



# SPC BENCHMARK 2™
# FULL DISCLOSURE REPORT

## FUJITSU LIMITED
## FUJITSU STORAGE SYSTEMS
## ETERNUS6000 MODEL 900

**SPC-2™ V1.0**

**Submitted for Review: January 16, 2006**
**Submission Identifier: B00003**

**First Edition – January 2006**



**Trademarks**

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# AUDIT CERTIFICATION



C. A. (Sandy) Wilson
Fujitsu Limited
1250 East Arques Avenue
Sunnyvale, CA 94088

December 6, 2005

The SPC Benchmark 2™ results listed below for the Fujitsu Storage Systems ETERNUS6000 Model 900 were produced in compliance with the SPC Benchmark 2™ V1.0 Onsite Audit requirements.

| SPC Benchmark 2™ V1.0 Results | |
|---|---|
| **Tested Storage Configuration (TSC) Name:** Fujitsu Storage Systems ETERNUS6000 Model 900 | |
| **Metric** | **Reported Result** |
| SPC-2 MBPS™ | 2,129.47 |
| SPC-2 Price-Performance | $415.37/SPC-2 MBPS™ |
| Total ASU Capacity | 6,854.768 GB |
| Data Protection Level | RAID5 |
| Total Price (including three-year maintenance) | $884,520.00 |

The following SPC Benchmark 2™ Onsite Audit requirements were reviewed and found compliant with V1.0 of the SPC Benchmark 2™ specification:

- A Letter of Good Faith, signed by a senior executive.
- The following Data Repository storage items were verified by physical inspection and information supplied by Fujitsu Limited:
  - ✓ Physical Storage Capacity and related requirements.
  - ✓ Configured Storage Capacity and related requirements.
  - ✓ Addressable Storage Capacity and related requirements.
  - ✓ Capacity of each Logical Volume and related requirements.
  - ✓ Capacity of the Application Storage Unit (ASU) and related requirements.
- An appropriate diagram of the Benchmark Configuration (BC)/Tested Storage Configuration (TSC).
- Physical verification of the components to match the above diagram.
- Listings and commands to create and configure the Benchmark Configuration/Tested Storage Configuration, including each customer tunable parameter or option that was changed from its default value.

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## AUDIT CERTIFICATION *(continued)*

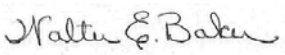


- The following Host System items were verified by physical inspection and information supplied by Fujitsu Limited:
  - ✓ Required Host System configuration information.
  - ✓ The TSC boundary within each Host System.
- The following SPC-2 Workload Generator information was verified by physical inspection and information supplied by Fujitsu Limited:
  - ✓ The presence and version number of the Workload Generator on each Host System.
  - ✓ Commands and parameters used to configure the SPC-2 Workload Generator.
  - ✓ The execution of the SPC-2 Workload Generator was synchronized in time across the multiple Host Systems.
- The execution of each Test, Test Phase, and Test Run was observed and found compliant with all of the requirements and constraints of Clauses 5 and 6 of the SPC-2 Benchmark Specification.
- The Test Results Files and resultant Summary Results Files received for each of the following were authentic, accurate, and compliant with all of the requirements and constraints of Clauses 5 and 6 of the SPC-2 Benchmark Specification:
  - ✓ Data Persistence Test
  - ✓ Large File Processing Test
  - ✓ Large Database Query Test
  - ✓ Video on Demand Delivery Test
- There were no differences between the Tested Storage Configuration (TSC) used for the benchmark and Priced Storage Configuration.
- The final version of the pricing spreadsheet met all of the requirements and constraints of Clause 9 of the SPC-2 Benchmark Specification.
- The Full Disclosure Report (FDR) met all of the requirements in Clause 10 of the SPC-2 Benchmark Specification.

**Audit Notes:**

There were no additional audit notes or exceptions.

Respectfully,



Walter E. Baker
SPC Auditor

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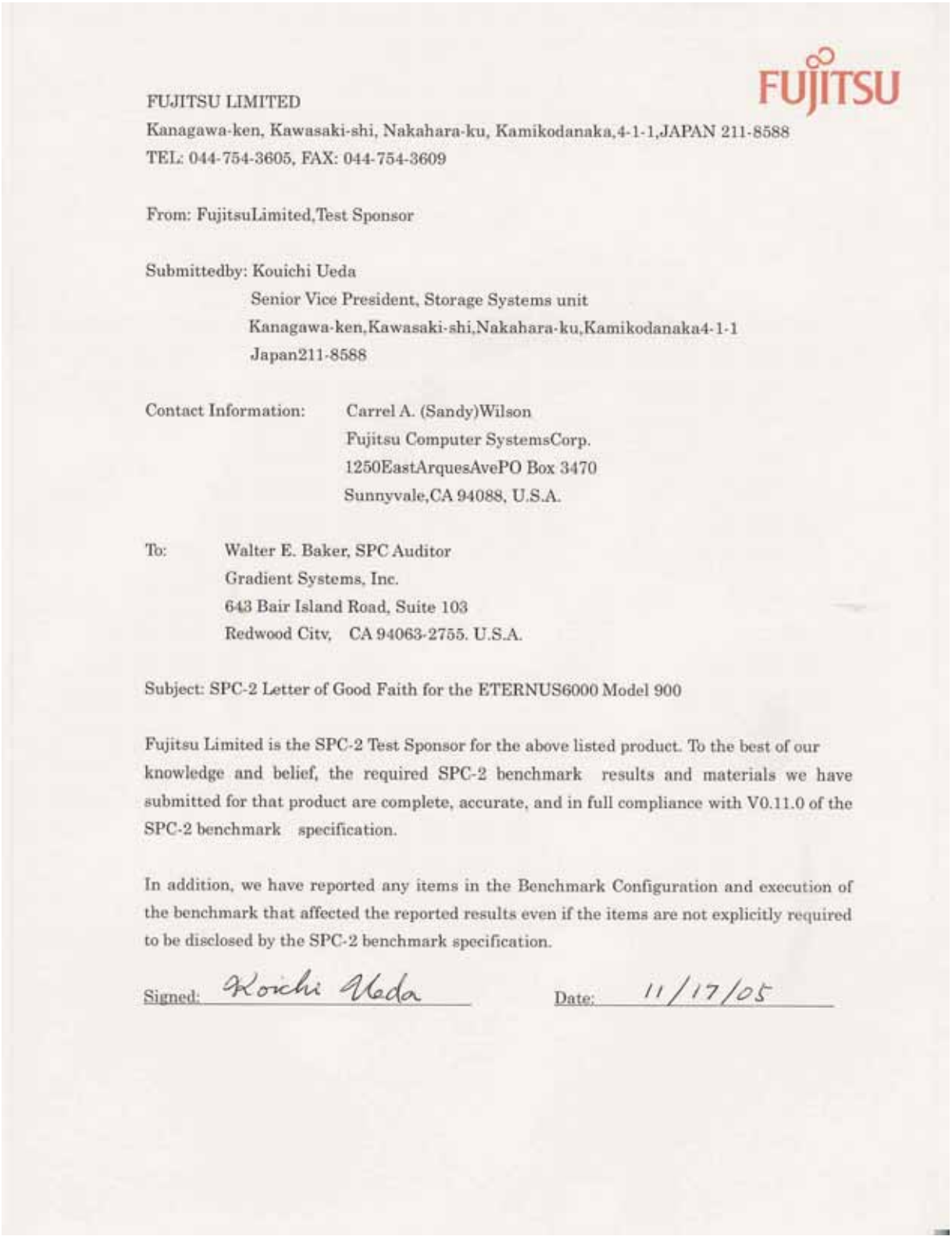
# LETTER OF GOOD FAITH



FUJITSU

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From: FujitsuLimited,Test Sponsor

Submittedby: Kouichi Ueda
Senior Vice President, Storage Systems unit
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To: Walter E. Baker, SPC Auditor
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643 Bair Island Road, Suite 103
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Subject: SPC-2 Letter of Good Faith for the ETERNUS6000 Model 900

Fujitsu Limited 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 V0.11.0 of the SPC-2 benchmark specification.

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

Signed: Koichi Ueda Date: 11/17/05

# EXECUTIVE SUMMARY

## Test Sponsor and Contact Information

| Test Sponsor and Contact Information | |
|---|---|
| **Test Sponsor Primary Contact** | Fujitsu Limited – http://www.fujitsu.com/services/computing/storage/<br>Fujitsu Computer Systems Corp.<br>C.A. (Sandy) Wilson Sandy_Wilson@us.fujitsu.com<br>1250 East Arques Ave<br>PO Box 3470<br>Sunnyvale, CA 94088-3470<br>Phone: (916) 434-8593 |
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| **Test Sponsor Alternate Contact** | Fujitsu Limited – http://www.fujitsu.com/services/computing/storage/<br>Kouichi Ueda ueda@jp.fujitsu.com<br>Kanagawa-ken, Kawasaki-shi, Nakahara-ku, Kamikodanaka 4-1-1<br>Japan 211-8588<br>Phone: 044- 754-3651 |
| **Auditor** | Storage Performance Council – http://www.storageperformance.org<br>Walter E. Baker – AuditService@StoragePerformance.org<br>643 Bair Island Road, Suite 103<br>Redwood City, CA 94063<br>Phone: (650) 556-9384<br>FAX: (650) 556-9385 |

## Revision Information and Key Dates

| Revision Information and Key Dates | |
|---|---|
| **SPC-2 Specification revision number** | V1.0 |
| **SPC-2 Workload Generator revision number** | spc2rc9f |
| **Date Results were first used publicly** | January 16, 2006 |
| **Date FDR was submitted to the SPC** | January 16, 2006 |
| **Date the TSC will be available for shipment to customers** | December 22, 2005 |
| **Date the TSC completed audit certification** | December 5 2005 |

## SPC-2 Reported Data

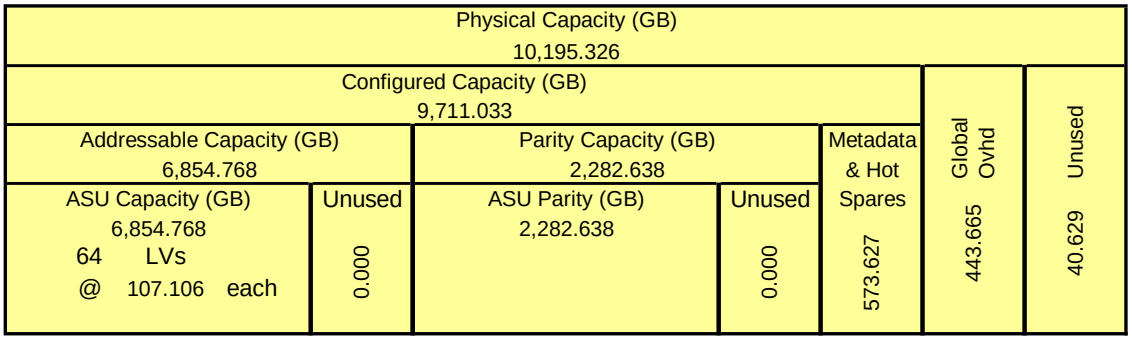
SPC-2 Reported Data consists of three groups of information:

- 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 | | | | |
|---|---|---|---|---|
| **Fujitsu Storage Systems ETERNUS6000 Model 900** | | | | |
| **SPC-2 MBPS™** | **SPC-2 Price-Performance** | **ASU Capacity (GB)** | **Total Price** | **Data Protection Level** |
| 2,129.47 | $415.37 | 6,854.768 | $884,520.00 | RAID5 |
| *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 | 1,875.53 | | | $471.61 |
| Write Only: | | | | |
| 1024 KiB Transfer | 1,452.97 | 64 | 22.70 | |
| 256 KiB Transfer | 1,453.18 | 64 | 22.71 | |
| Read-Write: | | | | |
| 1024 KiB Transfer | 2,034.14 | 64 | 31.78 | |
| 256 KiB Transfer | 1,958.71 | 64 | 30.60 | |
| Read Only: | | | | |
| 1024 KiB Transfer | 2,089.03 | 64 | 32.64 | |
| 256 KiB Transfer | 2,265.17 | 64 | 35.39 | |
| *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 | 2,273.09 | | | $389.13 |
| 1024 KiB Transfer Size | | | | |
| 4 I/Os Outstanding | 2,241.61 | 64 | 35.03 | |
| 1 I/O Outstanding | 2,369.96 | 64 | 37.03 | |
| 64 KiB Transfer Size | | | | |
| 4 I/Os Outstanding | 2,154.39 | 64 | 33.66 | |
| 1 I/O Outstanding | 2,326.42 | 64 | 36.35 | |
| *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 Delivery (VOD) Reported Data** | | | | |
| | **Data Rate *(MB/second)*** | **Number of Streams** | **Data Rate per Stream** | **Price-Performance** |
| | 2,239.77 | 2,848 | 0.79 | $394.92 |

## Storage Capacities and Relationships

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



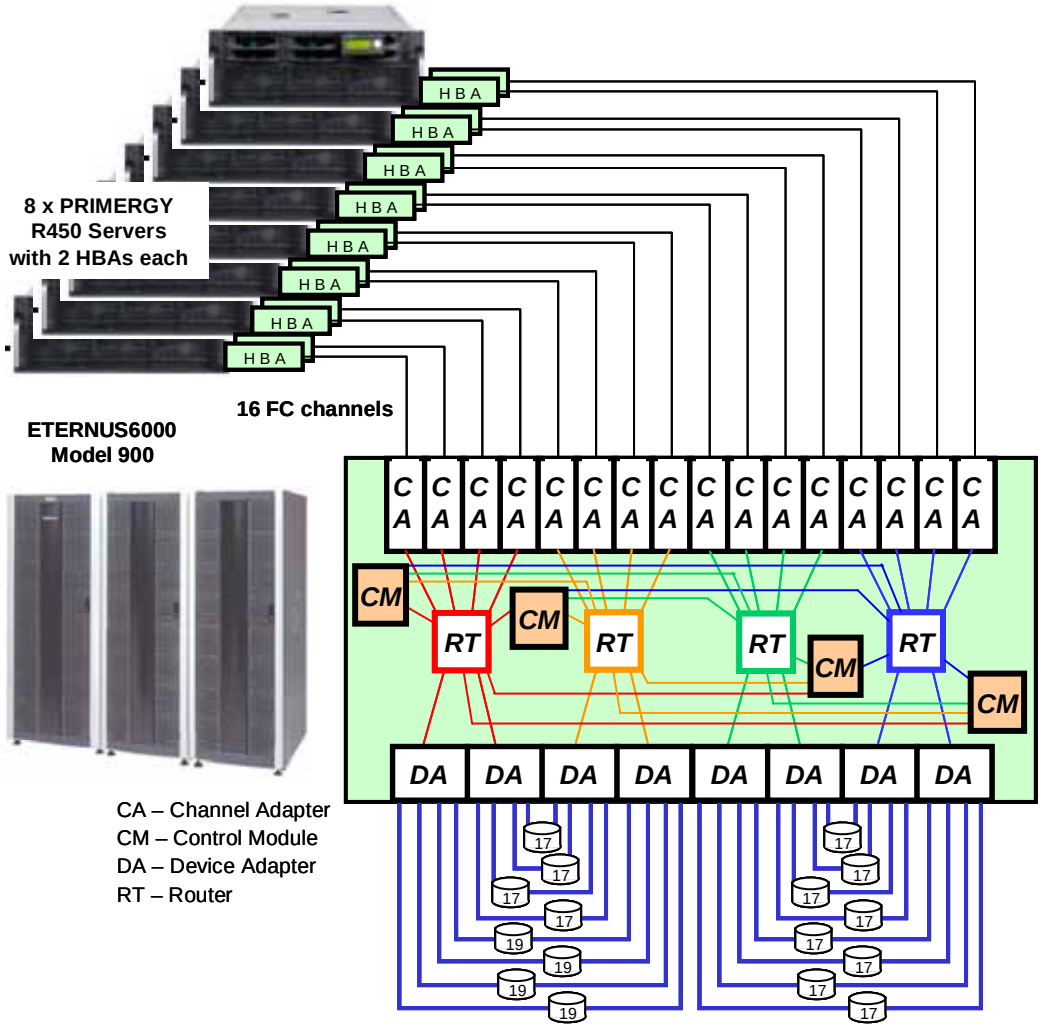
## Tested Storage Configuration Pricing *(Priced Storage Configuration)*

| Item | Product Id | Description | Qty | Unit $ | Extd $ |
|---|---|---|---|---|---|
| 1 | E690S01AU | ETERNUS6000 Model 900 Base Unit (with door)<br>including Controller Enclosure, 2x Controllers (CM),<br>4x Interface Units (RT), 4x Drive Interface (DA),<br>2x power supply units, 4x battery units,<br>8x drive enclosures (DE), 4x 36GB System disk drives,<br>1x Base 1800mm (36U) rack,<br>2x Expansion 1800mm (36U) rack,<br>4x power distribution (200VAC),<br>rack mount kit, ETERNUSmgr & drivers<br>slots for up to 120 disk drives | 1 | $195,000 | $195,000 |
| 2 | E600CR3U | ETERNUS6000 Expansion Rack (with door)<br>including Expansion 1800mm (36U) rack<br>2x power distribution (200 VAC) | 2 | $8,000 | $16,000 |
| 3 | E690SE22U | Drive Enclosure (4x DE) including 1x DA pair,<br>with slots for up to 60 disk drives | 2 | $39,400 | $78,800 |
| 4 | E600CE21U | Drive Enclosure (4x DE)<br>with slots for up to 60 disk drives | 4 | $31,000 | $124,000 |
| 5 | E600CJ3U | ETERNUS6000 Controller #3, w/ 2x 36GB System disk drives | 1 | $16,000 | $16,000 |
| 6 | E600CJ4U | ETERNUS6000 Controller #4, w/ 2x 36GB System disk drives | 1 | $16,000 | $16,000 |
| 7 | E600CM47 | Additional cache memory (4x 16GB) | 2 | $163,800 | $327,600 |
| 8 | E600CHA4 | Fibre Channel Host Interface (dual port) x2 | 8 | $12,800 | $102,400 |
| 9 | E600CD2L | 36GB/15krpm Disk Drives RAID5(3+1) | 64 | $4,000 | $256,000 |
| 10 | E600CA2 | 36GB/15krpm Disk Drive (Hot Spare) | 16 | $1,000 | $16,000 |
| 11 | CBL-MLLB15 | Fibre Channel Cable | 16 | $132 | $2,112 |
| 12 | LP11000-M4 | Emulex 4Gb PCI-X Single HBA (per quote from InfoX) | 16 | $861 | $13,776 |
| 13 | ETE6M9-P004122-092 | Enhanced Plus ETERNUS6000 Model 900<br>Phone 24x7, On-site 24x7, maintenance service<br>with 4 hour response - 2 year Warranty Included<br>with 4 hour response - 1 year Extended Service | 1 | $94,008 | $94,008 |
| | | Total Fujitsu Product List Price | | | $1,149,912 |
| | | Product Discount | | 30% | |
| | | Net Product Price | | | $804,938 |
| | | Total Service List Price | | | $94,008 |
| | | Service Discount | | 30% | |
| | | Net Service Price | | | $65,806 |
| | | Outside Quoted Product Price | | | $13,776 |
| | | **Total Sell Price, including 3 years Service** | | | $884,520 |

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

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

## Benchmark Configuration/Tested Storage Configuration Diagram



## Host System(s) and Tested Storage Configuration Components

| Host Systems: | Tested Storage Configuration (TSC): |
|---|---|
| ***UID=HS-1/2/3/4/5/6/7/8*** | 16 – Emulex LP11000 M4 FC HBAs (4 Gbps) |
| 8 – Fujitsu PRIMERGY R450 Host Systems<br>***HS-1/2/3/4, each with*:**<br>4 – Intel Xeon™ 2.0 GHz CPUs, each with:<br>1 MB iL3 cache<br>***HS-5/6, each with*:**<br>4 – Intel Xeon™ 1.9 GHz CPUs, each with:<br>1 MB iL3 cache<br>***HS-7/8, each with*:**<br>4 – Intel Xeon™ 1.6 GHz CPUs, each with:<br>1 MB iL3 cache | ***UID=SC-1:***<br>Fujitsu ETERNUS6000 Model 900<br>4 – Controller Modules (CM), each with 24 GB cache<br>16 – Channel Adapter (CA) Modules<br>8 – Device Adapter (DA) Modules<br>4 – Router (RT) Modules<br>32 – Front side Fibre Channel ports (4 Gbps each) 16 ports connected directly to HBAs<br>32 – Drive side Fibre Channel switched FC-AL loops (2 Gbit each) |
| 4 GB main memory | |
| Windows 2003 Server v5.2 w/SP1 | 32 – Drive enclosure modules, each with dual switched FC-AL interfaces and 15 hot swap drive slots |
| Sun Java 1.5.0.30 | |
| SPC-2 Workload Generator: spc2rc9f<br>*with multi-host time tolerance and*<br>*and slave complete non-heartbeat patches* | 280 – 36 GB 15K RPM 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 16 *(Benchmark Configuration/Tested Storage Configuration Diagram).*

## Storage Network Configuration

*Clause 9.2.4.4.2*

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

The Tested Storage Configuration 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 16 *(Host System(s) and Tested Storage Configuration Components).*

## Customer Tunable Parameters and Options

*Clause 10.6.6.1*

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

"Appendix B: Customer Tunable Parameters and Options" on page 91 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 92 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 92.

# 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 86 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) | 6,854.768 |
| Addressable Storage Capacity | Gigabytes (GB) | 6,854.768 |
| Configured Storage Capacity | Gigabytes (GB) | 9,711.033 |
| Physical Storage Capacity | Gigabytes (GB) | 10,195.326 |
| Data Protection Overhead (RAID5 parity) | Gigabytes (GB) | 2,282.638 |
| Required Storage | Gigabytes (GB) | 573.628 |
| Global Storage Overhead | Gigabytes (GB) | 443.665 |
| Total Unused Storage | Gigabytes (GB) | 40.629 |

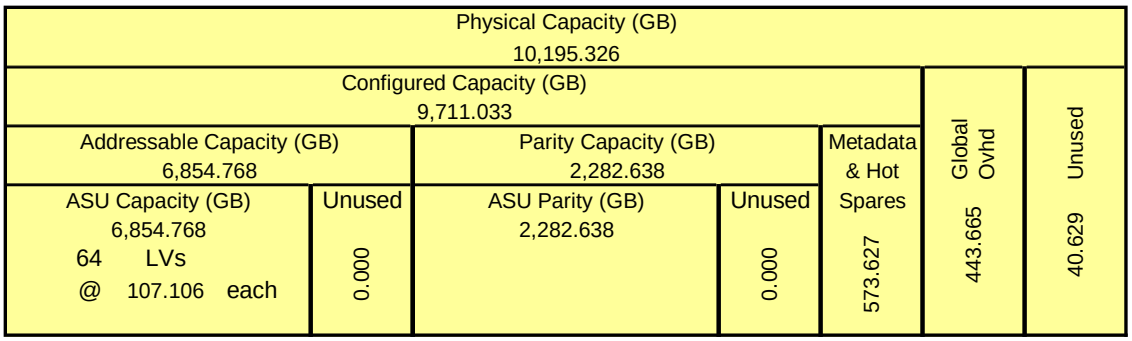
### SPC-2 Storage Hierarchy Ratios

| | **Addressable Storage Capacity** | **Configured Storage Capacity** | **Physical Storage Capacity** |
|---|---|---|---|
| **Total ASU Capacity** | 100.00% | 70.59% | 67.23% |
| **Required for Data Protection (Mirroring)** | | 23.51% | 22.39% |
| **Addressable Storage Capacity** | | 70.59% | 67.23% |
| **Required Storage** | | 5.91% | 5.63% |
| **Configured Storage Capacity** | | | 95.25% |
| **Global Storage Overhead** | | | 4.35% |
| **Unused Storage:** | | | |
| **Addressable** | 0.00% | | |
| **Configured** | | 0.00% | |
| **Physical** | | | 0.40% |

The Physical Storage Capacity consisted of 10,195.326 GB distributed over 280 disk drives each with a formatted capacity of 36.411 GB. There was 40.629 GB (0.40%) of Unused Storage within the Physical Storage Capacity. Global Storage Overhead consisted of 443.665 GB (4.35%) of Physical Storage Capacity. There was 0.000 GB (0.00%) of Unused Storage within the Configured Storage Capacity. The Total ASU Capacity utilized 100.00% of the Addressable Storage Capacity resulting in 0.000 GB (0.00%) of Unused Storage within the Addressable Storage Capacity.

### SPC-2 Storage Capacities and Relationships Illustration

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




## Logical Volume Capacity and ASU Mapping

*Clause 10.6.7.2*

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

| Logical Volume (LV) Capacity and Mapping | | | |
|---|---|---|---|
| ASU (6,854.768 GB) | | | |
| | Total Capacity *(GB)* | Capacity Used *(GB)* | Capacity Unused *(GB)* |
| Logical Volume 1-64 | 107.106 per LV | 107.106 per LV | 0.000 per LV |

See the Storage Definition (sd) entries in "Appendix D: SPC-2 Workload Generator Storage Commands and Parameters" on page 92 for more detailed configuration information.

## Assignment of RAID Groups and LUNs

The 64 RAID Group Assignments are RAID5 (3+1) sets, each defined as a single LUN to the servers. Half of the LUNs (32) are presented through 8 Channel Adapter (CA) ports, and the other half presented through the other 8 CA ports.

The RAID Group assignments to drives in the array are illustrated by the following chart.

| Drive: DE: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | DA-Lp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | SY | SY | RG#00 | RG#01 | RG#02 | RG#03 | RG#04 | RG#05 | RG#06 | RG#07 | | | | | HS | DA0-0 (40-50) |
| 01 | SY | SY | | | | | | | | | | | | | HS | DA0-1 (50-40) |
| 02 | SY | SY | | | | | | | | | | | | | HS | DA0-2 (40-50) |
| 03 | SY | SY | | | | | | | | | | | | | HS | DA0-3 (50-40) |
| 04 | RG#08 | RG#09 | RG#0A | RG#0B | RG#0C | RG#0D | RG#0E | RG#0F | | | | | | | HS | DA1-0 (41-51) |
| 05 | | | | | | | | | | | | | | | HS | DA1-1 (51-41) |
| 06 | | | | | | | | | | | | | | | HS | DA1-2 (41-51) |
| 07 | | | | | | | | | | | | | | | HS | DA1-3 (51-41) |
| 08 | RG#10 | RG#11 | RG#12 | RG#13 | RG#14 | RG#15 | RG#16 | RG#17 | | | | | | | HS | DA2-0 (48-58) |
| 09 | | | | | | | | | | | | | | | HS | DA2-1 (58-48) |
| 0a | | | | | | | | | | | | | | | HS | DA2-2 (48-58) |
| 0b | | | | | | | | | | | | | | | HS | DA2-3 (58-48) |
| 0c | RG#18 | RG#19 | RG#1A | RG#1B | RG#1C | RG#1D | RG#1E | RG#1F | | | | | | | HS | DA3-0 (49-59) |
| 0d | | | | | | | | | | | | | | | HS | DA3-1 (59-49) |
| 0e | | | | | | | | | | | | | | | HS | DA3-2 (49-59) |
| 0f | | | | | | | | | | | | | | | HS | DA3-3 (59-49) |
| 10 | RG#20 | RG#21 | RG#22 | RG#23 | RG#24 | RG#25 | RG#26 | RG#27 | | | | | | | | DA0-0 (40-50) |
| 11 | | | | | | | | | | | | | | | | DA0-1 (50-40) |
| 12 | | | | | | | | | | | | | | | | DA0-2 (40-50) |
| 13 | | | | | | | | | | | | | | | | DA0-3 (50-40) |
| 14 | RG#28 | RG#29 | RG#2A | RG#2B | RG#2C | RG#2D | RG#2E | RG#2F | | | | | | | | DA1-0 (41-51) |
| 15 | | | | | | | | | | | | | | | | DA1-1 (51-41) |
| 16 | | | | | | | | | | | | | | | | DA1-2 (41-51) |
| 17 | | | | | | | | | | | | | | | | DA1-3 (51-41) |
| 18 | RG#30 | RG#31 | RG#32 | RG#33 | RG#34 | RG#35 | RG#36 | RG#37 | | | | | | | | DA2-0 (48-58) |
| 19 | | | | | | | | | | | | | | | | DA2-1 (58-48) |
| 1a | | | | | | | | | | | | | | | | DA2-2 (48-58) |
| 1b | | | | | | | | | | | | | | | | DA2-3 (58-48) |
| 1c | RG#38 | RG#39 | RG#3A | RG#3B | RG#3C | RG#3D | RG#3E | RG#3F | | | | | | | | DA3-0 (49-59) |
| 1d | | | | | | | | | | | | | | | | DA3-1 (59-49) |
| 1e | | | | | | | | | | | | | | | | DA3-2 (49-59) |
| 1f | | | | | | | | | | | | | | | | DA3-3 (59-49) |

The RAID Groups and LUN assignments are set up through a series of actions on the GUI Management Interface (ETERNUSmgr) or optionally using an off-line configuration tool. The task of setting up the configuration for each customer is provided as part of the base system price by Fujitsu. Different techniques are applied, depending upon the needs of the customer. This configuration reflects the customary techniques that are applied when a high performance requirement dominates the customer environment. Other techniques are applied when the primary requirement is for maximum capacity. In the case of high performance sequential access demands, it is effective to define RAID Groups arranged in RAID5 configurations. In this configuration, all of the RAID5 Groups are 3+1 arrangements.

There are eight (8) drives reserved exclusively for system use, and sixteen (16) Hot Spare drives have been included in the configuration. There are two hundred (200) empty drive slots in this configuration, as well.

The sixty-four (64) LUNs, seen through the sixteen HBAs (two on each of the eight Windows servers) are all presented to the Workload Generator to form the single ASU used by the SPC-2 benchmark. All the LUNs presented are the same size – 107,105.747 MB each.

Two optional facilities in the ETERNUS6000 (GRPM and Trace), which are used for collection information during operation, were turned off during this benchmark run. They are normally not enabled during operations. Two secondary enhanced reliability features (Patrol and sampled Read after Write compare), which may be optionally enabled by a customer, were also turned off during this benchmark run.

# 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 87 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 142.

### 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.

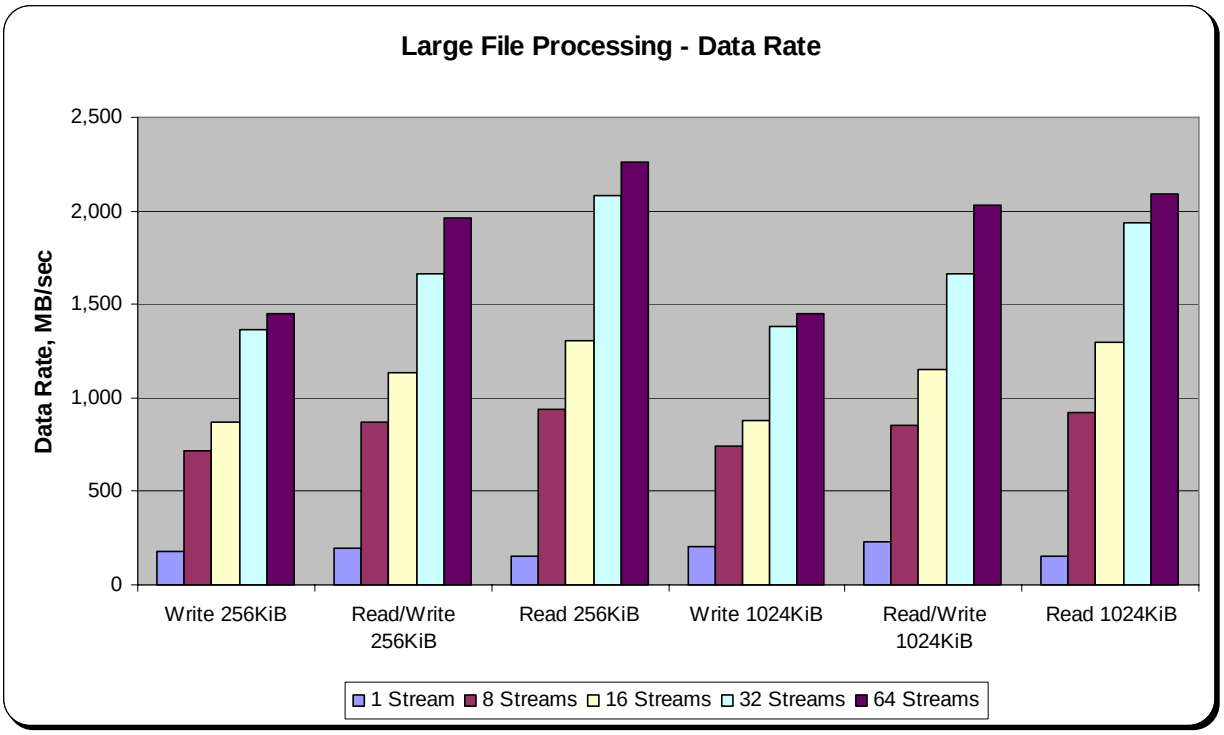
SPC-2 Large File Processing Test Results File

### 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 | 8 Streams | 16 Streams | 32 Streams | 64 Streams |
|---|---|---|---|---|---|
| Write 256KiB | 180.00 | 719.07 | 866.45 | 1,362.12 | 1,453.18 |
| Read/Write 256KiB | 193.77 | 868.71 | 1,137.28 | 1,663.57 | 1,958.71 |
| Read 256KiB | 155.74 | 937.09 | 1,304.72 | 2,080.57 | 2,265.17 |
| Write 1024KiB | 204.47 | 739.66 | 877.45 | 1,380.71 | 1,452.97 |
| Read/Write 1024KiB | 227.98 | 853.26 | 1,154.51 | 1,661.99 | 2,034.14 |
| Read 1024KiB | 156.07 | 924.91 | 1,294.25 | 1,938.58 | 2,089.03 |

### SPC-2 Large File Processing Average Data Rates Graph

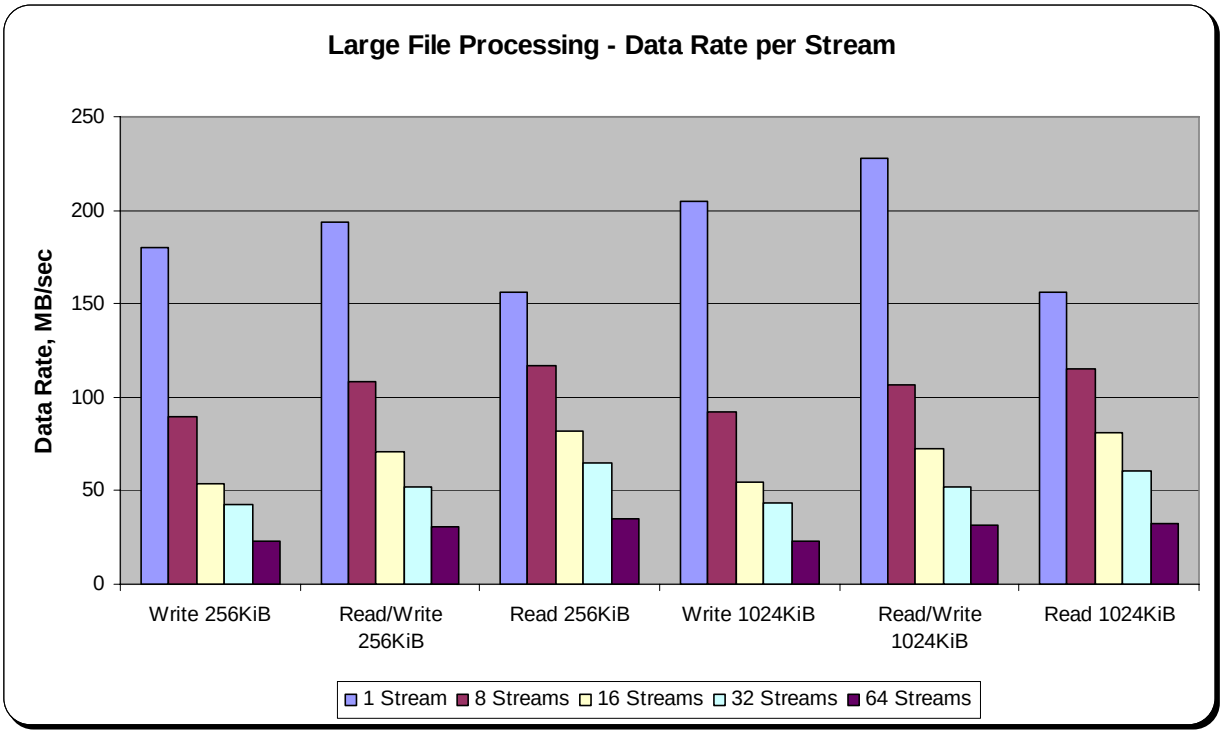


## SPC-2 Large File Processing Average Data Rate per Stream

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 | 8 Streams | 16 Streams | 32 Streams | 64 Streams |
|---|---|---|---|---|---|
| Write 256KiB | 180.00 | 89.88 | 54.15 | 42.57 | 22.71 |
| Read/Write 256KiB | 193.77 | 108.59 | 71.08 | 51.99 | 30.60 |
| Read 256KiB | 155.74 | 117.14 | 81.54 | 65.02 | 35.39 |
| Write 1024KiB | 204.47 | 92.46 | 54.84 | 43.15 | 22.70 |
| Read/Write 1024KiB | 227.98 | 106.66 | 72.16 | 51.94 | 31.78 |
| Read 1024KiB | 156.07 | 115.61 | 80.89 | 60.58 | 32.64 |

## SPC-2 Large File Processing Average Data Rate per Stream 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 are 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.

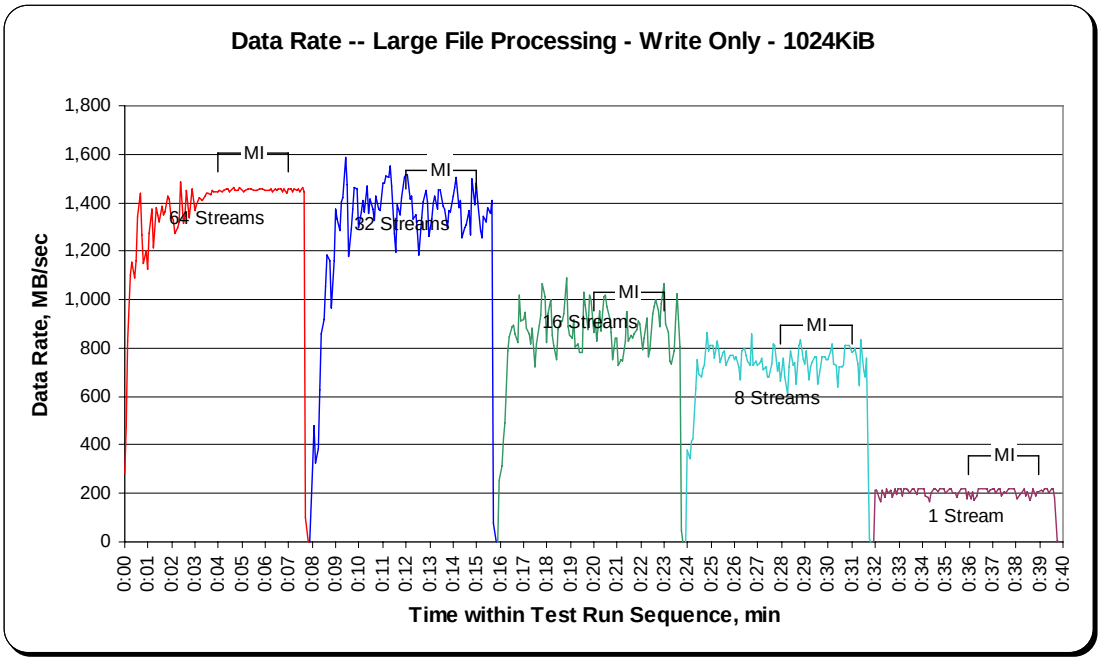
## SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

| TR1 | 64 Streams | | | TR2 | 32 Streams | | | TR3 | 16 Streams | | | TR4 | 8 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 | 284.79 | 94.93 | 8.51 | 0:07:54 | 0.00 | 0.00 | 0.00 | 0:15:54 | 0.00 | 0.00 | 0.00 | 0:23:54 | 0.00 | 0.00 | 0.00 | 0:31:54 | 0.00 | 0.00 | 0.00 |
| 0:00:04 | 474.59 | 52.73 | 12.83 | 0:07:59 | 310.38 | 77.59 | 7.20 | 0:15:59 | 256.06 | 85.35 | 9.04 | 0:23:59 | 380.84 | 126.95 | 6.10 | 0:31:59 | 213.70 | 213.70 | 4.79 |
| 0:00:09 | 831.10 | 63.93 | 13.74 | 0:08:04 | 482.55 | 96.51 | 10.01 | 0:16:04 | 312.90 | 62.58 | 13.69 | 0:24:04 | 346.03 | 86.51 | 9.49 | 0:32:04 | 214.96 | 214.96 | 4.84 |
| 0:00:14 | 1,102.89 | 64.88 | 15.03 | 0:08:09 | 328.20 | 46.89 | 17.67 | 0:16:09 | 425.30 | 70.88 | 13.18 | 0:24:09 | 412.72 | 103.18 | 10.21 | 0:32:09 | 180.36 | 180.36 | 5.82 |
| 0:00:19 | 1,157.00 | 55.10 | 17.03 | 0:08:14 | 385.25 | 48.16 | 20.96 | 0:16:14 | 493.25 | 61.66 | 14.78 | 0:24:14 | 428.03 | 85.61 | 10.63 | 0:32:14 | 168.19 | 168.19 | 6.23 |
| 0:00:24 | 1,086.74 | 37.47 | 24.28 | 0:08:19 | 628.52 | 57.14 | 16.35 | 0:16:19 | 784.54 | 65.38 | 14.05 | 0:24:19 | 635.44 | 79.43 | 10.29 | 0:32:19 | 213.28 | 213.28 | 4.91 |
| 0:00:29 | 1,159.31 | 30.51 | 29.50 | 0:08:24 | 857.94 | 71.50 | 13.90 | 0:16:24 | 845.36 | 60.38 | 16.18 | 0:24:24 | 750.57 | 93.82 | 11.22 | 0:32:24 | 184.97 | 184.97 | 5.66 |
| 0:00:34 | 1,344.27 | 32.01 | 30.83 | 0:08:29 | 919.39 | 54.08 | 15.02 | 0:16:29 | 886.05 | 63.29 | 16.49 | 0:24:29 | 690.38 | 86.30 | 12.14 | 0:32:29 | 218.10 | 218.10 | 4.80 |
| 0:00:39 | 1,441.16 | 34.31 | 30.74 | 0:08:34 | 1,055.08 | 55.53 | 18.23 | 0:16:34 | 895.69 | 63.98 | 16.42 | 0:24:34 | 682.41 | 85.30 | 12.31 | 0:32:34 | 198.81 | 198.81 | 5.26 |
| 0:00:44 | 1,267.73 | 28.17 | 35.62 | 0:08:39 | 1,181.75 | 62.20 | 16.98 | 0:16:39 | 859.20 | 61.37 | 17.04 | 0:24:39 | 717.86 | 89.73 | 11.69 | 0:32:39 | 211.39 | 211.39 | 4.95 |
| 0:00:49 | 1,149.03 | 23.94 | 42.17 | 0:08:44 | 1,159.93 | 55.23 | 18.78 | 0:16:44 | 823.97 | 58.86 | 17.75 | 0:24:44 | 728.34 | 91.04 | 11.42 | 0:32:44 | 186.23 | 186.23 | 5.62 |
| 0:00:54 | 1,200.20 | 24.00 | 43.31 | 0:08:49 | 965.32 | 41.97 | 24.11 | 0:16:49 | 1,016.07 | 72.58 | 14.40 | 0:24:49 | 866.96 | 108.37 | 9.71 | 0:32:49 | 217.89 | 217.89 | 4.80 |
| 0:00:59 | 1,122.82 | 21.19 | 47.35 | 0:08:54 | 1,158.26 | 44.55 | 21.76 | 0:16:54 | 909.74 | 64.98 | 16.23 | 0:24:54 | 784.96 | 98.12 | 10.62 | 0:32:54 | 194.41 | 194.41 | 5.38 |
| 0:01:04 | 1,274.02 | 23.59 | 44.39 | 0:08:59 | 1,375.10 | 50.93 | 20.54 | 0:16:59 | 919.60 | 65.69 | 15.92 | 0:24:59 | 813.07 | 101.63 | 10.35 | 0:32:59 | 218.10 | 218.10 | 4.80 |
| 0:01:09 | 1,372.59 | 24.51 | 42.39 | 0:09:04 | 1,332.74 | 49.36 | 20.99 | 0:17:04 | 944.98 | 67.50 | 15.52 | 0:25:04 | 808.66 | 101.08 | 10.36 | 0:33:04 | 217.89 | 217.89 | 4.80 |
| 0:01:14 | 1,212.78 | 20.56 | 49.43 | 0:09:09 | 1,285.97 | 42.87 | 23.79 | 0:17:09 | 884.58 | 63.18 | 16.57 | 0:25:09 | 758.33 | 94.79 | 11.09 | 0:33:09 | 186.65 | 186.65 | 5.61 |
| 0:01:19 | 1,379.93 | 22.62 | 45.52 | 0:09:14 | 1,406.14 | 43.94 | 23.20 | 0:17:14 | 860.04 | 53.75 | 18.69 | 0:25:14 | 827.12 | 103.39 | 10.13 | 0:33:14 | 218.31 | 218.31 | 4.79 |
| 0:01:24 | 1,350.15 | 21.10 | 47.85 | 0:09:19 | 1,420.19 | 44.38 | 23.68 | 0:17:19 | 818.94 | 51.18 | 20.38 | 0:25:19 | 795.03 | 99.38 | 10.46 | 0:33:19 | 218.52 | 218.52 | 4.79 |
| 0:01:29 | 1,319.32 | 20.61 | 50.95 | 0:09:24 | 1,586.08 | 49.56 | 21.20 | 0:17:24 | 883.74 | 55.23 | 18.96 | 0:25:24 | 737.99 | 92.25 | 11.41 | 0:33:24 | 215.38 | 215.38 | 4.86 |
| 0:01:34 | 1,382.65 | 21.60 | 48.68 | 0:09:29 | 1,477.02 | 46.16 | 22.50 | 0:17:29 | 721.63 | 45.10 | 23.35 | 0:25:29 | 781.82 | 97.73 | 10.66 | 0:33:29 | 199.65 | 199.65 | 5.25 |
| 0:01:39 | 1,349.73 | 21.09 | 49.59 | 0:09:34 | 1,180.91 | 36.90 | 28.27 | 0:17:34 | 814.53 | 50.91 | 20.59 | 0:25:34 | 785.38 | 98.17 | 10.72 | 0:33:34 | 218.31 | 218.31 | 4.79 |
| 0:01:44 | 1,363.57 | 21.31 | 49.77 | 0:09:39 | 1,291.22 | 40.35 | 26.23 | 0:17:39 | 893.18 | 55.82 | 18.74 | 0:25:39 | 727.71 | 90.96 | 11.51 | 0:33:39 | 216.22 | 216.22 | 4.84 |
| 0:01:49 | 1,426.69 | 22.29 | 46.98 | 0:09:44 | 1,375.10 | 42.97 | 24.31 | 0:17:44 | 934.91 | 58.43 | 17.93 | 0:25:44 | 754.97 | 94.37 | 11.14 | 0:33:44 | 198.18 | 198.18 | 5.28 |
| 0:01:54 | 1,412.85 | 22.08 | 47.01 | 0:09:49 | 1,461.71 | 45.68 | 22.95 | 0:17:49 | 1,065.56 | 66.60 | 15.76 | 0:25:49 | 771.75 | 96.47 | 10.86 | 0:33:49 | 218.31 | 218.31 | 4.79 |
| 0:01:59 | 1,356.02 | 21.19 | 49.80 | 0:09:54 | 1,457.73 | 45.55 | 22.90 | 0:17:54 | 1,010.62 | 63.16 | 16.50 | 0:25:54 | 771.12 | 96.39 | 10.91 | 0:33:54 | 218.73 | 218.73 | 4.79 |
| 0:02:04 | 1,325.61 | 20.71 | 50.83 | 0:09:59 | 1,294.57 | 40.46 | 26.02 | 0:17:59 | 824.18 | 51.51 | 20.39 | 0:25:59 | 750.57 | 93.82 | 11.10 | 0:33:59 | 218.31 | 218.31 | 4.79 |
| 0:02:09 | 1,273.18 | 19.89 | 52.24 | 0:10:04 | 1,363.57 | 42.61 | 24.54 | 0:18:04 | 942.88 | 58.93 | 17.87 | 0:26:04 | 766.30 | 95.79 | 10.87 | 0:34:04 | 216.43 | 216.43 | 4.83 |
| 0:02:14 | 1,295.62 | 20.24 | 51.75 | 0:10:09 | 1,408.03 | 44.00 | 23.81 | 0:18:09 | 1,002.86 | 62.68 | 16.71 | 0:26:09 | 719.53 | 89.94 | 11.69 | 0:34:09 | 187.28 | 187.28 | 5.59 |
| 0:02:19 | 1,321.21 | 20.64 | 51.15 | 0:10:14 | 1,361.05 | 42.53 | 24.75 | 0:18:14 | 849.98 | 53.12 | 19.66 | 0:26:14 | 666.68 | 83.34 | 12.57 | 0:34:14 | 185.18 | 185.18 | 5.65 |
| 0:02:24 | 1,484.57 | 23.20 | 45.29 | 0:10:19 | 1,468.01 | 45.88 | 22.82 | 0:18:19 | 809.92 | 50.62 | 20.71 | 0:26:19 | 789.58 | 98.70 | 10.66 | 0:34:19 | 168.40 | 168.40 | 6.22 |
| 0:02:29 | 1,314.91 | 20.55 | 50.58 | 0:10:24 | 1,358.54 | 42.45 | 24.67 | 0:18:24 | 750.99 | 46.94 | 22.39 | 0:26:25 | 800.90 | 100.11 | 10.61 | 0:34:24 | 203.00 | 203.00 | 5.16 |
| 0:02:34 | 1,347.00 | 21.05 | 49.75 | 0:10:29 | 1,412.85 | 44.15 | 23.76 | 0:18:29 | 878.29 | 54.89 | 19.00 | 0:26:29 | 771.12 | 96.39 | 10.64 | 0:34:29 | 218.31 | 218.31 | 4.79 |
| 0:02:39 | 1,448.50 | 22.63 | 46.75 | 0:10:34 | 1,373.63 | 42.93 | 24.47 | 0:18:34 | 910.79 | 56.92 | 18.42 | 0:26:34 | 743.86 | 92.98 | 11.32 | 0:34:34 | 217.47 | 217.47 | 4.81 |
| 0:02:44 | 1,335.26 | 20.86 | 49.85 | 0:10:39 | 1,323.93 | 41.37 | 25.25 | 0:18:39 | 911.21 | 56.95 | 18.43 | 0:26:39 | 728.97 | 91.12 | 11.44 | 0:34:39 | 205.52 | 205.52 | 5.09 |
| 0:02:49 | 1,400.27 | 21.88 | 47.90 | 0:10:44 | 1,428.37 | 44.64 | 23.41 | 0:18:44 | 942.67 | 58.92 | 17.83 | 0:26:44 | 860.46 | 107.56 | 9.77 | 0:34:44 | 217.26 | 217.26 | 4.82 |
| 0:02:54 | 1,456.05 | 22.75 | 46.31 | 0:10:49 | 1,371.33 | 42.85 | 24.60 | 0:18:49 | 1,088.21 | 68.01 | 15.33 | 0:26:49 | 726.24 | 90.78 | 11.54 | 0:34:49 | 218.52 | 218.52 | 4.79 |
| 0:02:59 | 1,368.18 | 21.38 | 49.19 | 0:10:54 | 1,364.83 | 42.65 | 24.51 | 0:18:54 | 885.21 | 55.33 | 19.03 | 0:26:54 | 747.42 | 93.43 | 11.26 | 0:34:54 | 216.43 | 216.43 | 4.83 |
| 0:03:04 | 1,392.72 | 21.76 | 47.73 | 0:10:59 | 1,480.17 | 46.26 | 22.63 | 0:18:59 | 854.38 | 53.40 | 19.63 | 0:26:59 | 729.60 | 91.20 | 11.47 | 0:34:59 | 203.63 | 203.63 | 5.14 |
| 0:03:09 | 1,421.87 | 22.22 | 47.37 | 0:11:04 | 1,479.33 | 46.23 | 22.70 | 0:19:04 | 842.01 | 52.63 | 19.85 | 0:27:04 | 737.99 | 92.25 | 11.29 | 0:35:04 | 207.62 | 207.62 | 5.05 |
| 0:03:14 | 1,414.11 | 22.10 | 47.54 | 0:11:09 | 1,509.32 | 47.17 | 22.29 | 0:19:09 | 917.08 | 57.32 | 18.24 | 0:27:09 | 760.64 | 95.08 | 11.07 | 0:35:09 | 217.89 | 217.89 | 4.80 |
| 0:03:19 | 1,408.45 | 22.01 | 47.36 | 0:11:14 | 1,505.13 | 47.04 | 22.09 | 0:19:14 | 807.40 | 50.46 | 20.81 | 0:27:14 | 710.10 | 88.76 | 11.73 | 0:35:14 | 218.31 | 218.31 | 4.80 |
| 0:03:24 | 1,425.85 | 22.28 | 47.08 | 0:11:19 | 1,553.36 | 48.54 | 21.66 | 0:19:19 | 815.37 | 50.96 | 20.56 | 0:27:19 | 720.37 | 90.05 | 11.67 | 0:35:19 | 203.63 | 203.63 | 5.14 |
| 0:03:29 | 1,440.32 | 22.51 | 46.85 | 0:11:24 | 1,469.68 | 45.93 | 22.87 | 0:19:24 | 779.72 | 48.73 | 21.47 | 0:27:24 | 680.32 | 85.04 | 12.32 | 0:35:24 | 203.00 | 203.00 | 5.16 |
| 0:03:34 | 1,438.65 | 22.48 | 46.89 | 0:11:29 | 1,275.70 | 39.87 | 26.27 | 0:19:29 | 782.24 | 48.89 | 21.55 | 0:27:29 | 678.43 | 84.80 | 12.41 | 0:35:29 | 186.23 | 186.23 | 5.62 |
| 0:03:39 | 1,430.26 | 22.35 | 46.51 | 0:11:34 | 1,195.59 | 37.36 | 28.05 | 0:19:34 | 1,032.64 | 64.54 | 16.29 | 0:27:34 | 735.47 | 91.93 | 11.40 | 0:35:34 | 199.44 | 199.44 | 5.25 |
| 0:03:44 | 1,449.76 | 22.65 | 46.38 | 0:11:39 | 1,394.19 | 43.57 | 24.10 | 0:19:39 | 978.11 | 61.13 | 16.99 | 0:27:39 | 817.89 | 102.24 | 10.12 | 0:35:39 | 217.47 | 217.47 | 4.81 |
| 0:03:49 | 1,445.99 | 22.59 | 46.47 | 0:11:44 | 1,352.66 | 42.27 | 24.82 | 0:19:44 | 878.08 | 54.88 | 19.14 | 0:27:44 | 808.45 | 101.06 | 10.46 | 0:35:44 | 218.52 | 218.52 | 4.79 |
| 0:03:54 | 1,442.21 | 22.53 | 46.34 | 0:11:49 | 1,419.77 | 44.37 | 23.44 | 0:19:49 | 1,017.75 | 63.61 | 16.48 | 0:27:49 | 707.37 | 88.42 | 11.79 | 0:35:49 | 218.31 | 218.31 | 4.79 |
| | | | | 0:11:54 | 1,503.66 | 46.99 | 22.33 | 0:19:54 | 1,001.60 | 62.60 | 16.69 | 0:27:54 | 737.57 | 92.20 | 11.33 | 0:35:54 | 179.73 | 179.73 | 5.82 |

