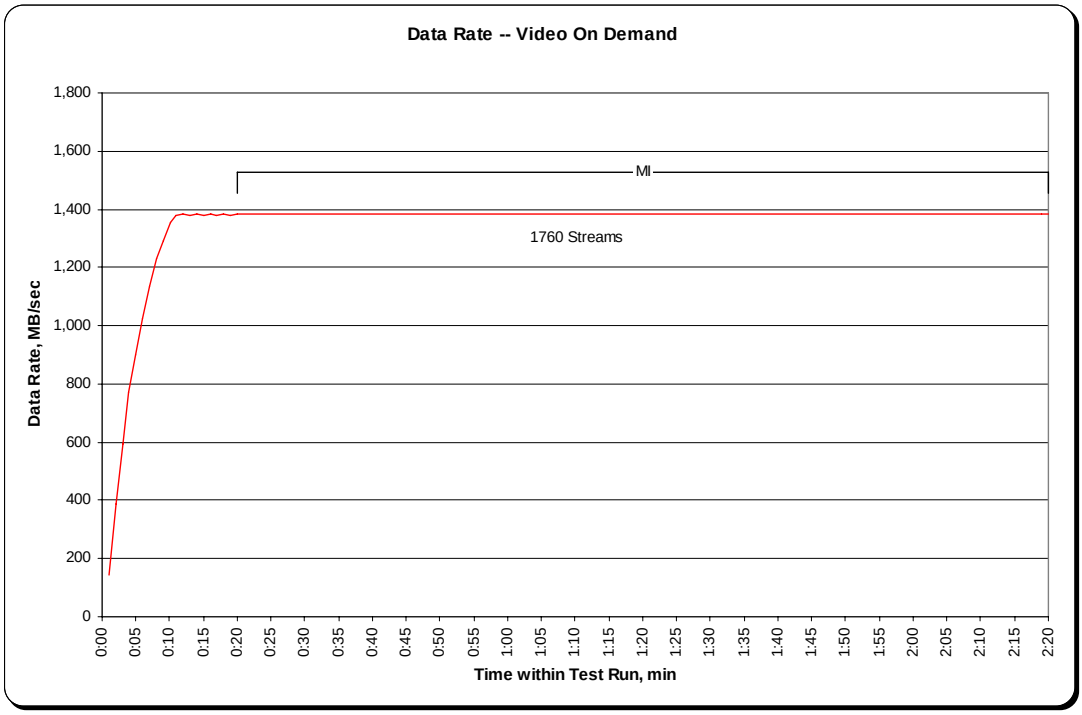
SPC-2-VOD	TR1
Number of Streams	1760
Ramp-up Time, sec	1200
Measurement Interval, sec	7200
Average Data Rate, MB/sec	1,384.16
Per Stream Data Rate, MB/sec	0.79
Average Response Time, ms	25.23
Average Max Response Time, ms	290.51

Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL

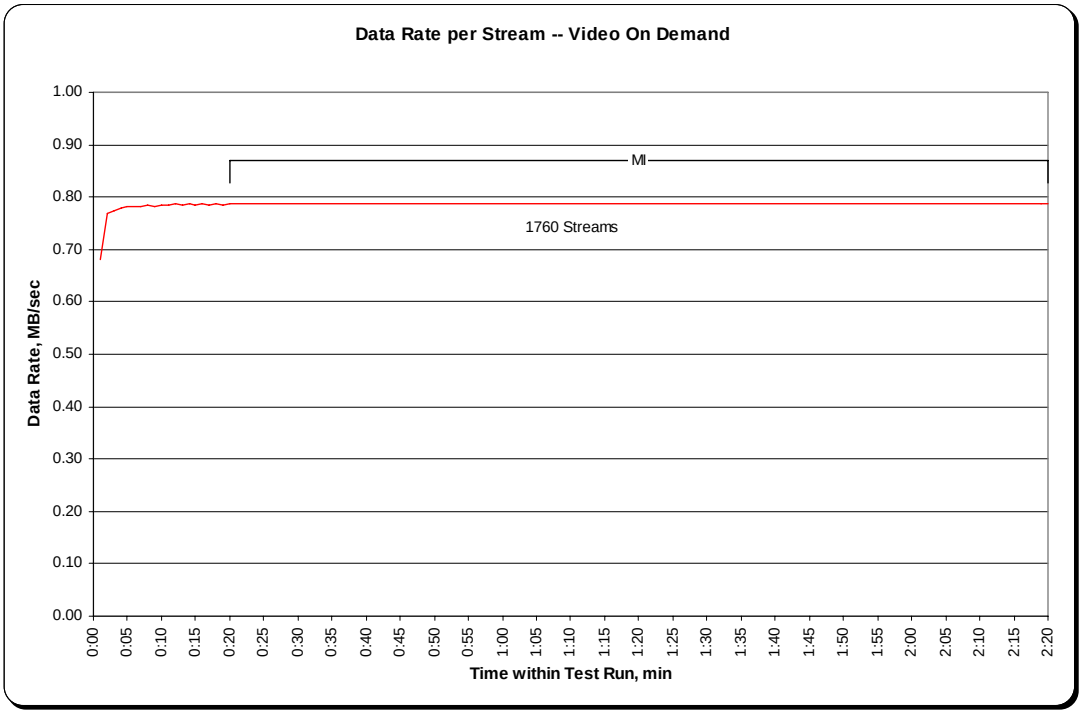
The SPC-2 Video on Demand Delivery Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate and average Data Rate per Stream produced by the same Test Runs. The table and graphs present the data at sixty second intervals.

