SPC BENCHMARK 1™
FULL DISCLOSURE REPORT

HITACHI DATA SYSTEMS CORPORATION
HITACHI VIRTUAL STORAGE PLATFORM *(VSP)*

SPC-1 V1.12

Submitted for Review: November 1, 2011
Submission Identifier: A00110

First Edition – November 2011

Trademarks

Table of Contents

AUDIT CERTIFICATION

David Cordero
Hitachi Data Systems Corporation
750 Central Expressway M/S U9922
Santa Clara, CA 95050

November 1, 2011

The SPC Benchmark 1™ Reported Data listed below for the Hitachi Virtual Storage Platform were produced in compliance with the SPC Benchmark 1™ v1.12 Onsite Audit requirements.

SPC Benchmark 1™ v1.12 Reported Data	
Tested Storage Product (TSP) Name: Hitachi Virtual Storage Platform *(VSP)*	
Metric	**Reported Result**
SPC-1 IOPS™	269,506.69
SPC-1 Price-Performance	$8.18/SPC-1 IOPS™
Total ASU Capacity	49,464.887 GB
Data Protection Level	Protected *(Mirroring)*
Total TSC Price (including three-year maintenance)	$2,204,952.12

The following SPC Benchmark 1™ Onsite Audit requirements were reviewed and found compliant with 1.12 of the SPC Benchmark 1™ 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 Hitachi Data Systems Corporation:
  - ✓ Physical Storage Capacity and requirements.
  - ✓ Configured Storage Capacity and requirements.
  - ✓ Addressable Storage Capacity and requirements.
  - ✓ Capacity of each Logical Volume and requirements.
  - ✓ Capacity of each Application Storage Unit (ASU) and 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 configure the Benchmark Configuration/Tested Storage Configuration, including customer tunable parameters that were changed from default values.

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

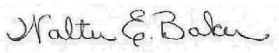
AUDIT CERTIFICATION *(CONT.)*

- SPC-1 Workload Generator commands and parameters used for the audited SPC Test Runs.
- The following Host System requirements were verified by physical inspection and information supplied by Hitachi Data Systems Corporation:
  - ✓ The type of Host System including the number of processors and main memory.
  - ✓ The presence and version number of the SPC-1 Workload Generator on the Host System.
  - ✓ The TSC boundary within the Host System.
- The execution of each Test, Test Phase, and Test Run was observed and found compliant with all of the requirements and constraints of Clauses 4, 5, and 11 of the SPC-1 Benchmark Specification.
- The Test Results Files and resultant Summary Results Files received from Hitachi Data Systems Corporation for each of following were authentic, accurate, and compliant with all of the requirements and constraints of Clauses 4 and 5 of the SPC-1 Benchmark Specification:
  - ✓ Data Persistence Test
  - ✓ Sustainability Test Phase
  - ✓ IOPS Test Phase
  - ✓ Response Time Ramp Test Phase
  - ✓ Repeatability Test
- There were no differences between the Tested Storage Configuration and Priced Storage Configuration.
- The submitted pricing information met all of the requirements and constraints of Clause 8 of the SPC-1 Benchmark Specification.
- The Full Disclosure Report *(FDR)* met all of the requirements in Clause 9 of the SPC-1 Benchmark Specification.
- This successfully audited SPC measurement is not subject to an SPC Confidential Review.

Audit Notes:

There were no items requiring audit notes or exceptions.

Respectfully,



Walter E. Baker
SPC Auditor

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

LETTER OF GOOD FAITH

HITACHI
Inspire the Next

August 16, 2011

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

Subject: SPC-1 Letter of Good Faith for the Hitachi Virtual Storage Platform

Hitachi Data Systems is the SPC-1 Test Sponsor for the above listed product. To the best of our knowledge and belief, the required SPC-1 benchmark results and materials we have submitted for that product are complete, accurate, and in full compliance with Version 1.12 of the SPC-1 benchmark specification.

Our disclosure of the Benchmark configuration and execution of the benchmark includes all items that, to the best of our knowledge and belief, materially affect the reported results regardless of whether such items are explicitly required to be disclosed by the SPC-1 benchmark specifications.

Regards,

Alan Cade,
VP, Technical Operations

Hitachi Data Systems 750 Central Expressway · Santa Clara, CA 95050 408-970-7113

EXECUTIVE SUMMARY

Test Sponsor and Contact Information

Test Sponsor and Contact Information	
Test Sponsor Primary Contact	Hitachi Data Systems Corporation – http://www.hds.com David Cordero – david.cordero@hds.com 750 Central Expressway M/S U9922 Santa Clara, CA 95050 Phone: (617) 838-4040 FAX: (617) 838-4040
Test Sponsor Alternate Contact	Hitachi Data Systems Corporation – http://www.hds.com Mel Boksenbaum – mel.boksenbaum@hds.com 750 Central Expressway M/S U9922 Santa Clara, CA 95050 Phone: (408) 970-7922 FAX: (408) 327-3066
Auditor	Storage Performance Council – http://www.storageperformance.org Walter E. Baker – AuditService@StoragePerformance.org 643 Bair Island Road, Suite 103 Redwood City, CA 94063 Phone: (650) 556-9384 FAX: (650) 556-9385

Revision Information and Key Dates

Revision Information and Key Dates	
SPC-1 Specification revision number	V1.12
SPC-1 Workload Generator revision number	V2.1.0
Date Results were first used publicly	November 1, 2011
Date the FDR was submitted to the SPC	November 1, 2011
Date the Priced Storage Configuration is available for shipment to customers	currently available
Date the TSC completed audit certification	November 1, 2011

Tested Storage Product (TSP) Description

Hitachi Virtual Storage Platform is the only 3D scaling storage platform designed for all data types. The Hitachi Virtual Storage Platform flexibly adapts for performance, capacity and multi-vendor storage. Combined with unique Hitachi Command Suite management software, it transforms the data center.

Summary of Results

SPC-1 Reported Data	
Tested Storage Product (TSP) Name: Hitachi Virtual Storage Platform *(VSP)*	
Metric	**Reported Result**
SPC-1 IOPS™	269,506.69
SPC-1 Price-Performance™	$8.18/SPC-1 IOPS™
Total ASU Capacity	49,464.887 GB
Data Protection Level	Protected *(Mirroring)*
Total TSC Price (including three-year maintenance)	$2,204,952.12

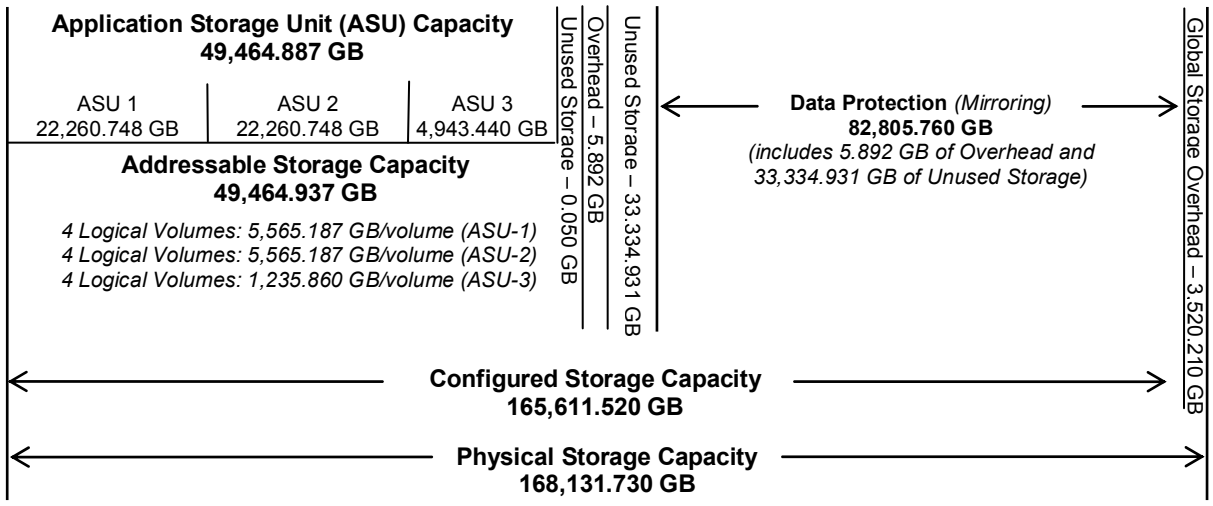
SPC-1 IOPS™ represents the maximum I/O Request Throughput at the 100% load point.

Total ASU (Application Storage Unit) **Capacity** represents the total storage capacity read and written in the course of executing the SPC-1 benchmark.

A **Data Protection Level** of **Protected *Mirroring*** configures two or more identical copies of user data.

Storage Capacities, Relationships, and Utilization

The following diagram and table document the various storage capacities, used in this benchmark, and their relationships, as well as the storage utilization values required to be reported.



SPC-1 Storage Capacity Utilization	
Application Utilization	29.25%
Protected Application Utilization	58.50%
Unused Storage Ratio	39.42%

Application Utilization: Total ASU Capacity *(49,464.887 GB)* divided by Physical Storage Capacity *(169,131.730 GB)*

Protected Application Utilization: (Total ASU Capacity *(49,464.887 GB)* plus total Data Protection Capacity *(82,805.760 GB)* minus unused Data Protection Capacity *(33,334.931 GB)* divided by Physical Storage Capacity *(169,131.730 GB)*

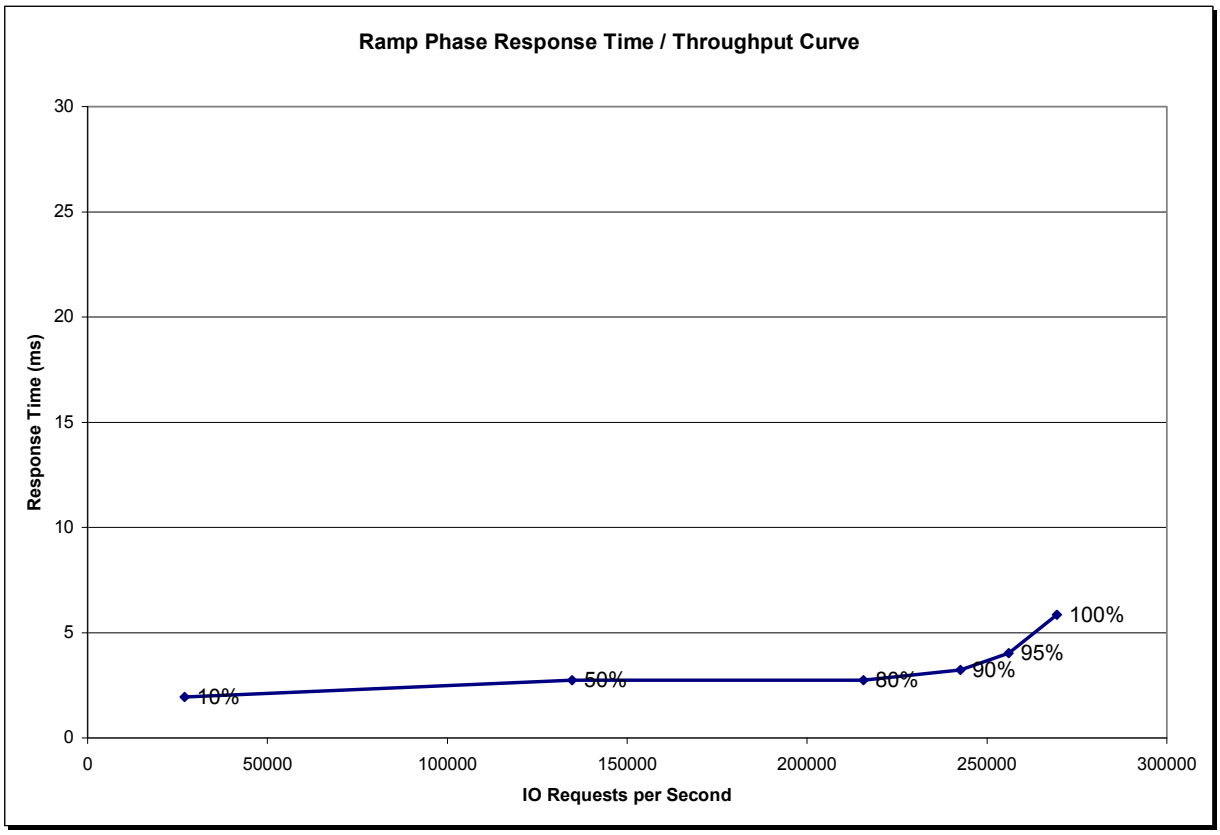
Unused Storage Ratio: Total Unused Capacity *(GB)* divided by Physical Storage Capacity *(169,131.730GB)* and may not exceed 45%.

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

Response Time – Throughput Curve

The Response Time-Throughput Curve illustrates the Average Response Time (milliseconds) and I/O Request Throughput at 100%, 95%, 90%, 80%, 50%, and 10% of the workload level used to generate the SPC-1 IOPS™ metric.

The Average Response Time measured at any of the above load points cannot exceed 30 milliseconds or the benchmark measurement is invalid.



Response Time – Throughput Data

	10% Load	50% Load	80% Load	90% Load	95% Load	100% Load
I/O Request Throughput	26,952.98	134,724.06	215,600.25	242,567.41	255,982.12	269,506.69
Average Response Time (ms):						
All ASUs	1.95	2.75	2.75	3.23	4.02	5.85
ASU-1	2.47	3.44	3.69	4.23	5.05	6.87
ASU-2	2.06	2.82	3.15	3.71	4.49	5.89
ASU-3	0.81	1.24	0.57	0.89	1.64	3.69
Reads	3.76	5.21	6.08	6.82	7.76	9.43
Writes	0.77	1.14	0.58	0.88	1.59	3.53

Priced Storage Configuration Pricing

Product Description	Qty	List Price
Virtual Storage Platform Microcode Kit	1	$0.00
Virtual Storage Platform Product Documentation Library	1	$0.00
SVC VSP Installation Planning	1	$5,000.00
SVC VSP Installation - Control Frame	2	$13,000.00
Bezel Kit - DKC	2	$3,860.00
Decoration Panel - HDS	4	$2,560.00
Filler Panel	10	$700.00
PDU Bracket 1-Phase	12	$5,880.00
DKC Power Cord Kit (USA)	**4**	$2,640.00
Rack - 42U	4	$28,520.00
Disk Adapter	4	$60,920.00
Side Cover	1	$1,630.00
Primary Controller Chassis	1	$74,010.00
4GB USB memory stick with lanyard	1	$0.00
LAN Cable 14ft	1	$0.00
RJ-11 Modular In-Line Coupler 4 Conductor	1	$0.00
RJ-45 Modular In-Line Coupler 6 Conductor	1	$0.00
Fibre 16-Port HOST Adapter(8Gbps)	4	$94,440.00
DEV Cable from Controller to 1st Drive Chassis	2	$6,220.00
Drive Chassis Bezel - HDS	9	$15,840.00
DKU Power Cord Kit (USA)	9	$5,940.00
SFF Drive Chassis	9	$417,870.00
SVC VSP Installation - Storage Frame	2	$12,000.00
PDU Kit, 30A, 250V, 8XC13R,NEMA L6-30P	12	$10,200.00
SFF 146GB Disk Drive 2.5inch	1,152	$2,207,920.00
Additional Controller PS	2	$15,980.00
Cache Flash Memory Module (64GB)	8	$251,200.00
Cache Memory Module (16GB)	32	$123,840.00
Cache Memory Adapter	6	$480,180.00
Device Interface Cable RLEXC	2	$16,260.00
Device Interface Cable UU	5	$51,600.00
Second Controller Chassis	1	$255,870.00
Hub Kit	2	$20,560.00
Processor Blade	2	$85,380.00
PCI-Express Switch Adapter	2	$54,840.00
Device Interface Cable HBU	2	$9,300.00
Device Interface Cable HRLEX	2	$19,480.00
Device Interface Cable HUU	5	$29,542.00
Inter-Controller Connecting Kit	1	$130,690.00

Hardware Components $4,513,872.00

Product Description	Qty	List Price
VSP Basic Operating System 10TB Block License	1	$25,700.00
VSP Basic Operating System 20TB Block License	1	$46,800.00
VSP Basic Operating System 20TB Base License	1	$46,800.00
VSP Basic Operating System 100TB Block License	1	$188,900.00
VSP Basic Operating System 4-VSD Pair Base License	1	$112,800.00

Software Components $421,000.00

	List	Discount	Total
VSP Hardware	$4,513,872.00	57.28%	$1,928,326.12
VSP Hardware Maintenance	0	0	$ -
- Includes of 3 years Premium Service (24x7x2 hour response) and installation			
VSP Software	$421,000.00	39.00%	$ 256,810.00
VSP Software Maintenance	0	0	$ -
- Includes 3-years of Service (24x7x2 hour response)			
Total			$2,185,136.12
Emulex LPe11002 HBAs @$1199		16	$19,184.00
LC-LC FC Cables@$19.75		32	$632.00
			$2,204,952.12

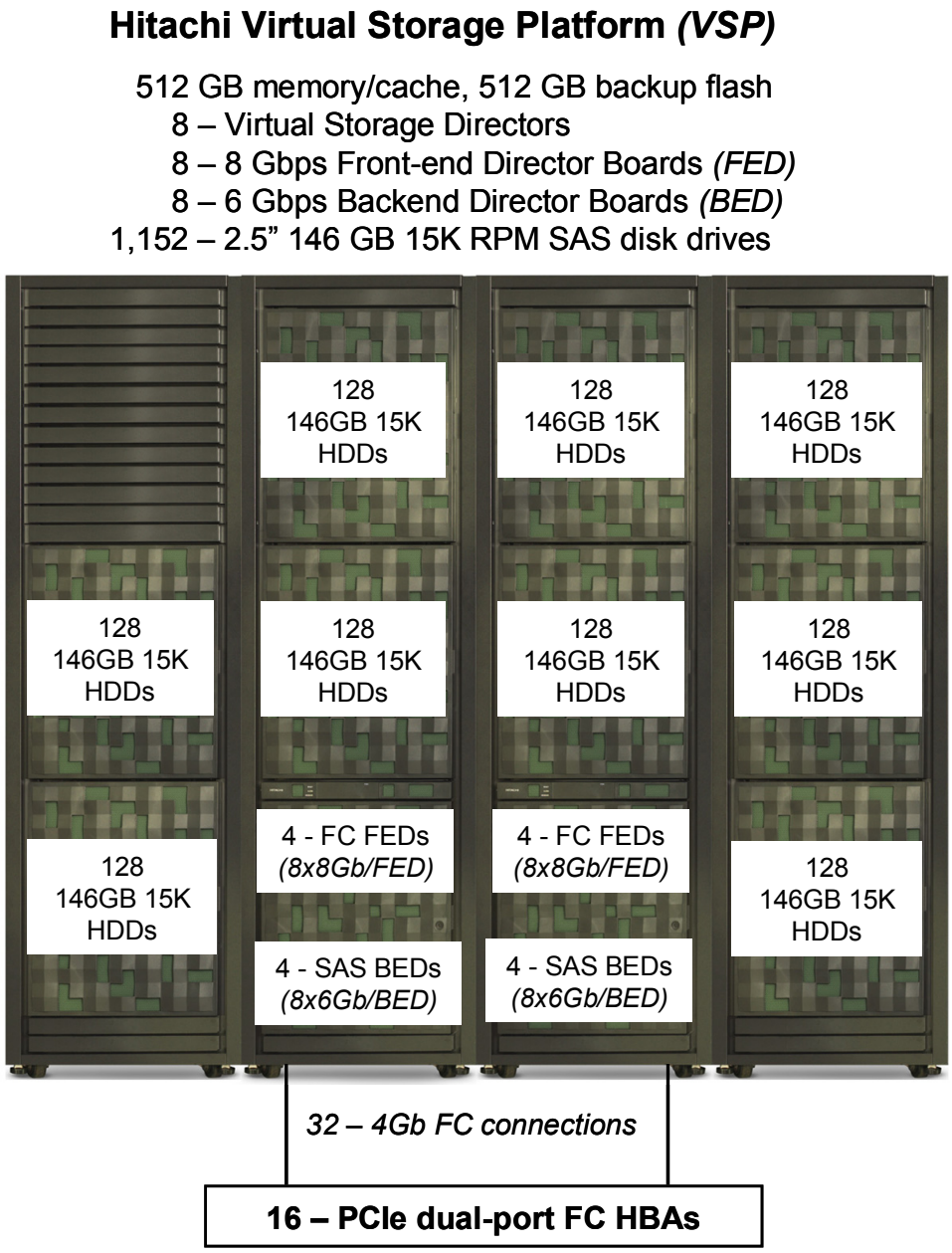
The above pricing includes hardware maintenance and software support for three years, 7 days per week, 24 hours per day. The hardware maintenance and software support provides the following:

- Acknowledgement of new and existing problems with four (4) hours.
- Onsite present of a qualified maintenance engineer or provision of a customer replaceable part within four (4) hours of the above acknowledgement for any hardware failure that results in an inoperative Price Storage Configuration that can be remedied by the repair or replacement of a Priced Storage Configuration component.

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

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

Priced Storage Configuration Diagram



Priced Storage Configuration Components

Priced Storage Configuration:
16 – Emulex LPe11002 4Gb PCI Express dual-port Fibre Channel HBAs
Hitachi Virtual Storage Platform (VSP) 512 GB memory/cache, 512 GB flash back-up 2 – Processor Blades 2 – PCI-Express Switch Adapters 8 – Virtual Storage Directors 8 – 8 Gbps FC Front-end Director (FED) boards in 4 FED pairs *(8 connections/FED, 64 total connections, 32 connections used)* 8 – 6 Gbps SAS Backend Director (BED) boards in 4 BED pairs *(8 connections/BED, 64 total connections, 32 connections used)*
1 – Primary Controller Chassis 1 – Second Controller Chassis
9 – SFF Drive Chassis
2 – Control Frames
2 – Storage Frames
1,152 – 2.5”, 146 GB, 15K RPM, SAS disk drives

In each of the following sections of this document, the appropriate Full Disclosure Report requirement, from the SPC-1 benchmark specification, is stated in italics followed by the information to fulfill the stated requirement.

CONFIGURATION INFORMATION

Benchmark Configuration (BC)/Tested Storage Configuration (TSC) Diagram

Clause 9.4.3.4.1

A one page Benchmark Configuration (BC)/Tested Storage Configuration (TSC) diagram shall be included in the FDR…

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

Storage Network Configuration

Clause 9.4.3.4.1

…

5. *If the TSC contains network storage, the diagram will include the network configuration. If a single diagram is not sufficient to illustrate both the Benchmark Configuration and network configuration in sufficient detail, the Benchmark Configuration diagram will include a high-level network illustration as shown in Figure 9-8. In that case, a separate, detailed network configuration diagram will also be included as described in Clause 9.4.3.4.2.*

Clause 9.4.3.4.2

If a storage network was configured as a part of the Tested Storage Configuration and the Benchmark Configuration diagram described in Clause 9.4.3.4.1 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 9-9.

The storage network configuration is illustrated on page 19 *(Benchmark Configuration/Tested Storage Configuration Diagram).*

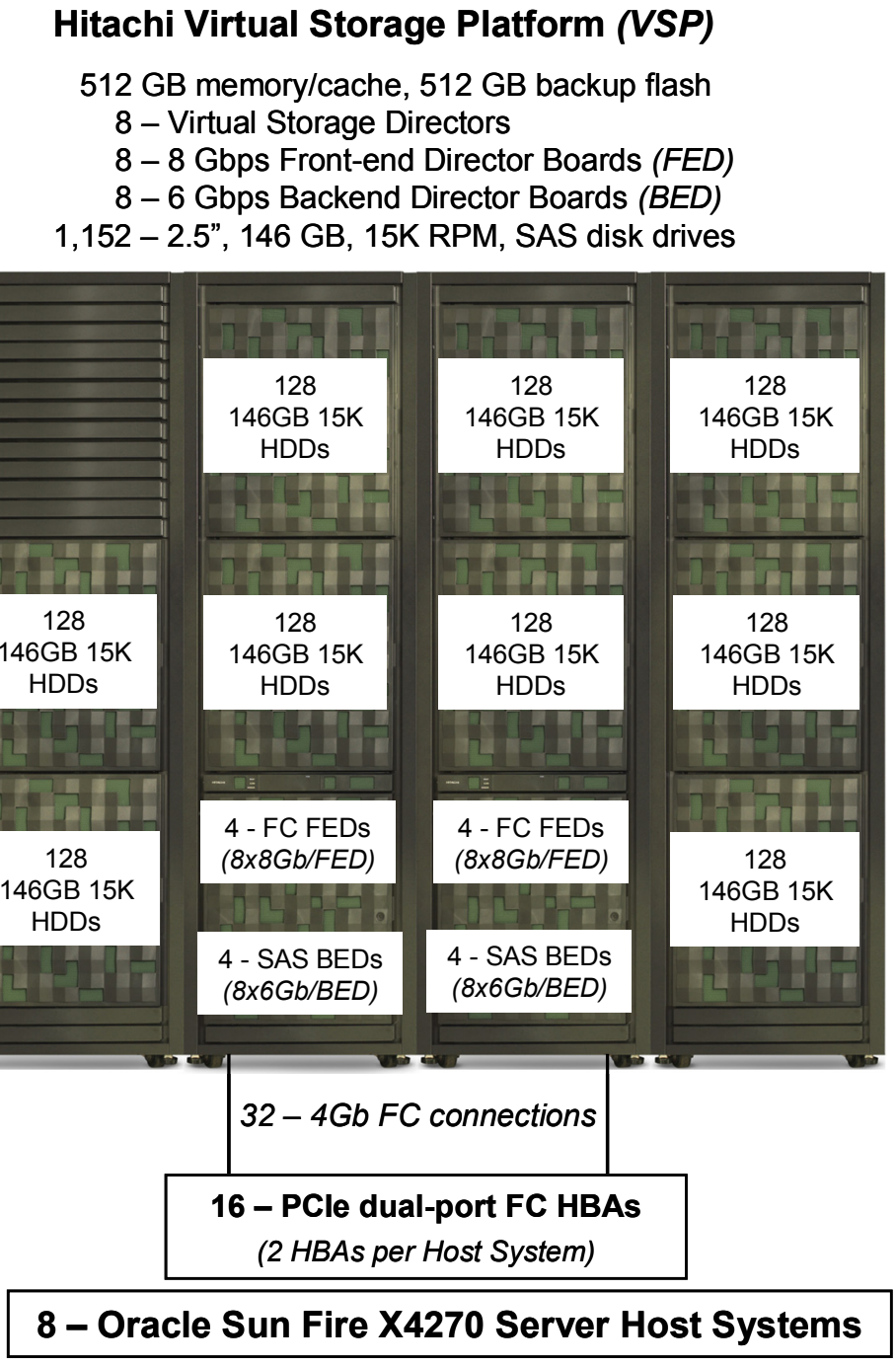
Host System and Tested Storage Configuration (TSC) Table of Components

Clause 9.4.3.4.3

The FDR will contain a table that lists the major components of each Host System and the Tested Storage Configuration (TSC). Table 9-10 specifies the content, format, and appearance of the table.

The Host System and TSC table of components may be found on page 20 *(Host Systems and Tested Storage Configuration Components).*

Benchmark Configuration/Tested Storage Configuration Diagram



Host Systems and Tested Storage Configuration Components

Host Systems:	Tested Storage Configuration (TSC):
8 – Oracle Sun Fire X4270 Server Host Systems each Host System with:	16 – Emulex LPe11002 4Gb PCI Express dual-port Fibre Channel HBAs *(2 HBAs per Host System)*
2- Intel Xeon E5540 2.53 GHz 4 Core Processors with 1 MB L2 cache, 8 MB L3 cache	**Hitachi Virtual Storage Platform (VSP)** 512 GB memory/cache, 512 GB flash back-up 2 – Processor Blades 2 – PCI-Express Switch Adapters 8 – Virtual Storage Directors 8 – 8 Gbps FC Front-end Director (FED) boards in 4 FED pairs *(8 connections/BED, 64 total connections, 32 used)* 8 – 6 Gbps SAS Backend Director (BED) boards in 4 BED pairs *(8 connections/BED, 64 total connections, 32 used)*
32 GB main memory	1 – Primary Controller Chassis 1 – Second Controller Chassis
Windows 2008 R2 Enterprise 64-bit	9 – SFF Drive Chassis
PCIe	2 – Control Frames
	2 – Storage Frames
	1,152 – 2.5”, 146 GB, 15K RPM, SAS disk drives

Customer Tunable Parameters and Options

Clause 9.4.3.5.1

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 64 contains the customer tunable parameters and options that have been altered from their default values for this benchmark.

Tested Storage Configuration (TSC) Description

Clause 9.4.3.5.2

The FDR must include sufficient information to recreate the logical representation of the TSC. In addition to customer tunable parameters and options (Clause 4.2.4.5.3), 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 9.2.4.4.1 and/or the Storage Network Configuration Diagram in Clause 9.2.4.4.2.*
  - *The logical representation of the TSC, configured from the above components that will be presented to the 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 65 contains the detailed information that describes how to create and configure the logical TSC.