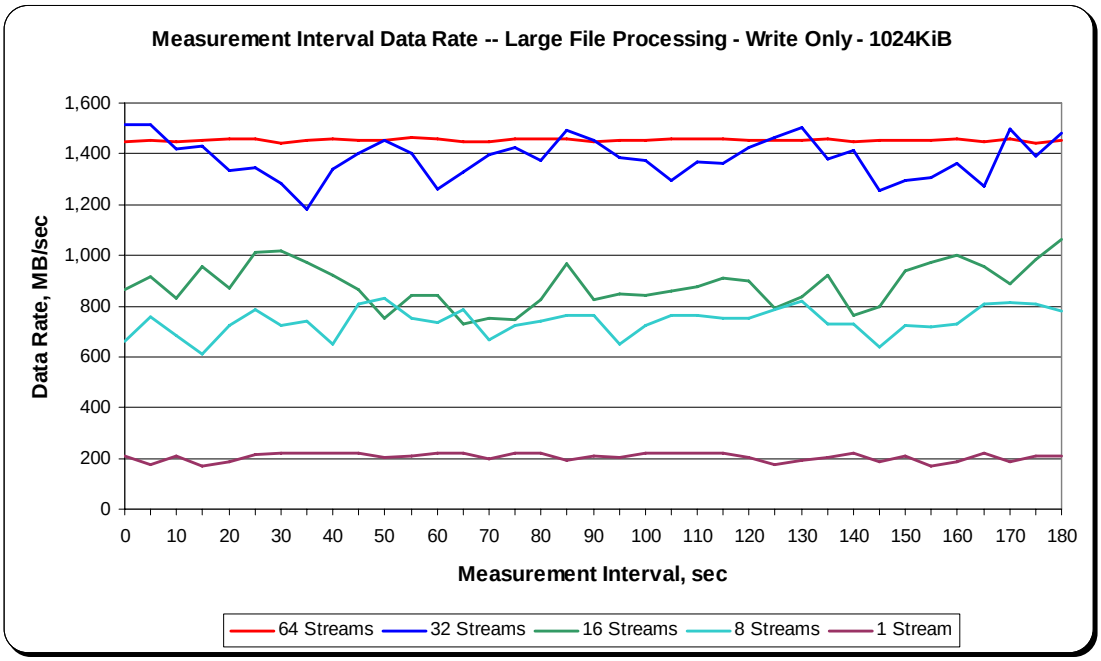
## SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR1 | 64 Streams | | | TR2 | 32 Streams | | | TR3 | 16 Streams | | | TR4 | 8 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 |
| 0:03:59 | 1,445.78 | 22.59 | 46.40 | 0:11:59 | 1,517.50 | 47.42 | 22.21 | 0:19:59 | 864.66 | 54.04 | 19.38 | 0:27:59 | 660.60 | 82.58 | 12.77 | 0:35:59 | 206.78 | 206.78 | 5.06 |
| 0:04:04 | 1,451.86 | 22.69 | 46.36 | 0:12:04 | 1,516.66 | 47.40 | 22.09 | 0:20:04 | 913.94 | 57.12 | 18.49 | 0:28:04 | 757.49 | 94.69 | 11.11 | 0:36:04 | 175.32 | 175.32 | 5.98 |
| 0:04:09 | 1,447.24 | 22.61 | 46.34 | 0:12:09 | 1,416.42 | 44.26 | 23.68 | 0:20:09 | 829.84 | 51.87 | 20.27 | 0:28:09 | 682.62 | 85.33 | 12.28 | 0:36:09 | 209.51 | 209.51 | 4.99 |
| 0:04:14 | 1,452.49 | 22.70 | 46.14 | 0:12:14 | 1,429.00 | 44.66 | 23.42 | 0:20:14 | 955.67 | 59.73 | 17.43 | 0:28:14 | 610.48 | 76.31 | 13.64 | 0:36:14 | 171.76 | 171.76 | 6.10 |
| 0:04:19 | 1,455.84 | 22.75 | 46.08 | 0:12:19 | 1,331.69 | 41.62 | 25.14 | 0:20:19 | 868.85 | 54.30 | 19.37 | 0:28:19 | 724.36 | 90.54 | 11.62 | 0:36:19 | 187.90 | 187.90 | 5.57 |
| 0:04:24 | 1,458.99 | 22.80 | 46.18 | 0:12:24 | 1,347.42 | 42.11 | 24.94 | 0:20:24 | 1,013.97 | 63.37 | 16.44 | 0:28:24 | 785.80 | 98.23 | 10.61 | 0:36:24 | 217.47 | 217.47 | 4.81 |
| 0:04:29 | 1,443.47 | 22.55 | 46.19 | 0:12:29 | 1,281.57 | 40.05 | 26.13 | 0:20:29 | 1,016.91 | 63.56 | 16.51 | 0:28:29 | 725.82 | 90.73 | 11.58 | 0:36:30 | 218.10 | 218.10 | 4.80 |
| 0:04:34 | 1,455.00 | 22.73 | 46.11 | 0:12:34 | 1,182.79 | 36.96 | 28.38 | 0:20:34 | 973.50 | 60.84 | 17.20 | 0:28:34 | 742.39 | 92.80 | 11.29 | 0:36:34 | 217.68 | 217.68 | 4.81 |
| 0:04:39 | 1,460.88 | 22.83 | 46.09 | 0:12:39 | 1,338.19 | 41.82 | 25.10 | 0:20:39 | 922.75 | 57.67 | 18.26 | 0:28:39 | 652.84 | 81.61 | 12.90 | 0:36:39 | 218.10 | 218.10 | 4.80 |
| 0:04:44 | 1,452.70 | 22.70 | 46.13 | 0:12:44 | 1,403.83 | 43.87 | 23.92 | 0:20:44 | 866.12 | 54.13 | 19.42 | 0:28:44 | 809.50 | 101.19 | 10.36 | 0:36:44 | 218.10 | 218.10 | 4.80 |
| 0:04:49 | 1,452.49 | 22.70 | 46.08 | 0:12:49 | 1,453.54 | 45.42 | 23.08 | 0:20:49 | 749.94 | 46.87 | 22.18 | 0:28:49 | 833.62 | 104.20 | 9.97 | 0:36:49 | 204.05 | 204.05 | 5.12 |
| 0:04:54 | 1,461.51 | 22.84 | 46.11 | 0:12:54 | 1,404.04 | 43.88 | 23.92 | 0:20:54 | 842.01 | 52.63 | 20.00 | 0:28:54 | 753.93 | 94.24 | 11.17 | 0:36:54 | 210.76 | 210.76 | 4.97 |
| 0:04:59 | 1,457.10 | 22.77 | 46.08 | 0:12:59 | 1,261.44 | 39.42 | 26.48 | 0:20:59 | 839.70 | 52.48 | 19.86 | 0:28:59 | 734.42 | 91.80 | 11.35 | 0:36:59 | 218.31 | 218.31 | 4.79 |
| 0:05:04 | 1,444.94 | 22.58 | 46.31 | 0:13:04 | 1,329.59 | 41.55 | 25.21 | 0:21:04 | 730.44 | 45.65 | 23.07 | 0:29:04 | 785.38 | 98.17 | 10.71 | 0:37:04 | 218.10 | 218.10 | 4.80 |
| 0:05:09 | 1,449.34 | 22.65 | 46.26 | 0:13:09 | 1,397.75 | 43.68 | 24.02 | 0:21:09 | 750.57 | 46.91 | 22.16 | 0:29:09 | 669.62 | 83.70 | 12.49 | 0:37:09 | 198.39 | 198.39 | 5.28 |
| 0:05:14 | 1,457.73 | 22.78 | 46.04 | 0:13:14 | 1,426.27 | 44.57 | 23.59 | 0:21:14 | 744.49 | 46.53 | 22.72 | 0:29:14 | 724.36 | 90.54 | 11.64 | 0:37:14 | 218.31 | 218.31 | 4.79 |
| 0:05:19 | 1,457.10 | 22.77 | 46.17 | 0:13:19 | 1,375.73 | 42.99 | 24.36 | 0:21:19 | 826.49 | 51.66 | 20.37 | 0:29:19 | 742.18 | 92.77 | 11.28 | 0:37:19 | 218.10 | 218.10 | 4.80 |
| 0:05:24 | 1,456.26 | 22.75 | 46.12 | 0:13:24 | 1,490.66 | 46.58 | 22.46 | 0:21:24 | 965.74 | 60.36 | 17.16 | 0:29:24 | 763.36 | 95.42 | 10.90 | 0:37:24 | 190.00 | 190.00 | 5.51 |
| 0:05:29 | 1,448.29 | 22.63 | 46.06 | 0:13:29 | 1,452.70 | 45.40 | 23.23 | 0:21:29 | 826.49 | 51.66 | 20.43 | 0:29:29 | 761.69 | 95.21 | 11.05 | 0:37:29 | 209.30 | 209.30 | 5.00 |
| 0:05:34 | 1,453.54 | 22.71 | 46.16 | 0:13:34 | 1,387.90 | 43.37 | 23.96 | 0:21:34 | 850.19 | 53.14 | 19.62 | 0:29:34 | 651.79 | 81.47 | 12.80 | 0:37:34 | 204.05 | 204.05 | 5.13 |
| 0:05:39 | 1,452.91 | 22.70 | 46.17 | 0:13:39 | 1,373.22 | 42.91 | 24.44 | 0:21:39 | 840.96 | 52.56 | 20.04 | 0:29:39 | 721.00 | 90.13 | 11.66 | 0:37:39 | 218.31 | 218.31 | 4.79 |
| 0:05:44 | 1,456.89 | 22.76 | 46.00 | 0:13:44 | 1,294.78 | 40.46 | 25.92 | 0:21:44 | 861.09 | 53.82 | 19.39 | 0:29:44 | 764.20 | 95.53 | 10.96 | 0:37:44 | 218.10 | 218.10 | 4.80 |
| 0:05:49 | 1,458.36 | 22.79 | 46.14 | 0:13:49 | 1,367.13 | 42.72 | 24.61 | 0:21:49 | 875.77 | 54.74 | 19.17 | 0:29:49 | 762.52 | 95.32 | 11.03 | 0:37:49 | 217.68 | 217.68 | 4.81 |
| 0:05:54 | 1,456.47 | 22.76 | 46.05 | 0:13:54 | 1,361.26 | 42.54 | 24.59 | 0:21:54 | 909.95 | 56.87 | 18.55 | 0:29:54 | 752.04 | 94.00 | 11.15 | 0:37:54 | 218.52 | 218.52 | 4.79 |
| 0:05:59 | 1,451.86 | 22.69 | 46.21 | 0:13:59 | 1,424.60 | 44.52 | 23.61 | 0:21:59 | 899.89 | 56.24 | 18.41 | 0:29:59 | 751.41 | 93.93 | 11.07 | 0:37:59 | 201.54 | 201.54 | 5.19 |
| 0:06:04 | 1,451.86 | 22.69 | 46.27 | 0:14:04 | 1,462.97 | 45.72 | 22.91 | 0:22:04 | 792.09 | 49.51 | 21.30 | 0:30:04 | 787.69 | 98.46 | 10.70 | 0:38:04 | 177.00 | 177.00 | 5.91 |
| 0:06:09 | 1,450.18 | 22.66 | 46.13 | 0:14:09 | 1,505.34 | 47.04 | 22.18 | 0:22:09 | 838.65 | 52.42 | 19.98 | 0:30:09 | 818.31 | 102.29 | 10.19 | 0:38:09 | 192.52 | 192.52 | 5.44 |
| 0:06:14 | 1,457.52 | 22.77 | 46.15 | 0:14:14 | 1,380.97 | 43.16 | 24.27 | 0:22:14 | 922.54 | 57.66 | 18.19 | 0:30:14 | 732.12 | 91.51 | 11.49 | 0:38:14 | 201.54 | 201.54 | 5.20 |
| 0:06:19 | 1,445.78 | 22.59 | 46.28 | 0:14:19 | 1,410.96 | 44.09 | 23.82 | 0:22:19 | 763.36 | 47.71 | 21.87 | 0:30:19 | 727.29 | 90.91 | 11.52 | 0:38:19 | 218.10 | 218.10 | 4.80 |
| 0:06:24 | 1,454.58 | 22.73 | 46.27 | 0:14:24 | 1,254.94 | 39.22 | 26.78 | 0:22:24 | 796.08 | 49.75 | 21.18 | 0:30:24 | 640.05 | 80.01 | 13.15 | 0:38:24 | 187.90 | 187.90 | 5.57 |
| 0:06:29 | 1,451.23 | 22.68 | 46.24 | 0:14:29 | 1,296.67 | 40.52 | 25.80 | 0:22:29 | 940.78 | 58.80 | 17.79 | 0:30:29 | 721.21 | 90.15 | 11.61 | 0:38:29 | 206.99 | 206.99 | 5.05 |
| 0:06:34 | 1,454.37 | 22.72 | 46.12 | 0:14:34 | 1,306.53 | 40.83 | 25.65 | 0:22:34 | 969.72 | 60.61 | 17.29 | 0:30:34 | 720.16 | 90.02 | 11.56 | 0:38:34 | 170.50 | 170.50 | 6.14 |
| 0:06:39 | 1,455.84 | 22.75 | 46.20 | 0:14:39 | 1,364.83 | 42.65 | 24.75 | 0:22:39 | 998.66 | 62.42 | 16.80 | 0:30:39 | 727.29 | 90.91 | 11.58 | 0:38:39 | 187.90 | 187.90 | 5.57 |
| 0:06:44 | 1,446.62 | 22.60 | 46.22 | 0:14:44 | 1,269.62 | 39.68 | 26.18 | 0:22:44 | 954.62 | 59.66 | 17.50 | 0:30:44 | 808.45 | 101.06 | 10.31 | 0:38:44 | 218.10 | 218.10 | 4.80 |
| 0:06:49 | 1,459.20 | 22.80 | 46.12 | 0:14:49 | 1,495.90 | 46.75 | 22.43 | 0:22:49 | 890.03 | 55.63 | 18.94 | 0:30:49 | 812.02 | 101.50 | 10.36 | 0:38:49 | 187.49 | 187.49 | 5.58 |
| 0:06:54 | 1,440.74 | 22.51 | 46.18 | 0:14:54 | 1,391.25 | 43.48 | 24.08 | 0:22:54 | 981.89 | 61.37 | 16.92 | 0:30:54 | 809.71 | 101.21 | 10.30 | 0:38:54 | 208.46 | 208.46 | 5.02 |
| 0:06:59 | 1,455.21 | 22.74 | 46.33 | 0:14:59 | 1,483.11 | 46.35 | 22.66 | 0:22:59 | 1,063.05 | 66.44 | 15.98 | 0:30:59 | 781.61 | 97.70 | 10.75 | 0:38:59 | 206.99 | 206.99 | 5.06 |
| 0:07:04 | 1,454.58 | 22.73 | 46.21 | 0:15:04 | 1,402.99 | 43.84 | 23.91 | 0:23:04 | 899.89 | 56.24 | 18.47 | 0:31:04 | 785.38 | 98.17 | 10.65 | 0:39:04 | 210.34 | 210.34 | 4.98 |
| 0:07:09 | 1,443.47 | 22.55 | 46.22 | 0:15:09 | 1,285.34 | 40.17 | 26.10 | 0:23:09 | 865.70 | 54.11 | 19.25 | 0:31:09 | 797.34 | 99.67 | 10.51 | 0:39:09 | 206.99 | 206.99 | 5.05 |
| 0:07:14 | 1,456.47 | 22.76 | 46.20 | 0:15:14 | 1,255.77 | 39.24 | 26.71 | 0:23:14 | 745.33 | 46.58 | 22.53 | 0:31:14 | 733.79 | 91.72 | 11.41 | 0:39:14 | 218.10 | 218.10 | 4.80 |
| 0:07:19 | 1,449.97 | 22.66 | 46.28 | 0:15:19 | 1,343.85 | 42.00 | 25.06 | 0:23:19 | 736.52 | 46.03 | 22.91 | 0:31:19 | 645.71 | 80.71 | 13.04 | 0:39:19 | 217.68 | 217.68 | 4.81 |
| 0:07:24 | 1,455.63 | 22.74 | 46.18 | 0:15:24 | 1,319.95 | 41.25 | 25.17 | 0:23:24 | 788.95 | 49.31 | 21.33 | 0:31:24 | 837.81 | 104.73 | 9.99 | 0:39:24 | 200.49 | 200.49 | 5.20 |
| 0:07:29 | 1,446.20 | 22.60 | 46.18 | 0:15:29 | 1,378.67 | 43.08 | 24.39 | 0:23:29 | 916.67 | 57.29 | 18.13 | 0:31:29 | 711.14 | 88.89 | 11.76 | 0:39:29 | 218.10 | 218.10 | 4.80 |
| 0:07:34 | 1,459.83 | 22.81 | 46.23 | 0:15:34 | 1,356.65 | 42.40 | 24.84 | 0:23:34 | 1,022.78 | 63.92 | 16.49 | 0:31:34 | 680.32 | 85.04 | 12.33 | 0:39:34 | 218.10 | 218.10 | 4.79 |
| 0:07:39 | 1,443.68 | 23.67 | 46.15 | 0:15:39 | 1,410.33 | 50.37 | 23.72 | 0:23:39 | 804.47 | 57.46 | 20.76 | 0:31:39 | 756.44 | 94.56 | 11.01 | 0:39:39 | 183.50 | 183.50 | 5.70 |
| 0:07:44 | 100.24 | 0.00 | 38.45 | 0:15:44 | 79.90 | 0.00 | 22.16 | 0:23:44 | 45.30 | 0.00 | 18.55 | 0:31:44 | 9.65 | 0.00 | 12.41 | 0:39:44 | 5.03 | 0.00 | 4.80 |
| 0:07:49 | 0.00 | 0.00 | 0.00 | 0:15:49 | 0.00 | 0.00 | 0.00 | 0:23:49 | 0.00 | 0.00 | 0.00 | 0:31:49 | 0.00 | 0.00 | 0.00 | 0:39:49 | 0.00 | 0.00 | 0.00 |

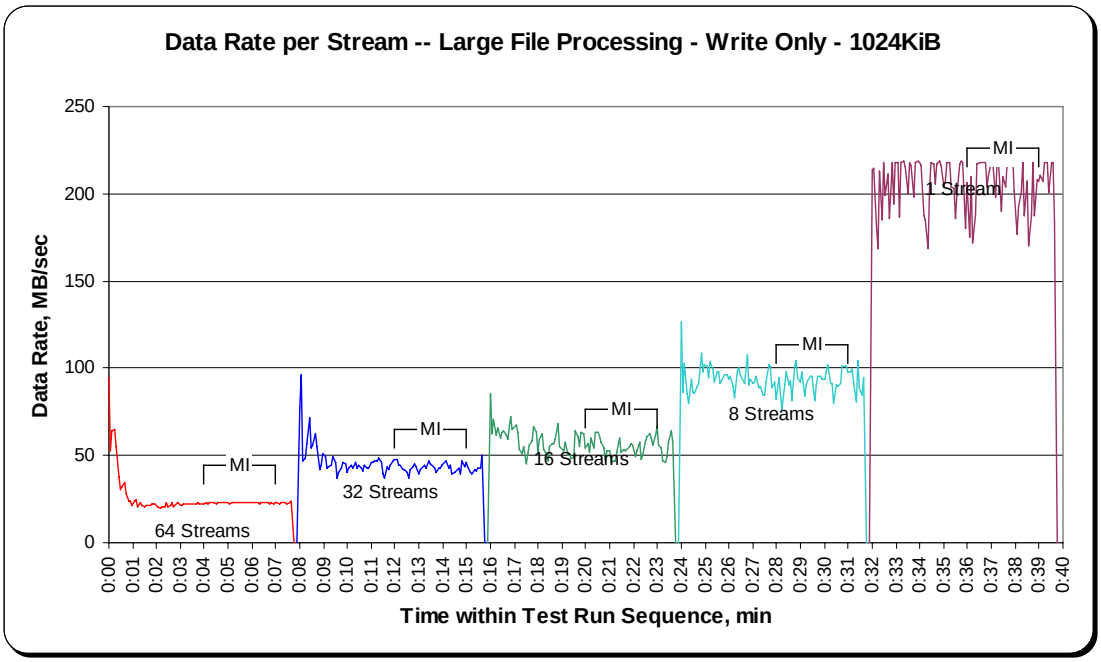
## SPC-2 "Large File Processing/WRITE ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



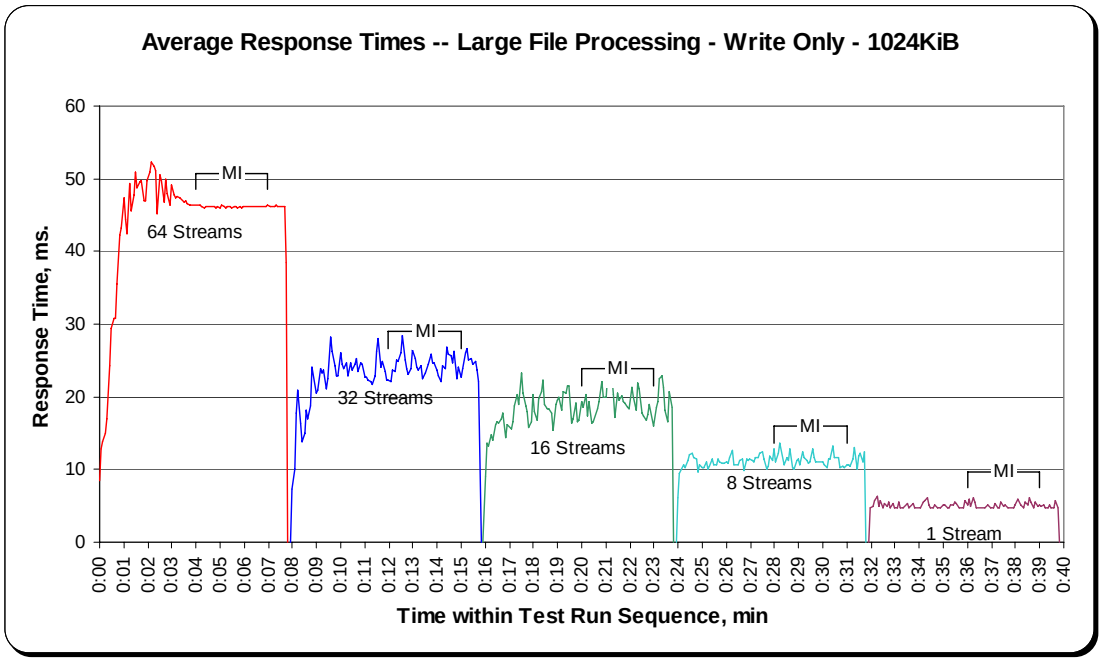

## SPC-2 "Large File Processing/ WRITE ONLY /1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



## 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



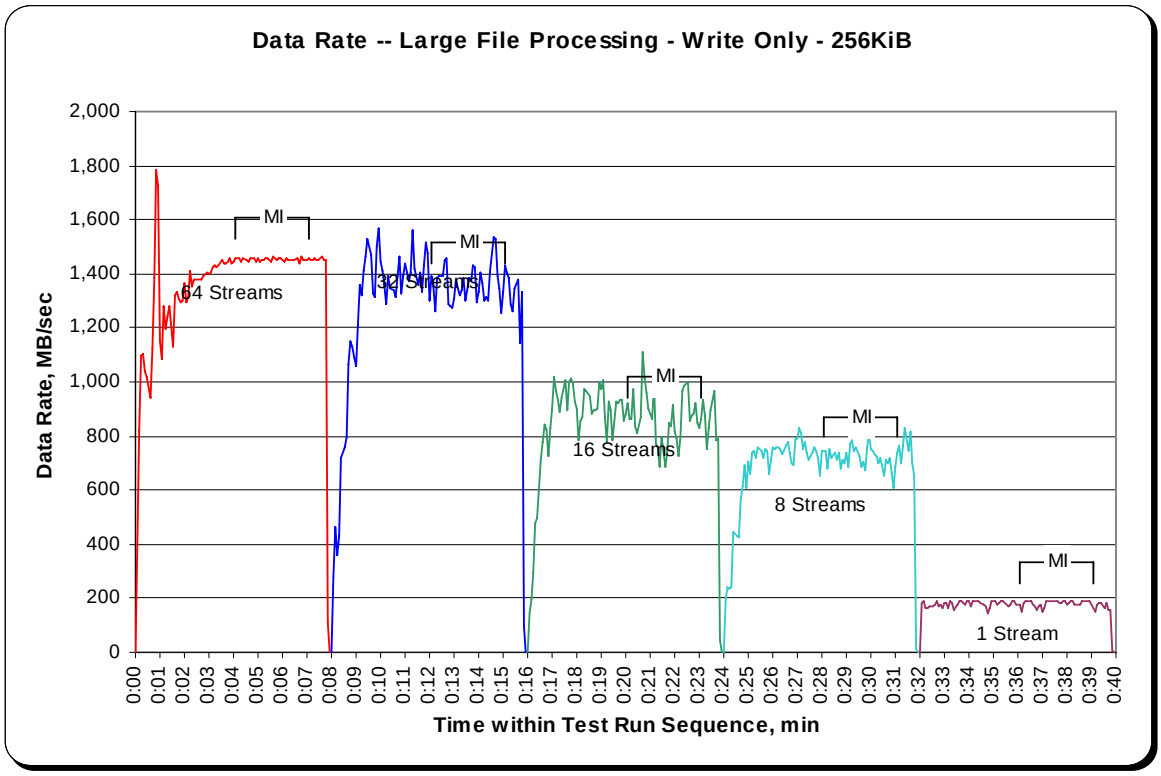
## SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data – Ramp-Up Period

| TR6 | 64 Streams | | | TR7 | 32 Streams | | | TR8 | 16 Streams | | | TR9 | 8 Streams | | | TR10 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:00 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 378.38 | 47.30 | 3.15 | 0:08:05 | 281.96 | 93.99 | 1.91 | 0:16:05 | 146.07 | 146.07 | 1.75 | 0:24:05 | 192.83 | 96.42 | 1.39 | 0:32:05 | 183.29 | 183.29 | 1.39 |
| 0:00:10 | 816.11 | 54.41 | 3.57 | 0:08:10 | 463.47 | 57.93 | 3.15 | 0:16:10 | 192.83 | 96.42 | 2.19 | 0:24:10 | 243.37 | 121.69 | 2.14 | 0:32:10 | 186.38 | 186.38 | 1.40 |
| 0:00:15 | 1,099.38 | 52.35 | 4.53 | 0:08:15 | 356.94 | 44.62 | 5.90 | 0:16:15 | 290.98 | 48.50 | 2.99 | 0:24:15 | 232.36 | 116.18 | 2.25 | 0:32:15 | 161.17 | 161.17 | 1.62 |
| 0:00:20 | 1,101.32 | 44.05 | 5.42 | 0:08:20 | 431.59 | 39.24 | 5.26 | 0:16:20 | 475.42 | 59.43 | 3.70 | 0:24:20 | 241.28 | 80.43 | 2.21 | 0:32:20 | 164.78 | 164.78 | 1.58 |
| 0:00:25 | 1,037.09 | 35.76 | 6.55 | 0:08:25 | 716.39 | 55.11 | 4.46 | 0:16:25 | 498.13 | 49.81 | 4.46 | 0:24:25 | 446.06 | 111.52 | 2.04 | 0:32:25 | 169.97 | 169.97 | 1.53 |
| 0:00:30 | 1,018.59 | 32.86 | 7.55 | 0:08:30 | 759.17 | 54.23 | 4.48 | 0:16:30 | 720.11 | 65.46 | 3.74 | 0:24:30 | 434.48 | 108.62 | 2.41 | 0:32:30 | 169.97 | 169.97 | 1.53 |
| 0:00:35 | 938.84 | 24.71 | 9.56 | 0:08:35 | 799.33 | 53.29 | 4.68 | 0:16:35 | 775.84 | 64.65 | 3.94 | 0:24:35 | 427.87 | 106.97 | 2.45 | 0:32:35 | 176.84 | 176.84 | 1.47 |
| 0:00:40 | 1,126.28 | 28.16 | 8.87 | 0:08:40 | 1,063.57 | 53.18 | 4.37 | 0:16:40 | 840.38 | 70.03 | 3.74 | 0:24:40 | 568.70 | 113.74 | 2.20 | 0:32:40 | 187.59 | 187.59 | 1.39 |
| 0:00:45 | 1,382.70 | 31.43 | 8.01 | 0:08:45 | 1,150.60 | 52.30 | 4.63 | 0:16:45 | 821.51 | 58.68 | 3.84 | 0:24:45 | 612.89 | 87.56 | 2.68 | 0:32:45 | 170.29 | 170.29 | 1.53 |
| 0:00:50 | 1,785.88 | 39.69 | 6.60 | 0:08:50 | 1,130.26 | 47.09 | 5.29 | 0:16:50 | 725.14 | 45.32 | 5.20 | 0:24:50 | 692.58 | 98.94 | 2.63 | 0:32:50 | 176.06 | 176.06 | 1.48 |
| 0:00:55 | 1,725.22 | 35.21 | 7.07 | 0:08:55 | 1,089.94 | 45.41 | 5.77 | 0:16:55 | 828.43 | 51.78 | 5.03 | 0:24:55 | 606.86 | 86.69 | 3.04 | 0:32:55 | 165.57 | 165.57 | 1.57 |
| 0:01:00 | 1,149.71 | 22.99 | 11.31 | 0:09:00 | 1,057.02 | 44.04 | 5.96 | 0:17:00 | 903.82 | 56.49 | 4.62 | 0:25:00 | 706.16 | 100.88 | 2.56 | 0:33:00 | 181.25 | 181.25 | 1.44 |
| 0:01:05 | 1,084.28 | 20.08 | 12.97 | 0:09:05 | 1,205.91 | 46.38 | 5.35 | 0:17:05 | 1,018.01 | 63.63 | 4.12 | 0:25:05 | 657.46 | 93.92 | 2.79 | 0:33:05 | 183.82 | 183.82 | 1.42 |
| 0:01:10 | 1,280.31 | 22.07 | 11.60 | 0:09:10 | 1,361.47 | 50.42 | 5.02 | 0:17:10 | 964.74 | 60.30 | 4.34 | 0:25:10 | 736.05 | 105.15 | 2.50 | 0:33:10 | 163.32 | 163.32 | 1.60 |
| 0:01:15 | 1,198.68 | 19.98 | 12.86 | 0:09:15 | 1,322.20 | 47.22 | 5.52 | 0:17:15 | 937.64 | 58.60 | 4.46 | 0:25:15 | 742.86 | 106.12 | 2.46 | 0:33:15 | 187.59 | 187.59 | 1.39 |
| 0:01:20 | 1,241.20 | 20.02 | 12.73 | 0:09:21 | 1,412.96 | 47.10 | 5.57 | 0:17:20 | 888.83 | 55.55 | 4.68 | 0:25:20 | 719.64 | 102.81 | 2.54 | 0:33:20 | 184.23 | 184.23 | 1.41 |
| 0:01:25 | 1,282.36 | 20.68 | 12.69 | 0:09:25 | 1,464.34 | 47.24 | 5.28 | 0:17:25 | 940.05 | 58.75 | 4.47 | 0:25:25 | 757.44 | 94.68 | 2.64 | 0:33:25 | 156.81 | 156.81 | 1.66 |
| 0:01:30 | 1,130.99 | 17.67 | 14.45 | 0:09:30 | 1,526.46 | 47.70 | 5.34 | 0:17:30 | 1,004.85 | 62.80 | 4.17 | 0:25:30 | 745.49 | 93.19 | 2.83 | 0:33:30 | 176.21 | 176.21 | 1.48 |
| 0:01:35 | 1,320.21 | 20.63 | 12.71 | 0:09:35 | 1,468.11 | 45.88 | 5.72 | 0:17:35 | 898.47 | 56.15 | 4.64 | 0:25:35 | 718.22 | 89.78 | 2.89 | 0:33:35 | 187.49 | 187.49 | 1.39 |
| 0:01:40 | 1,336.57 | 20.88 | 12.56 | 0:09:40 | 1,327.76 | 41.49 | 6.27 | 0:17:40 | 1,001.91 | 62.62 | 4.19 | 0:25:40 | 750.47 | 93.81 | 2.77 | 0:33:40 | 187.70 | 187.70 | 1.39 |
| 0:01:45 | 1,307.05 | 20.42 | 12.88 | 0:09:45 | 1,314.76 | 41.09 | 6.35 | 0:17:45 | 1,010.83 | 63.18 | 4.14 | 0:25:45 | 746.95 | 93.37 | 2.82 | 0:33:45 | 180.88 | 180.88 | 1.44 |
| 0:01:50 | 1,293.68 | 20.21 | 12.92 | 0:09:50 | 1,505.70 | 47.05 | 5.56 | 0:17:50 | 994.42 | 62.15 | 4.21 | 0:25:50 | 663.12 | 82.89 | 3.15 | 0:33:50 | 176.95 | 176.95 | 1.47 |
| 0:01:55 | 1,297.56 | 20.27 | 12.92 | 0:09:55 | 1,566.21 | 48.94 | 5.39 | 0:17:55 | 925.53 | 57.85 | 4.50 | 0:25:55 | 714.29 | 89.29 | 2.92 | 0:33:55 | 188.01 | 188.01 | 1.38 |
| 0:02:00 | 1,368.02 | 21.38 | 12.26 | 0:10:00 | 1,445.78 | 45.18 | 5.76 | 0:18:00 | 900.88 | 56.31 | 4.67 | 0:26:00 | 758.70 | 94.84 | 2.74 | 0:34:00 | 187.70 | 187.70 | 1.39 |
| 0:02:05 | 1,291.95 | 20.19 | 13.00 | 0:10:05 | 1,413.80 | 44.18 | 5.93 | 0:18:05 | 785.70 | 49.11 | 5.33 | 0:26:05 | 749.52 | 93.69 | 2.82 | 0:34:05 | 170.08 | 170.08 | 1.53 |
| 0:02:10 | 1,315.70 | 20.56 | 12.68 | 0:10:10 | 1,359.90 | 42.50 | 6.18 | 0:18:10 | 853.17 | 53.32 | 4.89 | 0:26:10 | 756.60 | 94.58 | 2.74 | 0:34:10 | 187.01 | 187.01 | 1.39 |
| 0:02:15 | 1,412.12 | 22.06 | 11.88 | 0:10:15 | 1,284.61 | 40.14 | 6.48 | 0:18:15 | 870.48 | 54.40 | 4.82 | 0:26:15 | 759.38 | 94.92 | 2.73 | 0:34:15 | 187.90 | 187.90 | 1.39 |
| 0:02:20 | 1,349.73 | 21.09 | 12.47 | 0:10:20 | 1,390.62 | 43.46 | 6.02 | 0:18:20 | 972.13 | 60.76 | 4.30 | 0:26:20 | 751.04 | 93.88 | 2.81 | 0:34:20 | 187.70 | 187.70 | 1.39 |
| 0:02:25 | 1,376.94 | 21.51 | 12.14 | 0:10:25 | 1,347.68 | 42.12 | 6.19 | 0:18:25 | 964.74 | 60.30 | 4.34 | 0:26:25 | 733.22 | 91.65 | 2.85 | 0:34:25 | 187.01 | 187.01 | 1.39 |
| 0:02:30 | 1,380.76 | 21.57 | 12.14 | 0:10:31 | 1,339.71 | 41.87 | 6.36 | 0:18:31 | 944.50 | 59.03 | 4.45 | 0:26:30 | 767.77 | 95.97 | 2.72 | 0:34:30 | 186.02 | 186.02 | 1.40 |
| 0:02:35 | 1,382.02 | 21.59 | 12.13 | 0:10:35 | 1,315.60 | 41.11 | 6.28 | 0:18:35 | 885.05 | 55.32 | 4.71 | 0:26:35 | 775.11 | 96.89 | 2.68 | 0:34:35 | 173.59 | 173.59 | 1.50 |
| 0:02:40 | 1,381.76 | 21.59 | 12.16 | 0:10:40 | 1,394.71 | 43.58 | 6.02 | 0:18:40 | 896.27 | 56.02 | 4.67 | 0:26:40 | 739.61 | 92.45 | 2.85 | 0:34:40 | 168.77 | 168.77 | 1.54 |
| 0:02:45 | 1,389.31 | 21.71 | 12.00 | 0:10:45 | 1,462.40 | 45.70 | 5.74 | 0:18:45 | 895.90 | 55.99 | 4.67 | 0:26:45 | 700.50 | 87.56 | 2.96 | 0:34:45 | 145.54 | 145.54 | 1.79 |
| 0:02:50 | 1,400.11 | 21.88 | 11.98 | 0:10:50 | 1,323.57 | 41.36 | 6.30 | 0:18:50 | 902.46 | 56.40 | 4.64 | 0:26:50 | 692.27 | 86.53 | 3.00 | 0:34:50 | 163.00 | 163.00 | 1.60 |
| 0:02:55 | 1,405.72 | 21.96 | 11.98 | 0:10:55 | 1,391.67 | 43.49 | 6.01 | 0:18:55 | 998.19 | 62.39 | 4.19 | 0:26:55 | 791.31 | 98.91 | 2.66 | 0:34:55 | 187.28 | 187.28 | 1.39 |
| 0:03:00 | 1,401.74 | 21.90 | 11.93 | 0:11:00 | 1,438.38 | 44.95 | 5.80 | 0:19:00 | 971.14 | 60.70 | 4.31 | 0:27:00 | 791.47 | 98.93 | 2.64 | 0:35:00 | 186.54 | 186.54 | 1.40 |
| 0:03:05 | 1,404.25 | 21.94 | 11.90 | 0:11:05 | 1,407.98 | 44.00 | 6.00 | 0:19:05 | 1,003.54 | 62.72 | 4.15 | 0:27:05 | 827.96 | 103.49 | 2.52 | 0:35:05 | 187.38 | 187.38 | 1.39 |
| 0:03:10 | 1,422.66 | 22.23 | 11.82 | 0:11:10 | 1,372.80 | 42.90 | 6.07 | 0:19:10 | 868.27 | 54.27 | 4.84 | 0:27:10 | 809.13 | 101.14 | 2.57 | 0:35:10 | 176.84 | 176.84 | 1.47 |
| 0:03:15 | 1,431.78 | 22.37 | 11.73 | 0:11:15 | 1,407.82 | 43.99 | 5.96 | 0:19:15 | 779.77 | 48.74 | 5.37 | 0:27:15 | 749.94 | 93.74 | 2.82 | 0:35:15 | 184.76 | 184.76 | 1.41 |
| 0:03:20 | 1,422.66 | 22.23 | 11.72 | 0:11:20 | 1,564.84 | 48.90 | 5.37 | 0:19:20 | 929.93 | 58.12 | 4.49 | 0:27:20 | 778.57 | 97.32 | 2.67 | 0:35:20 | 187.80 | 187.80 | 1.39 |
| 0:03:25 | 1,432.04 | 22.38 | 11.69 | 0:11:25 | 1,419.35 | 44.35 | 5.87 | 0:19:25 | 898.11 | 56.13 | 4.68 | 0:27:25 | 738.56 | 92.32 | 2.81 | 0:35:25 | 187.75 | 187.75 | 1.39 |
| 0:03:30 | 1,448.24 | 22.63 | 11.65 | 0:11:30 | 1,357.33 | 42.42 | 6.17 | 0:19:30 | 785.49 | 49.09 | 5.32 | 0:27:30 | 713.40 | 89.17 | 2.96 | 0:35:30 | 184.34 | 184.34 | 1.41 |
| 0:03:35 | 1,436.71 | 22.45 | 11.64 | 0:11:35 | 1,406.35 | 43.95 | 5.93 | 0:19:35 | 929.04 | 58.06 | 4.50 | 0:27:35 | 738.77 | 92.35 | 2.83 | 0:35:35 | 171.60 | 171.60 | 1.52 |
| 0:03:40 | 1,436.13 | 22.44 | 11.67 | 0:11:40 | 1,331.11 | 41.60 | 6.35 | 0:19:40 | 924.37 | 57.77 | 4.50 | 0:27:40 | 756.34 | 94.54 | 2.76 | 0:35:40 | 179.73 | 179.73 | 1.45 |
| 0:03:45 | 1,443.68 | 22.56 | 11.62 | 0:11:45 | 1,432.72 | 44.77 | 5.81 | 0:19:45 | 936.38 | 58.52 | 4.49 | 0:27:45 | 745.22 | 93.15 | 2.79 | 0:35:45 | 187.70 | 187.70 | 1.39 |
| 0:03:50 | 1,456.42 | 22.76 | 11.53 | 0:11:50 | 1,513.46 | 47.30 | 5.54 | 0:19:50 | 933.86 | 58.37 | 4.48 | 0:27:50 | 721.00 | 90.13 | 2.93 | 0:35:50 | 187.17 | 187.17 | 1.39 |
| 0:03:55 | 1,439.85 | 22.50 | 11.58 | 0:11:55 | 1,476.76 | 46.15 | 5.69 | 0:19:55 | 857.68 | 53.61 | 4.87 | 0:27:55 | 653.37 | 81.67 | 3.18 | 0:35:55 | 176.16 | 176.16 | 1.48 |
| 0:04:00 | 1,445.57 | 22.59 | 11.58 | 0:12:00 | 1,302.44 | 40.70 | 6.38 | 0:20:00 | 882.53 | 55.16 | 4.75 | 0:28:00 | 744.96 | 93.12 | 2.79 | 0:36:00 | 174.59 | 174.59 | 1.49 |

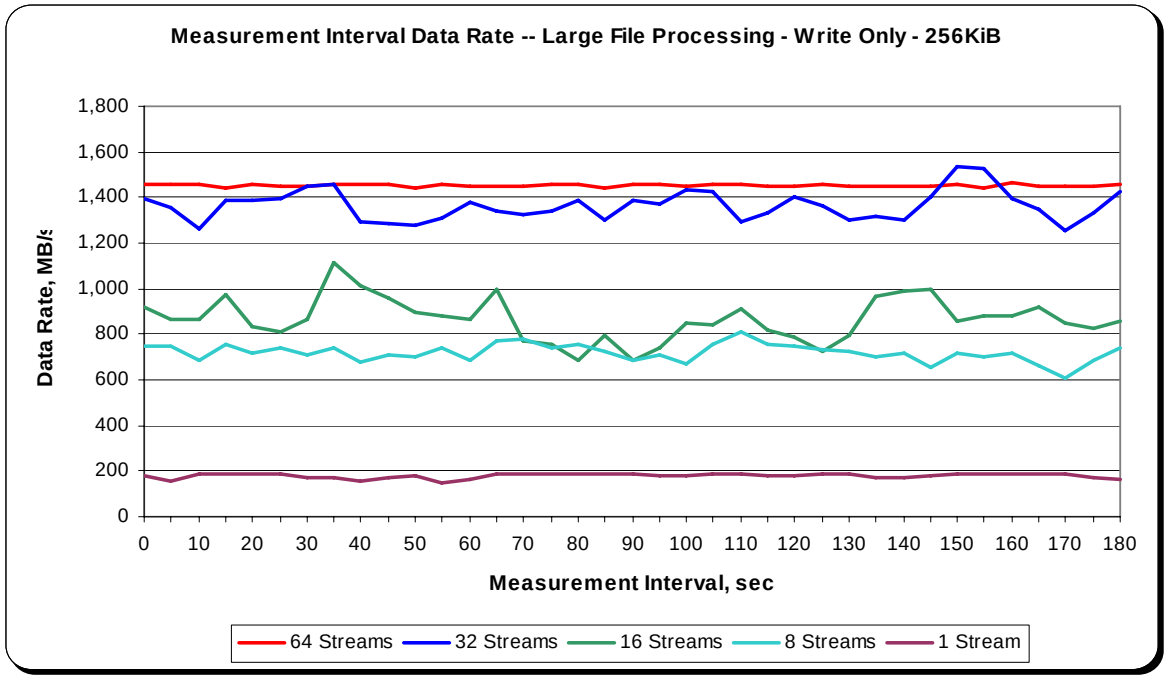
## SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR6 | 64 Streams | | | TR7 | 32 Streams | | | TR8 | 16 Streams | | | TR9 | 8 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 |
| 0:04:05 | 1,458.88 | 22.80 | 11.53 | 0:12:05 | 1,394.61 | 43.58 | 6.03 | 0:20:05 | 922.07 | 57.63 | 4.55 | 0:28:05 | 745.33 | 93.17 | 2.81 | 0:36:05 | 178.15 | 178.15 | 1.46 |
| 0:04:10 | 1,457.21 | 22.77 | 11.51 | 0:12:10 | 1,354.87 | 42.34 | 6.15 | 0:20:10 | 864.76 | 54.05 | 4.84 | 0:28:10 | 747.42 | 93.43 | 2.79 | 0:36:10 | 152.31 | 152.31 | 1.70 |
| 0:04:15 | 1,454.37 | 22.72 | 11.55 | 0:12:15 | 1,259.86 | 39.37 | 6.68 | 0:20:15 | 862.87 | 53.93 | 4.84 | 0:28:15 | 682.78 | 85.35 | 3.06 | 0:36:15 | 184.60 | 184.60 | 1.41 |
| 0:04:20 | 1,444.15 | 22.56 | 11.55 | 0:12:20 | 1,386.11 | 43.32 | 6.01 | 0:20:20 | 972.40 | 60.77 | 4.30 | 0:28:20 | 754.03 | 94.25 | 2.79 | 0:36:20 | 187.49 | 187.49 | 1.39 |
| 0:04:25 | 1,457.26 | 22.77 | 11.56 | 0:12:25 | 1,390.67 | 43.46 | 6.05 | 0:20:25 | 836.82 | 52.30 | 5.00 | 0:28:25 | 717.54 | 89.69 | 2.89 | 0:36:25 | 187.90 | 187.90 | 1.39 |
| 0:04:30 | 1,452.54 | 22.70 | 11.52 | 0:12:30 | 1,391.15 | 43.47 | 6.03 | 0:20:30 | 813.33 | 50.83 | 5.15 | 0:28:30 | 739.82 | 92.48 | 2.84 | 0:36:30 | 187.90 | 187.90 | 1.39 |
| 0:04:35 | 1,445.88 | 22.59 | 11.59 | 0:12:35 | 1,452.80 | 45.40 | 5.77 | 0:20:35 | 867.96 | 54.25 | 4.86 | 0:28:35 | 709.52 | 88.69 | 2.93 | 0:36:35 | 174.01 | 174.01 | 1.50 |
| 0:04:40 | 1,457.57 | 22.77 | 11.50 | 0:12:40 | 1,460.30 | 45.63 | 5.72 | 0:20:40 | 1,112.54 | 69.53 | 3.74 | 0:28:40 | 739.77 | 92.47 | 2.84 | 0:36:41 | 171.55 | 171.55 | 1.52 |
| 0:04:45 | 1,454.58 | 22.73 | 11.54 | 0:12:45 | 1,290.53 | 40.33 | 6.45 | 0:20:45 | 1,015.23 | 63.45 | 4.12 | 0:28:45 | 681.26 | 85.16 | 3.07 | 0:36:45 | 158.33 | 158.33 | 1.65 |
| 0:04:50 | 1,460.14 | 22.81 | 11.52 | 0:12:50 | 1,283.98 | 40.12 | 6.56 | 0:20:50 | 961.49 | 60.09 | 4.34 | 0:28:50 | 712.93 | 89.12 | 2.92 | 0:36:50 | 172.96 | 172.96 | 1.51 |
| 0:04:55 | 1,441.42 | 22.52 | 11.54 | 0:12:55 | 1,277.32 | 39.92 | 6.52 | 0:20:55 | 899.26 | 56.20 | 4.66 | 0:28:55 | 698.09 | 87.26 | 3.01 | 0:36:55 | 176.84 | 176.84 | 1.47 |
| 0:05:00 | 1,457.99 | 22.78 | 11.56 | 0:13:00 | 1,308.05 | 40.88 | 6.43 | 0:21:00 | 882.80 | 55.17 | 4.74 | 0:29:00 | 740.71 | 92.59 | 2.80 | 0:37:00 | 149.06 | 149.06 | 1.75 |
| 0:05:05 | 1,447.51 | 22.62 | 11.55 | 0:13:05 | 1,375.94 | 43.00 | 6.09 | 0:21:05 | 861.77 | 53.86 | 4.86 | 0:29:05 | 685.35 | 85.67 | 3.06 | 0:37:05 | 163.37 | 163.37 | 1.59 |
| 0:05:10 | 1,452.17 | 22.69 | 11.54 | 0:13:10 | 1,344.12 | 42.00 | 6.25 | 0:21:10 | 994.73 | 62.17 | 4.22 | 0:29:10 | 771.80 | 96.48 | 2.69 | 0:37:10 | 187.17 | 187.17 | 1.39 |
| 0:05:15 | 1,452.75 | 22.70 | 11.54 | 0:13:15 | 1,322.67 | 41.33 | 6.31 | 0:21:15 | 770.81 | 48.18 | 5.43 | 0:29:15 | 781.98 | 97.75 | 2.68 | 0:37:15 | 187.33 | 187.33 | 1.39 |
| 0:05:20 | 1,456.31 | 22.75 | 11.51 | 0:13:20 | 1,341.81 | 41.93 | 6.21 | 0:21:20 | 755.60 | 47.23 | 5.54 | 0:29:20 | 742.71 | 92.84 | 2.81 | 0:37:20 | 187.38 | 187.38 | 1.39 |
| 0:05:25 | 1,458.20 | 22.78 | 11.52 | 0:13:25 | 1,386.85 | 43.34 | 6.07 | 0:21:25 | 686.61 | 42.91 | 6.08 | 0:29:25 | 756.39 | 94.55 | 2.76 | 0:37:25 | 186.91 | 186.91 | 1.39 |
| 0:05:30 | 1,443.42 | 22.55 | 11.55 | 0:13:30 | 1,297.87 | 40.56 | 6.42 | 0:21:30 | 795.50 | 49.72 | 5.27 | 0:29:30 | 722.68 | 90.33 | 2.91 | 0:37:30 | 186.96 | 186.96 | 1.39 |
| 0:05:35 | 1,460.93 | 22.83 | 11.53 | 0:13:35 | 1,384.70 | 43.27 | 6.09 | 0:21:35 | 683.72 | 42.73 | 6.12 | 0:29:35 | 687.29 | 85.91 | 3.02 | 0:37:35 | 187.22 | 187.22 | 1.39 |
| 0:05:40 | 1,456.37 | 22.76 | 11.48 | 0:13:40 | 1,369.96 | 42.81 | 6.10 | 0:21:40 | 738.04 | 46.13 | 5.67 | 0:29:40 | 707.89 | 88.49 | 2.96 | 0:37:40 | 181.04 | 181.04 | 1.44 |
| 0:05:45 | 1,451.28 | 22.68 | 11.54 | 0:13:45 | 1,430.68 | 44.71 | 5.87 | 0:21:45 | 847.51 | 52.97 | 4.95 | 0:29:45 | 673.55 | 84.19 | 3.09 | 0:37:45 | 182.50 | 182.50 | 1.43 |
| 0:05:50 | 1,458.52 | 22.79 | 11.50 | 0:13:50 | 1,424.81 | 44.53 | 5.86 | 0:21:50 | 839.75 | 52.48 | 4.99 | 0:29:50 | 757.07 | 94.63 | 2.77 | 0:37:50 | 188.01 | 188.01 | 1.39 |
| 0:05:55 | 1,459.83 | 22.81 | 11.52 | 0:13:55 | 1,292.27 | 40.38 | 6.44 | 0:21:55 | 914.46 | 57.15 | 4.57 | 0:29:55 | 812.17 | 101.52 | 2.57 | 0:37:55 | 187.59 | 187.59 | 1.39 |
| 0:06:00 | 1,451.33 | 22.68 | 11.54 | 0:14:00 | 1,335.57 | 41.74 | 6.31 | 0:22:00 | 814.53 | 50.91 | 5.13 | 0:30:00 | 753.14 | 94.14 | 2.77 | 0:38:00 | 177.05 | 177.05 | 1.47 |
| 0:06:05 | 1,445.99 | 22.59 | 11.53 | 0:14:05 | 1,404.99 | 43.91 | 5.93 | 0:22:05 | 787.80 | 49.24 | 5.32 | 0:30:05 | 747.95 | 93.49 | 2.81 | 0:38:05 | 182.03 | 182.03 | 1.43 |
| 0:06:10 | 1,458.67 | 22.79 | 11.55 | 0:14:10 | 1,366.87 | 42.71 | 6.16 | 0:22:10 | 725.40 | 45.34 | 5.77 | 0:30:10 | 730.86 | 91.36 | 2.84 | 0:38:10 | 187.54 | 187.54 | 1.39 |
| 0:06:15 | 1,450.70 | 22.67 | 11.53 | 0:14:15 | 1,298.56 | 40.58 | 6.45 | 0:22:15 | 795.61 | 49.73 | 5.26 | 0:30:15 | 726.14 | 90.77 | 2.89 | 0:38:15 | 188.27 | 188.27 | 1.38 |
| 0:06:20 | 1,452.85 | 22.70 | 11.53 | 0:14:20 | 1,315.39 | 41.11 | 6.39 | 0:22:20 | 966.94 | 60.43 | 4.34 | 0:30:20 | 699.66 | 87.46 | 2.97 | 0:38:20 | 173.59 | 173.59 | 1.50 |
| 0:06:25 | 1,449.81 | 22.65 | 11.57 | 0:14:25 | 1,298.19 | 40.57 | 6.43 | 0:22:25 | 986.97 | 61.69 | 4.24 | 0:30:25 | 717.86 | 89.73 | 2.93 | 0:38:25 | 173.43 | 173.43 | 1.50 |
| 0:06:30 | 1,452.64 | 22.70 | 11.56 | 0:14:30 | 1,404.15 | 43.88 | 5.93 | 0:22:30 | 999.66 | 62.48 | 4.19 | 0:30:30 | 652.84 | 81.61 | 3.21 | 0:38:30 | 179.20 | 179.20 | 1.45 |
| 0:06:35 | 1,454.48 | 22.73 | 11.54 | 0:14:35 | 1,538.00 | 48.06 | 5.48 | 0:22:35 | 856.01 | 53.50 | 4.88 | 0:30:35 | 713.61 | 89.20 | 2.92 | 0:38:35 | 188.17 | 188.17 | 1.38 |
| 0:06:40 | 1,440.59 | 22.51 | 11.58 | 0:14:40 | 1,527.93 | 47.75 | 5.45 | 0:22:40 | 878.08 | 54.88 | 4.77 | 0:30:40 | 700.24 | 87.53 | 3.00 | 0:38:40 | 187.75 | 187.75 | 1.39 |
| 0:06:45 | 1,463.81 | 22.87 | 11.51 | 0:14:45 | 1,392.46 | 43.51 | 6.02 | 0:22:45 | 880.02 | 55.00 | 4.75 | 0:30:45 | 719.22 | 89.90 | 2.89 | 0:38:45 | 187.64 | 187.64 | 1.39 |
| 0:06:50 | 1,450.76 | 22.67 | 11.53 | 0:14:50 | 1,347.94 | 42.12 | 6.21 | 0:22:50 | 920.28 | 57.52 | 4.55 | 0:30:50 | 663.54 | 82.94 | 3.16 | 0:38:50 | 187.54 | 187.54 | 1.39 |
| 0:06:55 | 1,453.06 | 22.70 | 11.53 | 0:14:55 | 1,254.10 | 39.19 | 6.72 | 0:22:55 | 852.07 | 53.25 | 4.92 | 0:30:55 | 607.07 | 75.88 | 3.42 | 0:38:55 | 187.96 | 187.96 | 1.39 |
| 0:07:00 | 1,450.50 | 22.66 | 11.54 | 0:15:00 | 1,330.12 | 41.57 | 6.28 | 0:23:00 | 828.95 | 51.81 | 5.05 | 0:31:00 | 686.14 | 85.77 | 3.04 | 0:39:00 | 173.33 | 173.33 | 1.50 |
| 0:07:05 | 1,458.04 | 22.78 | 11.54 | 0:15:05 | 1,429.68 | 44.68 | 5.81 | 0:23:05 | 859.52 | 53.72 | 4.86 | 0:31:05 | 740.40 | 92.55 | 2.85 | 0:39:05 | 166.51 | 166.51 | 1.56 |
| 0:07:10 | 1,451.49 | 22.68 | 11.54 | 0:15:10 | 1,406.45 | 43.95 | 5.95 | 0:23:10 | 937.01 | 58.56 | 4.46 | 0:31:10 | 761.48 | 95.18 | 2.71 | 0:39:10 | 153.25 | 153.25 | 1.70 |
| 0:07:15 | 1,448.66 | 22.64 | 11.51 | 0:15:15 | 1,386.27 | 43.32 | 6.06 | 0:23:15 | 875.72 | 54.73 | 4.79 | 0:31:15 | 702.07 | 87.76 | 3.01 | 0:39:15 | 175.06 | 175.06 | 1.49 |
| 0:07:20 | 1,457.00 | 22.77 | 11.53 | 0:15:20 | 1,289.64 | 40.30 | 6.51 | 0:23:20 | 752.56 | 47.04 | 5.54 | 0:31:20 | 763.52 | 95.44 | 2.72 | 0:39:20 | 183.66 | 183.66 | 1.42 |
| 0:07:25 | 1,453.85 | 22.72 | 11.53 | 0:15:25 | 1,261.86 | 39.43 | 6.68 | 0:23:25 | 832.41 | 52.03 | 5.04 | 0:31:25 | 828.01 | 103.50 | 2.54 | 0:39:25 | 185.96 | 185.96 | 1.40 |
| 0:07:30 | 1,452.49 | 22.70 | 11.54 | 0:15:30 | 1,347.79 | 42.12 | 6.13 | 0:23:30 | 897.53 | 56.10 | 4.66 | 0:31:30 | 746.32 | 93.29 | 2.80 | 0:39:30 | 164.42 | 164.42 | 1.58 |
| 0:07:35 | 1,461.98 | 22.84 | 11.53 | 0:15:35 | 1,380.29 | 43.13 | 6.12 | 0:23:35 | 966.11 | 60.38 | 4.33 | 0:31:35 | 814.32 | 101.79 | 2.58 | 0:39:36 | 180.77 | 180.77 | 1.44 |
| 0:07:40 | 1,450.44 | 22.66 | 11.52 | 0:15:40 | 1,144.00 | 35.75 | 7.28 | 0:23:40 | 784.33 | 49.02 | 5.33 | 0:31:40 | 696.36 | 87.04 | 3.00 | 0:39:40 | 158.02 | 158.02 | 1.65 |
| 0:07:45 | 1,450.23 | 24.17 | 11.54 | 0:15:45 | 1,332.32 | 47.58 | 6.30 | 0:23:45 | 788.95 | 56.35 | 5.32 | 0:31:45 | 655.05 | 81.88 | 3.15 | 0:39:45 | 156.34 | 156.34 | 1.67 |
| 0:07:50 | 109.31 | 0.00 | 8.82 | 0:15:50 | 101.03 | 0.00 | 5.02 | 0:23:50 | 45.04 | 0.00 | 5.53 | 0:31:50 | 11.48 | 0.00 | 3.53 | 0:39:50 | 4.19 | 0.00 | 1.40 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |

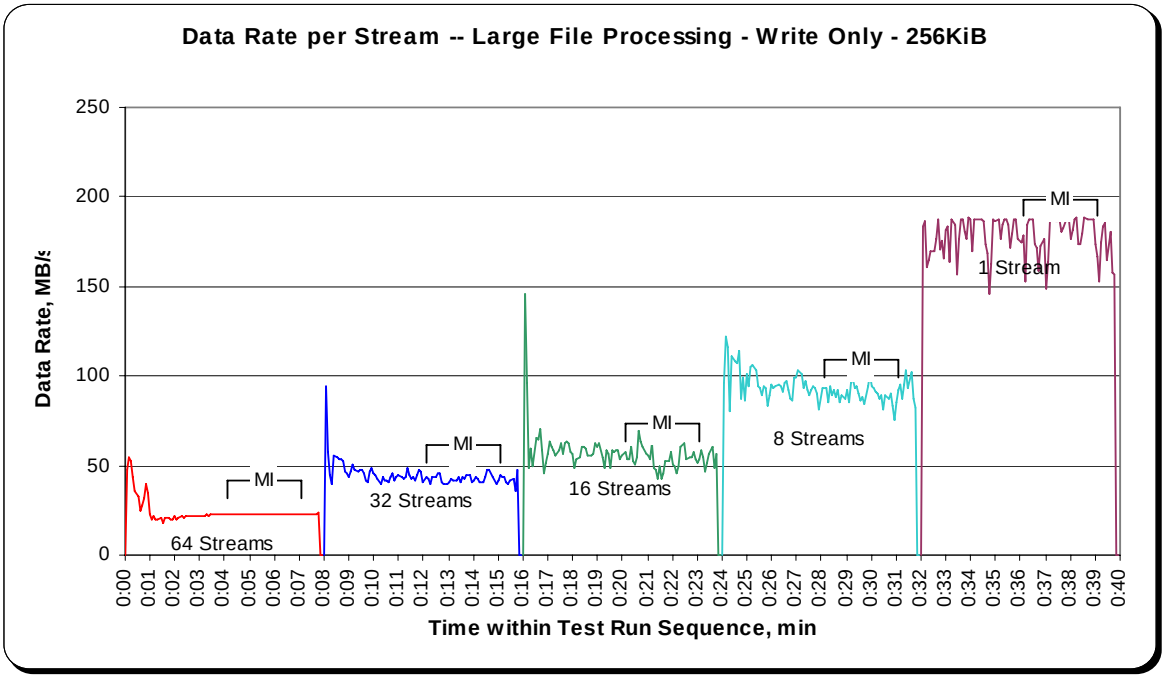
## SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



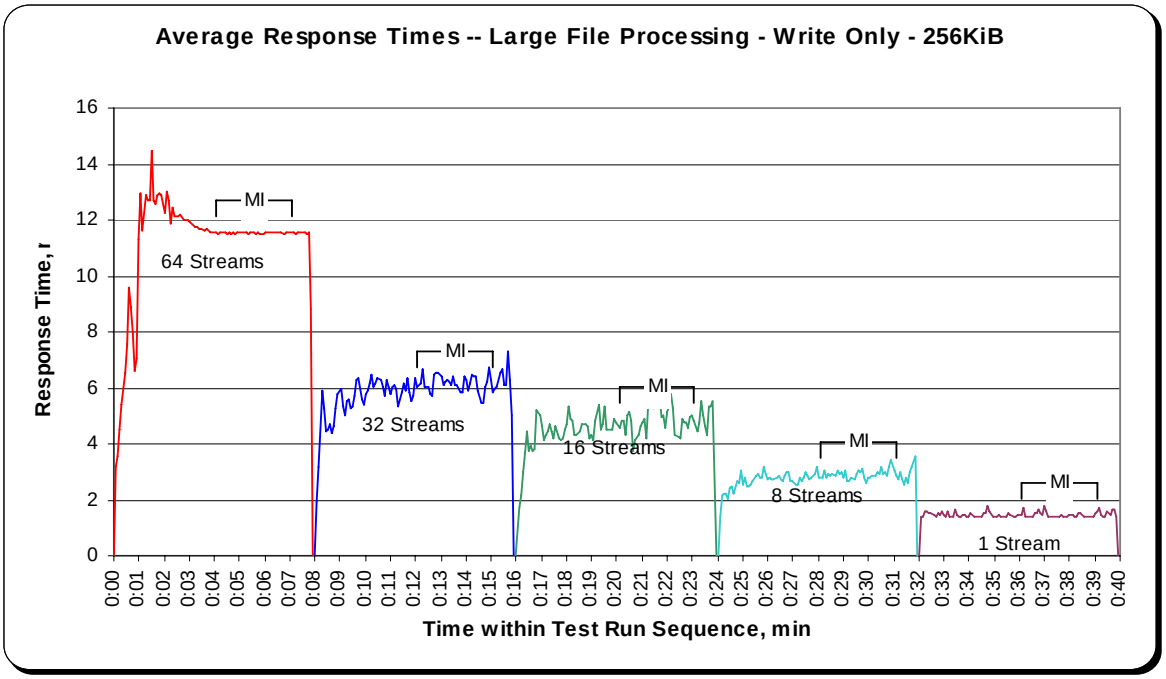

## SPC-2 "Large File Processing/ WRITE ONLY /256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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