TR1	1760 Streams				TR1	1760 Streams				TR1	1760 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	143.02	0.68	3.43	36.56	0:51:00	1,384.14	0.79	24.47	253.66	1:41:00	1,384.21	0.79	25.86	278.40
0:02:00	389.14	0.77	7.78	115.81	0:52:00	1,384.16	0.79	24.65	265.38	1:42:00	1,384.23	0.79	24.77	245.43
0:03:00	594.70	0.77	21.84	437.19	0:53:00	1,384.12	0.79	24.41	257.99	1:43:00	1,384.17	0.79	25.18	227.12
0:04:00	769.36	0.78	27.30	536.94	0:54:00	1,383.84	0.79	24.68	271.45	1:44:00	1,384.18	0.79	24.84	264.48
0:05:00	901.56	0.78	33.66	595.42	0:55:00	1,384.11	0.79	24.47	262.60	1:45:00	1,384.10	0.79	24.95	311.41
0:06:00	1,023.87	0.78	40.20	683.18	0:56:00	1,384.16	0.79	24.48	250.57	1:46:00	1,383.73	0.79	25.54	280.50
0:07:00	1,132.89	0.78	50.42	781.30	0:57:00	1,384.13	0.79	24.99	274.50	1:47:00	1,384.12	0.79	25.18	276.49
0:08:00	1,230.14	0.78	63.04	868.01	0:58:00	1,384.15	0.79	24.48	260.91	1:48:00	1,384.11	0.79	25.74	296.92
0:09:00	1,293.90	0.78	75.44	786.11	0:59:00	1,384.16	0.79	24.93	306.59	1:49:00	1,384.16	0.79	25.47	300.79
0:10:00	1,353.54	0.78	97.76	854.17	1:00:00	1,384.18	0.79	24.46	262.04	1:50:00	1,384.17	0.79	25.48	295.91
0:11:00	1,380.04	0.78	107.35	861.96	1:01:00	1,384.19	0.79	25.00	290.32	1:51:00	1,384.10	0.79	25.31	302.65
0:12:00	1,384.15	0.79	111.55	890.66	1:02:00	1,384.14	0.79	24.41	244.13	1:52:00	1,384.14	0.79	25.70	291.60
0:13:00	1,379.37	0.78	107.88	900.33	1:03:00	1,384.13	0.79	25.14	276.55	1:53:00	1,384.15	0.79	25.29	289.28
0:14:00	1,384.16	0.79	111.63	897.71	1:04:00	1,384.18	0.79	25.13	306.06	1:54:00	1,384.13	0.79	25.78	311.92
0:15:00	1,379.81	0.78	107.57	899.28	1:05:00	1,384.22	0.79	25.89	349.41	1:55:00	1,384.13	0.79	25.29	298.92
0:16:00	1,383.95	0.79	111.17	885.04	1:06:00	1,384.14	0.79	25.78	300.91	1:56:00	1,384.13	0.79	25.56	310.25
0:17:00	1,380.06	0.78	107.21	847.20	1:07:00	1,384.13	0.79	26.01	287.34	1:57:00	1,384.13	0.79	25.35	289.01
0:18:00	1,384.13	0.79	111.42	908.89	1:08:00	1,384.12	0.79	25.71	307.75	1:58:00	1,383.73	0.79	25.44	285.93
0:19:00	1,380.20	0.78	107.15	878.38	1:09:00	1,384.14	0.79	26.05	304.13	1:59:00	1,384.09	0.79	25.25	280.11
0:20:00	1,383.82	0.79	111.00	900.58	1:10:00	1,384.13	0.79	25.16	332.46	2:00:00	1,384.14	0.79	25.30	292.54
0:21:00	1,385.72	0.79	33.73	480.23	1:11:00	1,384.11	0.79	25.19	290.68	2:01:00	1,384.13	0.79	26.01	286.63
0:22:00	1,383.95	0.79	24.09	288.50	1:12:00	1,384.14	0.79	25.13	292.34	2:02:00	1,384.12	0.79	25.48	271.06
0:23:00	1,384.19	0.79	23.95	276.15	1:13:00	1,384.15	0.79	25.10	296.45	2:03:00	1,384.13	0.79	25.59	306.66
0:24:00	1,383.31	0.79	23.63	228.95	1:14:00	1,384.16	0.79	25.71	293.15	2:04:00	1,384.15	0.79	25.38	328.70
0:25:00	1,384.16	0.79	24.17	239.37	1:15:00	1,384.15	0.79	25.29	297.60	2:05:00	1,384.05	0.79	25.58	339.79
0:26:00	1,384.16	0.79	24.27	274.48	1:16:00	1,384.12	0.79	25.60	289.79	2:06:00	1,384.09	0.79	24.99	288.90
0:27:00	1,384.25	0.79	24.96	258.65	1:17:00	1,384.14	0.79	25.12	307.10	2:07:00	1,384.09	0.79	25.85	355.13
0:28:00	1,384.18	0.79	25.05	288.60	1:18:00	1,384.14	0.79	25.35	304.42	2:08:00	1,384.14	0.79	25.14	377.54
0:29:00	1,384.12	0.79	25.01	297.29	1:19:00	1,384.12	0.79	25.17	290.95	2:09:00	1,384.11	0.79	25.00	335.47
0:30:00	1,384.17	0.79	24.72	254.35	1:20:00	1,384.14	0.79	25.72	319.68	2:10:00	1,384.14	0.79	24.44	288.85
0:31:00	1,384.12	0.79	25.30	302.73	1:21:00	1,384.22	0.79	25.09	292.31	2:11:00	1,384.11	0.79	24.82	305.23
0:32:00	1,384.28	0.79	24.76	275.33	1:22:00	1,384.15	0.79	25.51	294.11	2:12:00	1,384.13	0.79	24.15	267.01
0:33:00	1,384.57	0.79	25.13	277.91	1:23:00	1,384.21	0.79	24.62	262.15	2:13:00	1,384.13	0.79	24.82	293.81
0:34:00	1,384.13	0.79	24.76	275.79	1:24:00	1,384.15	0.79	25.56	321.28	2:14:00	1,384.10	0.79	24.24	300.52
0:35:00	1,384.14	0.79	25.13	335.41	1:25:00	1,384.15	0.79	24.91	295.01	2:15:00	1,384.12	0.79	24.25	283.20
0:36:00	1,384.16	0.79	24.86	274.46	1:26:00	1,383.73	0.79	24.86	331.84	2:16:00	1,384.13	0.79	24.26	275.31
0:37:00	1,384.13	0.79	25.38	301.59	1:27:00	1,384.14	0.79	24.47	286.60	2:17:00	1,384.11	0.79	24.14	303.54
0:38:00	1,384.13	0.79	24.82	274.78	1:28:00	1,384.07	0.79	24.60	253.13	2:18:00	1,384.07	0.79	24.76	304.73
0:39:00	1,384.12	0.79	24.82	264.84	1:29:00	1,384.22	0.79	25.62	301.56	2:19:00	1,384.12	0.79	24.24	280.52
0:40:00	1,384.26	0.79	25.21	277.42	1:30:00	1,384.17	0.79	25.06	281.00	2:20:00	1,384.11	0.79	24.70	295.56
0:41:00	1,384.12	0.79	24.88	254.17	1:31:00	1,384.19	0.79	25.27	288.55					
0:42:00	1,384.12	0.79	25.18	270.82	1:32:00	1,384.20	0.79	24.99	285.02					
0:43:00	1,384.13	0.79	24.34	262.07	1:33:00	1,384.17	0.79	25.53	317.12					
0:44:00	1,384.11	0.79	24.61	253.69	1:34:00	1,384.17	0.79	24.98	284.96					
0:45:00	1,384.15	0.79	24.31	261.31	1:35:00	1,384.17	0.79	25.50	297.52					
0:46:00	1,384.14	0.79	24.60	282.71	1:36:00	1,384.20	0.79	24.97	296.20					
0:47:00	1,384.13	0.79	24.55	268.62	1:37:00	1,384.17	0.79	25.17	308.22					
0:48:00	1,383.76	0.79	24.92	263.51	1:38:00	1,384.23	0.79	24.95	282.37					
0:49:00	1,384.14	0.79	24.98	266.32	1:39:00	1,384.15	0.79	25.57	311.22					
0:50:00	1,384.15	0.79	25.10	282.80	1:40:00	1,384.19	0.79	24.90	316.21					