SPC-1 Workload Generator Storage Configuration

Clause 9.4.3.5.3

The FDR must include all SPC-1 Workload Generator storage configuration commands and parameters.

The SPC-1 Workload Generator storage configuration commands and parameters for this measurement appear in "Appendix D: SPC-1 Workload Generator Storage Commands and Parameters" on page 101.

SPC-1 DATA REPOSITORY

This portion of the Full Disclosure Report presents the detailed information that fully documents the various SPC-1 storage capacities and mappings used in the Tested Storage Configuration. "SPC-1 Data Repository Definitions" on page 60 contains definitions of terms specific to the SPC-1 Data Repository.

Storage Capacities and Relationships

Clause 9.4.3.6.1

Two tables and an illustration documenting the storage capacities and relationships of the SPC-1 Storage Hierarchy (Clause 2.1) shall be included in the FDR.

SPC-1 Storage Capacities

SPC-1 Storage Capacities		
Storage Hierarchy Component	**Units**	**Capacity**
Total ASU Capacity	Gigabytes (GB)	49,464.887
Addressable Storage Capacity	Gigabytes (GB)	49,464.937
Configured Storage Capacity	Gigabytes (GB)	165,611.520
Physical Storage Capacity	Gigabytes (GB)	169,131.730
Data Protection *(Mirroring)*	Gigabytes (GB)	82,805.760
Required Storage *(overhead)*	Gigabytes (GB)	11.784
Global Storage Overhead	Gigabytes (GB)	3,520.210
Total Unused Storage	Gigabytes (GB)	66,669.912

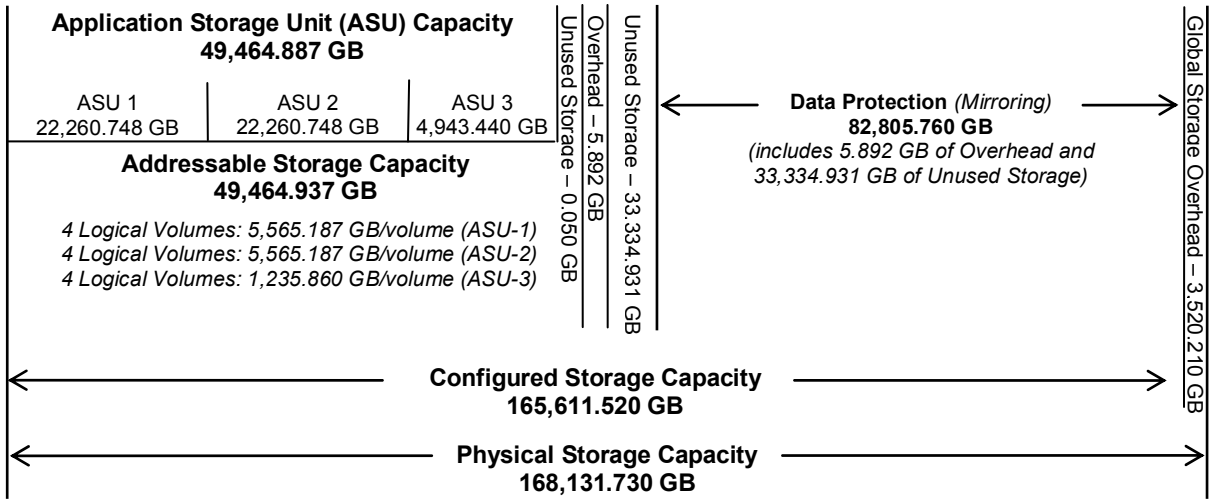
SPC-1 Storage Hierarchy Ratios

	Addressable Storage Capacity	**Configured Storage Capacity**	**Physical Storage Capacity**
Total ASU Capacity	99.9999%	59.74%	29.25%
Required for Data Protection *(Mirroring)*		50.00%	48.96%
Addressable Storage Capacity		29.87%	29.25%
Required Storage		0.01%	0.01%
Configured Storage Capacity			97.92%
Global Storage Overhead			2.08%
Unused Storage:			
Addressable	0.0001%		
Configured		40.26%	
Physical			0.00%

The Physical Storage Capacity consisted of 169,131.730 GB distributed over 1,152 disk drives, each with a formatted capacity of 146.816 GB. There was 0.000 GB (0.00%) of Unused Storage within the Physical Storage Capacity. Global Storage Overhead consisted of 3,520.210 GB (2.08%) of the Physical Storage Capacity. There was 66,669.862 GB (40.26%) of Unused Storage within the Configured Storage Capacity. The Total ASU Capacity utilized 99.9999% of the Addressable Storage Capacity resulting in 0.050 GB (0.0001%) of Unused Storage within the Addressable Storage Capacity. The Data Protection *(Mirroring)* capacity was 82,805.760 GB of which 49,464.887 GB was utilized. The total Unused Storage was 66,669.912 GB.

SPC-1 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 9.4.3.6.3

A table illustrating the capacity of each ASU and the mapping of Logical Volumes to ASUs shall be provided in the FDR. … Logical Volumes shall be sequenced in the table from top to bottom per its position in the contiguous address space of each ASU. The capacity of each Logical Volume shall be stated. … In conjunction with this table, the Test Sponsor shall provide a complete description of the type of data protection (see Clause 2.4.5) used on each Logical Volume.

Logical Volume Capacity and Mapping		
ASU-1 (22,260.732 GB)	**ASU-2 (22,260.732 GB)**	**ASU-3 (4,943.423 GB)**
4 Logical Volumes 5,565.187 GB per Logical Volume (5,565.183 used per Logical Volume)	4 Logical Volumes 5,565.187 GB per Logical Volume (5,565.183 used per Logical Volume)	4 Logical Volumes 1,235.860 GB per Logical Volume (1,235.856 used per Logical Volume)

The Data Protection Level used for all Logical Volumes was "Mirrored" as described on page 11. See "ASU Configuration" in the **IOPS Test Results File** for more detailed configuration information.

Storage Capacity Utilization

Clause 9.4.3.6.2

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

Clause 2,8.1

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

Clause 2,8.2

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

Clause 2,8.3

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

SPC-1 Storage Capacity Utilization	
Application Utilization	29.25%%
Protected Application Utilization	58.50%%
Unused Storage Ratio	39.42%

SPC-1 BENCHMARK EXECUTION RESULTS

This portion of the Full Disclosure Report documents the results of the various SPC-1 Tests, Test Phases, and Test Runs. "SPC-1 Test Execution Definitions" on page 61 contains definitions of terms specific to the SPC-1 Tests, Test Phases, and Test Runs.

Clause 5.4.3

The Tests must be executed in the following sequence: Primary Metrics, Repeatability, and Data Persistence. That required sequence must be uninterrupted from the start of Primary Metrics to the completion of Persistence Test Run 1. Uninterrupted means the Benchmark Configuration shall not be power cycled, restarted, disturbed, altered, or adjusted during the above measurement sequence. If the required sequence is interrupted other than for the Host System/TSC power cycle between the two Persistence Test Runs, the measurement is invalid.

SPC-1 Tests, Test Phases, and Test Runs

The SPC-1 benchmark consists of the following Tests, Test Phases, and Test Runs:

- **Primary Metrics Test**
  - Sustainability Test Phase and Test Run
  - IOPS Test Phase and Test Run
  - Response Time Ramp Test Phase
    - 95% of IOPS Test Run
    - 90% of IOPS Test Run
    - 80% of IOPS Test Run
    - 50% of IOPS Test Run
    - 10% of IOPS Test Run (LRT)
- **Repeatability Test**
  - Repeatability Test Phase 1
    - 10% of IOPS Test Run (LRT)
    - IOPS Test Run
  - Repeatability Test Phase 2
    - 10% of IOPS Test Run (LRT)
    - IOPS Test Run
- **Data Persistence Test**
  - Data Persistence Test Run 1
  - Data Persistence Test Run 2

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

Primary Metrics Test – Sustainability Test Phase

Clause 5.4.4.1.1

The Sustainability Test Phase has exactly one Test Run and shall demonstrate the maximum sustainable I/O Request Throughput within at least a continuous three (3) hour Measurement Interval. This Test Phase also serves to insure that the TSC has reached Steady State prior to reporting the final maximum I/O Request Throughput result (SPC-1 IOPS™).

Clause 5.4.4.1.2

The computed I/O Request Throughput of the Sustainability Test must be within 5% of the reported SPC-1 IOPS™ result.

Clause 5.4.4.1.4

The Average Response Time, as defined in Clause 5.1.1, will be computed and reported for the Sustainability Test Run and cannot exceed 30 milliseconds. If the Average Response time exceeds that 30-milliseconds constraint, the measurement is invalid.

Clause 9.4.3.7.1

For the Sustainability Test Phase the FDR shall contain:

1. *A Data Rate Distribution graph and data table.*
2. *I/O Request Throughput Distribution graph and data table.*
3. *A Response Time Frequency Distribution graph and table.*
4. *An Average Response Time Distribution graph and table.*
5. *The human readable Test Run Results File produced by the Workload Generator (may be included in an appendix).*
6. *A listing or screen image of all input parameters supplied to the Workload Generator (may be included in an appendix).*
7. *The Measured Intensity Multiplier for each I/O stream.*
8. *The variability of the Measured Intensity Multiplier, as defined in Clause 5.3.13.3.*

SPC-1 Workload Generator Input Parameters

The SPC-1 Workload Generator input parameters for the Sustainability, IOPS, Response Time Ramp, Repeatability, and Persistence Test Runs are documented in "Appendix E: SPC-1 Workload Generator Input Parameters" on Page 103.

Sustainability Test Results File

A link to the test results file generated from the Sustainability Test Run is listed below.

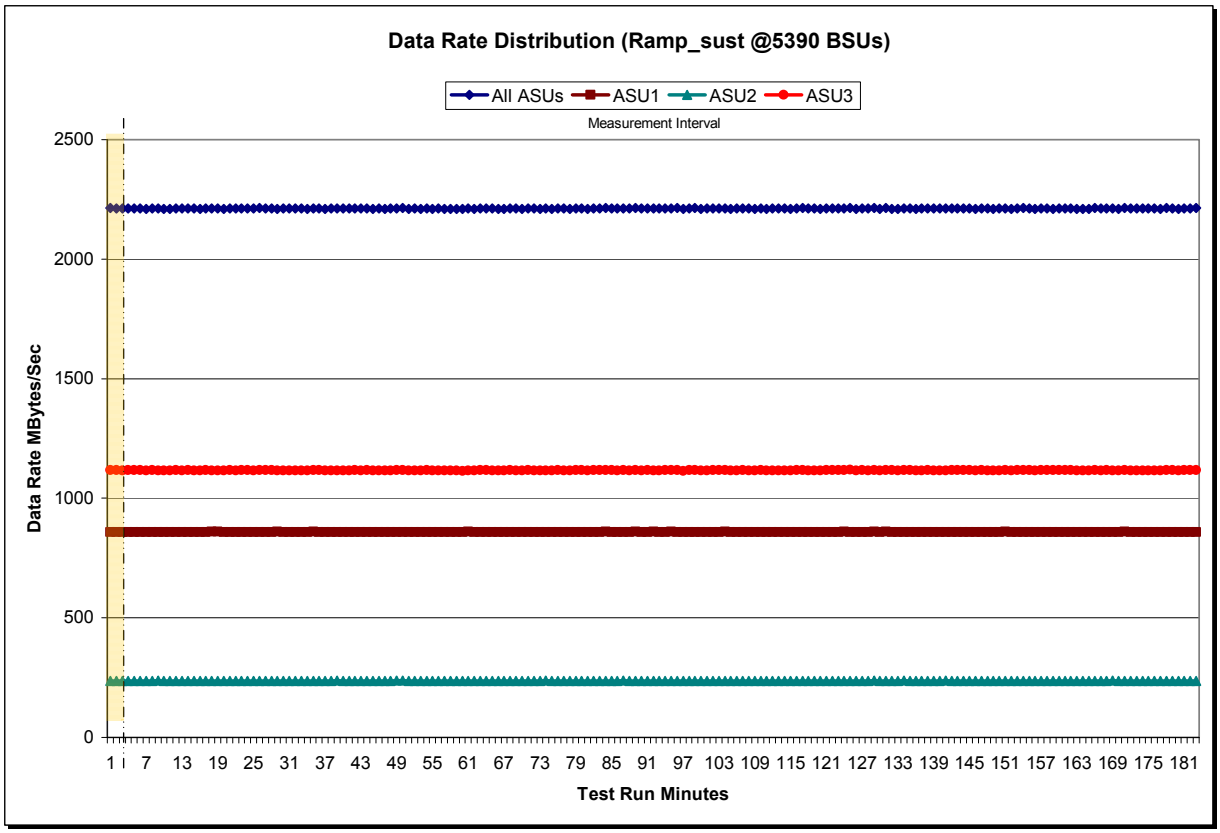
Sustainability Test Results File

Sustainability – Data Rate Distribution Data *(MB/second)*

	Start	Stop	Interval	Duration
Ramp-Up/Start-Up	14:20:19	14:23:19	0-2	0:03:00
Measurement Interval	14:23:19	17:23:19	5-182	3:00:00

Interval	All ASUs	ASU1	ASU2	ASU3	Interval	All ASUs	ASU1	ASU2	ASU3	Interval	All ASUs	ASU1	ASU2	ASU3
0	2,214.01	859.43	236.61	1,117.97	61	2,209.82	858.68	236.06	1,115.07	122	2,211.76	858.56	235.85	1,117.35
1	2,212.47	858.94	236.53	1,117.00	62	2,212.54	858.53	236.31	1,117.70	123	2,212.89	860.03	236.01	1,116.85
2	2,212.06	859.15	236.41	1,116.51	63	2,211.67	858.12	236.46	1,117.09	124	2,214.53	858.73	236.53	1,119.28
3	2,211.22	858.38	235.74	1,117.10	64	2,211.52	859.42	236.36	1,115.74	125	2,210.50	858.91	236.06	1,115.53
4	2,212.29	858.85	236.29	1,117.15	65	2,210.84	859.37	235.58	1,115.89	126	2,212.44	859.11	236.14	1,117.19
5	2,212.04	858.45	236.38	1,117.21	66	2,210.56	858.70	236.25	1,115.61	127	2,211.48	858.70	236.23	1,116.56
6	2,209.95	858.48	235.99	1,115.47	67	2,212.72	858.72	236.59	1,117.41	128	2,214.33	859.61	236.89	1,117.83
7	2,211.31	857.81	235.96	1,117.54	68	2,211.63	858.28	236.57	1,116.78	129	2,210.38	859.05	236.19	1,115.14
8	2,211.22	858.22	236.75	1,116.26	69	2,209.92	858.22	236.00	1,115.69	130	2,213.50	860.04	236.25	1,117.21
9	2,210.83	858.09	236.53	1,116.22	70	2,211.96	858.93	235.96	1,117.08	131	2,210.82	857.90	236.01	1,116.91
10	2,210.12	858.45	235.48	1,116.19	71	2,211.35	858.68	236.35	1,116.32	132	2,211.11	859.05	236.03	1,116.03
11	2,212.51	858.74	235.99	1,117.77	72	2,210.83	858.98	236.53	1,115.33	133	2,212.63	858.60	236.86	1,117.17
12	2,211.31	858.97	235.86	1,116.48	73	2,212.08	858.63	236.74	1,116.71	134	2,212.62	859.36	236.08	1,117.18
13	2,212.33	857.98	236.43	1,117.92	74	2,210.69	858.62	236.16	1,115.90	135	2,210.74	859.04	236.16	1,115.54
14	2,211.74	859.12	236.40	1,116.22	75	2,212.18	858.80	235.99	1,117.40	136	2,211.26	858.72	236.56	1,115.98
15	2,209.84	858.18	236.22	1,115.44	76	2,211.53	859.13	236.51	1,115.89	137	2,212.58	858.88	236.49	1,117.20
16	2,211.99	858.61	236.16	1,117.22	77	2,210.43	858.09	236.01	1,116.34	138	2,211.23	859.27	236.13	1,115.84
17	2,211.94	859.57	235.96	1,116.41	78	2,212.65	858.85	236.41	1,117.40	139	2,211.32	858.87	236.56	1,115.89
18	2,211.45	859.44	235.69	1,116.32	79	2,211.88	858.31	236.38	1,117.19	140	2,211.56	858.12	237.06	1,116.38
19	2,209.60	858.15	236.00	1,115.45	80	2,211.00	859.03	236.27	1,115.70	141	2,211.85	858.68	236.22	1,116.95
20	2,212.04	859.11	236.12	1,116.81	81	2,212.46	859.39	235.77	1,117.30	142	2,211.72	858.57	236.32	1,116.83
21	2,211.82	858.90	236.32	1,116.60	82	2,212.04	859.43	235.74	1,116.87	143	2,212.24	859.34	235.81	1,117.09
22	2,211.58	858.81	235.88	1,116.89	83	2,213.44	859.82	235.74	1,117.87	144	2,212.69	858.65	236.31	1,117.73
23	2,212.79	858.94	236.34	1,117.51	84	2,212.70	859.15	236.37	1,117.18	145	2,210.81	858.91	235.77	1,116.13
24	2,211.99	858.95	236.27	1,116.77	85	2,211.64	858.45	236.59	1,116.61	146	2,211.92	858.76	236.04	1,117.12
25	2,213.69	858.97	236.18	1,118.54	86	2,212.45	858.65	236.80	1,117.00	147	2,211.41	858.87	235.82	1,116.72
26	2,212.34	858.94	236.28	1,117.12	87	2,211.54	858.81	236.19	1,116.54	148	2,210.81	858.70	236.07	1,116.05
27	2,211.61	858.08	236.17	1,117.36	88	2,213.22	859.54	236.31	1,117.37	149	2,211.47	858.96	236.15	1,116.36
28	2,211.07	859.53	236.11	1,115.43	89	2,211.14	859.02	236.27	1,115.85	150	2,212.80	859.49	235.89	1,117.41
29	2,211.74	858.50	236.51	1,116.74	90	2,212.85	859.14	236.08	1,117.62	151	2,210.57	858.12	235.84	1,116.61
30	2,211.46	859.23	236.35	1,115.88	91	2,212.53	859.47	236.65	1,116.41	152	2,212.68	859.18	236.43	1,117.07
31	2,211.16	859.12	236.34	1,115.70	92	2,211.30	859.02	235.95	1,116.33	153	2,213.29	859.03	236.61	1,117.66
32	2,211.81	859.26	235.94	1,116.61	93	2,212.78	859.31	236.39	1,117.08	154	2,212.12	858.62	236.06	1,117.45
33	2,210.91	858.10	236.31	1,116.50	94	2,212.72	859.59	236.15	1,116.98	155	2,210.09	858.31	236.41	1,115.37
34	2,212.70	859.58	236.23	1,116.90	95	2,213.10	859.37	236.23	1,117.50	156	2,212.29	858.16	236.51	1,117.61
35	2,212.79	858.87	236.05	1,117.87	96	2,210.04	859.43	235.67	1,114.94	157	2,212.02	858.00	236.29	1,117.74
36	2,210.73	859.09	236.17	1,115.48	97	2,212.27	859.16	235.98	1,117.13	158	2,210.61	857.67	235.96	1,116.99
37	2,211.73	858.91	236.15	1,116.68	98	2,213.28	859.10	236.07	1,118.12	159	2,212.71	858.63	236.50	1,117.58
38	2,211.24	858.48	236.75	1,116.01	99	2,210.59	858.68	236.03	1,115.89	160	2,212.22	858.59	235.99	1,117.64
39	2,211.46	859.36	236.23	1,115.87	100	2,211.43	859.16	236.17	1,116.09	161	2,212.04	858.56	236.63	1,116.86
40	2,211.85	858.70	236.34	1,116.80	101	2,212.75	859.03	236.17	1,117.54	162	2,211.07	858.42	236.19	1,116.46
41	2,211.32	858.47	235.79	1,117.07	102	2,212.21	858.73	236.11	1,117.37	163	2,209.69	858.23	235.66	1,115.80
42	2,211.33	858.89	236.19	1,116.26	103	2,212.47	859.50	235.88	1,117.09	164	2,210.74	858.51	235.96	1,116.27
43	2,211.48	858.82	235.78	1,116.88	104	2,210.94	858.79	236.21	1,115.94	165	2,212.93	858.56	236.55	1,117.82
44	2,210.80	858.37	236.29	1,116.15	105	2,211.62	858.90	236.67	1,116.04	166	2,211.32	858.71	236.14	1,116.47
45	2,211.40	858.92	236.16	1,116.33	106	2,212.69	859.33	236.02	1,117.34	167	2,212.69	858.58	235.67	1,118.43
46	2,210.78	859.20	235.94	1,115.64	107	2,211.71	859.39	235.85	1,116.46	168	2,211.61	858.17	236.74	1,116.70
47	2,211.13	858.19	236.43	1,116.51	108	2,210.11	858.36	235.84	1,115.91	169	2,210.82	859.06	235.94	1,115.82
48	2,212.40	858.41	237.12	1,116.88	109	2,212.51	858.99	236.46	1,117.06	170	2,213.80	859.44	236.55	1,117.81
49	2,212.96	859.08	236.69	1,117.19	110	2,209.60	858.07	236.45	1,115.08	171	2,211.50	858.93	236.53	1,116.04
50	2,210.46	858.39	235.99	1,116.08	111	2,211.32	858.66	236.42	1,116.25	172	2,211.53	859.12	236.17	1,116.25
51	2,211.20	859.31	236.39	1,115.50	112	2,211.78	858.95	236.59	1,116.25	173	2,211.36	858.56	236.39	1,116.40
52	2,210.56	858.76	235.84	1,115.96	113	2,211.19	858.01	236.53	1,116.65	174	2,211.46	858.83	236.13	1,116.50
53	2,212.54	858.64	236.03	1,117.87	114	2,211.06	859.29	236.11	1,115.65	175	2,211.40	859.07	236.42	1,115.91
54	2,210.26	858.23	236.26	1,115.77	115	2,211.51	858.45	235.92	1,117.14	176	2,210.16	858.34	235.72	1,116.10
55	2,211.29	859.07	236.34	1,115.87	116	2,213.58	859.09	236.33	1,118.15	177	2,213.00	858.77	236.51	1,117.71
56	2,210.58	858.40	236.08	1,116.10	117	2,212.22	859.19	236.38	1,116.65	178	2,212.58	859.22	235.74	1,117.63
57	2,210.23	857.96	236.41	1,115.87	118	2,212.00	859.19	236.52	1,116.29	179	2,210.46	858.24	236.52	1,115.70
58	2,210.56	859.11	235.88	1,115.57	119	2,210.54	858.58	236.22	1,115.74	180	2,212.81	859.24	236.36	1,117.21
59	2,209.45	858.45	236.22	1,114.79	120	2,211.77	858.78	235.96	1,117.03	181	2,211.74	858.58	236.31	1,116.85
60	2,212.69	859.58	236.61	1,116.50	121	2,212.19	858.46	236.16	1,117.58	182	2,213.43	858.59	236.26	1,118.58

Sustainability – Data Rate Distribution Graph

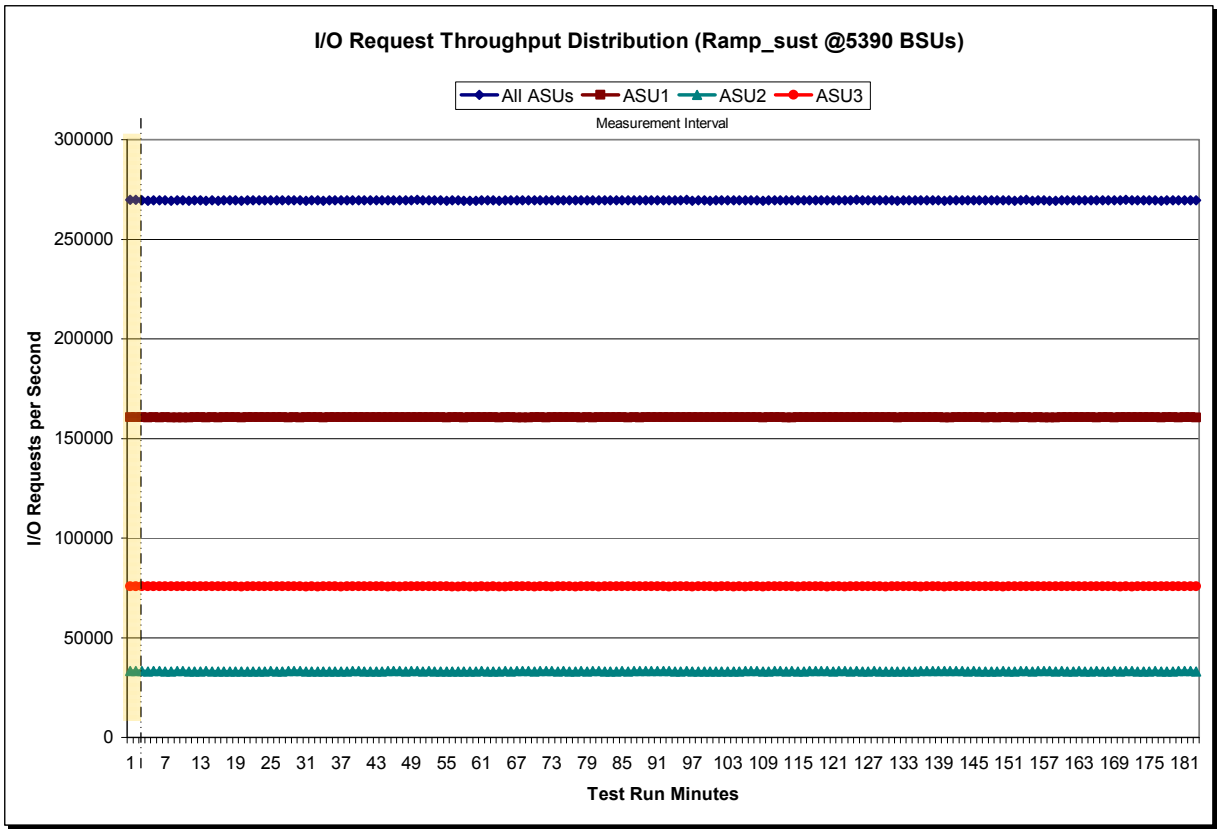


Sustainability – I/O Request Throughput Distribution Data

	Start	Stop	Interval	Duration
Ramp-Up/Start-Up	14:20:19	14:23:19	0-2	0:03:00
Measurement Interval	14:23:19	17:23:19	5-182	3:00:00