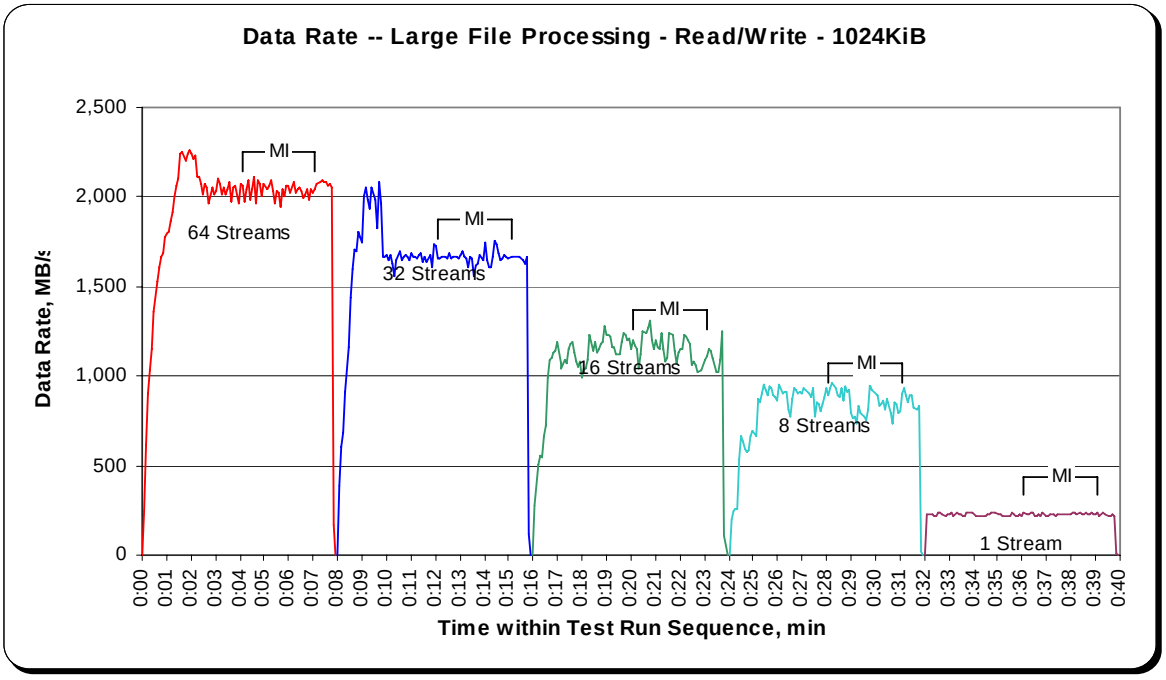
## SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data – Ramp-Up Period

| TR11 | 64 Streams | | | TR12 | 32 Streams | | | TR13 | 16 Streams | | | TR14 | 8 Streams | | | TR15 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:00 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 247.46 | 41.24 | 13.62 | 0:08:05 | 385.25 | 128.42 | 6.61 | 0:16:05 | 277.45 | 138.73 | 6.25 | 0:24:05 | 197.97 | 197.97 | 5.18 | 0:32:05 | 227.96 | 227.96 | 4.49 |
| 0:00:10 | 610.69 | 43.62 | 16.44 | 0:08:10 | 602.72 | 100.45 | 9.11 | 0:16:10 | 501.43 | 100.29 | 6.72 | 0:24:10 | 247.04 | 123.52 | 7.20 | 0:32:10 | 230.48 | 230.48 | 4.51 |
| 0:00:15 | 901.99 | 56.37 | 17.12 | 0:08:15 | 683.88 | 75.99 | 11.32 | 0:16:15 | 558.05 | 111.61 | 9.34 | 0:24:15 | 253.55 | 126.77 | 8.25 | 0:32:15 | 224.60 | 224.60 | 4.67 |
| 0:00:20 | 1,029.07 | 46.78 | 19.49 | 0:08:20 | 916.46 | 83.31 | 10.56 | 0:16:20 | 550.29 | 91.72 | 10.52 | 0:24:20 | 257.32 | 128.66 | 8.14 | 0:32:20 | 232.36 | 232.36 | 4.50 |
| 0:00:25 | 1,147.77 | 40.99 | 22.35 | 0:08:25 | 1,158.26 | 68.13 | 12.87 | 0:16:25 | 662.28 | 82.79 | 12.27 | 0:24:25 | 537.50 | 107.50 | 7.75 | 0:32:25 | 220.20 | 220.20 | 4.75 |
| 0:00:30 | 1,356.44 | 37.68 | 23.76 | 0:08:30 | 1,439.49 | 71.97 | 13.43 | 0:16:30 | 722.26 | 72.23 | 12.14 | 0:24:30 | 662.07 | 132.41 | 8.01 | 0:32:30 | 218.52 | 218.52 | 4.79 |
| 0:00:35 | 1,524.00 | 36.29 | 26.48 | 0:08:35 | 1,599.92 | 69.56 | 13.44 | 0:16:35 | 994.47 | 82.87 | 11.25 | 0:24:35 | 633.55 | 126.71 | 8.29 | 0:32:35 | 233.83 | 233.83 | 4.47 |
| 0:00:40 | 1,602.22 | 35.60 | 28.06 | 0:08:40 | 1,701.84 | 70.91 | 14.75 | 0:16:40 | 1,088.00 | 90.67 | 11.62 | 0:24:40 | 595.17 | 119.03 | 8.71 | 0:32:40 | 233.83 | 233.83 | 4.47 |
| 0:00:45 | 1,670.17 | 37.11 | 28.16 | 0:08:45 | 1,697.43 | 70.73 | 14.82 | 0:16:45 | 1,105.83 | 92.15 | 11.34 | 0:24:45 | 576.30 | 115.26 | 9.12 | 0:32:45 | 226.91 | 226.91 | 4.61 |
| 0:00:50 | 1,688.00 | 35.91 | 28.10 | 0:08:50 | 1,806.07 | 69.46 | 14.61 | 0:16:50 | 1,127.85 | 86.76 | 11.82 | 0:24:50 | 589.09 | 117.82 | 8.88 | 0:32:50 | 217.26 | 217.26 | 4.82 |
| 0:00:55 | 1,776.08 | 35.52 | 28.86 | 0:08:55 | 1,772.51 | 65.65 | 15.87 | 0:16:55 | 1,143.37 | 87.95 | 11.89 | 0:24:55 | 665.22 | 133.04 | 7.84 | 0:32:55 | 225.44 | 225.44 | 4.64 |
| 0:01:00 | 1,796.63 | 35.23 | 28.78 | 0:09:00 | 1,743.36 | 62.26 | 16.72 | 0:17:00 | 1,191.18 | 85.08 | 12.20 | 0:25:00 | 695.00 | 139.00 | 7.49 | 0:33:00 | 232.36 | 232.36 | 4.50 |
| 0:01:05 | 1,809.42 | 34.14 | 30.14 | 0:09:05 | 2,008.02 | 71.72 | 14.57 | 0:17:06 | 1,068.92 | 76.35 | 13.58 | 0:25:05 | 668.15 | 111.36 | 9.13 | 0:33:05 | 233.41 | 233.41 | 4.48 |
| 0:01:10 | 1,863.11 | 34.50 | 29.86 | 0:09:10 | 2,052.69 | 68.42 | 14.57 | 0:17:10 | 1,036.83 | 74.06 | 14.31 | 0:25:10 | 870.74 | 124.39 | 8.42 | 0:33:10 | 222.93 | 222.93 | 4.70 |
| 0:01:15 | 1,917.22 | 34.86 | 30.12 | 0:09:15 | 1,980.13 | 63.88 | 16.11 | 0:17:15 | 1,091.57 | 77.97 | 13.39 | 0:25:15 | 855.85 | 106.98 | 8.87 | 0:33:15 | 230.48 | 230.48 | 4.54 |
| 0:01:20 | 2,001.94 | 33.93 | 30.09 | 0:09:20 | 1,938.82 | 62.54 | 16.78 | 0:17:20 | 1,072.69 | 71.51 | 14.26 | 0:25:20 | 900.31 | 112.54 | 9.36 | 0:33:20 | 233.62 | 233.62 | 4.48 |
| 0:01:25 | 2,066.32 | 33.33 | 30.06 | 0:09:25 | 2,051.01 | 64.09 | 16.13 | 0:17:25 | 1,148.19 | 71.76 | 14.51 | 0:25:25 | 954.41 | 119.30 | 8.77 | 0:33:25 | 232.57 | 232.57 | 4.50 |
| 0:01:30 | 2,108.06 | 32.94 | 31.41 | 0:09:30 | 1,987.26 | 62.10 | 16.87 | 0:17:30 | 1,176.50 | 73.53 | 14.29 | 0:25:30 | 920.02 | 115.00 | 9.11 | 0:33:30 | 231.74 | 231.74 | 4.52 |
| 0:01:35 | 2,238.92 | 34.98 | 29.71 | 0:09:35 | 1,825.15 | 57.04 | 18.48 | 0:17:35 | 1,186.78 | 74.17 | 14.19 | 0:25:35 | 897.16 | 112.15 | 9.32 | 0:33:35 | 216.85 | 216.85 | 4.82 |
| 0:01:40 | 2,254.23 | 35.22 | 29.88 | 0:09:40 | 2,080.79 | 65.02 | 16.05 | 0:17:40 | 1,128.69 | 70.54 | 14.74 | 0:25:40 | 943.51 | 117.94 | 8.93 | 0:33:40 | 215.59 | 215.59 | 4.86 |
| 0:01:45 | 2,204.32 | 34.44 | 30.24 | 0:09:45 | 1,959.79 | 61.24 | 17.00 | 0:17:45 | 1,084.86 | 67.80 | 15.61 | 0:25:45 | 936.38 | 117.05 | 8.95 | 0:33:45 | 233.62 | 233.62 | 4.48 |
| 0:01:50 | 2,241.23 | 35.02 | 30.06 | 0:09:50 | 1,661.78 | 51.93 | 20.16 | 0:17:50 | 1,055.29 | 65.96 | 15.79 | 0:25:50 | 897.79 | 112.22 | 9.27 | 0:33:50 | 234.25 | 234.25 | 4.47 |
| 0:01:55 | 2,259.47 | 35.30 | 29.75 | 0:09:55 | 1,670.17 | 52.19 | 20.15 | 0:17:55 | 1,081.08 | 67.57 | 15.58 | 0:25:55 | 879.34 | 109.92 | 9.57 | 0:33:55 | 234.25 | 234.25 | 4.47 |
| 0:02:00 | 2,241.02 | 35.02 | 29.96 | 0:10:00 | 1,679.61 | 52.49 | 20.14 | 0:18:00 | 990.07 | 61.88 | 16.81 | 0:26:00 | 866.54 | 108.32 | 9.66 | 0:34:00 | 225.44 | 225.44 | 4.64 |
| 0:02:05 | 2,209.35 | 34.52 | 30.44 | 0:10:05 | 1,647.73 | 51.49 | 20.20 | 0:18:05 | 1,044.17 | 65.26 | 16.11 | 0:26:05 | 948.33 | 118.54 | 8.84 | 0:34:05 | 214.96 | 214.96 | 4.87 |
| 0:02:10 | 2,233.05 | 34.89 | 29.79 | 0:10:10 | 1,674.79 | 52.34 | 20.18 | 0:18:10 | 1,038.09 | 64.88 | 16.16 | 0:26:10 | 901.57 | 112.70 | 9.28 | 0:34:10 | 217.89 | 217.89 | 4.80 |
| 0:02:15 | 2,110.99 | 32.98 | 32.08 | 0:10:15 | 1,629.70 | 50.93 | 20.50 | 0:18:15 | 1,090.52 | 68.16 | 15.25 | 0:26:15 | 914.15 | 114.27 | 9.21 | 0:34:15 | 217.68 | 217.68 | 4.81 |
| 0:02:20 | 2,117.49 | 33.09 | 31.54 | 0:10:20 | 1,554.62 | 48.58 | 21.40 | 0:18:20 | 1,229.98 | 76.87 | 13.70 | 0:26:20 | 908.28 | 113.53 | 9.23 | 0:34:20 | 219.36 | 219.36 | 4.77 |
| 0:02:25 | 2,076.60 | 32.45 | 32.25 | 0:10:25 | 1,642.28 | 51.32 | 20.40 | 0:18:25 | 1,137.50 | 71.09 | 14.78 | 0:26:25 | 812.86 | 101.61 | 10.23 | 0:34:25 | 214.12 | 214.12 | 4.89 |
| 0:02:30 | 2,009.91 | 31.40 | 33.60 | 0:10:30 | 1,694.29 | 52.95 | 20.02 | 0:18:30 | 1,186.36 | 74.15 | 14.05 | 0:26:30 | 777.41 | 97.18 | 10.84 | 0:34:30 | 222.51 | 222.51 | 4.70 |
| 0:02:35 | 2,071.78 | 32.37 | 32.22 | 0:10:35 | 1,648.15 | 51.50 | 20.21 | 0:18:35 | 1,126.38 | 70.40 | 14.96 | 0:26:35 | 874.51 | 109.31 | 9.57 | 0:34:35 | 223.98 | 223.98 | 4.67 |
| 0:02:40 | 2,054.79 | 32.11 | 32.78 | 0:10:40 | 1,663.04 | 51.97 | 20.19 | 0:18:40 | 1,148.61 | 71.79 | 14.56 | 0:26:40 | 933.44 | 116.68 | 8.98 | 0:34:40 | 226.70 | 226.70 | 4.62 |
| 0:02:45 | 1,962.10 | 30.66 | 33.85 | 0:10:45 | 1,675.62 | 52.36 | 20.12 | 0:18:45 | 1,185.10 | 74.07 | 14.18 | 0:26:45 | 919.81 | 114.98 | 9.09 | 0:34:45 | 234.04 | 234.04 | 4.47 |
| 0:02:50 | 2,052.27 | 32.07 | 33.03 | 0:10:50 | 1,665.56 | 52.05 | 20.12 | 0:18:50 | 1,192.23 | 74.51 | 13.95 | 0:26:50 | 898.84 | 112.35 | 9.37 | 0:34:50 | 233.83 | 233.83 | 4.48 |
| 0:02:55 | 2,018.09 | 31.53 | 33.02 | 0:10:55 | 1,649.20 | 51.54 | 20.18 | 0:18:55 | 1,276.75 | 79.80 | 13.23 | 0:26:55 | 914.36 | 114.29 | 9.17 | 0:34:55 | 234.04 | 234.04 | 4.47 |
| 0:03:00 | 2,035.29 | 31.80 | 32.99 | 0:11:00 | 1,688.42 | 52.76 | 19.82 | 0:19:00 | 1,232.50 | 77.03 | 13.62 | 0:27:00 | 898.84 | 112.35 | 9.26 | 0:35:00 | 232.78 | 232.78 | 4.48 |
| 0:03:05 | 2,098.41 | 32.79 | 32.10 | 0:11:05 | 1,669.75 | 52.18 | 20.12 | 0:19:05 | 1,233.34 | 77.08 | 13.51 | 0:27:05 | 937.01 | 117.13 | 8.99 | 0:35:05 | 232.99 | 232.99 | 4.50 |
| 0:03:10 | 2,069.89 | 32.34 | 32.45 | 0:11:10 | 1,669.33 | 52.17 | 20.16 | 0:19:10 | 1,224.11 | 76.51 | 13.78 | 0:27:10 | 919.81 | 114.98 | 9.10 | 0:35:10 | 219.57 | 219.57 | 4.77 |
| 0:03:15 | 2,012.22 | 31.44 | 33.33 | 0:11:15 | 1,660.11 | 51.88 | 20.14 | 0:19:15 | 1,159.10 | 72.44 | 14.43 | 0:27:15 | 904.29 | 113.04 | 9.27 | 0:35:15 | 216.01 | 216.01 | 4.84 |
| 0:03:20 | 2,057.31 | 32.15 | 32.28 | 0:11:20 | 1,674.79 | 52.34 | 20.17 | 0:19:20 | 1,163.71 | 72.73 | 14.44 | 0:27:20 | 881.85 | 110.23 | 9.48 | 0:35:20 | 221.67 | 221.67 | 4.72 |
| 0:03:25 | 2,015.36 | 31.49 | 33.50 | 0:11:25 | 1,688.00 | 52.75 | 19.83 | 0:19:25 | 1,124.07 | 70.25 | 14.83 | 0:27:25 | 931.55 | 116.44 | 9.04 | 0:35:25 | 220.41 | 220.41 | 4.75 |
| 0:03:30 | 2,043.88 | 31.94 | 32.73 | 0:11:30 | 1,633.47 | 51.05 | 20.41 | 0:19:30 | 1,124.70 | 70.29 | 14.99 | 0:27:30 | 769.45 | 96.18 | 10.89 | 0:35:30 | 216.85 | 216.85 | 4.83 |
| 0:03:35 | 2,079.33 | 32.49 | 32.39 | 0:11:35 | 1,669.96 | 52.19 | 20.02 | 0:19:35 | 1,186.99 | 74.19 | 14.12 | 0:27:35 | 851.65 | 106.46 | 9.83 | 0:35:35 | 233.62 | 233.62 | 4.48 |
| 0:03:40 | 1,970.48 | 30.79 | 34.01 | 0:11:40 | 1,638.09 | 51.19 | 20.53 | 0:19:40 | 1,239.00 | 77.44 | 13.50 | 0:27:40 | 846.41 | 105.80 | 9.89 | 0:35:40 | 230.90 | 230.90 | 4.53 |
| 0:03:45 | 2,055.84 | 32.12 | 32.67 | 0:11:45 | 1,678.98 | 52.47 | 20.03 | 0:19:45 | 1,228.93 | 76.81 | 13.65 | 0:27:45 | 803.42 | 100.43 | 10.42 | 0:35:45 | 218.94 | 218.94 | 4.78 |
| 0:03:50 | 2,062.76 | 32.23 | 32.59 | 0:11:50 | 1,611.24 | 50.35 | 20.82 | 0:19:50 | 1,205.02 | 75.31 | 13.89 | 0:27:50 | 844.31 | 105.54 | 9.87 | 0:35:50 | 221.04 | 221.04 | 4.73 |
| 0:03:55 | 1,962.31 | 30.66 | 33.92 | 0:11:55 | 1,740.64 | 54.39 | 19.40 | 0:19:55 | 1,206.28 | 75.39 | 13.93 | 0:27:55 | 882.06 | 110.26 | 9.54 | 0:35:55 | 225.02 | 225.02 | 4.65 |
| 0:04:00 | 2,071.78 | 32.37 | 32.65 | 0:12:00 | 1,729.94 | 54.06 | 19.31 | 0:20:00 | 1,155.11 | 72.19 | 14.45 | 0:28:00 | 929.88 | 116.23 | 9.03 | 0:36:00 | 221.88 | 221.88 | 4.72 |

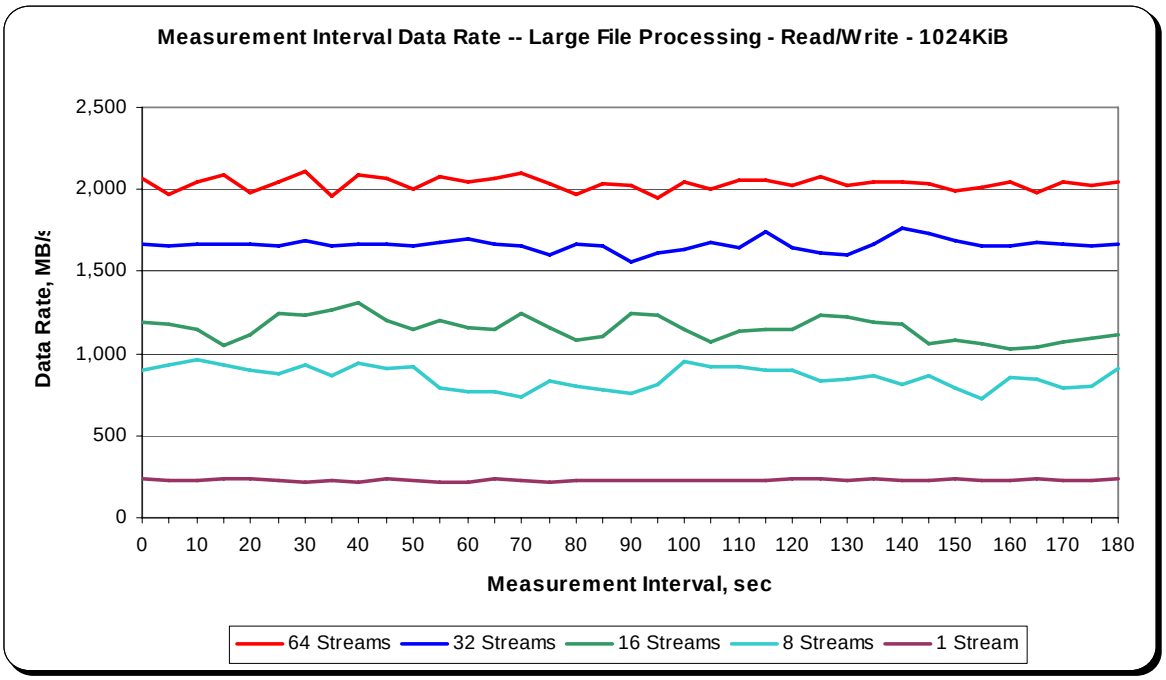
## SPC-2 "Large File Processing/READ-WRITE/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR11 | 64 Streams | | | TR12 | 32 Streams | | | TR13 | 16 Streams | | | TR14 | 8 Streams | | | TR15 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:04:05 | 2,067.16 | 32.30 | 32.23 | 0:12:05 | 1,661.36 | 51.92 | 20.13 | 0:20:05 | 1,195.59 | 74.72 | 14.20 | 0:28:05 | 896.74 | 112.09 | 9.36 | 0:36:05 | 233.83 | 233.83 | 4.47 |
| 0:04:10 | 1,973.21 | 30.83 | 34.09 | 0:12:10 | 1,658.43 | 51.83 | 20.19 | 0:20:10 | 1,175.24 | 73.45 | 13.97 | 0:28:10 | 927.99 | 116.00 | 8.95 | 0:36:10 | 225.86 | 225.86 | 4.63 |
| 0:04:15 | 2,041.58 | 31.90 | 32.92 | 0:12:15 | 1,667.66 | 52.11 | 20.15 | 0:20:15 | 1,149.24 | 71.83 | 14.71 | 0:28:15 | 960.92 | 120.11 | 8.78 | 0:36:15 | 228.59 | 228.59 | 4.58 |
| 0:04:20 | 2,089.18 | 32.64 | 32.09 | 0:12:20 | 1,667.24 | 52.10 | 20.07 | 0:20:20 | 1,045.43 | 65.34 | 16.01 | 0:28:20 | 929.88 | 116.23 | 8.99 | 0:36:20 | 233.62 | 233.62 | 4.48 |
| 0:04:25 | 1,982.44 | 30.98 | 33.81 | 0:12:25 | 1,664.72 | 52.02 | 20.16 | 0:20:25 | 1,117.78 | 69.86 | 14.99 | 0:28:25 | 895.27 | 111.91 | 9.31 | 0:36:25 | 233.20 | 233.20 | 4.49 |
| 0:04:30 | 2,047.24 | 31.99 | 32.73 | 0:12:30 | 1,654.02 | 51.69 | 20.40 | 0:20:30 | 1,245.71 | 77.86 | 13.46 | 0:28:30 | 879.34 | 109.92 | 9.47 | 0:36:30 | 222.09 | 222.09 | 4.71 |
| 0:04:35 | 2,110.15 | 32.97 | 31.99 | 0:12:35 | 1,691.14 | 52.85 | 19.95 | 0:20:35 | 1,237.53 | 77.35 | 13.62 | 0:28:35 | 931.97 | 116.50 | 9.13 | 0:36:35 | 216.64 | 216.64 | 4.83 |
| 0:04:40 | 1,960.00 | 30.62 | 34.13 | 0:12:40 | 1,659.48 | 51.86 | 19.98 | 0:20:40 | 1,270.45 | 79.40 | 13.16 | 0:28:40 | 862.14 | 107.77 | 9.61 | 0:36:40 | 232.36 | 232.36 | 4.50 |
| 0:04:45 | 2,092.33 | 32.69 | 32.04 | 0:12:45 | 1,669.33 | 52.17 | 20.03 | 0:20:45 | 1,313.66 | 82.10 | 12.72 | 0:28:45 | 939.31 | 117.41 | 9.01 | 0:36:45 | 221.67 | 221.67 | 4.72 |
| 0:04:50 | 2,069.26 | 32.33 | 32.42 | 0:12:50 | 1,669.75 | 52.18 | 20.15 | 0:20:50 | 1,202.09 | 75.13 | 13.97 | 0:28:50 | 913.52 | 114.19 | 9.16 | 0:36:50 | 233.20 | 233.20 | 4.49 |
| 0:04:55 | 2,007.18 | 31.36 | 33.37 | 0:12:55 | 1,659.48 | 51.86 | 20.16 | 0:20:55 | 1,149.24 | 71.83 | 14.55 | 0:28:55 | 919.81 | 114.98 | 9.10 | 0:36:55 | 230.69 | 230.69 | 4.53 |
| 0:05:00 | 2,073.87 | 32.40 | 32.57 | 0:13:00 | 1,672.48 | 52.26 | 20.05 | 0:21:00 | 1,197.47 | 74.84 | 14.00 | 0:29:00 | 788.95 | 98.62 | 10.56 | 0:37:00 | 215.80 | 215.80 | 4.85 |
| 0:05:05 | 2,045.14 | 31.96 | 32.56 | 0:13:05 | 1,694.50 | 52.95 | 19.95 | 0:21:05 | 1,160.14 | 72.51 | 14.45 | 0:29:05 | 763.57 | 95.45 | 10.92 | 0:37:05 | 215.38 | 215.38 | 4.86 |
| 0:05:10 | 2,067.58 | 32.31 | 32.49 | 0:13:10 | 1,667.24 | 52.10 | 20.09 | 0:21:10 | 1,147.77 | 71.74 | 14.61 | 0:29:10 | 773.01 | 96.63 | 11.00 | 0:37:10 | 232.99 | 232.99 | 4.49 |
| 0:05:15 | 2,094.43 | 32.73 | 32.08 | 0:13:15 | 1,655.70 | 51.74 | 20.19 | 0:21:15 | 1,242.56 | 77.66 | 13.52 | 0:29:15 | 736.94 | 92.12 | 11.25 | 0:37:15 | 227.75 | 227.75 | 4.59 |
| 0:05:20 | 2,031.72 | 31.75 | 32.94 | 0:13:20 | 1,606.00 | 50.19 | 20.79 | 0:21:20 | 1,153.43 | 72.09 | 14.50 | 0:29:20 | 837.81 | 104.73 | 10.10 | 0:37:20 | 220.83 | 220.83 | 4.74 |
| 0:05:25 | 1,964.82 | 30.70 | 34.17 | 0:13:25 | 1,667.24 | 52.10 | 20.16 | 0:21:25 | 1,084.65 | 67.79 | 15.47 | 0:29:25 | 795.66 | 99.46 | 10.52 | 0:37:25 | 229.22 | 229.22 | 4.57 |
| 0:05:30 | 2,031.51 | 31.74 | 33.02 | 0:13:30 | 1,660.73 | 51.90 | 20.16 | 0:21:30 | 1,105.62 | 69.10 | 15.14 | 0:29:30 | 776.99 | 97.12 | 10.77 | 0:37:30 | 226.28 | 226.28 | 4.62 |
| 0:05:35 | 2,018.93 | 31.55 | 33.27 | 0:13:35 | 1,558.60 | 48.71 | 21.53 | 0:21:35 | 1,241.93 | 77.62 | 13.50 | 0:29:35 | 753.51 | 94.19 | 11.06 | 0:37:35 | 225.23 | 225.23 | 4.64 |
| 0:05:40 | 1,942.80 | 30.36 | 34.37 | 0:13:40 | 1,614.81 | 50.46 | 20.87 | 0:21:40 | 1,234.17 | 77.14 | 13.58 | 0:29:40 | 808.87 | 101.11 | 10.30 | 0:37:40 | 223.56 | 223.56 | 4.68 |
| 0:05:45 | 2,045.77 | 31.97 | 33.03 | 0:13:45 | 1,631.37 | 50.98 | 20.56 | 0:21:45 | 1,143.58 | 71.47 | 14.70 | 0:29:45 | 952.74 | 119.09 | 8.93 | 0:37:45 | 225.86 | 225.86 | 4.63 |
| 0:05:50 | 2,001.10 | 31.27 | 33.38 | 0:13:50 | 1,678.35 | 52.45 | 19.90 | 0:21:50 | 1,067.87 | 66.74 | 15.69 | 0:29:50 | 919.81 | 114.98 | 9.01 | 0:37:50 | 228.80 | 228.80 | 4.57 |
| 0:05:55 | 2,060.45 | 32.19 | 32.56 | 0:13:55 | 1,649.83 | 51.56 | 20.36 | 0:21:55 | 1,133.30 | 70.83 | 14.77 | 0:29:55 | 917.08 | 114.64 | 9.22 | 0:37:55 | 225.65 | 225.65 | 4.63 |
| 0:06:00 | 2,059.19 | 32.17 | 32.64 | 0:14:00 | 1,745.46 | 54.55 | 19.24 | 0:22:00 | 1,147.77 | 71.74 | 14.63 | 0:30:00 | 903.24 | 112.91 | 9.28 | 0:38:00 | 230.06 | 230.06 | 4.55 |
| 0:06:05 | 2,022.28 | 31.60 | 33.14 | 0:14:05 | 1,647.10 | 51.47 | 20.24 | 0:22:05 | 1,149.87 | 71.87 | 14.55 | 0:30:05 | 896.32 | 112.04 | 9.33 | 0:38:05 | 233.83 | 233.83 | 4.47 |
| 0:06:10 | 2,081.42 | 32.52 | 32.34 | 0:14:10 | 1,607.68 | 50.24 | 20.81 | 0:22:10 | 1,229.98 | 76.87 | 13.64 | 0:30:10 | 828.58 | 103.57 | 10.05 | 0:38:10 | 233.62 | 233.62 | 4.48 |
| 0:06:15 | 2,025.64 | 31.65 | 32.96 | 0:14:15 | 1,607.05 | 50.22 | 21.06 | 0:22:15 | 1,220.33 | 76.27 | 13.73 | 0:30:15 | 846.20 | 105.78 | 9.85 | 0:38:15 | 232.36 | 232.36 | 4.50 |
| 0:06:20 | 2,048.08 | 32.00 | 32.77 | 0:14:20 | 1,664.51 | 52.02 | 20.16 | 0:22:20 | 1,195.59 | 74.72 | 14.03 | 0:30:20 | 862.77 | 107.85 | 9.85 | 0:38:20 | 233.83 | 233.83 | 4.48 |
| 0:06:25 | 2,049.55 | 32.02 | 32.80 | 0:14:25 | 1,760.77 | 55.02 | 18.95 | 0:22:25 | 1,179.65 | 73.73 | 14.25 | 0:30:25 | 814.95 | 101.87 | 10.17 | 0:38:25 | 231.53 | 231.53 | 4.52 |
| 0:06:30 | 2,030.04 | 31.72 | 32.97 | 0:14:30 | 1,731.83 | 54.12 | 19.40 | 0:22:30 | 1,065.14 | 66.57 | 15.68 | 0:30:30 | 870.11 | 108.76 | 9.72 | 0:38:30 | 224.40 | 224.40 | 4.66 |
| 0:06:35 | 1,989.78 | 31.09 | 33.68 | 0:14:35 | 1,682.96 | 52.59 | 20.01 | 0:22:35 | 1,078.15 | 67.38 | 15.61 | 0:30:35 | 795.03 | 99.38 | 10.54 | 0:38:35 | 233.83 | 233.83 | 4.47 |
| 0:06:40 | 2,016.41 | 31.51 | 33.36 | 0:14:40 | 1,651.72 | 51.62 | 20.15 | 0:22:40 | 1,061.16 | 66.32 | 15.75 | 0:30:40 | 729.18 | 91.15 | 11.48 | 0:38:40 | 229.01 | 229.01 | 4.57 |
| 0:06:45 | 2,044.93 | 31.95 | 32.95 | 0:14:45 | 1,660.94 | 51.90 | 20.19 | 0:22:45 | 1,022.78 | 63.92 | 16.39 | 0:30:45 | 851.65 | 106.46 | 9.78 | 0:38:45 | 226.70 | 226.70 | 4.62 |
| 0:06:50 | 1,983.70 | 31.00 | 33.50 | 0:14:50 | 1,672.90 | 52.28 | 20.15 | 0:22:50 | 1,035.36 | 64.71 | 16.19 | 0:30:50 | 842.01 | 105.25 | 9.89 | 0:38:50 | 233.83 | 233.83 | 4.47 |
| 0:06:55 | 2,040.74 | 31.89 | 33.06 | 0:14:55 | 1,662.83 | 51.96 | 20.18 | 0:22:55 | 1,066.19 | 66.64 | 15.83 | 0:30:55 | 794.82 | 99.35 | 10.70 | 0:38:55 | 226.28 | 226.28 | 4.62 |
| 0:07:00 | 2,019.56 | 31.56 | 33.16 | 0:15:00 | 1,656.54 | 51.77 | 20.12 | 0:23:00 | 1,095.76 | 68.49 | 15.23 | 0:31:00 | 800.69 | 100.09 | 10.34 | 0:39:00 | 228.80 | 228.80 | 4.57 |
| 0:07:05 | 2,045.14 | 31.96 | 32.85 | 0:15:05 | 1,668.07 | 52.13 | 20.18 | 0:23:05 | 1,115.06 | 69.69 | 15.09 | 0:31:05 | 904.08 | 113.01 | 9.32 | 0:39:05 | 234.25 | 234.25 | 4.47 |
| 0:07:10 | 2,075.97 | 32.44 | 32.27 | 0:15:10 | 1,670.80 | 52.21 | 20.10 | 0:23:10 | 1,147.35 | 71.71 | 14.60 | 0:31:10 | 931.76 | 116.47 | 9.03 | 0:39:10 | 220.41 | 220.41 | 4.74 |
| 0:07:15 | 2,079.12 | 32.49 | 32.13 | 0:15:15 | 1,661.78 | 51.93 | 20.14 | 0:23:15 | 1,141.90 | 71.37 | 14.60 | 0:31:15 | 891.08 | 111.38 | 9.45 | 0:39:15 | 230.90 | 230.90 | 4.53 |
| 0:07:20 | 2,095.89 | 32.75 | 32.37 | 0:15:20 | 1,668.91 | 52.15 | 20.17 | 0:23:20 | 1,103.31 | 68.96 | 15.23 | 0:31:20 | 855.01 | 106.88 | 9.70 | 0:39:20 | 234.04 | 234.04 | 4.47 |
| 0:07:25 | 2,086.88 | 32.61 | 31.91 | 0:15:25 | 1,666.61 | 52.08 | 20.16 | 0:23:25 | 1,065.56 | 66.60 | 15.68 | 0:31:25 | 895.69 | 111.96 | 9.34 | 0:39:25 | 231.74 | 231.74 | 4.51 |
| 0:07:30 | 2,079.75 | 32.50 | 32.32 | 0:15:30 | 1,655.28 | 51.73 | 20.19 | 0:23:30 | 1,025.51 | 64.09 | 16.40 | 0:31:30 | 892.13 | 111.52 | 9.44 | 0:39:30 | 221.04 | 221.04 | 4.73 |
| 0:07:35 | 2,066.53 | 32.29 | 32.45 | 0:15:35 | 1,647.73 | 51.49 | 20.30 | 0:23:35 | 1,025.93 | 64.12 | 16.34 | 0:31:35 | 825.23 | 103.15 | 10.19 | 0:39:35 | 218.94 | 218.94 | 4.78 |
| 0:07:40 | 2,071.99 | 32.37 | 32.44 | 0:15:40 | 1,622.99 | 50.72 | 20.64 | 0:23:40 | 1,093.25 | 68.33 | 15.34 | 0:31:40 | 811.81 | 101.48 | 10.27 | 0:39:40 | 231.53 | 231.53 | 4.52 |
| 0:07:45 | 2,050.80 | 36.62 | 32.50 | 0:15:45 | 1,671.43 | 52.23 | 20.13 | 0:23:45 | 1,248.22 | 89.16 | 13.41 | 0:31:45 | 837.60 | 119.66 | 10.03 | 0:39:45 | 220.41 | 220.41 | 4.75 |
| 0:07:50 | 167.98 | 0.00 | 32.64 | 0:15:50 | 115.97 | 0.00 | 20.63 | 0:23:50 | 105.49 | 0.00 | 11.34 | 0:31:50 | 16.78 | 0.00 | 7.56 | 0:39:50 | 5.03 | 0.00 | 4.73 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |

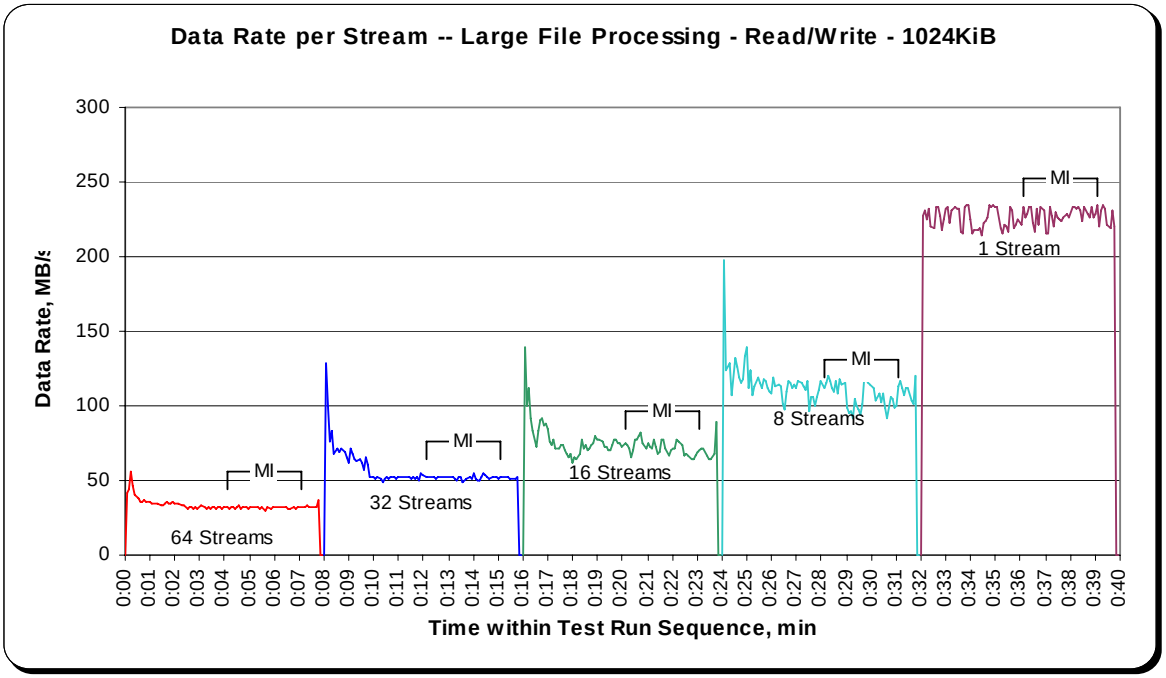
## SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



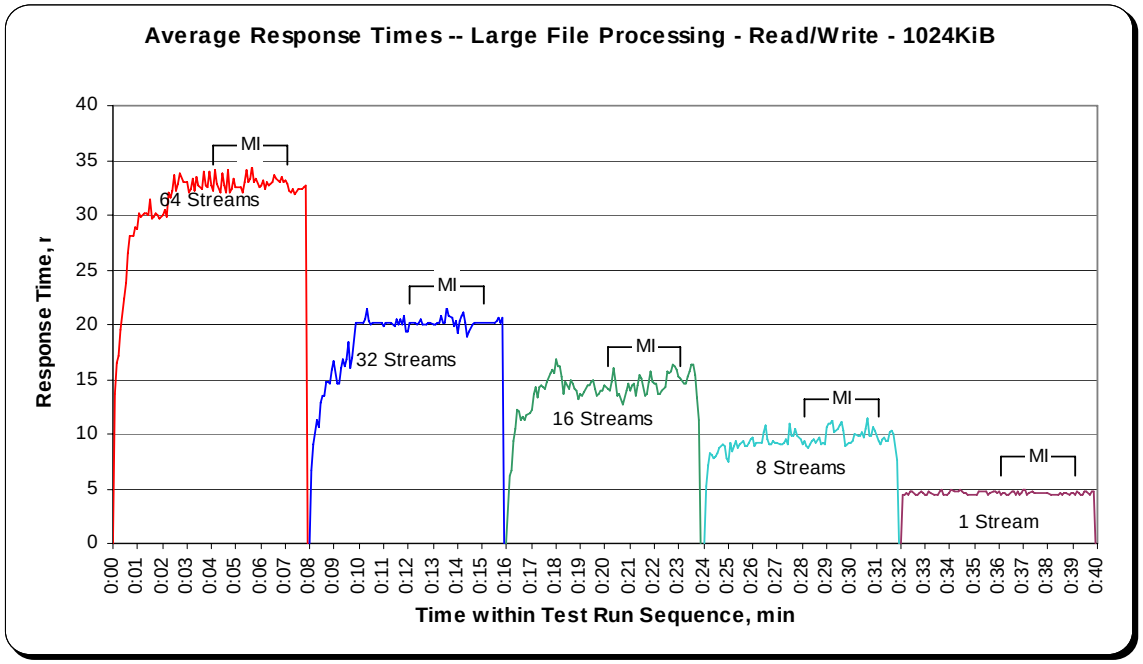

## SPC-2 "Large File Processing/ READ-WRITE/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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




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



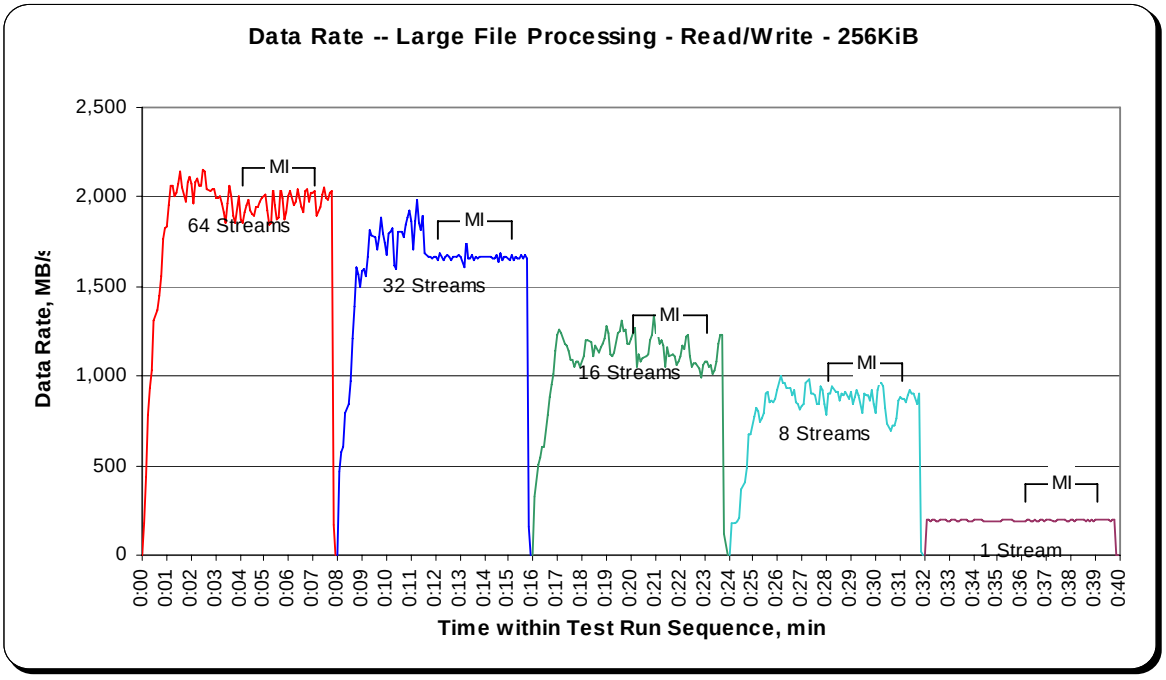
## SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

| TR16 | 64 Streams | | | TR17 | 32 Streams | | | TR18 | 16 Streams | | | TR19 | 8 Streams | | | TR20 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:00 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 180.04 | 36.01 | 4.19 | 0:08:05 | 464.83 | 92.97 | 2.02 | 0:16:05 | 324.69 | 108.23 | 2.12 | 0:24:05 | 174.01 | 174.01 | 1.46 | 0:32:05 | 194.46 | 194.46 | 1.31 |
| 0:00:10 | 431.80 | 33.22 | 5.17 | 0:08:10 | 571.89 | 95.32 | 2.38 | 0:16:10 | 506.57 | 126.64 | 1.98 | 0:24:10 | 178.57 | 178.57 | 1.46 | 0:32:10 | 197.24 | 197.24 | 1.31 |
| 0:00:15 | 788.42 | 43.80 | 5.32 | 0:08:15 | 609.07 | 76.13 | 3.02 | 0:16:15 | 544.26 | 90.71 | 2.42 | 0:24:15 | 178.94 | 178.94 | 1.45 | 0:32:15 | 191.89 | 191.89 | 1.36 |
| 0:00:20 | 934.75 | 42.49 | 5.48 | 0:08:20 | 795.40 | 88.38 | 2.95 | 0:16:20 | 600.52 | 100.09 | 2.60 | 0:24:20 | 186.49 | 186.49 | 1.40 | 0:32:20 | 195.61 | 195.61 | 1.33 |
| 0:00:25 | 1,033.16 | 36.90 | 6.20 | 0:08:25 | 844.42 | 84.44 | 2.98 | 0:16:25 | 607.75 | 75.97 | 2.67 | 0:24:25 | 212.81 | 70.94 | 1.47 | 0:32:25 | 195.09 | 195.09 | 1.33 |
| 0:00:30 | 1,312.29 | 37.49 | 6.61 | 0:08:30 | 971.51 | 74.73 | 2.91 | 0:16:30 | 693.06 | 77.01 | 3.07 | 0:24:30 | 367.42 | 122.47 | 2.12 | 0:32:30 | 188.69 | 188.69 | 1.38 |
| 0:00:35 | 1,373.27 | 35.21 | 6.96 | 0:08:35 | 1,207.44 | 63.55 | 3.47 | 0:16:35 | 781.45 | 86.83 | 3.03 | 0:24:35 | 384.04 | 128.01 | 2.04 | 0:32:35 | 190.53 | 190.53 | 1.37 |
| 0:00:40 | 1,450.29 | 35.37 | 7.23 | 0:08:40 | 1,387.00 | 66.05 | 3.66 | 0:16:40 | 887.25 | 88.73 | 2.75 | 0:24:40 | 411.41 | 137.14 | 1.91 | 0:32:40 | 198.29 | 198.29 | 1.31 |
| 0:00:45 | 1,560.54 | 34.68 | 7.18 | 0:08:45 | 1,610.25 | 73.19 | 3.55 | 0:16:45 | 955.10 | 79.59 | 2.88 | 0:24:45 | 481.19 | 96.24 | 1.99 | 0:32:45 | 198.29 | 198.29 | 1.31 |
| 0:00:50 | 1,766.01 | 33.32 | 7.27 | 0:08:50 | 1,570.35 | 65.43 | 3.72 | 0:16:50 | 1,016.70 | 84.72 | 3.09 | 0:24:50 | 669.83 | 133.97 | 1.96 | 0:32:50 | 197.60 | 197.60 | 1.32 |
| 0:00:55 | 1,829.08 | 33.87 | 7.49 | 0:08:55 | 1,501.04 | 62.54 | 4.16 | 0:16:55 | 1,139.80 | 87.68 | 2.84 | 0:24:55 | 673.61 | 96.23 | 2.18 | 0:32:55 | 186.91 | 186.91 | 1.39 |
| 0:01:00 | 1,837.11 | 31.67 | 8.06 | 0:09:00 | 1,588.80 | 61.11 | 4.13 | 0:17:00 | 1,232.18 | 88.01 | 2.94 | 0:25:00 | 773.95 | 110.56 | 2.35 | 0:33:00 | 186.02 | 186.02 | 1.40 |
| 0:01:05 | 1,952.29 | 32.54 | 7.82 | 0:09:05 | 1,602.07 | 59.34 | 4.26 | 0:17:05 | 1,258.19 | 83.88 | 3.07 | 0:25:05 | 819.15 | 117.02 | 2.24 | 0:33:05 | 195.56 | 195.56 | 1.33 |
| 0:01:10 | 2,060.92 | 33.79 | 7.65 | 0:09:10 | 1,561.43 | 57.83 | 4.53 | 0:17:10 | 1,237.37 | 82.49 | 3.17 | 0:25:10 | 800.59 | 114.37 | 2.26 | 0:33:10 | 198.08 | 198.08 | 1.31 |
| 0:01:15 | 2,067.90 | 33.35 | 7.80 | 0:09:15 | 1,666.40 | 55.55 | 4.57 | 0:17:15 | 1,177.29 | 78.49 | 3.34 | 0:25:15 | 740.98 | 105.85 | 2.48 | 0:33:15 | 198.02 | 198.02 | 1.31 |
| 0:01:20 | 2,003.78 | 31.81 | 8.13 | 0:09:20 | 1,813.77 | 58.51 | 4.35 | 0:17:20 | 1,174.82 | 73.43 | 3.41 | 0:25:20 | 765.72 | 95.72 | 2.53 | 0:33:20 | 191.99 | 191.99 | 1.36 |
| 0:01:25 | 2,024.64 | 32.14 | 8.20 | 0:09:25 | 1,782.63 | 55.71 | 4.66 | 0:17:25 | 1,138.54 | 71.16 | 3.68 | 0:25:25 | 796.39 | 99.55 | 2.62 | 0:33:25 | 190.37 | 190.37 | 1.37 |
| 0:01:30 | 2,070.52 | 32.35 | 7.87 | 0:09:30 | 1,777.39 | 55.54 | 4.70 | 0:17:30 | 1,089.47 | 68.09 | 3.83 | 0:25:30 | 902.61 | 112.83 | 2.34 | 0:33:30 | 197.87 | 197.87 | 1.31 |
| 0:01:35 | 2,139.57 | 33.43 | 7.94 | 0:09:35 | 1,704.62 | 53.27 | 4.92 | 0:17:35 | 1,087.16 | 67.95 | 3.83 | 0:25:35 | 911.58 | 113.95 | 2.28 | 0:33:35 | 198.08 | 198.08 | 1.31 |
| 0:01:40 | 2,052.85 | 32.08 | 8.09 | 0:09:40 | 1,772.25 | 55.38 | 4.70 | 0:17:40 | 1,054.34 | 65.90 | 3.98 | 0:25:40 | 856.69 | 107.09 | 2.45 | 0:33:40 | 197.66 | 197.66 | 1.32 |
| 0:01:45 | 1,973.00 | 30.83 | 8.52 | 0:09:45 | 1,883.66 | 58.86 | 4.45 | 0:17:45 | 1,076.42 | 67.28 | 3.89 | 0:25:45 | 860.67 | 107.58 | 2.41 | 0:33:45 | 198.13 | 198.13 | 1.31 |
| 0:01:50 | 2,078.38 | 32.47 | 8.10 | 0:09:50 | 1,795.53 | 56.11 | 4.66 | 0:17:50 | 1,080.92 | 67.56 | 3.87 | 0:25:50 | 849.29 | 106.16 | 2.46 | 0:33:50 | 189.84 | 189.84 | 1.37 |
| 0:01:55 | 2,116.76 | 33.07 | 7.93 | 0:09:55 | 1,741.53 | 54.42 | 4.80 | 0:17:55 | 1,047.74 | 65.48 | 3.99 | 0:25:55 | 874.98 | 109.37 | 2.38 | 0:33:55 | 186.70 | 186.70 | 1.39 |
| 0:02:00 | 2,070.83 | 32.36 | 8.08 | 0:10:00 | 1,672.53 | 52.27 | 5.02 | 0:18:00 | 1,082.76 | 67.67 | 3.88 | 0:26:00 | 925.58 | 115.70 | 2.26 | 0:34:00 | 194.67 | 194.67 | 1.34 |
| 0:02:05 | 1,966.24 | 30.72 | 8.39 | 0:10:05 | 1,796.84 | 56.15 | 4.65 | 0:18:05 | 1,111.75 | 69.48 | 3.76 | 0:26:05 | 1,005.74 | 125.72 | 2.09 | 0:34:05 | 197.87 | 197.87 | 1.31 |
| 0:02:10 | 2,087.87 | 32.62 | 8.16 | 0:10:10 | 1,800.93 | 56.28 | 4.65 | 0:18:10 | 1,201.83 | 75.11 | 3.47 | 0:26:10 | 960.76 | 120.09 | 2.16 | 0:34:10 | 198.76 | 198.76 | 1.31 |
| 0:02:15 | 2,101.87 | 32.84 | 7.94 | 0:10:15 | 1,820.96 | 56.90 | 4.56 | 0:18:15 | 1,198.21 | 74.89 | 3.49 | 0:26:15 | 961.44 | 120.18 | 2.18 | 0:34:15 | 198.34 | 198.34 | 1.31 |
| 0:02:20 | 2,062.92 | 32.23 | 8.09 | 0:10:20 | 1,617.38 | 50.54 | 5.19 | 0:18:20 | 1,189.40 | 74.34 | 3.53 | 0:26:20 | 930.66 | 116.33 | 2.23 | 0:34:20 | 194.51 | 194.51 | 1.34 |
| 0:02:25 | 2,063.07 | 32.24 | 8.14 | 0:10:25 | 1,597.24 | 49.91 | 5.26 | 0:18:25 | 1,109.03 | 69.31 | 3.76 | 0:26:25 | 929.82 | 116.23 | 2.24 | 0:34:25 | 186.65 | 186.65 | 1.40 |
| 0:02:31 | 2,150.05 | 33.59 | 7.91 | 0:10:30 | 1,808.85 | 56.53 | 4.62 | 0:18:30 | 1,168.27 | 73.02 | 3.58 | 0:26:30 | 930.61 | 116.33 | 2.24 | 0:34:30 | 186.44 | 186.44 | 1.40 |
| 0:02:35 | 2,138.15 | 33.41 | 7.75 | 0:10:35 | 1,804.81 | 56.40 | 4.66 | 0:18:35 | 1,151.55 | 71.97 | 3.65 | 0:26:35 | 895.69 | 111.96 | 2.33 | 0:34:35 | 187.59 | 187.59 | 1.39 |
| 0:02:40 | 2,041.63 | 31.90 | 8.09 | 0:10:40 | 1,775.66 | 55.49 | 4.68 | 0:18:40 | 1,133.41 | 70.84 | 3.69 | 0:26:40 | 919.65 | 114.96 | 2.29 | 0:34:40 | 190.37 | 190.37 | 1.37 |
| 0:02:45 | 2,035.29 | 31.80 | 8.30 | 0:10:45 | 1,847.33 | 57.73 | 4.56 | 0:18:45 | 1,159.88 | 72.49 | 3.59 | 0:26:45 | 856.95 | 107.12 | 2.42 | 0:34:45 | 188.43 | 188.43 | 1.38 |
| 0:02:50 | 2,044.15 | 31.94 | 8.20 | 0:10:50 | 1,882.51 | 58.83 | 4.42 | 0:18:50 | 1,185.31 | 74.08 | 3.56 | 0:26:50 | 847.30 | 105.91 | 2.48 | 0:34:50 | 186.33 | 186.33 | 1.40 |
| 0:02:55 | 2,047.82 | 32.00 | 8.19 | 0:10:55 | 1,929.01 | 60.28 | 4.35 | 0:18:55 | 1,209.85 | 75.62 | 3.43 | 0:26:55 | 817.99 | 102.25 | 2.54 | 0:34:55 | 192.99 | 192.99 | 1.35 |
| 0:03:00 | 1,997.01 | 31.20 | 8.40 | 0:11:00 | 1,865.89 | 58.31 | 4.48 | 0:19:00 | 1,281.31 | 80.08 | 3.27 | 0:27:00 | 829.79 | 103.72 | 2.52 | 0:35:00 | 193.36 | 193.36 | 1.35 |
| 0:03:05 | 1,997.59 | 31.21 | 8.45 | 0:11:05 | 1,710.96 | 53.47 | 4.89 | 0:19:05 | 1,243.66 | 77.73 | 3.36 | 0:27:05 | 847.30 | 105.91 | 2.46 | 0:35:05 | 192.47 | 192.47 | 1.35 |
| 0:03:10 | 2,000.26 | 31.25 | 8.33 | 0:11:10 | 1,861.38 | 58.17 | 4.52 | 0:19:10 | 1,118.78 | 69.92 | 3.75 | 0:27:10 | 966.58 | 120.82 | 2.16 | 0:35:10 | 198.39 | 198.39 | 1.31 |
| 0:03:15 | 1,961.15 | 30.64 | 8.43 | 0:11:15 | 1,982.23 | 61.94 | 4.21 | 0:19:15 | 1,110.86 | 69.43 | 3.76 | 0:27:15 | 981.89 | 122.74 | 2.15 | 0:35:15 | 198.23 | 198.23 | 1.31 |
| 0:03:20 | 1,918.32 | 29.97 | 8.85 | 0:11:20 | 1,851.79 | 57.87 | 4.53 | 0:19:20 | 1,135.61 | 70.98 | 3.68 | 0:27:20 | 902.25 | 112.78 | 2.30 | 0:35:20 | 198.34 | 198.34 | 1.31 |
| 0:03:25 | 1,851.84 | 28.93 | 9.00 | 0:11:25 | 1,816.13 | 56.75 | 4.59 | 0:19:25 | 1,241.15 | 77.57 | 3.39 | 0:27:25 | 907.54 | 113.44 | 2.31 | 0:35:25 | 199.07 | 199.07 | 1.31 |
| 0:03:30 | 1,963.09 | 30.67 | 8.55 | 0:11:30 | 1,896.24 | 59.26 | 4.42 | 0:19:30 | 1,247.75 | 77.98 | 3.32 | 0:27:30 | 892.81 | 111.60 | 2.33 | 0:35:30 | 198.55 | 198.55 | 1.31 |
| 0:03:35 | 2,064.59 | 32.26 | 8.15 | 0:11:35 | 1,688.68 | 52.77 | 4.96 | 0:19:35 | 1,313.13 | 82.07 | 3.19 | 0:27:35 | 842.90 | 105.36 | 2.48 | 0:35:35 | 198.50 | 198.50 | 1.31 |
| 0:03:40 | 2,002.05 | 31.28 | 8.39 | 0:11:40 | 1,663.46 | 51.98 | 5.03 | 0:19:40 | 1,248.43 | 78.03 | 3.34 | 0:27:40 | 840.59 | 105.07 | 2.48 | 0:35:40 | 191.68 | 191.68 | 1.36 |
| 0:03:45 | 1,896.40 | 29.63 | 8.80 | 0:11:45 | 1,667.34 | 52.10 | 5.04 | 0:19:45 | 1,263.11 | 78.94 | 3.33 | 0:27:45 | 939.79 | 117.47 | 2.22 | 0:35:45 | 190.21 | 190.21 | 1.37 |
| 0:03:50 | 1,855.04 | 28.98 | 8.93 | 0:11:50 | 1,661.52 | 51.92 | 5.04 | 0:19:50 | 1,176.97 | 73.56 | 3.55 | 0:27:50 | 921.44 | 115.18 | 2.29 | 0:35:50 | 189.58 | 189.58 | 1.37 |
| 0:03:55 | 2,003.67 | 31.31 | 8.45 | 0:11:55 | 1,666.13 | 52.07 | 5.02 | 0:19:55 | 1,176.34 | 73.52 | 3.54 | 0:27:55 | 842.01 | 105.25 | 2.47 | 0:35:55 | 189.16 | 189.16 | 1.38 |
| 0:04:00 | 1,873.96 | 29.28 | 8.91 | 0:12:00 | 1,665.51 | 52.05 | 5.01 | 0:20:00 | 1,209.11 | 75.57 | 3.48 | 0:28:00 | 779.04 | 97.38 | 2.69 | 0:36:00 | 186.59 | 186.59 | 1.40 |

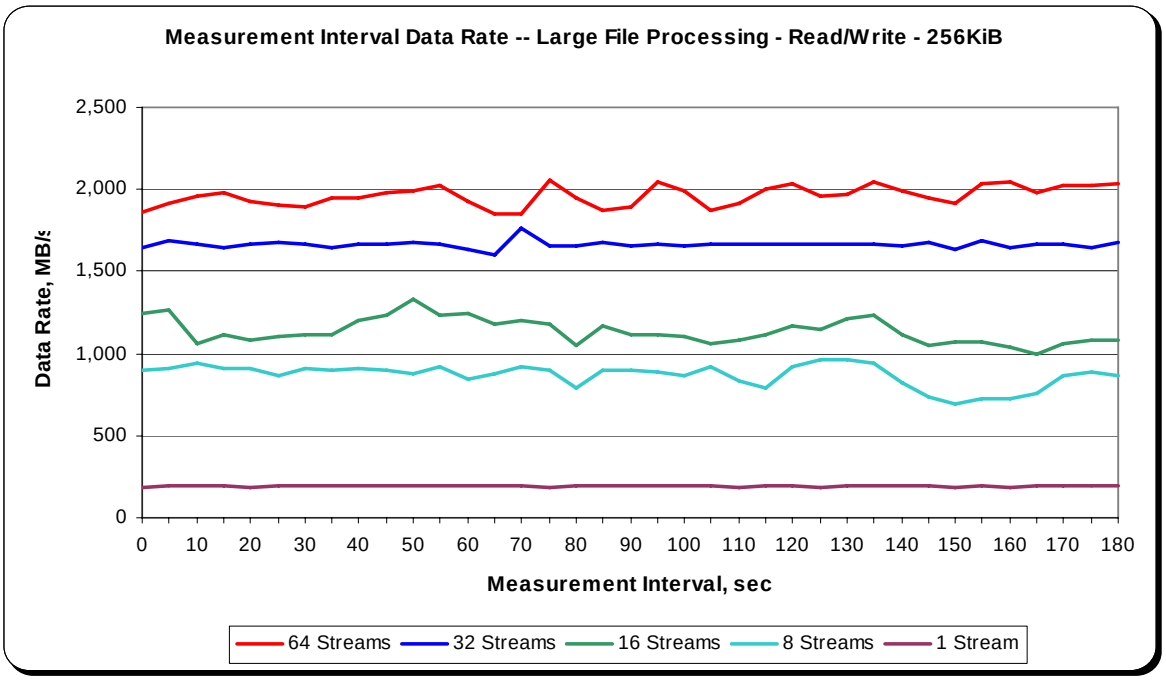
## SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR16 | 64 Streams | | | TR17 | 32 Streams | | | TR18 | 16 Streams | | | TR19 | 8 Streams | | | TR20 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:04:05 | 1,857.76 | 29.03 | 8.97 | 0:12:05 | 1,648.26 | 51.51 | 5.06 | 0:20:05 | 1,241.51 | 77.59 | 3.36 | 0:28:05 | 901.88 | 112.74 | 2.32 | 0:36:05 | 188.59 | 188.59 | 1.38 |
| 0:04:10 | 1,918.84 | 29.98 | 8.79 | 0:12:10 | 1,689.52 | 52.80 | 4.97 | 0:20:10 | 1,265.53 | 79.10 | 3.30 | 0:28:10 | 904.40 | 113.05 | 2.32 | 0:36:10 | 198.23 | 198.23 | 1.31 |
| 0:04:15 | 1,957.85 | 30.59 | 8.60 | 0:12:15 | 1,665.24 | 52.04 | 5.02 | 0:20:15 | 1,055.92 | 65.99 | 3.95 | 0:28:15 | 938.84 | 117.36 | 2.20 | 0:36:15 | 199.12 | 199.12 | 1.31 |
| 0:04:20 | 1,983.70 | 31.00 | 8.44 | 0:12:20 | 1,649.88 | 51.56 | 5.09 | 0:20:20 | 1,118.46 | 69.90 | 3.76 | 0:28:20 | 913.78 | 114.22 | 2.30 | 0:36:20 | 191.63 | 191.63 | 1.36 |
| 0:04:25 | 1,929.27 | 30.14 | 8.58 | 0:12:25 | 1,666.97 | 52.09 | 5.02 | 0:20:25 | 1,081.92 | 67.62 | 3.85 | 0:28:25 | 912.94 | 114.12 | 2.30 | 0:36:25 | 187.54 | 187.54 | 1.39 |
| 0:04:30 | 1,904.79 | 29.76 | 8.88 | 0:12:30 | 1,675.21 | 52.35 | 5.01 | 0:20:30 | 1,100.64 | 68.79 | 3.81 | 0:28:30 | 862.82 | 107.85 | 2.39 | 0:36:30 | 194.88 | 194.88 | 1.34 |
| 0:04:35 | 1,895.35 | 29.61 | 8.86 | 0:12:35 | 1,663.46 | 51.98 | 5.02 | 0:20:35 | 1,113.06 | 69.57 | 3.76 | 0:28:35 | 905.39 | 113.17 | 2.33 | 0:36:35 | 191.26 | 191.26 | 1.36 |
| 0:04:40 | 1,949.25 | 30.46 | 8.54 | 0:12:40 | 1,645.64 | 51.43 | 5.05 | 0:20:40 | 1,116.89 | 69.81 | 3.73 | 0:28:40 | 896.85 | 112.11 | 2.31 | 0:36:40 | 191.68 | 191.68 | 1.36 |
| 0:04:45 | 1,945.32 | 30.40 | 8.65 | 0:12:45 | 1,670.91 | 52.22 | 5.03 | 0:20:45 | 1,197.63 | 74.85 | 3.51 | 0:28:45 | 912.37 | 114.05 | 2.30 | 0:36:45 | 198.65 | 198.65 | 1.31 |
| 0:04:50 | 1,975.26 | 30.86 | 8.52 | 0:12:50 | 1,664.88 | 52.03 | 5.02 | 0:20:50 | 1,234.07 | 77.13 | 3.39 | 0:28:50 | 895.01 | 111.88 | 2.32 | 0:36:50 | 195.82 | 195.82 | 1.33 |
| 0:04:55 | 1,993.45 | 31.15 | 8.41 | 0:12:55 | 1,673.11 | 52.28 | 5.02 | 0:20:55 | 1,334.63 | 83.41 | 3.13 | 0:28:55 | 875.77 | 109.47 | 2.39 | 0:36:55 | 191.37 | 191.37 | 1.36 |
| 0:05:00 | 2,018.56 | 31.54 | 8.21 | 0:13:00 | 1,662.62 | 51.96 | 5.02 | 0:21:00 | 1,236.74 | 77.30 | 3.37 | 0:29:00 | 916.77 | 114.60 | 2.29 | 0:37:00 | 198.23 | 198.23 | 1.31 |
| 0:05:05 | 1,924.82 | 30.08 | 8.78 | 0:13:05 | 1,635.67 | 51.11 | 5.12 | 0:21:05 | 1,241.20 | 77.57 | 3.38 | 0:29:05 | 847.72 | 105.97 | 2.44 | 0:37:05 | 197.97 | 197.97 | 1.31 |
| 0:05:10 | 1,846.65 | 28.85 | 9.03 | 0:13:10 | 1,605.63 | 50.18 | 5.21 | 0:21:10 | 1,176.45 | 73.53 | 3.55 | 0:29:10 | 880.70 | 110.09 | 2.39 | 0:37:10 | 199.12 | 199.12 | 1.31 |
| 0:05:15 | 1,854.67 | 28.98 | 9.03 | 0:13:15 | 1,762.81 | 55.09 | 4.73 | 0:21:15 | 1,197.53 | 74.85 | 3.47 | 0:29:15 | 922.22 | 115.28 | 2.25 | 0:37:15 | 190.58 | 190.58 | 1.37 |
| 0:05:20 | 2,056.21 | 32.13 | 8.19 | 0:13:20 | 1,660.26 | 51.88 | 5.06 | 0:21:20 | 1,174.51 | 73.41 | 3.58 | 0:29:20 | 896.11 | 112.01 | 2.33 | 0:37:20 | 186.91 | 186.91 | 1.39 |
| 0:05:25 | 1,949.51 | 30.46 | 8.61 | 0:13:25 | 1,659.32 | 51.85 | 5.05 | 0:21:25 | 1,048.37 | 65.52 | 3.98 | 0:29:25 | 789.58 | 98.70 | 2.64 | 0:37:25 | 194.41 | 194.41 | 1.34 |
| 0:05:30 | 1,874.64 | 29.29 | 8.92 | 0:13:30 | 1,672.11 | 52.25 | 5.02 | 0:21:30 | 1,165.28 | 72.83 | 3.61 | 0:29:30 | 901.51 | 112.69 | 2.32 | 0:37:30 | 194.83 | 194.83 | 1.34 |
| 0:05:35 | 1,889.01 | 29.52 | 8.75 | 0:13:35 | 1,651.61 | 51.61 | 5.05 | 0:21:35 | 1,113.22 | 69.58 | 3.73 | 0:29:35 | 896.32 | 112.04 | 2.35 | 0:37:35 | 194.83 | 194.83 | 1.34 |
| 0:05:40 | 2,049.97 | 32.03 | 8.29 | 0:13:40 | 1,667.08 | 52.10 | 5.03 | 0:21:40 | 1,116.58 | 69.79 | 3.76 | 0:29:40 | 892.60 | 111.58 | 2.31 | 0:37:40 | 197.81 | 197.81 | 1.32 |
| 0:05:45 | 1,993.03 | 31.14 | 8.37 | 0:13:45 | 1,657.27 | 51.79 | 5.04 | 0:21:45 | 1,106.82 | 69.18 | 3.77 | 0:29:45 | 860.67 | 107.58 | 2.45 | 0:37:45 | 194.62 | 194.62 | 1.34 |
| 0:05:50 | 1,874.22 | 29.28 | 8.93 | 0:13:50 | 1,663.62 | 51.99 | 5.02 | 0:21:50 | 1,057.28 | 66.08 | 3.94 | 0:29:50 | 921.91 | 115.24 | 2.25 | 0:37:50 | 189.69 | 189.69 | 1.37 |
| 0:05:55 | 1,911.29 | 29.86 | 8.82 | 0:13:55 | 1,670.96 | 52.22 | 5.02 | 0:21:55 | 1,085.17 | 67.82 | 3.88 | 0:29:55 | 838.60 | 104.82 | 2.50 | 0:37:55 | 185.44 | 185.44 | 1.40 |
| 0:06:00 | 2,000.89 | 31.26 | 8.39 | 0:14:00 | 1,668.76 | 52.15 | 5.02 | 0:22:00 | 1,111.28 | 69.46 | 3.77 | 0:30:00 | 793.09 | 99.14 | 2.62 | 0:38:00 | 198.29 | 198.29 | 1.31 |
| 0:06:05 | 2,032.51 | 31.76 | 8.24 | 0:14:05 | 1,665.87 | 52.06 | 5.04 | 0:22:05 | 1,167.07 | 72.94 | 3.59 | 0:30:05 | 924.11 | 115.51 | 2.27 | 0:38:05 | 198.02 | 198.02 | 1.31 |
| 0:06:10 | 1,957.06 | 30.58 | 8.46 | 0:14:10 | 1,668.02 | 52.13 | 5.01 | 0:22:10 | 1,149.13 | 71.82 | 3.61 | 0:30:10 | 963.59 | 120.45 | 2.18 | 0:38:10 | 189.37 | 189.37 | 1.37 |
| 0:06:15 | 1,972.21 | 30.82 | 8.59 | 0:14:15 | 1,671.48 | 52.23 | 5.02 | 0:22:15 | 1,217.29 | 76.08 | 3.45 | 0:30:15 | 958.08 | 119.76 | 2.15 | 0:38:15 | 194.83 | 194.83 | 1.34 |
| 0:06:20 | 2,047.40 | 31.99 | 8.21 | 0:14:20 | 1,661.68 | 51.93 | 5.02 | 0:22:20 | 1,229.19 | 76.82 | 3.39 | 0:30:20 | 938.42 | 117.30 | 2.25 | 0:38:20 | 193.99 | 193.99 | 1.34 |
| 0:06:25 | 1,996.07 | 31.19 | 8.28 | 0:14:25 | 1,654.44 | 51.70 | 5.03 | 0:22:25 | 1,111.49 | 69.47 | 3.75 | 0:30:25 | 823.97 | 103.00 | 2.52 | 0:38:25 | 194.25 | 194.25 | 1.34 |
| 0:06:30 | 1,943.12 | 30.36 | 8.67 | 0:14:30 | 1,681.34 | 52.54 | 5.01 | 0:22:30 | 1,052.72 | 65.79 | 3.99 | 0:30:30 | 735.26 | 91.91 | 2.86 | 0:38:30 | 194.56 | 194.56 | 1.34 |
| 0:06:35 | 1,918.53 | 29.98 | 8.78 | 0:14:35 | 1,633.31 | 51.04 | 5.12 | 0:22:35 | 1,073.37 | 67.09 | 3.90 | 0:30:35 | 695.21 | 86.90 | 2.99 | 0:38:35 | 188.74 | 188.74 | 1.38 |
| 0:06:40 | 2,029.57 | 31.71 | 8.26 | 0:14:40 | 1,685.80 | 52.68 | 4.98 | 0:22:40 | 1,075.37 | 67.21 | 3.90 | 0:30:40 | 721.37 | 90.17 | 2.91 | 0:38:40 | 195.87 | 195.87 | 1.33 |
| 0:06:45 | 2,043.10 | 31.92 | 8.12 | 0:14:45 | 1,644.85 | 51.40 | 5.09 | 0:22:45 | 1,039.14 | 64.95 | 4.00 | 0:30:45 | 723.47 | 90.43 | 2.90 | 0:38:45 | 186.75 | 186.75 | 1.39 |
| 0:06:50 | 1,977.82 | 30.90 | 8.51 | 0:14:50 | 1,663.46 | 51.98 | 5.03 | 0:22:50 | 993.63 | 62.10 | 4.24 | 0:30:50 | 762.58 | 95.32 | 2.71 | 0:38:50 | 199.02 | 199.02 | 1.31 |
| 0:06:55 | 2,020.34 | 31.57 | 8.33 | 0:14:55 | 1,664.25 | 52.01 | 5.03 | 0:22:55 | 1,063.57 | 66.47 | 3.92 | 0:30:55 | 866.49 | 108.31 | 2.42 | 0:38:55 | 192.10 | 192.10 | 1.36 |
| 0:07:00 | 2,021.55 | 31.59 | 8.21 | 0:15:00 | 1,643.12 | 51.35 | 5.06 | 0:23:00 | 1,079.35 | 67.46 | 3.86 | 0:31:00 | 883.27 | 110.41 | 2.37 | 0:39:00 | 196.66 | 196.66 | 1.32 |
| 0:07:05 | 2,037.02 | 31.83 | 8.28 | 0:15:05 | 1,680.92 | 52.53 | 5.02 | 0:23:05 | 1,085.43 | 67.84 | 3.86 | 0:31:05 | 869.01 | 108.63 | 2.40 | 0:39:05 | 198.18 | 198.18 | 1.31 |
| 0:07:10 | 1,895.30 | 29.61 | 8.81 | 0:15:10 | 1,643.22 | 51.35 | 5.04 | 0:23:10 | 1,054.13 | 65.88 | 3.96 | 0:31:10 | 877.24 | 109.65 | 2.39 | 0:39:10 | 197.97 | 197.97 | 1.31 |
| 0:07:15 | 1,949.25 | 30.46 | 8.66 | 0:15:15 | 1,669.60 | 52.17 | 5.05 | 0:23:15 | 1,064.46 | 66.53 | 3.93 | 0:31:15 | 854.54 | 106.82 | 2.45 | 0:39:15 | 198.65 | 198.65 | 1.31 |
| 0:07:20 | 2,016.94 | 31.51 | 8.23 | 0:15:20 | 1,659.27 | 51.85 | 5.03 | 0:23:20 | 1,010.41 | 63.15 | 4.14 | 0:31:20 | 895.17 | 111.90 | 2.34 | 0:39:20 | 197.97 | 197.97 | 1.31 |
| 0:07:25 | 2,057.36 | 32.15 | 8.15 | 0:15:25 | 1,654.18 | 51.69 | 5.06 | 0:23:25 | 1,027.92 | 64.24 | 4.10 | 0:31:25 | 924.79 | 115.60 | 2.25 | 0:39:25 | 198.23 | 198.23 | 1.31 |
| 0:07:30 | 1,997.54 | 31.21 | 8.45 | 0:15:30 | 1,675.47 | 52.36 | 5.01 | 0:23:30 | 1,080.71 | 67.54 | 3.87 | 0:31:30 | 907.33 | 113.42 | 2.31 | 0:39:30 | 196.24 | 196.24 | 1.33 |
| 0:07:35 | 1,985.85 | 31.03 | 8.42 | 0:15:35 | 1,651.93 | 51.62 | 5.03 | 0:23:35 | 1,183.11 | 73.94 | 3.51 | 0:31:35 | 907.18 | 113.40 | 2.30 | 0:39:35 | 191.73 | 191.73 | 1.36 |
| 0:07:40 | 2,028.10 | 31.69 | 8.25 | 0:15:40 | 1,680.97 | 52.53 | 5.02 | 0:23:40 | 1,228.83 | 76.80 | 3.41 | 0:31:40 | 846.73 | 105.84 | 2.45 | 0:39:40 | 197.13 | 197.13 | 1.32 |
| 0:07:45 | 2,034.55 | 31.79 | 8.21 | 0:15:45 | 1,654.50 | 51.70 | 5.02 | 0:23:45 | 1,233.96 | 77.12 | 3.39 | 0:31:45 | 901.67 | 128.81 | 2.32 | 0:39:45 | 198.76 | 198.76 | 1.31 |
| 0:07:50 | 170.45 | 0.00 | 8.87 | 0:15:50 | 154.46 | 0.00 | 4.55 | 0:23:50 | 116.13 | 0.00 | 2.83 | 0:31:50 | 21.18 | 0.00 | 1.96 | 0:39:50 | 4.35 | 0.00 | 1.34 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |