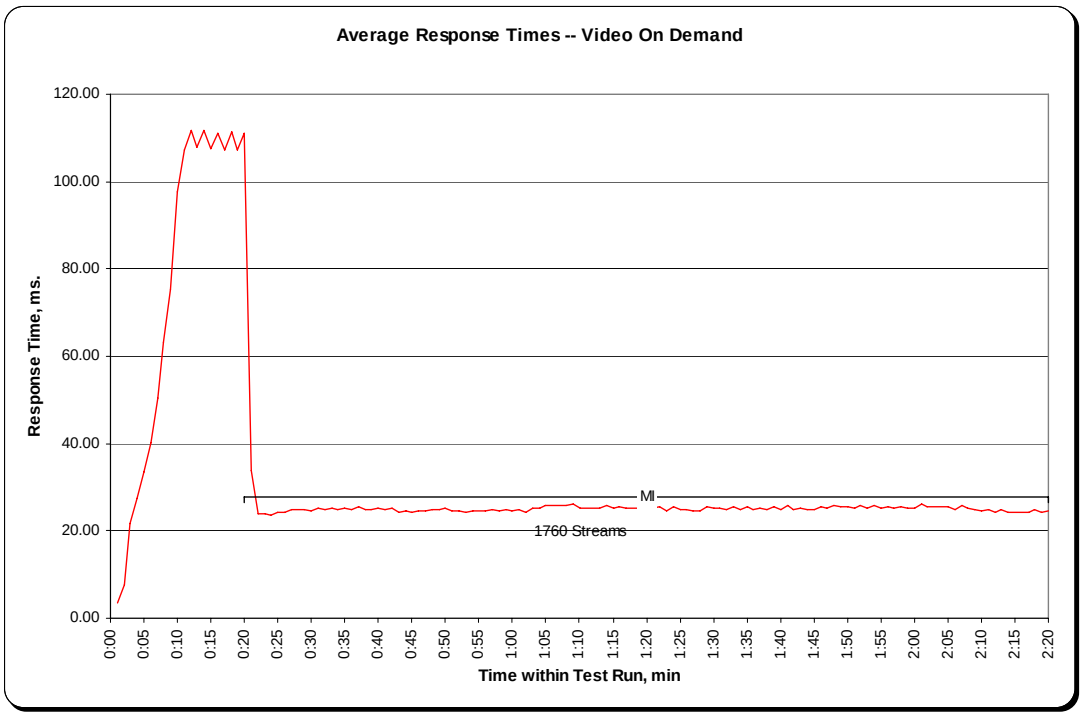
SPC-2 Video on Demand Delivery Average Data Rate Graph