Interval	All ASUs	ASU1	ASU2	ASU3	Interval	All ASUs	ASU1	ASU2	ASU3	Interval	All ASUs	ASU1	ASU2	ASU3
0	269,683.25	160,661.18	33,206.00	75,816.07	61	269,489.10	160,664.23	33,130.80	75,694.07	122	269,487.33	160,613.73	33,174.77	75,698.83
1	269,658.83	160,720.43	33,174.00	75,764.40	62	269,479.08	160,601.28	33,152.67	75,725.13	123	269,569.53	160,714.40	33,117.33	75,737.80
2	269,534.82	160,637.73	33,171.85	75,725.23	63	269,429.47	160,582.80	33,147.58	75,699.08	124	269,728.80	160,699.15	33,190.40	75,839.25
3	269,387.37	160,552.63	33,126.38	75,708.35	64	269,540.50	160,711.28	33,159.58	75,669.63	125	269,464.97	160,609.03	33,144.15	75,711.78
4	269,562.12	160,645.20	33,158.02	75,758.90	65	269,503.58	160,634.82	33,124.20	75,744.57	126	269,467.95	160,603.23	33,116.13	75,748.58
5	269,502.18	160,536.28	33,177.35	75,788.55	66	269,447.03	160,578.15	33,158.95	75,709.93	127	269,494.23	160,594.60	33,163.70	75,735.93
6	269,458.35	160,630.60	33,122.48	75,705.27	67	269,505.70	160,571.05	33,169.58	75,765.07	128	269,650.40	160,733.02	33,153.33	75,764.05
7	269,435.38	160,549.40	33,132.92	75,753.07	68	269,465.95	160,533.05	33,164.00	75,768.90	129	269,476.28	160,669.75	33,123.63	75,682.90
8	269,474.35	160,572.00	33,156.20	75,746.15	69	269,445.67	160,621.62	33,137.15	75,686.90	130	269,539.22	160,687.53	33,146.63	75,705.05
9	269,477.73	160,578.68	33,194.30	75,704.75	70	269,572.62	160,638.15	33,182.77	75,751.70	131	269,421.07	160,494.23	33,136.75	75,790.08
10	269,408.60	160,551.57	33,132.98	75,724.05	71	269,455.48	160,554.87	33,175.88	75,724.73	132	269,452.65	160,620.48	33,124.12	75,708.05
11	269,514.22	160,602.38	33,150.98	75,760.85	72	269,447.33	160,585.40	33,176.25	75,685.68	133	269,553.32	160,642.40	33,142.72	75,768.20
12	269,486.85	160,614.63	33,114.67	75,757.55	73	269,487.87	160,595.02	33,146.43	75,746.42	134	269,543.77	160,686.77	33,106.78	75,750.22
13	269,424.10	160,506.05	33,199.08	75,718.97	74	269,589.83	160,696.45	33,167.42	75,725.97	135	269,508.92	160,637.92	33,169.55	75,701.45
14	269,539.02	160,660.30	33,136.28	75,742.43	75	269,512.93	160,637.75	33,127.47	75,747.72	136	269,507.33	160,632.48	33,170.78	75,704.07
15	269,399.55	160,541.17	33,147.02	75,711.37	76	269,449.90	160,603.37	33,147.20	75,699.33	137	269,528.58	160,648.80	33,171.58	75,708.20
16	269,468.05	160,603.90	33,120.95	75,743.20	77	269,451.00	160,534.57	33,163.28	75,753.15	138	269,545.68	160,685.83	33,155.45	75,704.40
17	269,604.02	160,725.07	33,130.10	75,748.85	78	269,538.27	160,641.68	33,146.78	75,749.80	139	269,416.27	160,569.72	33,175.72	75,670.83
18	269,521.28	160,682.55	33,131.13	75,707.60	79	269,441.20	160,543.78	33,177.17	75,720.25	140	269,523.17	160,568.93	33,170.93	75,783.30
19	269,406.65	160,577.65	33,133.48	75,695.52	80	269,572.30	160,724.85	33,154.17	75,693.28	141	269,539.37	160,638.83	33,175.32	75,725.22
20	269,551.48	160,666.30	33,131.37	75,753.82	81	269,493.97	160,635.75	33,137.43	75,720.78	142	269,559.80	160,638.55	33,168.90	75,752.35
21	269,536.45	160,647.32	33,132.70	75,756.43	82	269,501.95	160,644.30	33,128.13	75,729.52	143	269,596.28	160,658.73	33,118.40	75,819.15
22	269,439.68	160,617.10	33,100.55	75,722.03	83	269,596.92	160,742.75	33,141.22	75,712.95	144	269,516.22	160,619.23	33,171.10	75,725.88
23	269,569.00	160,639.75	33,149.90	75,779.35	84	269,585.90	160,645.88	33,167.45	75,772.57	145	269,451.20	160,647.88	33,092.97	75,710.35
24	269,572.68	160,689.67	33,159.13	75,723.88	85	269,477.53	160,562.90	33,146.55	75,768.08	146	269,438.82	160,570.97	33,135.62	75,732.23
25	269,576.65	160,691.75	33,139.67	75,745.23	86	269,516.25	160,622.52	33,175.53	75,718.20	147	269,571.60	160,673.22	33,140.35	75,758.03
26	269,526.85	160,592.15	33,143.17	75,791.53	87	269,496.65	160,569.70	33,157.73	75,769.22	148	269,469.42	160,573.60	33,140.05	75,755.77
27	269,458.10	160,532.43	33,170.30	75,755.37	88	269,558.78	160,649.52	33,174.90	75,734.37	149	269,527.67	160,689.43	33,164.95	75,673.28
28	269,573.78	160,679.40	33,191.98	75,702.40	89	269,545.52	160,606.60	33,182.87	75,756.05	150	269,525.15	160,655.32	33,128.02	75,741.82
29	269,467.87	160,581.78	33,161.10	75,724.98	90	269,591.27	160,662.77	33,161.87	75,766.63	151	269,426.55	160,564.02	33,151.37	75,711.17
30	269,423.57	160,624.48	33,108.15	75,690.93	91	269,601.33	160,660.20	33,166.42	75,774.72	152	269,596.15	160,679.93	33,164.03	75,752.18
31	269,536.57	160,664.88	33,151.05	75,720.63	92	269,449.45	160,620.65	33,164.28	75,664.52	153	269,668.20	160,721.08	33,170.85	75,776.27
32	269,523.40	160,705.73	33,130.52	75,687.15	93	269,541.25	160,643.95	33,144.93	75,752.37	154	269,416.02	160,580.17	33,125.77	75,710.08
33	269,366.50	160,550.05	33,101.37	75,715.08	94	269,531.45	160,675.42	33,153.07	75,702.97	155	269,462.23	160,584.90	33,165.93	75,711.40
34	269,580.83	160,702.08	33,123.13	75,755.62	95	269,674.50	160,696.57	33,184.53	75,793.40	156	269,472.05	160,580.25	33,154.02	75,737.78
35	269,506.18	160,647.77	33,118.62	75,739.80	96	269,408.90	160,651.10	33,121.18	75,636.62	157	269,428.15	160,465.73	33,171.03	75,791.38
36	269,457.53	160,639.50	33,145.12	75,672.92	97	269,627.72	160,706.17	33,147.35	75,774.20	158	269,375.32	160,504.08	33,130.32	75,740.92
37	269,539.37	160,648.17	33,151.00	75,740.20	98	269,587.35	160,668.50	33,149.43	75,769.42	159	269,595.63	160,623.77	33,171.98	75,799.88
38	269,472.20	160,590.02	33,154.58	75,727.60	99	269,408.80	160,587.53	33,117.37	75,703.90	160	269,514.43	160,604.92	33,141.73	75,767.78
39	269,509.28	160,635.68	33,171.50	75,702.10	100	269,516.28	160,689.18	33,126.53	75,700.57	161	269,580.25	160,701.80	33,148.48	75,729.97
40	269,547.73	160,646.23	33,148.42	75,753.08	101	269,604.95	160,678.52	33,137.73	75,788.70	162	269,561.65	160,612.02	33,170.00	75,779.63
41	269,552.03	160,623.57	33,146.07	75,782.40	102	269,472.73	160,616.35	33,130.62	75,725.77	163	269,476.27	160,617.03	33,126.47	75,732.77
42	269,494.02	160,593.28	33,142.02	75,758.72	103	269,562.05	160,717.47	33,152.97	75,691.62	164	269,534.02	160,623.05	33,108.78	75,802.18
43	269,500.62	160,604.80	33,133.33	75,762.48	104	269,503.52	160,638.12	33,134.50	75,730.90	165	269,540.13	160,580.85	33,161.30	75,797.98
44	269,465.20	160,612.42	33,170.83	75,681.95	105	269,439.53	160,597.28	33,163.35	75,678.90	166	269,565.90	160,672.40	33,152.88	75,740.62
45	269,571.63	160,680.08	33,188.87	75,702.68	106	269,559.77	160,661.00	33,185.60	75,713.17	167	269,595.32	160,674.67	33,140.58	75,780.07
46	269,480.97	160,685.27	33,160.72	75,634.98	107	269,526.52	160,637.75	33,159.17	75,729.60	168	269,477.03	160,566.55	33,180.37	75,730.12
47	269,539.05	160,657.07	33,128.82	75,753.17	108	269,412.08	160,567.92	33,148.25	75,695.92	169	269,526.00	160,703.83	33,126.58	75,695.58
48	269,577.73	160,618.50	33,181.35	75,777.88	109	269,553.00	160,685.20	33,153.15	75,714.65	170	269,681.52	160,676.67	33,181.20	75,823.65
49	269,658.77	160,712.72	33,183.68	75,762.37	110	269,466.37	160,594.02	33,167.52	75,704.83	171	269,444.62	160,625.53	33,155.57	75,663.52
50	269,610.92	160,699.10	33,140.88	75,770.93	111	269,597.60	160,657.47	33,184.82	75,755.32	172	269,494.22	160,656.05	33,118.70	75,719.47
51	269,532.43	160,648.73	33,171.08	75,712.62	112	269,478.03	160,564.20	33,146.00	75,767.83	173	269,563.58	160,683.65	33,152.25	75,727.68
52	269,451.07	160,620.07	33,102.48	75,728.52	113	269,455.37	160,501.07	33,162.15	75,792.15	174	269,461.23	160,605.33	33,141.35	75,714.55
53	269,563.05	160,650.60	33,137.05	75,775.40	114	269,456.32	160,639.97	33,122.58	75,693.77	175	269,565.40	160,671.07	33,170.85	75,723.48
54	269,397.70	160,569.17	33,114.10	75,714.43	115	269,457.80	160,602.45	33,131.13	75,724.22	176	269,313.42	160,502.85	33,099.80	75,710.77
55	269,457.85	160,629.92	33,138.17	75,689.77	116	269,565.42	160,661.65	33,160.85	75,742.92	177	269,491.15	160,647.05	33,113.98	75,730.12
56	269,465.88	160,641.07	33,124.53	75,700.28	117	269,545.77	160,636.60	33,176.28	75,732.88	178	269,509.93	160,596.77	33,149.37	75,763.80
57	269,389.35	160,539.28	33,144.62	75,705.45	118	269,540.87	160,666.95	33,160.10	75,713.82	179	269,468.98	160,565.48	33,164.73	75,738.77
58	269,421.58	160,667.98	33,089.92	75,663.68	119	269,482.12	160,636.27	33,160.88	75,684.97	180	269,579.73	160,679.18	33,155.37	75,745.18
59	269,380.48	160,591.03	33,117.05	75,672.40	120	269,517.90	160,627.32	33,137.33	75,753.25	181	269,505.32	160,627.68	33,160.32	75,717.32
60	269,588.95	160,680.03	33,158.92	75,750.00	121	269,494.93	160,592.62	33,160.85	75,741.47	182	269,495.30	160,572.62	33,120.70	75,801.98
										179	***269,468.98***	***160,565.48***	***33,164.73***	***75,738.77***

Sustainability – I/O Request Throughput Distribution Graph

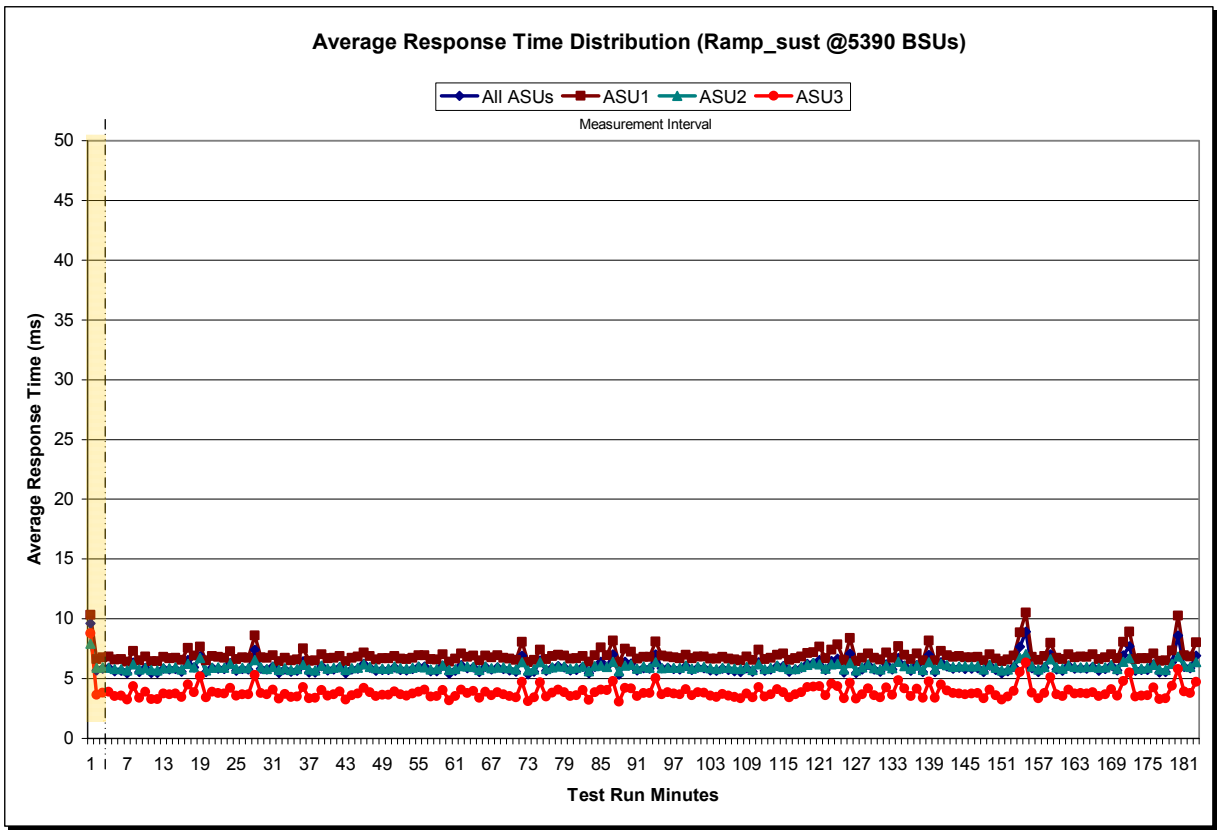


Sustainability – Average Response Time (ms) Distribution Data

	Start	Stop	Interval	Duration
Ramp-Up/Start-Up	14:20:19	14:23:19	0-2	0:03:00
Measurement Interval	14:23:19	17:23:19	5-182	3:00:00

Interval	All ASUs	ASU1	ASU2	ASU3	Interval	All ASUs	ASU1	ASU2	ASU3	Interval	All ASUs	ASU1	ASU2	ASU3
0	9.61	10.34	7.91	8.80	61	6.11	7.09	6.04	4.05	122	6.47	7.42	6.19	4.57
1	5.70	6.63	5.91	3.65	62	5.85	6.79	6.02	3.78	123	6.66	7.84	6.22	4.36
2	5.84	6.77	5.94	3.82	63	5.96	6.90	5.98	3.95	124	5.52	6.50	5.76	3.34
3	5.89	6.83	5.91	3.90	64	5.55	6.52	5.73	3.40	125	7.09	8.40	6.31	4.66
4	5.63	6.59	5.81	3.53	65	5.96	6.93	6.01	3.88	126	5.48	6.46	5.70	3.32
5	5.66	6.62	5.79	3.58	66	5.77	6.77	5.87	3.61	127	5.77	6.73	5.93	3.69
6	5.44	6.42	5.68	3.24	67	5.95	6.95	5.95	3.85	128	6.16	7.08	6.20	4.18
7	6.35	7.32	6.19	4.35	68	5.78	6.74	5.94	3.69	129	5.74	6.73	5.86	3.59
8	5.53	6.51	5.75	3.37	69	5.68	6.65	5.86	3.54	130	5.59	6.57	5.76	3.43
9	5.90	6.84	5.87	3.90	70	5.56	6.53	5.78	3.41	131	6.20	7.15	6.09	4.23
10	5.46	6.44	5.74	3.26	71	6.91	8.07	6.37	4.70	132	5.76	6.73	5.87	3.64
11	5.46	6.43	5.70	3.28	72	5.37	6.36	5.70	3.11	133	6.75	7.70	6.42	4.85
12	5.82	6.81	5.87	3.73	73	5.57	6.56	5.77	3.41	134	6.08	6.98	6.03	4.18
13	5.75	6.70	5.85	3.69	74	6.51	7.40	6.37	4.68	135	5.66	6.62	5.85	3.53
14	5.80	6.75	5.93	3.73	75	5.63	6.61	5.81	3.48	136	6.13	7.09	6.07	4.13
15	5.59	6.56	5.76	3.47	76	5.91	6.89	5.93	3.82	137	5.54	6.51	5.73	3.38
16	6.54	7.56	6.24	4.50	77	6.04	6.98	6.01	4.06	138	6.99	8.17	6.38	4.74
17	5.93	6.90	5.95	3.86	78	5.93	6.90	6.03	3.84	139	5.55	6.51	5.76	3.40
18	6.86	7.67	6.73	5.19	79	5.68	6.65	5.82	3.54	140	6.39	7.30	6.24	4.51
19	5.54	6.51	5.69	3.42	80	5.73	6.69	5.91	3.61	141	6.02	6.94	6.11	4.00
20	5.92	6.88	5.91	3.87	81	5.97	6.88	6.01	4.03	142	5.85	6.79	5.97	3.79
21	5.84	6.79	5.93	3.79	82	5.42	6.42	5.63	3.21	143	5.90	6.88	6.03	3.76
22	5.80	6.74	5.92	3.73	83	5.97	6.95	6.04	3.87	144	5.81	6.77	6.04	3.66
23	6.29	7.27	6.23	4.22	84	6.42	7.60	6.08	4.07	145	5.83	6.77	6.00	3.75
24	5.67	6.63	5.83	3.56	85	6.01	6.95	5.99	4.04	146	5.87	6.82	6.04	3.78
25	5.80	6.78	5.90	3.67	86	7.02	8.19	6.41	4.80	147	5.54	6.53	5.76	3.35
26	5.76	6.73	5.86	3.68	87	5.32	6.32	5.62	3.08	148	6.08	7.01	6.16	4.06
27	7.42	8.61	6.54	5.28	88	6.40	7.49	6.09	4.22	149	5.71	6.66	5.91	3.60
28	5.82	6.77	5.92	3.77	89	6.25	7.25	6.15	4.18	150	5.44	6.43	5.70	3.23
29	5.74	6.71	5.78	3.67	90	5.67	6.66	5.82	3.51	151	5.61	6.59	5.76	3.49
30	6.03	6.96	5.98	4.08	91	5.85	6.81	6.02	3.76	152	5.96	6.90	6.00	3.96
31	5.48	6.46	5.72	3.31	92	5.84	6.80	5.89	3.77	153	7.67	8.87	6.74	5.54
32	5.77	6.72	5.88	3.70	93	7.02	8.10	6.38	5.03	154	8.91	10.51	7.07	6.34
33	5.56	6.53	5.71	3.45	94	5.86	6.90	5.87	3.66	155	5.86	6.81	6.00	3.80
34	5.63	6.60	5.81	3.51	95	5.89	6.85	5.89	3.85	156	5.56	6.55	5.76	3.36
35	6.44	7.51	6.17	4.28	96	5.80	6.76	5.91	3.73	157	5.91	6.89	5.98	3.79
36	5.52	6.49	5.77	3.36	97	5.76	6.71	5.90	3.67	158	7.02	7.99	6.61	5.13
37	5.52	6.51	5.68	3.37	98	6.06	6.99	6.07	4.09	159	5.76	6.73	5.93	3.66
38	6.07	7.02	6.08	4.04	99	5.72	6.69	5.84	3.61	160	5.65	6.62	5.85	3.51
39	5.70	6.68	5.83	3.56	100	5.90	6.85	5.99	3.84	161	6.09	7.04	6.10	4.06
40	5.76	6.71	5.89	3.69	101	5.87	6.82	5.99	3.80	162	5.83	6.78	5.98	3.75
41	5.94	6.89	5.99	3.91	102	5.69	6.65	5.87	3.58	163	5.88	6.85	5.96	3.78
42	5.44	6.43	5.71	3.23	103	5.64	6.64	5.80	3.46	164	5.85	6.81	5.99	3.75
43	5.75	6.74	5.88	3.61	104	5.82	6.80	5.90	3.72	165	5.99	7.01	5.98	3.85
44	5.85	6.82	5.90	3.74	105	5.71	6.67	5.90	3.58	166	5.67	6.63	5.89	3.52
45	6.22	7.18	6.19	4.21	106	5.62	6.59	5.85	3.45	167	5.80	6.77	5.93	3.68
46	5.91	6.87	5.97	3.87	107	5.54	6.52	5.80	3.34	168	6.09	7.02	6.11	4.10
47	5.64	6.59	5.86	3.52	108	5.88	6.85	5.98	3.76	169	5.70	6.70	5.79	3.55
48	5.73	6.71	5.83	3.63	109	5.57	6.55	5.72	3.42	170	6.94	8.06	6.40	4.79
49	5.72	6.68	5.83	3.64	110	6.37	7.40	6.19	4.28	171	7.69	8.93	6.69	5.50
50	5.93	6.86	6.02	3.92	111	5.66	6.64	5.81	3.50	172	5.65	6.63	5.84	3.51
51	5.73	6.68	5.88	3.67	112	5.78	6.74	5.89	3.68	173	5.71	6.69	5.83	3.56
52	5.67	6.63	5.84	3.57	113	6.05	6.98	6.07	4.09	174	5.72	6.68	5.91	3.58
53	5.80	6.74	5.91	3.76	114	6.04	7.08	5.96	3.86	175	6.18	7.09	6.15	4.25
54	5.97	6.95	5.99	3.89	115	5.58	6.56	5.81	3.40	176	5.50	6.49	5.77	3.28
55	6.01	6.93	5.94	4.08	116	5.74	6.71	5.81	3.66	177	5.53	6.52	5.71	3.35
56	5.63	6.61	5.78	3.48	117	5.89	6.84	5.98	3.84	178	6.37	7.34	6.23	4.40
57	5.63	6.60	5.80	3.51	118	6.23	7.15	6.17	4.30	179	8.59	10.27	6.85	5.80
58	6.07	7.02	6.09	4.05	119	6.29	7.22	6.29	4.33	180	5.99	6.94	6.09	3.92
59	5.42	6.41	5.73	3.18	120	6.56	7.68	6.18	4.37	181	5.87	6.84	5.97	3.79
60	5.67	6.65	5.81	3.52	121	5.72	6.70	5.83	3.60	182	6.90	8.03	6.36	4.72
										Average	***5.96***	***6.94***	***5.97***	***3.85***

Sustainability – Average Response Time (ms) Distribution Graph



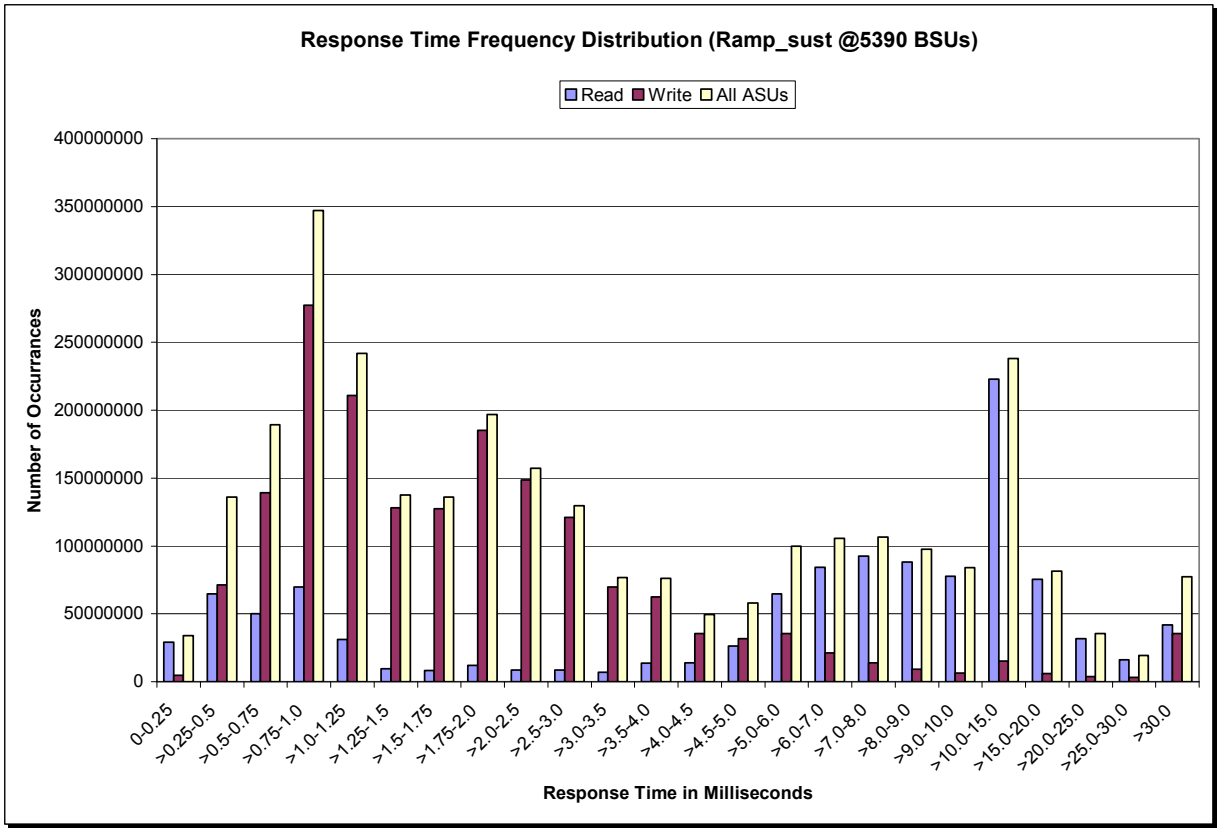
Sustainability – Response Time Frequency Distribution Data

Response Time (ms)	0-0.25	>0.25-0.5	>0.5-0.75	>0.75-1.0	>1.0-1.25	>1.25-1.5	>1.5-1.75	>1.75-2.0
Read	29,175,673	64,724,775	50,201,638	69,835,598	31,099,775	9,402,408	8,381,385	11,946,111
Write	4,812,267	71,170,027	138,999,205	277,190,647	210,872,770	128,089,026	127,479,029	184,952,299
All ASUs	33,987,940	135,894,802	189,200,843	347,026,245	241,972,545	137,491,434	135,860,414	196,898,410
ASU1	24,789,660	81,453,650	101,009,362	177,309,336	117,044,598	63,200,696	61,671,560	88,684,129
ASU2	7,396,359	24,893,260	28,053,643	46,213,908	28,161,953	14,225,909	14,061,627	20,751,043
ASU3	1,801,921	29,547,892	60,137,838	123,503,001	96,765,994	60,064,829	60,127,227	87,463,238

Response Time (ms)	>2.0-2.5	>2.5-3.0	>3.0-3.5	>3.5-4.0	>4.0-4.5	>4.5-5.0	>5.0-6.0	>6.0-7.0
Read	8,614,993	8,444,819	7,044,373	13,679,576	13,968,073	26,362,818	64,583,106	84,314,678
Write	148,642,866	121,172,968	69,636,270	62,475,204	35,629,775	31,779,545	35,357,674	21,136,181
All ASUs	157,257,859	129,617,787	76,680,643	76,154,780	49,597,848	58,142,363	99,940,780	105,450,859
ASU1	69,501,057	57,293,651	34,823,335	38,046,587	27,410,964	37,229,488	73,416,429	84,903,662
ASU2	16,761,916	14,356,366	8,360,627	8,200,980	5,127,604	5,813,932	9,763,199	10,520,698
ASU3	70,994,886	57,967,770	33,496,681	29,907,213	17,059,280	15,098,943	16,761,152	10,026,499

Response Time (ms)	>7.0-8.0	>8.0-9.0	>9.0-10.0	>10.0-15.0	>15.0-20.0	>20.0-25.0	>25.0-30.0	>30.0
Read	92,500,357	88,208,753	77,604,261	222,828,948	75,388,778	31,601,541	16,229,996	41,807,987
Write	13,891,417	9,345,018	6,496,468	15,065,571	5,958,227	3,900,581	3,241,334	35,449,686
All ASUs	106,391,774	97,553,771	84,100,729	237,894,519	81,347,005	35,502,122	19,471,330	77,257,673
ASU1	88,492,872	81,958,601	70,876,539	199,465,569	66,268,512	27,574,290	14,363,407	47,983,487
ASU2	11,245,164	11,069,461	10,052,370	30,993,300	12,124,638	5,969,853	3,456,127	10,431,050
ASU3	6,653,738	4,525,709	3,171,820	7,435,650	2,953,855	1,957,979	1,651,796	18,843,136

Sustainability – Response Time Frequency Distribution Graph



Sustainability – Measured Intensity Multiplier and Coefficient of Variation

Clause 3.4.3

IM – Intensity Multiplier: *The ratio of I/Os for each I/O stream relative to the total I/Os for all I/O streams (ASU1-1 – ASU3-1) as required by the benchmark specification.*

Clauses 5.1.10 and 5.3.13.2

MIM – Measured Intensity Multiplier: *The Measured Intensity Multiplier represents the ratio of measured I/Os for each I/O stream relative to the total I/Os measured for all I/O streams (ASU1-1 – ASU3-1). This value may differ from the corresponding Expected Intensity Multiplier by no more than 5%.*

Clause 5.3.13.3

COV – Coefficient of Variation: *This measure of variation for the Measured Intensity Multiplier cannot exceed 0.2.*

	ASU1-1	ASU1-2	ASU1-3	ASU1-4	ASU2-1	ASU2-2	ASU2-3	ASU3-1
IM	***0.0350***	***0.2810***	***0.0700***	***0.2100***	***0.0180***	***0.0700***	***0.0350***	***0.2810***
MIM	0.0350	0.2810	0.0700	0.2100	0.0180	0.0700	0.0350	0.2810
COV	0.001	0.000	0.001	0.000	0.002	0.001	0.001	0.000

Primary Metrics Test – IOPS Test Phase

Clause 5.4.4.2

The IOPS Test Phase consists of one Test Run at the 100% load point with a Measurement Interval of ten (10) minutes. The IOPS Test Phase immediately follows the Sustainability Test Phase without any interruption or manual intervention.

The IOPS Test Run generates the SPC-1 IOPS™ primary metric, which is computed as the I/O Request Throughput for the Measurement Interval of the IOPS Test Run.

The Average Response Time is computed for the IOPS Test Run and cannot exceed 30 milliseconds. If the Average Response Time exceeds the 30 millisecond constraint, the measurement is invalid.