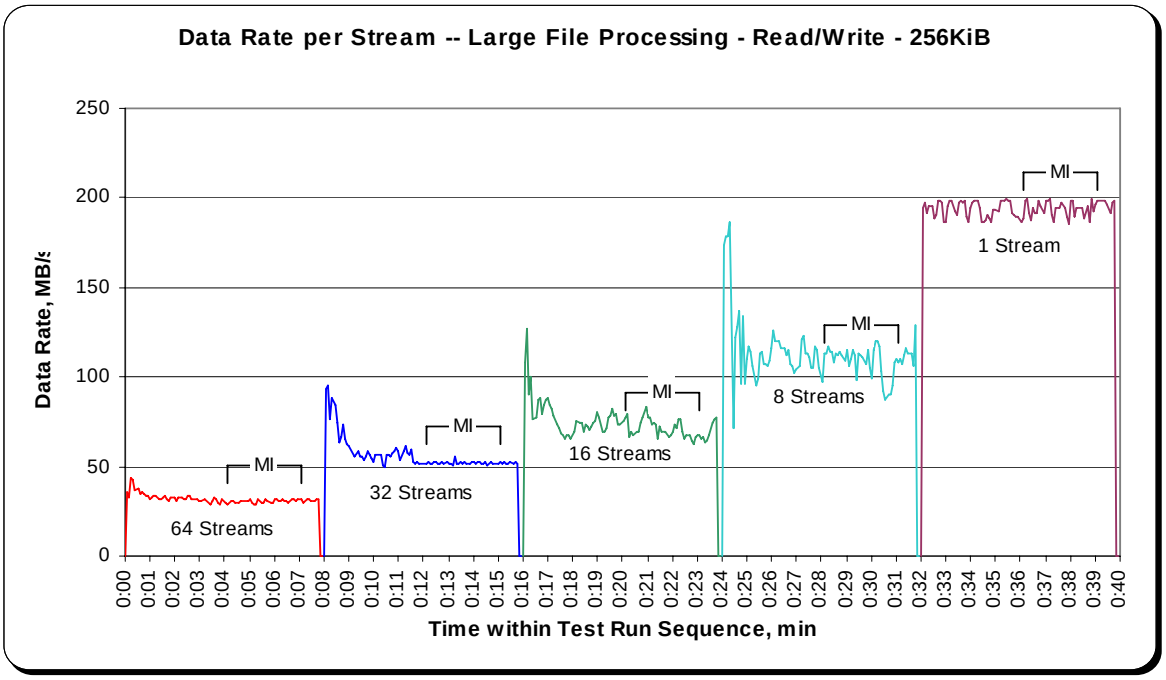
## SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



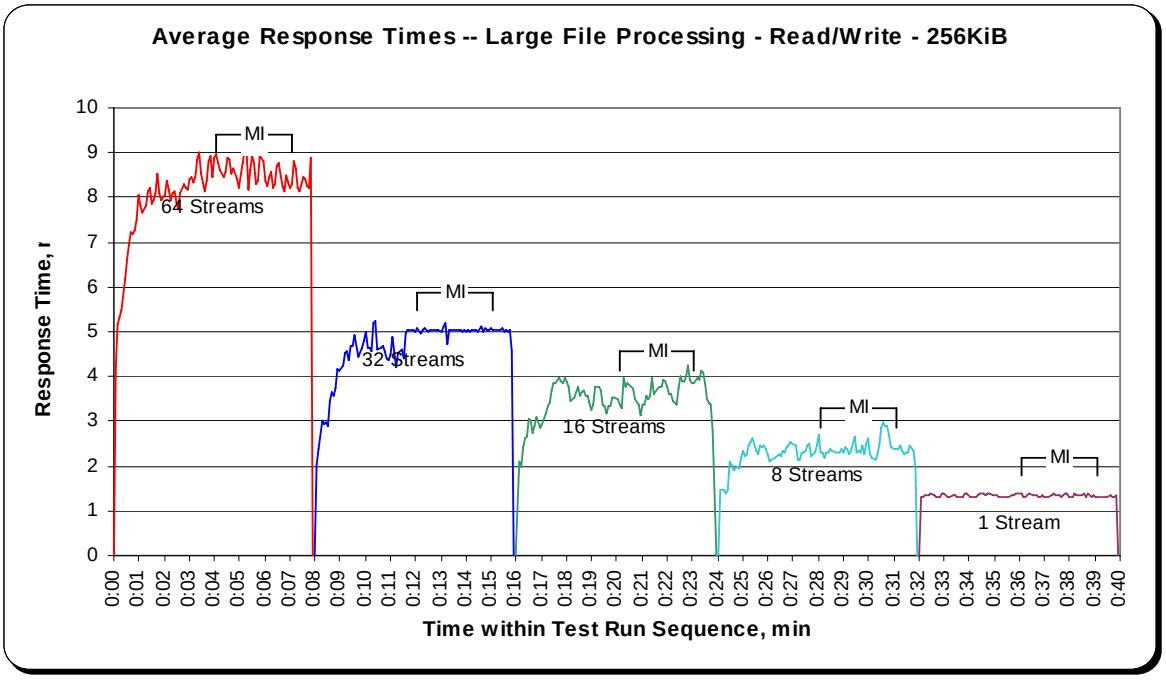

## SPC-2 "Large File Processing/READ-WRITE/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



## 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 are 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.

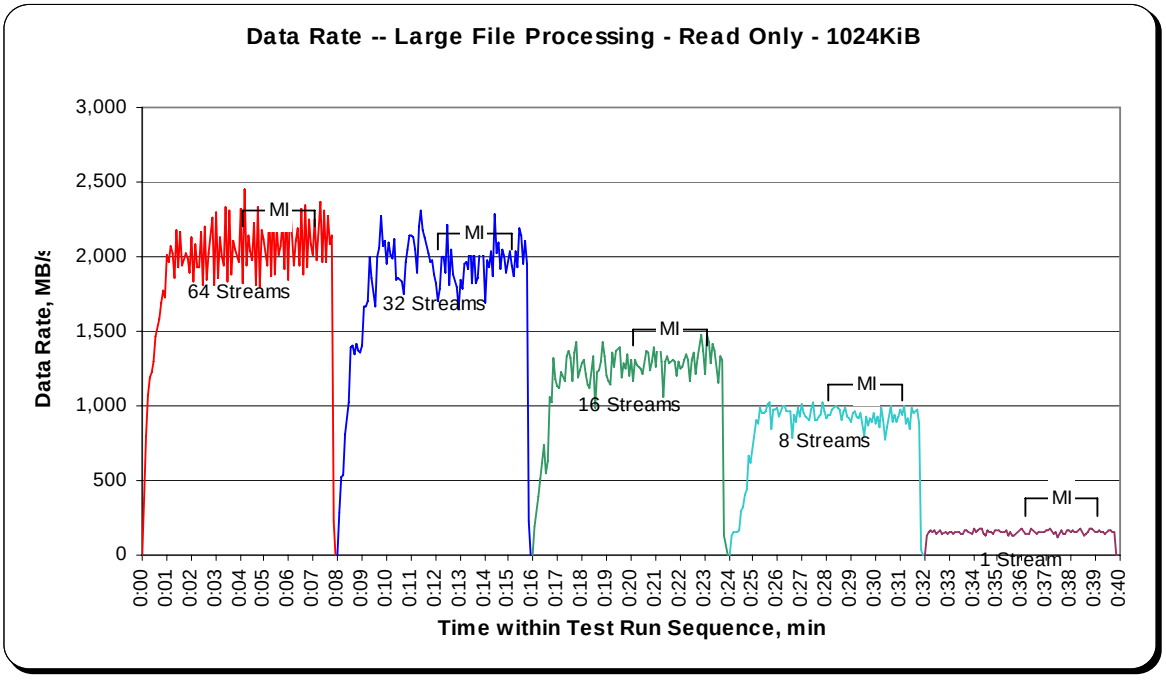
## SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data – Ramp Up Period

| TR21 | 64 Streams | | | TR22 | 32 Streams | | | TR23 | 16 Streams | | | TR24 | 8 Streams | | | TR25 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:00 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 380.21 | 54.32 | 8.59 | 0:08:05 | 285.63 | 95.21 | 7.56 | 0:16:05 | 191.05 | 63.68 | 7.84 | 0:24:05 | 135.06 | 135.06 | 7.58 | 0:32:05 | 135.69 | 135.69 | 7.55 |
| 0:00:10 | 798.81 | 72.62 | 11.69 | 0:08:10 | 520.51 | 74.36 | 9.39 | 0:16:10 | 389.86 | 129.95 | 8.08 | 0:24:10 | 153.72 | 153.72 | 6.81 | 0:32:10 | 159.59 | 159.59 | 6.52 |
| 0:00:15 | 1,073.74 | 71.58 | 13.25 | 0:08:15 | 537.71 | 67.21 | 15.05 | 0:16:15 | 514.22 | 102.84 | 8.58 | 0:24:15 | 155.19 | 155.19 | 6.75 | 0:32:15 | 165.05 | 165.05 | 6.36 |
| 0:00:20 | 1,185.31 | 59.27 | 15.42 | 0:08:20 | 805.52 | 73.23 | 12.53 | 0:16:20 | 617.40 | 102.90 | 9.97 | 0:24:20 | 152.46 | 152.46 | 6.86 | 0:32:20 | 150.37 | 150.37 | 6.96 |
| 0:00:25 | 1,220.33 | 50.85 | 18.67 | 0:08:25 | 1,022.57 | 68.17 | 12.85 | 0:16:25 | 742.81 | 92.85 | 9.83 | 0:24:25 | 165.26 | 82.63 | 7.19 | 0:32:25 | 168.19 | 168.19 | 6.23 |
| 0:00:30 | 1,302.54 | 43.42 | 22.35 | 0:08:30 | 1,388.31 | 77.13 | 11.94 | 0:16:30 | 546.10 | 68.26 | 15.47 | 0:24:30 | 294.02 | 147.01 | 7.07 | 0:32:30 | 147.64 | 147.64 | 7.09 |
| 0:00:35 | 1,468.64 | 37.66 | 24.52 | 0:08:35 | 1,400.69 | 73.72 | 13.89 | 0:16:35 | 627.47 | 62.75 | 14.12 | 0:24:35 | 319.40 | 106.47 | 7.73 | 0:32:35 | 157.71 | 157.71 | 6.64 |
| 0:00:40 | 1,584.19 | 37.72 | 26.58 | 0:08:40 | 1,350.36 | 71.07 | 14.79 | 0:16:40 | 1,060.32 | 106.03 | 9.92 | 0:24:40 | 410.41 | 136.80 | 7.67 | 0:32:40 | 167.56 | 167.56 | 6.24 |
| 0:00:45 | 1,695.76 | 39.44 | 25.99 | 0:08:45 | 1,416.00 | 74.53 | 14.08 | 0:16:45 | 1,028.23 | 93.48 | 10.48 | 0:24:45 | 437.68 | 145.89 | 7.14 | 0:32:45 | 143.45 | 143.45 | 7.31 |
| 0:00:50 | 1,776.92 | 37.81 | 26.02 | 0:08:50 | 1,367.34 | 68.37 | 15.03 | 0:16:50 | 1,315.96 | 101.23 | 10.03 | 0:24:50 | 671.51 | 134.30 | 7.69 | 0:32:50 | 156.66 | 156.66 | 6.67 |
| 0:00:55 | 1,720.29 | 33.08 | 29.75 | 0:08:55 | 1,362.73 | 64.89 | 15.46 | 0:16:55 | 1,181.12 | 84.37 | 12.02 | 0:24:55 | 619.29 | 103.21 | 9.47 | 0:32:55 | 141.35 | 141.35 | 7.41 |
| 0:01:00 | 2,009.49 | 35.88 | 27.63 | 0:09:00 | 1,403.20 | 56.13 | 17.71 | 0:17:00 | 1,135.61 | 75.71 | 12.97 | 0:25:00 | 814.74 | 116.39 | 8.20 | 0:33:00 | 152.46 | 152.46 | 6.88 |
| 0:01:05 | 1,964.19 | 33.29 | 30.90 | 0:09:05 | 1,668.07 | 61.78 | 16.09 | 0:17:05 | 1,119.67 | 74.64 | 14.13 | 0:25:05 | 907.44 | 129.63 | 8.13 | 0:33:05 | 150.37 | 150.37 | 6.96 |
| 0:01:10 | 2,073.66 | 34.56 | 29.90 | 0:09:10 | 1,668.07 | 55.60 | 17.68 | 0:17:10 | 1,224.74 | 81.65 | 12.81 | 0:25:10 | 883.53 | 126.22 | 8.17 | 0:33:10 | 144.70 | 144.70 | 7.23 |
| 0:01:15 | 2,027.11 | 33.79 | 31.22 | 0:09:15 | 1,698.90 | 56.63 | 18.46 | 0:17:15 | 1,171.68 | 73.23 | 13.86 | 0:25:15 | 989.65 | 123.71 | 8.09 | 0:33:15 | 155.19 | 155.19 | 6.74 |
| 0:01:20 | 1,859.96 | 30.00 | 34.39 | 0:09:20 | 1,999.21 | 64.49 | 15.97 | 0:17:20 | 1,332.32 | 83.27 | 12.62 | 0:25:20 | 946.86 | 118.36 | 8.80 | 0:33:20 | 150.16 | 150.16 | 6.98 |
| 0:01:25 | 2,173.28 | 35.05 | 30.05 | 0:09:25 | 1,860.80 | 60.03 | 17.41 | 0:17:25 | 1,367.76 | 85.49 | 12.15 | 0:25:25 | 947.07 | 118.38 | 8.89 | 0:33:25 | 157.08 | 157.08 | 6.66 |
| 0:01:30 | 1,923.30 | 30.05 | 33.87 | 0:09:30 | 1,666.40 | 52.07 | 20.12 | 0:17:30 | 1,322.25 | 82.64 | 12.75 | 0:25:30 | 960.50 | 120.06 | 8.67 | 0:33:30 | 148.27 | 148.27 | 7.05 |
| 0:01:35 | 2,164.68 | 33.82 | 31.06 | 0:09:35 | 2,002.78 | 62.59 | 16.77 | 0:17:35 | 1,160.77 | 72.55 | 14.31 | 0:25:35 | 1,016.07 | 127.01 | 8.31 | 0:33:35 | 139.67 | 139.67 | 7.51 |
| 0:01:40 | 1,942.17 | 30.35 | 34.64 | 0:09:40 | 2,059.19 | 64.35 | 16.31 | 0:17:40 | 1,362.52 | 85.16 | 12.39 | 0:25:40 | 1,029.70 | 128.71 | 8.19 | 0:33:40 | 170.71 | 170.71 | 6.13 |
| 0:01:45 | 2,026.69 | 31.67 | 32.93 | 0:09:45 | 2,278.35 | 71.20 | 14.63 | 0:17:45 | 1,425.64 | 89.10 | 11.74 | 0:25:45 | 851.02 | 106.38 | 9.68 | 0:33:45 | 169.24 | 169.24 | 6.19 |
| 0:01:50 | 1,991.87 | 31.12 | 33.93 | 0:09:50 | 2,074.71 | 64.83 | 16.17 | 0:17:50 | 1,187.41 | 74.21 | 14.16 | 0:25:50 | 977.90 | 122.24 | 8.65 | 0:33:50 | 158.33 | 158.33 | 6.61 |
| 0:01:55 | 1,895.83 | 29.62 | 35.48 | 0:09:55 | 2,113.09 | 66.03 | 15.88 | 0:17:55 | 1,237.53 | 77.35 | 13.58 | 0:25:55 | 980.21 | 122.53 | 8.49 | 0:33:55 | 144.70 | 144.70 | 7.24 |
| 0:02:00 | 2,133.01 | 33.33 | 31.39 | 0:10:00 | 1,957.06 | 61.16 | 17.26 | 0:18:00 | 1,282.20 | 80.14 | 13.00 | 0:26:00 | 982.31 | 122.79 | 8.57 | 0:34:00 | 176.79 | 176.79 | 5.92 |
| 0:02:05 | 1,838.57 | 28.73 | 36.14 | 0:10:05 | 2,091.28 | 65.35 | 15.93 | 0:18:05 | 1,304.85 | 81.55 | 12.88 | 0:26:05 | 933.86 | 116.73 | 8.92 | 0:34:05 | 150.16 | 150.16 | 6.97 |
| 0:02:10 | 2,083.10 | 32.55 | 32.21 | 0:10:10 | 2,015.57 | 62.99 | 16.64 | 0:18:10 | 1,211.73 | 75.73 | 13.73 | 0:26:10 | 998.03 | 124.75 | 8.46 | 0:34:10 | 168.82 | 168.82 | 6.20 |
| 0:02:15 | 1,931.69 | 30.18 | 34.97 | 0:10:15 | 1,992.92 | 62.28 | 16.83 | 0:18:15 | 1,147.56 | 71.72 | 14.70 | 0:26:15 | 1,001.81 | 125.23 | 8.43 | 0:34:15 | 173.64 | 173.64 | 6.03 |
| 0:02:20 | 1,931.69 | 30.18 | 34.51 | 0:10:20 | 2,116.24 | 66.13 | 15.79 | 0:18:20 | 1,116.52 | 69.78 | 14.99 | 0:26:20 | 963.01 | 120.38 | 8.55 | 0:34:20 | 175.32 | 175.32 | 5.97 |
| 0:02:25 | 2,165.52 | 33.84 | 31.17 | 0:10:25 | 1,844.86 | 57.65 | 18.08 | 0:18:25 | 1,335.26 | 83.45 | 12.60 | 0:26:25 | 962.38 | 120.30 | 8.79 | 0:34:25 | 148.06 | 148.06 | 7.07 |
| 0:02:30 | 1,808.79 | 28.26 | 37.09 | 0:10:30 | 1,859.54 | 58.11 | 18.16 | 0:18:30 | 993.21 | 62.08 | 16.91 | 0:26:30 | 967.00 | 120.87 | 8.61 | 0:34:30 | 134.43 | 134.43 | 7.80 |
| 0:02:35 | 2,199.49 | 34.37 | 30.51 | 0:10:35 | 1,836.06 | 57.38 | 18.20 | 0:18:35 | 1,229.14 | 76.82 | 13.57 | 0:26:35 | 788.53 | 98.57 | 10.68 | 0:34:35 | 169.45 | 169.45 | 6.18 |
| 0:02:40 | 1,843.40 | 28.80 | 36.22 | 0:10:40 | 1,750.70 | 54.71 | 19.16 | 0:18:40 | 1,232.71 | 77.04 | 13.64 | 0:26:40 | 936.80 | 117.10 | 8.90 | 0:34:40 | 160.01 | 160.01 | 6.54 |
| 0:02:45 | 2,021.24 | 31.58 | 33.16 | 0:10:45 | 1,970.06 | 61.56 | 17.10 | 0:18:45 | 1,302.12 | 81.38 | 12.76 | 0:26:45 | 891.92 | 111.49 | 9.46 | 0:34:45 | 150.16 | 150.16 | 6.97 |
| 0:02:50 | 2,261.78 | 35.34 | 29.84 | 0:10:50 | 2,043.05 | 63.85 | 16.35 | 0:18:50 | 1,428.16 | 89.26 | 11.82 | 0:26:50 | 988.18 | 123.52 | 8.55 | 0:34:50 | 141.77 | 141.77 | 7.38 |
| 0:02:55 | 1,806.70 | 28.23 | 36.86 | 0:10:55 | 2,148.74 | 67.15 | 15.61 | 0:18:55 | 1,336.51 | 83.53 | 12.53 | 0:26:55 | 927.99 | 116.00 | 8.87 | 0:34:55 | 161.27 | 161.27 | 6.49 |
| 0:03:00 | 2,300.79 | 35.95 | 29.30 | 0:11:00 | 2,146.85 | 67.09 | 15.67 | 0:19:00 | 1,205.23 | 75.33 | 13.94 | 0:27:00 | 1,006.42 | 125.80 | 8.40 | 0:35:00 | 164.00 | 164.00 | 6.38 |
| 0:03:05 | 1,857.45 | 29.02 | 36.18 | 0:11:05 | 2,127.98 | 66.50 | 15.76 | 0:19:05 | 1,161.40 | 72.59 | 14.49 | 0:27:05 | 948.12 | 118.52 | 8.78 | 0:35:05 | 155.40 | 155.40 | 6.75 |
| 0:03:10 | 2,134.48 | 33.35 | 31.49 | 0:11:10 | 2,044.72 | 63.90 | 16.35 | 0:19:10 | 1,143.58 | 71.47 | 14.57 | 0:27:10 | 931.35 | 116.42 | 9.04 | 0:35:10 | 153.93 | 153.93 | 6.80 |
| 0:03:15 | 1,997.54 | 31.21 | 33.32 | 0:11:15 | 1,892.05 | 59.13 | 17.72 | 0:19:15 | 1,354.76 | 84.67 | 12.42 | 0:27:15 | 903.03 | 112.88 | 9.22 | 0:35:15 | 159.59 | 159.59 | 6.56 |
| 0:03:20 | 1,939.03 | 30.30 | 34.61 | 0:11:20 | 2,202.22 | 68.82 | 15.27 | 0:19:20 | 1,261.44 | 78.84 | 13.22 | 0:27:20 | 970.35 | 121.29 | 8.70 | 0:35:20 | 162.95 | 162.95 | 6.43 |
| 0:03:25 | 2,327.42 | 36.37 | 29.03 | 0:11:25 | 2,303.93 | 72.00 | 14.52 | 0:19:25 | 1,365.46 | 85.34 | 12.31 | 0:27:25 | 1,018.38 | 127.30 | 8.29 | 0:35:25 | 136.73 | 136.73 | 7.66 |
| 0:03:30 | 1,833.54 | 28.65 | 36.22 | 0:11:30 | 2,182.30 | 68.20 | 15.36 | 0:19:30 | 1,394.82 | 87.18 | 12.01 | 0:27:30 | 910.16 | 113.77 | 9.05 | 0:35:30 | 156.87 | 156.87 | 6.67 |
| 0:03:35 | 2,304.98 | 36.02 | 29.42 | 0:11:35 | 2,132.17 | 66.63 | 15.73 | 0:19:35 | 1,186.78 | 74.17 | 14.17 | 0:27:35 | 903.66 | 112.96 | 9.36 | 0:35:35 | 133.17 | 133.17 | 7.85 |
| 0:03:40 | 1,878.63 | 29.35 | 35.66 | 0:11:40 | 2,029.62 | 63.43 | 16.56 | 0:19:40 | 1,285.55 | 80.35 | 13.08 | 0:27:40 | 922.96 | 115.37 | 9.03 | 0:35:40 | 128.77 | 128.77 | 8.13 |
| 0:03:45 | 2,108.90 | 32.95 | 31.80 | 0:11:45 | 1,963.56 | 61.36 | 17.02 | 0:19:45 | 1,245.50 | 77.84 | 13.37 | 0:27:45 | 943.09 | 117.89 | 8.97 | 0:35:45 | 136.94 | 136.94 | 7.65 |
| 0:03:50 | 2,051.43 | 32.05 | 32.44 | 0:11:50 | 1,980.13 | 61.88 | 16.92 | 0:19:50 | 1,349.31 | 84.33 | 12.47 | 0:27:50 | 1,027.39 | 128.42 | 8.06 | 0:35:50 | 153.93 | 153.93 | 6.81 |
| 0:03:55 | 1,962.10 | 30.66 | 34.39 | 0:11:55 | 1,878.42 | 58.70 | 17.91 | 0:19:55 | 1,202.93 | 75.18 | 13.81 | 0:27:55 | 965.53 | 120.69 | 8.76 | 0:35:55 | 163.16 | 163.16 | 6.41 |
| 0:04:00 | 2,321.34 | 36.27 | 29.02 | 0:12:00 | 1,823.68 | 56.99 | 18.32 | 0:20:00 | 1,307.99 | 81.75 | 12.89 | 0:28:00 | 921.91 | 115.24 | 9.12 | 0:36:00 | 176.79 | 176.79 | 5.92 |

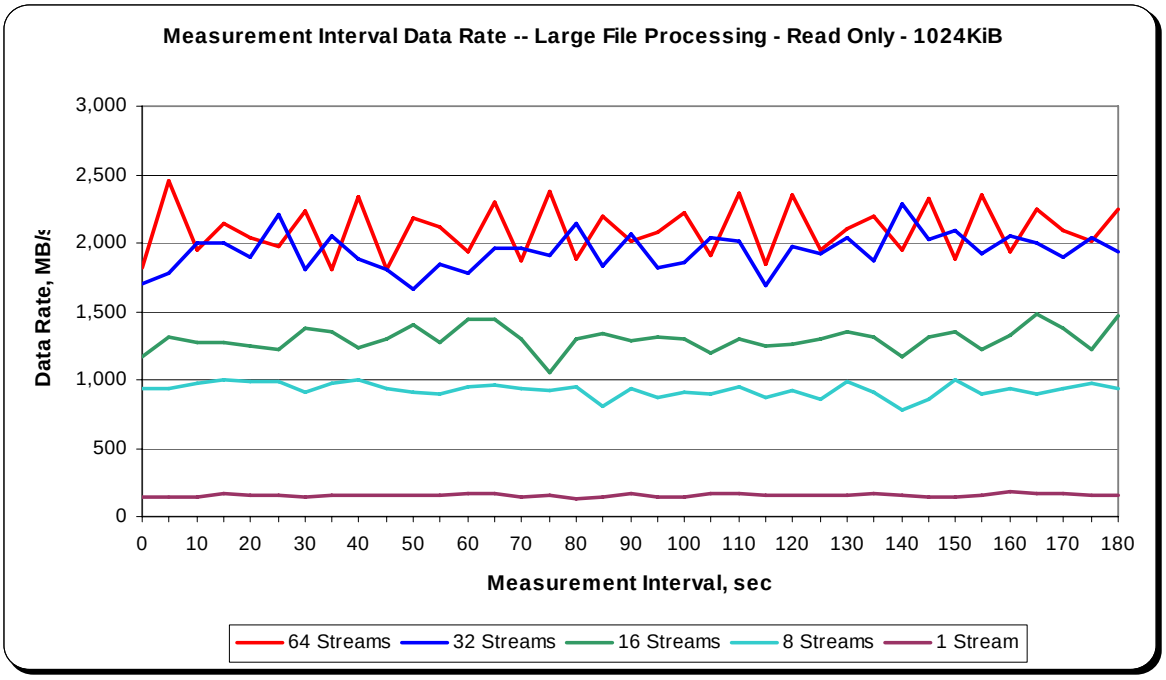
## SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR21 | 64 Streams | | | TR22 | 32 Streams | | | TR23 | 16 Streams | | | TR24 | 8 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 |
| 0:04:05 | 1,818.65 | 28.42 | 36.53 | 0:12:05 | 1,701.42 | 53.17 | 19.63 | 0:20:05 | 1,167.48 | 72.97 | 14.36 | 0:28:05 | 938.89 | 117.36 | 8.79 | 0:36:05 | 140.72 | 140.72 | 7.44 |
| 0:04:10 | 2,449.26 | 38.27 | 27.69 | 0:12:10 | 1,781.32 | 55.67 | 18.92 | 0:20:10 | 1,314.08 | 82.13 | 12.79 | 0:28:10 | 935.96 | 116.99 | 9.03 | 0:36:10 | 137.15 | 137.15 | 7.63 |
| 0:04:15 | 1,942.17 | 30.35 | 34.38 | 0:12:15 | 1,994.18 | 62.32 | 16.84 | 0:20:15 | 1,274.23 | 79.64 | 13.15 | 0:28:15 | 972.24 | 121.53 | 8.58 | 0:36:15 | 148.69 | 148.69 | 7.05 |
| 0:04:20 | 2,143.08 | 33.49 | 31.43 | 0:12:20 | 1,996.49 | 62.39 | 16.78 | 0:20:20 | 1,266.68 | 79.17 | 13.19 | 0:28:20 | 999.08 | 124.89 | 8.51 | 0:36:20 | 174.27 | 174.27 | 6.00 |
| 0:04:25 | 2,035.08 | 31.80 | 32.60 | 0:12:25 | 1,897.29 | 59.29 | 17.68 | 0:20:25 | 1,252.63 | 78.29 | 13.44 | 0:28:25 | 986.50 | 123.31 | 8.35 | 0:36:25 | 161.27 | 161.27 | 6.50 |
| 0:04:30 | 1,976.15 | 30.88 | 34.50 | 0:12:30 | 2,213.33 | 69.17 | 15.19 | 0:20:30 | 1,215.09 | 75.94 | 13.68 | 0:28:30 | 981.68 | 122.71 | 8.61 | 0:36:30 | 154.14 | 154.14 | 6.79 |
| 0:04:35 | 2,232.00 | 34.87 | 29.75 | 0:12:35 | 1,808.79 | 56.52 | 18.48 | 0:20:35 | 1,374.47 | 85.90 | 12.26 | 0:28:35 | 905.13 | 113.14 | 9.31 | 0:36:35 | 143.45 | 143.45 | 7.29 |
| 0:04:40 | 1,808.58 | 28.26 | 36.89 | 0:12:40 | 2,046.19 | 63.94 | 16.35 | 0:20:40 | 1,356.65 | 84.79 | 12.35 | 0:28:40 | 967.63 | 120.95 | 8.51 | 0:36:40 | 160.43 | 160.43 | 6.53 |
| 0:04:45 | 2,338.53 | 36.54 | 28.95 | 0:12:45 | 1,881.15 | 58.79 | 17.87 | 0:20:45 | 1,235.22 | 77.20 | 13.61 | 0:28:45 | 993.63 | 124.20 | 8.51 | 0:36:45 | 155.40 | 155.40 | 6.71 |
| 0:04:50 | 1,800.20 | 28.13 | 37.16 | 0:12:50 | 1,799.57 | 56.24 | 18.71 | 0:20:50 | 1,295.62 | 80.98 | 12.94 | 0:28:50 | 930.93 | 116.37 | 8.95 | 0:36:50 | 152.88 | 152.88 | 6.87 |
| 0:04:55 | 2,184.39 | 34.13 | 30.78 | 0:12:55 | 1,657.38 | 51.79 | 20.07 | 0:20:55 | 1,398.38 | 87.40 | 11.92 | 0:28:55 | 911.00 | 113.88 | 9.33 | 0:36:55 | 159.38 | 159.38 | 6.56 |
| 0:05:00 | 2,121.69 | 33.15 | 31.35 | 0:13:00 | 1,844.03 | 57.63 | 18.27 | 0:21:00 | 1,266.26 | 79.14 | 13.31 | 0:29:00 | 892.55 | 111.57 | 9.24 | 0:37:00 | 161.27 | 161.27 | 6.50 |
| 0:05:05 | 1,941.33 | 30.33 | 34.73 | 0:13:05 | 1,783.00 | 55.72 | 18.80 | 0:21:05 | 1,437.18 | 89.82 | 11.57 | 0:29:05 | 947.70 | 118.46 | 8.92 | 0:37:05 | 165.26 | 165.26 | 6.33 |
| 0:05:10 | 2,295.75 | 35.87 | 29.19 | 0:13:10 | 1,956.01 | 61.13 | 17.15 | 0:21:10 | 1,445.15 | 90.32 | 11.66 | 0:29:10 | 965.74 | 120.72 | 8.73 | 0:37:10 | 174.27 | 174.27 | 6.02 |
| 0:05:15 | 1,872.55 | 29.26 | 35.68 | 0:13:15 | 1,963.98 | 61.37 | 17.03 | 0:21:15 | 1,298.56 | 81.16 | 12.89 | 0:29:15 | 933.86 | 116.73 | 8.82 | 0:37:15 | 147.01 | 147.01 | 7.12 |
| 0:05:20 | 2,377.12 | 37.14 | 28.47 | 0:13:20 | 1,914.28 | 59.82 | 17.55 | 0:21:20 | 1,054.87 | 65.93 | 15.96 | 0:29:20 | 921.07 | 115.13 | 9.18 | 0:37:20 | 154.35 | 154.35 | 6.78 |
| 0:05:25 | 1,880.31 | 29.38 | 35.57 | 0:13:25 | 2,146.85 | 67.09 | 15.68 | 0:21:25 | 1,299.19 | 81.20 | 12.89 | 0:29:25 | 946.86 | 118.36 | 8.80 | 0:37:25 | 123.52 | 123.52 | 8.49 |
| 0:05:30 | 2,193.62 | 34.28 | 30.72 | 0:13:30 | 1,825.99 | 57.06 | 18.29 | 0:21:30 | 1,336.51 | 83.53 | 12.52 | 0:29:30 | 803.00 | 100.37 | 10.59 | 0:37:30 | 141.35 | 141.35 | 7.40 |
| 0:05:35 | 2,010.75 | 31.42 | 33.01 | 0:13:35 | 2,059.61 | 64.36 | 16.28 | 0:21:35 | 1,281.78 | 80.11 | 13.07 | 0:29:35 | 934.07 | 116.76 | 8.83 | 0:37:35 | 171.34 | 171.34 | 6.11 |
| 0:05:40 | 2,072.20 | 32.38 | 32.54 | 0:13:40 | 1,820.75 | 56.90 | 18.45 | 0:21:40 | 1,306.11 | 81.63 | 12.77 | 0:29:40 | 864.87 | 108.11 | 9.78 | 0:37:40 | 147.01 | 147.01 | 7.13 |
| 0:05:45 | 2,226.76 | 34.79 | 30.11 | 0:13:45 | 1,859.54 | 58.11 | 18.02 | 0:21:45 | 1,298.98 | 81.19 | 12.98 | 0:29:45 | 912.47 | 114.06 | 9.23 | 0:37:45 | 139.46 | 139.46 | 7.51 |
| 0:05:50 | 1,913.65 | 29.90 | 34.86 | 0:13:50 | 2,033.61 | 63.55 | 16.41 | 0:21:50 | 1,201.04 | 75.06 | 13.94 | 0:29:50 | 896.11 | 112.01 | 9.19 | 0:37:50 | 171.34 | 171.34 | 6.11 |
| 0:05:55 | 2,361.18 | 36.89 | 28.67 | 0:13:55 | 2,015.99 | 63.00 | 16.71 | 0:21:55 | 1,294.15 | 80.88 | 12.99 | 0:29:55 | 950.64 | 118.83 | 8.86 | 0:37:55 | 169.24 | 169.24 | 6.19 |
| 0:06:00 | 1,844.45 | 28.82 | 36.29 | 0:14:00 | 1,685.48 | 52.67 | 19.89 | 0:22:00 | 1,252.00 | 78.25 | 13.40 | 0:30:00 | 875.14 | 109.39 | 9.56 | 0:38:00 | 154.35 | 154.35 | 6.79 |
| 0:06:05 | 2,356.36 | 36.82 | 28.61 | 0:14:05 | 1,970.69 | 61.58 | 17.00 | 0:22:05 | 1,265.84 | 79.12 | 13.20 | 0:30:05 | 923.59 | 115.45 | 9.21 | 0:38:05 | 161.69 | 161.69 | 6.47 |
| 0:06:10 | 1,945.53 | 30.40 | 34.13 | 0:14:10 | 1,924.98 | 60.16 | 17.45 | 0:22:10 | 1,304.64 | 81.54 | 12.86 | 0:30:10 | 858.57 | 107.32 | 9.60 | 0:38:10 | 154.56 | 154.56 | 6.78 |
| 0:06:15 | 2,109.94 | 32.97 | 32.13 | 0:14:15 | 2,034.66 | 63.58 | 16.51 | 0:22:15 | 1,349.52 | 84.34 | 12.35 | 0:30:15 | 983.77 | 122.97 | 8.60 | 0:38:15 | 155.40 | 155.40 | 6.73 |
| 0:06:20 | 2,190.89 | 34.23 | 30.45 | 0:14:20 | 1,864.79 | 58.27 | 17.95 | 0:22:20 | 1,305.27 | 81.58 | 12.92 | 0:30:20 | 903.03 | 112.88 | 9.33 | 0:38:20 | 175.11 | 175.11 | 5.98 |
| 0:06:25 | 1,943.01 | 30.36 | 34.41 | 0:14:25 | 2,286.73 | 71.46 | 14.61 | 0:22:25 | 1,167.48 | 72.97 | 14.33 | 0:30:25 | 775.95 | 96.99 | 10.62 | 0:38:25 | 156.45 | 156.45 | 6.69 |
| 0:06:30 | 2,318.19 | 36.22 | 29.08 | 0:14:30 | 2,026.27 | 63.32 | 16.59 | 0:22:30 | 1,314.91 | 82.18 | 12.80 | 0:30:30 | 855.85 | 106.98 | 9.88 | 0:38:30 | 136.52 | 136.52 | 7.66 |
| 0:06:35 | 1,877.58 | 29.34 | 35.67 | 0:14:35 | 2,097.36 | 65.54 | 16.02 | 0:22:35 | 1,356.86 | 84.80 | 12.36 | 0:30:35 | 1,003.07 | 125.38 | 8.31 | 0:38:35 | 140.09 | 140.09 | 7.48 |
| 0:06:40 | 2,344.41 | 36.63 | 28.72 | 0:14:40 | 1,917.43 | 59.92 | 17.43 | 0:22:40 | 1,216.14 | 76.01 | 13.74 | 0:30:40 | 892.76 | 111.59 | 9.52 | 0:38:40 | 158.96 | 158.96 | 6.59 |
| 0:06:45 | 1,929.38 | 30.15 | 34.56 | 0:14:45 | 2,047.24 | 63.98 | 16.39 | 0:22:45 | 1,322.46 | 82.65 | 12.69 | 0:30:45 | 940.15 | 117.52 | 8.77 | 0:38:45 | 178.47 | 178.47 | 5.86 |
| 0:06:50 | 2,248.78 | 35.14 | 29.92 | 0:14:50 | 2,001.73 | 62.55 | 16.79 | 0:22:50 | 1,478.28 | 92.39 | 11.30 | 0:30:50 | 892.13 | 111.52 | 9.48 | 0:38:50 | 174.69 | 174.69 | 5.99 |
| 0:06:55 | 2,086.67 | 32.60 | 32.14 | 0:14:55 | 1,891.21 | 59.10 | 17.71 | 0:22:55 | 1,371.33 | 85.71 | 12.26 | 0:30:55 | 929.88 | 116.23 | 9.06 | 0:38:55 | 168.40 | 168.40 | 6.21 |
| 0:07:00 | 2,014.94 | 31.48 | 33.20 | 0:15:00 | 2,039.48 | 63.73 | 16.38 | 0:23:00 | 1,217.82 | 76.11 | 13.74 | 0:31:00 | 971.40 | 121.43 | 8.48 | 0:39:00 | 150.58 | 150.58 | 6.97 |
| 0:07:05 | 2,252.76 | 35.20 | 29.74 | 0:15:05 | 1,934.62 | 60.46 | 17.38 | 0:23:05 | 1,471.36 | 91.96 | 11.40 | 0:31:05 | 940.78 | 117.60 | 8.93 | 0:39:05 | 152.25 | 152.25 | 6.87 |
| 0:07:10 | 1,980.97 | 30.95 | 33.89 | 0:15:10 | 1,874.02 | 58.56 | 17.79 | 0:23:10 | 1,426.69 | 89.17 | 11.82 | 0:31:10 | 998.66 | 124.83 | 8.42 | 0:39:10 | 170.50 | 170.50 | 6.14 |
| 0:07:15 | 2,369.78 | 37.03 | 28.40 | 0:15:15 | 2,032.56 | 63.52 | 16.55 | 0:23:15 | 1,285.55 | 80.35 | 13.00 | 0:31:15 | 881.64 | 110.21 | 9.45 | 0:39:15 | 153.30 | 153.30 | 6.84 |
| 0:07:20 | 1,969.65 | 30.78 | 34.08 | 0:15:20 | 1,927.70 | 60.24 | 17.41 | 0:23:20 | 1,417.47 | 88.59 | 11.86 | 0:31:20 | 919.39 | 114.92 | 9.10 | 0:39:20 | 158.75 | 158.75 | 6.59 |
| 0:07:25 | 2,304.14 | 36.00 | 29.06 | 0:15:25 | 2,189.01 | 68.41 | 15.28 | 0:23:25 | 1,370.91 | 85.68 | 12.19 | 0:31:25 | 842.64 | 105.33 | 9.99 | 0:39:25 | 138.83 | 138.83 | 7.54 |
| 0:07:30 | 1,967.97 | 30.75 | 33.92 | 0:15:30 | 2,146.85 | 67.09 | 15.69 | 0:23:30 | 1,262.07 | 78.88 | 13.17 | 0:31:30 | 991.32 | 123.92 | 8.53 | 0:39:30 | 164.21 | 164.21 | 6.38 |
| 0:07:35 | 2,275.41 | 35.55 | 29.46 | 0:15:35 | 1,956.64 | 61.15 | 17.06 | 0:23:35 | 1,150.08 | 71.88 | 14.65 | 0:31:35 | 948.96 | 118.62 | 8.74 | 0:39:35 | 166.93 | 166.93 | 6.27 |
| 0:07:40 | 2,086.46 | 32.60 | 32.23 | 0:15:40 | 2,105.12 | 65.79 | 15.97 | 0:23:40 | 1,335.47 | 83.47 | 12.56 | 0:31:40 | 974.13 | 121.77 | 8.59 | 0:39:40 | 156.45 | 156.45 | 6.70 |
| 0:07:45 | 2,139.30 | 38.20 | 31.88 | 0:15:45 | 1,949.51 | 60.92 | 17.21 | 0:23:45 | 1,310.30 | 81.89 | 12.90 | 0:31:45 | 880.80 | 146.80 | 9.55 | 0:39:45 | 159.80 | 159.80 | 6.55 |
| 0:07:50 | 229.64 | 0.00 | 23.28 | 0:15:50 | 221.04 | 0.00 | 14.00 | 0:23:50 | 135.27 | 0.00 | 10.15 | 0:31:50 | 32.09 | 0.00 | 7.42 | 0:39:50 | 3.57 | 0.00 | 6.96 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |

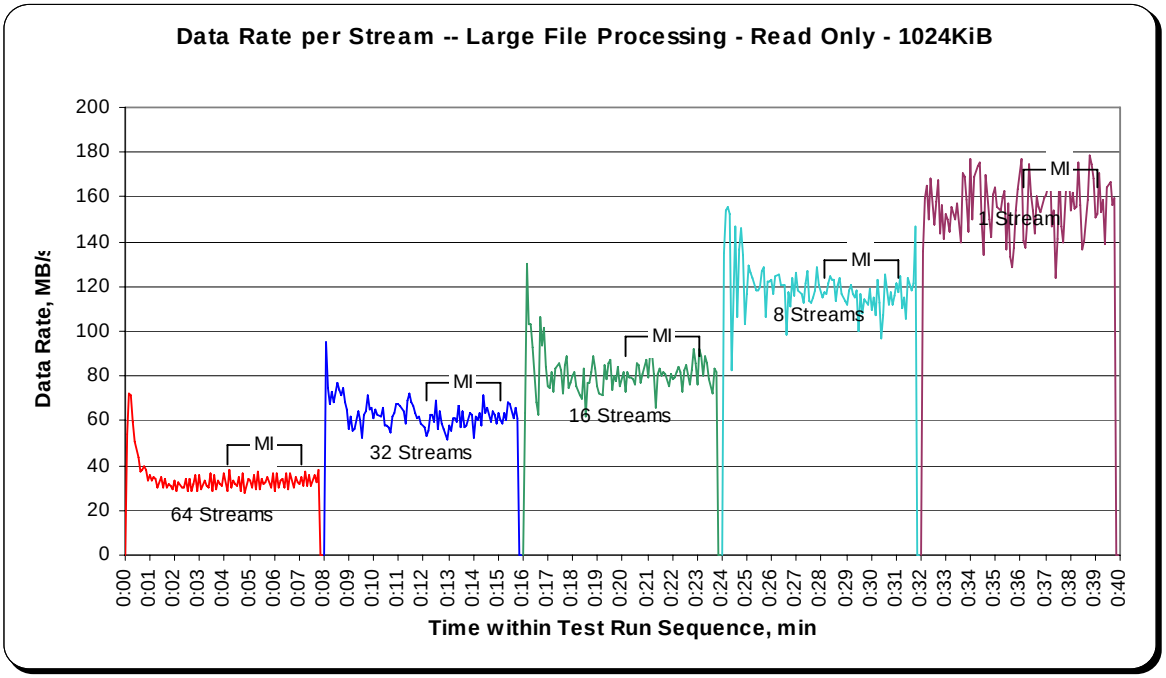
## SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



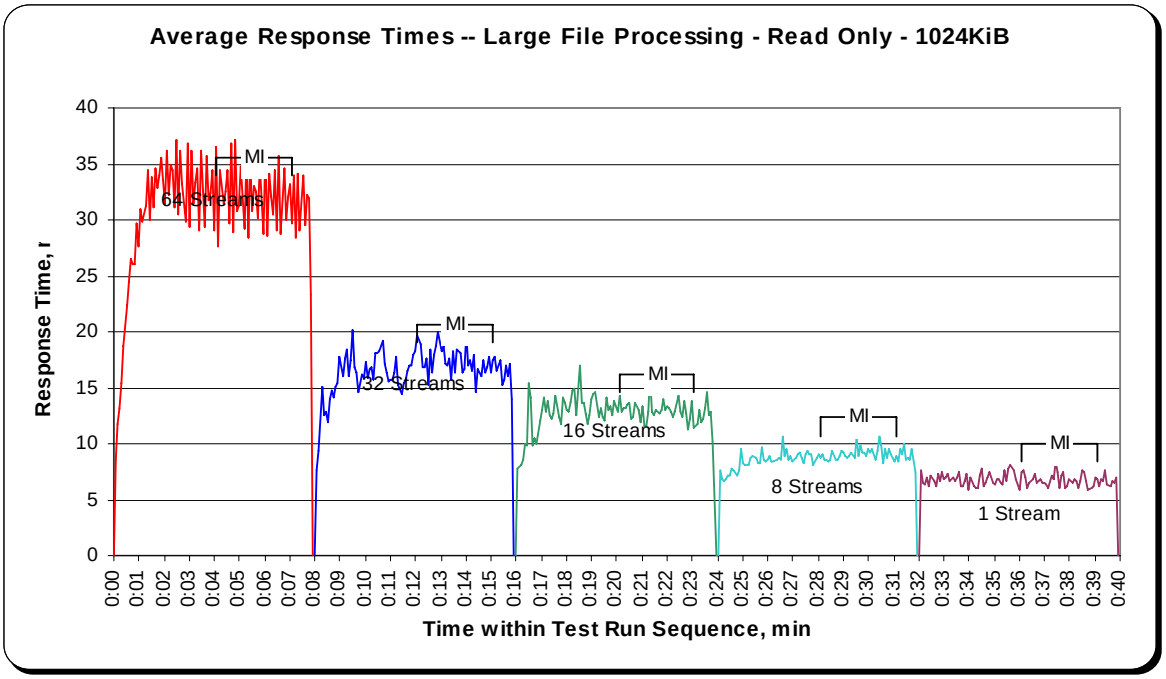

## SPC-2 "Large File Processing/READ ONLY/1024 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



## 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



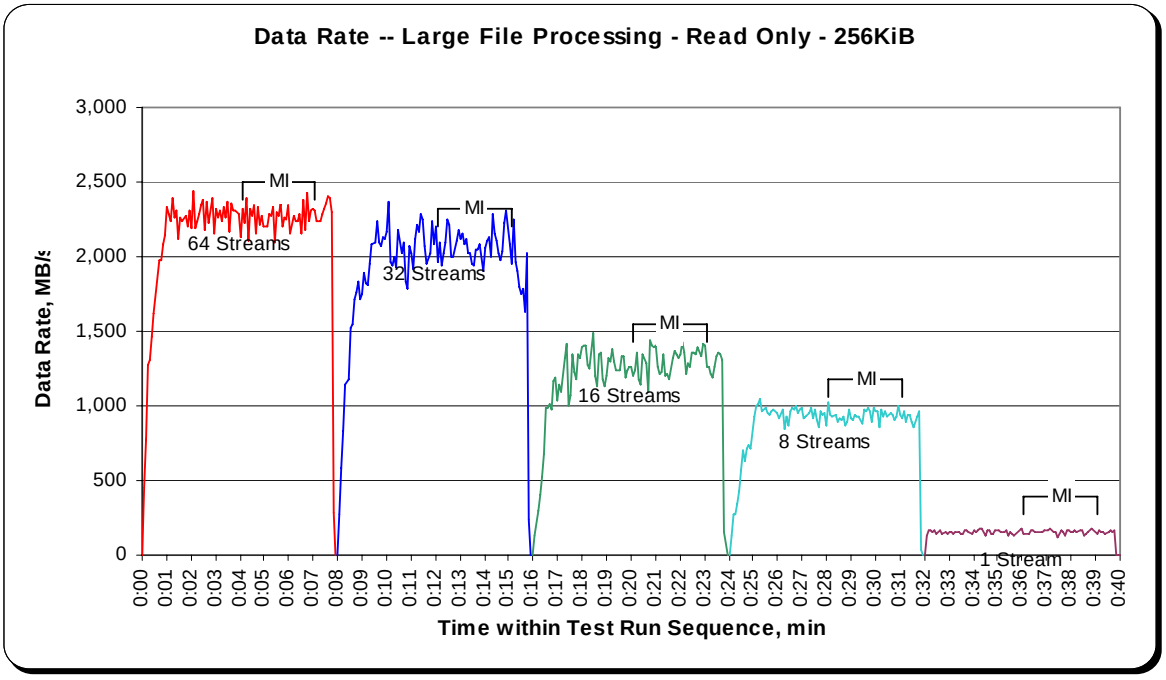
## SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data – Ramp-Up Period

| TR26 | 64 Streams | | | TR27 | 32 Streams | | | TR28 | 16 Streams | | | TR29 | 8 Streams | | | TR30 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:00 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 450.94 | 75.16 | 2.29 | 0:08:05 | 267.86 | 89.29 | 1.97 | 0:16:05 | 135.53 | 67.76 | 1.98 | 0:24:05 | 135.42 | 135.42 | 1.88 | 0:32:05 | 136.05 | 136.05 | 1.87 |
| 0:00:10 | 776.42 | 64.70 | 2.79 | 0:08:10 | 580.33 | 72.54 | 2.67 | 0:16:10 | 299.00 | 99.67 | 2.00 | 0:24:10 | 279.71 | 139.85 | 1.83 | 0:32:10 | 160.75 | 160.75 | 1.62 |
| 0:00:15 | 1,267.99 | 63.40 | 3.44 | 0:08:15 | 834.82 | 83.48 | 3.03 | 0:16:15 | 407.84 | 101.96 | 2.39 | 0:24:15 | 276.51 | 138.25 | 1.89 | 0:32:15 | 164.05 | 164.05 | 1.59 |
| 0:00:20 | 1,304.85 | 50.19 | 4.81 | 0:08:20 | 1,137.39 | 94.78 | 2.71 | 0:16:20 | 522.45 | 74.64 | 2.41 | 0:24:20 | 343.72 | 114.57 | 2.03 | 0:32:20 | 150.63 | 150.63 | 1.73 |
| 0:00:25 | 1,462.29 | 41.78 | 5.52 | 0:08:25 | 1,176.50 | 78.43 | 2.92 | 0:16:25 | 676.23 | 67.62 | 3.04 | 0:24:25 | 427.77 | 106.94 | 1.86 | 0:32:25 | 168.40 | 168.40 | 1.55 |
| 0:00:30 | 1,624.82 | 40.62 | 5.97 | 0:08:30 | 1,526.36 | 84.80 | 2.91 | 0:16:30 | 989.38 | 98.94 | 2.64 | 0:24:30 | 565.92 | 113.18 | 1.95 | 0:32:30 | 147.59 | 147.59 | 1.77 |
| 0:00:35 | 1,856.87 | 42.20 | 5.85 | 0:08:35 | 1,552.36 | 67.49 | 3.37 | 0:16:35 | 988.81 | 98.88 | 2.61 | 0:24:35 | 701.92 | 116.99 | 1.93 | 0:32:35 | 157.39 | 157.39 | 1.66 |
| 0:00:40 | 1,981.44 | 42.16 | 5.99 | 0:08:40 | 1,712.85 | 74.47 | 3.51 | 0:16:40 | 1,008.26 | 100.83 | 2.63 | 0:24:40 | 629.36 | 104.89 | 2.48 | 0:32:40 | 166.88 | 166.88 | 1.56 |
| 0:00:45 | 1,977.19 | 38.77 | 6.43 | 0:08:45 | 1,759.09 | 70.36 | 3.55 | 0:16:45 | 977.38 | 88.85 | 2.80 | 0:24:45 | 715.92 | 119.32 | 2.20 | 0:32:45 | 142.82 | 142.82 | 1.83 |
| 0:00:50 | 2,087.24 | 40.14 | 6.33 | 0:08:50 | 1,830.87 | 70.42 | 3.71 | 0:16:50 | 1,167.54 | 97.29 | 2.59 | 0:24:50 | 737.94 | 122.99 | 2.12 | 0:32:50 | 157.18 | 157.18 | 1.66 |
| 0:00:55 | 2,139.72 | 38.21 | 6.70 | 0:08:55 | 1,717.04 | 63.59 | 3.99 | 0:16:55 | 1,190.08 | 91.54 | 2.80 | 0:24:55 | 712.72 | 101.82 | 2.24 | 0:32:55 | 141.87 | 141.87 | 1.84 |
| 0:01:00 | 2,337.07 | 38.95 | 6.68 | 0:09:00 | 1,752.43 | 62.59 | 4.06 | 0:17:00 | 1,040.34 | 74.31 | 3.49 | 0:25:00 | 924.16 | 115.52 | 2.26 | 0:33:00 | 152.04 | 152.04 | 1.71 |
| 0:01:05 | 2,282.70 | 38.04 | 6.83 | 0:09:05 | 1,892.73 | 67.60 | 3.88 | 0:17:05 | 1,146.46 | 81.89 | 3.18 | 0:25:05 | 999.92 | 124.99 | 2.06 | 0:33:05 | 150.47 | 150.47 | 1.73 |
| 0:01:10 | 2,232.42 | 36.01 | 7.15 | 0:09:10 | 1,824.63 | 62.92 | 4.14 | 0:17:10 | 1,099.85 | 73.32 | 3.40 | 0:25:10 | 1,015.44 | 126.93 | 2.07 | 0:33:10 | 144.81 | 144.81 | 1.80 |
| 0:01:15 | 2,398.72 | 38.69 | 6.82 | 0:09:15 | 1,804.34 | 60.14 | 4.31 | 0:17:15 | 1,320.31 | 88.02 | 2.99 | 0:25:15 | 1,041.87 | 130.23 | 2.00 | 0:33:15 | 155.08 | 155.08 | 1.68 |
| 0:01:20 | 2,262.51 | 35.91 | 7.24 | 0:09:20 | 1,952.34 | 61.01 | 4.18 | 0:17:20 | 1,421.87 | 94.79 | 2.75 | 0:25:20 | 963.43 | 120.43 | 2.18 | 0:33:20 | 150.37 | 150.37 | 1.73 |
| 0:01:25 | 2,306.55 | 36.61 | 7.04 | 0:09:25 | 2,081.48 | 65.05 | 4.03 | 0:17:25 | 1,004.01 | 62.75 | 3.97 | 0:25:25 | 977.33 | 122.17 | 2.13 | 0:33:25 | 157.60 | 157.60 | 1.65 |
| 0:01:30 | 2,118.28 | 33.10 | 7.90 | 0:09:30 | 2,095.21 | 65.48 | 3.98 | 0:17:30 | 1,066.56 | 66.66 | 3.91 | 0:25:30 | 987.71 | 123.46 | 2.11 | 0:33:30 | 148.06 | 148.06 | 1.76 |
| 0:01:35 | 2,260.89 | 35.33 | 7.43 | 0:09:35 | 2,243.90 | 70.12 | 3.72 | 0:17:35 | 1,339.77 | 83.74 | 3.15 | 0:25:35 | 955.46 | 119.43 | 2.19 | 0:33:35 | 139.62 | 139.62 | 1.87 |
| 0:01:40 | 2,235.93 | 34.94 | 7.50 | 0:09:40 | 2,100.19 | 65.63 | 3.99 | 0:17:40 | 1,226.73 | 76.67 | 3.39 | 0:25:40 | 940.21 | 117.53 | 2.19 | 0:33:40 | 170.76 | 170.76 | 1.52 |
| 0:01:45 | 2,274.99 | 35.55 | 7.34 | 0:09:45 | 2,069.16 | 64.66 | 4.04 | 0:17:45 | 1,175.35 | 73.46 | 3.54 | 0:25:45 | 967.52 | 120.94 | 2.17 | 0:33:45 | 167.98 | 167.98 | 1.55 |
| 0:01:50 | 2,198.65 | 34.35 | 7.67 | 0:09:50 | 2,132.59 | 66.64 | 3.90 | 0:17:50 | 1,340.66 | 83.79 | 3.14 | 0:25:50 | 978.53 | 122.32 | 2.13 | 0:33:50 | 157.97 | 157.97 | 1.65 |
| 0:01:55 | 2,305.92 | 36.03 | 7.28 | 0:09:55 | 2,124.68 | 66.40 | 3.95 | 0:17:55 | 1,321.42 | 82.59 | 3.16 | 0:25:55 | 964.17 | 120.52 | 2.18 | 0:33:55 | 141.82 | 141.82 | 1.84 |
| 0:02:00 | 2,189.37 | 34.21 | 7.54 | 0:10:00 | 2,168.56 | 67.77 | 3.87 | 0:18:00 | 1,388.73 | 86.80 | 3.01 | 0:26:00 | 953.10 | 119.14 | 2.19 | 0:34:00 | 171.08 | 171.08 | 1.52 |
| 0:02:05 | 2,437.83 | 38.09 | 6.92 | 0:10:05 | 2,367.68 | 73.99 | 3.52 | 0:18:05 | 1,407.61 | 87.98 | 2.95 | 0:26:05 | 912.68 | 114.09 | 2.28 | 0:34:05 | 152.04 | 152.04 | 1.71 |
| 0:02:10 | 2,194.51 | 34.29 | 7.63 | 0:10:10 | 1,968.23 | 61.51 | 4.24 | 0:18:10 | 1,408.97 | 88.06 | 2.98 | 0:26:10 | 977.85 | 122.23 | 2.14 | 0:34:10 | 166.72 | 166.72 | 1.56 |
| 0:02:15 | 2,235.14 | 34.92 | 7.51 | 0:10:15 | 1,941.54 | 60.67 | 4.33 | 0:18:15 | 1,269.83 | 79.36 | 3.28 | 0:26:15 | 843.11 | 105.39 | 2.46 | 0:34:15 | 173.22 | 173.22 | 1.50 |
| 0:02:20 | 2,287.89 | 35.75 | 7.29 | 0:10:20 | 2,000.00 | 62.50 | 4.21 | 0:18:20 | 1,244.40 | 77.77 | 3.34 | 0:26:20 | 924.37 | 115.55 | 2.27 | 0:34:20 | 174.69 | 174.69 | 1.49 |
| 0:02:25 | 2,349.28 | 36.71 | 7.18 | 0:10:25 | 1,928.75 | 60.27 | 4.28 | 0:18:25 | 1,486.67 | 92.92 | 2.83 | 0:26:25 | 870.42 | 108.80 | 2.38 | 0:34:25 | 150.52 | 150.52 | 1.73 |
| 0:02:30 | 2,381.84 | 37.22 | 7.04 | 0:10:30 | 2,176.58 | 68.02 | 3.89 | 0:18:30 | 1,205.23 | 75.33 | 3.47 | 0:26:30 | 969.15 | 121.14 | 2.18 | 0:34:30 | 132.12 | 132.12 | 1.98 |
| 0:02:35 | 2,182.03 | 34.09 | 7.58 | 0:10:35 | 2,027.58 | 63.36 | 4.11 | 0:18:35 | 1,128.43 | 70.53 | 3.70 | 0:26:35 | 992.58 | 124.07 | 2.10 | 0:34:35 | 166.36 | 166.36 | 1.57 |
| 0:02:40 | 2,372.19 | 37.07 | 7.08 | 0:10:40 | 2,090.44 | 65.33 | 3.99 | 0:18:40 | 1,350.25 | 84.39 | 3.08 | 0:26:40 | 970.82 | 121.35 | 2.15 | 0:34:40 | 162.69 | 162.69 | 1.60 |
| 0:02:45 | 2,225.50 | 34.77 | 7.56 | 0:10:45 | 1,837.21 | 57.41 | 4.55 | 0:18:45 | 1,359.27 | 84.95 | 3.09 | 0:26:45 | 998.09 | 124.76 | 2.10 | 0:34:45 | 148.06 | 148.06 | 1.76 |
| 0:02:50 | 2,387.61 | 37.31 | 7.05 | 0:10:50 | 1,788.87 | 55.90 | 4.71 | 0:18:50 | 1,183.48 | 73.97 | 3.52 | 0:26:50 | 956.51 | 119.56 | 2.16 | 0:34:50 | 141.09 | 141.09 | 1.85 |
| 0:02:55 | 2,160.01 | 33.75 | 7.73 | 0:10:55 | 2,073.51 | 64.80 | 4.04 | 0:18:55 | 1,131.99 | 70.75 | 3.68 | 0:26:55 | 978.74 | 122.34 | 2.14 | 0:34:55 | 162.21 | 162.21 | 1.61 |
| 0:03:00 | 2,324.59 | 36.32 | 7.23 | 0:11:00 | 2,023.38 | 63.23 | 4.11 | 0:19:00 | 1,199.83 | 74.99 | 3.51 | 0:27:00 | 985.56 | 123.19 | 2.11 | 0:35:00 | 164.15 | 164.15 | 1.59 |
| 0:03:05 | 2,265.61 | 35.40 | 7.41 | 0:11:05 | 1,922.09 | 60.07 | 4.36 | 0:19:05 | 1,316.54 | 82.28 | 3.18 | 0:27:05 | 915.72 | 114.47 | 2.29 | 0:35:05 | 152.31 | 152.31 | 1.71 |
| 0:03:10 | 2,314.99 | 36.17 | 7.14 | 0:11:10 | 2,118.70 | 66.21 | 3.96 | 0:19:10 | 1,293.26 | 80.83 | 3.23 | 0:27:10 | 929.67 | 116.21 | 2.24 | 0:35:10 | 155.77 | 155.77 | 1.67 |
| 0:03:15 | 2,235.25 | 34.93 | 7.54 | 0:11:15 | 2,210.92 | 69.09 | 3.77 | 0:19:15 | 1,376.83 | 86.05 | 3.02 | 0:27:15 | 955.25 | 119.41 | 2.19 | 0:35:15 | 160.01 | 160.01 | 1.63 |
| 0:03:20 | 2,329.20 | 36.39 | 7.23 | 0:11:20 | 2,166.20 | 67.69 | 3.85 | 0:19:20 | 1,295.04 | 80.94 | 3.25 | 0:27:20 | 991.38 | 123.92 | 2.11 | 0:35:20 | 164.00 | 164.00 | 1.59 |
| 0:03:25 | 2,259.63 | 35.31 | 7.42 | 0:11:25 | 2,290.88 | 71.59 | 3.67 | 0:19:25 | 1,237.53 | 77.35 | 3.37 | 0:27:25 | 912.05 | 114.01 | 2.26 | 0:35:25 | 133.85 | 133.85 | 1.95 |
| 0:03:30 | 2,370.04 | 37.03 | 7.03 | 0:11:30 | 2,244.27 | 70.13 | 3.72 | 0:19:30 | 1,237.37 | 77.34 | 3.36 | 0:27:30 | 979.42 | 122.43 | 2.14 | 0:35:30 | 156.34 | 156.34 | 1.67 |
| 0:03:35 | 2,161.17 | 33.77 | 7.79 | 0:11:35 | 2,065.69 | 64.55 | 4.03 | 0:19:35 | 1,334.89 | 83.43 | 3.16 | 0:27:35 | 909.69 | 113.71 | 2.29 | 0:35:35 | 137.47 | 137.47 | 1.90 |
| 0:03:40 | 2,352.32 | 36.76 | 7.15 | 0:11:40 | 1,952.24 | 61.01 | 4.30 | 0:19:40 | 1,335.99 | 83.50 | 3.13 | 0:27:40 | 855.90 | 106.99 | 2.45 | 0:35:40 | 126.77 | 126.77 | 2.06 |
| 0:03:45 | 2,308.28 | 36.07 | 7.15 | 0:11:45 | 2,029.41 | 63.42 | 4.14 | 0:19:45 | 1,185.15 | 74.07 | 3.53 | 0:27:45 | 966.89 | 120.86 | 2.16 | 0:35:45 | 138.05 | 138.05 | 1.89 |
| 0:03:50 | 2,309.70 | 36.09 | 7.30 | 0:11:50 | 2,241.17 | 70.04 | 3.72 | 0:19:50 | 1,236.38 | 77.27 | 3.36 | 0:27:50 | 941.83 | 117.73 | 2.22 | 0:35:50 | 150.58 | 150.58 | 1.73 |
| 0:03:55 | 2,287.94 | 35.75 | 7.38 | 0:11:55 | 2,078.38 | 64.95 | 4.02 | 0:19:55 | 1,260.60 | 78.79 | 3.34 | 0:27:55 | 958.14 | 119.77 | 2.19 | 0:35:55 | 163.32 | 163.32 | 1.59 |
| 0:04:00 | 2,134.27 | 33.35 | 7.83 | 0:12:00 | 2,198.60 | 68.71 | 3.83 | 0:20:00 | 1,259.29 | 78.71 | 3.30 | 0:28:00 | 874.72 | 109.34 | 2.36 | 0:36:00 | 175.69 | 175.69 | 1.48 |