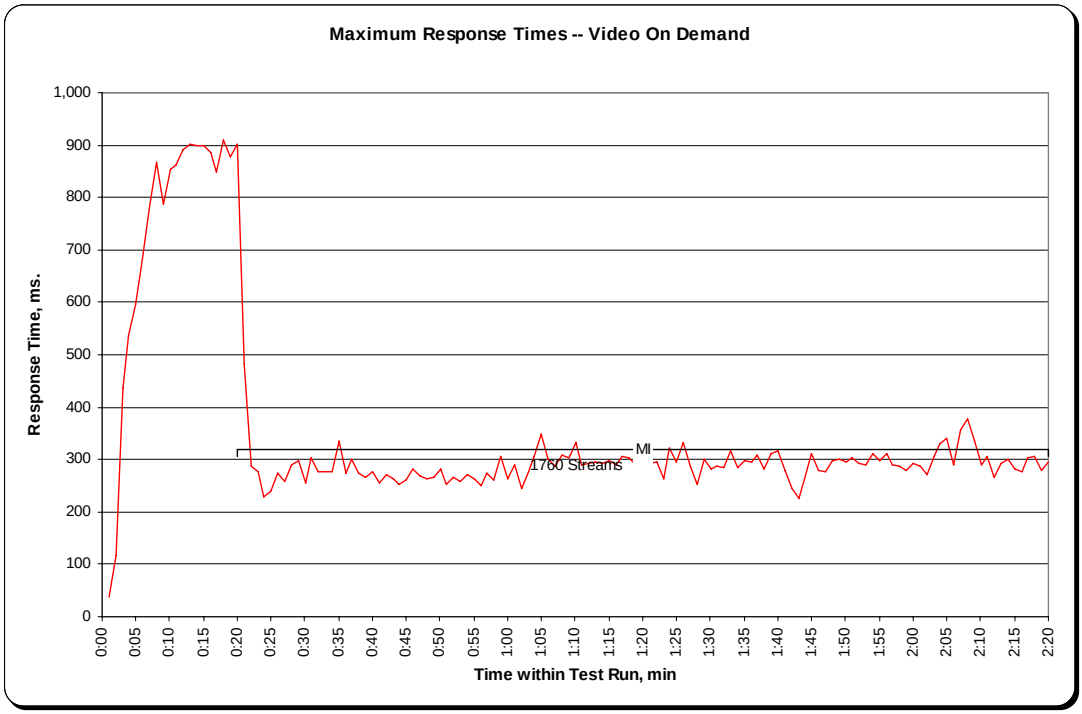
SPC-2 Video on Demand Delivery Average Data Rate per Stream Graph



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 108.

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	475,691
Total Number of Logical Blocks Re-referenced	32,876
Total Number of Logical Blocks Verified	442,815
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 *DS5020* Express, as documented in this SPC-2 Full Disclosure Report, became available on September 4, 2009 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 *DS5020* Express.

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:

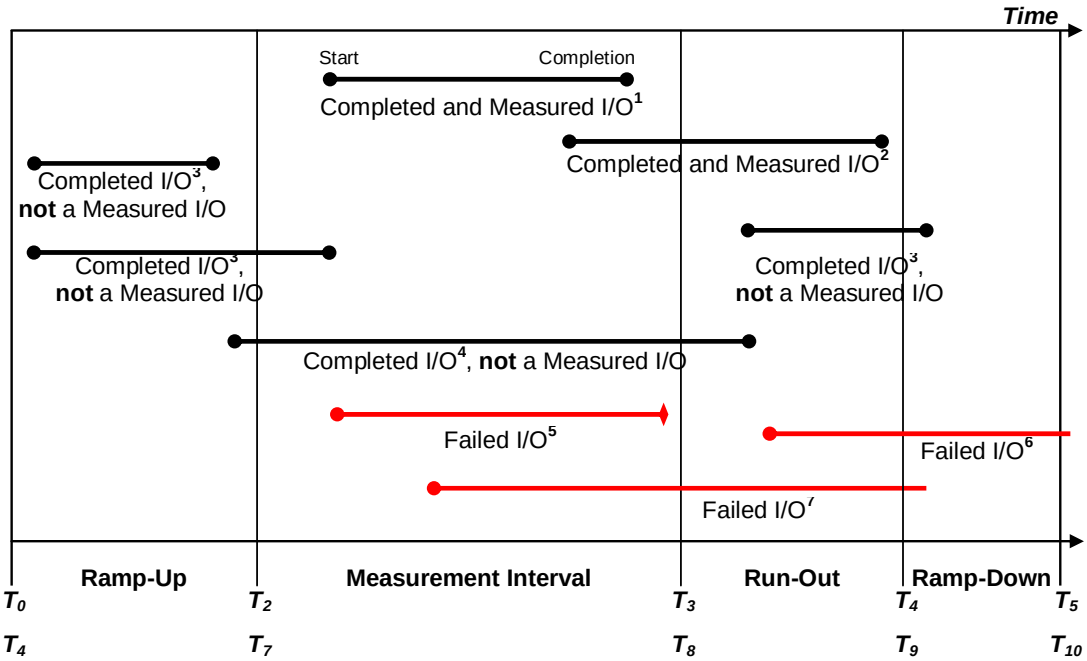
- Test Run 1: Maximum number of Streams, which is selected by the Test Sponsor
- Test Run 2: 50% of the maximum number of Streams used in Test Run 1.
- Test Run 3: 25% of the maximum number of Streams used in Test Run 1.
- Test Run 4: 12.5% of the maximum number of Streams used in Test Run 1.
- Test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

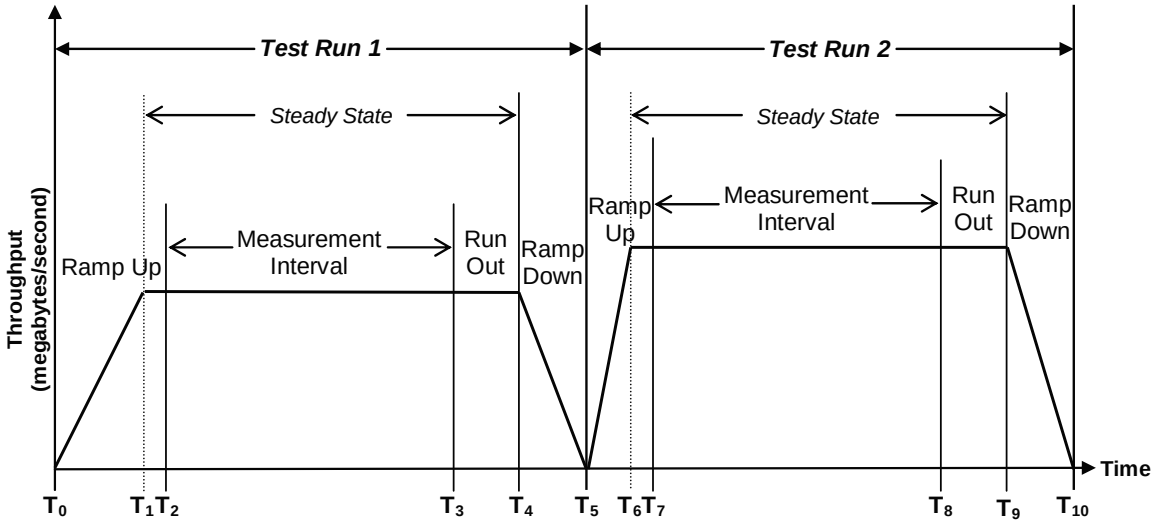
Transfer Size: The Transfer Size parameter specifies the number of bytes in KiB to transfer. *(Clause 3.4.7 of the SPC-2 Benchmark Specification)*