Clause 9.4.3.7.2

For the IOPS Test Phase the FDR shall contain:

1. *I/O Request Throughput Distribution (data and graph).*
2. *A Response Time Frequency Distribution.*
3. *An Average Response Time Distribution.*
4. *The human readable Test Run Results File produced by the Workload Generator.*
5. *A listing or screen image of all input parameters supplied t the Workload Generator.*
6. *The total number of I/O Requests completed in the Measurement Interval as well as the number of I/O Requests with a Response Time less than or equal to 30 milliseconds and the number of I/O Requests with a Response Time greater than 30 milliseconds.*

SPC-1 Workload Generator Input Parameters

The SPC-1 Workload Generator input parameters for the Sustainability, IOPS, Response Time Ramp, Repeatability, and Persistence Test Runs are documented in "Appendix E: SPC-1 Workload Generator Input Parameters" on Page 103.

IOPS Test Results File

A link to the test results file generated from the IOPS Test Run is listed below.

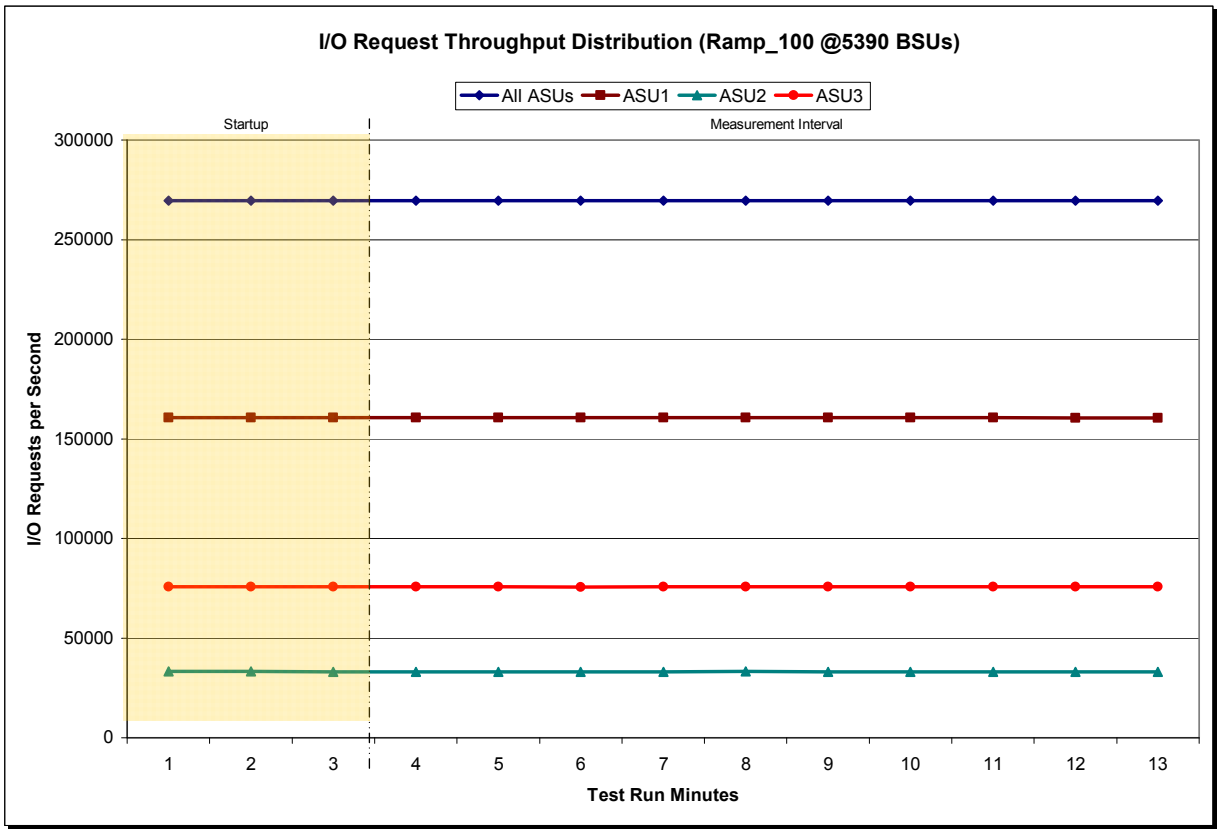
IOPS Test Results File

IOPS Test Run – I/O Request Throughput Distribution Data

5390 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	17:26:04	17:29:05	0-2	0:03:01
Measurement Interval	17:29:05	17:39:05	3-12	0:10:00

60 second intervals	All ASUs	ASU1	ASU2	ASU3
0	9.35	10.17	7.63	8.37
1	5.56	6.53	5.76	3.44
2	5.80	6.74	5.92	3.75
3	5.74	6.71	5.88	3.63
4	5.49	6.47	5.76	3.30
5	5.86	6.83	5.86	3.79
6	5.55	6.54	5.79	3.36
7	5.55	6.53	5.71	3.41
8	5.51	6.49	5.70	3.35
9	7.62	9.00	6.58	5.16
10	5.64	6.61	5.78	3.52
11	5.37	6.36	5.67	3.13
12	6.22	7.17	6.13	4.23
Average	***5.85***	***6.87***	***5.89***	***3.69***

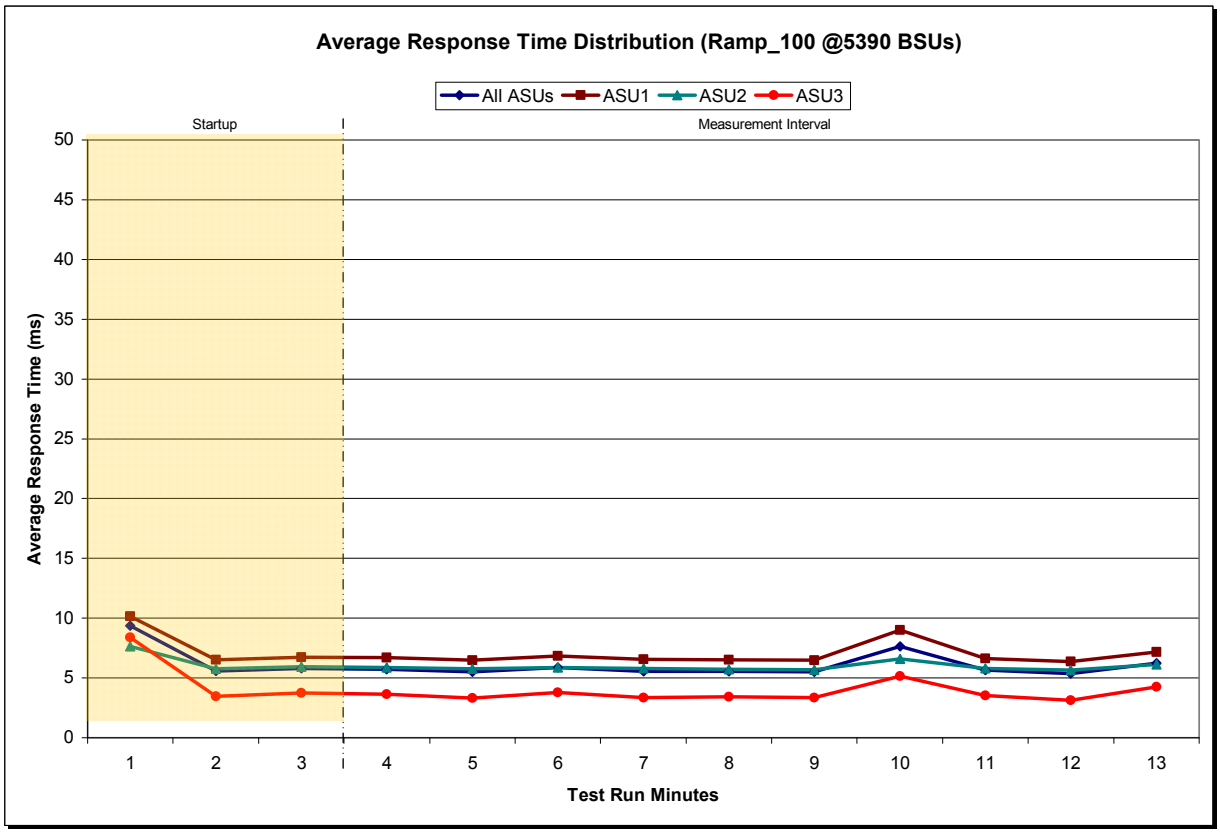
IOPS Test Run – I/O Request Throughput Distribution Graph



IOPS Test Run – Average Response Time (ms) Distribution Data

5390 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	17:26:04	17:29:05	0-2	0:03:01
Measurement Interval	17:29:05	17:39:05	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	269,584.77	160,589.18	33,177.78	75,817.80
1	269,512.90	160,609.28	33,172.85	75,730.77
2	269,462.18	160,599.40	33,139.70	75,723.08
3	269,568.55	160,676.47	33,132.72	75,759.37
4	269,562.40	160,689.15	33,119.33	75,753.92
5	269,454.95	160,636.22	33,139.87	75,678.87
6	269,560.37	160,682.00	33,115.67	75,762.70
7	269,518.97	160,621.38	33,169.87	75,727.72
8	269,559.98	160,661.60	33,147.85	75,750.53
9	269,457.18	160,604.20	33,129.18	75,723.80
10	269,476.27	160,608.68	33,129.07	75,738.52
11	269,443.08	160,565.15	33,146.32	75,731.62
12	269,465.15	160,562.33	33,152.48	75,750.33
Average	***269,506.69***	***160,630.72***	***33,138.24***	***75,737.74***

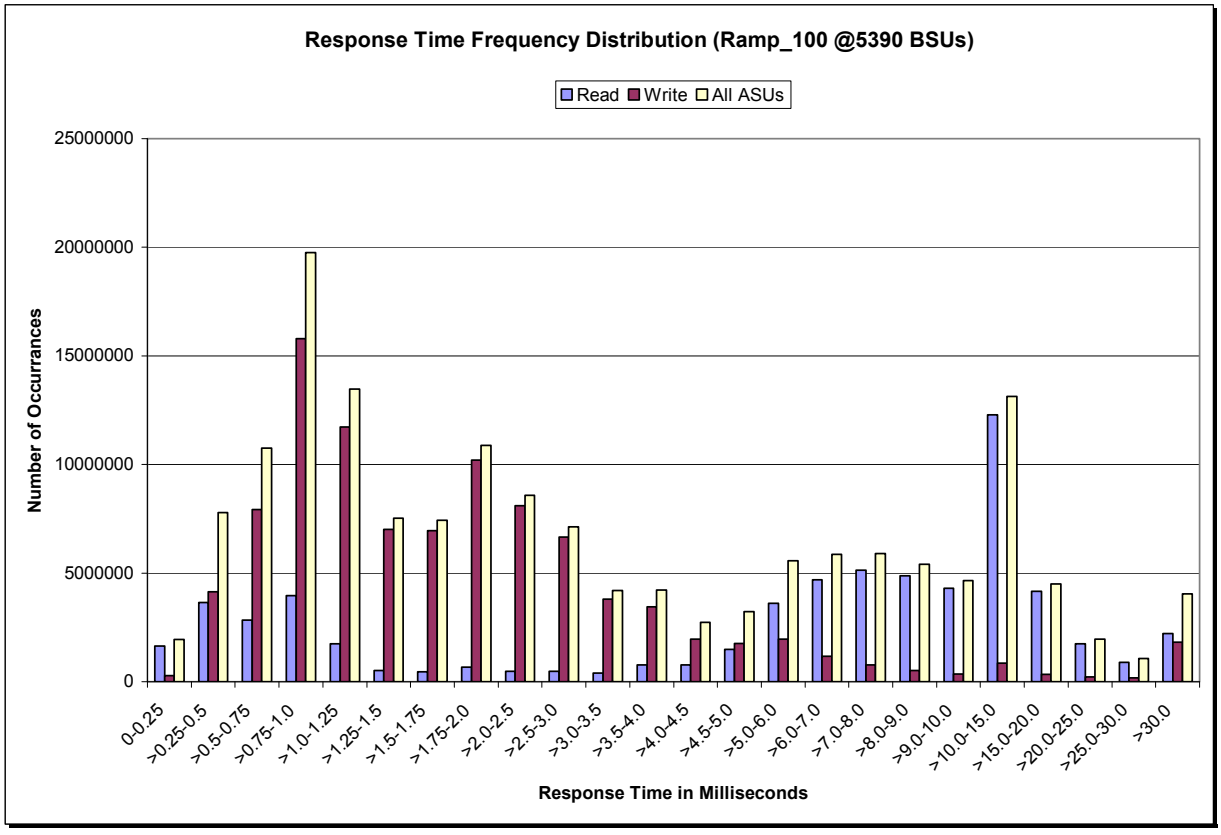
IOPS Test Run – Average Response Time (ms) Distribution Graph



IOPS Test Run – Response Time Frequency Distribution Data

Response Time (ms)	0-0.25	>0.25-0.5	>0.5-0.75	>0.75-1.0	>1.0-1.25	>1.25-1.5	>1.5-1.75	>1.75-2.0
Read	1,651,055	3,648,279	2,826,155	3,963,030	1,745,402	518,229	463,878	668,659
Write	282,626	4,139,318	7,933,478	15,788,779	11,732,582	7,004,382	6,960,420	10,202,491
All ASUs	1,933,681	7,787,597	10,759,633	19,751,809	13,477,984	7,522,611	7,424,298	10,871,150
ASU1	1,415,119	4,669,087	5,737,667	10,082,591	6,519,494	3,455,054	3,372,451	4,898,515
ASU2	412,485	1,399,413	1,579,852	2,616,392	1,567,014	775,808	765,147	1,141,301
ASU3	106,077	1,719,097	3,442,114	7,052,826	5,391,476	3,291,749	3,286,700	4,831,334
Response Time (ms)	**>2.0-2.5**	**>2.5-3.0**	**>3.0-3.5**	**>3.5-4.0**	**>4.0-4.5**	**>4.5-5.0**	**>5.0-6.0**	**>6.0-7.0**
Read	478,259	474,856	394,943	771,274	781,802	1,481,154	3,603,993	4,687,256
Write	8,096,028	6,650,957	3,801,994	3,448,166	1,958,268	1,754,658	1,953,605	1,170,931
All ASUs	8,574,287	7,125,813	4,196,937	4,219,440	2,740,070	3,235,812	5,557,598	5,858,187
ASU1	3,796,789	3,159,182	1,913,759	2,116,284	1,518,208	2,077,608	4,083,640	4,714,179
ASU2	910,239	786,384	456,018	454,474	283,798	325,366	549,223	589,125
ASU3	3,867,259	3,180,247	1,827,160	1,648,682	938,064	832,838	924,735	554,883
Response Time (ms)	**>7.0-8.0**	**>8.0-9.0**	**>9.0-10.0**	**>10.0-15.0**	**>15.0-20.0**	**>20.0-25.0**	**>25.0-30.0**	**>30.0**
Read	5,133,326	4,881,707	4,293,640	12,289,644	4,151,203	1,739,489	892,800	2,227,181
Write	771,917	520,146	361,819	845,939	335,873	216,882	179,753	1,823,634
All ASUs	5,905,243	5,401,853	4,655,459	13,135,583	4,487,076	1,956,371	1,072,553	4,050,815
ASU1	4,905,036	4,531,694	3,919,272	10,998,272	3,650,346	1,519,200	791,672	2,531,920
ASU2	630,304	618,075	559,547	1,719,236	669,645	328,165	189,468	556,235
ASU3	369,903	252,084	176,640	418,075	167,085	109,006	91,413	962,660

IOPS Test Run –Response Time Frequency Distribution Graph



IOPS Test Run – I/O Request Information

I/O Requests Completed in the Measurement Interval	I/O Requests Completed with Response Time = or < 30 ms	I/O Requests Completed with Response Time > 30 ms
161,701,860	157,651,045	4,050,815

IOPS Test Run – Measured Intensity Multiplier and Coefficient of Variation

Clause 3.4.3

IM – Intensity Multiplier: *The ratio of I/Os for each I/O stream relative to the total I/Os for all I/O streams (ASU1-1 – ASU3-1) as required by the benchmark specification.*

Clauses 5.1.10 and 5.3.13.2

MIM – Measured Intensity Multiplier: *The Measured Intensity Multiplier represents the ratio of measured I/Os for each I/O stream relative to the total I/Os measured for all I/O streams (ASU1-1 – ASU3-1). This value may differ from the corresponding Expected Intensity Multiplier by no more than 5%.*

Clause 5.3.13.3

COV – Coefficient of Variation: *This measure of variation for the Measured Intensity Multiplier cannot exceed 0.2.*

	ASU1-1	ASU1-2	ASU1-3	ASU1-4	ASU2-1	ASU2-2	ASU2-3	ASU3-1
IM	***0.0350***	***0.2810***	***0.0700***	***0.2100***	***0.0180***	***0.0700***	***0.0350***	***0.2810***
MIM	0.0350	0.2809	0.0700	0.2101	0.0180	0.0700	0.0350	0.2810
COV	0.001	0.000	0.001	0.000	0.002	0.001	0.002	0.000

Primary Metrics Test – Response Time Ramp Test Phase

Clause 5.4.4.3

The Response Time Ramp Test Phase consists of five Test Runs, one each at 95%, 90%, 80%, 50%, and 10% of the load point (100%) used to generate the SPC-1 IOPS™ primary metric. Each of the five Test Runs has a Measurement Interval of ten (10) minutes. The Response Time Ramp Test Phase immediately follows the IOPS Test Phase without any interruption or manual intervention.

The five Response Time Ramp Test Runs, in conjunction with the IOPS Test Run (100%), demonstrate the relationship between Average Response Time and I/O Request Throughput for the Tested Storage Configuration (TSC) as illustrated in the response time/throughput curve on page 13.

In addition, the Average Response Time measured during the 10% Test Run is the value for the SPC-1 LRT™ metric. That value represents the Average Response Time of a lightly loaded TSC.

Clause 9.4.3.7.3

The following content shall appear in the FDR for the Response Time Ramp Phase:

1. *A Response Time Ramp Distribution.*
2. *The human readable Test Run Results File produced by the Workload Generator for each Test Run within the Response Time Ramp Test Phase.*
3. *For the 10% Load Level Test Run (SPC-1 LRT™ metric) an Average Response Time Distribution.*
4. *A listing or screen image of all input parameters supplied to the Workload Generator.*

SPC-1 Workload Generator Input Parameters

The SPC-1 Workload Generator input parameters for the Sustainability, IOPS, Response Time Ramp, Repeatability, and Persistence Test Runs are documented in "Appendix E: SPC-1 Workload Generator Input Parameters" on Page 103.

Response Time Ramp Test Results File

A link to each test result file generated from each Response Time Ramp Test Run list listed below.

95% Load Level

90% Load Level

80% Load Level

50% Load Level

10% Load Level

Response Time Ramp Distribution (IOPS) Data

The five Test Runs that comprise the Response Time Ramp Phase are executed at 95%, 90%, 80%, 50%, and 10% of the Business Scaling Unit (BSU) load level used to produce the SPC-1 IOPS™ primary metric. The 100% BSU load level is included in the following Response Time Ramp data tables and graphs for completeness.

100% Load Level - 5390 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	17:26:04	17:29:05	0-2	0:03:01
Measurement Interval	17:29:05	17:39:05	3-12	0:10:00

(60 second intervals)	All ASUs	ASU-1	ASU-2	ASU-3
0	269,584.77	160,589.18	33,177.78	75,817.80
1	269,512.90	160,609.28	33,172.85	75,730.77
2	269,462.18	160,599.40	33,139.70	75,723.08
3	269,568.55	160,676.47	33,132.72	75,759.37
4	269,562.40	160,689.15	33,119.33	75,753.92
5	269,454.95	160,636.22	33,139.87	75,678.87
6	269,560.37	160,682.00	33,115.67	75,762.70
7	269,518.97	160,621.38	33,169.87	75,727.72
8	269,559.98	160,661.60	33,147.85	75,750.53
9	269,457.18	160,604.20	33,129.18	75,723.80
10	269,476.27	160,608.68	33,129.07	75,738.52
11	269,443.08	160,565.15	33,146.32	75,731.62
12	269,465.15	160,562.33	33,152.48	75,750.33
Average	*269,506.69*	*160,630.72*	*33,138.24*	*75,737.74*

95% Load Level - 5120 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	17:41:37	17:44:38	0-2	0:03:01
Measurement Interval	17:44:38	17:54:38	3-12	0:10:00

(60 second intervals)	All ASUs	ASU-1	ASU-2	ASU-3
0	256,156.02	152,668.33	31,507.97	71,979.72
1	255,986.93	152,591.18	31,477.43	71,918.32
2	255,977.08	152,525.37	31,474.38	71,977.33
3	256,047.67	152,605.33	31,488.52	71,953.82
4	255,977.88	152,503.03	31,485.25	71,989.60
5	255,945.23	152,566.50	31,454.63	71,924.10
6	255,929.42	152,533.45	31,457.27	71,938.70
7	255,976.47	152,526.88	31,490.42	71,959.17
8	255,966.88	152,478.52	31,486.63	72,001.73
9	256,016.13	152,640.43	31,496.12	71,879.58
10	255,955.27	152,559.22	31,460.97	71,935.08
11	255,981.02	152,567.32	31,503.10	71,910.60
12	256,025.20	152,572.63	31,479.75	71,972.82
Average	*255,982.12*	*152,555.33*	*31,480.27*	*71,946.52*

90% Load Level - 4851 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	17:57:10	18:00:11	0-2	0:03:01
Measurement Interval	18:00:11	18:10:11	3-12	0:10:00

(60 second intervals)	All ASUs	ASU-1	ASU-2	ASU-3
0	242,595.63	144,625.37	29,816.72	68,153.55
1	242,576.33	144,643.13	29,824.63	68,108.57
2	242,497.78	144,627.53	29,760.78	68,109.47
3	242,641.47	144,584.13	29,867.77	68,189.57
4	242,462.10	144,567.22	29,795.57	68,099.32
5	242,607.73	144,591.48	29,815.20	68,201.05
6	242,566.62	144,563.12	29,816.22	68,187.28
7	242,541.70	144,580.85	29,793.98	68,166.87
8	242,550.72	144,598.77	29,818.63	68,133.32
9	242,528.85	144,540.87	29,858.60	68,129.38
10	242,626.07	144,612.82	29,864.00	68,149.25
11	242,609.75	144,650.12	29,851.02	68,108.62
12	242,539.08	144,552.90	29,825.03	68,161.15
Average	*242,567.41*	*144,584.23*	*29,830.60*	*68,152.58*

80% Load Level - 4312 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	18:12:39	18:15:40	0-2	0:03:01
Measurement Interval	18:15:40	18:25:40	3-12	0:10:00

(60 second intervals)	All ASUs	ASU-1	ASU-2	ASU-3
0	215,480.93	128,412.40	26,503.20	60,565.33
1	215,539.15	128,472.18	26,512.42	60,554.55
2	215,668.13	128,597.70	26,497.23	60,573.20
3	215,604.80	128,513.20	26,544.17	60,547.43
4	215,499.55	128,450.42	26,532.47	60,516.67
5	215,585.35	128,515.05	26,485.15	60,585.15
6	215,598.65	128,517.12	26,517.22	60,564.32
7	215,675.78	128,608.38	26,472.47	60,594.93
8	215,644.98	128,521.65	26,547.73	60,575.60
9	215,547.77	128,405.77	26,519.52	60,622.48
10	215,685.62	128,580.00	26,517.97	60,587.65
11	215,593.00	128,477.60	26,519.48	60,595.92
12	215,566.95	128,485.25	26,500.17	60,581.53
Average	*215,600.25*	*128,507.44*	*26,515.63*	*60,577.17*

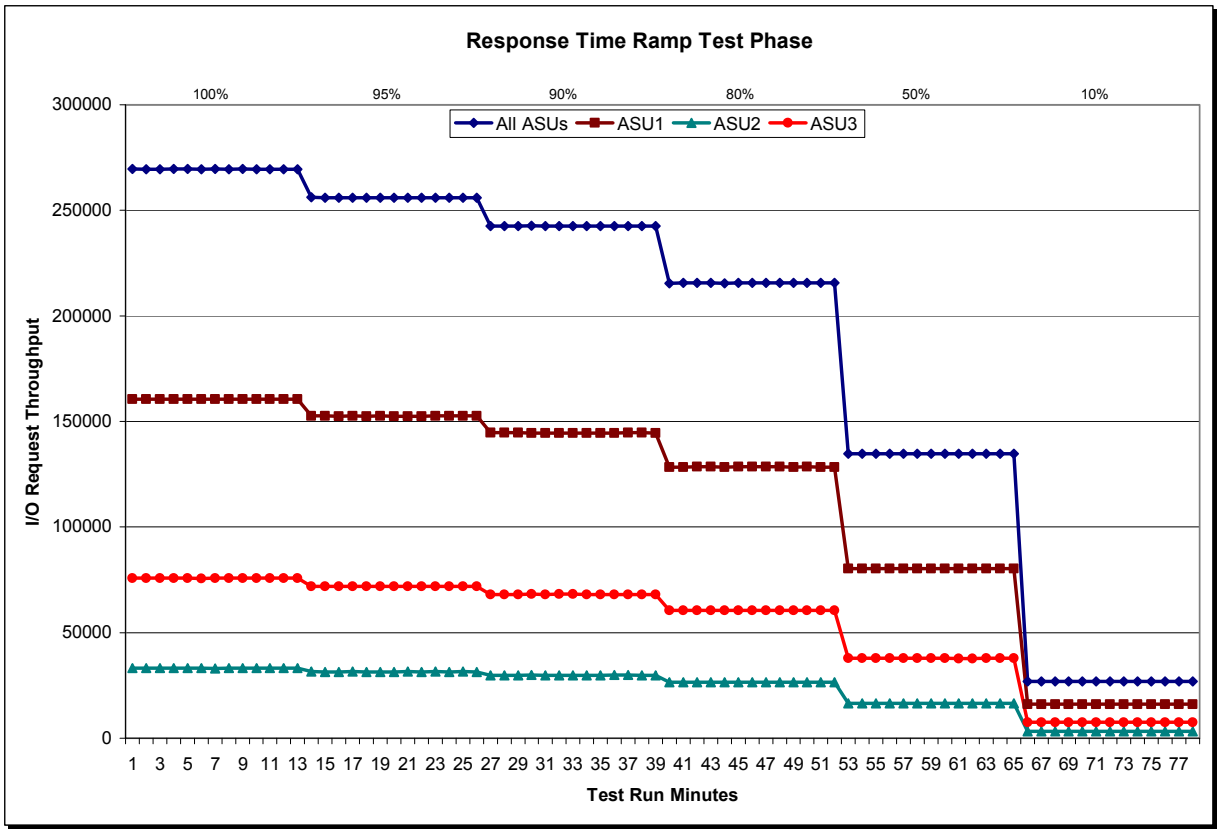
50% Load Level - 2695 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	18:28:00	18:31:01	0-2	0:03:01
Measurement Interval	18:31:01	18:41:01	3-12	0:10:00

(60 second intervals)	All ASUs	ASU-1	ASU-2	ASU-3
0	134,733.22	80,307.23	16,578.57	37,847.42
1	134,750.07	80,321.98	16,586.17	37,841.92
2	134,810.35	80,365.80	16,594.77	37,849.78
3	134,783.23	80,330.80	16,588.98	37,863.45
4	134,770.98	80,259.35	16,570.40	37,941.23
5	134,808.92	80,352.45	16,548.18	37,908.28
6	134,695.00	80,271.43	16,564.52	37,859.05
7	134,708.57	80,269.40	16,586.02	37,853.15
8	134,750.15	80,363.05	16,588.83	37,798.27
9	134,639.35	80,280.80	16,553.62	37,804.93
10	134,715.80	80,309.10	16,564.90	37,841.80
11	134,634.07	80,229.15	16,558.10	37,846.82
12	134,734.48	80,248.55	16,574.38	37,911.55
Average	*134,724.06*	*80,291.41*	*16,569.79*	*37,862.85*

10% Load Level - 539 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	18:43:11	18:46:12	0-2	0:03:01
Measurement Interval	18:46:12	18:56:12	3-12	0:10:00

(60 second intervals)	All ASUs	ASU-1	ASU-2	ASU-3
0	26,942.02	16,045.93	3,305.65	7,590.43
1	26,942.13	16,087.25	3,306.27	7,548.62
2	26,966.80	16,067.58	3,323.03	7,576.18
3	26,949.10	16,063.32	3,313.93	7,571.85
4	26,971.60	16,058.57	3,336.73	7,576.30
5	26,965.10	16,054.18	3,320.15	7,590.77
6	26,898.88	16,050.33	3,294.47	7,554.08
7	26,942.68	16,074.68	3,318.25	7,549.75
8	26,983.32	16,101.85	3,317.93	7,563.53
9	26,962.47	16,058.90	3,319.23	7,584.33
10	26,971.15	16,072.53	3,313.93	7,584.68
11	26,928.05	16,047.68	3,304.43	7,575.93
12	26,957.42	16,041.02	3,318.92	7,597.48
Average	*26,952.98*	*16,062.31*	*3,315.80*	*7,574.87*