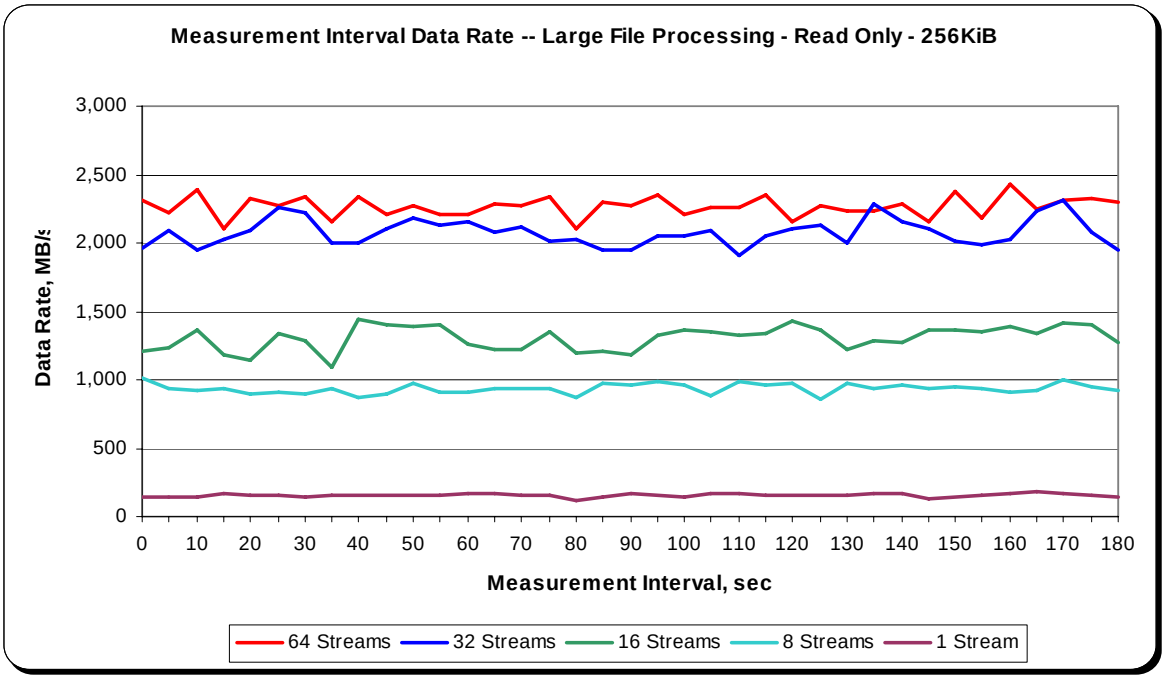
## SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR26 | 64 Streams | | | TR27 | 32 Streams | | | TR28 | 16 Streams | | | TR29 | 8 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 |
| 0:04:05 | 2,316.15 | 36.19 | 7.18 | 0:12:05 | 1,967.23 | 61.48 | 4.25 | 0:20:05 | 1,204.13 | 75.26 | 3.47 | 0:28:05 | 1,018.64 | 127.33 | 2.07 | 0:36:05 | 137.26 | 137.26 | 1.90 |
| 0:04:10 | 2,227.23 | 34.80 | 7.57 | 0:12:10 | 2,097.05 | 65.53 | 3.96 | 0:20:10 | 1,239.31 | 77.46 | 3.38 | 0:28:10 | 936.17 | 117.02 | 2.24 | 0:36:10 | 141.14 | 141.14 | 1.83 |
| 0:04:15 | 2,390.02 | 37.34 | 7.01 | 0:12:15 | 1,943.54 | 60.74 | 4.34 | 0:20:15 | 1,360.79 | 85.05 | 3.07 | 0:28:15 | 928.15 | 116.02 | 2.21 | 0:36:15 | 144.07 | 144.07 | 1.81 |
| 0:04:20 | 2,104.07 | 32.88 | 7.87 | 0:12:20 | 2,028.94 | 63.40 | 4.13 | 0:20:20 | 1,183.53 | 73.97 | 3.53 | 0:28:20 | 936.90 | 117.11 | 2.25 | 0:36:20 | 171.23 | 171.23 | 1.52 |
| 0:04:25 | 2,322.12 | 36.28 | 7.28 | 0:12:25 | 2,093.01 | 65.41 | 3.96 | 0:20:25 | 1,137.34 | 71.08 | 3.68 | 0:28:25 | 894.44 | 111.80 | 2.32 | 0:36:25 | 161.59 | 161.59 | 1.61 |
| 0:04:30 | 2,271.48 | 35.49 | 7.37 | 0:12:30 | 2,255.54 | 70.49 | 3.70 | 0:20:30 | 1,339.66 | 83.73 | 3.14 | 0:28:30 | 911.42 | 113.93 | 2.30 | 0:36:30 | 152.93 | 152.93 | 1.70 |
| 0:04:35 | 2,342.99 | 36.61 | 7.17 | 0:12:35 | 2,219.10 | 69.35 | 3.80 | 0:20:35 | 1,280.05 | 80.00 | 3.24 | 0:28:35 | 900.20 | 112.53 | 2.32 | 0:36:35 | 149.16 | 149.16 | 1.75 |
| 0:04:40 | 2,151.21 | 33.61 | 7.73 | 0:12:40 | 1,998.85 | 62.46 | 4.20 | 0:20:40 | 1,093.56 | 68.35 | 3.83 | 0:28:40 | 933.86 | 116.73 | 2.23 | 0:36:40 | 154.61 | 154.61 | 1.68 |
| 0:04:45 | 2,333.03 | 36.45 | 7.24 | 0:12:45 | 2,002.36 | 62.57 | 4.14 | 0:20:45 | 1,436.97 | 89.81 | 2.93 | 0:28:45 | 871.84 | 108.98 | 2.41 | 0:36:45 | 159.23 | 159.23 | 1.64 |
| 0:04:50 | 2,211.50 | 34.55 | 7.60 | 0:12:50 | 2,105.33 | 65.79 | 4.00 | 0:20:50 | 1,401.68 | 87.61 | 2.97 | 0:28:50 | 892.97 | 111.62 | 2.31 | 0:36:50 | 149.89 | 149.89 | 1.74 |
| 0:04:55 | 2,276.30 | 35.57 | 7.24 | 0:12:55 | 2,176.84 | 68.03 | 3.84 | 0:20:55 | 1,387.00 | 86.69 | 3.03 | 0:28:55 | 978.43 | 122.30 | 2.15 | 0:36:55 | 161.11 | 161.11 | 1.62 |
| 0:05:00 | 2,203.37 | 34.43 | 7.63 | 0:13:00 | 2,123.89 | 66.37 | 3.92 | 0:21:00 | 1,403.41 | 87.71 | 2.96 | 0:29:00 | 915.41 | 114.43 | 2.27 | 0:37:00 | 160.85 | 160.85 | 1.62 |
| 0:05:05 | 2,203.43 | 34.43 | 7.65 | 0:13:05 | 2,154.14 | 67.32 | 3.87 | 0:21:05 | 1,260.18 | 78.76 | 3.34 | 0:29:05 | 904.66 | 113.08 | 2.32 | 0:37:05 | 162.48 | 162.48 | 1.60 |
| 0:05:10 | 2,290.30 | 35.79 | 7.25 | 0:13:10 | 2,083.52 | 65.11 | 4.06 | 0:21:10 | 1,218.03 | 76.13 | 3.41 | 0:29:10 | 941.41 | 117.68 | 2.22 | 0:37:10 | 173.12 | 173.12 | 1.50 |
| 0:05:15 | 2,268.54 | 35.45 | 7.41 | 0:13:15 | 2,120.80 | 66.27 | 3.93 | 0:21:15 | 1,223.01 | 76.44 | 3.41 | 0:29:15 | 931.76 | 116.47 | 2.24 | 0:37:15 | 152.73 | 152.73 | 1.71 |
| 0:05:20 | 2,333.19 | 36.46 | 7.20 | 0:13:20 | 2,018.77 | 63.09 | 4.11 | 0:21:20 | 1,346.90 | 84.18 | 3.13 | 0:29:20 | 931.19 | 116.40 | 2.25 | 0:37:20 | 156.71 | 156.71 | 1.66 |
| 0:05:25 | 2,100.82 | 32.83 | 7.98 | 0:13:25 | 2,022.13 | 63.19 | 4.17 | 0:21:25 | 1,199.68 | 74.98 | 3.47 | 0:29:25 | 876.45 | 109.56 | 2.36 | 0:37:25 | 122.00 | 122.00 | 2.14 |
| 0:05:30 | 2,298.53 | 35.91 | 7.22 | 0:13:30 | 1,952.87 | 61.03 | 4.28 | 0:21:30 | 1,210.16 | 75.64 | 3.47 | 0:29:30 | 974.81 | 121.85 | 2.16 | 0:37:30 | 139.09 | 139.09 | 1.87 |
| 0:05:35 | 2,274.20 | 35.53 | 7.42 | 0:13:35 | 1,942.70 | 60.71 | 4.29 | 0:21:35 | 1,175.72 | 73.48 | 3.54 | 0:29:35 | 961.91 | 120.24 | 2.16 | 0:37:35 | 166.25 | 166.25 | 1.57 |
| 0:05:40 | 2,354.84 | 36.79 | 7.12 | 0:13:40 | 2,047.34 | 63.98 | 4.07 | 0:21:40 | 1,318.95 | 82.43 | 3.19 | 0:29:40 | 988.34 | 123.54 | 2.12 | 0:37:40 | 152.93 | 152.93 | 1.70 |
| 0:05:45 | 2,207.93 | 34.50 | 7.54 | 0:13:45 | 2,047.50 | 63.98 | 4.11 | 0:21:45 | 1,365.14 | 85.32 | 3.05 | 0:29:45 | 967.42 | 120.93 | 2.16 | 0:37:45 | 136.73 | 136.73 | 1.91 |
| 0:05:50 | 2,261.94 | 35.34 | 7.42 | 0:13:50 | 2,084.46 | 65.14 | 4.02 | 0:21:50 | 1,346.37 | 84.15 | 3.10 | 0:29:50 | 889.14 | 111.14 | 2.33 | 0:37:50 | 167.98 | 167.98 | 1.55 |
| 0:05:55 | 2,255.43 | 35.24 | 7.48 | 0:13:55 | 1,906.68 | 59.58 | 4.35 | 0:21:55 | 1,318.48 | 82.40 | 3.20 | 0:29:55 | 991.11 | 123.89 | 2.13 | 0:37:55 | 167.30 | 167.30 | 1.56 |
| 0:06:00 | 2,345.09 | 36.64 | 7.14 | 0:14:00 | 2,056.73 | 64.27 | 4.10 | 0:22:00 | 1,340.71 | 83.79 | 3.10 | 0:30:00 | 959.66 | 119.96 | 2.15 | 0:38:00 | 159.86 | 159.86 | 1.63 |
| 0:06:05 | 2,150.31 | 33.60 | 7.71 | 0:14:05 | 2,101.66 | 65.68 | 3.98 | 0:22:05 | 1,429.26 | 89.33 | 2.94 | 0:30:05 | 967.63 | 120.95 | 2.18 | 0:38:05 | 154.40 | 154.40 | 1.69 |
| 0:06:10 | 2,279.08 | 35.61 | 7.41 | 0:14:10 | 2,134.53 | 66.70 | 3.89 | 0:22:10 | 1,358.48 | 84.91 | 3.06 | 0:30:10 | 854.54 | 106.82 | 2.43 | 0:38:10 | 160.80 | 160.80 | 1.62 |
| 0:06:15 | 2,239.65 | 34.99 | 7.47 | 0:14:15 | 2,004.04 | 62.63 | 4.17 | 0:22:15 | 1,219.02 | 76.19 | 3.45 | 0:30:15 | 974.07 | 121.76 | 2.15 | 0:38:15 | 150.94 | 150.94 | 1.73 |
| 0:06:20 | 2,232.94 | 34.89 | 7.48 | 0:14:20 | 2,289.62 | 71.55 | 3.68 | 0:22:20 | 1,290.38 | 80.65 | 3.22 | 0:30:20 | 934.49 | 116.81 | 2.23 | 0:38:20 | 170.97 | 170.97 | 1.52 |
| 0:06:25 | 2,287.10 | 35.74 | 7.33 | 0:14:25 | 2,156.34 | 67.39 | 3.89 | 0:22:25 | 1,267.15 | 79.20 | 3.29 | 0:30:25 | 966.89 | 120.86 | 2.16 | 0:38:25 | 164.68 | 164.68 | 1.58 |
| 0:06:30 | 2,149.37 | 33.58 | 7.84 | 0:14:30 | 2,109.94 | 65.94 | 3.92 | 0:22:30 | 1,359.85 | 84.99 | 3.10 | 0:30:30 | 932.66 | 116.58 | 2.25 | 0:38:30 | 129.34 | 129.34 | 2.02 |
| 0:06:35 | 2,375.76 | 37.12 | 7.05 | 0:14:35 | 2,018.51 | 63.08 | 4.18 | 0:22:35 | 1,361.10 | 85.07 | 3.06 | 0:30:35 | 953.52 | 119.19 | 2.17 | 0:38:35 | 147.64 | 147.64 | 1.77 |
| 0:06:40 | 2,182.77 | 34.11 | 7.58 | 0:14:40 | 1,982.02 | 61.94 | 4.24 | 0:22:40 | 1,348.00 | 84.25 | 3.12 | 0:30:40 | 938.27 | 117.28 | 2.25 | 0:38:40 | 150.00 | 150.00 | 1.74 |
| 0:06:45 | 2,432.64 | 38.01 | 6.95 | 0:14:45 | 2,031.04 | 63.47 | 4.09 | 0:22:45 | 1,395.39 | 87.21 | 2.98 | 0:30:45 | 909.27 | 113.66 | 2.28 | 0:38:45 | 169.24 | 169.24 | 1.54 |
| 0:06:50 | 2,242.33 | 35.04 | 7.49 | 0:14:50 | 2,231.06 | 69.72 | 3.74 | 0:22:50 | 1,332.74 | 83.30 | 3.15 | 0:30:50 | 923.38 | 115.42 | 2.27 | 0:38:50 | 179.31 | 179.31 | 1.45 |
| 0:06:55 | 2,310.22 | 36.10 | 7.20 | 0:14:55 | 2,310.17 | 72.19 | 3.64 | 0:22:55 | 1,414.69 | 88.42 | 2.94 | 0:30:55 | 997.93 | 124.74 | 2.09 | 0:38:55 | 170.13 | 170.13 | 1.53 |
| 0:07:00 | 2,320.13 | 36.25 | 7.23 | 0:15:00 | 2,082.37 | 65.07 | 4.03 | 0:23:00 | 1,402.99 | 87.69 | 2.97 | 0:31:00 | 946.39 | 118.30 | 2.20 | 0:39:00 | 159.02 | 159.02 | 1.64 |
| 0:07:05 | 2,304.56 | 36.01 | 7.31 | 0:15:05 | 1,947.83 | 60.87 | 4.28 | 0:23:05 | 1,266.84 | 79.18 | 3.33 | 0:31:05 | 922.17 | 115.27 | 2.26 | 0:39:05 | 142.24 | 142.24 | 1.83 |
| 0:07:10 | 2,240.49 | 35.01 | 7.47 | 0:15:10 | 2,253.86 | 70.43 | 3.70 | 0:23:10 | 1,267.47 | 79.22 | 3.27 | 0:31:10 | 959.60 | 119.95 | 2.17 | 0:39:10 | 170.66 | 170.66 | 1.53 |
| 0:07:15 | 2,243.59 | 35.06 | 7.40 | 0:15:15 | 1,967.60 | 61.49 | 4.29 | 0:23:15 | 1,220.02 | 76.25 | 3.45 | 0:31:15 | 895.38 | 111.92 | 2.33 | 0:39:15 | 158.28 | 158.28 | 1.65 |
| 0:07:20 | 2,283.48 | 35.68 | 7.42 | 0:15:20 | 1,902.22 | 59.44 | 4.37 | 0:23:20 | 1,191.50 | 74.47 | 3.49 | 0:31:20 | 945.61 | 118.20 | 2.22 | 0:39:20 | 157.39 | 157.39 | 1.65 |
| 0:07:25 | 2,327.05 | 36.36 | 7.20 | 0:15:25 | 1,800.25 | 56.26 | 4.64 | 0:23:25 | 1,259.39 | 78.71 | 3.33 | 0:31:25 | 937.85 | 117.23 | 2.23 | 0:39:25 | 137.89 | 137.89 | 1.89 |
| 0:07:30 | 2,355.94 | 36.81 | 7.11 | 0:15:30 | 1,755.68 | 54.87 | 4.80 | 0:23:30 | 1,332.01 | 83.25 | 3.14 | 0:31:30 | 897.16 | 112.15 | 2.33 | 0:39:30 | 157.50 | 157.50 | 1.65 |
| 0:07:35 | 2,400.66 | 37.51 | 6.92 | 0:15:35 | 1,789.29 | 55.92 | 4.63 | 0:23:35 | 1,352.56 | 84.53 | 3.09 | 0:31:35 | 858.10 | 107.26 | 2.43 | 0:39:35 | 167.14 | 167.14 | 1.56 |
| 0:07:40 | 2,395.37 | 37.43 | 7.02 | 0:15:40 | 1,635.25 | 51.10 | 5.12 | 0:23:40 | 1,341.44 | 83.84 | 3.13 | 0:31:40 | 930.61 | 116.33 | 2.24 | 0:39:40 | 158.65 | 158.65 | 1.64 |
| 0:07:45 | 2,292.97 | 37.59 | 7.33 | 0:15:45 | 2,018.40 | 63.08 | 4.17 | 0:23:45 | 1,304.48 | 81.53 | 3.18 | 0:31:45 | 961.23 | 120.15 | 2.17 | 0:39:45 | 163.79 | 163.79 | 1.59 |
| 0:07:50 | 281.07 | 0.00 | 5.89 | 0:15:50 | 237.61 | 0.00 | 3.70 | 0:23:50 | 160.17 | 0.00 | 2.84 | 0:31:50 | 38.95 | 0.00 | 2.03 | 0:39:50 | 3.57 | 0.00 | 1.68 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |
| | | | | | | | | | | | | | | | | 0:40:00 | 0.00 | 0.00 | 0.00 |

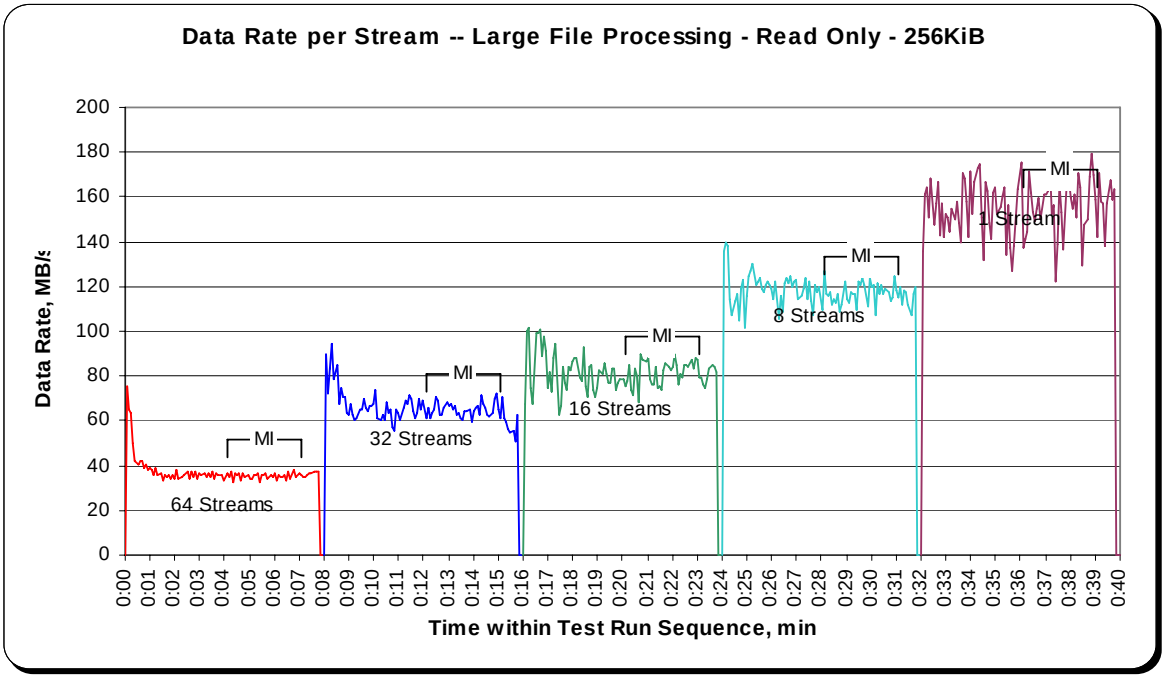
## SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Complete Test Run



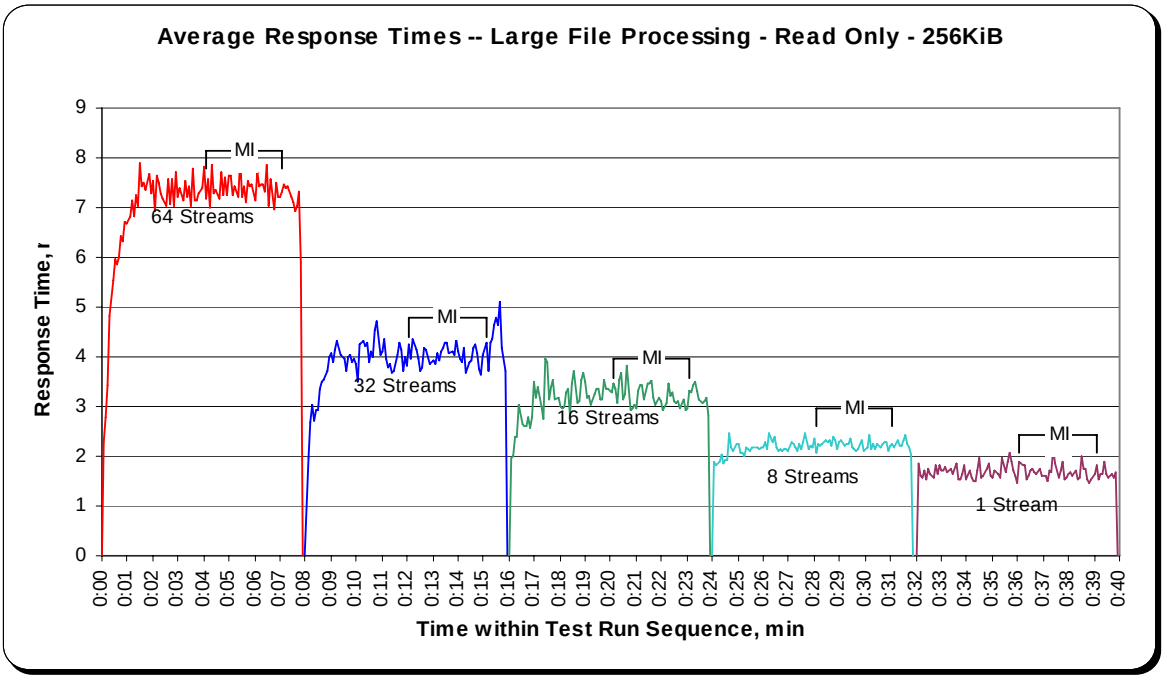

## SPC-2 "Large File Processing/READ ONLY/256 KiB Transfer Size" Average Data Rate Graph – Measurement Interval (MI) Only



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




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



## Large Database Query Test

*Clause 6.4.3.1*

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

*Clause 6.4.3.2*

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

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

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

*Clause 10.6.8.2*

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

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

### SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Large Database Query Test Runs are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 142.

### 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.

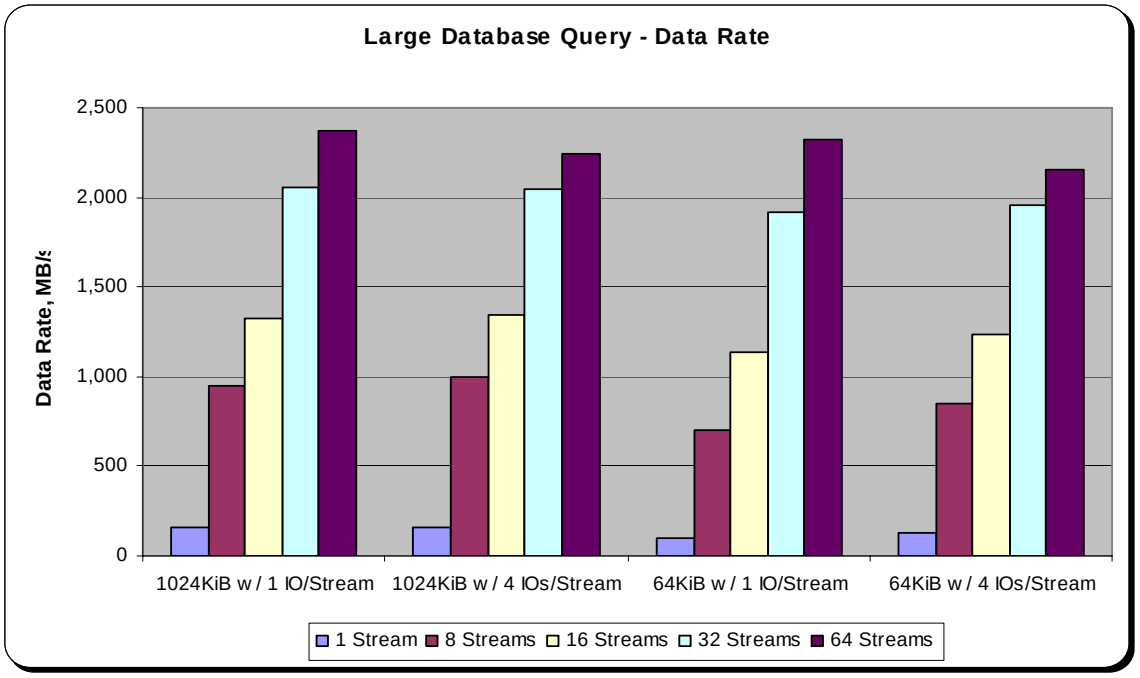
**SPC-2 Large Database Query Test Results File**

## 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 | 8 Streams | 16 Streams | 32 Streams | 64 Streams |
|---|---|---|---|---|---|
| 1024KiB w/ 1 IO/Stream | 157.79 | 952.08 | 1,320.36 | 2,057.01 | 2,369.96 |
| 1024KiB w/ 4 IOs/Stream | 158.40 | 1,000.57 | 1,347.59 | 2,041.41 | 2,241.61 |
| 64KiB w/ 1 IO/Stream | 98.57 | 698.68 | 1,137.53 | 1,917.00 | 2,326.42 |
| 64KiB w/ 4 IOs/Stream | 123.61 | 851.76 | 1,233.67 | 1,952.27 | 2,154.39 |

## SPC-2 Large Database Query Average Data Rates Graph

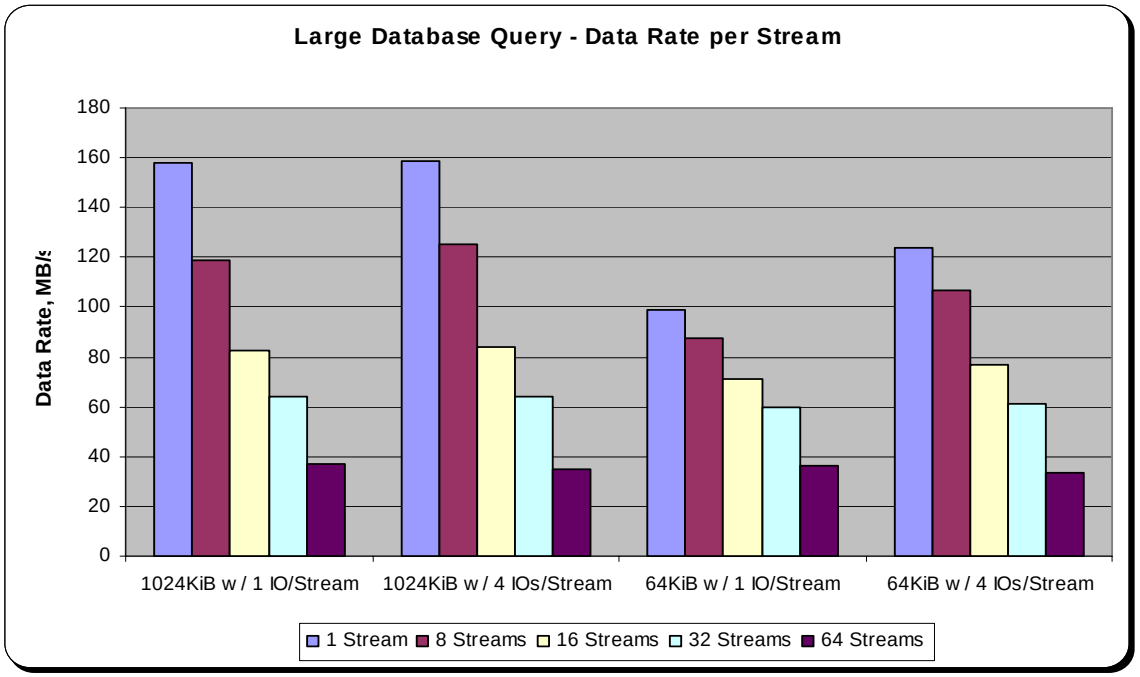


## SPC-2 Large Database Query Average Data Rate per Stream

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 | 8 Streams | 16 Streams | 32 Streams | 64 Streams |
|---|---|---|---|---|---|
| 1024KiB w/ 1 IO/Stream | 157.79 | 119.01 | 82.52 | 64.28 | 37.03 |
| 1024KiB w/ 4 IOs/Stream | 158.40 | 125.07 | 84.22 | 63.79 | 35.03 |
| 64KiB w/ 1 IO/Stream | 98.57 | 87.33 | 71.10 | 59.91 | 36.35 |
| 64KiB w/ 4 IOs/Stream | 123.61 | 106.47 | 77.10 | 61.01 | 33.66 |

## SPC-2 Large Database Query Average Data Rate per Stream 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/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.*
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/Os" 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 are 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.

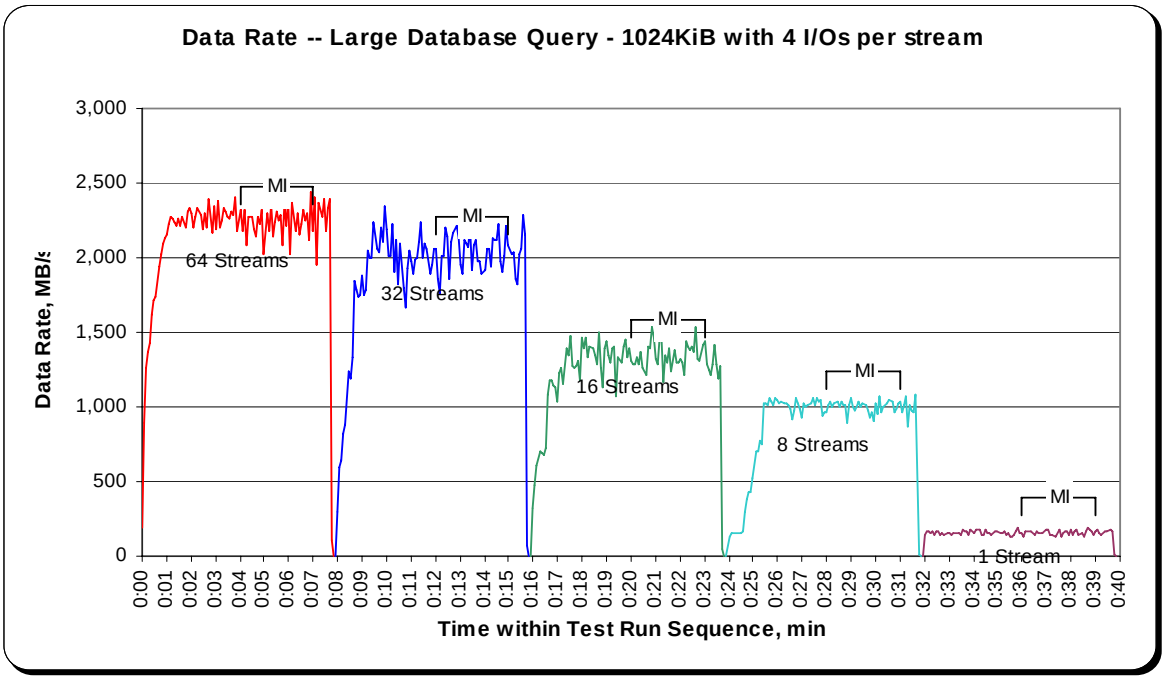
## SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

| TR1 | 64 Streams | | | TR2 | 32 Streams | | | TR3 | 16 Streams | | | TR4 | 8 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 | 192.31 | 38.46 | 29.70 | 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 897.37 | 56.09 | 43.82 | 0:08:00 | 294.65 | 73.66 | 40.35 | 0:16:00 | 326.74 | 81.68 | 31.17 | 0:24:00 | 135.27 | 135.27 | 24.64 | 0:32:00 | 137.15 | 137.15 | 28.11 |
| 0:00:10 | 1,257.87 | 57.18 | 59.46 | 0:08:05 | 591.40 | 84.49 | 41.32 | 0:16:05 | 473.75 | 94.75 | 39.67 | 0:24:05 | 156.45 | 156.45 | 31.37 | 0:32:05 | 163.16 | 163.16 | 26.88 |
| 0:00:15 | 1,369.86 | 44.19 | 84.23 | 0:08:10 | 641.94 | 80.24 | 51.95 | 0:16:10 | 612.79 | 102.13 | 37.24 | 0:24:10 | 157.92 | 157.92 | 25.97 | 0:32:10 | 166.72 | 166.72 | 23.62 |
| 0:00:20 | 1,424.18 | 41.89 | 94.67 | 0:08:15 | 815.79 | 90.64 | 45.69 | 0:16:15 | 706.32 | 117.72 | 35.48 | 0:24:15 | 154.98 | 154.98 | 27.63 | 0:32:15 | 153.72 | 153.72 | 28.91 |
| 0:00:25 | 1,621.10 | 42.66 | 88.51 | 0:08:20 | 875.98 | 79.63 | 44.26 | 0:16:20 | 686.82 | 98.12 | 41.23 | 0:24:20 | 148.90 | 148.90 | 28.16 | 0:32:20 | 170.71 | 170.71 | 23.42 |
| 0:00:30 | 1,710.44 | 42.76 | 96.85 | 0:08:25 | 1,237.32 | 95.18 | 40.56 | 0:16:25 | 675.70 | 96.53 | 43.32 | 0:24:25 | 157.92 | 157.92 | 26.33 | 0:32:25 | 148.48 | 148.48 | 29.51 |
| 0:00:35 | 1,734.97 | 39.43 | 99.41 | 0:08:30 | 1,195.80 | 85.41 | 48.80 | 0:16:30 | 724.57 | 80.51 | 44.92 | 0:24:30 | 158.33 | 158.33 | 26.72 | 0:32:30 | 162.11 | 162.11 | 25.24 |
| 0:00:40 | 1,945.74 | 40.54 | 96.74 | 0:08:35 | 1,327.92 | 63.23 | 52.00 | 0:16:35 | 1,081.92 | 98.36 | 38.99 | 0:24:35 | 168.40 | 84.20 | 24.52 | 0:32:35 | 169.87 | 169.87 | 25.32 |
| 0:00:45 | 2,019.35 | 41.21 | 99.59 | 0:08:40 | 1,848.43 | 84.02 | 47.97 | 0:16:40 | 1,183.21 | 107.56 | 38.63 | 0:24:40 | 303.46 | 151.73 | 28.52 | 0:32:40 | 145.33 | 145.33 | 28.54 |
| 0:00:50 | 2,098.83 | 40.36 | 99.66 | 0:08:45 | 1,788.03 | 77.74 | 53.53 | 0:16:45 | 1,183.00 | 98.58 | 41.07 | 0:24:45 | 385.25 | 128.42 | 29.50 | 0:32:45 | 159.80 | 159.80 | 26.49 |
| 0:00:55 | 2,133.01 | 38.78 | 103.24 | 0:08:50 | 1,739.59 | 69.58 | 58.00 | 0:16:50 | 1,144.00 | 95.33 | 43.88 | 0:24:50 | 429.92 | 143.31 | 28.61 | 0:32:50 | 141.35 | 141.35 | 28.05 |
| 0:01:00 | 2,153.57 | 37.13 | 108.47 | 0:08:55 | 1,745.25 | 69.81 | 60.20 | 0:16:55 | 1,127.64 | 93.97 | 44.85 | 0:24:55 | 425.93 | 141.98 | 30.35 | 0:32:55 | 155.82 | 155.82 | 27.05 |
| 0:01:05 | 2,226.76 | 37.74 | 109.47 | 0:09:00 | 1,884.71 | 72.49 | 57.09 | 0:17:00 | 1,039.98 | 86.66 | 48.17 | 0:25:00 | 519.67 | 129.92 | 30.11 | 0:33:00 | 152.46 | 152.46 | 26.27 |
| 0:01:10 | 2,271.43 | 37.24 | 109.51 | 0:09:05 | 1,755.95 | 67.54 | 62.11 | 0:17:05 | 1,226.00 | 94.31 | 41.83 | 0:25:05 | 698.77 | 139.75 | 29.06 | 0:33:05 | 145.75 | 145.75 | 31.34 |
| 0:01:15 | 2,259.89 | 35.87 | 116.00 | 0:09:10 | 1,783.63 | 61.50 | 64.08 | 0:17:10 | 1,256.19 | 89.73 | 43.45 | 0:25:10 | 701.92 | 140.38 | 30.26 | 0:33:10 | 156.24 | 156.24 | 26.93 |
| 0:01:20 | 2,232.42 | 34.88 | 118.83 | 0:09:15 | 2,052.48 | 70.78 | 59.14 | 0:17:15 | 1,155.95 | 72.25 | 53.82 | 0:25:15 | 771.12 | 128.52 | 31.40 | 0:33:15 | 154.56 | 154.56 | 27.16 |
| 0:01:25 | 2,219.63 | 34.68 | 120.98 | 0:09:20 | 2,003.41 | 64.63 | 63.61 | 0:17:20 | 1,396.91 | 87.31 | 48.12 | 0:25:20 | 747.22 | 106.75 | 33.87 | 0:33:20 | 158.75 | 158.75 | 24.63 |
| 0:01:30 | 2,260.31 | 35.32 | 118.20 | 0:09:25 | 2,003.41 | 62.61 | 64.95 | 0:17:25 | 1,343.23 | 83.95 | 49.66 | 0:25:25 | 1,018.38 | 127.30 | 32.59 | 0:33:25 | 150.99 | 150.99 | 29.63 |
| 0:01:35 | 2,220.05 | 34.69 | 121.39 | 0:09:30 | 2,243.95 | 70.12 | 60.34 | 0:17:30 | 1,478.07 | 92.38 | 45.53 | 0:25:30 | 1,028.02 | 128.50 | 32.98 | 0:33:30 | 141.35 | 141.35 | 29.37 |
| 0:01:40 | 2,274.57 | 35.54 | 117.46 | 0:09:35 | 2,065.07 | 64.53 | 64.57 | 0:17:35 | 1,277.17 | 79.82 | 52.31 | 0:25:35 | 1,013.34 | 126.67 | 32.72 | 0:33:35 | 176.58 | 176.58 | 23.98 |
| 0:01:45 | 2,207.67 | 34.49 | 122.36 | 0:09:40 | 2,033.40 | 63.54 | 66.24 | 0:17:40 | 1,267.73 | 79.23 | 53.45 | 0:25:40 | 1,056.34 | 132.04 | 32.23 | 0:33:40 | 169.03 | 169.03 | 23.69 |
| 0:01:50 | 2,307.50 | 36.05 | 116.80 | 0:09:45 | 2,200.54 | 68.77 | 60.98 | 0:17:45 | 1,270.04 | 79.38 | 52.61 | 0:25:45 | 1,040.82 | 130.10 | 32.03 | 0:33:45 | 163.16 | 163.16 | 26.84 |
| 0:01:55 | 2,338.11 | 36.53 | 114.62 | 0:09:50 | 2,103.44 | 65.73 | 63.55 | 0:17:50 | 1,310.72 | 81.92 | 51.22 | 0:25:50 | 1,015.02 | 126.88 | 33.01 | 0:33:50 | 148.27 | 148.27 | 27.79 |
| 0:02:00 | 2,292.40 | 35.82 | 116.57 | 0:09:55 | 2,341.26 | 73.16 | 57.65 | 0:17:55 | 1,181.75 | 73.86 | 56.67 | 0:25:55 | 1,054.24 | 131.78 | 31.95 | 0:33:55 | 176.58 | 176.58 | 24.17 |
| 0:02:05 | 2,204.74 | 34.45 | 121.22 | 0:10:00 | 2,192.78 | 68.52 | 60.96 | 0:18:00 | 1,465.91 | 91.62 | 45.88 | 0:26:00 | 1,052.14 | 131.52 | 31.44 | 0:34:00 | 150.79 | 150.79 | 27.16 |
| 0:02:10 | 2,268.28 | 35.44 | 118.84 | 0:10:05 | 2,006.76 | 62.71 | 67.57 | 0:18:05 | 1,393.56 | 87.10 | 47.92 | 0:26:05 | 1,029.28 | 128.66 | 32.79 | 0:34:05 | 174.27 | 174.27 | 24.61 |
| 0:02:15 | 2,336.02 | 36.50 | 115.06 | 0:10:10 | 2,009.07 | 62.78 | 65.98 | 0:18:10 | 1,466.96 | 91.68 | 45.63 | 0:26:10 | 1,030.75 | 128.84 | 32.52 | 0:34:10 | 174.48 | 174.48 | 22.73 |
| 0:02:20 | 2,305.82 | 36.03 | 116.61 | 0:10:15 | 2,226.97 | 69.59 | 60.32 | 0:18:15 | 1,329.80 | 83.11 | 50.88 | 0:26:15 | 1,025.51 | 128.19 | 32.89 | 0:34:15 | 177.42 | 177.42 | 24.91 |
| 0:02:25 | 2,289.46 | 35.77 | 116.72 | 0:10:20 | 1,904.42 | 59.51 | 70.48 | 0:18:20 | 1,399.85 | 87.49 | 47.81 | 0:26:20 | 1,020.47 | 127.56 | 32.81 | 0:34:20 | 143.45 | 143.45 | 27.23 |
| 0:02:30 | 2,196.35 | 34.32 | 122.80 | 0:10:25 | 2,122.53 | 66.33 | 62.69 | 0:18:25 | 1,397.75 | 87.36 | 48.15 | 0:26:25 | 1,010.41 | 126.30 | 33.17 | 0:34:25 | 141.98 | 141.98 | 31.54 |
| 0:02:35 | 2,298.69 | 35.92 | 116.62 | 0:10:30 | 1,818.44 | 56.83 | 74.48 | 0:18:30 | 1,341.34 | 83.83 | 49.88 | 0:26:30 | 987.34 | 123.42 | 33.91 | 0:34:30 | 173.22 | 173.22 | 23.31 |
| 0:02:40 | 2,205.57 | 34.46 | 121.03 | 0:10:35 | 2,089.39 | 65.29 | 63.91 | 0:18:35 | 1,287.23 | 80.45 | 51.84 | 0:26:35 | 920.65 | 115.08 | 36.21 | 0:34:35 | 156.45 | 156.45 | 27.70 |
| 0:02:45 | 2,389.08 | 37.33 | 112.60 | 0:10:40 | 1,793.48 | 56.05 | 74.97 | 0:18:40 | 1,502.40 | 93.90 | 44.74 | 0:26:40 | 982.10 | 122.76 | 34.31 | 0:34:40 | 154.14 | 154.14 | 27.26 |
| 0:02:50 | 2,167.83 | 33.87 | 123.82 | 0:10:45 | 1,668.28 | 52.13 | 80.31 | 0:18:45 | 1,258.08 | 78.63 | 53.07 | 0:26:45 | 1,060.32 | 132.54 | 31.62 | 0:34:45 | 147.64 | 147.64 | 28.40 |
| 0:02:55 | 2,342.73 | 36.61 | 114.75 | 0:10:50 | 1,929.80 | 60.31 | 70.56 | 0:18:50 | 1,133.30 | 70.83 | 59.98 | 0:26:50 | 1,028.23 | 128.53 | 32.79 | 0:34:50 | 160.22 | 160.22 | 26.17 |
| 0:03:00 | 2,193.20 | 34.27 | 122.48 | 0:10:55 | 2,048.71 | 64.02 | 64.89 | 0:18:55 | 1,389.99 | 86.87 | 47.99 | 0:26:55 | 987.76 | 123.47 | 33.93 | 0:34:55 | 164.84 | 164.84 | 25.45 |
| 0:03:05 | 2,375.44 | 37.12 | 114.08 | 0:11:00 | 1,979.71 | 61.87 | 67.34 | 0:19:00 | 1,439.49 | 89.97 | 46.59 | 0:27:00 | 927.15 | 115.89 | 36.09 | 0:35:00 | 162.74 | 162.74 | 25.77 |
| 0:03:10 | 2,196.98 | 34.33 | 120.97 | 0:11:05 | 1,887.86 | 59.00 | 71.38 | 0:19:05 | 1,343.85 | 83.99 | 49.79 | 0:27:05 | 1,022.36 | 127.80 | 32.81 | 0:35:05 | 155.19 | 155.19 | 25.35 |
| 0:03:15 | 2,246.68 | 35.10 | 118.56 | 0:11:10 | 1,988.73 | 62.15 | 67.56 | 0:19:10 | 1,302.75 | 81.42 | 51.24 | 0:27:10 | 998.66 | 124.83 | 33.37 | 0:35:10 | 158.13 | 158.13 | 28.13 |
| 0:03:20 | 2,333.29 | 36.46 | 115.90 | 0:11:15 | 2,001.52 | 62.55 | 67.15 | 0:19:15 | 1,391.46 | 86.97 | 48.45 | 0:27:15 | 1,007.68 | 125.96 | 33.43 | 0:35:15 | 162.32 | 162.32 | 25.83 |
| 0:03:25 | 2,314.84 | 36.17 | 116.21 | 0:11:20 | 2,103.23 | 65.73 | 64.18 | 0:19:20 | 1,405.30 | 87.83 | 47.65 | 0:27:20 | 1,019.01 | 127.38 | 32.92 | 0:35:20 | 138.41 | 138.41 | 28.11 |
| 0:03:30 | 2,272.47 | 35.51 | 117.38 | 0:11:25 | 2,234.10 | 69.82 | 59.73 | 0:19:25 | 1,075.42 | 67.21 | 62.89 | 0:27:25 | 1,056.13 | 132.02 | 31.88 | 0:35:25 | 158.54 | 158.54 | 27.90 |
| 0:03:35 | 2,267.65 | 35.43 | 119.34 | 0:11:30 | 2,002.15 | 62.57 | 66.92 | 0:19:30 | 1,328.76 | 83.05 | 50.25 | 0:27:30 | 1,012.30 | 126.54 | 33.11 | 0:35:30 | 131.70 | 131.70 | 30.37 |
| 0:03:40 | 2,312.53 | 36.13 | 114.63 | 0:11:35 | 2,091.28 | 65.35 | 64.15 | 0:19:35 | 1,296.67 | 81.04 | 51.73 | 0:27:35 | 1,057.59 | 132.20 | 31.70 | 0:35:35 | 133.17 | 133.17 | 33.49 |
| 0:03:45 | 2,289.46 | 35.77 | 118.34 | 0:11:40 | 2,058.98 | 64.34 | 65.09 | 0:19:40 | 1,400.90 | 87.56 | 47.98 | 0:27:40 | 1,037.25 | 129.66 | 32.32 | 0:35:40 | 137.36 | 137.36 | 30.51 |
| 0:03:50 | 2,408.37 | 37.63 | 110.52 | 0:11:45 | 1,889.74 | 59.05 | 71.00 | 0:19:45 | 1,449.34 | 90.58 | 46.03 | 0:27:45 | 1,050.88 | 131.36 | 32.00 | 0:35:45 | 162.95 | 162.95 | 25.75 |
| 0:03:55 | 2,175.59 | 33.99 | 123.43 | 0:11:50 | 1,953.71 | 61.05 | 68.99 | 0:19:50 | 1,334.21 | 83.39 | 50.51 | 0:27:50 | 936.59 | 117.07 | 35.49 | 0:35:50 | 193.15 | 193.15 | 21.48 |
| | | | | 0:11:55 | 2,062.76 | 64.46 | 64.80 | 0:19:55 | 1,396.91 | 87.31 | 47.78 | 0:27:55 | 959.45 | 119.93 | 34.86 | 0:35:55 | 153.51 | 153.51 | 27.58 |

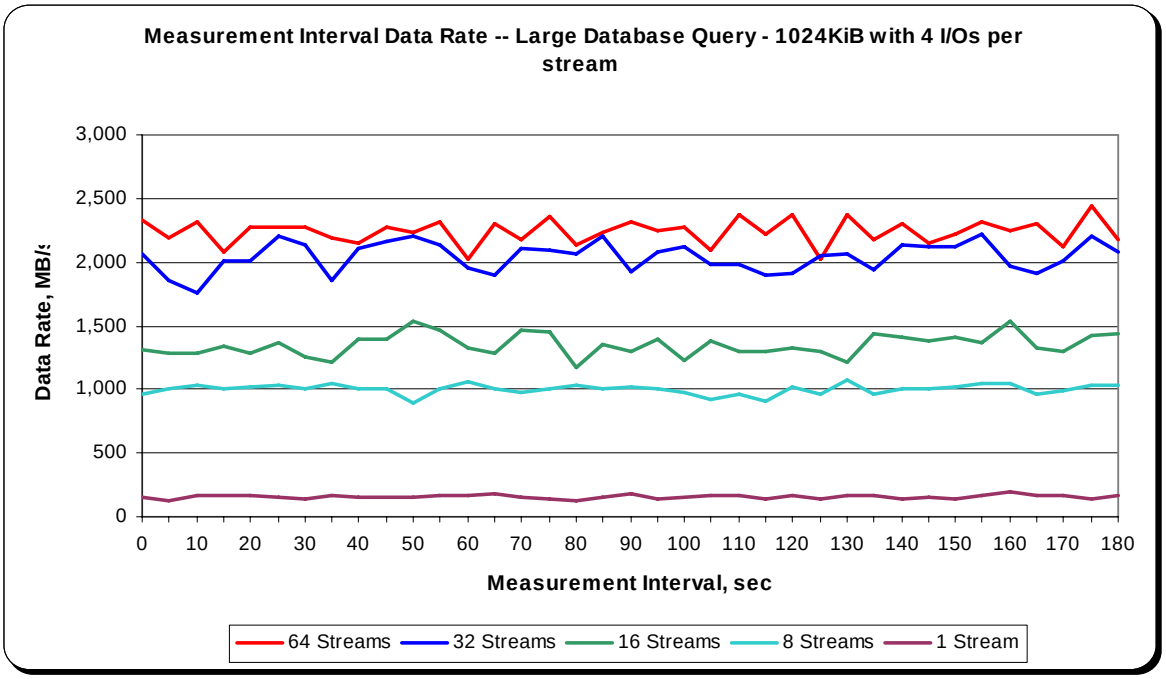
## SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR1 | 64 Streams | | | TR2 | 32 Streams | | | TR3 | 16 Streams | | | TR4 | 8 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 |
| 0:04:00 | 2,325.74 | 36.34 | 115.44 | 0:12:00 | 2,062.55 | 64.45 | 65.30 | 0:20:00 | 1,313.66 | 82.10 | 51.48 | 0:28:00 | 961.33 | 120.17 | 35.07 | 0:36:00 | 150.58 | 150.58 | 27.87 |
| 0:04:05 | 2,184.18 | 34.13 | 123.73 | 0:12:05 | 1,861.43 | 58.17 | 71.70 | 0:20:05 | 1,284.72 | 80.29 | 52.07 | 0:28:05 | 1,006.84 | 125.86 | 33.42 | 0:36:05 | 131.07 | 131.07 | 31.61 |
| 0:04:10 | 2,320.29 | 36.25 | 115.43 | 0:12:10 | 1,762.66 | 55.08 | 75.87 | 0:20:10 | 1,287.65 | 80.48 | 52.06 | 0:28:10 | 1,038.30 | 129.79 | 32.31 | 0:36:10 | 162.74 | 162.74 | 26.07 |
| 0:04:15 | 2,084.36 | 32.57 | 129.06 | 0:12:15 | 2,013.90 | 62.93 | 67.14 | 0:20:15 | 1,335.89 | 83.49 | 50.16 | 0:28:15 | 1,000.76 | 125.10 | 33.66 | 0:36:15 | 172.60 | 172.60 | 23.59 |
| 0:04:20 | 2,277.93 | 35.59 | 117.83 | 0:12:20 | 2,009.49 | 62.80 | 66.48 | 0:20:20 | 1,284.93 | 80.31 | 52.16 | 0:28:20 | 1,021.52 | 127.69 | 32.98 | 0:36:20 | 165.26 | 165.26 | 26.10 |
| 0:04:25 | 2,271.64 | 35.49 | 117.55 | 0:12:25 | 2,207.67 | 68.99 | 61.27 | 0:20:25 | 1,363.36 | 85.21 | 49.66 | 0:28:25 | 1,037.04 | 129.63 | 31.97 | 0:36:25 | 155.82 | 155.82 | 26.27 |
| 0:04:30 | 2,270.80 | 35.48 | 117.87 | 0:12:30 | 2,137.00 | 66.78 | 62.35 | 0:20:30 | 1,261.44 | 78.84 | 52.72 | 0:28:30 | 1,004.12 | 125.51 | 33.35 | 0:36:30 | 144.28 | 144.28 | 29.71 |
| 0:04:35 | 2,192.15 | 34.25 | 122.35 | 0:12:35 | 1,855.56 | 57.99 | 72.87 | 0:20:35 | 1,214.46 | 75.90 | 55.38 | 0:28:35 | 1,039.98 | 130.00 | 32.40 | 0:36:35 | 167.77 | 167.77 | 25.01 |
| 0:04:40 | 2,144.13 | 33.50 | 125.67 | 0:12:40 | 2,111.41 | 65.98 | 62.97 | 0:20:40 | 1,400.27 | 87.52 | 47.93 | 0:28:40 | 1,010.20 | 126.27 | 33.34 | 0:36:40 | 150.79 | 150.79 | 27.50 |
| 0:04:45 | 2,277.93 | 35.59 | 117.81 | 0:12:45 | 2,168.04 | 67.75 | 61.61 | 0:20:45 | 1,394.82 | 87.18 | 48.00 | 0:28:45 | 1,006.63 | 125.83 | 33.14 | 0:36:45 | 160.43 | 160.43 | 26.42 |
| 0:04:50 | 2,225.92 | 34.78 | 121.29 | 0:12:50 | 2,208.93 | 69.03 | 61.51 | 0:20:50 | 1,532.39 | 95.77 | 43.96 | 0:28:50 | 895.27 | 111.91 | 37.57 | 0:36:50 | 158.96 | 158.96 | 24.95 |
| 0:04:55 | 2,320.50 | 36.26 | 114.49 | 0:12:55 | 2,130.50 | 66.58 | 62.66 | 0:20:55 | 1,460.25 | 91.27 | 45.62 | 0:28:55 | 1,010.62 | 126.33 | 33.41 | 0:36:55 | 162.32 | 162.32 | 27.22 |
| 0:05:00 | 2,029.41 | 31.71 | 132.37 | 0:13:00 | 1,953.92 | 61.06 | 68.58 | 0:21:00 | 1,327.29 | 82.96 | 50.93 | 0:29:00 | 1,055.92 | 131.99 | 31.55 | 0:37:00 | 173.64 | 173.64 | 22.57 |
| 0:05:05 | 2,301.00 | 35.95 | 116.80 | 0:13:05 | 1,893.31 | 59.17 | 70.97 | 0:21:05 | 1,284.72 | 80.29 | 51.90 | 0:29:05 | 1,005.37 | 125.67 | 32.98 | 0:37:05 | 175.53 | 175.53 | 25.25 |
| 0:05:10 | 2,177.26 | 34.02 | 123.18 | 0:13:10 | 2,113.72 | 66.05 | 63.46 | 0:21:10 | 1,469.26 | 91.83 | 46.07 | 0:29:10 | 976.64 | 122.08 | 34.50 | 0:37:10 | 147.85 | 147.85 | 26.84 |
| 0:05:15 | 2,360.55 | 36.88 | 114.44 | 0:13:15 | 2,091.70 | 65.37 | 63.99 | 0:21:15 | 1,451.44 | 90.71 | 45.87 | 0:29:15 | 1,002.02 | 125.25 | 33.63 | 0:37:15 | 141.98 | 141.98 | 31.28 |
| 0:05:20 | 2,137.00 | 33.39 | 126.59 | 0:13:20 | 2,070.10 | 64.69 | 64.64 | 0:21:20 | 1,165.39 | 72.84 | 57.51 | 0:29:20 | 1,037.04 | 129.63 | 32.09 | 0:37:20 | 130.44 | 130.44 | 31.94 |
| 0:05:25 | 2,232.84 | 34.89 | 119.26 | 0:13:25 | 2,202.01 | 68.81 | 61.26 | 0:21:25 | 1,348.26 | 84.27 | 49.87 | 0:29:25 | 999.50 | 124.94 | 33.91 | 0:37:25 | 154.35 | 154.35 | 26.50 |
| 0:05:30 | 2,314.21 | 36.16 | 115.76 | 0:13:30 | 1,922.46 | 60.08 | 69.73 | 0:21:30 | 1,300.02 | 81.25 | 51.40 | 0:29:30 | 1,024.04 | 128.00 | 32.73 | 0:37:30 | 177.63 | 177.63 | 24.37 |
| 0:05:35 | 2,245.84 | 35.09 | 119.38 | 0:13:35 | 2,079.75 | 64.99 | 65.00 | 0:21:35 | 1,393.77 | 87.11 | 48.26 | 0:29:35 | 1,007.26 | 125.91 | 33.09 | 0:37:35 | 135.27 | 135.27 | 29.87 |
| 0:05:40 | 2,281.28 | 35.65 | 116.99 | 0:13:40 | 2,114.35 | 66.07 | 62.74 | 0:21:40 | 1,234.80 | 77.18 | 54.27 | 0:29:40 | 973.71 | 121.71 | 34.22 | 0:37:40 | 154.77 | 154.77 | 26.73 |
| 0:05:45 | 2,088.55 | 32.63 | 129.22 | 0:13:45 | 1,980.97 | 61.91 | 68.32 | 0:21:45 | 1,381.18 | 86.32 | 48.72 | 0:29:45 | 927.36 | 115.92 | 36.50 | 0:37:45 | 170.29 | 170.29 | 25.05 |
| 0:05:50 | 2,369.78 | 37.03 | 113.28 | 0:13:50 | 1,978.87 | 61.84 | 67.19 | 0:21:50 | 1,299.40 | 81.21 | 51.63 | 0:29:50 | 966.79 | 120.85 | 34.88 | 0:37:50 | 172.60 | 172.60 | 22.68 |
| 0:05:55 | 2,216.27 | 34.63 | 121.39 | 0:13:55 | 1,892.47 | 59.14 | 70.83 | 0:21:55 | 1,297.09 | 81.07 | 51.70 | 0:29:55 | 904.71 | 113.09 | 36.87 | 0:37:55 | 146.17 | 146.17 | 30.86 |
| 0:06:00 | 2,378.38 | 37.16 | 112.47 | 0:14:00 | 1,912.39 | 59.76 | 70.82 | 0:22:00 | 1,321.42 | 82.59 | 51.09 | 0:30:00 | 1,019.43 | 127.43 | 32.89 | 0:38:00 | 173.02 | 173.02 | 24.77 |
| 0:06:05 | 2,022.49 | 31.60 | 133.86 | 0:14:05 | 2,057.10 | 64.28 | 65.32 | 0:22:05 | 1,302.12 | 81.38 | 50.77 | 0:30:05 | 958.19 | 119.77 | 35.12 | 0:38:05 | 145.75 | 145.75 | 28.37 |
| 0:06:10 | 2,372.09 | 37.06 | 111.98 | 0:14:10 | 2,062.97 | 64.47 | 64.74 | 0:22:10 | 1,210.06 | 75.63 | 55.71 | 0:30:10 | 1,069.76 | 133.72 | 31.35 | 0:38:10 | 170.29 | 170.29 | 24.96 |
| 0:06:15 | 2,178.10 | 34.03 | 123.85 | 0:14:15 | 1,938.82 | 60.59 | 69.13 | 0:22:15 | 1,440.95 | 90.06 | 46.58 | 0:30:15 | 960.08 | 120.01 | 34.63 | 0:38:15 | 173.22 | 173.22 | 23.13 |
| 0:06:20 | 2,300.16 | 35.94 | 116.19 | 0:14:20 | 2,131.34 | 66.60 | 63.51 | 0:22:20 | 1,408.87 | 88.05 | 47.89 | 0:30:20 | 1,005.58 | 125.70 | 33.58 | 0:38:20 | 145.12 | 145.12 | 30.15 |
| 0:06:25 | 2,149.79 | 33.59 | 125.36 | 0:14:25 | 2,117.49 | 66.17 | 62.83 | 0:22:25 | 1,381.39 | 86.34 | 48.62 | 0:30:25 | 1,010.62 | 126.33 | 33.13 | 0:38:25 | 152.25 | 152.25 | 21.26 |
| 0:06:30 | 2,221.09 | 34.70 | 120.92 | 0:14:30 | 2,119.17 | 66.22 | 62.99 | 0:22:30 | 1,407.82 | 87.99 | 47.17 | 0:30:30 | 1,023.20 | 127.90 | 32.80 | 0:38:30 | 132.96 | 132.96 | 37.60 |
| 0:06:35 | 2,320.71 | 36.26 | 115.65 | 0:14:35 | 2,220.46 | 69.39 | 60.94 | 0:22:35 | 1,373.22 | 85.83 | 49.04 | 0:30:35 | 1,044.38 | 130.55 | 32.04 | 0:38:35 | 172.60 | 172.60 | 25.16 |
| 0:06:40 | 2,252.13 | 35.19 | 119.51 | 0:14:40 | 1,973.84 | 61.68 | 67.64 | 0:22:40 | 1,530.08 | 95.63 | 43.79 | 0:30:40 | 1,041.03 | 130.13 | 32.38 | 0:38:40 | 193.36 | 193.36 | 21.06 |
| 0:06:45 | 2,296.17 | 35.88 | 115.95 | 0:14:45 | 1,908.62 | 59.64 | 70.70 | 0:22:45 | 1,327.08 | 82.94 | 50.71 | 0:30:45 | 958.61 | 119.83 | 34.80 | 0:38:45 | 173.02 | 173.02 | 24.20 |
| 0:06:50 | 2,119.59 | 33.12 | 126.80 | 0:14:50 | 2,015.78 | 62.99 | 66.43 | 0:22:50 | 1,304.64 | 81.54 | 51.31 | 0:30:50 | 989.86 | 123.73 | 33.68 | 0:38:50 | 169.66 | 169.66 | 25.47 |
| 0:06:55 | 2,437.73 | 38.09 | 109.86 | 0:14:55 | 2,209.98 | 69.06 | 60.81 | 0:22:55 | 1,419.14 | 88.70 | 47.31 | 0:30:55 | 1,026.77 | 128.35 | 32.72 | 0:38:55 | 138.20 | 138.20 | 30.12 |
| 0:07:00 | 2,179.78 | 34.06 | 123.41 | 0:15:00 | 2,080.58 | 65.02 | 64.03 | 0:23:00 | 1,435.29 | 89.71 | 46.87 | 0:31:00 | 1,036.41 | 129.55 | 32.72 | 0:39:00 | 171.13 | 171.13 | 24.65 |
| 0:07:05 | 2,406.48 | 37.60 | 111.28 | 0:15:05 | 2,019.98 | 63.12 | 66.88 | 0:23:05 | 1,280.73 | 80.05 | 52.20 | 0:31:05 | 961.33 | 120.17 | 34.90 | 0:39:05 | 181.82 | 181.82 | 21.67 |
| 0:07:10 | 1,946.79 | 30.42 | 138.53 | 0:15:10 | 2,035.50 | 63.61 | 65.91 | 0:23:10 | 1,249.90 | 78.12 | 53.82 | 0:31:10 | 1,014.39 | 126.80 | 32.37 | 0:39:10 | 151.83 | 151.83 | 27.22 |
| 0:07:15 | 2,374.81 | 37.11 | 112.80 | 0:15:15 | 1,854.51 | 57.95 | 72.21 | 0:23:15 | 1,215.93 | 76.00 | 54.89 | 0:31:15 | 1,077.31 | 134.66 | 31.29 | 0:39:15 | 145.54 | 145.54 | 30.75 |
| 0:07:20 | 2,277.30 | 35.58 | 118.18 | 0:15:20 | 1,825.57 | 57.05 | 73.44 | 0:23:20 | 1,284.72 | 80.29 | 52.19 | 0:31:20 | 865.49 | 108.19 | 38.99 | 0:39:20 | 152.67 | 152.67 | 25.77 |
| 0:07:25 | 2,397.88 | 37.47 | 112.28 | 0:15:25 | 2,020.19 | 63.13 | 66.69 | 0:23:25 | 1,421.03 | 88.81 | 47.41 | 0:31:25 | 1,015.23 | 126.90 | 33.01 | 0:39:25 | 170.50 | 170.50 | 26.18 |
| 0:07:30 | 2,184.39 | 34.13 | 122.64 | 0:15:30 | 2,063.39 | 64.48 | 65.02 | 0:23:30 | 1,290.17 | 80.64 | 52.47 | 0:31:30 | 973.71 | 121.71 | 34.58 | 0:39:30 | 162.74 | 162.74 | 25.91 |
| 0:07:35 | 2,335.81 | 36.50 | 115.11 | 0:15:35 | 2,282.96 | 71.34 | 58.61 | 0:23:35 | 1,186.57 | 74.16 | 56.03 | 0:31:35 | 958.40 | 119.80 | 35.19 | 0:39:35 | 177.42 | 177.42 | 22.10 |
| 0:07:40 | 2,393.90 | 37.40 | 111.18 | 0:15:40 | 2,151.47 | 74.19 | 62.39 | 0:23:40 | 1,269.83 | 90.70 | 52.59 | 0:31:40 | 1,085.70 | 180.95 | 30.65 | 0:39:40 | 165.26 | 165.26 | 26.99 |
| 0:07:45 | 106.33 | 0.00 | 116.84 | 0:15:45 | 67.95 | 0.00 | 63.14 | 0:23:45 | 44.46 | 0.00 | 48.44 | 0:31:45 | 17.41 | 0.00 | 30.13 | 0:39:45 | 6.29 | 0.00 | 24.21 |
| 0:07:50 | 0.00 | 0.00 | 0.00 | 0:15:50 | 0.00 | 0.00 | 0.00 | 0:23:50 | 0.00 | 0.00 | 0.00 | 0:31:50 | 0.00 | 0.00 | 0.00 | 0:39:50 | 0.00 | 0.00 | 0.00 |