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

Windows Server 2003 Registry Changes

Registry Parameter	Default Value	New Value
\HKEY_LOCAL_MACHINE\CurrentControlSet\Services\elxstor\Parameters\device: MaximumSGList	0x64	0xff
\HKEY_LOCAL_MACHINE\CurrentControlSet\Services\elxstor: Start	0	1

Emulex HBA Driver Modifications

Driver Parameter	Default Value	New Value
CoalesceRspCnt	8	0
ExtTransferSize	0	1
Queue Depth	32	254

APPENDIX C: TESTED STORAGE CONFIGURATION (TSC) CREATION

Using the **SANtricity** scripting utility and the following SMCLI script, the TSC will be configured asdescribed below:

- Delete any preexisting volumes, volume groups and host mapping on the TSC
- Add single host to controller default host group, set default host type to "Windows2003/2008". Change as appropriate for specific configuration.
- Create six 4-plus-2 RAID 6 volumes on three trays and map all volumes to controller default host group.

```
// Logical configuration information from Storage Array bmmhab.
// Saved on August 25, 2009
// Firmware package version for Storage Array bmmhab = 07.60.14.00
// NVSRAM package version for Storage Array bmmhab = N49XX-750800-000

//on error stop;

//Delete the existing configuration.
show "Deleting the existing configuration.";
clear storageArray configuration;

// Storage Array global logical configuration script commands
show "Setting the Storage Array user label to bmmhab.";
set storageArray userLabel="bmmhab";

show "Setting the Storage Array media scan rate to disabled.";
set storageArray mediaScanRate=disabled;

// Remove the default volume (if exists). NOTE: Default volume name is always =
"Unnamed".
//on error continue;
show "Deleting the default volume created during the removal of the existing
configuration.";
delete volume["Unnamed"] removeVolumeGroup=true;
//on error stop;

// Copies the hot spare settings
// NOTE: These statements are wrapped in on-error continue and on-error stop
statements to
// account for minor differences in capacity from the drive of the Storage Array on
which the
// configuration was saved to that of the drives on which the configuration will be
copied.
show "Setting the Storage Array cache block size to 16.";
set storageArray cacheBlockSize=16;

show "Setting the Storage Array to begin cache flush at 50% full.";
set storageArray cacheFlushStart=50;

show "Setting the Storage Array to end cache flush at 50% full.";
set storageArray cacheFlushStop=50;

// Creating Host Topology
show "Creating Host bm3850e_EMX with Host Type Index 1.";
// This Host Type Index corresponds to Type Windows 2000/Server 2003/Server 2008
Non-Clustered
create host userLabel="bm3850e_EMX" hostType=1;
```

```
show "Creating Host Port emx_1 on Host bm3850e_EMX with WWN 10000000c9813f9e and
with interfaceType FC.";
create hostPort host="bm3850e_EMX" userLabel="emx_1" identifier="10000000c9813f9e"
interfaceType=FC;

show "Creating Host Port emx_2 on Host bm3850e_EMX with WWN 10000000c97d994a and
with interfaceType FC.";
create hostPort host="bm3850e_EMX" userLabel="emx_2" identifier="10000000c97d994a"
interfaceType=FC;

show "Creating Host Port emx_4 on Host bm3850e_EMX with WWN 10000000c97d99e0 and
with interfaceType FC.";
create hostPort host="bm3850e_EMX" userLabel="emx_4" identifier="10000000c97d99e0"
interfaceType=FC;

show "Creating Host Port emx_3 on Host bm3850e_EMX with WWN 10000000c9813ee8 and
with interfaceType FC.";
create hostPort host="bm3850e_EMX" userLabel="emx_3" identifier="10000000c9813ee8"
interfaceType=FC;


show "Creating RAID 6 Volume Vol1 on new Volume Group 0.";
//This command creates volume group <0> and the initial volume <Vol1> with offset 0
on the volume group.
// NOTE: For Volume Groups that use all available capacity, the last Volume on this
group is
// created using all remaining capacity by omitting the capacity= volume creation
parameter.
create volume drives=(0,1 0,2 10,1 10,2 10,3 10,4) raidLevel=6 userLabel="Vol1"
volumeGroupUserLabel="0" owner=A segmentSize=256 dssPreAllocate=true
securityType=none;
show "Setting additional attributes for Volume Vol1.";
// Configuration settings that can not be set during Volume creation.
set volume["Vol1"] cacheFlushModifier=10;
set volume["Vol1"] cacheWithoutBatteryEnabled=false;
set volume["Vol1"] mirrorEnabled=true;
set volume["Vol1"] readCacheEnabled=true;
set volume["Vol1"] writeCacheEnabled=true;
set volume["Vol1"] mediaScanEnabled=false;
set volume["Vol1"] redundancyCheckEnabled=false;
set volume["Vol1"] readAheadMultiplier=1;
set volume["Vol1"] modificationPriority=high;
set volume["Vol1"] preReadRedundancyCheck=false;
show "Creating Volume-to-LUN Mapping for Volume Vol1 to LUN 1.";
set volume ["Vol1"] logicalUnitNumber=1 hostGroup=defaultGroup;

show "Creating RAID 6 Volume Vol2 on new Volume Group 1.";
//This command creates volume group <1> and the initial volume <Vol2> with offset 0
on the volume group.
// NOTE: For Volume Groups that use all available capacity, the last Volume on this
group is
// created using all remaining capacity by omitting the capacity= volume creation
parameter.
create volume drives=(0,3 0,4 10,5 10,6 10,7 10,8) raidLevel=6 userLabel="Vol2"
volumeGroupUserLabel="1" owner=A segmentSize=256 dssPreAllocate=true
securityType=none;
show "Setting additional attributes for Volume Vol2.";
// Configuration settings that can not be set during Volume creation.
set volume["Vol2"] cacheFlushModifier=10;
set volume["Vol2"] cacheWithoutBatteryEnabled=false;
set volume["Vol2"] mirrorEnabled=true;
set volume["Vol2"] readCacheEnabled=true;
set volume["Vol2"] writeCacheEnabled=true;
```

```
set volume["Vol2"] mediaScanEnabled=false;
set volume["Vol2"] redundancyCheckEnabled=false;
set volume["Vol2"] readAheadMultiplier=1;
set volume["Vol2"] modificationPriority=high;
set volume["Vol2"] preReadRedundancyCheck=false;
show "Creating Volume-to-LUN Mapping for Volume Vol2 to LUN 2.";
set volume ["Vol2"] logicalUnitNumber=2 hostGroup=defaultGroup;

show "Creating RAID 6 Volume Vol3 on new Volume Group 2.";
//This command creates volume group <2> and the initial volume <Vol3> with offset 0
on the volume group.
// NOTE: For Volume Groups that use all available capacity, the last Volume on this
group is
// created using all remaining capacity by omitting the capacity= volume creation
parameter.
create volume drives=(0,5 0,6 10,9 10,10 10,11 10,12) raidLevel=6 userLabel="Vol3"