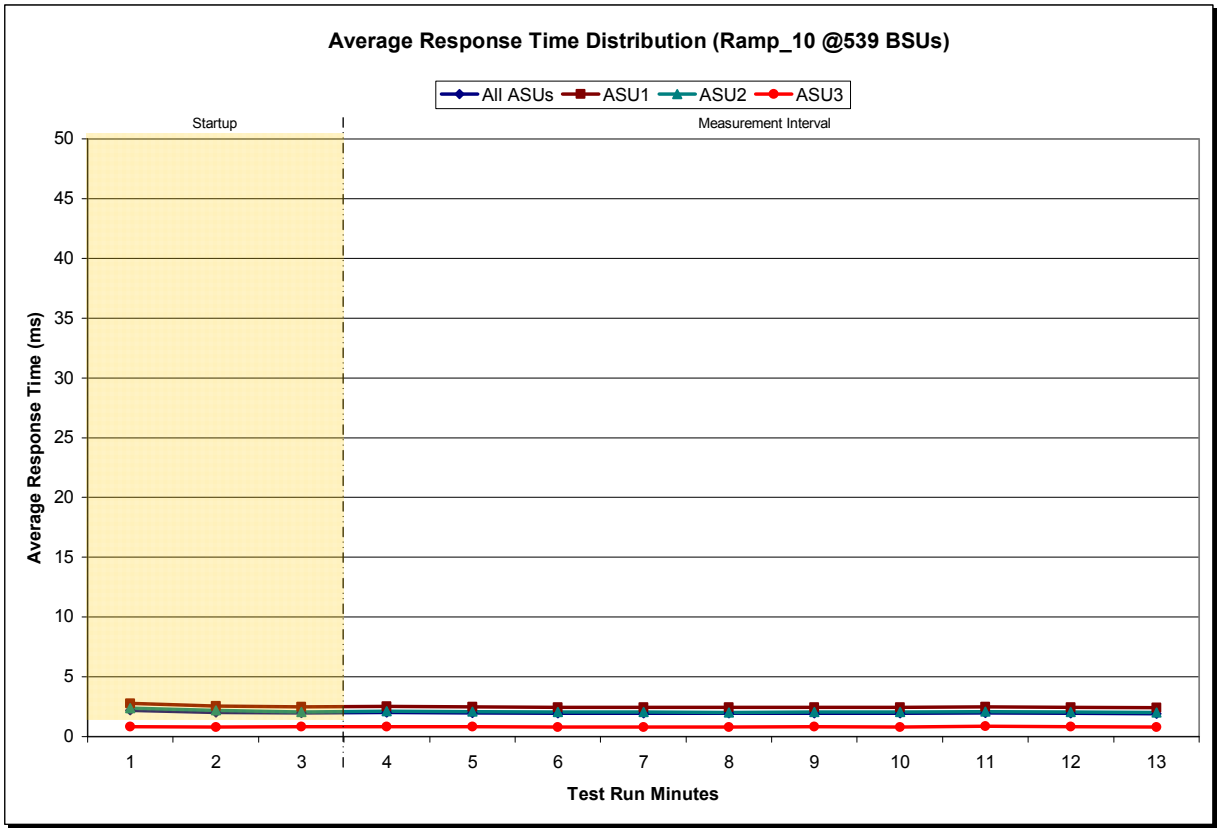
Response Time Ramp Distribution (IOPS) Graph



SPC-1 LRT™ Average Response Time (ms) Distribution Data

539 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	18:43:11	18:46:12	0-2	0:03:01
Measurement Interval	18:46:12	18:56:12	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	2.18	2.79	2.36	0.81
1	2.03	2.57	2.20	0.81
2	1.97	2.50	2.05	0.81
3	2.00	2.53	2.12	0.84
4	1.97	2.50	2.09	0.81
5	1.94	2.46	2.04	0.79
6	1.94	2.46	2.05	0.79
7	1.94	2.45	2.01	0.81
8	1.95	2.46	2.06	0.83
9	1.94	2.46	2.04	0.81
10	1.97	2.48	2.10	0.85
11	1.95	2.46	2.04	0.82
12	1.92	2.42	2.02	0.80
Average	***1.95***	***2.47***	***2.06***	***0.81***

SPC-1 LRT™ Average Response Time (ms) Distribution Graph



SPC-1 LRT™ (10%) – Measured Intensity Multiplier and Coefficient of Variation

Clause 3.4.3

IM – Intensity Multiplier: *The ratio of I/Os for each I/O stream relative to the total I/Os for all I/O streams (ASU1-1 – ASU3-1) as required by the benchmark specification.*

Clauses 5.1.10 and 5.3.13.2

MIM – Measured Intensity Multiplier: *The Measured Intensity Multiplier represents the ratio of measured I/Os for each I/O stream relative to the total I/Os measured for all I/O streams (ASU1-1 – ASU3-1). This value may differ from the corresponding Expected Intensity Multiplier by no more than 5%.*

Clause 5.3.13.3

COV – Coefficient of Variation: *This measure of variation for the Measured Intensity Multiplier cannot exceed 0.2.*

	ASU1-1	ASU1-2	ASU1-3	ASU1-4	ASU2-1	ASU2-2	ASU2-3	ASU3-1
IM	***0.0350***	***0.2810***	***0.0700***	***0.2100***	***0.0180***	***0.0700***	***0.0350***	***0.2810***
MIM	0.0349	0.2810	0.0702	0.2098	0.0180	0.0700	0.0351	0.2810
COV	0.004	0.001	0.002	0.002	0.005	0.003	0.005	0.002

Repeatability Test

Clause 5.4.5

The Repeatability Test demonstrates the repeatability and reproducibility of the SPC-1 IOPS™ primary metric and SPC-1 LRT™ metric generated in earlier Test Runs.

There are two identical Repeatability Test Phases. Each Test Phase contains two Test Runs. Each of the Test Runs will have a Measurement Interval of no less than ten (10) minutes. The two Test Runs in each Test Phase will be executed without interruption or any type of manual intervention.

The first Test Run in each Test Phase is executed at the 10% load point. The Average Response Time from each of the Test Runs is compared to the SPC-1 LRT™ metric. Each Average Response Time value must be less than the SPC-1 LRT™ metric plus 5% or less than the SPC-1 LRT™ metric plus one (1) millisecond (ms).

The second Test Run in each Test Phase is executed at the 100% load point. The I/O Request Throughput from the Test Runs is compared to the SPC-1 IOPS™ primary metric. Each I/O Request Throughput value must be greater than the SPC-1 IOPS™ primary metric minus 5%. In addition, the Average Response Time for each Test Run cannot exceed 30 milliseconds.

If any of the above constraints are not met, the benchmark measurement is invalid.

Clause 9.4.3.7.4

The following content shall appear in the FDR for each Test Run in the two Repeatability Test Phases:

1. *A table containing the results of the Repeatability Test.*
2. *An I/O Request Throughput Distribution graph and table.*
3. *An Average Response Time Distribution graph and table.*
4. *The human readable Test Run Results File produced by the Workload Generator.*
5. *A listing or screen image of all input parameters supplied to the Workload Generator.*

SPC-1 Workload Generator Input Parameters

The SPC-1 Workload Generator input parameters for the Sustainability, IOPS, Response Time Ramp, Repeatability, and Persistence Test Runs are documented in "Appendix E: SPC-1 Workload Generator Input Parameters" on Page 103.

Repeatability Test Results File

The values for the SPC-1 IOPS™, SPC-1 LRT™, and the Repeatability Test measurements are listed in the tables below.

	SPC-1 IOPS™
Primary Metrics	***269,506.69***
Repeatability Test Phase 1	269,479.99
Repeatability Test Phase 2	269,490.85

The SPC-1 IOPS™ values in the above table were generated using 100% of the specified Business Scaling Unit (BSU) load level. Each of the Repeatability Test Phase values for SPC-1 IOPS™ must greater than 95% of the reported SPC-1 IOPS™ Primary Metric.

	SPC-1 LRT™
Primary Metrics	***1.95 ms***
Repeatability Test Phase 1	1.94 ms
Repeatability Test Phase 2	1.95 ms

The average response time values in the SPC-1 LRT™ column were generated using 10% of the specified Business Scaling Unit (BSU) load level. Each of the Repeatability Test Phase values for SPC-1 LRT™ must be less than 105% of the reported SPC-1 LRT™ Primary Metric or less than the reported SPC-1 LRT™ Primary Metric minus one (1) millisecond (ms)..

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

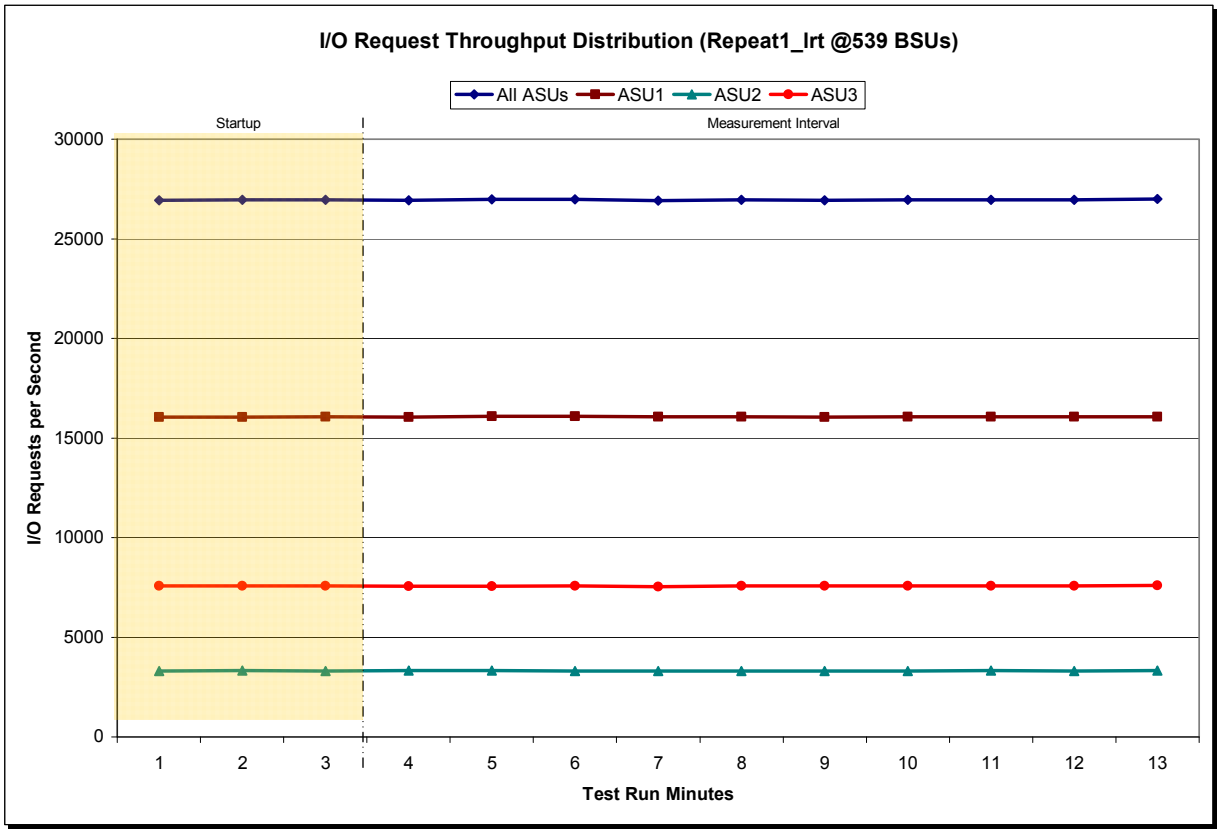
Repeatability Test Phase 1, Test Run 1 (LRT)
Repeatability Test Phase 1, Test Run 2 (IOPS)
Repeatability Test Phase 2, Test Run 1 (LRT)
Repeatability Test Phase 2, Test Run 2 (IOPS)

Repeatability 1 LRT – I/O Request Throughput Distribution Data

539 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	18:58:46	19:01:46	0-2	0:03:00
Measurement Interval	19:01:46	19:11:46	3-12	0:10:00

60 second intervals	All ASUs	ASU1	ASU2	ASU3
0	26,941.65	16,050.48	3,311.40	7,579.77
1	26,950.58	16,057.20	3,317.98	7,575.40
2	26,960.23	16,069.58	3,306.63	7,584.02
3	26,940.90	16,054.35	3,316.98	7,569.57
4	26,969.17	16,080.33	3,320.08	7,568.75
5	26,967.70	16,082.12	3,313.30	7,572.28
6	26,919.72	16,071.10	3,302.70	7,545.92
7	26,946.68	16,062.03	3,304.70	7,579.95
8	26,930.83	16,051.27	3,303.37	7,576.20
9	26,946.65	16,061.73	3,304.17	7,580.75
10	26,964.53	16,068.77	3,321.97	7,573.80
11	26,947.48	16,060.57	3,311.53	7,575.38
12	26,993.08	16,074.27	3,325.58	7,593.23
Average	***26,952.68***	***16,066.65***	***3,312.44***	***7,573.58***

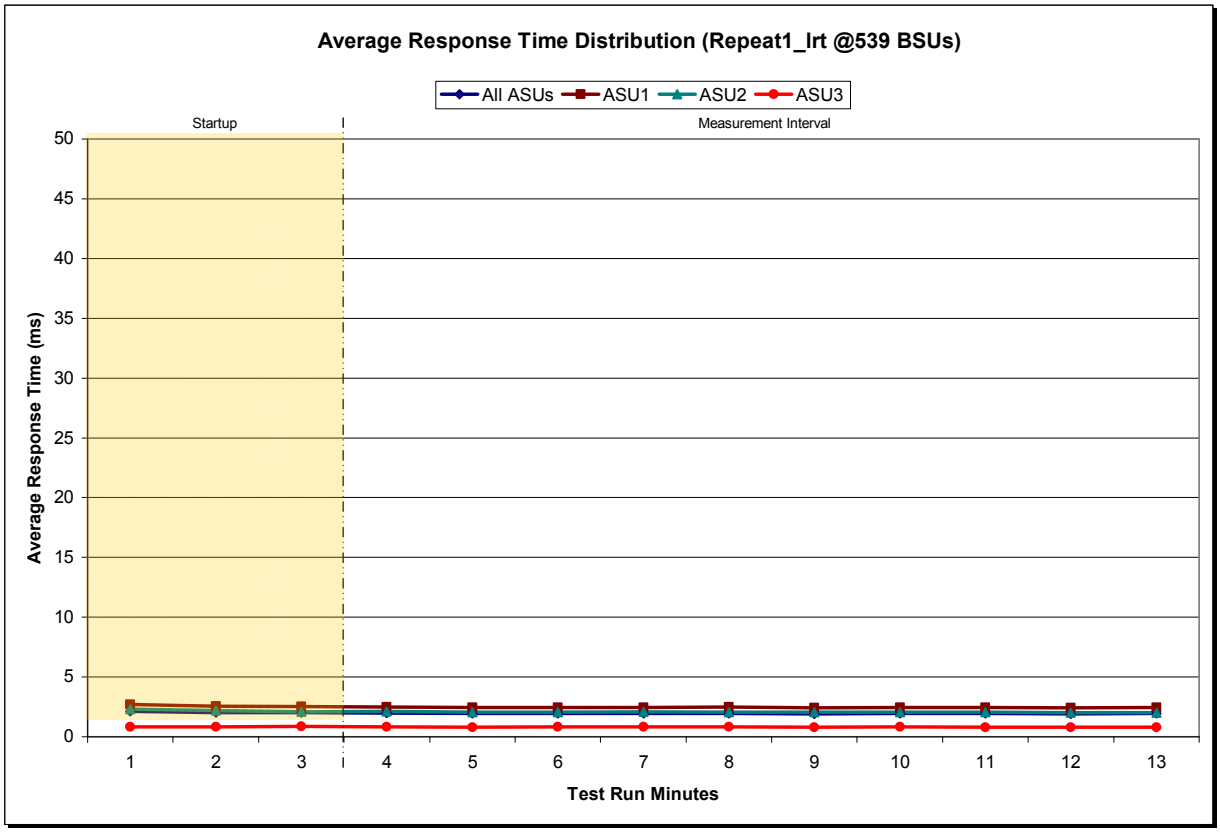
Repeatability 1 LRT – I/O Request Throughput Distribution Graph



Repeatability 1 LRT –Average Response Time (ms) Distribution Data

539 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	18:58:46	19:01:46	0-2	0:03:00
Measurement Interval	19:01:46	19:11:46	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	2.12	2.69	2.31	0.84
1	2.03	2.56	2.21	0.83
2	2.00	2.53	2.09	0.86
3	1.99	2.50	2.13	0.83
4	1.95	2.46	2.06	0.79
5	1.95	2.46	2.05	0.82
6	1.95	2.45	2.09	0.83
7	1.95	2.47	2.05	0.81
8	1.91	2.42	2.03	0.78
9	1.95	2.46	2.06	0.82
10	1.93	2.44	2.04	0.80
11	1.91	2.42	2.01	0.78
12	1.93	2.44	2.00	0.80
Average	***1.94***	***2.45***	***2.05***	***0.81***

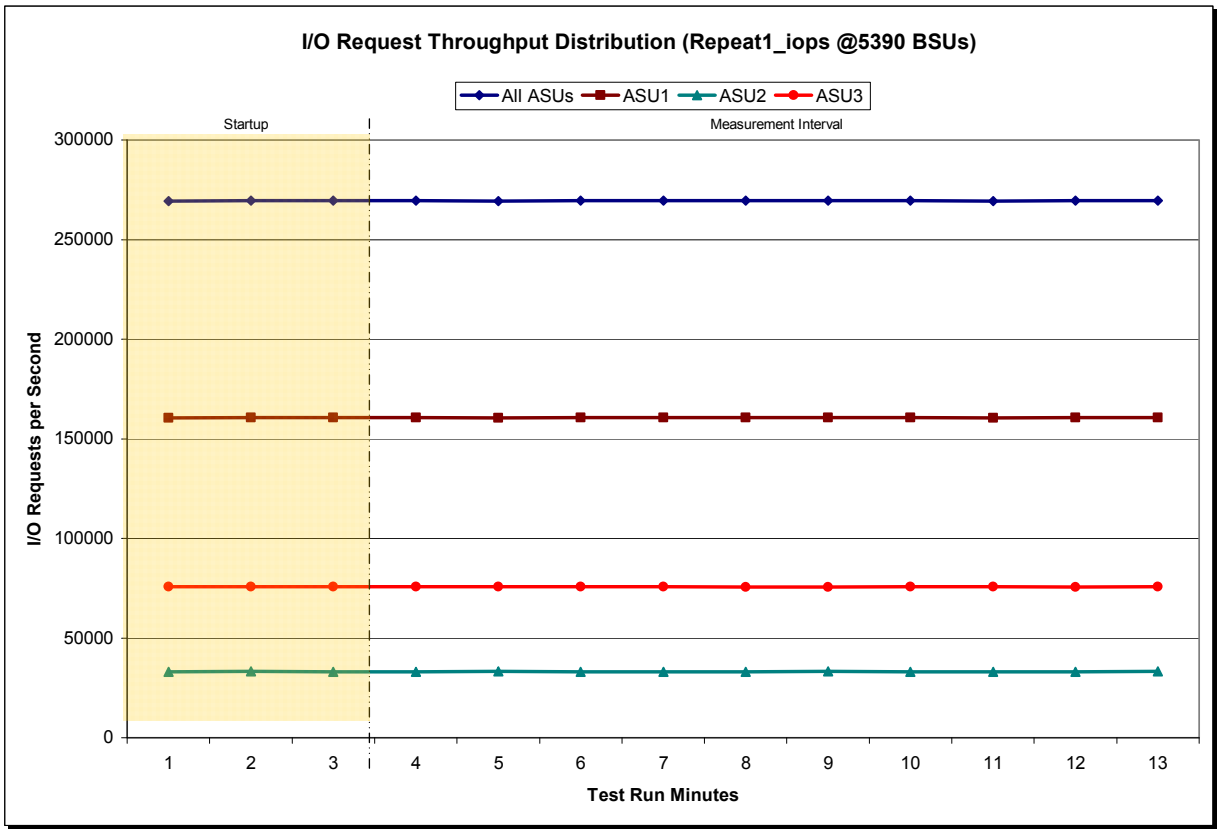
Repeatability 1 LRT –Average Response Time (ms) Distribution Graph



Repeatability 1 IOPS – I/O Request Throughput Distribution Data

5390 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	19:14:22	19:17:23	0-2	0:03:01
Measurement Interval	19:17:23	19:27:23	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	269,404.42	160,536.42	33,122.38	75,745.62
1	269,640.87	160,720.45	33,161.72	75,758.70
2	269,571.72	160,679.90	33,142.88	75,748.93
3	269,468.48	160,603.22	33,151.40	75,713.87
4	269,419.57	160,494.22	33,198.70	75,726.65
5	269,515.73	160,635.33	33,111.93	75,768.47
6	269,581.58	160,656.67	33,148.00	75,776.92
7	269,452.42	160,658.05	33,098.93	75,695.43
8	269,463.03	160,608.43	33,160.75	75,693.85
9	269,514.75	160,656.75	33,143.80	75,714.20
10	269,365.27	160,566.85	33,081.38	75,717.03
11	269,508.77	160,680.13	33,129.52	75,699.12
12	269,510.30	160,616.97	33,172.15	75,721.18
Average	***269,479.99***	***160,617.66***	***33,139.66***	***75,722.67***

Repeatability 1 IOPS – I/O Request Throughput Distribution Graph

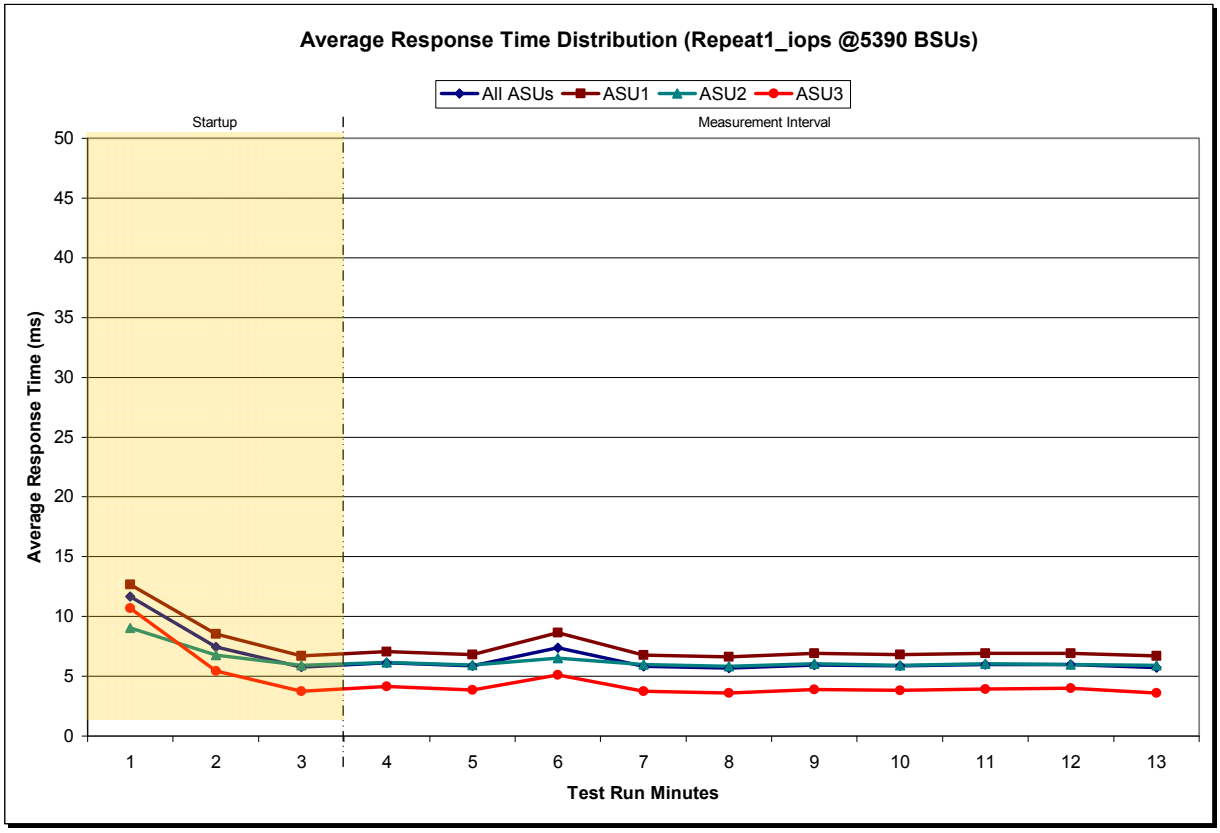


Repeatability 1 IOPS –Average Response Time (ms) Distribution Data

5390 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	19:14:22	19:17:23	0-2	0:03:01
Measurement Interval	19:17:23	19:27:23	3-12	0:10:00

60 second intervals	All ASUs	ASU1	ASU2	ASU3
0	11.67	12.67	9.03	10.70
1	7.44	8.53	6.77	5.44
2	5.77	6.71	5.89	3.74
3	6.14	7.06	6.16	4.16
4	5.87	6.79	5.96	3.87
5	7.39	8.63	6.52	5.12
6	5.81	6.76	5.98	3.73
7	5.68	6.63	5.85	3.60
8	5.94	6.90	6.04	3.88
9	5.85	6.80	5.91	3.80
10	5.97	6.91	6.06	3.93
11	5.97	6.90	5.98	4.01
12	5.74	6.71	5.89	3.60
Average	***6.04***	***7.01***	***6.03***	***3.97***

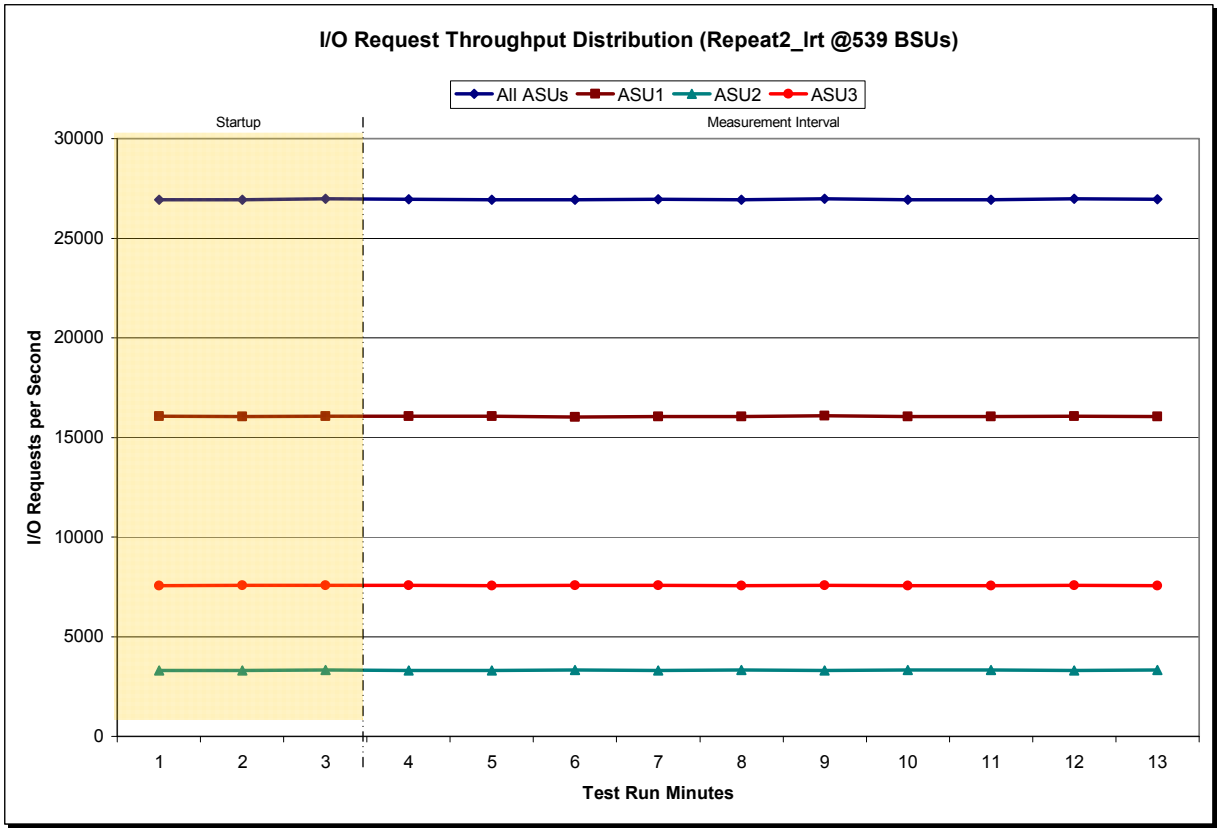
Repeatability 1 IOPS –Average Response Time (ms) Distribution Graph



Repeatability 2 LRT – I/O Request Throughput Distribution Data

539 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	19:29:57	19:32:57	0-2	0:03:00
Measurement Interval	19:32:57	19:42:57	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	26,927.32	16,063.62	3,295.80	7,567.90
1	26,937.48	16,050.98	3,310.48	7,576.02
2	26,967.28	16,061.12	3,328.12	7,578.05
3	26,947.98	16,062.15	3,307.02	7,578.82
4	26,939.32	16,064.87	3,308.55	7,565.90
5	26,932.52	16,024.35	3,317.80	7,590.37
6	26,952.37	16,057.47	3,311.85	7,583.05
7	26,927.73	16,044.07	3,319.78	7,563.88
8	26,969.17	16,083.30	3,305.82	7,580.05
9	26,938.65	16,054.57	3,323.55	7,560.53
10	26,936.52	16,052.65	3,316.22	7,567.65
11	26,965.55	16,064.57	3,310.47	7,590.52
12	26,944.12	16,056.02	3,321.83	7,566.27
Average	***26,945.39***	***16,056.40***	***3,314.29***	***7,574.70***