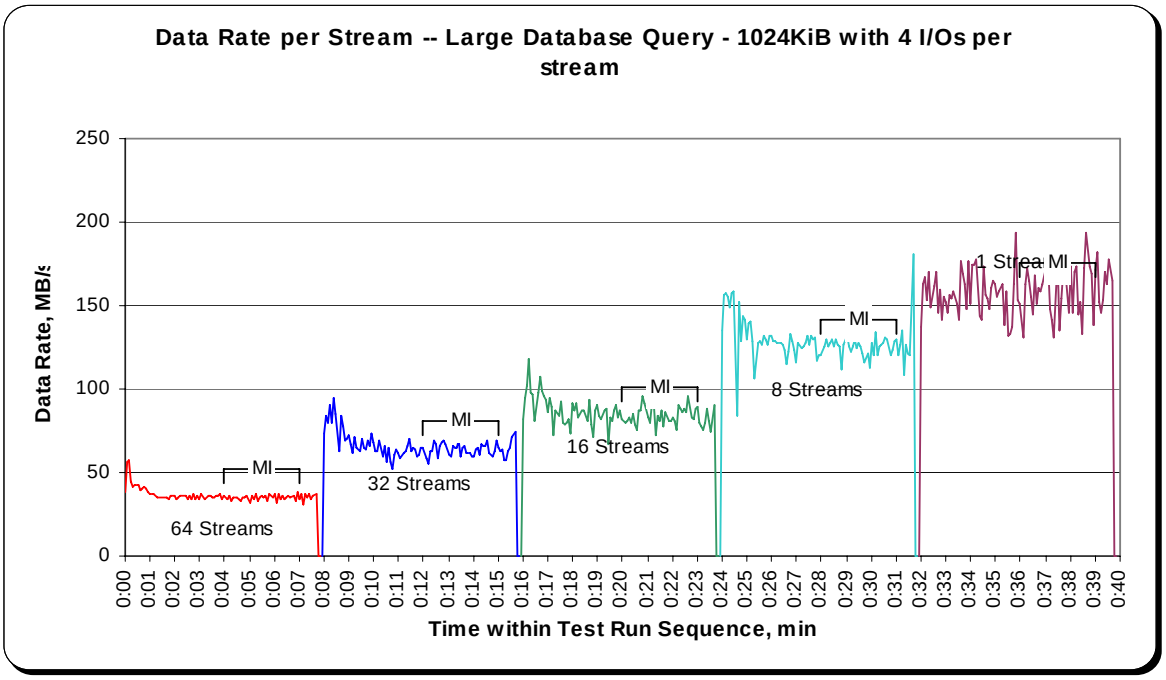
## SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



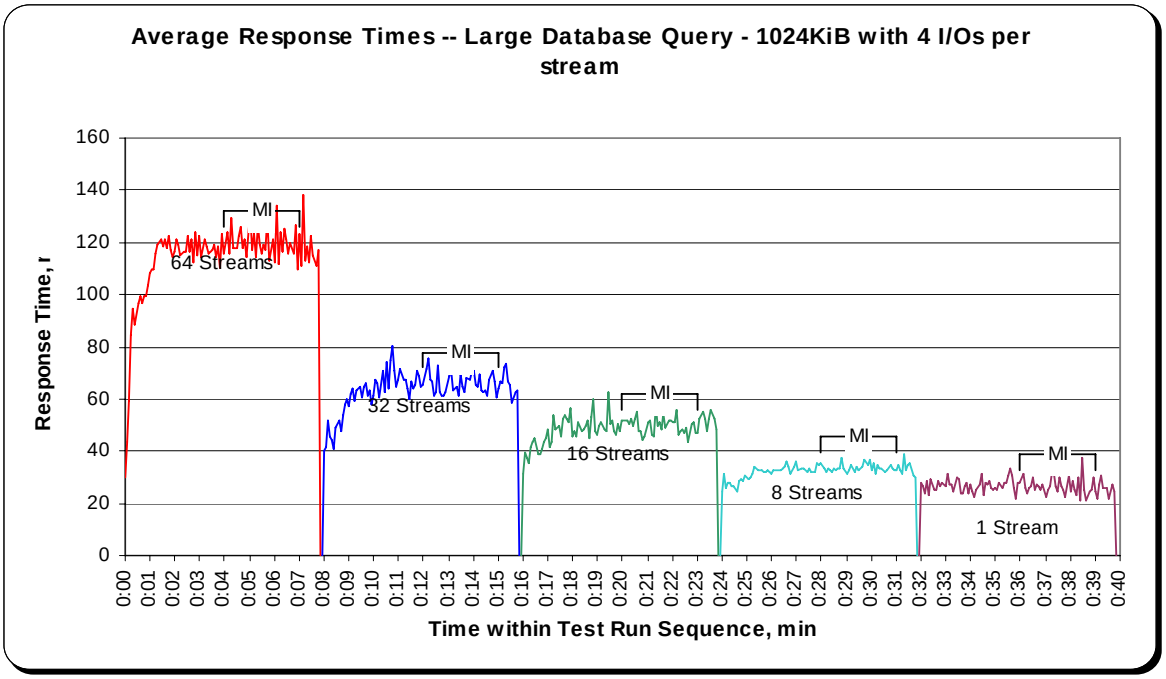

## SPC-2 "Large Database Query/1024 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



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




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



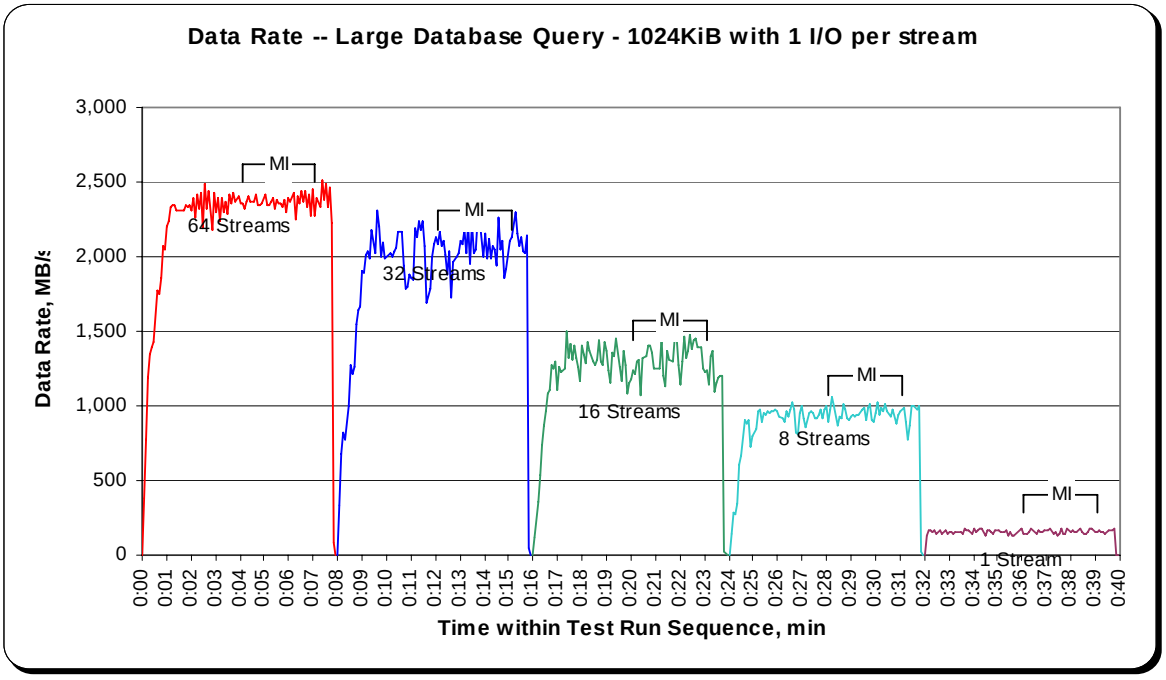
## SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

| TR6 | 64 Streams | | | TR7 | 32 Streams | | | TR8 | 16 Streams | | | TR9 | 8 Streams | | | TR10 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:00 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 379.17 | 63.19 | 8.76 | 0:08:05 | 337.01 | 84.25 | 9.21 | 0:16:05 | 121.84 | 121.84 | 8.28 | 0:24:05 | 144.91 | 72.46 | 7.46 | 0:32:05 | 136.11 | 136.11 | 7.44 |
| 0:00:10 | 772.17 | 59.40 | 10.96 | 0:08:10 | 679.27 | 84.91 | 10.34 | 0:16:10 | 358.19 | 89.55 | 9.74 | 0:24:10 | 283.33 | 141.66 | 7.39 | 0:32:10 | 161.06 | 161.06 | 6.49 |
| 0:00:15 | 1,190.76 | 66.15 | 13.72 | 0:08:15 | 827.33 | 82.73 | 11.90 | 0:16:15 | 537.92 | 89.65 | 8.62 | 0:24:15 | 274.31 | 137.15 | 7.63 | 0:32:15 | 165.88 | 165.88 | 6.32 |
| 0:00:20 | 1,341.13 | 53.65 | 16.53 | 0:08:20 | 776.99 | 70.64 | 13.47 | 0:16:20 | 742.18 | 106.03 | 9.49 | 0:24:20 | 339.74 | 113.25 | 8.72 | 0:32:20 | 151.62 | 151.62 | 6.91 |
| 0:00:25 | 1,388.94 | 47.89 | 20.01 | 0:08:25 | 996.99 | 83.08 | 11.81 | 0:16:26 | 863.19 | 86.32 | 10.82 | 0:24:25 | 605.87 | 121.17 | 7.76 | 0:32:25 | 169.03 | 169.03 | 6.19 |
| 0:00:30 | 1,423.13 | 40.66 | 22.97 | 0:08:30 | 1,269.62 | 90.69 | 11.38 | 0:16:30 | 960.71 | 87.34 | 11.10 | 0:24:30 | 669.83 | 133.97 | 7.88 | 0:32:30 | 148.27 | 148.27 | 7.05 |
| 0:00:35 | 1,773.77 | 47.94 | 21.56 | 0:08:35 | 1,220.12 | 81.34 | 12.18 | 0:16:35 | 1,086.12 | 90.51 | 11.41 | 0:24:35 | 787.90 | 112.56 | 7.78 | 0:32:35 | 160.64 | 160.64 | 6.52 |
| 0:00:40 | 1,747.56 | 41.61 | 24.07 | 0:08:40 | 1,267.73 | 74.57 | 12.59 | 0:16:40 | 1,109.39 | 92.45 | 11.32 | 0:24:40 | 904.08 | 129.15 | 8.17 | 0:32:40 | 168.82 | 168.82 | 6.20 |
| 0:00:45 | 1,862.69 | 40.49 | 24.23 | 0:08:45 | 1,549.80 | 81.57 | 12.27 | 0:16:45 | 1,268.36 | 90.60 | 11.33 | 0:24:45 | 885.84 | 126.55 | 8.18 | 0:32:45 | 143.45 | 143.45 | 7.30 |
| 0:00:50 | 2,074.71 | 42.34 | 24.07 | 0:08:50 | 1,642.70 | 82.13 | 12.52 | 0:16:50 | 1,251.79 | 89.41 | 11.66 | 0:24:50 | 905.76 | 129.39 | 8.11 | 0:32:50 | 167.98 | 167.98 | 6.24 |
| 0:00:55 | 2,044.51 | 40.89 | 25.42 | 0:08:55 | 1,669.54 | 66.78 | 14.79 | 0:16:55 | 1,294.99 | 92.50 | 11.42 | 0:24:55 | 731.91 | 104.56 | 10.06 | 0:32:55 | 140.72 | 140.72 | 7.44 |
| 0:01:00 | 2,200.54 | 37.94 | 25.47 | 0:09:00 | 1,908.62 | 70.69 | 13.82 | 0:17:00 | 1,105.41 | 73.69 | 13.95 | 0:25:00 | 795.24 | 113.61 | 9.20 | 0:33:00 | 154.98 | 154.98 | 6.76 |
| 0:01:05 | 2,236.82 | 37.91 | 27.03 | 0:09:05 | 1,897.92 | 65.45 | 15.34 | 0:17:05 | 1,258.29 | 83.89 | 12.54 | 0:25:05 | 846.83 | 120.98 | 8.61 | 0:33:05 | 151.83 | 151.83 | 6.90 |
| 0:01:10 | 2,332.87 | 37.63 | 27.54 | 0:09:10 | 2,015.57 | 67.19 | 15.19 | 0:17:10 | 1,220.54 | 76.28 | 13.57 | 0:25:10 | 966.79 | 120.85 | 8.63 | 0:33:10 | 145.33 | 145.33 | 7.20 |
| 0:01:15 | 2,340.63 | 37.15 | 27.96 | 0:09:15 | 2,030.04 | 65.49 | 15.36 | 0:17:15 | 1,250.53 | 78.16 | 13.46 | 0:25:15 | 972.45 | 121.56 | 8.66 | 0:33:15 | 157.08 | 157.08 | 6.66 |
| 0:01:20 | 2,339.58 | 37.14 | 28.09 | 0:09:20 | 1,988.73 | 64.15 | 16.35 | 0:17:20 | 1,505.13 | 94.07 | 11.14 | 0:25:20 | 889.82 | 111.23 | 9.26 | 0:33:20 | 153.93 | 153.93 | 6.81 |
| 0:01:25 | 2,311.90 | 36.70 | 28.53 | 0:09:25 | 2,179.36 | 68.11 | 15.09 | 0:17:25 | 1,317.85 | 82.37 | 12.67 | 0:25:25 | 953.58 | 119.20 | 8.87 | 0:33:25 | 157.50 | 157.50 | 6.64 |
| 0:01:30 | 2,313.16 | 36.14 | 28.97 | 0:09:30 | 2,020.19 | 63.13 | 16.52 | 0:17:30 | 1,416.63 | 88.54 | 11.90 | 0:25:30 | 937.85 | 117.23 | 8.93 | 0:33:30 | 149.95 | 149.95 | 6.98 |
| 0:01:35 | 2,305.82 | 36.03 | 29.02 | 0:09:35 | 2,315.26 | 72.35 | 14.51 | 0:17:35 | 1,307.57 | 81.72 | 12.80 | 0:25:35 | 969.72 | 121.22 | 8.63 | 0:33:35 | 140.09 | 140.09 | 7.48 |
| 0:01:40 | 2,310.64 | 36.10 | 28.88 | 0:09:40 | 2,196.77 | 68.65 | 15.41 | 0:17:40 | 1,410.33 | 88.15 | 11.87 | 0:25:40 | 954.62 | 119.33 | 8.72 | 0:33:40 | 174.90 | 174.90 | 5.99 |
| 0:01:45 | 2,351.12 | 36.74 | 28.68 | 0:09:45 | 2,001.31 | 62.54 | 16.69 | 0:17:45 | 1,316.80 | 82.30 | 12.73 | 0:25:45 | 960.92 | 120.11 | 8.76 | 0:33:45 | 169.45 | 169.45 | 6.18 |
| 0:01:50 | 2,327.84 | 36.37 | 28.97 | 0:09:50 | 2,096.10 | 65.50 | 15.83 | 0:17:50 | 1,257.03 | 78.56 | 13.34 | 0:25:50 | 964.48 | 120.56 | 8.73 | 0:33:50 | 161.06 | 161.06 | 6.50 |
| 0:01:55 | 2,344.62 | 36.63 | 28.35 | 0:09:55 | 1,989.36 | 62.17 | 16.91 | 0:17:55 | 1,168.95 | 73.06 | 14.34 | 0:25:55 | 973.92 | 121.74 | 8.54 | 0:33:55 | 143.45 | 143.45 | 7.30 |
| 0:02:00 | 2,311.69 | 36.12 | 29.23 | 0:10:00 | 2,001.31 | 62.54 | 16.80 | 0:18:00 | 1,406.56 | 87.91 | 11.85 | 0:26:00 | 968.88 | 121.11 | 8.65 | 0:34:00 | 176.37 | 176.37 | 5.94 |
| 0:02:05 | 2,391.38 | 37.37 | 28.14 | 0:10:05 | 2,015.57 | 62.99 | 16.75 | 0:18:05 | 1,341.13 | 83.82 | 12.53 | 0:26:05 | 930.30 | 116.29 | 9.00 | 0:34:05 | 150.58 | 150.58 | 6.95 |
| 0:02:10 | 2,262.41 | 35.35 | 29.52 | 0:10:10 | 2,029.41 | 63.42 | 16.41 | 0:18:10 | 1,284.93 | 80.31 | 13.08 | 0:26:10 | 919.39 | 114.92 | 9.10 | 0:34:11 | 171.97 | 171.97 | 6.08 |
| 0:02:15 | 2,416.76 | 37.76 | 27.51 | 0:10:15 | 1,994.18 | 62.32 | 16.83 | 0:18:15 | 1,431.31 | 89.46 | 11.68 | 0:26:15 | 894.23 | 111.78 | 9.41 | 0:34:15 | 174.06 | 174.06 | 6.02 |
| 0:02:20 | 2,327.21 | 36.36 | 29.00 | 0:10:20 | 2,037.59 | 63.67 | 16.51 | 0:18:20 | 1,370.49 | 85.66 | 12.23 | 0:26:20 | 967.84 | 120.98 | 8.66 | 0:34:20 | 176.58 | 176.58 | 5.93 |
| 0:02:25 | 2,428.92 | 37.95 | 27.65 | 0:10:25 | 2,060.87 | 64.40 | 16.09 | 0:18:25 | 1,300.23 | 81.26 | 13.00 | 0:26:25 | 923.80 | 115.47 | 9.15 | 0:34:25 | 149.11 | 149.11 | 7.02 |
| 0:02:30 | 2,192.57 | 34.26 | 30.41 | 0:10:30 | 2,167.83 | 67.74 | 15.51 | 0:18:30 | 1,270.45 | 79.40 | 13.11 | 0:26:30 | 978.32 | 122.29 | 8.42 | 0:34:30 | 135.48 | 135.48 | 7.72 |
| 0:02:35 | 2,485.33 | 38.83 | 27.08 | 0:10:35 | 2,163.00 | 67.59 | 15.54 | 0:18:35 | 1,313.87 | 82.12 | 12.73 | 0:26:35 | 1,019.85 | 127.48 | 8.25 | 0:34:35 | 170.71 | 170.71 | 6.12 |
| 0:02:40 | 2,323.02 | 36.30 | 28.94 | 0:10:40 | 1,936.72 | 60.52 | 17.31 | 0:18:40 | 1,439.07 | 89.94 | 11.67 | 0:26:40 | 974.76 | 121.84 | 8.60 | 0:34:40 | 162.32 | 162.32 | 6.46 |
| 0:02:45 | 2,444.86 | 38.20 | 27.50 | 0:10:45 | 1,786.98 | 55.84 | 18.70 | 0:18:45 | 1,300.86 | 81.30 | 12.86 | 0:26:45 | 823.34 | 102.92 | 10.22 | 0:34:45 | 151.83 | 151.83 | 6.90 |
| 0:02:50 | 2,176.84 | 34.01 | 30.43 | 0:10:50 | 1,791.81 | 55.99 | 18.82 | 0:18:50 | 1,276.96 | 79.81 | 13.12 | 0:26:50 | 805.31 | 100.66 | 10.40 | 0:34:50 | 142.82 | 142.82 | 7.34 |
| 0:02:55 | 2,427.66 | 37.93 | 27.92 | 0:10:55 | 1,886.39 | 58.95 | 17.77 | 0:18:55 | 1,426.27 | 89.14 | 11.78 | 0:26:55 | 950.43 | 118.80 | 8.81 | 0:34:55 | 162.32 | 162.32 | 6.45 |
| 0:03:00 | 2,299.11 | 35.92 | 29.24 | 0:11:00 | 1,854.93 | 57.97 | 17.88 | 0:19:00 | 1,370.49 | 85.66 | 12.26 | 0:27:00 | 996.57 | 124.57 | 8.44 | 0:35:00 | 166.09 | 166.09 | 6.30 |
| 0:03:05 | 2,398.09 | 37.47 | 27.78 | 0:11:05 | 1,850.53 | 57.83 | 18.22 | 0:19:05 | 1,238.58 | 77.41 | 13.45 | 0:27:05 | 921.28 | 115.16 | 8.99 | 0:35:05 | 157.50 | 157.50 | 6.64 |
| 0:03:10 | 2,243.32 | 35.05 | 29.97 | 0:11:10 | 2,194.67 | 68.58 | 15.41 | 0:19:10 | 1,154.06 | 72.13 | 14.50 | 0:27:10 | 851.65 | 106.46 | 9.93 | 0:35:10 | 155.19 | 155.19 | 6.75 |
| 0:03:15 | 2,394.53 | 37.41 | 28.23 | 0:11:15 | 2,131.76 | 66.62 | 15.59 | 0:19:15 | 1,351.82 | 84.49 | 12.46 | 0:27:15 | 951.06 | 118.88 | 8.81 | 0:35:15 | 160.64 | 160.64 | 6.51 |
| 0:03:20 | 2,296.80 | 35.89 | 29.02 | 0:11:20 | 2,232.84 | 69.78 | 15.03 | 0:19:20 | 1,334.84 | 83.43 | 12.54 | 0:27:20 | 961.96 | 120.25 | 8.66 | 0:35:20 | 165.26 | 165.26 | 6.34 |
| 0:03:25 | 2,368.94 | 37.01 | 28.17 | 0:11:25 | 2,183.76 | 68.24 | 15.48 | 0:19:25 | 1,449.34 | 90.58 | 11.60 | 0:27:25 | 948.33 | 118.54 | 8.86 | 0:35:25 | 135.69 | 135.69 | 7.72 |
| 0:03:30 | 2,281.91 | 35.65 | 29.72 | 0:11:30 | 2,233.68 | 69.80 | 14.96 | 0:19:30 | 1,267.10 | 79.19 | 13.18 | 0:27:30 | 918.13 | 114.77 | 9.13 | 0:35:30 | 157.71 | 157.71 | 6.63 |
| 0:03:35 | 2,418.86 | 37.79 | 27.78 | 0:11:35 | 2,072.20 | 64.76 | 16.07 | 0:19:35 | 1,164.55 | 72.78 | 14.43 | 0:27:35 | 920.02 | 115.00 | 9.15 | 0:35:35 | 133.80 | 133.80 | 7.82 |
| 0:03:40 | 2,353.00 | 36.77 | 28.23 | 0:11:40 | 1,686.32 | 52.70 | 19.95 | 0:19:40 | 1,369.23 | 85.58 | 12.24 | 0:27:40 | 944.98 | 118.12 | 8.85 | 0:35:40 | 130.23 | 130.23 | 8.04 |
| 0:03:45 | 2,423.68 | 37.87 | 27.67 | 0:11:45 | 1,780.48 | 55.64 | 18.87 | 0:19:45 | 1,272.13 | 79.51 | 13.13 | 0:27:45 | 976.01 | 122.00 | 8.57 | 0:35:45 | 137.99 | 137.99 | 7.59 |
| 0:03:50 | 2,365.59 | 36.96 | 28.50 | 0:11:50 | 2,001.52 | 62.55 | 16.70 | 0:19:50 | 1,083.81 | 67.74 | 15.42 | 0:27:50 | 911.63 | 113.95 | 9.18 | 0:35:50 | 153.93 | 153.93 | 6.80 |
| 0:03:55 | 2,406.69 | 37.60 | 27.70 | 0:11:55 | 2,081.63 | 65.05 | 16.19 | 0:19:55 | 1,150.71 | 71.92 | 14.71 | 0:27:55 | 981.26 | 122.66 | 8.54 | 0:35:55 | 164.21 | 164.21 | 6.38 |
| 0:04:00 | 2,363.07 | 36.92 | 28.33 | 0:12:00 | 2,129.24 | 66.54 | 15.71 | 0:20:00 | 1,176.71 | 73.54 | 14.13 | 0:28:00 | 994.05 | 124.26 | 8.38 | 0:36:00 | 179.10 | 179.10 | 5.84 |

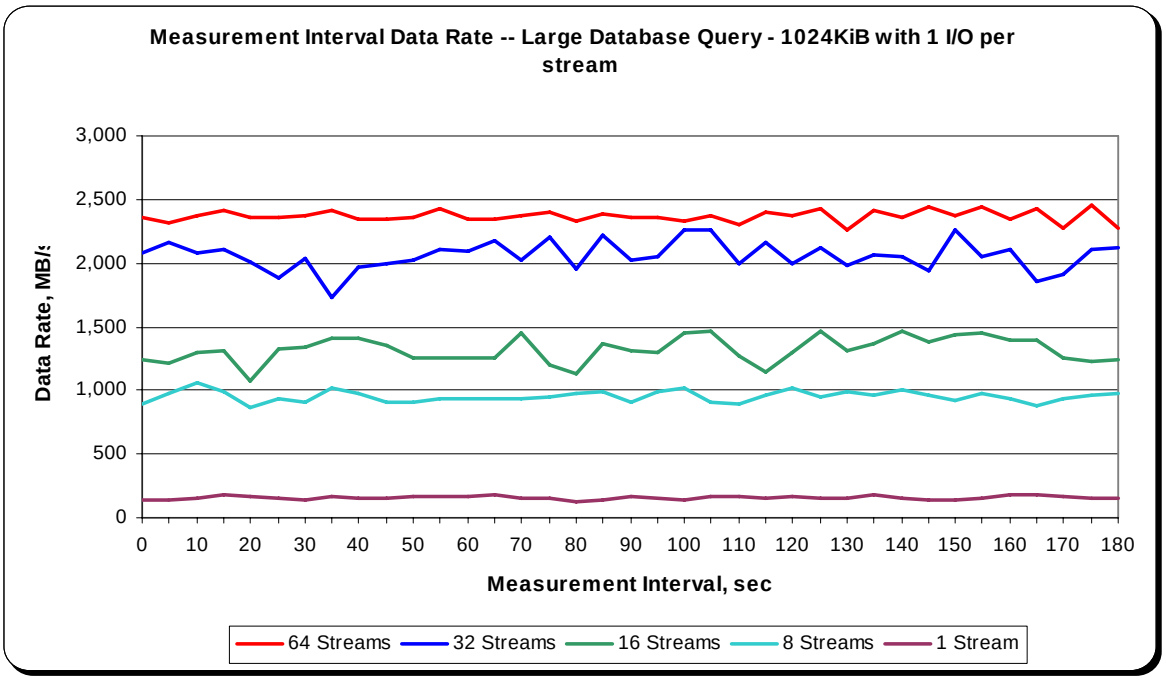
## SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR6 | 64 Streams | | | TR7 | 32 Streams | | | TR8 | 16 Streams | | | TR9 | 8 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 |
| 0:04:05 | 2,362.23 | 36.91 | 28.58 | 0:12:05 | 2,079.33 | 64.98 | 16.18 | 0:20:05 | 1,235.22 | 77.20 | 13.61 | 0:28:05 | 889.19 | 111.15 | 9.46 | 0:36:05 | 142.19 | 142.19 | 7.37 |
| 0:04:10 | 2,323.22 | 36.30 | 28.83 | 0:12:10 | 2,161.32 | 67.54 | 15.44 | 0:20:10 | 1,219.70 | 76.23 | 13.81 | 0:28:10 | 972.03 | 121.50 | 8.66 | 0:36:10 | 139.67 | 139.67 | 7.50 |
| 0:04:15 | 2,371.67 | 37.06 | 28.30 | 0:12:15 | 2,074.08 | 64.82 | 16.12 | 0:20:15 | 1,301.28 | 81.33 | 12.88 | 0:28:15 | 1,059.90 | 132.49 | 7.89 | 0:36:15 | 149.53 | 149.53 | 7.00 |
| 0:04:20 | 2,407.74 | 37.62 | 27.74 | 0:12:20 | 2,112.67 | 66.02 | 15.96 | 0:20:20 | 1,308.41 | 81.78 | 12.67 | 0:28:20 | 997.62 | 124.70 | 8.39 | 0:36:20 | 177.21 | 177.21 | 5.91 |
| 0:04:25 | 2,364.54 | 36.95 | 28.52 | 0:12:25 | 2,009.28 | 62.79 | 16.60 | 0:20:25 | 1,077.10 | 67.32 | 15.65 | 0:28:25 | 869.06 | 108.63 | 9.64 | 0:36:25 | 162.95 | 162.95 | 6.43 |
| 0:04:30 | 2,364.12 | 36.94 | 28.32 | 0:12:30 | 1,879.05 | 58.72 | 17.90 | 0:20:30 | 1,323.51 | 82.72 | 12.70 | 0:28:30 | 930.93 | 116.37 | 8.94 | 0:36:30 | 155.61 | 155.61 | 6.73 |
| 0:04:35 | 2,371.88 | 37.06 | 28.12 | 0:12:35 | 2,040.95 | 63.78 | 16.49 | 0:20:35 | 1,338.82 | 83.68 | 12.49 | 0:28:35 | 913.94 | 114.24 | 9.21 | 0:36:35 | 145.12 | 145.12 | 7.21 |
| 0:04:40 | 2,415.29 | 37.74 | 27.87 | 0:12:40 | 1,726.79 | 53.96 | 19.43 | 0:20:40 | 1,406.77 | 87.92 | 11.95 | 0:28:40 | 1,012.09 | 126.51 | 8.27 | 0:36:40 | 162.32 | 162.32 | 6.45 |
| 0:04:45 | 2,349.65 | 36.71 | 28.73 | 0:12:45 | 1,964.61 | 61.39 | 16.96 | 0:20:45 | 1,404.04 | 87.75 | 11.94 | 0:28:45 | 974.13 | 121.77 | 8.68 | 0:36:45 | 157.50 | 157.50 | 6.64 |
| 0:04:50 | 2,346.50 | 36.66 | 28.31 | 0:12:50 | 1,996.49 | 62.39 | 16.81 | 0:20:50 | 1,355.18 | 84.70 | 12.40 | 0:28:50 | 913.31 | 114.16 | 9.07 | 0:36:50 | 154.98 | 154.98 | 6.77 |
| 0:04:55 | 2,356.99 | 36.83 | 28.53 | 0:12:55 | 2,022.28 | 63.20 | 16.63 | 0:20:55 | 1,250.53 | 78.16 | 13.29 | 0:28:55 | 903.45 | 112.93 | 9.27 | 0:36:55 | 161.48 | 161.48 | 6.48 |
| 0:05:00 | 2,422.42 | 37.85 | 27.90 | 0:13:00 | 2,102.19 | 65.69 | 15.84 | 0:21:00 | 1,249.06 | 78.07 | 13.46 | 0:29:00 | 928.20 | 116.02 | 9.06 | 0:37:00 | 161.69 | 161.69 | 6.47 |
| 0:05:05 | 2,345.04 | 36.64 | 28.47 | 0:13:05 | 2,088.76 | 65.27 | 16.03 | 0:21:05 | 1,255.56 | 78.47 | 13.39 | 0:29:05 | 941.41 | 117.68 | 8.85 | 0:37:05 | 167.98 | 167.98 | 6.23 |
| 0:05:10 | 2,350.49 | 36.73 | 28.25 | 0:13:10 | 2,183.55 | 68.24 | 15.42 | 0:21:10 | 1,254.10 | 78.38 | 13.33 | 0:29:10 | 930.72 | 116.34 | 9.04 | 0:37:10 | 175.11 | 175.11 | 5.98 |
| 0:05:15 | 2,373.14 | 37.08 | 28.54 | 0:13:15 | 2,028.37 | 63.39 | 16.62 | 0:21:15 | 1,449.34 | 90.58 | 11.62 | 0:29:15 | 938.06 | 117.26 | 8.93 | 0:37:15 | 147.85 | 147.85 | 7.08 |
| 0:05:20 | 2,398.09 | 37.47 | 28.02 | 0:13:20 | 2,209.56 | 69.05 | 15.05 | 0:21:20 | 1,198.94 | 74.93 | 13.91 | 0:29:20 | 942.67 | 117.83 | 8.93 | 0:37:20 | 155.82 | 155.82 | 6.71 |
| 0:05:25 | 2,323.85 | 36.31 | 28.64 | 0:13:25 | 1,957.27 | 61.16 | 17.11 | 0:21:25 | 1,132.25 | 70.77 | 14.86 | 0:29:25 | 976.64 | 122.08 | 8.56 | 0:37:25 | 126.88 | 126.88 | 8.27 |
| 0:05:30 | 2,382.99 | 37.23 | 28.19 | 0:13:30 | 2,222.14 | 69.44 | 15.28 | 0:21:30 | 1,372.80 | 85.80 | 12.14 | 0:29:30 | 989.44 | 123.68 | 8.46 | 0:37:30 | 142.82 | 142.82 | 7.33 |
| 0:05:36 | 2,362.44 | 36.91 | 28.71 | 0:13:35 | 2,022.91 | 63.22 | 16.41 | 0:21:35 | 1,314.70 | 82.17 | 12.78 | 0:29:35 | 907.65 | 113.46 | 9.23 | 0:37:35 | 173.02 | 173.02 | 6.06 |
| 0:05:40 | 2,358.67 | 36.85 | 28.19 | 0:13:40 | 2,046.82 | 63.96 | 16.29 | 0:21:40 | 1,297.09 | 81.07 | 12.99 | 0:29:40 | 990.07 | 123.76 | 8.41 | 0:37:40 | 147.85 | 147.85 | 7.08 |
| 0:05:45 | 2,336.02 | 36.50 | 28.77 | 0:13:45 | 2,259.68 | 70.62 | 14.99 | 0:21:45 | 1,454.17 | 90.89 | 11.50 | 0:29:45 | 1,015.65 | 126.96 | 8.28 | 0:37:45 | 140.51 | 140.51 | 7.45 |
| 0:05:50 | 2,377.96 | 37.16 | 28.25 | 0:13:50 | 2,254.44 | 70.45 | 14.89 | 0:21:50 | 1,463.39 | 91.46 | 11.42 | 0:29:50 | 901.57 | 112.70 | 9.33 | 0:37:50 | 173.85 | 173.85 | 6.02 |
| 0:05:55 | 2,302.67 | 35.98 | 29.23 | 0:13:55 | 1,999.84 | 62.50 | 16.63 | 0:21:55 | 1,273.60 | 79.60 | 13.18 | 0:29:55 | 895.27 | 111.91 | 9.41 | 0:37:55 | 170.71 | 170.71 | 6.14 |
| 0:06:00 | 2,397.88 | 37.47 | 27.74 | 0:14:00 | 2,157.76 | 67.43 | 15.51 | 0:22:00 | 1,141.48 | 71.34 | 14.69 | 0:30:00 | 957.98 | 119.75 | 8.64 | 0:38:00 | 155.40 | 155.40 | 6.74 |
| 0:06:05 | 2,366.85 | 36.98 | 28.33 | 0:14:05 | 1,988.52 | 62.14 | 17.00 | 0:22:05 | 1,301.49 | 81.34 | 12.78 | 0:30:05 | 1,020.68 | 127.59 | 8.20 | 0:38:05 | 163.79 | 163.79 | 6.39 |
| 0:06:10 | 2,428.08 | 37.94 | 27.78 | 0:14:10 | 2,117.70 | 66.18 | 15.77 | 0:22:10 | 1,460.67 | 91.29 | 11.55 | 0:30:10 | 943.72 | 117.96 | 8.92 | 0:38:10 | 156.87 | 156.87 | 6.67 |
| 0:06:15 | 2,254.23 | 35.22 | 29.61 | 0:14:15 | 1,986.21 | 62.07 | 16.86 | 0:22:15 | 1,317.22 | 82.33 | 12.75 | 0:30:15 | 992.58 | 124.07 | 8.43 | 0:38:15 | 157.29 | 157.29 | 6.66 |
| 0:06:20 | 2,409.84 | 37.65 | 27.75 | 0:14:20 | 2,069.47 | 64.67 | 16.26 | 0:22:20 | 1,370.70 | 85.67 | 12.20 | 0:30:20 | 969.51 | 121.19 | 8.63 | 0:38:20 | 177.21 | 177.21 | 5.91 |
| 0:06:25 | 2,351.33 | 36.74 | 28.76 | 0:14:25 | 2,049.97 | 64.06 | 16.34 | 0:22:25 | 1,470.94 | 91.93 | 11.45 | 0:30:25 | 1,009.78 | 126.22 | 8.34 | 0:38:25 | 157.50 | 157.50 | 6.64 |
| 0:06:30 | 2,440.88 | 38.14 | 27.57 | 0:14:30 | 1,941.75 | 60.68 | 17.14 | 0:22:30 | 1,385.80 | 86.61 | 12.06 | 0:30:30 | 961.54 | 120.19 | 8.71 | 0:38:30 | 137.36 | 137.36 | 7.63 |
| 0:06:35 | 2,365.59 | 36.96 | 28.13 | 0:14:35 | 2,260.31 | 70.63 | 14.89 | 0:22:35 | 1,442.00 | 90.13 | 11.60 | 0:30:35 | 923.80 | 115.47 | 9.06 | 0:38:35 | 142.82 | 142.82 | 7.33 |
| 0:06:40 | 2,443.81 | 38.18 | 27.44 | 0:14:40 | 2,052.06 | 64.13 | 16.45 | 0:22:40 | 1,449.55 | 90.60 | 11.57 | 0:30:40 | 981.05 | 122.63 | 8.54 | 0:38:40 | 160.01 | 160.01 | 6.55 |
| 0:06:45 | 2,338.74 | 36.54 | 28.83 | 0:14:45 | 2,109.73 | 65.93 | 15.80 | 0:22:45 | 1,390.62 | 86.91 | 12.05 | 0:30:45 | 933.23 | 116.65 | 8.93 | 0:38:45 | 180.15 | 180.15 | 5.81 |
| 0:06:50 | 2,421.79 | 37.84 | 27.58 | 0:14:50 | 1,853.67 | 57.93 | 18.06 | 0:22:50 | 1,390.20 | 86.89 | 12.09 | 0:30:50 | 880.80 | 110.10 | 9.50 | 0:38:50 | 176.79 | 176.79 | 5.92 |
| 0:06:55 | 2,278.77 | 35.61 | 29.31 | 0:14:55 | 1,916.80 | 59.90 | 17.61 | 0:22:55 | 1,250.74 | 78.17 | 13.36 | 0:30:55 | 939.31 | 117.41 | 8.96 | 0:38:55 | 170.71 | 170.71 | 6.13 |
| 0:07:00 | 2,453.04 | 38.33 | 27.54 | 0:15:00 | 2,106.17 | 65.82 | 15.91 | 0:23:00 | 1,225.79 | 76.61 | 13.70 | 0:31:00 | 967.84 | 120.98 | 8.63 | 0:39:00 | 151.83 | 151.83 | 6.89 |
| 0:07:05 | 2,272.68 | 35.51 | 29.77 | 0:15:05 | 2,125.04 | 66.41 | 15.72 | 0:23:05 | 1,239.84 | 77.49 | 13.50 | 0:31:05 | 978.32 | 122.29 | 8.62 | 0:39:05 | 152.67 | 152.67 | 6.86 |
| 0:07:10 | 2,393.90 | 37.40 | 27.71 | 0:15:10 | 2,218.58 | 69.33 | 15.14 | 0:23:10 | 1,145.88 | 71.62 | 14.75 | 0:31:10 | 984.19 | 123.02 | 8.50 | 0:39:10 | 171.76 | 171.76 | 6.09 |
| 0:07:15 | 2,335.18 | 36.49 | 28.75 | 0:15:15 | 2,292.40 | 71.64 | 14.72 | 0:23:15 | 1,329.59 | 83.10 | 12.47 | 0:31:15 | 894.85 | 111.86 | 9.31 | 0:39:15 | 155.40 | 155.40 | 6.74 |
| 0:07:20 | 2,511.97 | 39.25 | 26.85 | 0:15:20 | 2,160.07 | 67.50 | 15.35 | 0:23:20 | 1,370.49 | 85.66 | 12.25 | 0:31:20 | 771.12 | 96.39 | 10.92 | 0:39:20 | 160.43 | 160.43 | 6.53 |
| 0:07:25 | 2,375.65 | 37.12 | 28.09 | 0:15:25 | 2,069.26 | 64.66 | 16.13 | 0:23:25 | 1,089.68 | 68.11 | 15.38 | 0:31:25 | 865.70 | 108.21 | 9.72 | 0:39:25 | 139.88 | 139.88 | 7.48 |
| 0:07:30 | 2,489.32 | 38.90 | 27.01 | 0:15:30 | 2,128.61 | 66.52 | 15.79 | 0:23:30 | 1,149.66 | 71.85 | 14.60 | 0:31:30 | 995.10 | 124.39 | 8.32 | 0:39:31 | 166.93 | 166.93 | 6.27 |
| 0:07:35 | 2,338.53 | 36.54 | 28.66 | 0:15:35 | 2,036.75 | 63.65 | 16.45 | 0:23:35 | 1,190.34 | 74.40 | 14.14 | 0:31:35 | 1,004.12 | 125.51 | 8.53 | 0:39:35 | 168.82 | 168.82 | 6.20 |
| 0:07:40 | 2,460.38 | 38.44 | 27.49 | 0:15:40 | 2,027.32 | 63.35 | 16.54 | 0:23:40 | 1,200.83 | 75.05 | 13.97 | 0:31:40 | 971.40 | 121.43 | 8.47 | 0:39:40 | 166.09 | 166.09 | 6.30 |
| 0:07:45 | 2,227.59 | 39.78 | 29.62 | 0:15:45 | 2,143.92 | 67.00 | 15.69 | 0:23:45 | 1,200.20 | 109.11 | 13.96 | 0:31:45 | 998.24 | 166.37 | 8.34 | 0:39:45 | 181.40 | 181.40 | 5.77 |
| 0:07:50 | 84.72 | 0.00 | 30.00 | 0:15:50 | 51.17 | 0.00 | 17.66 | 0:23:50 | 29.36 | 0.00 | 11.87 | 0:31:50 | 18.25 | 0.00 | 7.14 | 0:39:50 | 4.61 | 0.00 | 7.17 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |

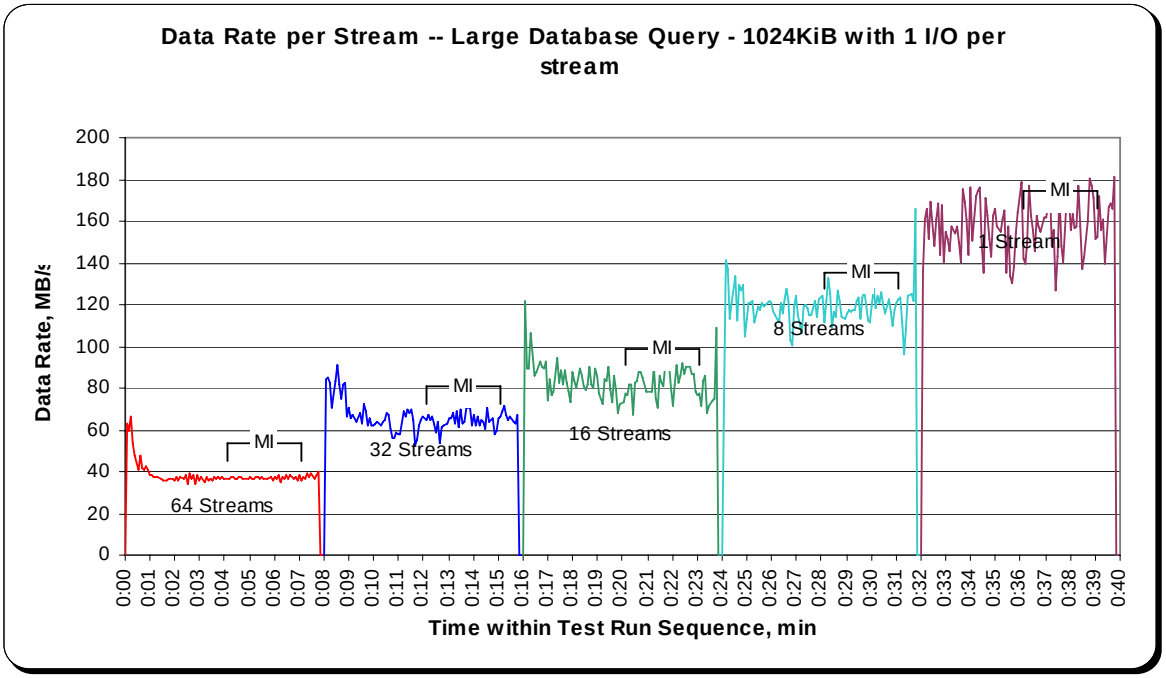
## SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



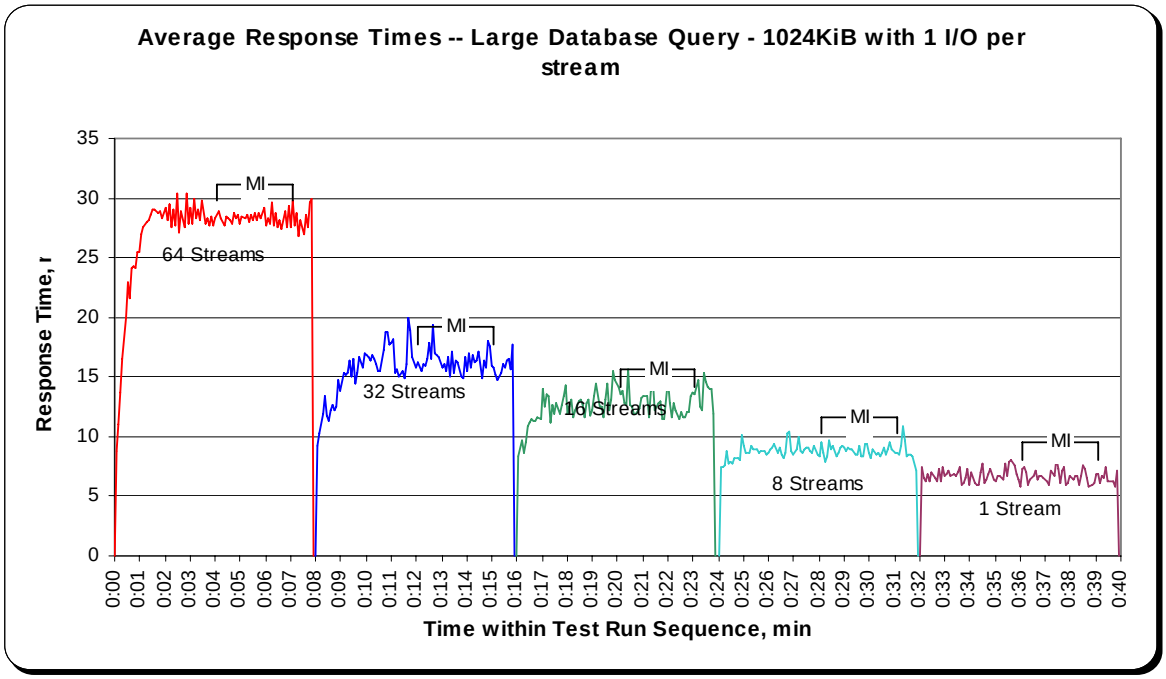

## SPC-2 "Large Database Query/1024 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



## 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/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.*
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/Os" 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 are 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.

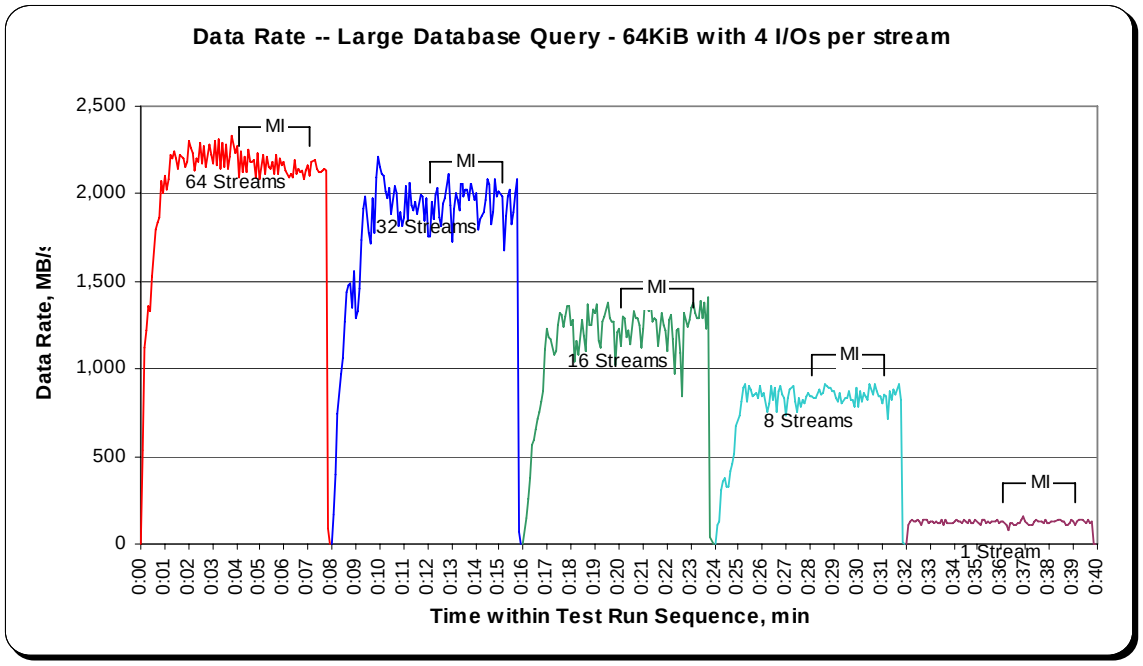
## SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data – Ramp-Up Period

| TR11 | 64 Streams | | | TR12 | 32 Streams | | | TR13 | 16 Streams | | | TR14 | 8 Streams | | | TR15 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:00 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 534.21 | 41.09 | 3.27 | 0:08:05 | 173.49 | 86.74 | 2.63 | 0:16:05 | 150.51 | 50.17 | 3.14 | 0:24:05 | 105.89 | 105.89 | 2.39 | 0:32:05 | 111.89 | 111.89 | 2.25 |
| 0:00:10 | 1,123.39 | 53.49 | 3.74 | 0:08:10 | 392.06 | 65.34 | 2.81 | 0:16:10 | 257.70 | 85.90 | 3.01 | 0:24:10 | 128.60 | 64.30 | 2.16 | 0:32:10 | 129.04 | 129.04 | 2.02 |
| 0:00:15 | 1,218.21 | 48.73 | 4.95 | 0:08:15 | 741.67 | 61.81 | 3.14 | 0:16:15 | 381.68 | 76.34 | 2.39 | 0:24:15 | 304.28 | 101.43 | 2.52 | 0:32:15 | 136.50 | 136.50 | 1.90 |
| 0:00:20 | 1,359.15 | 48.54 | 5.07 | 0:08:20 | 973.06 | 69.50 | 3.43 | 0:16:20 | 566.02 | 113.20 | 2.30 | 0:24:20 | 356.42 | 118.81 | 2.18 | 0:32:20 | 125.71 | 125.71 | 2.07 |
| 0:00:25 | 1,333.85 | 41.68 | 5.98 | 0:08:25 | 1,060.54 | 70.70 | 3.48 | 0:16:25 | 592.13 | 98.69 | 2.42 | 0:24:25 | 377.27 | 125.76 | 2.06 | 0:32:25 | 129.34 | 129.34 | 2.01 |
| 0:00:30 | 1,524.44 | 41.20 | 6.07 | 0:08:30 | 1,269.50 | 70.53 | 3.57 | 0:16:30 | 658.76 | 82.34 | 2.69 | 0:24:30 | 330.03 | 110.01 | 2.39 | 0:32:30 | 137.55 | 137.55 | 1.89 |
| 0:00:35 | 1,795.98 | 41.77 | 5.94 | 0:08:35 | 1,442.22 | 75.91 | 3.40 | 0:16:35 | 709.90 | 88.74 | 2.99 | 0:24:35 | 332.07 | 110.69 | 2.34 | 0:32:35 | 129.65 | 129.65 | 2.01 |
| 0:00:40 | 1,838.63 | 41.79 | 6.24 | 0:08:40 | 1,475.81 | 77.67 | 3.38 | 0:16:40 | 752.52 | 75.25 | 3.10 | 0:24:40 | 416.55 | 104.14 | 2.18 | 0:32:40 | 113.67 | 113.67 | 2.29 |
| 0:00:45 | 1,863.16 | 39.64 | 6.42 | 0:08:45 | 1,488.02 | 74.40 | 3.46 | 0:16:45 | 809.40 | 80.94 | 3.23 | 0:24:45 | 460.80 | 115.20 | 2.27 | 0:32:45 | 139.24 | 139.24 | 1.87 |
| 0:00:50 | 2,071.66 | 39.84 | 6.31 | 0:08:50 | 1,349.74 | 64.27 | 3.84 | 0:16:50 | 876.78 | 87.68 | 2.97 | 0:24:50 | 513.92 | 102.78 | 2.08 | 0:32:50 | 137.10 | 137.10 | 1.90 |
| 0:00:55 | 2,008.64 | 37.90 | 6.67 | 0:08:55 | 1,555.88 | 74.09 | 3.54 | 0:16:55 | 1,110.04 | 85.39 | 2.84 | 0:24:55 | 677.50 | 112.92 | 2.25 | 0:32:55 | 115.82 | 115.82 | 2.25 |
| 0:01:00 | 2,099.46 | 39.61 | 6.64 | 0:09:00 | 1,294.49 | 61.64 | 4.23 | 0:17:00 | 1,225.76 | 94.29 | 2.74 | 0:25:00 | 735.09 | 105.01 | 2.35 | 0:33:00 | 129.81 | 129.81 | 2.01 |
| 0:01:05 | 2,020.34 | 36.73 | 7.08 | 0:09:05 | 1,330.80 | 60.49 | 4.26 | 0:17:05 | 1,178.82 | 90.68 | 2.88 | 0:25:05 | 817.66 | 102.21 | 2.38 | 0:33:05 | 125.28 | 125.28 | 2.08 |
| 0:01:10 | 2,080.92 | 35.27 | 7.19 | 0:09:10 | 1,461.08 | 60.88 | 4.17 | 0:17:10 | 1,175.14 | 83.94 | 3.12 | 0:25:10 | 892.74 | 111.59 | 2.33 | 0:33:10 | 117.07 | 117.07 | 2.23 |
| 0:01:15 | 2,218.77 | 36.37 | 7.05 | 0:09:15 | 1,738.71 | 59.96 | 3.96 | 0:17:15 | 1,076.43 | 71.76 | 3.41 | 0:25:15 | 913.57 | 114.20 | 2.28 | 0:33:15 | 125.04 | 125.04 | 2.08 |
| 0:01:20 | 2,199.44 | 36.06 | 7.26 | 0:09:20 | 1,910.08 | 63.67 | 4.02 | 0:17:20 | 1,100.11 | 73.34 | 3.57 | 0:25:20 | 812.97 | 101.62 | 2.56 | 0:33:20 | 122.37 | 122.37 | 2.13 |
| 0:01:25 | 2,245.48 | 35.64 | 7.14 | 0:09:25 | 1,979.23 | 63.85 | 4.04 | 0:17:25 | 1,252.62 | 78.29 | 3.30 | 0:25:25 | 904.77 | 113.10 | 2.32 | 0:33:25 | 120.07 | 120.07 | 2.17 |
| 0:01:30 | 2,206.31 | 34.47 | 7.62 | 0:09:30 | 1,776.96 | 55.53 | 4.65 | 0:17:30 | 1,321.20 | 82.57 | 3.19 | 0:25:30 | 881.71 | 110.21 | 2.36 | 0:33:30 | 133.97 | 133.97 | 1.94 |
| 0:01:35 | 2,138.46 | 33.41 | 7.74 | 0:09:35 | 1,713.85 | 53.56 | 4.91 | 0:17:35 | 1,313.89 | 82.12 | 3.15 | 0:25:35 | 839.78 | 104.97 | 2.44 | 0:33:35 | 106.87 | 106.87 | 2.44 |
| 0:01:40 | 2,218.68 | 34.67 | 7.58 | 0:09:40 | 1,970.30 | 61.57 | 4.20 | 0:17:40 | 1,241.60 | 77.60 | 3.36 | 0:25:40 | 857.68 | 107.21 | 2.47 | 0:33:41 | 135.05 | 135.05 | 1.93 |
| 0:01:45 | 2,203.65 | 34.43 | 7.58 | 0:09:45 | 1,780.27 | 55.63 | 4.70 | 0:17:45 | 1,302.11 | 81.38 | 3.22 | 0:25:45 | 860.46 | 107.56 | 2.42 | 0:33:45 | 121.65 | 121.65 | 2.14 |
| 0:01:50 | 2,152.95 | 33.64 | 7.78 | 0:09:50 | 2,090.76 | 65.34 | 4.02 | 0:17:50 | 1,358.00 | 84.88 | 3.07 | 0:25:50 | 831.02 | 103.88 | 2.51 | 0:33:50 | 120.98 | 120.98 | 2.15 |
| 0:01:55 | 2,184.23 | 34.13 | 7.67 | 0:09:55 | 2,207.87 | 69.00 | 3.79 | 0:17:55 | 1,361.27 | 85.08 | 3.09 | 0:25:55 | 902.14 | 112.77 | 2.31 | 0:33:55 | 118.93 | 118.93 | 2.19 |
| 0:02:00 | 2,305.90 | 36.03 | 7.24 | 0:10:00 | 2,157.63 | 67.43 | 3.88 | 0:18:00 | 1,245.67 | 77.85 | 3.32 | 0:26:00 | 845.67 | 105.71 | 2.46 | 0:34:00 | 129.31 | 129.31 | 2.01 |
| 0:02:05 | 2,262.97 | 35.36 | 7.48 | 0:10:05 | 2,116.55 | 66.14 | 3.91 | 0:18:05 | 1,275.49 | 79.72 | 3.28 | 0:26:05 | 865.77 | 108.22 | 2.41 | 0:34:05 | 138.89 | 138.89 | 1.87 |
| 0:02:10 | 2,234.89 | 34.92 | 7.46 | 0:10:10 | 2,101.25 | 65.66 | 3.98 | 0:18:10 | 1,039.61 | 64.98 | 4.03 | 0:26:10 | 750.17 | 93.77 | 2.76 | 0:34:10 | 132.74 | 132.74 | 1.96 |
| 0:02:15 | 2,134.79 | 33.36 | 7.83 | 0:10:15 | 2,010.12 | 62.82 | 4.16 | 0:18:15 | 1,156.10 | 72.26 | 3.58 | 0:26:15 | 808.50 | 101.06 | 2.61 | 0:34:15 | 130.22 | 130.22 | 2.00 |
| 0:02:20 | 2,203.83 | 34.43 | 7.58 | 0:10:20 | 1,973.85 | 61.68 | 4.22 | 0:18:20 | 1,080.22 | 67.51 | 3.89 | 0:26:20 | 906.64 | 113.33 | 2.29 | 0:34:20 | 121.11 | 121.11 | 2.15 |
| 0:02:25 | 2,183.46 | 34.12 | 7.67 | 0:10:25 | 2,030.00 | 63.44 | 4.15 | 0:18:25 | 1,284.11 | 80.26 | 3.23 | 0:26:25 | 821.71 | 102.71 | 2.53 | 0:34:25 | 142.88 | 142.88 | 1.82 |
| 0:02:30 | 2,293.50 | 35.84 | 7.30 | 0:10:30 | 1,885.82 | 58.93 | 4.43 | 0:18:30 | 1,191.60 | 74.48 | 3.53 | 0:26:30 | 888.88 | 111.11 | 2.36 | 0:34:30 | 131.71 | 131.71 | 1.98 |
| 0:02:35 | 2,167.98 | 33.87 | 7.70 | 0:10:35 | 2,041.58 | 63.80 | 4.11 | 0:18:35 | 1,105.91 | 69.12 | 3.75 | 0:26:35 | 757.48 | 94.69 | 2.77 | 0:34:35 | 121.75 | 121.75 | 2.14 |
| 0:02:40 | 2,267.50 | 35.43 | 7.44 | 0:10:40 | 1,999.59 | 62.49 | 4.14 | 0:18:40 | 1,365.18 | 85.32 | 3.07 | 0:26:40 | 871.84 | 108.98 | 2.39 | 0:34:40 | 139.46 | 139.46 | 1.87 |
| 0:02:45 | 2,151.56 | 33.62 | 7.74 | 0:10:45 | 1,814.81 | 56.71 | 4.60 | 0:18:45 | 1,247.20 | 77.95 | 3.34 | 0:26:45 | 900.73 | 112.59 | 2.27 | 0:34:45 | 122.10 | 122.10 | 2.13 |
| 0:02:50 | 2,281.27 | 35.64 | 7.36 | 0:10:50 | 1,899.47 | 59.36 | 4.43 | 0:18:50 | 1,253.34 | 78.33 | 3.32 | 0:26:50 | 853.33 | 106.67 | 2.47 | 0:34:50 | 123.52 | 123.52 | 2.11 |
| 0:02:55 | 2,224.64 | 34.76 | 7.52 | 0:10:55 | 1,817.35 | 56.79 | 4.58 | 0:18:55 | 1,340.94 | 83.81 | 3.13 | 0:26:55 | 835.39 | 104.42 | 2.51 | 0:34:55 | 139.16 | 139.16 | 1.87 |
| 0:03:00 | 2,174.45 | 33.98 | 7.68 | 0:11:00 | 1,862.15 | 58.19 | 4.51 | 0:19:00 | 1,324.14 | 82.76 | 3.13 | 0:27:00 | 729.44 | 91.18 | 2.84 | 0:35:00 | 119.35 | 119.35 | 2.18 |
| 0:03:05 | 2,302.23 | 35.97 | 7.27 | 0:11:05 | 2,042.08 | 63.82 | 4.09 | 0:19:05 | 1,369.44 | 85.59 | 3.07 | 0:27:05 | 833.87 | 104.23 | 2.50 | 0:35:05 | 109.68 | 109.68 | 2.38 |
| 0:03:10 | 2,167.55 | 33.87 | 7.73 | 0:11:10 | 1,840.45 | 57.51 | 4.56 | 0:19:10 | 1,165.17 | 72.82 | 3.56 | 0:27:10 | 878.86 | 109.86 | 2.40 | 0:35:10 | 134.11 | 134.11 | 1.94 |
| 0:03:15 | 2,308.25 | 36.07 | 7.31 | 0:11:15 | 2,064.87 | 64.53 | 4.02 | 0:19:15 | 1,125.63 | 70.35 | 3.72 | 0:27:15 | 902.97 | 112.87 | 2.29 | 0:35:15 | 143.13 | 143.13 | 1.82 |
| 0:03:20 | 2,139.82 | 33.43 | 7.78 | 0:11:20 | 1,937.89 | 60.56 | 4.30 | 0:19:20 | 1,274.07 | 79.63 | 3.27 | 0:27:20 | 809.67 | 101.21 | 2.55 | 0:35:20 | 120.17 | 120.17 | 2.17 |
| 0:03:25 | 2,288.61 | 35.76 | 7.34 | 0:11:25 | 1,901.36 | 59.42 | 4.38 | 0:19:25 | 1,296.84 | 81.05 | 3.21 | 0:27:25 | 751.98 | 94.00 | 2.82 | 0:35:25 | 128.36 | 128.36 | 2.03 |
| 0:03:30 | 2,151.47 | 33.62 | 7.74 | 0:11:30 | 1,950.52 | 60.95 | 4.28 | 0:19:30 | 1,380.37 | 86.27 | 3.04 | 0:27:30 | 828.60 | 103.57 | 2.52 | 0:35:30 | 116.86 | 116.86 | 2.23 |
| 0:03:35 | 2,281.02 | 35.64 | 7.32 | 0:11:35 | 1,889.28 | 59.04 | 4.46 | 0:19:35 | 1,285.04 | 80.32 | 3.23 | 0:27:35 | 782.62 | 97.83 | 2.66 | 0:35:35 | 132.70 | 132.70 | 1.96 |
| 0:03:40 | 2,142.61 | 33.48 | 7.83 | 0:11:40 | 1,992.04 | 62.25 | 4.19 | 0:19:40 | 1,265.94 | 79.12 | 3.33 | 0:27:40 | 821.82 | 102.73 | 2.53 | 0:35:40 | 127.02 | 127.02 | 2.05 |
| 0:03:45 | 2,211.88 | 34.56 | 7.55 | 0:11:45 | 1,987.24 | 62.10 | 4.21 | 0:19:45 | 1,273.73 | 79.61 | 3.25 | 0:27:45 | 800.47 | 100.06 | 2.60 | 0:35:45 | 127.87 | 127.87 | 2.04 |
| 0:03:50 | 2,327.22 | 36.36 | 7.25 | 0:11:50 | 1,842.79 | 57.59 | 4.51 | 0:19:50 | 1,021.89 | 63.87 | 4.11 | 0:27:50 | 843.68 | 105.46 | 2.47 | 0:35:50 | 136.30 | 136.30 | 1.91 |
| 0:03:55 | 2,235.83 | 34.93 | 7.47 | 0:11:55 | 1,978.20 | 61.82 | 4.22 | 0:19:55 | 1,208.65 | 75.54 | 3.47 | 0:27:55 | 865.98 | 108.25 | 2.39 | 0:35:55 | 121.91 | 121.91 | 2.14 |
| 0:04:00 | 2,274.25 | 35.54 | 7.35 | 0:12:00 | 1,760.05 | 55.00 | 4.73 | 0:20:00 | 1,232.12 | 77.01 | 3.36 | 0:28:00 | 838.90 | 104.86 | 2.49 | 0:36:00 | 128.14 | 128.14 | 2.03 |