volumeGroupUserLabel="2" owner=A segmentSize=256 dssPreAllocate=true
securityType=none;
show "Setting additional attributes for Volume Vol3.";
// Configuration settings that can not be set during Volume creation.
set volume["Vol3"] cacheFlushModifier=10;
set volume["Vol3"] cacheWithoutBatteryEnabled=false;
set volume["Vol3"] mirrorEnabled=true;
set volume["Vol3"] readCacheEnabled=true;
set volume["Vol3"] writeCacheEnabled=true;
set volume["Vol3"] mediaScanEnabled=false;
set volume["Vol3"] redundancyCheckEnabled=false;
set volume["Vol3"] readAheadMultiplier=1;
set volume["Vol3"] modificationPriority=high;
set volume["Vol3"] preReadRedundancyCheck=false;
show "Creating Volume-to-LUN Mapping for Volume Vol3 to LUN 3.";
set volume ["Vol3"] logicalUnitNumber=3 hostGroup=defaultGroup;

show "Creating RAID 6 Volume Vol4 on new Volume Group 3.";
//This command creates volume group <3> and the initial volume <Vol4> with offset 0
on the volume group.
// NOTE: For Volume Groups that use all available capacity, the last Volume on this
group is
// created using all remaining capacity by omitting the capacity= volume creation
parameter.
create volume drives=(0,7 0,8 20,1 20,2 20,3 20,4) raidLevel=6 userLabel="Vol4"
volumeGroupUserLabel="3" owner=B segmentSize=256 dssPreAllocate=true
securityType=none;
show "Setting additional attributes for Volume Vol4.";
// Configuration settings that can not be set during Volume creation.
set volume["Vol4"] cacheFlushModifier=10;
set volume["Vol4"] cacheWithoutBatteryEnabled=false;
set volume["Vol4"] mirrorEnabled=true;
set volume["Vol4"] readCacheEnabled=true;
set volume["Vol4"] writeCacheEnabled=true;
set volume["Vol4"] mediaScanEnabled=false;
set volume["Vol4"] redundancyCheckEnabled=false;
set volume["Vol4"] readAheadMultiplier=1;
set volume["Vol4"] modificationPriority=high;
set volume["Vol4"] preReadRedundancyCheck=false;
show "Creating Volume-to-LUN Mapping for Volume Vol4 to LUN 4.";
set volume ["Vol4"] logicalUnitNumber=4 hostGroup=defaultGroup;

show "Creating RAID 6 Volume Vol5 on new Volume Group 4.";
//This command creates volume group <4> and the initial volume <Vol5> with offset 0
on the volume group.
// NOTE: For Volume Groups that use all available capacity, the last Volume on this
group is
```

```
// created using all remaining capacity by omitting the capacity= volume creation
parameter.
create volume drives=(0,9 0,10 20,5 20,6 20,7 20,8) raidLevel=6 userLabel="Vol5"
volumeGroupUserLabel="4" owner=B segmentSize=256 dssPreAllocate=true
securityType=none;
show "Setting additional attributes for Volume Vol5.";
// Configuration settings that can not be set during Volume creation.
set volume["Vol5"] cacheFlushModifier=10;
set volume["Vol5"] cacheWithoutBatteryEnabled=false;
set volume["Vol5"] mirrorEnabled=true;
set volume["Vol5"] readCacheEnabled=true;
set volume["Vol5"] writeCacheEnabled=true;
set volume["Vol5"] mediaScanEnabled=false;
set volume["Vol5"] redundancyCheckEnabled=false;
set volume["Vol5"] readAheadMultiplier=1;
set volume["Vol5"] modificationPriority=high;
set volume["Vol5"] preReadRedundancyCheck=false;
show "Creating Volume-to-LUN Mapping for Volume Vol5 to LUN 5.";
set volume ["Vol5"] logicalUnitNumber=5 hostGroup=defaultGroup;

show "Creating RAID 6 Volume Vol6 on new Volume Group 5.";
//This command creates volume group <5> and the initial volume <Vol6> with offset 0
on the volume group.
// NOTE: For Volume Groups that use all available capacity, the last Volume on this
group is
// created using all remaining capacity by omitting the capacity= volume creation
parameter.
create volume drives=(0,11 0,12 20,9 20,10 20,11 20,12) raidLevel=6 userLabel="Vol6"
volumeGroupUserLabel="5" owner=B segmentSize=256 dssPreAllocate=true
securityType=none;
show "Setting additional attributes for Volume Vol6.";
// Configuration settings that can not be set during Volume creation.
set volume["Vol6"] cacheFlushModifier=10;
set volume["Vol6"] cacheWithoutBatteryEnabled=false;
set volume["Vol6"] mirrorEnabled=true;
set volume["Vol6"] readCacheEnabled=true;
set volume["Vol6"] writeCacheEnabled=true;
set volume["Vol6"] mediaScanEnabled=false;
set volume["Vol6"] redundancyCheckEnabled=false;
set volume["Vol6"] readAheadMultiplier=1;
set volume["Vol6"] modificationPriority=high;
set volume["Vol6"] preReadRedundancyCheck=false;
show "Creating Volume-to-LUN Mapping for Volume Vol6 to LUN 6.";
set volume ["Vol6"] logicalUnitNumber=6 hostGroup=defaultGroup;
// Disable Auto Volume Transfer (AVT) for all host types
set controller[a] HostNVSRAMByte[0x00, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x01, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x02, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x03, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x04, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x05, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x06, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x07, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x08, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x09, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x0a, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x0b, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x0c, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x0d, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x0e, 0x24]=0x00;
set controller[a] HostNVSRAMByte[0x0f, 0x24]=0x00;

set controller[b] HostNVSRAMByte[0x00, 0x24]=0x00;
```

```
set controller[b] HostNVSRAMByte[0x01, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x02, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x03, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x04, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x05, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x06, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x07, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x08, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x09, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x0a, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x0b, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x0c, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x0d, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x0e, 0x24]=0x00;
set controller[b] HostNVSRAMByte[0x0f, 0x24]=0x00;
```