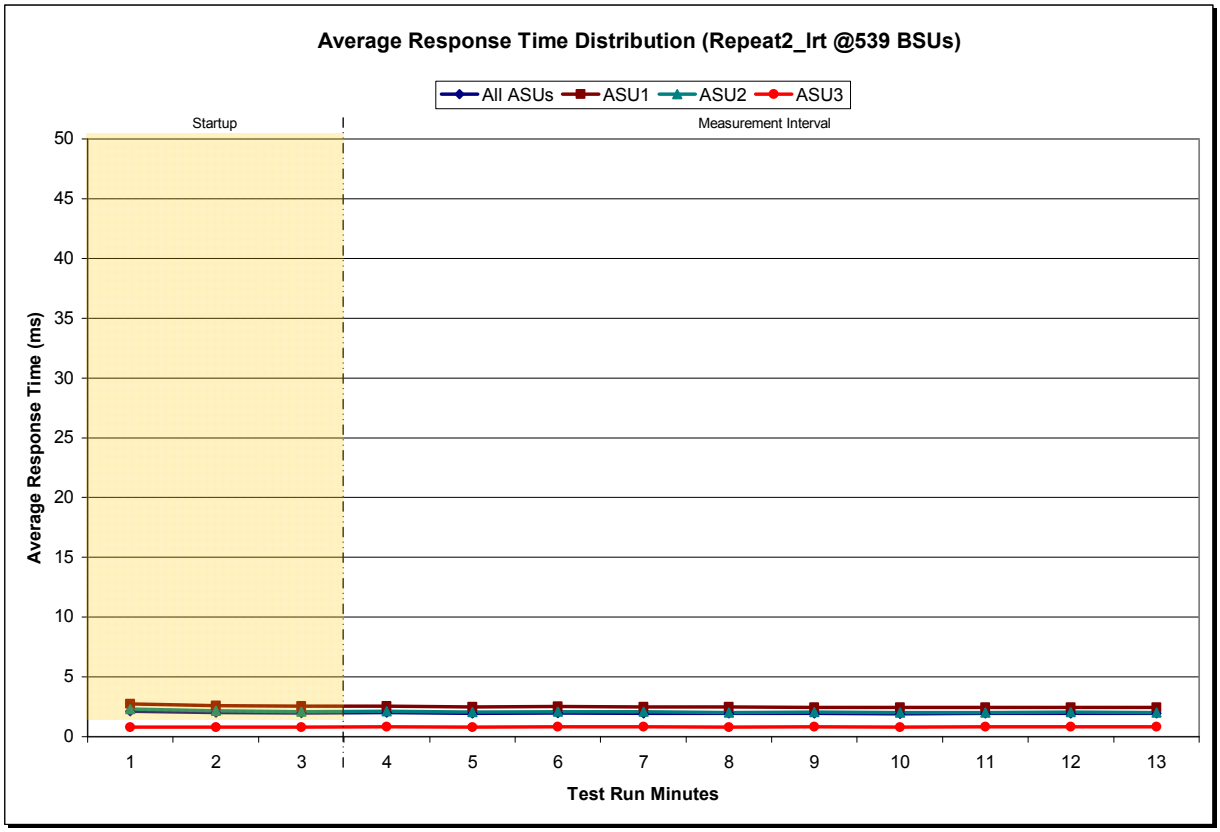
Repeatability 2 LRT – I/O Request Throughput Distribution Graph



Repeatability 2 LRT –Average Response Time (ms) Distribution Data

539 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	19:29:57	19:32:57	0-2	0:03:00
Measurement Interval	19:32:57	19:42:57	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	2.13	2.72	2.31	0.81
1	2.03	2.59	2.16	0.80
2	2.00	2.54	2.08	0.80
3	2.02	2.56	2.11	0.83
4	1.95	2.48	2.05	0.78
5	1.99	2.51	2.07	0.84
6	1.96	2.48	2.07	0.82
7	1.95	2.47	2.02	0.80
8	1.95	2.46	2.04	0.82
9	1.93	2.44	2.01	0.80
10	1.94	2.45	2.03	0.83
11	1.94	2.45	2.04	0.81
12	1.93	2.43	2.01	0.82
Average	***1.95***	***2.47***	***2.05***	***0.81***

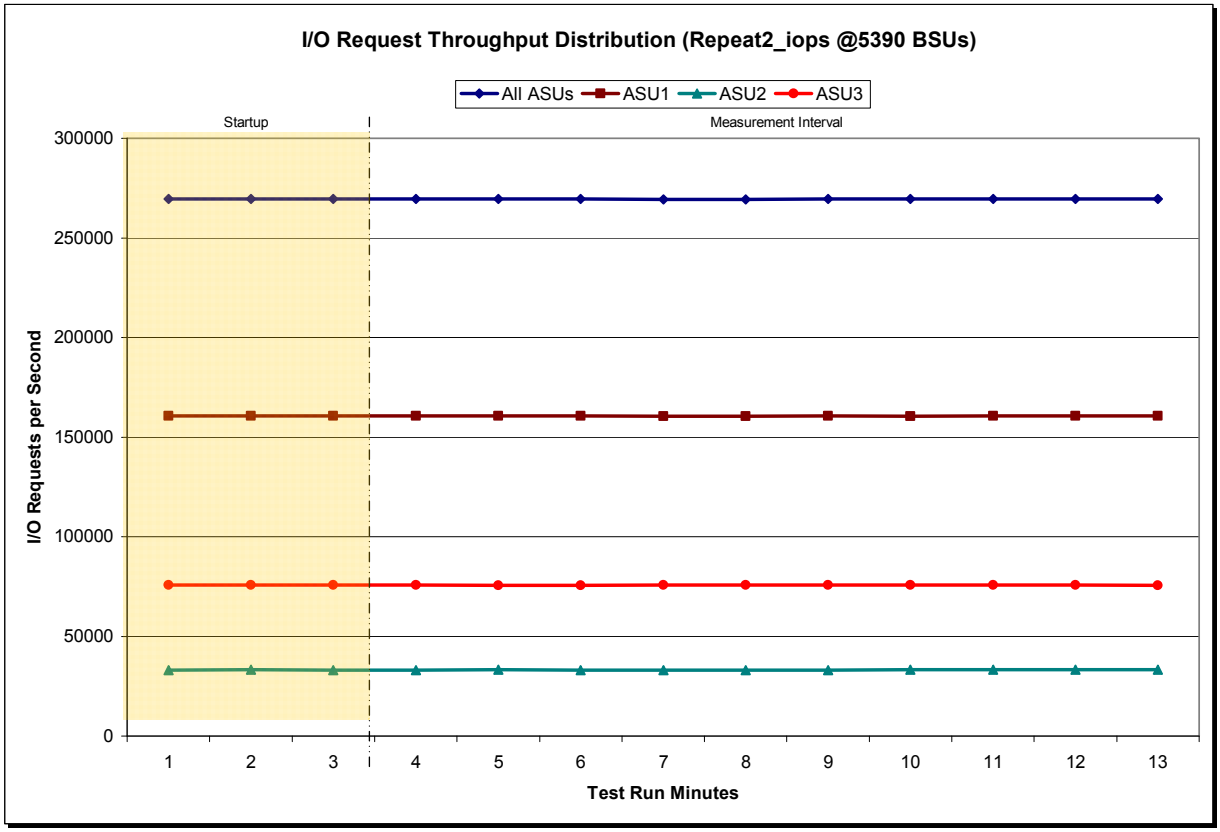
Repeatability 2 LRT –Average Response Time (ms) Distribution Graph



Repeatability 2 IOPS – I/O Request Throughput Distribution Data

5390 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	19:45:29	19:48:30	0-2	0:03:01
Measurement Interval	19:48:30	19:58:30	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	269,558.83	160,645.13	33,138.95	75,774.75
1	269,533.52	160,602.88	33,157.85	75,772.78
2	269,537.83	160,620.62	33,142.72	75,774.50
3	269,478.82	160,623.53	33,122.10	75,733.18
4	269,460.30	160,612.03	33,170.83	75,677.43
5	269,556.78	160,735.73	33,130.03	75,691.02
6	269,384.07	160,563.68	33,117.83	75,702.55
7	269,411.68	160,574.77	33,096.47	75,740.45
8	269,551.90	160,666.08	33,140.25	75,745.57
9	269,492.60	160,576.13	33,160.55	75,755.92
10	269,576.52	160,683.02	33,167.70	75,725.80
11	269,543.22	160,621.53	33,165.75	75,755.93
12	269,452.65	160,597.47	33,168.15	75,687.03
Average	***269,490.85***	***160,625.40***	***33,143.97***	***75,721.49***

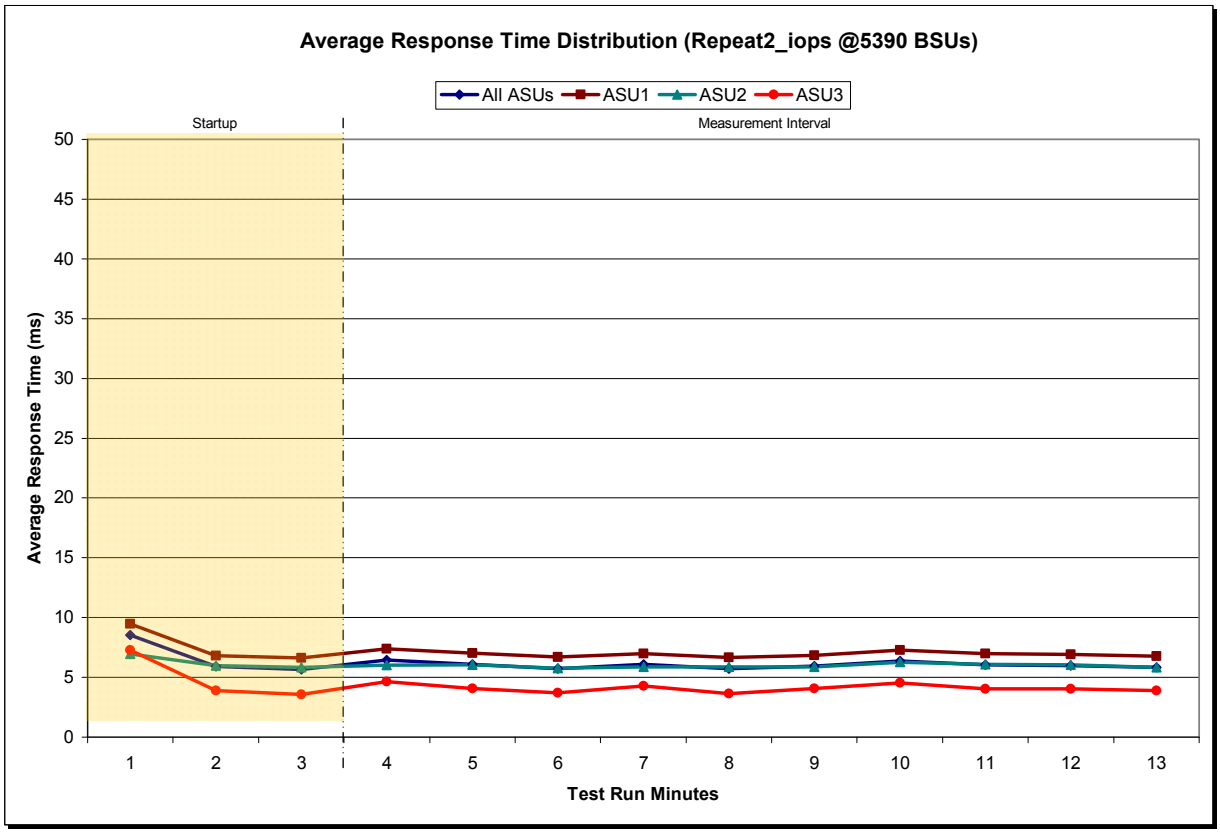
Repeatability 2 IOPS – I/O Request Throughput Distribution Graph



Repeatability 2 IOPS –Average Response Time (ms) Distribution Data

5390 BSUs	Start	Stop	Interval	Duration
Start-Up/Ramp-Up	19:45:29	19:48:30	0-2	0:03:01
Measurement Interval	19:48:30	19:58:30	3-12	0:10:00
60 second intervals	**All ASUs**	**ASU1**	**ASU2**	**ASU3**
0	8.55	9.47	6.95	7.28
1	5.89	6.81	5.98	3.90
2	5.66	6.61	5.84	3.56
3	6.44	7.37	6.00	4.66
4	6.07	7.02	6.03	4.08
5	5.74	6.69	5.76	3.71
6	6.08	6.97	5.88	4.28
7	5.72	6.68	5.87	3.63
8	5.93	6.82	5.87	4.06
9	6.38	7.28	6.26	4.54
10	6.04	6.97	6.07	4.05
11	5.99	6.91	6.04	4.03
12	5.85	6.77	5.84	3.89
Average	***6.02***	***6.95***	***5.96***	***4.09***

Repeatability 2 IOPS –Average Response Time (ms) Distribution Graph



Repeatability 1 (LRT)
Measured Intensity Multiplier and Coefficient of Variation

Clause 3.4.3

IM – Intensity Multiplier: *The ratio of I/Os for each I/O stream relative to the total I/Os for all I/O streams (ASU1-1 – ASU3-1) as required by the benchmark specification.*

Clauses 5.1.10 and 5.3.13.2

MIM – Measured Intensity Multiplier: *The Measured Intensity Multiplier represents the ratio of measured I/Os for each I/O stream relative to the total I/Os measured for all I/O streams (ASU1-1 – ASU3-1). This value may differ from the corresponding Expected Intensity Multiplier by no more than 5%.*

Clause 5.3.13.3

COV – Coefficient of Variation: *This measure of variation for the Measured Intensity Multiplier cannot exceed 0.2.*

	ASU1-1	ASU1-2	ASU1-3	ASU1-4	ASU2-1	ASU2-2	ASU2-3	ASU3-1
IM	***0.0350***	***0.2810***	***0.0700***	***0.2100***	***0.0180***	***0.0700***	***0.0350***	***0.2810***
MIM	0.0350	0.2810	0.0700	0.2102	0.0180	0.0700	0.0350	0.2810
COV	0.003	0.001	0.003	0.002	0.005	0.003	0.003	0.001

Repeatability 1 (IOPS)
Measured Intensity Multiplier and Coefficient of Variation

	ASU1-1	ASU1-2	ASU1-3	ASU1-4	ASU2-1	ASU2-2	ASU2-3	ASU3-1
IM	***0.0350***	***0.2810***	***0.0700***	***0.2100***	***0.0180***	***0.0700***	***0.0350***	***0.2810***
MIM	0.0350	0.2810	0.0700	0.2100	0.0180	0.0700	0.0350	0.2810
COV	0.002	0.000	0.001	0.001	0.002	0.001	0.002	0.000

Repeatability 2 (LRT)
Measured Intensity Multiplier and Coefficient of Variation

	ASU1-1	ASU1-2	ASU1-3	ASU1-4	ASU2-1	ASU2-2	ASU2-3	ASU3-1
IM	***0.0350***	***0.2810***	***0.0700***	***0.2100***	***0.0180***	***0.0700***	***0.0350***	***0.2810***
MIM	0.0350	0.2810	0.0700	0.2099	0.0180	0.0700	0.0350	0.2811
COV	0.005	0.001	0.002	0.001	0.006	0.003	0.003	0.001

Repeatability 2 (IOPS)
Measured Intensity Multiplier and Coefficient of Variation

	ASU1-1	ASU1-2	ASU1-3	ASU1-4	ASU2-1	ASU2-2	ASU2-3	ASU3-1
IM	***0.0350***	***0.2810***	***0.0700***	***0.2100***	***0.0180***	***0.0700***	***0.0350***	***0.2810***
MIM	0.0350	0.2810	0.0700	0.2100	0.0180	0.0700	0.0350	0.2810
COV	0.001	0.000	0.001	0.000	0.002	0.001	0.001	0.000

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-1 Workload Generator will write 16 block I/O requests at random over the total Addressable Storage Capacity of the TSC for ten (10) minutes at a minimum of 25% of the load used to generate the SPC-1 IOPS™ primary metric. The bit pattern selected to be written to each block as well as the address of the block will be retained in a log file.

The Tested Storage Configuration (TSC) 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.

The SPC-1 Workload Generator will then use the above log file to verify each block written contains the correct bit pattern.

Clause 9.4.3.8

The following content shall appear in this section of the FDR:

1. *A listing or screen image of all input parameters supplied to the Workload Generator.*
2. *For the successful Data Persistence Test Run, a table illustrating key results. The content, appearance, and format of this table are specified in Table 9-12. Information displayed in this table shall be obtained from the Test Run Results File referenced below in #3.*
3. *For the successful Data Persistence Test Run, the human readable Test Run Results File produced by the Workload Generator.*

SPC-1 Workload Generator Input Parameters

The SPC-1 Workload Generator input parameters for the Sustainability, IOPS, Response Time Ramp, Repeatability, and Persistence Test Runs are documented in "Appendix E: SPC-1 Workload Generator Input Parameters" on Page 103.

Data Persistence Test Results File

A link to each 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 Run Number: 1	
Total Number of Logical Blocks Written	719,072
Total Number of Logical Blocks Verified	713,639
Total Number of Logical Blocks that Failed Verification	0
Time Duration for Writing Test Logical Blocks	10 minutes
Size in Bytes of each Logical Block	1024 KiB
Number of Failed I/O Requests in the process of the Test	0

If approved by the SPC Auditor, the SPC-2 Persistence Test may be used to meet the SPC-1 persistence requirements. Both the SPC-1 and SPC-2 Persistence Tests provide the same level of functionality and verification of data integrity. The SPC-2 Persistence Test may be easily configured to address an SPC-1 storage configuration. The SPC-2 Persistence Test extends the size of storage configurations that may be tested and significantly reduces the test duration of such configurations.

The SPC-2 Persistence Test was approved for use in this set of audited measurements.

In some cases the same address was the target of multiple writes, which resulted in more Logical Blocks Written than Logical Blocks Verified. In the case of multiple writes to the same address, the pattern written and verified must be associated with the last write to that address.

PRICED STORAGE CONFIGURATION AVAILABILITY DATE

Clause 9.2.4.9

The committed delivery data 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 for the Priced Storage Configuration must be the date at which all components are committed to be available.

The Hitachi Virtual Storage Platform as documented in this Full Disclosure Report is currently available for customer purchase and shipment.

PRICING INFORMATION

Clause 9.4.3.3.6

The Executive Summary shall contain a pricing spreadsheet as documented in Clause 8.3.1.

Pricing information may found in the Priced Storage Configuration Pricing section on page 14.

TESTED STORAGE CONFIGURATION (TSC) AND PRICED STORAGE CONFIGURATION DIFFERENCES

Clause 9.4.3.3.7

The Executive Summary shall contain a pricing a list of all differenced between the Tested Storage Configuration (TSC) and the Priced Storage Configuration.

A list of all differences between the Tested Storage Configuration (TSC) and Priced Storage Configuration may be found in the Executive Summary portion of this document on page 14.

ANOMALIES OR IRREGULARITIES

Clause 9.4.3.10

The FDR shall include a clear and complete description of any anomalies or irregularities encountered in the course of executing the SPC-1 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-1 Onsite Audit of the Hitachi Virtual Storage Platform *(VSP).*

APPENDIX A: SPC-1 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-1 Data Repository Definitions

Total ASU Capacity: The total storage capacity read and written in the course of executing the SPC-1 benchmark.

Application Storage Unit (ASU): The logical interface between the storage and SPC-1 Workload Generator. The three ASUs (Data, User, and Log) are typically 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-1 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-1 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 three ASUs.

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 amount of storage capacity available for use by application programs but not included in the Total ASU Capacity.

SPC-1 Data Protection Levels

Protected: This level will ensure data protection in the event of a single point of failure of any configured storage device. A brief description of the data protection utilized is included in the Executive Summary.

Unprotected: No claim of data protection is asserted in the event of a single point of failure.

SPC-1 Test Execution Definitions

Average Response Time: The sum of the Response Times for all Measured I/O Requests divided by the total number of Measured I/O Requests.

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

Completion Time: The time recorded by the Workload Generator when an I/O Request is satisfied by the TSC as signaled by System Software.

Data Rate: The data transferred in all Measured I/O Requests in an SPC-1 Test Run divided by the length of the Test Run in seconds.

Expected I/O Count: For any given I/O Stream and Test Phase, the product of 50 times the BSU level, the duration of the Test Phase in seconds, and the Intensity Multiplier for that I/O Stream.

Failed I/O Request: Any I/O Request issued by the Workload Generator that could not be completed or was signaled as failed by System Software. A Failed I/O Request has no Completion Time (see "I/O Completion Types" below).

I/O Request Throughput: The total number of Measured I/O requests in an SPC-1 Test Run divided by the duration of the Measurement Interval in seconds.

In-Flight I/O Request: An I/O Request issued by the I/O Command Generator to the TSC that has a recorded Start Time, but does not complete within the Measurement Interval (see "I/O Completion Types" below).

Measured I/O Request: A Completed I/O Request with a Completion Time occurring within the Measurement Interval (see "I/O Completion Types" below).

Measured Intensity Multiplier: The percentage of all Measured I/O Requests that were issued by a given I/O Stream.

Measurement Interval: The finite and contiguous time period, after the TSC has reached Steady State, when data is collected by a Test Sponsor to generate an SPC-1 test result or support an SPC-1 test result.

Ramp-Up: The 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.

Ramp-Down: The time required for the BC to complete all I/O Requests issued by the Workload Generator. The Ramp-Down period begins when the Workload Generator ceases to issue new I/O Requests to the TSC.

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

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 Tested Storage Configuration (TSC).

Start-Up: The period that begins after the Workload Generator starts to submit I/O requests to the TSC and ends at the beginning of the Measurement Interval.

Shut-Down: The period between the end of the Measurement Interval and the time when all I/O Requests issued by the Workload Generator have completed or failed.

Steady State: The consistent and sustainable throughput of the TSC. During this period the load presented to the TSC by the Workload Generator is constant.

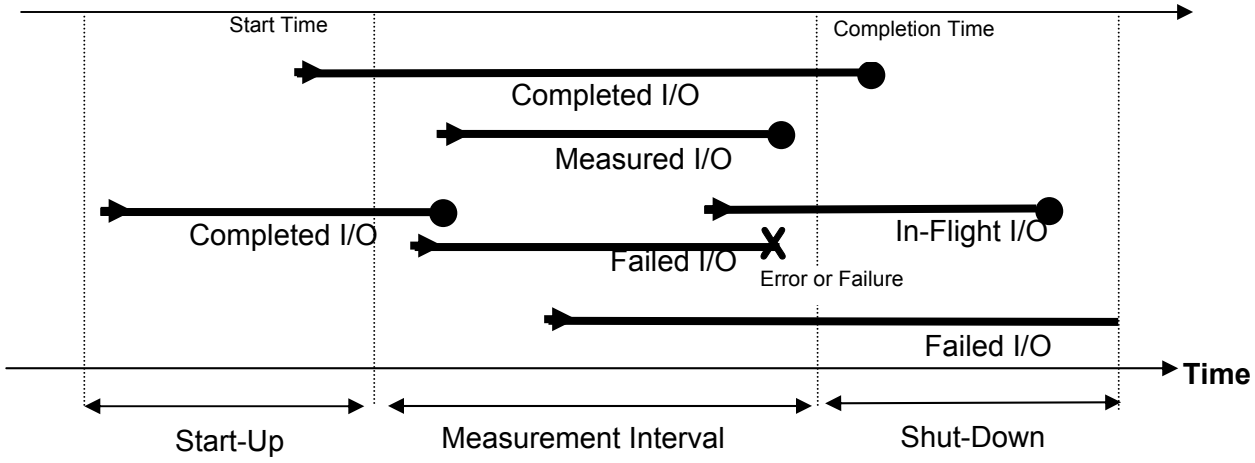
Test: A collection of Test Phases and or Test Runs sharing a common objective.

Test Run: The execution of SPC-1 for the purpose of producing or supporting an SPC-1 test result. SPC-1 Test Runs may have a finite and measured Ramp-Up period, Start-Up

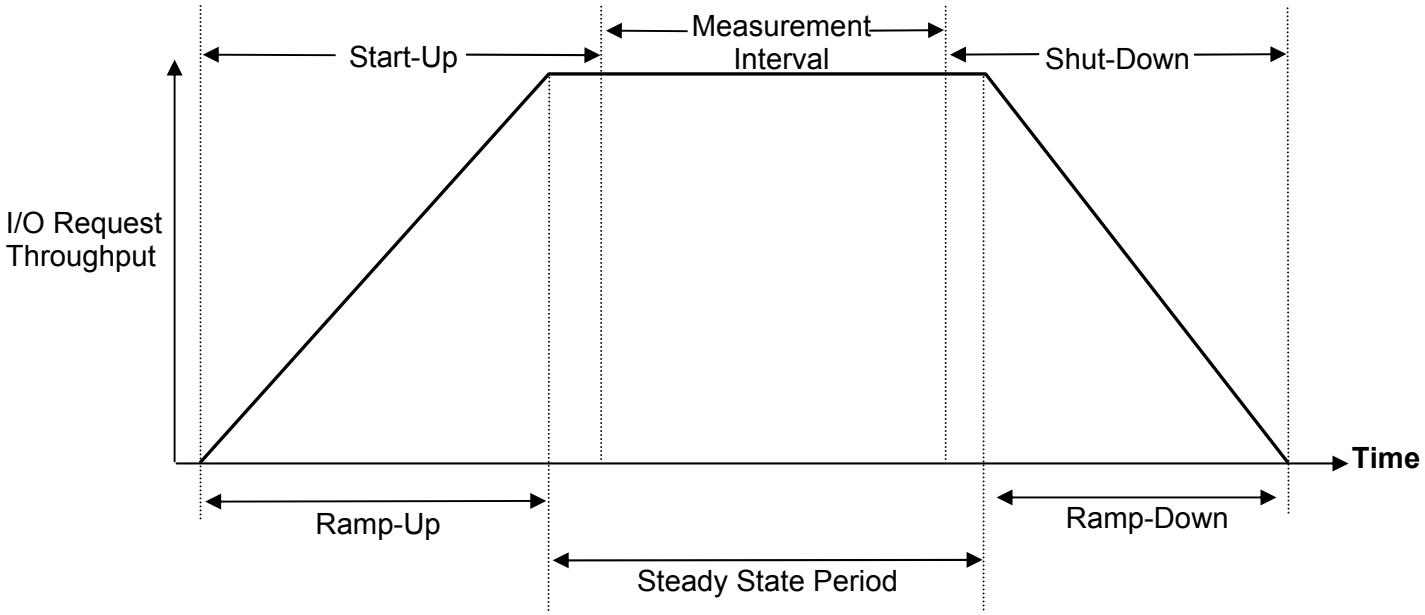
period, Shut-Down period, and Ramp-Down period as illustrated in the "SPC-1 Test Run Components" below. All SPC-1 Test Runs shall have a Steady State period and a Measurement Interval.

Test Phase: A collection of one or more SPC-1 Test Runs sharing a common objective and intended to be run in a specific sequence.

I/O Completion Types



SPC-1 Test Run Components



APPENDIX B: CUSTOMER TUNABLE PARAMETERS AND OPTIONS

The **QueueDepth** parameter for each HBA was changed from the default of 32 to a value of 129.

APPENDIX C: TESTED STORAGE CONFIGURATION (TSC) CREATION

Note: All referenced scripts will appear at the end of this appendix in the Execution Scripts section.

Pre-Configured RAID-10 Parity Groups

The TSC is delivered with a factory pre-configured RAID 10 *(2D+2P)* configuration. This resulted in a SPC-1 configuration with 288 parity groups. The table, illustrated below, lists the pre-configured party groups.