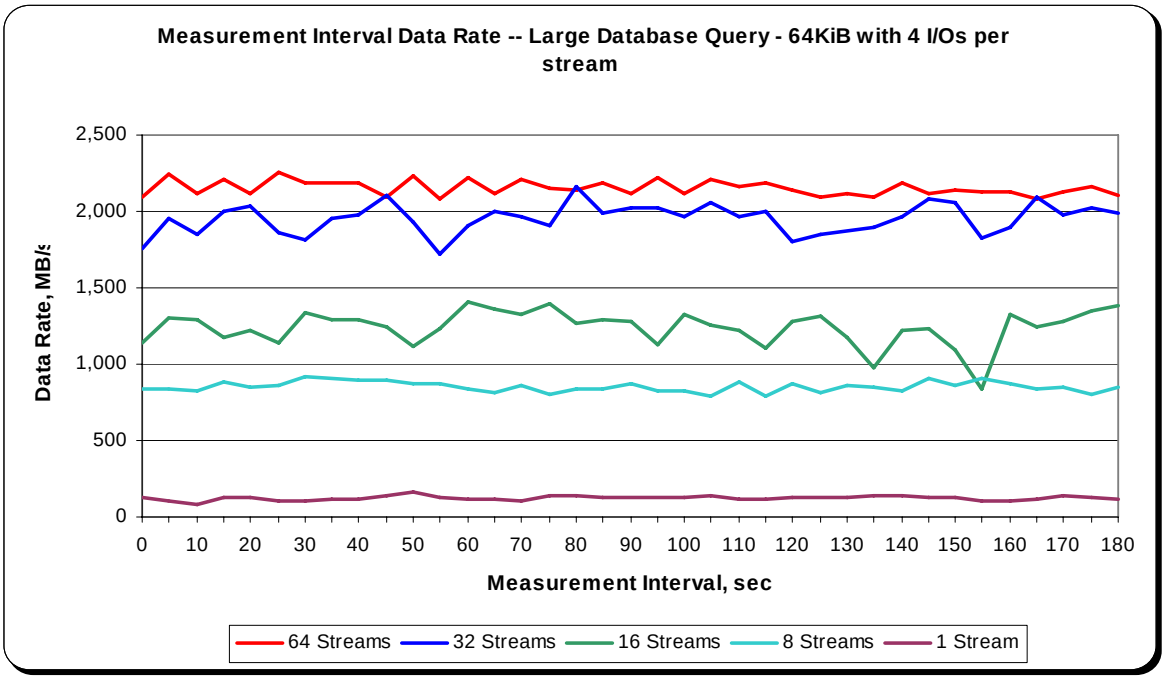
## SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Periods

| TR11 | 64 Streams | | | TR12 | 32 Streams | | | TR13 | 16 Streams | | | TR14 | 8 Streams | | | TR15 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:04:05 | 2,091.99 | 32.69 | 8.00 | 0:12:05 | 1,759.31 | 54.98 | 4.76 | 0:20:05 | 1,133.80 | 70.86 | 3.68 | 0:28:05 | 839.62 | 104.95 | 2.50 | 0:36:05 | 125.47 | 125.47 | 2.08 |
| 0:04:10 | 2,244.29 | 35.07 | 7.46 | 0:12:10 | 1,958.27 | 61.20 | 4.26 | 0:20:10 | 1,302.14 | 81.38 | 3.22 | 0:28:10 | 837.41 | 104.68 | 2.49 | 0:36:10 | 104.74 | 104.74 | 2.49 |
| 0:04:15 | 2,121.27 | 33.14 | 7.99 | 0:12:15 | 1,854.46 | 57.95 | 4.56 | 0:20:15 | 1,288.48 | 80.53 | 3.24 | 0:28:15 | 830.84 | 103.85 | 2.51 | 0:36:15 | 80.31 | 80.31 | 3.25 |
| 0:04:20 | 2,214.30 | 34.60 | 7.47 | 0:12:20 | 1,996.33 | 62.39 | 4.14 | 0:20:20 | 1,178.34 | 73.65 | 3.56 | 0:28:20 | 879.25 | 109.91 | 2.37 | 0:36:20 | 122.22 | 122.22 | 2.13 |
| 0:04:25 | 2,119.39 | 33.12 | 7.92 | 0:12:25 | 2,031.91 | 63.50 | 4.11 | 0:20:25 | 1,219.61 | 76.23 | 3.42 | 0:28:25 | 849.20 | 106.15 | 2.47 | 0:36:25 | 123.69 | 123.69 | 2.10 |
| 0:04:30 | 2,252.47 | 35.19 | 7.39 | 0:12:30 | 1,862.18 | 58.19 | 4.50 | 0:20:30 | 1,136.49 | 71.03 | 3.67 | 0:28:30 | 859.68 | 107.46 | 2.40 | 0:36:30 | 108.17 | 108.17 | 2.41 |
| 0:04:35 | 2,183.79 | 34.12 | 7.68 | 0:12:35 | 1,819.05 | 56.85 | 4.58 | 0:20:35 | 1,332.33 | 83.27 | 3.12 | 0:28:35 | 915.98 | 114.50 | 2.30 | 0:36:35 | 108.73 | 108.73 | 2.40 |
| 0:04:40 | 2,184.04 | 34.13 | 7.69 | 0:12:40 | 1,949.30 | 60.92 | 4.27 | 0:20:40 | 1,293.58 | 80.85 | 3.22 | 0:28:40 | 903.04 | 112.88 | 2.31 | 0:36:40 | 115.44 | 115.44 | 2.26 |
| 0:04:45 | 2,189.94 | 34.22 | 7.60 | 0:12:45 | 1,978.14 | 61.82 | 4.24 | 0:20:45 | 1,292.74 | 80.80 | 3.25 | 0:28:45 | 894.41 | 111.80 | 2.33 | 0:36:45 | 119.53 | 119.53 | 2.18 |
| 0:04:50 | 2,095.88 | 32.75 | 8.01 | 0:12:50 | 2,110.32 | 65.95 | 4.00 | 0:20:50 | 1,247.33 | 77.96 | 3.35 | 0:28:50 | 895.32 | 111.91 | 2.32 | 0:36:50 | 136.05 | 136.05 | 1.91 |
| 0:04:55 | 2,229.50 | 34.84 | 7.51 | 0:12:55 | 1,932.00 | 60.38 | 4.28 | 0:20:55 | 1,117.45 | 69.84 | 3.73 | 0:28:55 | 869.18 | 108.65 | 2.41 | 0:36:55 | 161.59 | 161.59 | 1.61 |
| 0:05:00 | 2,082.36 | 32.54 | 8.04 | 0:13:00 | 1,723.53 | 53.86 | 4.85 | 0:21:00 | 1,228.11 | 76.76 | 3.41 | 0:29:00 | 876.24 | 109.53 | 2.38 | 0:37:00 | 125.54 | 125.54 | 2.07 |
| 0:05:05 | 2,226.25 | 34.79 | 7.50 | 0:13:05 | 1,911.67 | 59.74 | 4.39 | 0:21:05 | 1,404.37 | 87.77 | 2.96 | 0:29:05 | 831.99 | 104.00 | 2.49 | 0:37:05 | 116.40 | 116.40 | 2.24 |
| 0:05:10 | 2,110.99 | 32.98 | 7.95 | 0:13:10 | 2,001.77 | 62.56 | 4.15 | 0:21:10 | 1,356.31 | 84.77 | 3.07 | 0:29:10 | 812.50 | 101.56 | 2.58 | 0:37:10 | 110.48 | 110.48 | 2.36 |
| 0:05:15 | 2,211.01 | 34.55 | 7.57 | 0:13:15 | 1,968.87 | 61.53 | 4.24 | 0:21:15 | 1,325.13 | 82.82 | 3.15 | 0:29:15 | 862.86 | 107.86 | 2.41 | 0:37:15 | 109.85 | 109.85 | 2.37 |
| 0:05:20 | 2,153.05 | 33.64 | 7.75 | 0:13:20 | 1,904.09 | 59.50 | 4.41 | 0:21:20 | 1,391.21 | 86.95 | 3.02 | 0:29:20 | 802.99 | 100.37 | 2.59 | 0:37:20 | 133.89 | 133.89 | 1.94 |
| 0:05:25 | 2,140.55 | 33.45 | 7.84 | 0:13:25 | 2,162.50 | 67.58 | 3.88 | 0:21:25 | 1,266.20 | 79.14 | 3.32 | 0:29:25 | 832.40 | 104.05 | 2.49 | 0:37:25 | 138.14 | 138.14 | 1.88 |
| 0:05:30 | 2,186.33 | 34.16 | 7.66 | 0:13:30 | 1,986.99 | 62.09 | 4.16 | 0:21:30 | 1,292.18 | 80.76 | 3.20 | 0:29:30 | 832.28 | 104.03 | 2.53 | 0:37:30 | 132.76 | 132.76 | 1.96 |
| 0:05:35 | 2,113.14 | 33.02 | 7.94 | 0:13:35 | 2,027.19 | 63.35 | 4.13 | 0:21:35 | 1,278.12 | 79.88 | 3.28 | 0:29:35 | 870.84 | 108.86 | 2.39 | 0:37:35 | 124.93 | 124.93 | 2.09 |
| 0:05:40 | 2,224.41 | 34.76 | 7.51 | 0:13:40 | 2,020.42 | 63.14 | 4.16 | 0:21:40 | 1,126.80 | 70.42 | 3.72 | 0:29:40 | 823.55 | 102.94 | 2.51 | 0:37:40 | 125.19 | 125.19 | 2.08 |
| 0:05:45 | 2,116.36 | 33.07 | 7.90 | 0:13:45 | 1,962.99 | 61.34 | 4.22 | 0:21:45 | 1,320.81 | 82.55 | 3.14 | 0:29:45 | 828.12 | 103.52 | 2.52 | 0:37:45 | 122.63 | 122.63 | 2.12 |
| 0:05:50 | 2,207.10 | 34.49 | 7.57 | 0:13:50 | 2,063.65 | 64.49 | 4.07 | 0:21:50 | 1,251.75 | 78.23 | 3.34 | 0:29:50 | 787.64 | 98.45 | 2.65 | 0:37:50 | 135.88 | 135.88 | 1.92 |
| 0:05:55 | 2,157.96 | 33.72 | 7.76 | 0:13:55 | 1,968.12 | 61.50 | 4.23 | 0:21:55 | 1,216.13 | 76.01 | 3.44 | 0:29:55 | 888.68 | 111.08 | 2.37 | 0:37:55 | 120.77 | 120.77 | 2.16 |
| 0:06:00 | 2,185.35 | 34.15 | 7.72 | 0:14:00 | 2,005.34 | 62.67 | 4.20 | 0:22:00 | 1,099.33 | 68.71 | 3.80 | 0:30:00 | 788.68 | 98.58 | 2.63 | 0:38:00 | 122.06 | 122.06 | 2.13 |
| 0:06:05 | 2,137.35 | 33.40 | 7.79 | 0:14:05 | 1,799.04 | 56.22 | 4.62 | 0:22:05 | 1,276.95 | 79.81 | 3.26 | 0:30:05 | 877.25 | 109.66 | 2.39 | 0:38:05 | 133.21 | 133.21 | 1.95 |
| 0:06:10 | 2,088.77 | 32.64 | 8.02 | 0:14:10 | 1,852.22 | 57.88 | 4.50 | 0:22:10 | 1,311.09 | 81.94 | 3.20 | 0:30:10 | 815.89 | 101.99 | 2.54 | 0:38:10 | 128.08 | 128.08 | 2.03 |
| 0:06:15 | 2,115.87 | 33.06 | 7.89 | 0:14:15 | 1,871.80 | 58.49 | 4.48 | 0:22:15 | 1,174.74 | 73.42 | 3.54 | 0:30:15 | 858.51 | 107.31 | 2.41 | 0:38:15 | 127.39 | 127.39 | 2.04 |
| 0:06:20 | 2,092.39 | 32.69 | 8.05 | 0:14:20 | 1,892.57 | 59.14 | 4.39 | 0:22:20 | 975.60 | 60.97 | 4.26 | 0:30:20 | 845.38 | 105.67 | 2.49 | 0:38:20 | 134.57 | 134.57 | 1.93 |
| 0:06:25 | 2,190.98 | 34.23 | 7.62 | 0:14:25 | 1,967.69 | 61.49 | 4.25 | 0:22:25 | 1,221.99 | 76.37 | 3.42 | 0:30:25 | 826.68 | 103.33 | 2.52 | 0:38:25 | 139.59 | 139.59 | 1.86 |
| 0:06:30 | 2,111.26 | 32.99 | 7.93 | 0:14:30 | 2,083.12 | 65.10 | 4.03 | 0:22:30 | 1,234.36 | 77.15 | 3.40 | 0:30:30 | 908.97 | 113.62 | 2.29 | 0:38:30 | 127.02 | 127.02 | 2.05 |
| 0:06:35 | 2,144.95 | 33.51 | 7.80 | 0:14:35 | 2,052.85 | 64.15 | 4.09 | 0:22:35 | 1,088.55 | 68.03 | 3.84 | 0:30:35 | 856.98 | 107.12 | 2.43 | 0:38:35 | 127.81 | 127.81 | 2.04 |
| 0:06:40 | 2,124.47 | 33.19 | 7.88 | 0:14:40 | 1,824.88 | 57.03 | 4.57 | 0:22:40 | 841.34 | 52.58 | 4.96 | 0:30:40 | 908.15 | 113.52 | 2.31 | 0:38:40 | 110.22 | 110.22 | 2.37 |
| 0:06:45 | 2,131.61 | 33.31 | 7.85 | 0:14:45 | 1,893.21 | 59.16 | 4.39 | 0:22:45 | 1,320.64 | 82.54 | 3.18 | 0:30:45 | 869.00 | 108.62 | 2.40 | 0:38:45 | 108.84 | 108.84 | 2.39 |
| 0:06:50 | 2,082.60 | 32.54 | 8.02 | 0:14:50 | 2,087.90 | 65.25 | 4.01 | 0:22:50 | 1,239.98 | 77.50 | 3.37 | 0:30:50 | 839.32 | 104.92 | 2.48 | 0:38:50 | 118.38 | 118.38 | 2.20 |
| 0:06:55 | 2,128.51 | 33.26 | 7.89 | 0:14:55 | 1,980.39 | 61.89 | 4.19 | 0:22:55 | 1,281.67 | 80.10 | 3.23 | 0:30:55 | 843.18 | 105.40 | 2.46 | 0:38:55 | 137.17 | 137.17 | 1.90 |
| 0:07:00 | 2,167.47 | 33.87 | 7.69 | 0:15:00 | 2,017.45 | 63.05 | 4.14 | 0:23:00 | 1,346.49 | 84.16 | 3.09 | 0:31:00 | 801.44 | 100.18 | 2.58 | 0:39:00 | 133.07 | 133.07 | 1.96 |
| 0:07:05 | 2,105.70 | 32.90 | 7.95 | 0:15:05 | 1,986.13 | 62.07 | 4.24 | 0:23:05 | 1,381.79 | 86.36 | 3.05 | 0:31:05 | 849.04 | 106.13 | 2.48 | 0:39:05 | 112.88 | 112.88 | 2.31 |
| 0:07:10 | 2,187.31 | 34.18 | 7.67 | 0:15:10 | 1,681.18 | 52.54 | 4.99 | 0:23:10 | 1,322.13 | 82.63 | 3.15 | 0:31:10 | 847.26 | 105.91 | 2.46 | 0:39:10 | 126.81 | 126.81 | 2.05 |
| 0:07:15 | 2,192.90 | 34.26 | 7.63 | 0:15:15 | 1,875.58 | 58.61 | 4.43 | 0:23:15 | 1,291.16 | 80.70 | 3.23 | 0:31:15 | 719.03 | 89.88 | 2.90 | 0:39:15 | 138.35 | 138.35 | 1.88 |
| 0:07:20 | 2,139.01 | 33.42 | 7.83 | 0:15:20 | 1,983.93 | 62.00 | 4.19 | 0:23:20 | 1,288.68 | 80.54 | 3.24 | 0:31:20 | 869.81 | 108.73 | 2.40 | 0:39:20 | 139.09 | 139.09 | 1.87 |
| 0:07:25 | 2,127.45 | 33.24 | 7.89 | 0:15:25 | 2,024.19 | 63.26 | 4.15 | 0:23:25 | 1,387.12 | 86.69 | 3.03 | 0:31:25 | 821.44 | 102.68 | 2.52 | 0:39:25 | 134.10 | 134.10 | 1.94 |
| 0:07:30 | 2,122.13 | 33.16 | 7.87 | 0:15:30 | 1,823.81 | 56.99 | 4.58 | 0:23:30 | 1,294.59 | 80.91 | 3.23 | 0:31:30 | 887.84 | 110.98 | 2.37 | 0:39:30 | 121.31 | 121.31 | 2.15 |
| 0:07:35 | 2,131.03 | 33.30 | 7.88 | 0:15:35 | 1,894.79 | 59.21 | 4.41 | 0:23:35 | 1,378.50 | 86.16 | 3.03 | 0:31:35 | 853.23 | 106.65 | 2.44 | 0:39:35 | 137.67 | 137.67 | 1.89 |
| 0:07:40 | 2,141.92 | 33.47 | 7.84 | 0:15:40 | 2,003.01 | 62.59 | 4.17 | 0:23:40 | 1,233.60 | 77.10 | 3.37 | 0:31:40 | 916.35 | 114.54 | 2.27 | 0:39:40 | 120.12 | 120.12 | 2.17 |
| 0:07:45 | 2,133.38 | 33.33 | 7.79 | 0:15:45 | 2,080.21 | 67.10 | 4.03 | 0:23:45 | 1,411.60 | 100.83 | 2.95 | 0:31:45 | 823.18 | 205.80 | 2.51 | 0:39:45 | 128.53 | 128.53 | 2.03 |
| 0:07:50 | 86.38 | 0.00 | 6.32 | 0:15:50 | 73.03 | 0.00 | 3.25 | 0:23:50 | 39.20 | 0.00 | 2.94 | 0:31:50 | 8.66 | 0.00 | 2.59 | 0:39:50 | 3.96 | 0.00 | 2.15 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |

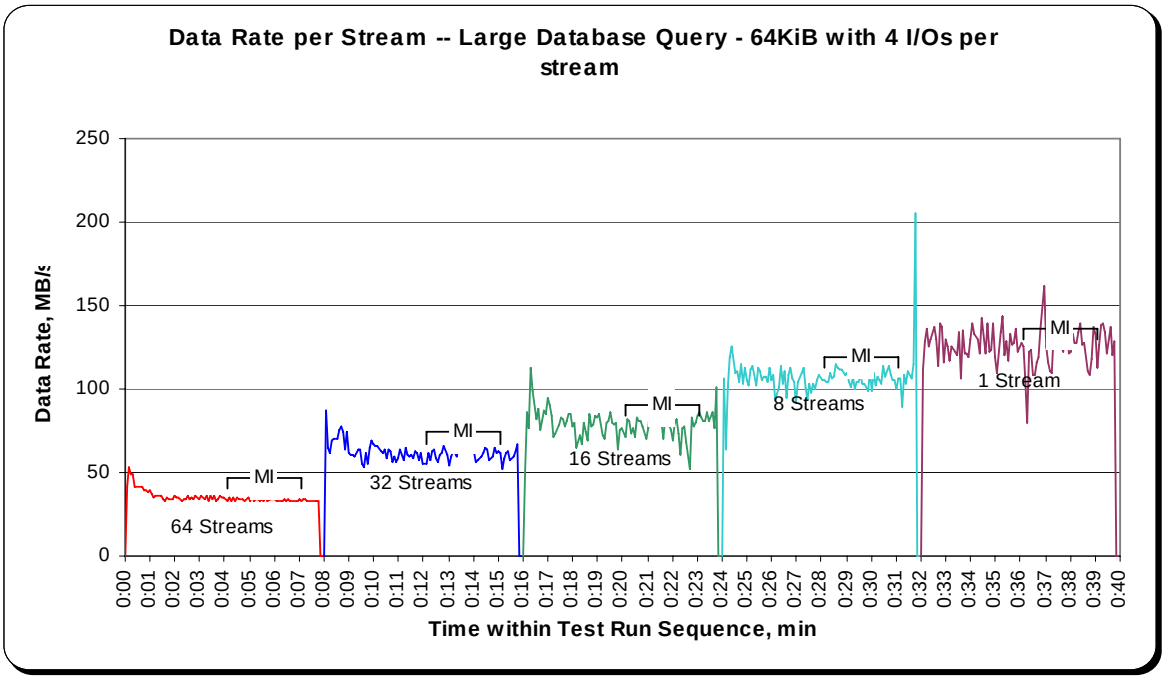
## SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Complete Test Run



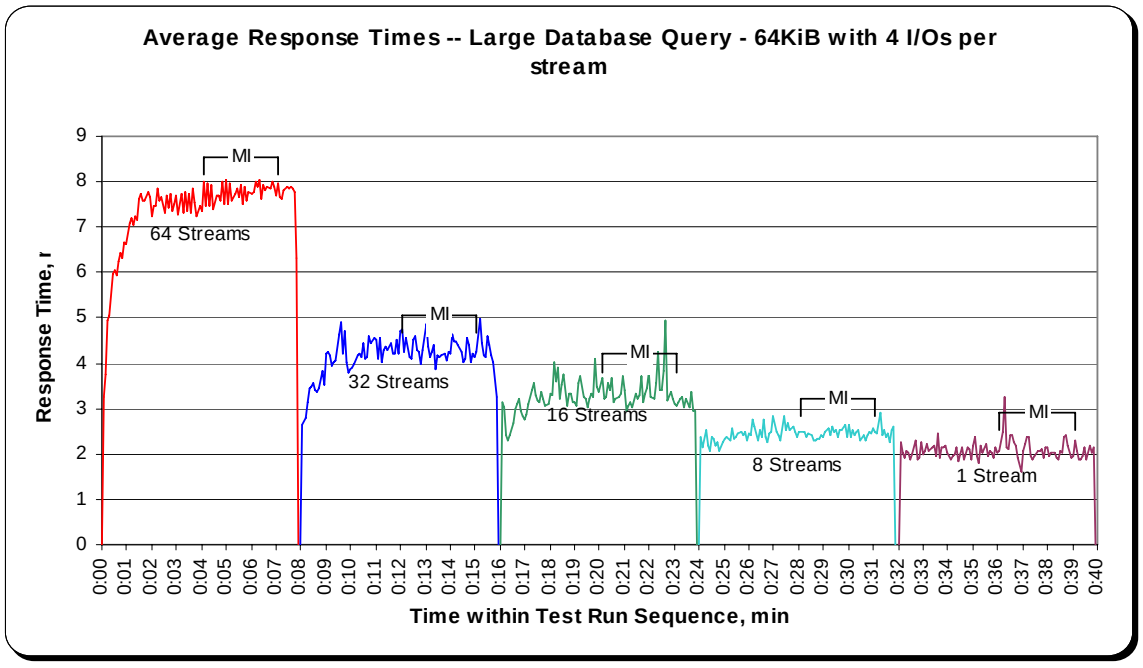

## SPC-2 "Large Database Query/64 KiB Transfer Size/4 Outstanding I/Os" Average Data Rate Graph – Measurement Interval (MI) Only



## 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



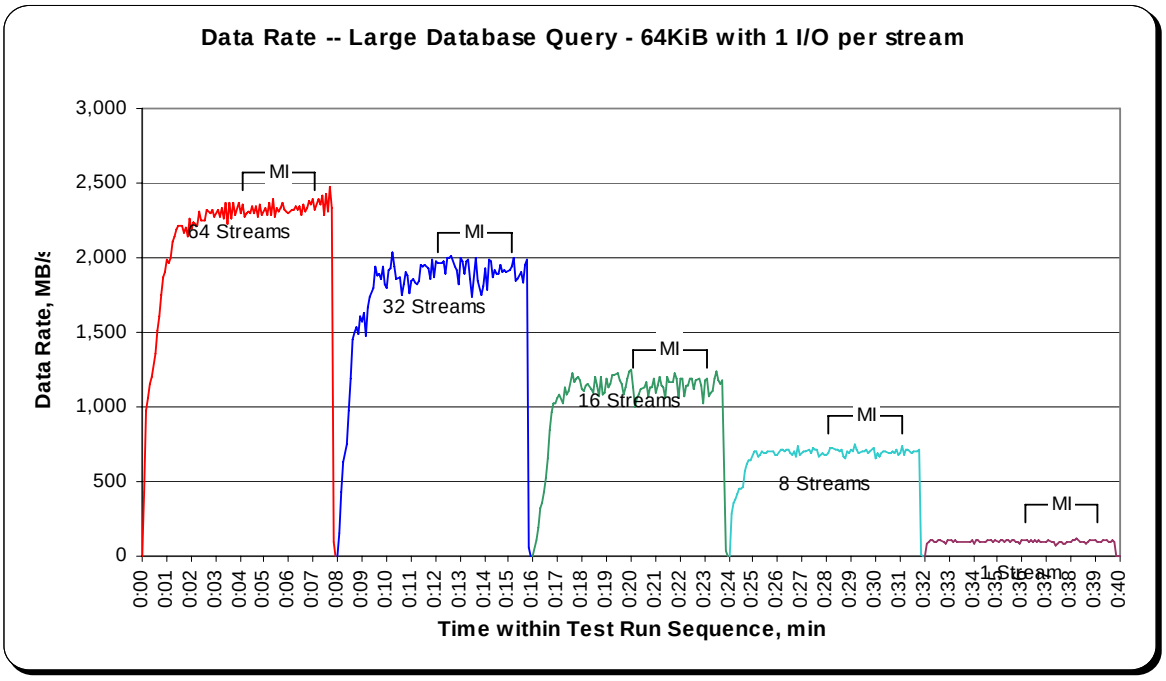
## SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data – Ramp-Up Period

| TR16 | 64 Streams | | | TR17 | 32 Streams | | | TR18 | 16 Streams | | | TR19 | 8 Streams | | | TR20 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:00:00 | 0.00 | 0.00 | 0.00 | 0:08:00 | 0.00 | 0.00 | 0.00 | 0:16:00 | 0.00 | 0.00 | 0.00 | 0:24:01 | 0.00 | 0.00 | 0.00 | 0:32:00 | 0.00 | 0.00 | 0.00 |
| 0:00:05 | 431.34 | 33.18 | 0.94 | 0:08:05 | 152.53 | 50.84 | 0.79 | 0:16:05 | 110.88 | 55.44 | 0.96 | 0:24:05 | 285.53 | 71.38 | 0.76 | 0:32:05 | 87.65 | 87.65 | 0.71 |
| 0:00:10 | 980.88 | 61.30 | 0.99 | 0:08:10 | 432.55 | 61.79 | 0.87 | 0:16:10 | 186.28 | 62.09 | 0.92 | 0:24:10 | 355.94 | 88.98 | 0.73 | 0:32:10 | 97.24 | 97.24 | 0.66 |
| 0:00:15 | 1,062.62 | 55.93 | 1.00 | 0:08:15 | 629.65 | 69.96 | 0.85 | 0:16:15 | 319.21 | 79.80 | 0.79 | 0:24:15 | 380.83 | 95.21 | 0.68 | 0:32:15 | 104.39 | 104.39 | 0.62 |
| 0:00:20 | 1,150.85 | 57.54 | 1.11 | 0:08:20 | 752.97 | 62.75 | 0.91 | 0:16:20 | 359.89 | 89.97 | 0.72 | 0:24:20 | 418.19 | 83.64 | 0.69 | 0:32:20 | 108.94 | 108.94 | 0.59 |
| 0:00:25 | 1,206.38 | 41.60 | 1.29 | 0:08:25 | 971.81 | 60.74 | 0.92 | 0:16:25 | 433.71 | 72.29 | 0.70 | 0:24:25 | 455.14 | 91.03 | 0.71 | 0:32:25 | 95.29 | 95.29 | 0.68 |
| 0:00:30 | 1,356.98 | 39.91 | 1.58 | 0:08:30 | 1,185.05 | 56.43 | 0.97 | 0:16:30 | 521.46 | 74.49 | 0.76 | 0:24:30 | 455.71 | 91.14 | 0.71 | 0:32:30 | 98.46 | 98.46 | 0.65 |
| 0:00:35 | 1,515.92 | 39.89 | 1.53 | 0:08:35 | 1,452.70 | 69.18 | 0.93 | 0:16:35 | 652.84 | 72.54 | 0.83 | 0:24:35 | 461.67 | 76.94 | 0.74 | 0:32:35 | 107.77 | 107.77 | 0.60 |
| 0:00:40 | 1,612.38 | 40.31 | 1.56 | 0:08:40 | 1,499.36 | 65.19 | 0.96 | 0:16:40 | 844.11 | 76.74 | 0.81 | 0:24:40 | 572.85 | 81.84 | 0.70 | 0:32:40 | 107.60 | 107.60 | 0.60 |
| 0:00:45 | 1,747.16 | 38.83 | 1.60 | 0:08:45 | 1,540.57 | 64.19 | 1.00 | 0:16:45 | 959.07 | 73.77 | 0.79 | 0:24:45 | 622.02 | 88.86 | 0.73 | 0:32:45 | 98.66 | 98.66 | 0.65 |
| 0:00:50 | 1,872.38 | 39.01 | 1.63 | 0:08:50 | 1,489.67 | 59.59 | 1.06 | 0:16:50 | 1,018.25 | 78.33 | 0.83 | 0:24:50 | 643.66 | 91.95 | 0.70 | 0:32:50 | 88.65 | 88.65 | 0.73 |
| 0:00:55 | 1,899.44 | 38.76 | 1.68 | 0:08:55 | 1,609.66 | 61.91 | 1.01 | 0:16:55 | 1,027.02 | 79.00 | 0.82 | 0:24:55 | 647.35 | 80.92 | 0.72 | 0:32:55 | 107.32 | 107.32 | 0.60 |
| 0:01:00 | 1,987.25 | 36.80 | 1.71 | 0:09:00 | 1,575.25 | 60.59 | 1.08 | 0:17:00 | 1,060.10 | 70.67 | 0.86 | 0:25:00 | 705.96 | 88.25 | 0.73 | 0:33:00 | 107.54 | 107.54 | 0.60 |
| 0:01:05 | 1,964.17 | 35.71 | 1.82 | 0:09:05 | 1,628.06 | 62.62 | 1.03 | 0:17:05 | 1,082.36 | 72.16 | 0.90 | 0:25:05 | 704.70 | 88.09 | 0.74 | 0:33:05 | 103.52 | 103.52 | 0.62 |
| 0:01:10 | 2,000.07 | 35.72 | 1.82 | 0:09:10 | 1,477.99 | 54.74 | 1.17 | 0:17:10 | 1,020.10 | 68.01 | 0.95 | 0:25:10 | 668.53 | 83.57 | 0.77 | 0:33:10 | 91.32 | 91.32 | 0.71 |
| 0:01:15 | 2,106.69 | 34.54 | 1.80 | 0:09:15 | 1,661.04 | 59.32 | 1.08 | 0:17:15 | 1,131.60 | 75.44 | 0.86 | 0:25:15 | 673.90 | 84.24 | 0.77 | 0:33:15 | 103.69 | 103.69 | 0.62 |
| 0:01:20 | 2,143.10 | 34.57 | 1.88 | 0:09:20 | 1,735.12 | 55.97 | 1.09 | 0:17:20 | 1,088.59 | 72.57 | 0.89 | 0:25:20 | 705.99 | 88.25 | 0.74 | 0:33:20 | 99.50 | 99.50 | 0.65 |
| 0:01:25 | 2,193.93 | 34.28 | 1.88 | 0:09:25 | 1,802.72 | 56.34 | 1.12 | 0:17:25 | 1,109.20 | 73.95 | 0.88 | 0:25:25 | 691.10 | 86.39 | 0.74 | 0:33:25 | 90.19 | 90.19 | 0.72 |
| 0:01:30 | 2,219.73 | 34.68 | 1.89 | 0:09:30 | 1,938.72 | 60.59 | 1.07 | 0:17:30 | 1,170.01 | 73.13 | 0.85 | 0:25:30 | 687.60 | 85.95 | 0.76 | 0:33:30 | 96.46 | 96.46 | 0.67 |
| 0:01:35 | 2,220.00 | 34.69 | 1.90 | 0:09:35 | 1,880.03 | 58.75 | 1.10 | 0:17:35 | 1,227.58 | 76.72 | 0.85 | 0:25:35 | 699.36 | 87.42 | 0.73 | 0:33:35 | 98.62 | 98.62 | 0.65 |
| 0:01:40 | 2,169.71 | 33.90 | 1.89 | 0:09:40 | 1,895.32 | 59.23 | 1.10 | 0:17:40 | 1,166.64 | 72.91 | 0.89 | 0:25:40 | 703.29 | 87.91 | 0.74 | 0:33:40 | 94.89 | 94.89 | 0.68 |
| 0:01:45 | 2,206.46 | 34.48 | 1.90 | 0:09:45 | 1,857.60 | 58.05 | 1.11 | 0:17:45 | 1,188.83 | 74.30 | 0.87 | 0:25:45 | 705.17 | 88.15 | 0.73 | 0:33:45 | 96.39 | 96.39 | 0.67 |
| 0:01:50 | 2,139.79 | 33.43 | 1.94 | 0:09:50 | 1,946.09 | 60.82 | 1.07 | 0:17:50 | 1,202.50 | 75.16 | 0.86 | 0:25:50 | 699.31 | 87.41 | 0.74 | 0:33:50 | 92.40 | 92.40 | 0.70 |
| 0:01:55 | 2,263.10 | 35.36 | 1.84 | 0:09:55 | 1,816.80 | 56.78 | 1.14 | 0:17:55 | 1,176.33 | 73.52 | 0.88 | 0:25:55 | 673.20 | 84.15 | 0.77 | 0:33:55 | 107.32 | 107.32 | 0.60 |
| 0:02:00 | 2,190.63 | 34.23 | 1.90 | 0:10:00 | 1,803.22 | 56.35 | 1.15 | 0:18:00 | 1,115.14 | 69.70 | 0.93 | 0:26:00 | 683.59 | 85.45 | 0.75 | 0:34:00 | 88.23 | 88.23 | 0.73 |
| 0:02:05 | 2,239.34 | 34.99 | 1.87 | 0:10:05 | 1,921.62 | 60.05 | 1.09 | 0:18:05 | 1,104.93 | 69.06 | 0.93 | 0:26:05 | 709.45 | 88.68 | 0.73 | 0:34:05 | 105.17 | 105.17 | 0.61 |
| 0:02:10 | 2,228.53 | 34.82 | 1.87 | 0:10:10 | 1,932.33 | 60.39 | 1.06 | 0:18:10 | 1,144.57 | 71.54 | 0.91 | 0:26:11 | 716.41 | 89.55 | 0.73 | 0:34:10 | 105.32 | 105.32 | 0.61 |
| 0:02:15 | 2,210.90 | 34.55 | 1.88 | 0:10:15 | 2,040.30 | 63.76 | 1.03 | 0:18:15 | 1,158.31 | 72.39 | 0.89 | 0:26:15 | 701.01 | 87.63 | 0.73 | 0:34:15 | 96.07 | 96.07 | 0.67 |
| 0:02:20 | 2,314.72 | 36.17 | 1.81 | 0:10:20 | 1,936.81 | 60.53 | 1.06 | 0:18:20 | 1,115.11 | 69.69 | 0.93 | 0:26:20 | 715.11 | 89.39 | 0.72 | 0:34:20 | 93.45 | 93.45 | 0.69 |
| 0:02:25 | 2,246.06 | 35.09 | 1.85 | 0:10:25 | 1,852.93 | 57.90 | 1.12 | 0:18:25 | 1,097.82 | 68.61 | 0.94 | 0:26:25 | 710.15 | 88.77 | 0.73 | 0:34:25 | 91.66 | 91.66 | 0.70 |
| 0:02:30 | 2,245.09 | 35.08 | 1.85 | 0:10:30 | 1,870.96 | 58.47 | 1.11 | 0:18:30 | 1,206.29 | 75.39 | 0.86 | 0:26:30 | 694.41 | 86.80 | 0.74 | 0:34:30 | 97.01 | 97.01 | 0.66 |
| 0:02:35 | 2,249.64 | 35.15 | 1.84 | 0:10:35 | 1,752.74 | 54.77 | 1.18 | 0:18:35 | 1,148.77 | 71.80 | 0.91 | 0:26:35 | 673.93 | 84.24 | 0.76 | 0:34:35 | 107.74 | 107.74 | 0.60 |
| 0:02:40 | 2,320.19 | 36.25 | 1.80 | 0:10:40 | 1,820.56 | 56.89 | 1.14 | 0:18:40 | 1,072.27 | 67.02 | 0.96 | 0:26:40 | 704.32 | 88.04 | 0.74 | 0:34:40 | 107.98 | 107.98 | 0.60 |
| 0:02:45 | 2,301.68 | 35.96 | 1.81 | 0:10:45 | 1,902.59 | 59.46 | 1.09 | 0:18:45 | 1,204.44 | 75.28 | 0.86 | 0:26:45 | 671.14 | 83.89 | 0.77 | 0:34:45 | 106.83 | 106.83 | 0.60 |
| 0:02:50 | 2,322.34 | 36.29 | 1.79 | 0:10:50 | 1,886.61 | 58.96 | 1.10 | 0:18:50 | 1,082.50 | 67.66 | 0.97 | 0:26:50 | 741.35 | 92.67 | 0.70 | 0:34:50 | 100.24 | 100.24 | 0.64 |
| 0:02:55 | 2,270.71 | 35.48 | 1.84 | 0:10:55 | 1,764.08 | 55.13 | 1.18 | 0:18:55 | 1,098.44 | 68.65 | 0.94 | 0:26:55 | 679.90 | 84.99 | 0.76 | 0:34:55 | 104.44 | 104.44 | 0.62 |
| 0:03:00 | 2,295.02 | 35.86 | 1.81 | 0:11:00 | 1,842.02 | 57.56 | 1.13 | 0:19:00 | 1,192.98 | 74.56 | 0.87 | 0:27:00 | 687.45 | 85.93 | 0.76 | 0:35:00 | 91.56 | 91.56 | 0.70 |
| 0:03:05 | 2,321.46 | 36.27 | 1.80 | 0:11:05 | 1,854.01 | 57.94 | 1.12 | 0:19:05 | 1,130.04 | 70.63 | 0.92 | 0:27:05 | 697.88 | 87.23 | 0.74 | 0:35:05 | 110.92 | 110.92 | 0.58 |
| 0:03:10 | 2,270.26 | 35.47 | 1.83 | 0:11:10 | 1,835.90 | 57.37 | 1.13 | 0:19:10 | 1,153.20 | 72.08 | 0.90 | 0:27:10 | 701.61 | 87.70 | 0.74 | 0:35:10 | 105.15 | 105.15 | 0.61 |
| 0:03:15 | 2,338.54 | 36.54 | 1.79 | 0:11:15 | 1,815.55 | 56.74 | 1.14 | 0:19:15 | 1,217.98 | 76.12 | 0.85 | 0:27:15 | 712.09 | 89.01 | 0.73 | 0:35:15 | 91.94 | 91.94 | 0.70 |
| 0:03:20 | 2,257.95 | 35.28 | 1.84 | 0:11:20 | 1,850.83 | 57.84 | 1.12 | 0:19:20 | 1,214.31 | 75.89 | 0.85 | 0:27:20 | 684.55 | 85.57 | 0.75 | 0:35:20 | 106.87 | 106.87 | 0.60 |
| 0:03:25 | 2,363.72 | 36.93 | 1.76 | 0:11:25 | 1,949.08 | 60.91 | 1.08 | 0:19:25 | 1,221.06 | 76.32 | 0.85 | 0:27:25 | 725.32 | 90.67 | 0.72 | 0:35:25 | 110.00 | 110.00 | 0.58 |
| 0:03:30 | 2,224.07 | 34.75 | 1.88 | 0:11:30 | 1,943.68 | 60.74 | 1.06 | 0:19:30 | 1,181.68 | 73.86 | 0.88 | 0:27:30 | 710.87 | 88.86 | 0.72 | 0:35:30 | 93.24 | 93.24 | 0.69 |
| 0:03:35 | 2,366.37 | 36.97 | 1.75 | 0:11:35 | 1,955.75 | 61.12 | 1.06 | 0:19:35 | 1,151.02 | 71.94 | 0.90 | 0:27:35 | 710.26 | 88.78 | 0.74 | 0:35:35 | 103.81 | 103.81 | 0.62 |
| 0:03:40 | 2,259.03 | 35.30 | 1.85 | 0:11:40 | 1,931.36 | 60.36 | 1.07 | 0:19:40 | 1,081.28 | 67.58 | 0.96 | 0:27:40 | 671.34 | 83.92 | 0.77 | 0:35:40 | 108.01 | 108.01 | 0.60 |
| 0:03:45 | 2,366.80 | 36.98 | 1.75 | 0:11:45 | 1,860.07 | 58.13 | 1.12 | 0:19:45 | 1,129.00 | 70.56 | 0.92 | 0:27:45 | 673.90 | 84.24 | 0.77 | 0:35:45 | 98.46 | 98.46 | 0.65 |
| 0:03:50 | 2,288.68 | 35.76 | 1.83 | 0:11:50 | 1,987.25 | 62.10 | 1.05 | 0:19:50 | 1,194.56 | 74.66 | 0.86 | 0:27:50 | 695.00 | 86.87 | 0.74 | 0:35:50 | 91.13 | 91.13 | 0.71 |
| 0:03:55 | 2,369.09 | 37.02 | 1.76 | 0:11:55 | 1,873.62 | 58.55 | 1.10 | 0:19:55 | 1,232.73 | 77.05 | 0.84 | 0:27:55 | 682.20 | 85.28 | 0.76 | 0:35:55 | 89.23 | 89.23 | 0.72 |
| 0:04:00 | 2,302.61 | 35.98 | 1.81 | 0:12:00 | 1,975.53 | 61.74 | 1.05 | 0:20:00 | 1,252.17 | 78.26 | 0.83 | 0:28:00 | 679.41 | 84.93 | 0.75 | 0:36:00 | 103.73 | 103.73 | 0.62 |

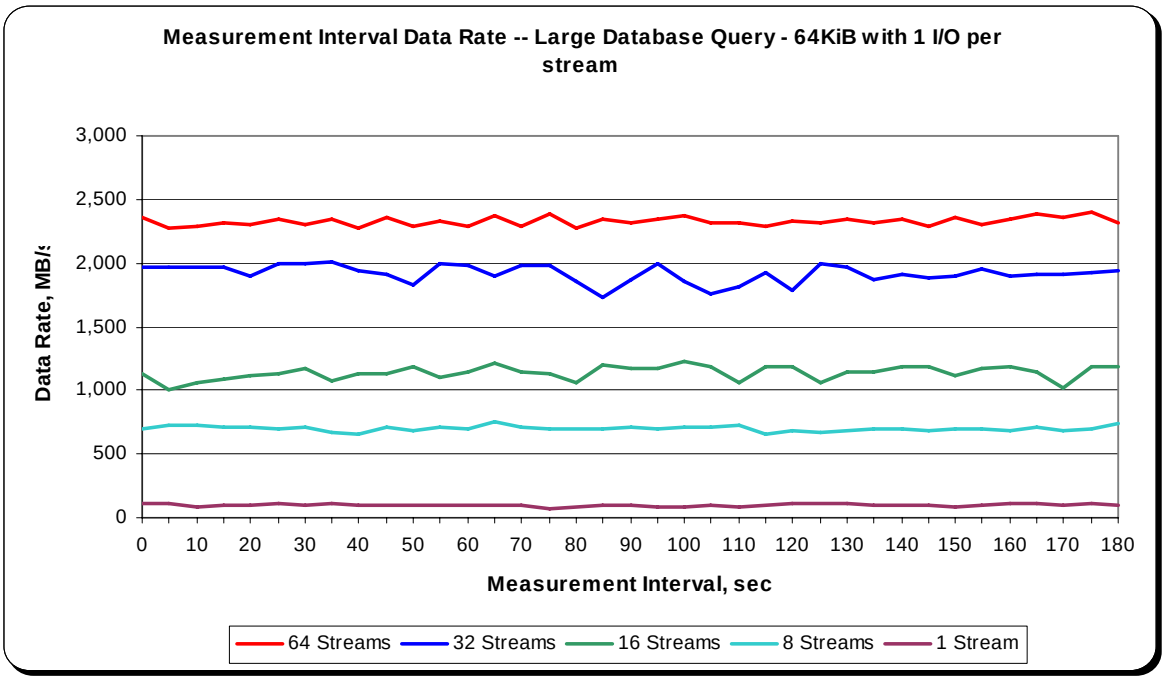
## SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Test Run Data Measurement Interval, Run-Out, and Ramp-Down Period

| TR16 | 64 Streams | | | TR17 | 32 Streams | | | TR18 | 16 Streams | | | TR19 | 8 Streams | | | TR20 | 1 Stream | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms | Test Run Sequence Time | Data Rate, MB/sec | Data Rate / Stream, MB/sec | Response Time, ms |
| 0:04:05 | 2,356.09 | 36.81 | 1.78 | 0:12:05 | 1,969.80 | 61.56 | 1.05 | 0:20:05 | 1,126.89 | 70.43 | 0.92 | 0:28:05 | 692.68 | 86.58 | 0.75 | 0:36:05 | 112.94 | 112.94 | 0.57 |
| 0:04:10 | 2,275.96 | 35.56 | 1.81 | 0:12:10 | 1,965.93 | 61.44 | 1.05 | 0:20:10 | 1,005.68 | 62.85 | 1.03 | 0:28:10 | 729.64 | 91.21 | 0.72 | 0:36:10 | 107.99 | 107.99 | 0.59 |
| 0:04:15 | 2,293.23 | 35.83 | 1.82 | 0:12:15 | 1,969.33 | 61.54 | 1.05 | 0:20:15 | 1,055.55 | 65.97 | 0.98 | 0:28:15 | 727.07 | 90.88 | 0.72 | 0:36:15 | 89.96 | 89.96 | 0.72 |
| 0:04:20 | 2,310.97 | 36.11 | 1.80 | 0:12:20 | 1,972.68 | 61.65 | 1.04 | 0:20:20 | 1,083.59 | 67.72 | 0.96 | 0:28:20 | 710.98 | 88.87 | 0.72 | 0:36:20 | 102.28 | 102.28 | 0.63 |
| 0:04:25 | 2,299.51 | 35.93 | 1.81 | 0:12:25 | 1,891.58 | 59.11 | 1.11 | 0:20:25 | 1,119.13 | 69.95 | 0.92 | 0:28:25 | 713.25 | 89.16 | 0.72 | 0:36:25 | 93.57 | 93.57 | 0.69 |
| 0:04:30 | 2,343.89 | 36.62 | 1.79 | 0:12:30 | 1,994.97 | 62.34 | 1.04 | 0:20:30 | 1,128.80 | 70.55 | 0.92 | 0:28:30 | 697.88 | 87.23 | 0.74 | 0:36:30 | 106.28 | 106.28 | 0.61 |
| 0:04:35 | 2,301.99 | 35.97 | 1.80 | 0:12:35 | 1,996.80 | 62.40 | 1.04 | 0:20:35 | 1,171.01 | 73.19 | 0.89 | 0:28:35 | 708.96 | 88.62 | 0.74 | 0:36:35 | 100.50 | 100.50 | 0.64 |
| 0:04:40 | 2,340.58 | 36.57 | 1.79 | 0:12:40 | 2,016.10 | 63.00 | 1.02 | 0:20:40 | 1,077.27 | 67.33 | 0.96 | 0:28:40 | 664.82 | 83.10 | 0.77 | 0:36:40 | 105.06 | 105.06 | 0.61 |
| 0:04:45 | 2,275.03 | 35.55 | 1.82 | 0:12:45 | 1,939.86 | 60.62 | 1.06 | 0:20:45 | 1,129.06 | 70.57 | 0.92 | 0:28:45 | 652.75 | 81.59 | 0.80 | 0:36:45 | 96.09 | 96.09 | 0.67 |
| 0:04:50 | 2,360.18 | 36.88 | 1.77 | 0:12:50 | 1,911.68 | 59.74 | 1.09 | 0:20:50 | 1,132.00 | 70.75 | 0.92 | 0:28:50 | 705.64 | 88.20 | 0.74 | 0:36:50 | 99.64 | 99.64 | 0.65 |
| 0:04:55 | 2,283.09 | 35.67 | 1.82 | 0:12:55 | 1,824.05 | 57.00 | 1.13 | 0:20:55 | 1,187.87 | 74.24 | 0.87 | 0:28:55 | 686.73 | 85.84 | 0.75 | 0:36:55 | 100.16 | 100.16 | 0.64 |
| 0:05:00 | 2,336.71 | 36.51 | 1.78 | 0:13:00 | 1,997.94 | 62.44 | 1.05 | 0:21:00 | 1,098.33 | 68.65 | 0.94 | 0:29:00 | 709.20 | 88.65 | 0.73 | 0:37:00 | 99.41 | 99.41 | 0.65 |
| 0:05:05 | 2,289.31 | 35.77 | 1.83 | 0:13:05 | 1,974.48 | 61.70 | 1.05 | 0:21:05 | 1,137.40 | 71.09 | 0.91 | 0:29:05 | 698.37 | 87.30 | 0.74 | 0:37:05 | 102.46 | 102.46 | 0.63 |
| 0:05:10 | 2,373.51 | 37.09 | 1.75 | 0:13:10 | 1,895.25 | 59.23 | 1.10 | 0:21:10 | 1,207.31 | 75.46 | 0.87 | 0:29:11 | 746.85 | 93.36 | 0.70 | 0:37:10 | 97.71 | 97.71 | 0.66 |
| 0:05:15 | 2,281.95 | 35.66 | 1.83 | 0:13:15 | 1,981.28 | 61.92 | 1.04 | 0:21:15 | 1,144.33 | 71.52 | 0.90 | 0:29:15 | 711.82 | 88.98 | 0.72 | 0:37:15 | 99.63 | 99.63 | 0.65 |
| 0:05:20 | 2,387.42 | 37.30 | 1.74 | 0:13:20 | 1,982.28 | 61.95 | 1.04 | 0:21:20 | 1,125.22 | 70.33 | 0.92 | 0:29:20 | 693.54 | 86.69 | 0.75 | 0:37:20 | 66.05 | 66.05 | 0.98 |
| 0:05:25 | 2,276.89 | 35.58 | 1.82 | 0:13:25 | 1,862.54 | 58.20 | 1.12 | 0:21:25 | 1,056.28 | 66.02 | 0.98 | 0:29:25 | 700.13 | 87.52 | 0.74 | 0:37:25 | 88.71 | 88.71 | 0.73 |
| 0:05:30 | 2,337.51 | 36.52 | 1.78 | 0:13:30 | 1,733.74 | 54.18 | 1.18 | 0:21:30 | 1,200.45 | 75.03 | 0.86 | 0:29:30 | 703.13 | 87.89 | 0.74 | 0:37:30 | 100.88 | 100.88 | 0.64 |
| 0:05:35 | 2,313.81 | 36.15 | 1.80 | 0:13:35 | 1,872.46 | 58.51 | 1.13 | 0:21:35 | 1,172.58 | 73.29 | 0.88 | 0:29:35 | 712.32 | 89.04 | 0.72 | 0:37:35 | 96.30 | 96.30 | 0.67 |
| 0:05:40 | 2,337.60 | 36.53 | 1.79 | 0:13:40 | 1,998.56 | 62.46 | 1.03 | 0:21:40 | 1,170.23 | 73.14 | 0.89 | 0:29:40 | 695.79 | 86.97 | 0.74 | 0:37:40 | 88.02 | 88.02 | 0.73 |
| 0:05:45 | 2,367.73 | 37.00 | 1.75 | 0:13:45 | 1,850.64 | 57.83 | 1.13 | 0:21:45 | 1,227.03 | 76.69 | 0.85 | 0:29:45 | 706.30 | 88.29 | 0.74 | 0:37:45 | 84.05 | 84.05 | 0.77 |
| 0:05:50 | 2,323.24 | 36.30 | 1.80 | 0:13:50 | 1,753.45 | 54.80 | 1.18 | 0:21:50 | 1,187.45 | 74.22 | 0.86 | 0:29:50 | 710.05 | 88.76 | 0.72 | 0:37:50 | 92.12 | 92.12 | 0.70 |
| 0:05:55 | 2,310.45 | 36.10 | 1.80 | 0:13:55 | 1,808.75 | 56.52 | 1.14 | 0:21:55 | 1,056.06 | 66.00 | 0.99 | 0:29:55 | 721.69 | 90.21 | 0.72 | 0:37:55 | 90.38 | 90.38 | 0.71 |
| 0:06:00 | 2,293.72 | 35.84 | 1.82 | 0:14:00 | 1,926.67 | 60.21 | 1.08 | 0:22:00 | 1,191.93 | 74.50 | 0.86 | 0:30:00 | 654.98 | 81.87 | 0.79 | 0:38:00 | 100.52 | 100.52 | 0.64 |
| 0:06:05 | 2,324.84 | 36.33 | 1.79 | 0:14:05 | 1,789.92 | 55.93 | 1.15 | 0:22:05 | 1,192.39 | 74.52 | 0.87 | 0:30:05 | 685.44 | 85.68 | 0.75 | 0:38:05 | 110.15 | 110.15 | 0.58 |
| 0:06:10 | 2,321.13 | 36.27 | 1.79 | 0:14:10 | 1,992.08 | 62.25 | 1.05 | 0:22:10 | 1,066.80 | 66.68 | 0.97 | 0:30:10 | 672.08 | 84.01 | 0.77 | 0:38:10 | 105.30 | 105.30 | 0.61 |
| 0:06:15 | 2,347.75 | 36.68 | 1.78 | 0:14:15 | 1,972.54 | 61.64 | 1.05 | 0:22:15 | 1,147.60 | 71.73 | 0.91 | 0:30:15 | 687.75 | 85.97 | 0.75 | 0:38:15 | 114.10 | 114.10 | 0.56 |
| 0:06:20 | 2,320.86 | 36.26 | 1.79 | 0:14:20 | 1,871.88 | 58.50 | 1.11 | 0:22:20 | 1,148.32 | 71.77 | 0.91 | 0:30:20 | 697.72 | 87.22 | 0.75 | 0:38:20 | 95.21 | 95.21 | 0.68 |
| 0:06:25 | 2,343.23 | 36.61 | 1.79 | 0:14:25 | 1,917.42 | 59.92 | 1.08 | 0:22:25 | 1,186.79 | 74.17 | 0.86 | 0:30:25 | 696.97 | 87.12 | 0.73 | 0:38:25 | 91.94 | 91.94 | 0.70 |
| 0:06:30 | 2,287.99 | 35.75 | 1.81 | 0:14:30 | 1,887.60 | 58.99 | 1.09 | 0:22:30 | 1,187.53 | 74.22 | 0.87 | 0:30:30 | 685.57 | 85.70 | 0.76 | 0:38:30 | 95.40 | 95.40 | 0.68 |
| 0:06:35 | 2,358.99 | 36.86 | 1.77 | 0:14:35 | 1,896.08 | 59.25 | 1.10 | 0:22:35 | 1,120.32 | 70.02 | 0.92 | 0:30:35 | 695.01 | 86.88 | 0.74 | 0:38:35 | 85.45 | 85.45 | 0.76 |
| 0:06:40 | 2,305.02 | 36.02 | 1.80 | 0:14:40 | 1,946.69 | 60.83 | 1.06 | 0:22:40 | 1,175.19 | 73.45 | 0.88 | 0:30:40 | 702.75 | 87.84 | 0.74 | 0:38:40 | 100.73 | 100.73 | 0.64 |
| 0:06:45 | 2,337.21 | 36.52 | 1.79 | 0:14:45 | 1,902.74 | 59.46 | 1.10 | 0:22:45 | 1,188.93 | 74.31 | 0.87 | 0:30:45 | 690.07 | 86.26 | 0.75 | 0:38:45 | 110.53 | 110.53 | 0.58 |
| 0:06:50 | 2,383.79 | 37.25 | 1.75 | 0:14:50 | 1,918.36 | 59.95 | 1.08 | 0:22:50 | 1,144.95 | 71.56 | 0.91 | 0:30:50 | 709.41 | 88.68 | 0.72 | 0:38:50 | 108.51 | 108.51 | 0.59 |
| 0:06:55 | 2,356.21 | 36.82 | 1.76 | 0:14:55 | 1,905.60 | 59.55 | 1.10 | 0:22:55 | 1,021.30 | 63.83 | 1.02 | 0:30:55 | 682.18 | 85.27 | 0.77 | 0:38:55 | 103.03 | 103.03 | 0.62 |
| 0:07:00 | 2,393.89 | 37.40 | 1.74 | 0:15:00 | 1,920.45 | 60.01 | 1.07 | 0:23:00 | 1,179.60 | 73.72 | 0.87 | 0:31:00 | 692.79 | 86.60 | 0.74 | 0:39:00 | 107.67 | 107.67 | 0.60 |
| 0:07:05 | 2,315.62 | 36.18 | 1.80 | 0:15:05 | 1,939.25 | 60.60 | 1.07 | 0:23:05 | 1,188.48 | 74.28 | 0.88 | 0:31:05 | 735.17 | 91.90 | 0.71 | 0:39:05 | 99.98 | 99.98 | 0.64 |
| 0:07:10 | 2,387.94 | 37.31 | 1.75 | 0:15:10 | 1,997.16 | 62.41 | 1.04 | 0:23:10 | 1,071.86 | 66.99 | 0.97 | 0:31:10 | 683.47 | 85.43 | 0.76 | 0:39:10 | 92.22 | 92.22 | 0.70 |
| 0:07:15 | 2,352.94 | 36.76 | 1.77 | 0:15:15 | 1,850.33 | 57.82 | 1.11 | 0:23:15 | 1,097.78 | 68.61 | 0.94 | 0:31:15 | 708.40 | 88.55 | 0.73 | 0:39:15 | 94.23 | 94.23 | 0.68 |
| 0:07:20 | 2,413.55 | 37.71 | 1.73 | 0:15:20 | 1,859.32 | 58.10 | 1.13 | 0:23:20 | 1,110.96 | 69.43 | 0.93 | 0:31:20 | 711.48 | 88.93 | 0.73 | 0:39:20 | 103.52 | 103.52 | 0.62 |
| 0:07:25 | 2,289.40 | 35.77 | 1.81 | 0:15:25 | 1,883.43 | 58.86 | 1.10 | 0:23:25 | 1,192.55 | 74.53 | 0.87 | 0:31:25 | 707.64 | 88.46 | 0.73 | 0:39:25 | 101.45 | 101.45 | 0.63 |
| 0:07:30 | 2,423.88 | 37.87 | 1.72 | 0:15:30 | 1,909.69 | 59.68 | 1.09 | 0:23:30 | 1,238.93 | 77.43 | 0.84 | 0:31:30 | 694.98 | 86.87 | 0.74 | 0:39:30 | 93.28 | 93.28 | 0.69 |
| 0:07:35 | 2,315.38 | 36.18 | 1.80 | 0:15:35 | 1,834.12 | 57.32 | 1.13 | 0:23:35 | 1,173.17 | 73.32 | 0.88 | 0:31:35 | 698.18 | 87.27 | 0.74 | 0:39:35 | 95.73 | 95.73 | 0.67 |
| 0:07:40 | 2,477.51 | 38.71 | 1.68 | 0:15:40 | 1,955.07 | 61.10 | 1.06 | 0:23:40 | 1,157.16 | 72.32 | 0.89 | 0:31:40 | 706.34 | 88.29 | 0.73 | 0:39:40 | 105.92 | 105.92 | 0.61 |
| 0:07:45 | 2,328.22 | 48.50 | 1.80 | 0:15:45 | 1,982.90 | 82.62 | 1.05 | 0:23:45 | 1,180.76 | 98.40 | 0.88 | 0:31:45 | 710.75 | 177.69 | 0.72 | 0:39:45 | 100.91 | 100.91 | 0.64 |
| 0:07:50 | 89.75 | 0.00 | 1.33 | 0:15:50 | 63.77 | 0.00 | 1.01 | 0:23:50 | 32.81 | 0.00 | 0.95 | 0:31:50 | 8.48 | 0.00 | 0.72 | 0:39:50 | 3.23 | 0.00 | 0.63 |
| 0:07:55 | 0.00 | 0.00 | 0.00 | 0:15:55 | 0.00 | 0.00 | 0.00 | 0:23:55 | 0.00 | 0.00 | 0.00 | 0:31:55 | 0.00 | 0.00 | 0.00 | 0:39:55 | 0.00 | 0.00 | 0.00 |
| | | | | | | | | | | | | | | | | 0:40:00 | 0.00 | 0.00 | 0.00 |