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

Large File Processing Test *(LFP)*

```
* Large File Processing Test (LFP)

host=localhost,jvms=1,maxstreams=100
     java="c:\java_ibm\bin\java.exe",
     spc2="c:\bench\SPC\spc2\",
     shell=spc2,
     output=C:\Bench\SPC\spc2\results\LFP_R5\20090822b_lfp

sd=default,host=localhost,size=544g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive7
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive9
sd=sd5,lun=\\.\PhysicalDrive5
sd=sd6,lun=\\.\PhysicalDrive11

maxlatestart=0
reportinginterval=5
segmentlength=512m

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

* LFP, "write" Test Phase
rd=default,rdpct=0,xfersize=1024k
rd=TR1_SPC-2-FP2.0,streams=32
rd=TR2_SPC-2-FP2.0,streams=16
rd=TR3_SPC-2-FP2.0,streams=8
rd=TR4_SPC-2-FP2.0,streams=4
rd=TR5_SPC-2-FP2.0,streams=1

rd=default,xfersize=256k
rd=TR6_SPC-2-FP2.0,streams=32
rd=TR7_SPC-2-FP2.0,streams=16
rd=TR8_SPC-2-FP2.0,streams=8
rd=TR9_SPC-2-FP2.0,streams=4
rd=TR10_SPC-2-FP2.0,streams=1

* LFP, "read-write" Test Phase

rd=default,rdpct=50,xfersize=1024k
rd=TR11_SPC-2-FP2.0,streams=32
rd=TR12_SPC-2-FP2.0,streams=16
rd=TR13_SPC-2-FP2.0,streams=8
rd=TR14_SPC-2-FP2.0,streams=4
rd=TR15_SPC-2-FP2.0,streams=1

rd=default,xfersize=256k
rd=TR16_SPC-2-FP2.0,streams=32
rd=TR17_SPC-2-FP2.0,streams=16
rd=TR18_SPC-2-FP2.0,streams=8
rd=TR19_SPC-2-FP2.0,streams=4
rd=TR20_SPC-2-FP2.0,streams=1

* LFP, "read" Test Phase
```

```
rd=default,rdpct=100,xfersize=1024k
rd=TR21_SPC-2-FP2.0,streams=32
rd=TR22_SPC-2-FP2.0,streams=16
rd=TR23_SPC-2-FP2.0,streams=8
rd=TR24_SPC-2-FP2.0,streams=4
rd=TR25_SPC-2-FP2.0,streams=1

rd=default,xfersize=256k
rd=TR26_SPC-2-FP2.0,streams=32
rd=TR27_SPC-2-FP2.0,streams=16
rd=TR28_SPC-2-FP2.0,streams=8
rd=TR29_SPC-2-FP2.0,streams=4
rd=TR30_SPC-2-FP2.0,streams=1
```