1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11	1-12	1-13	1-14	1-15	1-16
2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	2-9	2-10	2-11	2-12	2-13	2-14	2-15	2-16
3-1	3-2	3-3	3-4	3-5	3-6	3-7	3-8	3-9	3-10	3-11	3-12	3-13	3-14	3-15	3-16
4-1	4-2	4-3	4-4	4-5	4-6	4-7	4-8	4-9	4-10	4-11	4-12	4-13	4-14	4-15	4-16
5-1	5-2	5-3	5-4	5-5	5-6	5-7	5-8	5-9	5-10	5-11	5-12	5-13	5-14	5-15	5-16
6-1	6-2	6-3	6-4	6-5	6-6	6-7	6-8	6-9	6-10	6-11	6-12	6-13	6-14	6-15	6-16
7-1	7-2	7-3	7-4	7-5	7-6	7-7	7-8	7-9	7-10	7-11	7-12	7-13	7-14	7-15	7-16
8-1	8-2	8-3	8-4	8-5	8-6	8-7	8-8	8-9	8-10	8-11	8-12	8-13	8-14	8-15	8-16
9-1	9-2	9-3	9-4	9-5	9-6	9-7	9-8	9-9	9-10	9-11	9-12	9-13	9-14	9-15	9-16
10-1	10-2	10-3	10-4	10-5	10-6	10-7	10-8	10-9	10-10	10-11	10-12	10-13	10-14	10-15	10-16
11-1	11-2	11-3	11-4	11-5	11-6	11-7	11-8	11-9	11-10	11-11	11-12	11-13	11-14	11-15	11-16
12-1	12-2	12-3	12-4	12-5	12-6	12-7	12-8	12-9	12-10	12-11	12-12	12-13	12-14	12-15	12-16
13-1	13-2	13-3	13-4	13-5	13-6	13-7	13-8	13-9	13-10	13-11	13-12	13-13	13-14	13-15	13-16
14-1	14-2	14-3	14-4	14-5	14-6	14-7	14-8	14-9	14-10	14-11	14-12	14-13	14-14	14-15	14-16
15-1	15-2	15-3	15-4	15-5	15-6	15-7	15-8	15-9	15-10	15-11	15-12	15-13	15-14	15-15	15-16
16-1	16-2	16-3	16-4	16-5	16-6	16-7	16-8	16-9	16-10	16-11	16-12	16-13	16-14	16-15	16-16
17-1	17-2	17-3	17-4	17-5	17-6	17-7	17-8	17-9	17-10	17-11	17-12	17-13	17-14	17-15	17-16
18-1	18-2	18-3	18-4	18-5	18-6	18-7	18-8	18-9	18-10	18-11	18-12	18-13	18-14	18-15	18-16

Create Hitachi Dynamic Provisioning (HDP) Pool Volumes

The **create_ldevs.bat** script is executed, using the RAID Manager CLI, to create a single logical device on each parity group, for a total of 288 logical devices. Those devices will be used as pool volumes to populate an HDP Pool.

Create HDP Pool

The **create_pool.bat** script is executed, using the RAID Manager CLI, to create a single HDP Pool using all of the 288 pool volumes created in the previous step.

Create LUNs

The **create_luns.bat** script is executed, using the RAID Manager CLI, to create 96 dynamic provisioning volumes (LUNs) from the HDP Pool.

Map LUNs to Front End Ports

The scripts listed below map the 96 LUNs to each of the 8 SPC-1 Host systems, using the RAID Manager CLI, to execute the appropriate script on each Host System. Script **map_luns_sun141.bat** is executed on Host System ***sun141***, script **map_luns_sun142.bat** is executed on Host System ***sun142***, etc.

map_luns_sun141.bat
map_luns_sun142.bat
map_luns_sun143.bat
map_luns_sun144.bat
map_luns_sun145.bat
map_luns_sun146.bat
map_luns_sun147.bat
map_luns_sun148.bat

Discover the LUNs in Windows

The SPC-1 Host Systems are rebooted to discover the newly mapped LUNs. After the reboot, the LUNs are brought online by invoking the Windows Diskpart utility and executing the **diskpart_online.txt**.

Convert LUNs from Basic Disks to GPT Dynamic Disks

The 96 LUNs are converted from Basic to GPT Dynamic disks by invoking the Windows Diskpart utility and executing the **diskpart_gpt_dynamic.txt** script.

Create Striped Volumes

The 96 LUNs are then configured into 12 striped volumes, with each volume striped across 8 LUNs, by invoking the Windows Diskpart utility and executing the **diskpart_create_stripes.txt** script. The exact disk number for each command will vary, depending on LUN enumeration order. The intended mapping table is illustrated below, using VSP logical device naming.

Drive Letter	VSP Logical Device Names							
E	11:00	11:01	11:02	11:03	11:04	11:05	11:06	11:07
F	11:08	11:09	11:0A	11:0B	11:0C	11:0D	11:0E	11:0F
G	11:10	11:11	11:12	11:13	11:14	11:15	11:16	11:17
H	11:18	11:19	11:1A	11:1B	11:1C	11:1D	11:1E	11:1F
N	12:00	12:01	12:02	12:03	12:04	12:05	12:06	12:07
O	12:08	12:09	12:0A	12:0B	12:0C	12:0D	12:0E	12:0F
P	12:10	12:11	12:12	12:13	12:14	12:15	12:16	12:17
Q	12:18	12:19	12:1A	12:1B	12:1C	12:1D	12:1E	12:1F
W	13:00	13:01	13:02	13:03	13:04	13:05	13:06	13:07
X	13:08	13:09	13:0A	13:0B	13:0C	13:0D	13:0E	13:0F
Y	13:10	13:11	13:12	13:13	13:14	13:15	13:16	13:17
Z	13:18	13:19	13:1A	13:1B	13:1C	13:1D	13:1E	13:1F

Execution Scripts

create_ldevs.bat

```
raidcom add ldev -parity_grp_id 1-1 -ldev_id 00:00 -capacity 561580032
raidcom add ldev -parity_grp_id 1-2 -ldev_id 00:01 -capacity 561580032
raidcom add ldev -parity_grp_id 1-3 -ldev_id 00:02 -capacity 561580032
raidcom add ldev -parity_grp_id 1-4 -ldev_id 00:03 -capacity 561580032
raidcom add ldev -parity_grp_id 1-5 -ldev_id 00:04 -capacity 561580032
raidcom add ldev -parity_grp_id 1-6 -ldev_id 00:05 -capacity 561580032
raidcom add ldev -parity_grp_id 1-7 -ldev_id 00:06 -capacity 561580032
raidcom add ldev -parity_grp_id 1-8 -ldev_id 00:07 -capacity 561580032
raidcom add ldev -parity_grp_id 1-9 -ldev_id 00:08 -capacity 561580032
raidcom add ldev -parity_grp_id 1-10 -ldev_id 00:09 -capacity 561580032
raidcom add ldev -parity_grp_id 1-11 -ldev_id 00:0A -capacity 561580032
raidcom add ldev -parity_grp_id 1-12 -ldev_id 00:0B -capacity 561580032
raidcom add ldev -parity_grp_id 1-13 -ldev_id 00:0C -capacity 561580032
raidcom add ldev -parity_grp_id 1-14 -ldev_id 00:0D -capacity 561580032
raidcom add ldev -parity_grp_id 1-15 -ldev_id 00:0E -capacity 561580032
raidcom add ldev -parity_grp_id 1-16 -ldev_id 00:0F -capacity 561580032

raidcom add ldev -parity_grp_id 2-1 -ldev_id 00:10 -capacity 561580032
raidcom add ldev -parity_grp_id 2-2 -ldev_id 00:11 -capacity 561580032
raidcom add ldev -parity_grp_id 2-3 -ldev_id 00:12 -capacity 561580032
raidcom add ldev -parity_grp_id 2-4 -ldev_id 00:13 -capacity 561580032
raidcom add ldev -parity_grp_id 2-5 -ldev_id 00:14 -capacity 561580032
raidcom add ldev -parity_grp_id 2-6 -ldev_id 00:15 -capacity 561580032
raidcom add ldev -parity_grp_id 2-7 -ldev_id 00:16 -capacity 561580032
```

```
raidcom add ldev -parity_grp_id 2-8 -ldev_id 00:17 -capacity 561580032
raidcom add ldev -parity_grp_id 2-9 -ldev_id 00:18 -capacity 561580032
raidcom add ldev -parity_grp_id 2-10 -ldev_id 00:19 -capacity 561580032
raidcom add ldev -parity_grp_id 2-11 -ldev_id 00:1A -capacity 561580032
raidcom add ldev -parity_grp_id 2-12 -ldev_id 00:1B -capacity 561580032
raidcom add ldev -parity_grp_id 2-13 -ldev_id 00:1C -capacity 561580032
raidcom add ldev -parity_grp_id 2-14 -ldev_id 00:1D -capacity 561580032
raidcom add ldev -parity_grp_id 2-15 -ldev_id 00:1E -capacity 561580032
raidcom add ldev -parity_grp_id 2-16 -ldev_id 00:1F -capacity 561580032

raidcom add ldev -parity_grp_id 3-1 -ldev_id 00:20 -capacity 561580032
raidcom add ldev -parity_grp_id 3-2 -ldev_id 00:21 -capacity 561580032
raidcom add ldev -parity_grp_id 3-3 -ldev_id 00:22 -capacity 561580032
raidcom add ldev -parity_grp_id 3-4 -ldev_id 00:23 -capacity 561580032
raidcom add ldev -parity_grp_id 3-5 -ldev_id 00:24 -capacity 561580032
raidcom add ldev -parity_grp_id 3-6 -ldev_id 00:25 -capacity 561580032
raidcom add ldev -parity_grp_id 3-7 -ldev_id 00:26 -capacity 561580032
raidcom add ldev -parity_grp_id 3-8 -ldev_id 00:27 -capacity 561580032
raidcom add ldev -parity_grp_id 3-9 -ldev_id 00:28 -capacity 561580032
raidcom add ldev -parity_grp_id 3-10 -ldev_id 00:29 -capacity 561580032
raidcom add ldev -parity_grp_id 3-11 -ldev_id 00:2A -capacity 561580032
raidcom add ldev -parity_grp_id 3-12 -ldev_id 00:2B -capacity 561580032
raidcom add ldev -parity_grp_id 3-13 -ldev_id 00:2C -capacity 561580032
raidcom add ldev -parity_grp_id 3-14 -ldev_id 00:2D -capacity 561580032
raidcom add ldev -parity_grp_id 3-15 -ldev_id 00:2E -capacity 561580032
raidcom add ldev -parity_grp_id 3-16 -ldev_id 00:2F -capacity 561580032

raidcom add ldev -parity_grp_id 4-1 -ldev_id 00:30 -capacity 561580032
raidcom add ldev -parity_grp_id 4-2 -ldev_id 00:31 -capacity 561580032
raidcom add ldev -parity_grp_id 4-3 -ldev_id 00:32 -capacity 561580032
raidcom add ldev -parity_grp_id 4-4 -ldev_id 00:33 -capacity 561580032
raidcom add ldev -parity_grp_id 4-5 -ldev_id 00:34 -capacity 561580032
raidcom add ldev -parity_grp_id 4-6 -ldev_id 00:35 -capacity 561580032
raidcom add ldev -parity_grp_id 4-7 -ldev_id 00:36 -capacity 561580032
raidcom add ldev -parity_grp_id 4-8 -ldev_id 00:37 -capacity 561580032
raidcom add ldev -parity_grp_id 4-9 -ldev_id 00:38 -capacity 561580032
raidcom add ldev -parity_grp_id 4-10 -ldev_id 00:39 -capacity 561580032
raidcom add ldev -parity_grp_id 4-11 -ldev_id 00:3A -capacity 561580032
raidcom add ldev -parity_grp_id 4-12 -ldev_id 00:3B -capacity 561580032
raidcom add ldev -parity_grp_id 4-13 -ldev_id 00:3C -capacity 561580032
raidcom add ldev -parity_grp_id 4-14 -ldev_id 00:3D -capacity 561580032
raidcom add ldev -parity_grp_id 4-15 -ldev_id 00:3E -capacity 561580032
raidcom add ldev -parity_grp_id 4-16 -ldev_id 00:3F -capacity 561580032

raidcom add ldev -parity_grp_id 5-1 -ldev_id 00:40 -capacity 561580032
raidcom add ldev -parity_grp_id 5-2 -ldev_id 00:41 -capacity 561580032
raidcom add ldev -parity_grp_id 5-3 -ldev_id 00:42 -capacity 561580032
raidcom add ldev -parity_grp_id 5-4 -ldev_id 00:43 -capacity 561580032
raidcom add ldev -parity_grp_id 5-5 -ldev_id 00:44 -capacity 561580032
raidcom add ldev -parity_grp_id 5-6 -ldev_id 00:45 -capacity 561580032
raidcom add ldev -parity_grp_id 5-7 -ldev_id 00:46 -capacity 561580032
raidcom add ldev -parity_grp_id 5-8 -ldev_id 00:47 -capacity 561580032
raidcom add ldev -parity_grp_id 5-9 -ldev_id 00:48 -capacity 561580032
raidcom add ldev -parity_grp_id 5-10 -ldev_id 00:49 -capacity 561580032
raidcom add ldev -parity_grp_id 5-11 -ldev_id 00:4A -capacity 561580032
raidcom add ldev -parity_grp_id 5-12 -ldev_id 00:4B -capacity 561580032
raidcom add ldev -parity_grp_id 5-13 -ldev_id 00:4C -capacity 561580032
raidcom add ldev -parity_grp_id 5-14 -ldev_id 00:4D -capacity 561580032
raidcom add ldev -parity_grp_id 5-15 -ldev_id 00:4E -capacity 561580032
raidcom add ldev -parity_grp_id 5-16 -ldev_id 00:4F -capacity 561580032

raidcom add ldev -parity_grp_id 6-1 -ldev_id 00:50 -capacity 561580032
raidcom add ldev -parity_grp_id 6-2 -ldev_id 00:51 -capacity 561580032
```

```
raidcom add ldev -parity_grp_id 6-3 -ldev_id 00:52 -capacity 561580032
raidcom add ldev -parity_grp_id 6-4 -ldev_id 00:53 -capacity 561580032
raidcom add ldev -parity_grp_id 6-5 -ldev_id 00:54 -capacity 561580032
raidcom add ldev -parity_grp_id 6-6 -ldev_id 00:55 -capacity 561580032
raidcom add ldev -parity_grp_id 6-7 -ldev_id 00:56 -capacity 561580032
raidcom add ldev -parity_grp_id 6-8 -ldev_id 00:57 -capacity 561580032
raidcom add ldev -parity_grp_id 6-9 -ldev_id 00:58 -capacity 561580032
raidcom add ldev -parity_grp_id 6-10 -ldev_id 00:59 -capacity 561580032
raidcom add ldev -parity_grp_id 6-11 -ldev_id 00:5A -capacity 561580032
raidcom add ldev -parity_grp_id 6-12 -ldev_id 00:5B -capacity 561580032
raidcom add ldev -parity_grp_id 6-13 -ldev_id 00:5C -capacity 561580032
raidcom add ldev -parity_grp_id 6-14 -ldev_id 00:5D -capacity 561580032
raidcom add ldev -parity_grp_id 6-15 -ldev_id 00:5E -capacity 561580032
raidcom add ldev -parity_grp_id 6-16 -ldev_id 00:5F -capacity 561580032

raidcom add ldev -parity_grp_id 7-1 -ldev_id 00:60 -capacity 561580032
raidcom add ldev -parity_grp_id 7-2 -ldev_id 00:61 -capacity 561580032
raidcom add ldev -parity_grp_id 7-3 -ldev_id 00:62 -capacity 561580032
raidcom add ldev -parity_grp_id 7-4 -ldev_id 00:63 -capacity 561580032
raidcom add ldev -parity_grp_id 7-5 -ldev_id 00:64 -capacity 561580032
raidcom add ldev -parity_grp_id 7-6 -ldev_id 00:65 -capacity 561580032
raidcom add ldev -parity_grp_id 7-7 -ldev_id 00:66 -capacity 561580032
raidcom add ldev -parity_grp_id 7-8 -ldev_id 00:67 -capacity 561580032
raidcom add ldev -parity_grp_id 7-9 -ldev_id 00:68 -capacity 561580032
raidcom add ldev -parity_grp_id 7-10 -ldev_id 00:69 -capacity 561580032
raidcom add ldev -parity_grp_id 7-11 -ldev_id 00:6A -capacity 561580032
raidcom add ldev -parity_grp_id 7-12 -ldev_id 00:6B -capacity 561580032
raidcom add ldev -parity_grp_id 7-13 -ldev_id 00:6C -capacity 561580032
raidcom add ldev -parity_grp_id 7-14 -ldev_id 00:6D -capacity 561580032
raidcom add ldev -parity_grp_id 7-15 -ldev_id 00:6E -capacity 561580032
raidcom add ldev -parity_grp_id 7-16 -ldev_id 00:6F -capacity 561580032

raidcom add ldev -parity_grp_id 8-1 -ldev_id 00:70 -capacity 561580032
raidcom add ldev -parity_grp_id 8-2 -ldev_id 00:71 -capacity 561580032
raidcom add ldev -parity_grp_id 8-3 -ldev_id 00:72 -capacity 561580032
raidcom add ldev -parity_grp_id 8-4 -ldev_id 00:73 -capacity 561580032
raidcom add ldev -parity_grp_id 8-5 -ldev_id 00:74 -capacity 561580032
raidcom add ldev -parity_grp_id 8-6 -ldev_id 00:75 -capacity 561580032
raidcom add ldev -parity_grp_id 8-7 -ldev_id 00:76 -capacity 561580032
raidcom add ldev -parity_grp_id 8-8 -ldev_id 00:77 -capacity 561580032
raidcom add ldev -parity_grp_id 8-9 -ldev_id 00:78 -capacity 561580032
raidcom add ldev -parity_grp_id 8-10 -ldev_id 00:79 -capacity 561580032
raidcom add ldev -parity_grp_id 8-11 -ldev_id 00:7A -capacity 561580032
raidcom add ldev -parity_grp_id 8-12 -ldev_id 00:7B -capacity 561580032
raidcom add ldev -parity_grp_id 8-13 -ldev_id 00:7C -capacity 561580032
raidcom add ldev -parity_grp_id 8-14 -ldev_id 00:7D -capacity 561580032
raidcom add ldev -parity_grp_id 8-15 -ldev_id 00:7E -capacity 561580032
raidcom add ldev -parity_grp_id 8-16 -ldev_id 00:7F -capacity 561580032

raidcom add ldev -parity_grp_id 9-1 -ldev_id 00:80 -capacity 561580032
raidcom add ldev -parity_grp_id 9-2 -ldev_id 00:81 -capacity 561580032
raidcom add ldev -parity_grp_id 9-3 -ldev_id 00:82 -capacity 561580032
raidcom add ldev -parity_grp_id 9-4 -ldev_id 00:83 -capacity 561580032
raidcom add ldev -parity_grp_id 9-5 -ldev_id 00:84 -capacity 561580032
raidcom add ldev -parity_grp_id 9-6 -ldev_id 00:85 -capacity 561580032
raidcom add ldev -parity_grp_id 9-7 -ldev_id 00:86 -capacity 561580032
raidcom add ldev -parity_grp_id 9-8 -ldev_id 00:87 -capacity 561580032
raidcom add ldev -parity_grp_id 9-9 -ldev_id 00:88 -capacity 561580032
raidcom add ldev -parity_grp_id 9-10 -ldev_id 00:89 -capacity 561580032
raidcom add ldev -parity_grp_id 9-11 -ldev_id 00:8A -capacity 561580032
raidcom add ldev -parity_grp_id 9-12 -ldev_id 00:8B -capacity 561580032
raidcom add ldev -parity_grp_id 9-13 -ldev_id 00:8C -capacity 561580032
raidcom add ldev -parity_grp_id 9-14 -ldev_id 00:8D -capacity 561580032
```

```
raidcom add ldev -parity_grp_id 9-15 -ldev_id 00:8E -capacity 561580032
raidcom add ldev -parity_grp_id 9-16 -ldev_id 00:8F -capacity 561580032

raidcom add ldev -parity_grp_id 10-1 -ldev_id 00:90 -capacity 561580032
raidcom add ldev -parity_grp_id 10-2 -ldev_id 00:91 -capacity 561580032
raidcom add ldev -parity_grp_id 10-3 -ldev_id 00:92 -capacity 561580032
raidcom add ldev -parity_grp_id 10-4 -ldev_id 00:93 -capacity 561580032
raidcom add ldev -parity_grp_id 10-5 -ldev_id 00:94 -capacity 561580032
raidcom add ldev -parity_grp_id 10-6 -ldev_id 00:95 -capacity 561580032
raidcom add ldev -parity_grp_id 10-7 -ldev_id 00:96 -capacity 561580032
raidcom add ldev -parity_grp_id 10-8 -ldev_id 00:97 -capacity 561580032
raidcom add ldev -parity_grp_id 10-9 -ldev_id 00:98 -capacity 561580032
raidcom add ldev -parity_grp_id 10-10 -ldev_id 00:99 -capacity 561580032
raidcom add ldev -parity_grp_id 10-11 -ldev_id 00:9A -capacity 561580032
raidcom add ldev -parity_grp_id 10-12 -ldev_id 00:9B -capacity 561580032
raidcom add ldev -parity_grp_id 10-13 -ldev_id 00:9C -capacity 561580032
raidcom add ldev -parity_grp_id 10-14 -ldev_id 00:9D -capacity 561580032
raidcom add ldev -parity_grp_id 10-15 -ldev_id 00:9E -capacity 561580032
raidcom add ldev -parity_grp_id 10-16 -ldev_id 00:9F -capacity 561580032

raidcom add ldev -parity_grp_id 11-1 -ldev_id 00:A0 -capacity 561580032
raidcom add ldev -parity_grp_id 11-2 -ldev_id 00:A1 -capacity 561580032
raidcom add ldev -parity_grp_id 11-3 -ldev_id 00:A2 -capacity 561580032
raidcom add ldev -parity_grp_id 11-4 -ldev_id 00:A3 -capacity 561580032
raidcom add ldev -parity_grp_id 11-5 -ldev_id 00:A4 -capacity 561580032
raidcom add ldev -parity_grp_id 11-6 -ldev_id 00:A5 -capacity 561580032
raidcom add ldev -parity_grp_id 11-7 -ldev_id 00:A6 -capacity 561580032
raidcom add ldev -parity_grp_id 11-8 -ldev_id 00:A7 -capacity 561580032
raidcom add ldev -parity_grp_id 11-9 -ldev_id 00:A8 -capacity 561580032
raidcom add ldev -parity_grp_id 11-10 -ldev_id 00:A9 -capacity 561580032
raidcom add ldev -parity_grp_id 11-11 -ldev_id 00:AA -capacity 561580032
raidcom add ldev -parity_grp_id 11-12 -ldev_id 00:AB -capacity 561580032
raidcom add ldev -parity_grp_id 11-13 -ldev_id 00:AC -capacity 561580032
raidcom add ldev -parity_grp_id 11-14 -ldev_id 00:AD -capacity 561580032
raidcom add ldev -parity_grp_id 11-15 -ldev_id 00:AE -capacity 561580032
raidcom add ldev -parity_grp_id 11-16 -ldev_id 00:AF -capacity 561580032

raidcom add ldev -parity_grp_id 12-1 -ldev_id 00:B0 -capacity 561580032
raidcom add ldev -parity_grp_id 12-2 -ldev_id 00:B1 -capacity 561580032
raidcom add ldev -parity_grp_id 12-3 -ldev_id 00:B2 -capacity 561580032
raidcom add ldev -parity_grp_id 12-4 -ldev_id 00:B3 -capacity 561580032
raidcom add ldev -parity_grp_id 12-5 -ldev_id 00:B4 -capacity 561580032
raidcom add ldev -parity_grp_id 12-6 -ldev_id 00:B5 -capacity 561580032
raidcom add ldev -parity_grp_id 12-7 -ldev_id 00:B6 -capacity 561580032
raidcom add ldev -parity_grp_id 12-8 -ldev_id 00:B7 -capacity 561580032
raidcom add ldev -parity_grp_id 12-9 -ldev_id 00:B8 -capacity 561580032
raidcom add ldev -parity_grp_id 12-10 -ldev_id 00:B9 -capacity 561580032
raidcom add ldev -parity_grp_id 12-11 -ldev_id 00:BA -capacity 561580032
raidcom add ldev -parity_grp_id 12-12 -ldev_id 00:BB -capacity 561580032
raidcom add ldev -parity_grp_id 12-13 -ldev_id 00:BC -capacity 561580032
raidcom add ldev -parity_grp_id 12-14 -ldev_id 00:BD -capacity 561580032
raidcom add ldev -parity_grp_id 12-15 -ldev_id 00:BE -capacity 561580032
raidcom add ldev -parity_grp_id 12-16 -ldev_id 00:BF -capacity 561580032

raidcom add ldev -parity_grp_id 13-1 -ldev_id 00:C0 -capacity 561580032
raidcom add ldev -parity_grp_id 13-2 -ldev_id 00:C1 -capacity 561580032
raidcom add ldev -parity_grp_id 13-3 -ldev_id 00:C2 -capacity 561580032
raidcom add ldev -parity_grp_id 13-4 -ldev_id 00:C3 -capacity 561580032
raidcom add ldev -parity_grp_id 13-5 -ldev_id 00:C4 -capacity 561580032
raidcom add ldev -parity_grp_id 13-6 -ldev_id 00:C5 -capacity 561580032
raidcom add ldev -parity_grp_id 13-7 -ldev_id 00:C6 -capacity 561580032
raidcom add ldev -parity_grp_id 13-8 -ldev_id 00:C7 -capacity 561580032
raidcom add ldev -parity_grp_id 13-9 -ldev_id 00:C8 -capacity 561580032
```

```
raidcom add ldev -parity_grp_id 13-10 -ldev_id 00:C9 -capacity 561580032
raidcom add ldev -parity_grp_id 13-11 -ldev_id 00:CA -capacity 561580032
raidcom add ldev -parity_grp_id 13-12 -ldev_id 00:CB -capacity 561580032
raidcom add ldev -parity_grp_id 13-13 -ldev_id 00:CC -capacity 561580032
raidcom add ldev -parity_grp_id 13-14 -ldev_id 00:CD -capacity 561580032
raidcom add ldev -parity_grp_id 13-15 -ldev_id 00:CE -capacity 561580032
raidcom add ldev -parity_grp_id 13-16 -ldev_id 00:CF -capacity 561580032

raidcom add ldev -parity_grp_id 14-1 -ldev_id 00:D0 -capacity 561580032
raidcom add ldev -parity_grp_id 14-2 -ldev_id 00:D1 -capacity 561580032
raidcom add ldev -parity_grp_id 14-3 -ldev_id 00:D2 -capacity 561580032
raidcom add ldev -parity_grp_id 14-4 -ldev_id 00:D3 -capacity 561580032
raidcom add ldev -parity_grp_id 14-5 -ldev_id 00:D4 -capacity 561580032
raidcom add ldev -parity_grp_id 14-6 -ldev_id 00:D5 -capacity 561580032
raidcom add ldev -parity_grp_id 14-7 -ldev_id 00:D6 -capacity 561580032
raidcom add ldev -parity_grp_id 14-8 -ldev_id 00:D7 -capacity 561580032
raidcom add ldev -parity_grp_id 14-9 -ldev_id 00:D8 -capacity 561580032
raidcom add ldev -parity_grp_id 14-10 -ldev_id 00:D9 -capacity 561580032
raidcom add ldev -parity_grp_id 14-11 -ldev_id 00:DA -capacity 561580032
raidcom add ldev -parity_grp_id 14-12 -ldev_id 00:DB -capacity 561580032
raidcom add ldev -parity_grp_id 14-13 -ldev_id 00:DC -capacity 561580032
raidcom add ldev -parity_grp_id 14-14 -ldev_id 00:DD -capacity 561580032
raidcom add ldev -parity_grp_id 14-15 -ldev_id 00:DE -capacity 561580032
raidcom add ldev -parity_grp_id 14-16 -ldev_id 00:DF -capacity 561580032

raidcom add ldev -parity_grp_id 15-1 -ldev_id 00:E0 -capacity 561580032
raidcom add ldev -parity_grp_id 15-2 -ldev_id 00:E1 -capacity 561580032
raidcom add ldev -parity_grp_id 15-3 -ldev_id 00:E2 -capacity 561580032
raidcom add ldev -parity_grp_id 15-4 -ldev_id 00:E3 -capacity 561580032
raidcom add ldev -parity_grp_id 15-5 -ldev_id 00:E4 -capacity 561580032
raidcom add ldev -parity_grp_id 15-6 -ldev_id 00:E5 -capacity 561580032
raidcom add ldev -parity_grp_id 15-7 -ldev_id 00:E6 -capacity 561580032
raidcom add ldev -parity_grp_id 15-8 -ldev_id 00:E7 -capacity 561580032
raidcom add ldev -parity_grp_id 15-9 -ldev_id 00:E8 -capacity 561580032
raidcom add ldev -parity_grp_id 15-10 -ldev_id 00:E9 -capacity 561580032
raidcom add ldev -parity_grp_id 15-11 -ldev_id 00:EA -capacity 561580032
raidcom add ldev -parity_grp_id 15-12 -ldev_id 00:EB -capacity 561580032
raidcom add ldev -parity_grp_id 15-13 -ldev_id 00:EC -capacity 561580032
raidcom add ldev -parity_grp_id 15-14 -ldev_id 00:ED -capacity 561580032
raidcom add ldev -parity_grp_id 15-15 -ldev_id 00:EE -capacity 561580032
raidcom add ldev -parity_grp_id 15-16 -ldev_id 00:EF -capacity 561580032

raidcom add ldev -parity_grp_id 16-1 -ldev_id 00:F0 -capacity 561580032
raidcom add ldev -parity_grp_id 16-2 -ldev_id 00:F1 -capacity 561580032
raidcom add ldev -parity_grp_id 16-3 -ldev_id 00:F2 -capacity 561580032
raidcom add ldev -parity_grp_id 16-4 -ldev_id 00:F3 -capacity 561580032
raidcom add ldev -parity_grp_id 16-5 -ldev_id 00:F4 -capacity 561580032
raidcom add ldev -parity_grp_id 16-6 -ldev_id 00:F5 -capacity 561580032
raidcom add ldev -parity_grp_id 16-7 -ldev_id 00:F6 -capacity 561580032
raidcom add ldev -parity_grp_id 16-8 -ldev_id 00:F7 -capacity 561580032
raidcom add ldev -parity_grp_id 16-9 -ldev_id 00:F8 -capacity 561580032
raidcom add ldev -parity_grp_id 16-10 -ldev_id 00:F9 -capacity 561580032
raidcom add ldev -parity_grp_id 16-11 -ldev_id 00:FA -capacity 561580032
raidcom add ldev -parity_grp_id 16-12 -ldev_id 00:FB -capacity 561580032
raidcom add ldev -parity_grp_id 16-13 -ldev_id 00:FC -capacity 561580032
raidcom add ldev -parity_grp_id 16-14 -ldev_id 00:FD -capacity 561580032
raidcom add ldev -parity_grp_id 16-15 -ldev_id 00:FE -capacity 561580032
raidcom add ldev -parity_grp_id 16-16 -ldev_id 00:FF -capacity 561580032

raidcom add ldev -parity_grp_id 17-1 -ldev_id 01:00 -capacity 561580032
raidcom add ldev -parity_grp_id 17-2 -ldev_id 01:01 -capacity 561580032
raidcom add ldev -parity_grp_id 17-3 -ldev_id 01:02 -capacity 561580032
raidcom add ldev -parity_grp_id 17-4 -ldev_id 01:03 -capacity 561580032
```

```
raidcom add ldev -parity_grp_id 17-5 -ldev_id 01:04 -capacity 561580032
raidcom add ldev -parity_grp_id 17-6 -ldev_id 01:05 -capacity 561580032
raidcom add ldev -parity_grp_id 17-7 -ldev_id 01:06 -capacity 561580032
raidcom add ldev -parity_grp_id 17-8 -ldev_id 01:07 -capacity 561580032
raidcom add ldev -parity_grp_id 17-9 -ldev_id 01:08 -capacity 561580032
raidcom add ldev -parity_grp_id 17-10 -ldev_id 01:09 -capacity 561580032
raidcom add ldev -parity_grp_id 17-11 -ldev_id 01:0A -capacity 561580032
raidcom add ldev -parity_grp_id 17-12 -ldev_id 01:0B -capacity 561580032
raidcom add ldev -parity_grp_id 17-13 -ldev_id 01:0C -capacity 561580032
raidcom add ldev -parity_grp_id 17-14 -ldev_id 01:0D -capacity 561580032
raidcom add ldev -parity_grp_id 17-15 -ldev_id 01:0E -capacity 561580032
raidcom add ldev -parity_grp_id 17-16 -ldev_id 01:0F -capacity 561580032

raidcom add ldev -parity_grp_id 18-1 -ldev_id 01:10 -capacity 561580032
raidcom add ldev -parity_grp_id 18-2 -ldev_id 01:11 -capacity 561580032
raidcom add ldev -parity_grp_id 18-3 -ldev_id 01:12 -capacity 561580032
raidcom add ldev -parity_grp_id 18-4 -ldev_id 01:13 -capacity 561580032
raidcom add ldev -parity_grp_id 18-5 -ldev_id 01:14 -capacity 561580032
raidcom add ldev -parity_grp_id 18-6 -ldev_id 01:15 -capacity 561580032
raidcom add ldev -parity_grp_id 18-7 -ldev_id 01:16 -capacity 561580032
raidcom add ldev -parity_grp_id 18-8 -ldev_id 01:17 -capacity 561580032
raidcom add ldev -parity_grp_id 18-9 -ldev_id 01:18 -capacity 561580032
raidcom add ldev -parity_grp_id 18-10 -ldev_id 01:19 -capacity 561580032
raidcom add ldev -parity_grp_id 18-11 -ldev_id 01:1A -capacity 561580032
raidcom add ldev -parity_grp_id 18-12 -ldev_id 01:1B -capacity 561580032
raidcom add ldev -parity_grp_id 18-13 -ldev_id 01:1C -capacity 561580032
raidcom add ldev -parity_grp_id 18-14 -ldev_id 01:1D -capacity 561580032
raidcom add ldev -parity_grp_id 18-15 -ldev_id 01:1E -capacity 561580032
raidcom add ldev -parity_grp_id 18-16 -ldev_id 01:1F -capacity 561580032
```