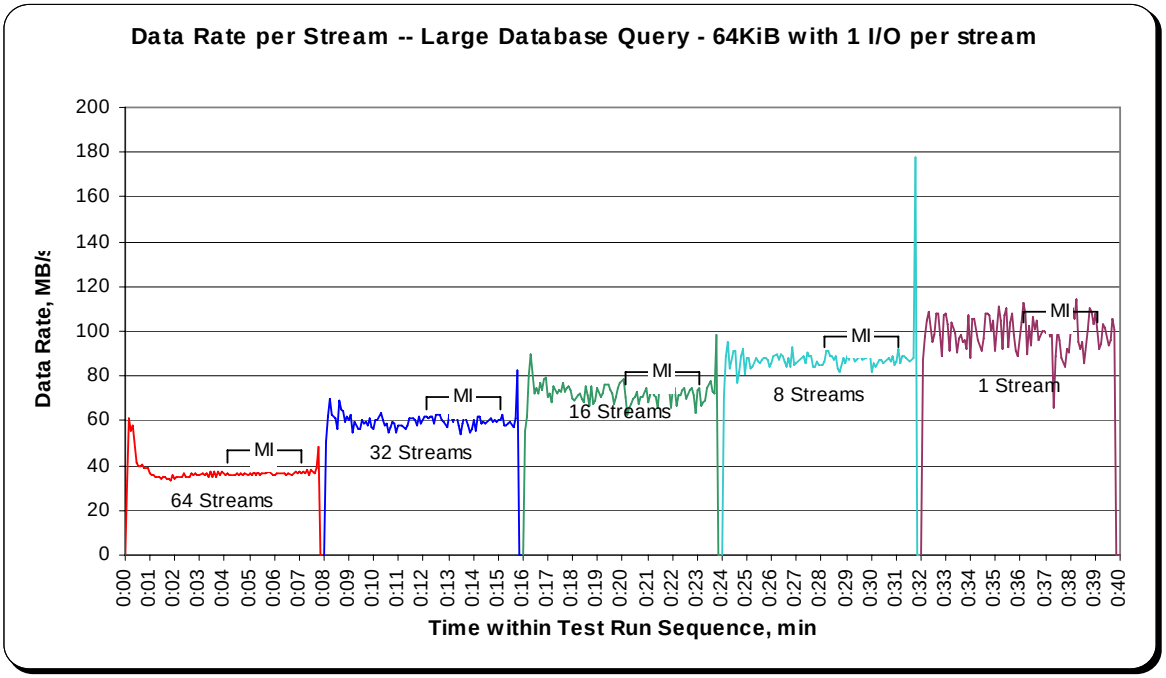
## SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Complete Test Run



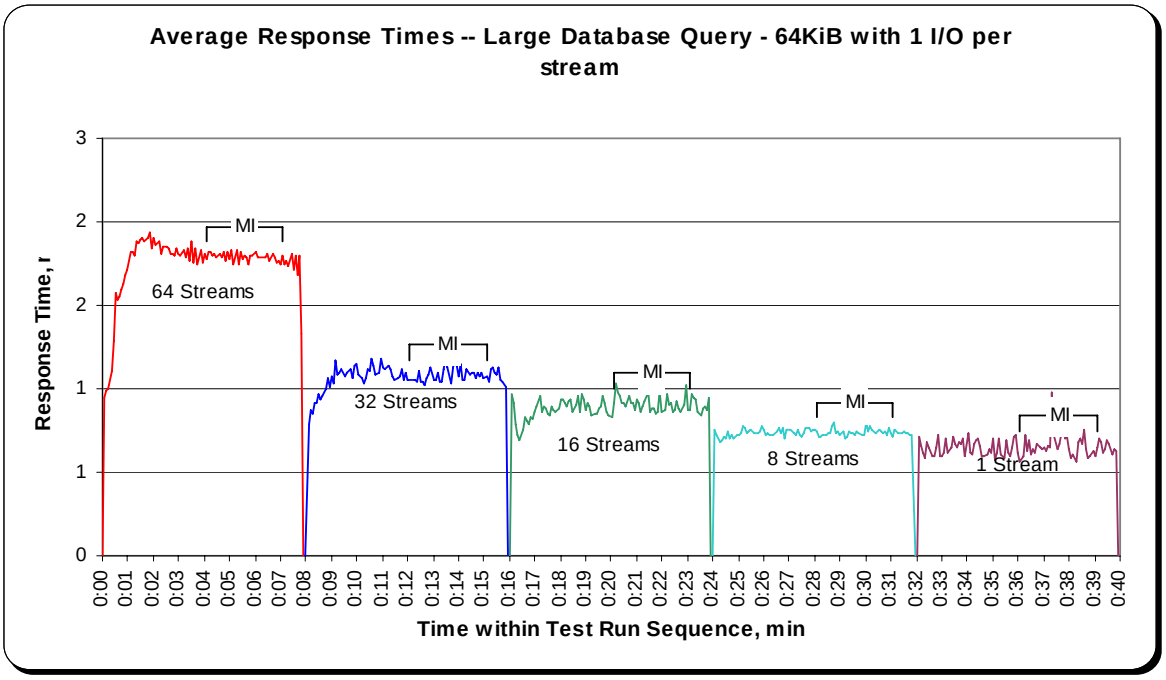

## SPC-2 "Large Database Query/64 KiB Transfer Size/1 Outstanding I/O" Average Data Rate Graph – Measurement Interval (MI) Only



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




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



## Video on Demand Delivery Test

*Clause 6.4.4.1*

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

*Clause 6.4.2.2*

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

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

*Clause 10.6.8.3*

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

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

### SPC-2 Workload Generator Commands and Parameters

The SPC-2 Workload Generator commands and parameters for the Video on Demand Delivery Test Run are documented in "Appendix E: SPC-2 Workload Generator Execution Commands and Parameters" on Page 142.

### 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.

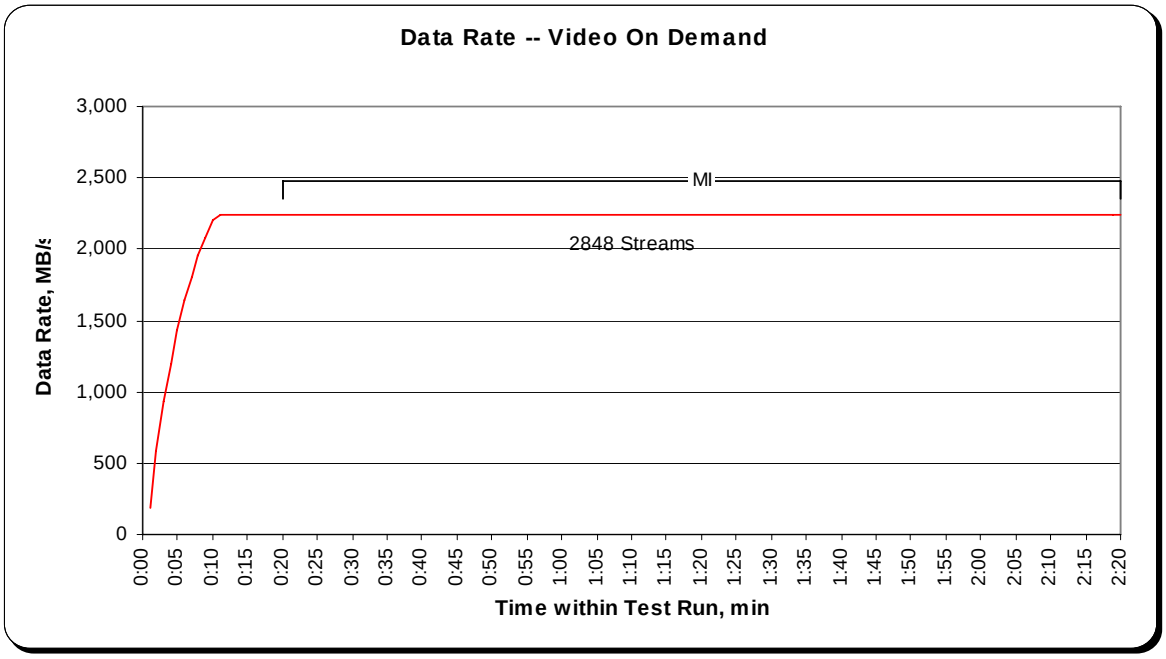
| Time | DR | DR/S | RT |
|---|---|---|---|
| 0:20:00 | 2,357.20 | 0.83 | 36.25 |
| 0:20:00 | 2,474.63 | 0.87 | 37.97 |
| 1:20:00 | 2,474.63 | 0.87 | 37.97 |
| 2:20:01 | 2,474.63 | 0.87 | 37.97 |
| 2:20:01 | 2,357.20 | 0.83 | 36.25 |
| **RU length:** | 0:20:00 | | 156 |
| **MI length:** | 2:00:01 | 36 | 157 |
| **Average:** | 2,239.77 | 0.79 | 34.52 |

## Video on Demand Delivery Test – TEST RUN DATA BY INTERVAL

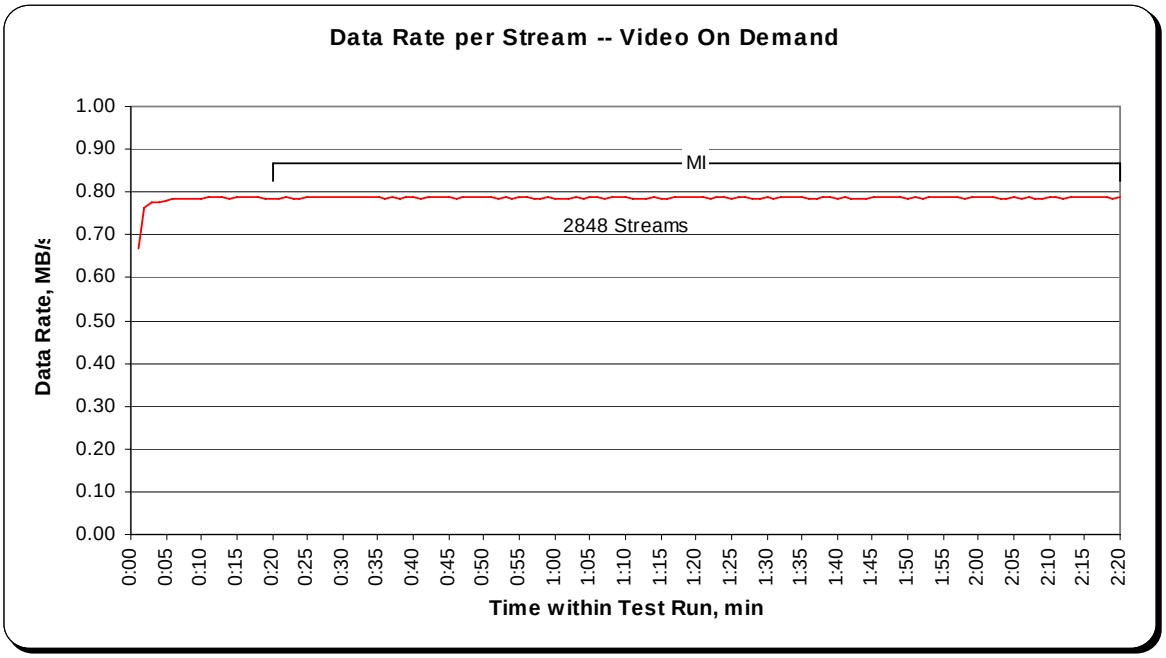
The SPC-2 Video on Demand Delivery Test Run data is contained in the table that appears on the next page. That table is followed by graphs illustrating the average Data Rate and average Data Rate per Stream produced by the same Test Runs. The table and graphs present the data at sixty second intervals.

| TR1 | 2848 Streams | | | | TR1 | 2848 Streams | | | | TR1 | 2848 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 | 190.79 | 0.67 | 2.49 | 33.53 | 0:51:00 | 2,241.25 | 0.79 | 31.73 | 201.67 | 1:41:00 | 2,239.68 | 0.79 | 32.13 | 198.82 |
| 0:02:00 | 590.64 | 0.76 | 6.73 | 76.19 | 0:52:00 | 2,238.50 | 0.79 | 31.77 | 204.61 | 1:42:00 | 2,237.91 | 0.79 | 32.94 | 274.31 |
| 0:03:00 | 930.90 | 0.78 | 12.04 | 104.22 | 0:53:00 | 2,240.10 | 0.79 | 31.85 | 206.63 | 1:43:00 | 2,237.90 | 0.79 | 32.96 | 256.80 |
| 0:04:00 | 1,194.77 | 0.78 | 14.82 | 123.30 | 0:54:00 | 2,238.98 | 0.79 | 31.75 | 194.09 | 1:44:00 | 2,238.50 | 0.79 | 32.93 | 304.43 |
| 0:05:00 | 1,437.00 | 0.78 | 17.96 | 162.57 | 0:55:00 | 2,241.19 | 0.79 | 31.74 | 217.83 | 1:45:00 | 2,240.15 | 0.79 | 32.77 | 263.52 |
| 0:06:00 | 1,637.61 | 0.78 | 20.81 | 184.05 | 0:56:00 | 2,240.75 | 0.79 | 31.79 | 204.39 | 1:46:00 | 2,239.42 | 0.79 | 33.39 | 251.65 |
| 0:07:00 | 1,806.30 | 0.78 | 23.52 | 176.18 | 0:57:00 | 2,239.18 | 0.79 | 31.76 | 213.89 | 1:47:00 | 2,240.45 | 0.79 | 33.41 | 274.86 |
| 0:08:00 | 1,950.56 | 0.78 | 26.52 | 226.11 | 0:58:00 | 2,239.21 | 0.79 | 35.75 | 356.74 | 1:48:00 | 2,240.82 | 0.79 | 33.27 | 293.99 |
| 0:09:00 | 2,084.54 | 0.78 | 30.46 | 240.48 | 0:59:00 | 2,240.47 | 0.79 | 31.83 | 210.84 | 1:49:00 | 2,239.61 | 0.79 | 33.69 | 260.46 |
| 0:10:00 | 2,201.00 | 0.78 | 36.56 | 377.95 | 1:00:00 | 2,238.82 | 0.79 | 31.87 | 201.57 | 1:50:00 | 2,238.42 | 0.79 | 33.70 | 233.91 |
| 0:11:00 | 2,241.82 | 0.79 | 37.10 | 238.31 | 1:01:00 | 2,239.20 | 0.79 | 32.17 | 268.16 | 1:51:00 | 2,239.78 | 0.79 | 33.78 | 251.89 |
| 0:12:00 | 2,240.01 | 0.79 | 36.04 | 227.16 | 1:02:00 | 2,238.94 | 0.79 | 31.85 | 195.98 | 1:52:00 | 2,238.38 | 0.79 | 33.56 | 198.80 |
| 0:13:00 | 2,239.73 | 0.79 | 35.33 | 226.29 | 1:03:00 | 2,241.46 | 0.79 | 32.20 | 201.21 | 1:53:00 | 2,240.06 | 0.79 | 33.77 | 229.75 |
| 0:14:00 | 2,238.66 | 0.79 | 34.97 | 216.99 | 1:04:00 | 2,238.54 | 0.79 | 32.93 | 224.24 | 1:54:00 | 2,239.72 | 0.79 | 33.57 | 208.01 |
| 0:15:00 | 2,241.72 | 0.79 | 34.97 | 225.35 | 1:05:00 | 2,239.69 | 0.79 | 33.43 | 222.85 | 1:55:00 | 2,239.65 | 0.79 | 33.64 | 239.52 |
| 0:16:00 | 2,241.35 | 0.79 | 35.33 | 210.51 | 1:06:00 | 2,241.50 | 0.79 | 33.93 | 234.34 | 1:56:00 | 2,240.78 | 0.79 | 33.65 | 224.46 |
| 0:17:00 | 2,239.88 | 0.79 | 35.70 | 214.08 | 1:07:00 | 2,238.95 | 0.79 | 33.94 | 240.57 | 1:57:00 | 2,241.18 | 0.79 | 33.63 | 224.82 |
| 0:18:00 | 2,241.63 | 0.79 | 35.63 | 217.18 | 1:08:00 | 2,240.58 | 0.79 | 33.50 | 220.92 | 1:58:00 | 2,239.15 | 0.79 | 33.60 | 231.85 |
| 0:19:00 | 2,238.29 | 0.79 | 35.47 | 224.86 | 1:09:00 | 2,240.60 | 0.79 | 33.64 | 199.74 | 1:59:00 | 2,239.72 | 0.79 | 33.61 | 197.18 |
| 0:20:00 | 2,237.89 | 0.79 | 35.35 | 209.10 | 1:10:00 | 2,241.62 | 0.79 | 33.87 | 227.92 | 2:00:00 | 2,239.46 | 0.79 | 33.60 | 240.05 |
| 0:21:00 | 2,237.31 | 0.79 | 35.60 | 209.16 | 1:11:00 | 2,239.34 | 0.79 | 34.16 | 208.63 | 2:01:00 | 2,240.59 | 0.79 | 33.71 | 211.73 |
| 0:22:00 | 2,239.67 | 0.79 | 37.90 | 253.12 | 1:12:00 | 2,239.30 | 0.79 | 34.12 | 229.59 | 2:02:00 | 2,240.37 | 0.79 | 33.02 | 202.66 |
| 0:23:00 | 2,238.37 | 0.79 | 39.34 | 314.07 | 1:13:00 | 2,238.30 | 0.79 | 34.14 | 204.94 | 2:03:00 | 2,238.57 | 0.79 | 32.23 | 186.88 |
| 0:24:00 | 2,239.05 | 0.79 | 39.58 | 337.08 | 1:14:00 | 2,239.97 | 0.79 | 34.11 | 245.80 | 2:04:00 | 2,237.97 | 0.79 | 32.63 | 267.00 |
| 0:25:00 | 2,240.65 | 0.79 | 41.32 | 397.25 | 1:15:00 | 2,238.20 | 0.79 | 34.02 | 249.92 | 2:05:00 | 2,240.33 | 0.79 | 32.92 | 208.33 |
| 0:26:00 | 2,241.29 | 0.79 | 42.42 | 433.37 | 1:16:00 | 2,238.72 | 0.79 | 34.13 | 223.72 | 2:06:00 | 2,239.27 | 0.79 | 32.49 | 196.85 |
| 0:27:00 | 2,241.15 | 0.79 | 41.46 | 486.54 | 1:17:00 | 2,240.68 | 0.79 | 34.23 | 249.11 | 2:07:00 | 2,239.70 | 0.79 | 32.83 | 193.20 |
| 0:28:00 | 2,239.99 | 0.79 | 41.40 | 426.54 | 1:18:00 | 2,240.45 | 0.79 | 34.09 | 209.89 | 2:08:00 | 2,239.12 | 0.79 | 32.86 | 222.68 |
| 0:29:00 | 2,239.90 | 0.79 | 41.80 | 449.48 | 1:19:00 | 2,239.99 | 0.79 | 34.08 | 200.55 | 2:09:00 | 2,238.64 | 0.79 | 32.73 | 182.34 |
| 0:30:00 | 2,239.63 | 0.79 | 41.69 | 394.59 | 1:20:00 | 2,240.17 | 0.79 | 34.24 | 206.31 | 2:10:00 | 2,239.85 | 0.79 | 32.76 | 213.27 |
| 0:31:00 | 2,239.94 | 0.79 | 41.68 | 425.91 | 1:21:00 | 2,239.52 | 0.79 | 34.10 | 215.43 | 2:11:00 | 2,240.36 | 0.79 | 32.90 | 222.77 |
| 0:32:00 | 2,240.47 | 0.79 | 41.67 | 438.63 | 1:22:00 | 2,238.42 | 0.79 | 33.93 | 219.20 | 2:12:00 | 2,237.67 | 0.79 | 33.01 | 207.52 |
| 0:33:00 | 2,240.81 | 0.79 | 41.37 | 391.88 | 1:23:00 | 2,239.75 | 0.79 | 34.00 | 230.39 | 2:13:00 | 2,240.31 | 0.79 | 33.00 | 213.14 |
| 0:34:00 | 2,239.96 | 0.79 | 41.24 | 420.34 | 1:24:00 | 2,240.03 | 0.79 | 33.62 | 275.30 | 2:14:00 | 2,240.46 | 0.79 | 33.11 | 220.55 |
| 0:35:00 | 2,240.14 | 0.79 | 41.31 | 399.91 | 1:25:00 | 2,237.76 | 0.79 | 33.27 | 232.73 | 2:15:00 | 2,241.48 | 0.79 | 32.98 | 272.67 |
| 0:36:00 | 2,239.35 | 0.79 | 41.14 | 407.02 | 1:26:00 | 2,239.86 | 0.79 | 33.14 | 215.77 | 2:16:00 | 2,239.48 | 0.79 | 33.10 | 236.86 |
| 0:37:00 | 2,240.83 | 0.79 | 41.33 | 432.04 | 1:27:00 | 2,240.75 | 0.79 | 32.98 | 228.30 | 2:17:00 | 2,240.62 | 0.79 | 33.00 | 227.49 |
| 0:38:00 | 2,239.17 | 0.79 | 41.34 | 407.39 | 1:28:00 | 2,238.60 | 0.79 | 32.54 | 240.71 | 2:18:00 | 2,239.76 | 0.79 | 32.98 | 213.71 |
| 0:39:00 | 2,241.29 | 0.79 | 41.37 | 405.84 | 1:29:00 | 2,238.12 | 0.79 | 32.92 | 230.90 | 2:19:00 | 2,238.85 | 0.79 | 33.06 | 223.67 |
| 0:40:00 | 2,240.06 | 0.79 | 41.14 | 400.88 | 1:30:00 | 2,240.56 | 0.79 | 32.61 | 199.53 | 2:20:00 | 2,240.38 | 0.79 | 33.00 | 250.47 |
| 0:41:00 | 2,238.26 | 0.79 | 39.31 | 370.27 | 1:31:00 | 2,238.73 | 0.79 | 32.46 | 203.98 | | | | | |
| 0:42:00 | 2,239.68 | 0.79 | 36.13 | 288.01 | 1:32:00 | 2,240.10 | 0.79 | 32.43 | 214.32 | | | | | |
| 0:43:00 | 2,239.98 | 0.79 | 35.68 | 276.24 | 1:33:00 | 2,239.62 | 0.79 | 32.39 | 207.58 | | | | | |
| 0:44:00 | 2,240.99 | 0.79 | 35.34 | 265.30 | 1:34:00 | 2,240.02 | 0.79 | 32.39 | 207.00 | | | | | |
| 0:45:00 | 2,239.51 | 0.79 | 35.57 | 330.14 | 1:35:00 | 2,241.77 | 0.79 | 32.42 | 201.02 | | | | | |
| 0:46:00 | 2,238.82 | 0.79 | 34.73 | 274.86 | 1:36:00 | 2,239.30 | 0.79 | 32.40 | 200.20 | | | | | |
| 0:47:00 | 2,240.13 | 0.79 | 34.55 | 266.21 | 1:37:00 | 2,238.49 | 0.79 | 32.25 | 196.56 | | | | | |
| 0:48:00 | 2,240.92 | 0.79 | 33.60 | 231.80 | 1:38:00 | 2,240.10 | 0.79 | 32.25 | 213.78 | | | | | |
| 0:49:00 | 2,239.62 | 0.79 | 32.88 | 216.83 | 1:39:00 | 2,239.55 | 0.79 | 32.20 | 200.19 | | | | | |
| 0:50:00 | 2,240.68 | 0.79 | 31.94 | 203.67 | 1:40:00 | 2,238.97 | 0.79 | 32.24 | 197.57 | | | | | |

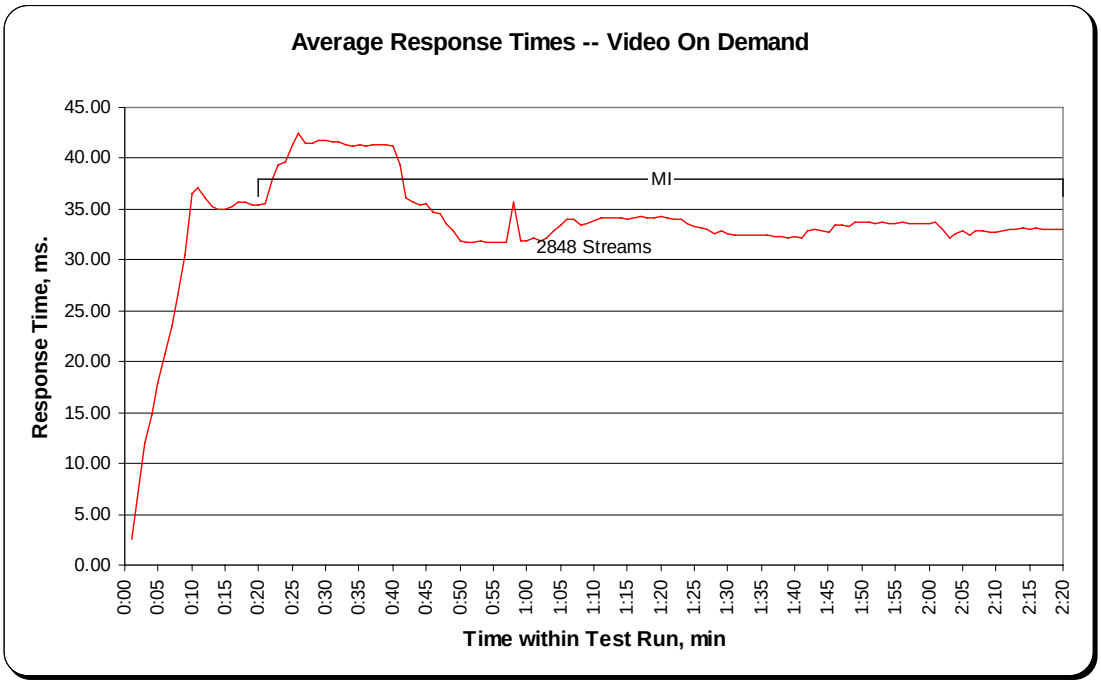
## SPC-2 Video on Demand Delivery Average Data Rate Graph



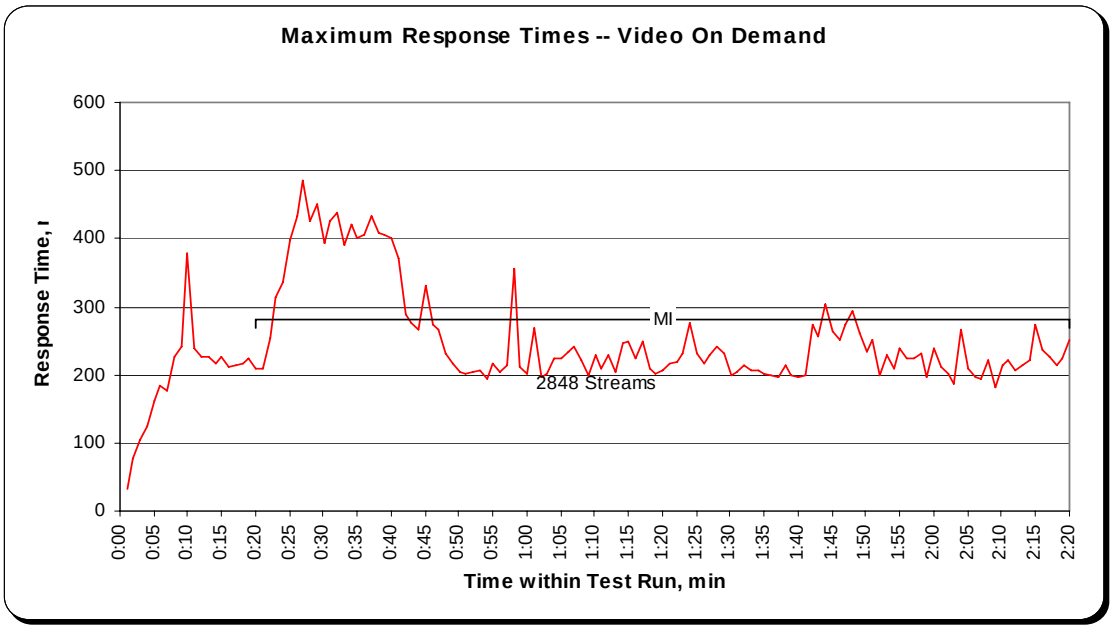

## SPC-2 Video on Demand Delivery Average Data Rate per Stream Graph



## 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 142.

### Data Persistence Test Results File

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

**Persistence 1 Test Results File**

**Persistence 2 Test Results File**

## Data Persistence Test Results

| Data Persistence Test Results | |
|---|---|
| Data Persistence Test Number: N | |
| Total Number of Logical Blocks Written | 559,074 |
| Total Number of Logical Blocks Re-referenced | 23,368 |
| Total Number of Logical Blocks Verified | 559,074 |
| 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 Fujitsu Storage Systems ETERNUS6000 Model 900, as documented in this Full Disclosure Report, with the new 4 Gbps Host Interface Channel Adapters, will become available for customer purchase and shipment on December 22, 2005. The Fujitsu Storage Systems ETERNUS6000 Model 900 was released for General Availability worldwide at the end of December 2004 with 2 Gbps Host Interface Channel Adapters.

## ANOMALIES OR IRREGULARITIES

*Clause 10.6.11*

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

There were no anomalies or irregularities encountered during the SPC-2 Onsite Audit of the Fujitsu Storage Systems ETERNUS6000 Model 900.

# APPENDIX A: SPC-2 GLOSSARY

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

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

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

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

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

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

## SPC-2 Data Repository Definitions

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

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

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

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

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

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

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

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

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

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

## SPC-2 Data Protection Levels

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

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

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

**Unprotected:** There is no data protection provided.

## SPC-2 Test Execution Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

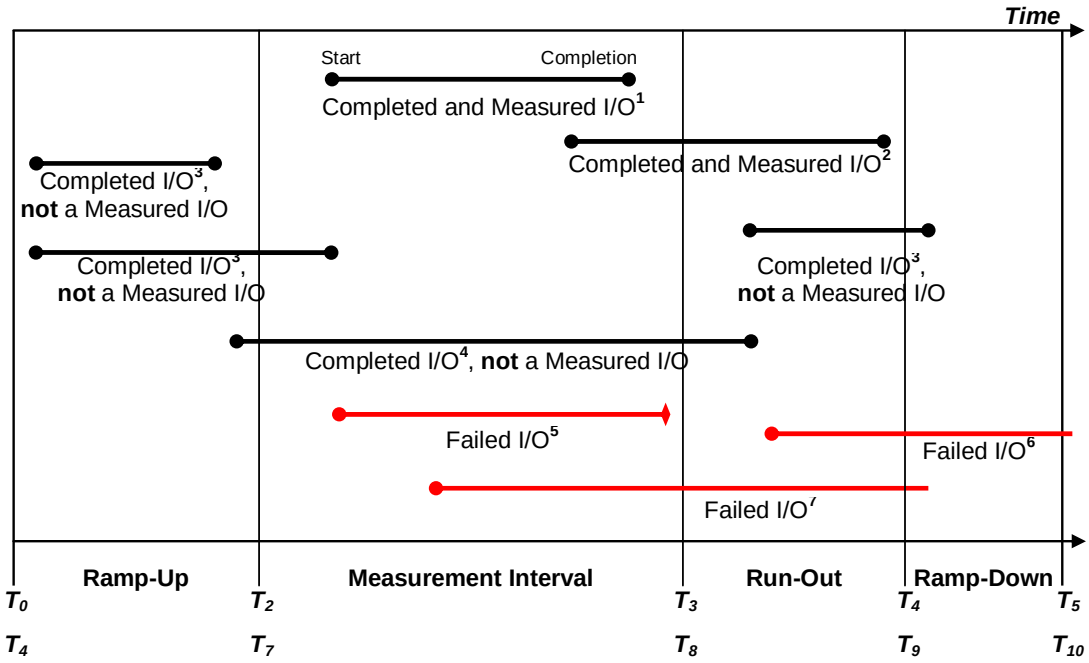
- Test Run 1: Maximum number of Streams, which is selected by the Test Sponsor
- Test Run 2: 50% of the maximum number of Streams used in Test Run 1.
- Test Run 3: 25% of the maximum number of Streams used in Test Run 1.
- Test Run 4: 12.5% of the maximum number of Streams used in Test Run 1.
- Test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

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

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

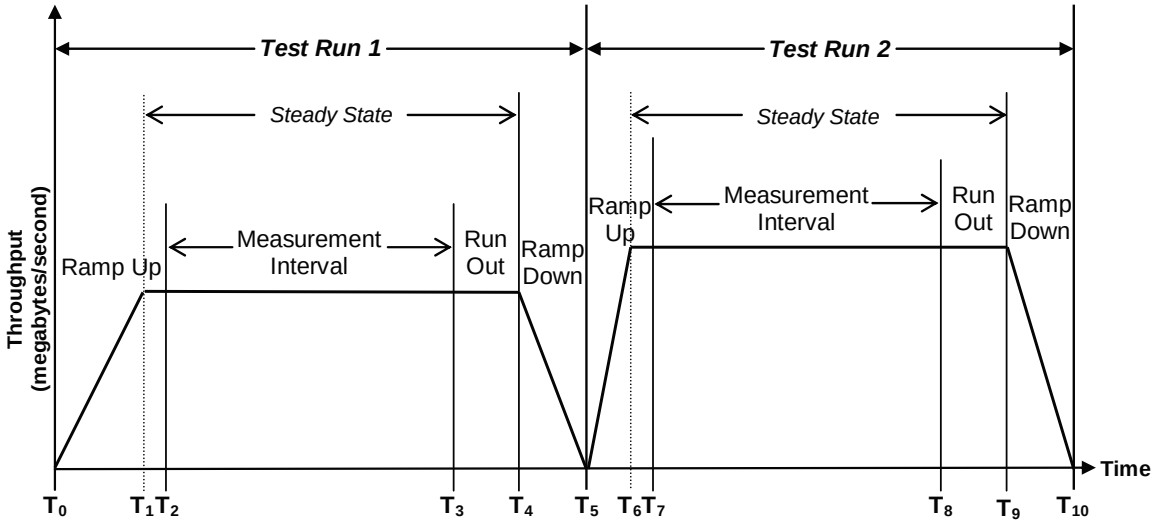
**Transfer Size:** The Transfer Size parameter specifies the number of bytes in KiB to transfer. *(Clause 3.4.7 of the SPC-2 Benchmark Specification)*

## I/O Completion Types




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

## SPC-2 Test Run Components



# APPENDIX B: CUSTOMER TUNABLE PARAMETERS AND OPTIONS

The following Windows 2003 Server registry values were changed from their default values to the values listed below:

```
MaximumSGList:  ff
QueueDepth:  40
Emulex Option:  0xDA00
```

# APPENDIX C: TESTED STORAGE CONFIGURATION (TSC) CREATION

The ETERNUS6000 Storage Array is configured using an interactive on-line tool called ETERNUSmgr. When an ETERNUS6000 unit is delivered from the factory, there are a set of default RAID Groups and LUNs defined, and the tool is used to modify the configuration to that needed in the customer environment. The following paragraphs outline use of this tool to define the configuration outlined within this FDR. The primary definitions for use in making the configuration are provided through an Excel spreadsheet, called a Design Sheet. The Design sheets for the TSC may be accessed via the following URLs:

**SPC-2 E6k Design Sheets**

**SPC-2 E6k Configuration Plan**

This design sheet is developed by the Fujitsu SE, in consultation with the customer, and is provided to the Fujitsu factory when the order for the system is placed. The factory will configure the system according to this design, using internal Fujitsu tools.

Should a customer need to change the delivered configuration, then a series of steps must be followed, using ETERNUSmgr. The User Guide for the ETERNUSmgr is available for download from:

http://www.fujitsu.com/downloads/STRSYS/system/eternus6000mgr_setting.pdf

To define a new RAID Group the following steps are used:

1. Assuming that there are available drives to assign to a new RAID Group, select "Setting RAID / Setting Host" in the Main menu.
2. Select "Create RAID Group" in the Setting RAID / Setting Host menu
3. The Create RAID Group screen will be presented, with the available drives shown. Select the drives to be included in the RAID Group and the desired RAID Level, leaving the Assigned CM selection to Auto, and click the "Set" button. A confirmation screen is provided before the action is committed.
4. Additional RAID Groups can be defined by repeating the process, or the user may move directly to the Create Logical Volume screen noted below.

It is necessary to define one or more Logical Volumes within each of the defined RAID Groups, using the following steps:

1. Again, select "Setting RAID / Setting Host" in the Main menu.
2. Select "Create Logical Volume" in the Setting RAID / Setting Host menu.
3. The Create Logical Volume screen will be presented, with the current Logical Volume List shown. Select "Register Logical volume".
4. The Create Logical Volume Screen (Volume Creation) screen will be presented, with a list of the RAID Groups defined, and the capacity of each (in MiB). Select the RAID Group in which a Logical Volume is to be defined.

5. Select an Open type of volume with the Capacity desired. Use the entire RAID Group by putting in the capacity listed for the selected RAID Group, and click the "Set" button. A confirmation screen is provided before the action is committed.
6. Additional Logical Volumes can be defined by repeating the process for other RAID Groups, or the user may return to the Main menu to continue.

The configuration plan for the SPC-2 Benchmark configuration has 8 Windows servers directly connected by two HBAs each to two Channel Adapter ports, 16 CA port connections in all. Each port was set up using the following steps:

1. Again, select "Setting RAID / Setting Host" in the Main menu.
2. Select "Set CA Parameters' in the Setting RAID / Setting Host menu.
3. The Set CA Parameters CA Selection screen will be presented. Select the CA Port for which the parameters are to be set, based on the configuration plan.
4. The Set CA Parameters screen will be presented. As this is a direct connection from the server HBA port to the storage CA port, the default selection of FC-AL Connection, Loop-Id (Manual), 0x00, Class 3, and Affinity Mode Off with default Host Response apply. The only item that was changed for the benchmark was the selection of 4G for the Transfer Rate.
5. With the selections complete, click the "Set" button to reach the confirmation screen – click "OK" to apply the selection for the port.

The configuration plan for the SPC-2 Benchmark configuration assigns the 32 Logical Volumes as LUNs 0-31 on each of the Channel Adapter ports. There are 64 Logical Volumes in the defined configuration, 32 of which are mapped to half of the CAs and the other half mapped to the other CAs according to the configuration plan. The following steps are used to set the LUN mapping for each of the CA ports:

1. Again, select "Setting RAID / Setting Host" in the Main menu.
2. Select "Set LUN Mapping" in the Setting RAID / Setting Host menu.
3. The Set LUN Mapping CA Selection screen will be presented. Select the CA Port that needs the LUNs to be mapped.
4. The Set LUN Mapping Volume Selection screen will be presented. Using the information on the configuration planning sheets, the "Set Range" mode should be selected, the range of LUN#s to be mapped, and the starting Logical Volume# specified, to define the set of mapping to be applied.
5. The "Open Volume List" facility can be used to identify the Logical Volumes that are defined, and which can be mapped within the CA port. Once the mapping parameters are set, click the "Execute" button to set up this part of the mapping. Additional ranges can be selected and set up for mapping on the port. Once all of the desired mapping has been set up in the list provided, click on the "Set" button to proceed to the confirmation screen – click "OK" to apply the mapping to the port definitions.

The configuration plan also includes Hot Spare drives, which are defined in much the same way as RAID Groups, using the following steps:

1. Select "Setting RAID / Setting Host" in the Main menu
2. Select "Create Hot Spare" in the Setting RAID / Setting Host menu
3. The Create Hot Spare selection screen will be presented. Select the drives to be designated as Hot Spare drives, according to the configuration plan, and click the "Set" button to proceed to the confirmation screen – click "OK" to apply the designations of Hot Spare to the selected drives.

Each step along the way to completing the configuration does a small part, and the configuration plan provides the details of the specific entries that are defined, using the ETERNUSmgr interface. For most customer systems, where the design sheets provide the complete configuration plan, the ETERNUS6000 system is pre-configured at the factory. However, when the plan is not complete or not supplied with an order, a default configuration will be applied by the factory, based on the complement of components ordered.

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

## Large File Processing Test *("r5-audit-parms-lfp.txt")*

```
* Large File Processing (LFP)

host=localhost,jvms=2,java=(java,"-Xmx1024m -Xms512m -Xss96k")
host=(10.123.243.216,R450-2),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-lfp
host=(10.123.243.217,R450-3),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-lfp
host=(10.123.243.218,R450-4),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-lfp
host=(10.123.243.219,R450-5),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-lfp
host=(10.123.243.220,R450-6),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-lfp
host=(10.123.243.221,R450-7),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-lfp
host=(10.123.243.222,R450-8),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-lfp

sd=default,host=localhost,size=99.75g
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive2
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive4
sd=sd5,lun=\\.\PhysicalDrive5
sd=sd6,lun=\\.\PhysicalDrive6
sd=sd7,lun=\\.\PhysicalDrive7
sd=sd8,lun=\\.\PhysicalDrive8
sd=sd9,lun=\\.\PhysicalDrive9
sd=sd10,lun=\\.\PhysicalDrive10
sd=sd11,lun=\\.\PhysicalDrive11
sd=sd12,lun=\\.\PhysicalDrive12
sd=sd13,lun=\\.\PhysicalDrive13
sd=sd14,lun=\\.\PhysicalDrive14
sd=sd15,lun=\\.\PhysicalDrive15
sd=sd16,lun=\\.\PhysicalDrive16
sd=sd17,lun=\\.\PhysicalDrive17
sd=sd18,lun=\\.\PhysicalDrive18
sd=sd19,lun=\\.\PhysicalDrive19
sd=sd20,lun=\\.\PhysicalDrive20
sd=sd21,lun=\\.\PhysicalDrive21
sd=sd22,lun=\\.\PhysicalDrive22
sd=sd23,lun=\\.\PhysicalDrive23
sd=sd24,lun=\\.\PhysicalDrive24
sd=sd25,lun=\\.\PhysicalDrive25
sd=sd26,lun=\\.\PhysicalDrive26
sd=sd27,lun=\\.\PhysicalDrive27
sd=sd28,lun=\\.\PhysicalDrive28
sd=sd29,lun=\\.\PhysicalDrive29
sd=sd30,lun=\\.\PhysicalDrive30
sd=sd31,lun=\\.\PhysicalDrive31
sd=sd32,lun=\\.\PhysicalDrive32
sd=sd33,lun=\\.\PhysicalDrive33
```

```
sd=sd34,lun=\\.\PhysicalDrive34
sd=sd35,lun=\\.\PhysicalDrive35
sd=sd36,lun=\\.\PhysicalDrive36
sd=sd37,lun=\\.\PhysicalDrive37
sd=sd38,lun=\\.\PhysicalDrive38
sd=sd39,lun=\\.\PhysicalDrive39
sd=sd40,lun=\\.\PhysicalDrive40
sd=sd41,lun=\\.\PhysicalDrive41
sd=sd42,lun=\\.\PhysicalDrive42
sd=sd43,lun=\\.\PhysicalDrive43
sd=sd44,lun=\\.\PhysicalDrive44
sd=sd45,lun=\\.\PhysicalDrive45
sd=sd46,lun=\\.\PhysicalDrive46
sd=sd47,lun=\\.\PhysicalDrive47
sd=sd48,lun=\\.\PhysicalDrive48
sd=sd49,lun=\\.\PhysicalDrive49
sd=sd50,lun=\\.\PhysicalDrive50
sd=sd51,lun=\\.\PhysicalDrive51
sd=sd52,lun=\\.\PhysicalDrive52
sd=sd53,lun=\\.\PhysicalDrive53
sd=sd54,lun=\\.\PhysicalDrive54
sd=sd55,lun=\\.\PhysicalDrive55
sd=sd56,lun=\\.\PhysicalDrive56
sd=sd57,lun=\\.\PhysicalDrive57
sd=sd58,lun=\\.\PhysicalDrive58
sd=sd59,lun=\\.\PhysicalDrive59
sd=sd60,lun=\\.\PhysicalDrive60
sd=sd61,lun=\\.\PhysicalDrive61
sd=sd62,lun=\\.\PhysicalDrive62
sd=sd63,lun=\\.\PhysicalDrive63
sd=sd64,lun=\\.\PhysicalDrive64

sd=default,host=R450-2
sd=sd1,lun=\\.\PhysicalDrive1
sd=sd2,lun=\\.\PhysicalDrive2
sd=sd3,lun=\\.\PhysicalDrive3
sd=sd4,lun=\\.\PhysicalDrive4
sd=sd5,lun=\\.\PhysicalDrive5
sd=sd6,lun=\\.\PhysicalDrive6
sd=sd7,lun=\\.\PhysicalDrive7
sd=sd8,lun=\\.\PhysicalDrive8
sd=sd9,lun=\\.\PhysicalDrive9
sd=sd10,lun=\\.\PhysicalDrive10
sd=sd11,lun=\\.\PhysicalDrive11
sd=sd12,lun=\\.\PhysicalDrive12
sd=sd13,lun=\\.\PhysicalDrive13
sd=sd14,lun=\\.\PhysicalDrive14
sd=sd15,lun=\\.\PhysicalDrive15
sd=sd16,lun=\\.\PhysicalDrive16
sd=sd17,lun=\\.\PhysicalDrive17
sd=sd18,lun=\\.\PhysicalDrive18
sd=sd19,lun=\\.\PhysicalDrive19
sd=sd20,lun=\\.\PhysicalDrive20
sd=sd21,lun=\\.\PhysicalDrive21
sd=sd22,lun=\\.\PhysicalDrive22
sd=sd23,lun=\\.\PhysicalDrive23
sd=sd24,lun=\\.\PhysicalDrive24
sd=sd25,lun=\\.\PhysicalDrive25
sd=sd26,lun=\\.\PhysicalDrive26
sd=sd27,lun=\\.\PhysicalDrive27
sd=sd28,lun=\\.\PhysicalDrive28
sd=sd29,lun=\\.\PhysicalDrive29
sd=sd30,lun=\\.\PhysicalDrive30
```

```
sd=sd31,lun=\\.\PhysicalDrive31
sd=sd32,lun=\\.\PhysicalDrive32
sd=sd33,lun=\\.\PhysicalDrive33
sd=sd34,lun=\\.\PhysicalDrive34
sd=sd35,lun=\\.\PhysicalDrive35
sd=sd36,lun=\\.\PhysicalDrive36
sd=sd37,lun=\\.\PhysicalDrive37
sd=sd38,lun=\\.\PhysicalDrive38
sd=sd39,lun=\\.\PhysicalDrive39
sd=sd40,lun=\\.\PhysicalDrive40
sd=sd41,lun=\\.\PhysicalDrive41
sd=sd42,lun=\\.\PhysicalDrive42
sd=sd43,lun=\\.\PhysicalDrive43
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sd=sd46,lun=\\.\PhysicalDrive46
sd=sd47,lun=\\.\PhysicalDrive47
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sd=sd49,lun=\\.\PhysicalDrive49
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sd=sd59,lun=\\.\PhysicalDrive59
sd=sd60,lun=\\.\PhysicalDrive60
sd=sd61,lun=\\.\PhysicalDrive61
sd=sd62,lun=\\.\PhysicalDrive62
sd=sd63,lun=\\.\PhysicalDrive63
sd=sd64,lun=\\.\PhysicalDrive64

sd=default,host=R450-3
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sd=sd27,lun=\\.\PhysicalDrive27
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maxlatestart=1
reportinginterval=5
segmentlength=512m

rd=default,rampup=240,periods=90,measurement=180,runout=45,rampdown=15,buffers=1

* LFP, Write Phase

rd=default,rdpct=0,xfersize=1024k
rd=TR1_SPC-2-FP,streams=64
```

```
rd=TR2_SPC-2-FP,streams=32
rd=TR3_SPC-2-FP,streams=16
rd=TR4_SPC-2-FP,streams=8
rd=TR5_SPC-2-FP,streams=1

rd=default,rdpct=0,xfersize=256k
rd=TR6_SPC-2-FP,streams=64
rd=TR7_SPC-2-FP,streams=32
rd=TR8_SPC-2-FP,streams=16
rd=TR9_SPC-2-FP,streams=8
rd=TR10_SPC-2-FP,streams=1

* LFP, Read/Write Phase

rd=default,rdpct=50,xfersize=1024k
rd=TR11_SPC-2-FP,streams=64
rd=TR12_SPC-2-FP,streams=32
rd=TR13_SPC-2-FP,streams=16
rd=TR14_SPC-2-FP,streams=8
rd=TR15_SPC-2-FP,streams=1

rd=default,rdpct=50,xfersize=256k
rd=TR16_SPC-2-FP,streams=64
rd=TR17_SPC-2-FP,streams=32
rd=TR18_SPC-2-FP,streams=16
rd=TR19_SPC-2-FP,streams=8
rd=TR20_SPC-2-FP,streams=1

* LFP, Read Phase

rd=default,rdpct=100,xfersize=1024k
rd=TR21_SPC-2-FP,streams=64
rd=TR22_SPC-2-FP,streams=32
rd=TR23_SPC-2-FP,streams=16
rd=TR24_SPC-2-FP,streams=8
rd=TR25_SPC-2-FP,streams=1

rd=default,rdpct=100,xfersize=256k
rd=TR26_SPC-2-FP,streams=64
rd=TR27_SPC-2-FP,streams=32
rd=TR28_SPC-2-FP,streams=16
rd=TR29_SPC-2-FP,streams=8
rd=TR30_SPC-2-FP,streams=1
```

## Large Database Query Test *("r5-audit-parms-ldq.txt")*

```
* Large Database Query Test (LDQ)

host=localhost,jvms=2,java=(java,"-Xmx1024m -Xms512m -Xss96k")
host=(10.123.243.216,R450-2),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-ldq
host=(10.123.243.217,R450-3),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-ldq
host=(10.123.243.218,R450-4),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-ldq
host=(10.123.243.219,R450-5),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-ldq
host=(10.123.243.220,R450-6),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-ldq
host=(10.123.243.221,R450-7),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-ldq
host=(10.123.243.222,R450-8),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-ldq

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maxlatestart=1
reportinginterval=5
segmentlength=512m

rd=default,rampup=240,periods=90,measurement=180,runout=45,rampdown=15,rdpct=99

* LDQ, 1024KiB Phase

rd=default,buffers=4,xfersize=1024k
rd=TR1_SPC-2-DQ,streams=64
rd=TR2_SPC-2-DQ,streams=32
rd=TR3_SPC-2-DQ,streams=16
rd=TR4_SPC-2-DQ,streams=8
```

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rd=TR5_SPC-2-DQ,streams=1

rd=default,buffers=1,xfersize=1024k
rd=TR6_SPC-2-DQ,streams=64
rd=TR7_SPC-2-DQ,streams=32
rd=TR8_SPC-2-DQ,streams=16
rd=TR9_SPC-2-DQ,streams=8
rd=TR10_SPC-2-DQ,streams=1

* LDQ, 64KiB Phase

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

rd=default,buffers=1,xfersize=64k
rd=TR16_SPC-2-DQ,streams=64
rd=TR17_SPC-2-DQ,streams=32
rd=TR18_SPC-2-DQ,streams=16
rd=TR19_SPC-2-DQ,streams=8
rd=TR20_SPC-2-DQ,streams=1
```

## Video on Demand Delivery Test *("r5-audit-parms-vod-2848.txt")*

```
* Video On Demand Test (VOD)

host=localhost,jvms=4,java=(java,"-Xmx1024m -Xms512m -Xss96k")
host=(10.123.243.216,R450-2),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=4,output=c:\output\r5-audit-vod-2848
host=(10.123.243.217,R450-3),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=4,output=c:\output\r5-audit-vod-2848
host=(10.123.243.218,R450-4),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=4,output=c:\output\r5-audit-vod-2848
host=(10.123.243.219,R450-5),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=4,output=c:\output\r5-audit-vod-2848
host=(10.123.243.220,R450-6),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=4,output=c:\output\r5-audit-vod-2848
host=(10.123.243.221,R450-7),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=4,output=c:\output\r5-audit-vod-2848
host=(10.123.243.222,R450-8),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
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maxlatestart=1
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rd=default,rampup=1200,periods=600,measurement=7200,runout=45,rampdown=15,buffers=8

rd=TR1_SPC-2-VOD_s2848,streams=2848
```

## Persistence Test Run 1 *("r5-audit-parms-pers-w.txt")*

```
* Persistence Test - Write Phase

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host=(10.123.243.216,R450-2),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
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host=(10.123.243.222,R450-8),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
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reportinginterval=5
segmentlength=512m

rd=default,rampup=240,periods=90,measurement=300,runout=0,rampdown=0
rd=default,buffers=1,rdpct=0,xfersize=1024k

rd=TR1_SPC-2-persist-w,streams=64
```

## Persistence Test Run 2 *("r5-audit-Run-pers-r.txt")*

```
* Persistence Test - Read Phase

host=localhost,jvms=2,java=(java,"-Xmx1024m -Xms512m -Xss96k")
host=(10.123.243.216,R450-2),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-pers-r
host=(10.123.243.217,R450-3),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-pers-r
host=(10.123.243.218,R450-4),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-pers-r
host=(10.123.243.219,R450-5),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-pers-r
host=(10.123.243.220,R450-6),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-pers-r
host=(10.123.243.221,R450-7),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-pers-r
host=(10.123.243.222,R450-8),java=("C:\Program Files\Java\jre1.5.0_03\bin\java.exe","-
Xmx1024m -Xms512m -Xss96k"),shell=spc2,jvms=2,output=c:\output\r5-audit-pers-r

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sd=sd15,lun=\\.\PhysicalDrive15
```

```
sd=sd16,lun=\\.\PhysicalDrive16
sd=sd17,lun=\\.\PhysicalDrive17
sd=sd18,lun=\\.\PhysicalDrive18
sd=sd19,lun=\\.\PhysicalDrive19
sd=sd20,lun=\\.\PhysicalDrive20
sd=sd21,lun=\\.\PhysicalDrive21
sd=sd22,lun=\\.\PhysicalDrive22
sd=sd23,lun=\\.\PhysicalDrive23
sd=sd24,lun=\\.\PhysicalDrive24
sd=sd25,lun=\\.\PhysicalDrive25
sd=sd26,lun=\\.\PhysicalDrive26
sd=sd27,lun=\\.\PhysicalDrive27
sd=sd28,lun=\\.\PhysicalDrive28
sd=sd29,lun=\\.\PhysicalDrive29
sd=sd30,lun=\\.\PhysicalDrive30
sd=sd31,lun=\\.\PhysicalDrive31
sd=sd32,lun=\\.\PhysicalDrive32
sd=sd33,lun=\\.\PhysicalDrive33
sd=sd34,lun=\\.\PhysicalDrive34
sd=sd35,lun=\\.\PhysicalDrive35
sd=sd36,lun=\\.\PhysicalDrive36
sd=sd37,lun=\\.\PhysicalDrive37
sd=sd38,lun=\\.\PhysicalDrive38
sd=sd39,lun=\\.\PhysicalDrive39
sd=sd40,lun=\\.\PhysicalDrive40
sd=sd41,lun=\\.\PhysicalDrive41
sd=sd42,lun=\\.\PhysicalDrive42
sd=sd43,lun=\\.\PhysicalDrive43
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sd=sd58,lun=\\.\PhysicalDrive58
sd=sd59,lun=\\.\PhysicalDrive59
sd=sd60,lun=\\.\PhysicalDrive60
sd=sd61,lun=\\.\PhysicalDrive61
sd=sd62,lun=\\.\PhysicalDrive62
sd=sd63,lun=\\.\PhysicalDrive63
sd=sd64,lun=\\.\PhysicalDrive64

maxlatestart=1
reportinginterval=5
segmentlength=512m

maxpersistenceerrors=10

rd=default,buffers=1,rdpct=100,xfersize=1024k

rd=TR1_SPC-2-persist-r
```

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

## "r5-audit-Runall.bat"

```
@echo off

rem Windows: start vdbench

rem Directory where this is executed from
set dir=c:\SPC2

set java=java

java -Xmx1024m -Xms512m -Xss96k vdbench -d128 -f r5-audit-parms-lfp.txt -o c:\output\r5-audit-lfp

java -Xmx1024m -Xms512m -Xss96k vdbench -d128 -f r5-audit-parms-ldq.txt -o c:\output\r5-audit-ldq

java -Xmx1024m -Xms512m -Xss96k vdbench -d128 -f r5-audit-parms-vod.txt -o c:\output\r5-audit-vod

java -Xmx1024m -Xms512m -Xss96k vdbench -d128 -f r5-audit-parms-pers-w.txt -o c:\output\r5-audit-
pers-w
```

## "r5-audit-Run-per-r.bat"

```
@echo off

rem Windows: start Vdbench

rem Directory where this is executed from
set dir=c:\SPC2

rem set current class path
set cp=c:\SPC2\windows

set java=java

java -Xmx1024m -Xms512m -Xss96k vdbench -d128 -f r5-audit-parms-pers-r.txt -o c:\output\r5-audit-
pers-r
```

# APPENDIX F: THIRD-PARTY QUOTATIONS

## HBAs

**Info X**
**Technology Solutions**

**QUOTE**

1 Veterans Place
Whippany, NJ 07981
(973) 386-1411, Fax: (973) 386-0783
(800) 463-9998
Toll Free: (800) 463-9998 - Chris Kowalik Ext. 130

ORDER NUMBER: 0070311
ORDER DATE: 11/3/2005

CUSTOMER NO: FUJTS

**SOLD TO:**

Fujitsu Computer Systems
Account Payable-MS 141
1250 Arques Avenue
Sunnyvale, CA 94085-3470US

**SHIP TO:**

Fujitsu Computer Systems
Account Payable-MS 141
1250 Arques Avenue
Sunnyvale, CA 94085-3470US

**CONFIRM TO:** Karen Carlson*

| CUSTOMER P.O. | SHIP VIA | F.O.B. | TERMS |
|---|---|---|---|
| | | | Net 30 |

| ITEM NUMBER | UNIT | ORDERED | SHIPPED | BACK ORDE | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| LP11000-E<br>EMC 4Gb PCI-X Single | EACH<br>3.3V Signaling, 5V Tolerant | 16 | 0 | 0 | 869.72 | 13,915.52 |
| LP11000-M4<br>Emulex 4Gb PCI-X Single<br>In Stock | EACH<br>3.3V Signaling, 5V Tolerant | 16 | 0 | 0 | 861.00 | 13,776.00 |
| LP11002-E<br>EMC 4Gb PCI-X Dual<br>In Stock | EACH<br>3.3V Sign / 5V Tol | 16 | 0 | 0 | 1,172.33 | 18,757.28 |
| LP11002-M4<br>Emulex 4Gb PCI-X Dual<br>In Stock | EACH<br>3.3V Sign / 5V Tol | 16 | 0 | 0 | 1,417.50 | 22,680.00 |

**Advanced Replacements on all defective HBA products.**
**24x7x365 Support from our Certified Fibre Channel Engineers.**
**3 Year Manufacturer Warranty on all Fibre Channel HBAs.**

| | |
|---|---|
| Net Order: | 69,128.80 |
| Less Discount: | 0.00 |
| Shipping & Handling: | 0.00 |
| Sales Tax: | 0.00 |
| **Order Total:** | **69,128.80** |

EMULEX qlogic jni LSILOGIC CambeX EMERSON

**Call 1-800-463-9998 for all your Fibre Channel Needs**

**Important Notice: Customers purchasing EMC Certified HBAs must supply Info X with the following information: EMC Storage system (i.e. Symmetrix or CLARiiON) and the Operating System on the Host Server. Info X will not process orders without this information.**

Terms and Conditions:
Shipping and Handling are not included on this Quote. Please ask your sales representative for a freight quote based on the desired shipping method.
Customer is responsible for all applicable taxes and duties.
Prices are in US currency and are subject to change without notice.
Returns will only be accepted after a valid RMA number has been issued. All non-defective returns must be completed within 30 days from the original purchase date. Open items will only be accepted on a case by case basis and are subject to a 15% restocking fee and are not allowed after 30 days from the original purchase date.
Customer is responsible for all freight costs associated with returns or exchanges.
Past Due invoices will incur a 1% monthly finance charge. In addition, any collection costs associated with past due invoices will be the responsibility of the customer.

Accepted
By:

www.info-x.com

Date Accepted:_____