Large Database Query Test *(LDQ)*

```
* Large Data Query Test (LDQ)

host=localhost,jvms=1,maxstreams=100
     java="c:\java_ibm\bin\java.exe",
     spc2="c:\bench\SPC\spc2\",
     shell=spc2,
     output=C:\Bench\SPC\spc2\results\LDQ_R5\20090822b_ldq

sd=default,host=localhost,size=544g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive7
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive9
sd=sd5,lun=\\.\PhysicalDrive5
sd=sd6,lun=\\.\PhysicalDrive11

maxlatestart=0
reportinginterval=5
segmentlength=512m

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

* LDQ, 1024 KiB Test Phase

rd=default,xfersize=1024k,buffers=4
rd=TR1_SPC-2-DQ2.0,streams=32
rd=TR2_SPC-2-DQ2.0,streams=16
rd=TR3_SPC-2-DQ2.0,streams=8
rd=TR4_SPC-2-DQ2.0,streams=4
rd=TR5_SPC-2-DQ2.0,streams=1

rd=default,buffers=1
rd=TR6_SPC-2-DQ2.0,streams=32
rd=TR7_SPC-2-DQ2.0,streams=16
rd=TR8_SPC-2-DQ2.0,streams=8
rd=TR9_SPC-2-DQ2.0,streams=4
rd=TR10_SPC-2-DQ2.0,streams=1

* LDQ, 64 KiB Test Phase

rd=default,xfersize=64k,buffers=4
rd=TR11_SPC-2-DQ2.0,streams=32
rd=TR12_SPC-2-DQ2.0,streams=16
rd=TR13_SPC-2-DQ2.0,streams=8
rd=TR14_SPC-2-DQ2.0,streams=4
rd=TR15_SPC-2-DQ2.0,streams=1
```

```
rd=default,buffers=1
rd=TR16_SPC-2-DQ2.0,streams=32
rd=TR17_SPC-2-DQ2.0,streams=16
rd=TR18_SPC-2-DQ2.0,streams=8
rd=TR19_SPC-2-DQ2.0,streams=4
rd=TR20_SPC-2-DQ2.0,streams=1

* LDQ, 1024 KiB Test Phase

rd=default,xfersize=1024k,buffers=4
rd=TR1_SPC-2-DQ2.0,streams=32
rd=TR2_SPC-2-DQ2.0,streams=16
rd=TR3_SPC-2-DQ2.0,streams=8
rd=TR4_SPC-2-DQ2.0,streams=4
rd=TR5_SPC-2-DQ2.0,streams=1

rd=default,buffers=1
rd=TR6_SPC-2-DQ2.0,streams=32
rd=TR7_SPC-2-DQ2.0,streams=16
rd=TR8_SPC-2-DQ2.0,streams=8
rd=TR9_SPC-2-DQ2.0,streams=4
rd=TR10_SPC-2-DQ2.0,streams=1

* LDQ, 64 KiB Test Phase

rd=default,xfersize=64k,buffers=4
rd=TR11_SPC-2-DQ2.0,streams=32
rd=TR12_SPC-2-DQ2.0,streams=16
rd=TR13_SPC-2-DQ2.0,streams=8
rd=TR14_SPC-2-DQ2.0,streams=4
rd=TR15_SPC-2-DQ2.0,streams=1

rd=default,buffers=1
rd=TR16_SPC-2-DQ2.0,streams=32
rd=TR17_SPC-2-DQ2.0,streams=16
rd=TR18_SPC-2-DQ2.0,streams=8
rd=TR19_SPC-2-DQ2.0,streams=4
rd=TR20_SPC-2-DQ2.0,streams=1
```

Video on Demand Delivery Test *(VOD)*

```
* Video on Demand Test (VOD)

host=localhost,jvms=5,maxstreams=1000
     java="c:\java_ibm\bin\java.exe",
     spc2="c:\bench\SPC\spc2\",
     shell=spc2,
     output=C:\Bench\SPC\spc2\results\VOD_R5\20090822b_vod

sd=default,host=localhost,size=544g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive7
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive9
sd=sd5,lun=\\.\PhysicalDrive5
sd=sd6,lun=\\.\PhysicalDrive11

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

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

rd=TR1_SPC-2-VOD11.0,streams=1760,buffers=8
```

Persistence Test Run 1 *(write phase)*

```
* Persistence Write Phase

host=localhost,jvms=1,maxstreams=100

sd=default,host=localhost,size=544g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive7
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive9
sd=sd5,lun=\\.\PhysicalDrive5
sd=sd6,lun=\\.\PhysicalDrive11

maxlatestart=1
reportinginterval=5
segmentlength=512m

rd=default,rampup=360,periods=90,measurement=300,runout=0,rampdown=0,buffers=1

rd=default,rdpct=0,xfersize=1024k
rd=TR1-32s_SPC-2-persist-w,streams=32
```

Persistence Test Run 2 *(read phase)*

```
* Persistence Read Phase

host=localhost,jvms=1,maxstreams=100

sd=default,host=localhost,size=544g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive7
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive9
sd=sd5,lun=\\.\PhysicalDrive5
sd=sd6,lun=\\.\PhysicalDrive11

maxlatestart=1
reportinginterval=5
segmentlength=512m

maxpersistenceerrors=10

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

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

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

The following script was used to execute the Video on Demand Delivery, Large File Processing and Large Database Query Tests, as well as, Persistence Test Run 1.

```
@echo off
rem Directory where this is executed from:
set dir=%~dp0
rem set current class path
set cp=%~dp0
echo class path = %cp%
set java=java

%java% -Xmx1536m -Xms512m -Xss96k -cp %cp% vdbench -f vod_SPC2_R6_parm.txt -o
results\VOD_R6\20090823_vod -init
%java% -Xmx1536m -Xms512m -Xss96k -cp %cp% vdbench -f vod_SPC2_R6_parm.txt -o
results\VOD_R6\20090823_vod
%java% -Xmx1536m -Xms512m -Xss96k -cp %cp% vdbench -f lfp_SPC2_R6_parm.txt -o
results\LFP_R6\20090823_lfp
%java% -Xmx1536m -Xms512m -Xss96k -cp %cp% vdbench -f ldq_SPC2_R6_parm.txt -o
results\LDQ_R6\20090823_ldq
%java% -Xmx1536m -Xms512m -Xss96k -cp %cp% vdbench -f persist1_R6.txt -o
results\persist_R6\20090823_persist1
```

Persistence Test Run 2

```
@echo off
rem Directory where this is executed from:
set dir=%~dp0
rem set current class path
set cp=%~dp0
echo class path = %cp%
set java=java

 %java% -Xmx1536m -Xms512m -Xss96k -cp %cp% vdbench -f persist2_6X4p2.txt -o
results\persist_R6\20090802_persist2
```