create_pool.bat

```
raidcom add thp_pool -pool_id 0 -ldev_id 0-63
raidcom add thp_pool -pool_id 0 -ldev_id 64-127
raidcom add thp_pool -pool_id 0 -ldev_id 128-191
raidcom add thp_pool -pool_id 0 -ldev_id 192-255
raidcom add thp_pool -pool_id 0 -ldev_id 256-287
```

create_luns.bat

```
raidcom add ldev -pool 0 -ldev_id 11:00 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:01 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:02 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:03 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:04 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:05 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:06 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:07 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:08 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:09 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:0A -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:0B -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:0C -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:0D -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:0E -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:0F -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:10 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:11 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:12 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:13 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:14 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:15 -capacity 648g
```

```
raidcom add ldev -pool 0 -ldev_id 11:16 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:17 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:18 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:19 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:1A -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:1B -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:1C -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:1D -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:1E -capacity 648g
raidcom add ldev -pool 0 -ldev_id 11:1F -capacity 648g

raidcom add ldev -pool 0 -ldev_id 12:00 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:01 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:02 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:03 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:04 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:05 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:06 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:07 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:08 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:09 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:0A -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:0B -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:0C -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:0D -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:0E -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:0F -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:10 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:11 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:12 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:13 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:14 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:15 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:16 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:17 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:18 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:19 -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:1A -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:1B -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:1C -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:1D -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:1E -capacity 648g
raidcom add ldev -pool 0 -ldev_id 12:1F -capacity 648g

raidcom add ldev -pool 0 -ldev_id 13:00 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:01 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:02 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:03 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:04 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:05 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:06 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:07 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:08 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:09 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:0A -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:0B -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:0C -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:0D -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:0E -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:0F -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:10 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:11 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:12 -capacity 144g
```

```
raidcom add ldev -pool 0 -ldev_id 13:13 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:14 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:15 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:16 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:17 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:18 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:19 -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:1A -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:1B -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:1C -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:1D -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:1E -capacity 144g
raidcom add ldev -pool 0 -ldev_id 13:1F -capacity 144g
```

map_luns_sun141.bat

```
raidcom add lun -port CL1-A -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL1-A -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL1-A -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL1-A -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL1-A -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL1-A -ldev_id 11:14 -lun_id 20
raidcom add lun -port CL1-A -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL1-A -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL1-A -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL1-A -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL1-A -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL1-A -ldev_id 12:0C -lun_id 44
raidcom add lun -port CL1-A -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL1-A -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL1-A -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL1-A -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL1-A -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL1-A -ldev_id 13:04 -lun_id 68
raidcom add lun -port CL1-A -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL1-A -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL1-A -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL1-A -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL1-A -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL1-A -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL1-E -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL1-E -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL1-E -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL1-E -ldev_id 11:0D -lun_id 13
raidcom add lun -port CL1-E -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL1-E -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL1-E -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL1-E -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL1-E -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL1-E -ldev_id 12:05 -lun_id 37
raidcom add lun -port CL1-E -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL1-E -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL1-E -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL1-E -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL1-E -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL1-E -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL1-E -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL1-E -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL1-E -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL1-E -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL1-E -ldev_id 13:11 -lun_id 81
```

```
raidcom add lun -port CL1-E -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL1-E -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL1-E -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL2-A -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL2-A -ldev_id 11:06 -lun_id 6
raidcom add lun -port CL2-A -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL2-A -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL2-A -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL2-A -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL2-A -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL2-A -ldev_id 11:1E -lun_id 30
raidcom add lun -port CL2-A -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL2-A -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL2-A -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL2-A -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL2-A -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL2-A -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL2-A -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL2-A -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL2-A -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL2-A -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL2-A -ldev_id 13:0A -lun_id 74
raidcom add lun -port CL2-A -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL2-A -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL2-A -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL2-A -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL2-A -ldev_id 13:1E -lun_id 94

raidcom add lun -port CL2-E -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL2-E -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL2-E -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL2-E -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL2-E -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL2-E -ldev_id 11:17 -lun_id 23
raidcom add lun -port CL2-E -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL2-E -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL2-E -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL2-E -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL2-E -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL2-E -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL2-E -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL2-E -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL2-E -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL2-E -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL2-E -ldev_id 13:03 -lun_id 67
raidcom add lun -port CL2-E -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL2-E -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL2-E -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL2-E -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL2-E -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL2-E -ldev_id 13:1B -lun_id 91
raidcom add lun -port CL2-E -ldev_id 13:1F -lun_id 95
```

map_luns_sun142.bat

```
raidcom add lun -port CL3-A -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL3-A -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL3-A -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL3-A -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL3-A -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL3-A -ldev_id 11:14 -lun_id 20
```

```
raidcom add lun -port CL3-A -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL3-A -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL3-A -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL3-A -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL3-A -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL3-A -ldev_id 12:0C -lun_id 44
raidcom add lun -port CL3-A -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL3-A -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL3-A -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL3-A -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL3-A -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL3-A -ldev_id 13:04 -lun_id 68
raidcom add lun -port CL3-A -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL3-A -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL3-A -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL3-A -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL3-A -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL3-A -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL3-E -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL3-E -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL3-E -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL3-E -ldev_id 11:0D -lun_id 13
raidcom add lun -port CL3-E -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL3-E -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL3-E -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL3-E -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL3-E -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL3-E -ldev_id 12:05 -lun_id 37
raidcom add lun -port CL3-E -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL3-E -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL3-E -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL3-E -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL3-E -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL3-E -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL3-E -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL3-E -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL3-E -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL3-E -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL3-E -ldev_id 13:11 -lun_id 81
raidcom add lun -port CL3-E -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL3-E -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL3-E -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL4-A -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL4-A -ldev_id 11:06 -lun_id 6
raidcom add lun -port CL4-A -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL4-A -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL4-A -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL4-A -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL4-A -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL4-A -ldev_id 11:1E -lun_id 30
raidcom add lun -port CL4-A -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL4-A -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL4-A -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL4-A -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL4-A -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL4-A -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL4-A -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL4-A -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL4-A -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL4-A -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL4-A -ldev_id 13:0A -lun_id 74
```

```
raidcom add lun -port CL4-A -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL4-A -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL4-A -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL4-A -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL4-A -ldev_id 13:1E -lun_id 94

raidcom add lun -port CL4-E -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL4-E -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL4-E -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL4-E -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL4-E -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL4-E -ldev_id 11:17 -lun_id 23
raidcom add lun -port CL4-E -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL4-E -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL4-E -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL4-E -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL4-E -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL4-E -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL4-E -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL4-E -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL4-E -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL4-E -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL4-E -ldev_id 13:03 -lun_id 67
raidcom add lun -port CL4-E -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL4-E -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL4-E -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL4-E -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL4-E -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL4-E -ldev_id 13:1B -lun_id 91
raidcom add lun -port CL4-E -ldev_id 13:1F -lun_id 95
```

map_luns_sun143.bat

```
raidcom add lun -port CL1-B -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL1-B -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL1-B -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL1-B -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL1-B -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL1-B -ldev_id 11:14 -lun_id 20
raidcom add lun -port CL1-B -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL1-B -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL1-B -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL1-B -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL1-B -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL1-B -ldev_id 12:0C -lun_id 44
raidcom add lun -port CL1-B -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL1-B -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL1-B -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL1-B -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL1-B -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL1-B -ldev_id 13:04 -lun_id 68
raidcom add lun -port CL1-B -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL1-B -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL1-B -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL1-B -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL1-B -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL1-B -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL1-F -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL1-F -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL1-F -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL1-F -ldev_id 11:0D -lun_id 13
```

```
raidcom add lun -port CL1-F -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL1-F -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL1-F -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL1-F -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL1-F -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL1-F -ldev_id 12:05 -lun_id 37
raidcom add lun -port CL1-F -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL1-F -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL1-F -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL1-F -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL1-F -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL1-F -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL1-F -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL1-F -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL1-F -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL1-F -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL1-F -ldev_id 13:11 -lun_id 81
raidcom add lun -port CL1-F -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL1-F -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL1-F -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL2-B -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL2-B -ldev_id 11:06 -lun_id 6
raidcom add lun -port CL2-B -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL2-B -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL2-B -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL2-B -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL2-B -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL2-B -ldev_id 11:1E -lun_id 30
raidcom add lun -port CL2-B -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL2-B -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL2-B -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL2-B -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL2-B -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL2-B -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL2-B -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL2-B -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL2-B -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL2-B -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL2-B -ldev_id 13:0A -lun_id 74
raidcom add lun -port CL2-B -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL2-B -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL2-B -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL2-B -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL2-B -ldev_id 13:1E -lun_id 94

raidcom add lun -port CL2-F -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL2-F -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL2-F -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL2-F -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL2-F -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL2-F -ldev_id 11:17 -lun_id 23
raidcom add lun -port CL2-F -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL2-F -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL2-F -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL2-F -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL2-F -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL2-F -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL2-F -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL2-F -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL2-F -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL2-F -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL2-F -ldev_id 13:03 -lun_id 67
```

```
raidcom add lun -port CL2-F -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL2-F -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL2-F -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL2-F -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL2-F -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL2-F -ldev_id 13:1B -lun_id 91
raidcom add lun -port CL2-F -ldev_id 13:1F -lun_id 95
```

map_luns_sun144.bat

```
raidcom add lun -port CL3-B -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL3-B -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL3-B -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL3-B -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL3-B -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL3-B -ldev_id 11:14 -lun_id 20
raidcom add lun -port CL3-B -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL3-B -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL3-B -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL3-B -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL3-B -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL3-B -ldev_id 12:0C -lun_id 44
raidcom add lun -port CL3-B -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL3-B -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL3-B -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL3-B -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL3-B -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL3-B -ldev_id 13:04 -lun_id 68
raidcom add lun -port CL3-B -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL3-B -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL3-B -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL3-B -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL3-B -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL3-B -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL3-F -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL3-F -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL3-F -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL3-F -ldev_id 11:0D -lun_id 13
raidcom add lun -port CL3-F -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL3-F -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL3-F -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL3-F -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL3-F -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL3-F -ldev_id 12:05 -lun_id 37
raidcom add lun -port CL3-F -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL3-F -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL3-F -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL3-F -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL3-F -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL3-F -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL3-F -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL3-F -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL3-F -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL3-F -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL3-F -ldev_id 13:11 -lun_id 81
raidcom add lun -port CL3-F -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL3-F -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL3-F -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL4-B -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL4-B -ldev_id 11:06 -lun_id 6
```

```
raidcom add lun -port CL4-B -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL4-B -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL4-B -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL4-B -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL4-B -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL4-B -ldev_id 11:1E -lun_id 30
raidcom add lun -port CL4-B -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL4-B -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL4-B -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL4-B -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL4-B -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL4-B -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL4-B -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL4-B -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL4-B -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL4-B -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL4-B -ldev_id 13:0A -lun_id 74
raidcom add lun -port CL4-B -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL4-B -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL4-B -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL4-B -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL4-B -ldev_id 13:1E -lun_id 94

raidcom add lun -port CL4-F -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL4-F -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL4-F -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL4-F -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL4-F -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL4-F -ldev_id 11:17 -lun_id 23
raidcom add lun -port CL4-F -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL4-F -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL4-F -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL4-F -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL4-F -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL4-F -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL4-F -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL4-F -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL4-F -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL4-F -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL4-F -ldev_id 13:03 -lun_id 67
raidcom add lun -port CL4-F -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL4-F -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL4-F -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL4-F -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL4-F -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL4-F -ldev_id 13:1B -lun_id 91
raidcom add lun -port CL4-F -ldev_id 13:1F -lun_id 95
```

map_luns_sun145.bat

```
raidcom add lun -port CL1-J -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL1-J -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL1-J -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL1-J -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL1-J -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL1-J -ldev_id 11:14 -lun_id 20
raidcom add lun -port CL1-J -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL1-J -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL1-J -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL1-J -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL1-J -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL1-J -ldev_id 12:0C -lun_id 44
```

```
raidcom add lun -port CL1-J -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL1-J -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL1-J -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL1-J -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL1-J -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL1-J -ldev_id 13:04 -lun_id 68
raidcom add lun -port CL1-J -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL1-J -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL1-J -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL1-J -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL1-J -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL1-J -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL1-N -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL1-N -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL1-N -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL1-N -ldev_id 11:0D -lun_id 13
raidcom add lun -port CL1-N -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL1-N -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL1-N -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL1-N -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL1-N -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL1-N -ldev_id 12:05 -lun_id 37
raidcom add lun -port CL1-N -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL1-N -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL1-N -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL1-N -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL1-N -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL1-N -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL1-N -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL1-N -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL1-N -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL1-N -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL1-N -ldev_id 13:11 -lun_id 81
raidcom add lun -port CL1-N -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL1-N -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL1-N -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL2-J -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL2-J -ldev_id 11:06 -lun_id 6
raidcom add lun -port CL2-J -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL2-J -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL2-J -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL2-J -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL2-J -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL2-J -ldev_id 11:1E -lun_id 30
raidcom add lun -port CL2-J -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL2-J -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL2-J -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL2-J -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL2-J -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL2-J -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL2-J -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL2-J -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL2-J -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL2-J -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL2-J -ldev_id 13:0A -lun_id 74
raidcom add lun -port CL2-J -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL2-J -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL2-J -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL2-J -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL2-J -ldev_id 13:1E -lun_id 94
```

```
raidcom add lun -port CL2-N -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL2-N -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL2-N -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL2-N -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL2-N -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL2-N -ldev_id 11:17 -lun_id 23
raidcom add lun -port CL2-N -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL2-N -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL2-N -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL2-N -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL2-N -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL2-N -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL2-N -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL2-N -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL2-N -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL2-N -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL2-N -ldev_id 13:03 -lun_id 67
raidcom add lun -port CL2-N -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL2-N -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL2-N -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL2-N -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL2-N -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL2-N -ldev_id 13:1B -lun_id 91
raidcom add lun -port CL2-N -ldev_id 13:1F -lun_id 95
```

map_luns_sun146.bat

```
raidcom add lun -port CL3-J -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL3-J -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL3-J -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL3-J -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL3-J -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL3-J -ldev_id 11:14 -lun_id 20
raidcom add lun -port CL3-J -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL3-J -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL3-J -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL3-J -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL3-J -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL3-J -ldev_id 12:0C -lun_id 44
raidcom add lun -port CL3-J -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL3-J -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL3-J -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL3-J -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL3-J -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL3-J -ldev_id 13:04 -lun_id 68
raidcom add lun -port CL3-J -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL3-J -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL3-J -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL3-J -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL3-J -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL3-J -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL3-N -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL3-N -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL3-N -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL3-N -ldev_id 11:0D -lun_id 13
raidcom add lun -port CL3-N -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL3-N -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL3-N -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL3-N -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL3-N -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL3-N -ldev_id 12:05 -lun_id 37
```

```
raidcom add lun -port CL3-N -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL3-N -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL3-N -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL3-N -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL3-N -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL3-N -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL3-N -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL3-N -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL3-N -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL3-N -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL3-N -ldev_id 13:11 -lun_id 81
raidcom add lun -port CL3-N -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL3-N -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL3-N -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL4-J -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL4-J -ldev_id 11:06 -lun_id 6
raidcom add lun -port CL4-J -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL4-J -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL4-J -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL4-J -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL4-J -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL4-J -ldev_id 11:1E -lun_id 30
raidcom add lun -port CL4-J -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL4-J -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL4-J -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL4-J -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL4-J -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL4-J -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL4-J -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL4-J -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL4-J -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL4-J -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL4-J -ldev_id 13:0A -lun_id 74
raidcom add lun -port CL4-J -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL4-J -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL4-J -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL4-J -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL4-J -ldev_id 13:1E -lun_id 94

raidcom add lun -port CL4-N -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL4-N -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL4-N -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL4-N -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL4-N -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL4-N -ldev_id 11:17 -lun_id 23
raidcom add lun -port CL4-N -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL4-N -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL4-N -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL4-N -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL4-N -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL4-N -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL4-N -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL4-N -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL4-N -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL4-N -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL4-N -ldev_id 13:03 -lun_id 67
raidcom add lun -port CL4-N -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL4-N -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL4-N -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL4-N -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL4-N -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL4-N -ldev_id 13:1B -lun_id 91
```

```
raidcom add lun -port CL4-N -ldev_id 13:1F -lun_id 95
```

map_luns_sun147.bat

```
raidcom add lun -port CL1-K -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL1-K -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL1-K -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL1-K -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL1-K -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL1-K -ldev_id 11:14 -lun_id 20
raidcom add lun -port CL1-K -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL1-K -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL1-K -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL1-K -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL1-K -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL1-K -ldev_id 12:0C -lun_id 44
raidcom add lun -port CL1-K -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL1-K -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL1-K -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL1-K -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL1-K -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL1-K -ldev_id 13:04 -lun_id 68
raidcom add lun -port CL1-K -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL1-K -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL1-K -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL1-K -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL1-K -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL1-K -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL1-P -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL1-P -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL1-P -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL1-P -ldev_id 11:0D -lun_id 13
raidcom add lun -port CL1-P -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL1-P -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL1-P -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL1-P -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL1-P -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL1-P -ldev_id 12:05 -lun_id 37
raidcom add lun -port CL1-P -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL1-P -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL1-P -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL1-P -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL1-P -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL1-P -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL1-P -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL1-P -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL1-P -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL1-P -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL1-P -ldev_id 13:11 -lun_id 81
raidcom add lun -port CL1-P -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL1-P -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL1-P -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL2-K -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL2-K -ldev_id 11:06 -lun_id 6
raidcom add lun -port CL2-K -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL2-K -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL2-K -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL2-K -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL2-K -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL2-K -ldev_id 11:1E -lun_id 30
```

```
raidcom add lun -port CL2-K -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL2-K -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL2-K -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL2-K -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL2-K -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL2-K -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL2-K -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL2-K -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL2-K -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL2-K -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL2-K -ldev_id 13:0A -lun_id 74
raidcom add lun -port CL2-K -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL2-K -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL2-K -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL2-K -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL2-K -ldev_id 13:1E -lun_id 94

raidcom add lun -port CL2-P -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL2-P -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL2-P -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL2-P -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL2-P -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL2-P -ldev_id 11:17 -lun_id 23
raidcom add lun -port CL2-P -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL2-P -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL2-P -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL2-P -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL2-P -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL2-P -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL2-P -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL2-P -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL2-P -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL2-P -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL2-P -ldev_id 13:03 -lun_id 67
raidcom add lun -port CL2-P -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL2-P -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL2-P -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL2-P -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL2-P -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL2-P -ldev_id 13:1B -lun_id 91
raidcom add lun -port CL2-P -ldev_id 13:1F -lun_id 95
```

map_luns_sun148.bat

```
raidcom add lun -port CL3-K -ldev_id 11:00 -lun_id 0
raidcom add lun -port CL3-K -ldev_id 11:04 -lun_id 4
raidcom add lun -port CL3-K -ldev_id 11:08 -lun_id 8
raidcom add lun -port CL3-K -ldev_id 11:0C -lun_id 12
raidcom add lun -port CL3-K -ldev_id 11:10 -lun_id 16
raidcom add lun -port CL3-K -ldev_id 11:14 -lun_id 20
raidcom add lun -port CL3-K -ldev_id 11:18 -lun_id 24
raidcom add lun -port CL3-K -ldev_id 11:1C -lun_id 28
raidcom add lun -port CL3-K -ldev_id 12:00 -lun_id 32
raidcom add lun -port CL3-K -ldev_id 12:04 -lun_id 36
raidcom add lun -port CL3-K -ldev_id 12:08 -lun_id 40
raidcom add lun -port CL3-K -ldev_id 12:0C -lun_id 44
raidcom add lun -port CL3-K -ldev_id 12:10 -lun_id 48
raidcom add lun -port CL3-K -ldev_id 12:14 -lun_id 52
raidcom add lun -port CL3-K -ldev_id 12:18 -lun_id 56
raidcom add lun -port CL3-K -ldev_id 12:1C -lun_id 60
raidcom add lun -port CL3-K -ldev_id 13:00 -lun_id 64
raidcom add lun -port CL3-K -ldev_id 13:04 -lun_id 68
```

```
raidcom add lun -port CL3-K -ldev_id 13:08 -lun_id 72
raidcom add lun -port CL3-K -ldev_id 13:0C -lun_id 76
raidcom add lun -port CL3-K -ldev_id 13:10 -lun_id 80
raidcom add lun -port CL3-K -ldev_id 13:14 -lun_id 84
raidcom add lun -port CL3-K -ldev_id 13:18 -lun_id 88
raidcom add lun -port CL3-K -ldev_id 13:1C -lun_id 92

raidcom add lun -port CL3-P -ldev_id 11:01 -lun_id 1
raidcom add lun -port CL3-P -ldev_id 11:05 -lun_id 5
raidcom add lun -port CL3-P -ldev_id 11:09 -lun_id 9
raidcom add lun -port CL3-P -ldev_id 11:0D -lun_id 13
raidcom add lun -port CL3-P -ldev_id 11:11 -lun_id 17
raidcom add lun -port CL3-P -ldev_id 11:15 -lun_id 21
raidcom add lun -port CL3-P -ldev_id 11:19 -lun_id 25
raidcom add lun -port CL3-P -ldev_id 11:1D -lun_id 29
raidcom add lun -port CL3-P -ldev_id 12:01 -lun_id 33
raidcom add lun -port CL3-P -ldev_id 12:05 -lun_id 37
raidcom add lun -port CL3-P -ldev_id 12:09 -lun_id 41
raidcom add lun -port CL3-P -ldev_id 12:0D -lun_id 45
raidcom add lun -port CL3-P -ldev_id 12:11 -lun_id 49
raidcom add lun -port CL3-P -ldev_id 12:15 -lun_id 53
raidcom add lun -port CL3-P -ldev_id 12:19 -lun_id 57
raidcom add lun -port CL3-P -ldev_id 12:1D -lun_id 61
raidcom add lun -port CL3-P -ldev_id 13:01 -lun_id 65
raidcom add lun -port CL3-P -ldev_id 13:05 -lun_id 69
raidcom add lun -port CL3-P -ldev_id 13:09 -lun_id 73
raidcom add lun -port CL3-P -ldev_id 13:0D -lun_id 77
raidcom add lun -port CL3-P -ldev_id 13:11 -lun_id 81
raidcom add lun -port CL3-P -ldev_id 13:15 -lun_id 85
raidcom add lun -port CL3-P -ldev_id 13:19 -lun_id 89
raidcom add lun -port CL3-P -ldev_id 13:1D -lun_id 93

raidcom add lun -port CL4-K -ldev_id 11:02 -lun_id 2
raidcom add lun -port CL4-K -ldev_id 11:06 -lun_id 6
raidcom add lun -port CL4-K -ldev_id 11:0A -lun_id 10
raidcom add lun -port CL4-K -ldev_id 11:0E -lun_id 14
raidcom add lun -port CL4-K -ldev_id 11:12 -lun_id 18
raidcom add lun -port CL4-K -ldev_id 11:16 -lun_id 22
raidcom add lun -port CL4-K -ldev_id 11:1A -lun_id 26
raidcom add lun -port CL4-K -ldev_id 11:1E -lun_id 30
raidcom add lun -port CL4-K -ldev_id 12:02 -lun_id 34
raidcom add lun -port CL4-K -ldev_id 12:06 -lun_id 38
raidcom add lun -port CL4-K -ldev_id 12:0A -lun_id 42
raidcom add lun -port CL4-K -ldev_id 12:0E -lun_id 46
raidcom add lun -port CL4-K -ldev_id 12:12 -lun_id 50
raidcom add lun -port CL4-K -ldev_id 12:16 -lun_id 54
raidcom add lun -port CL4-K -ldev_id 12:1A -lun_id 58
raidcom add lun -port CL4-K -ldev_id 12:1E -lun_id 62
raidcom add lun -port CL4-K -ldev_id 13:02 -lun_id 66
raidcom add lun -port CL4-K -ldev_id 13:06 -lun_id 70
raidcom add lun -port CL4-K -ldev_id 13:0A -lun_id 74
raidcom add lun -port CL4-K -ldev_id 13:0E -lun_id 78
raidcom add lun -port CL4-K -ldev_id 13:12 -lun_id 82
raidcom add lun -port CL4-K -ldev_id 13:16 -lun_id 86
raidcom add lun -port CL4-K -ldev_id 13:1A -lun_id 90
raidcom add lun -port CL4-K -ldev_id 13:1E -lun_id 94

raidcom add lun -port CL4-P -ldev_id 11:03 -lun_id 3
raidcom add lun -port CL4-P -ldev_id 11:07 -lun_id 7
raidcom add lun -port CL4-P -ldev_id 11:0B -lun_id 11
raidcom add lun -port CL4-P -ldev_id 11:0F -lun_id 15
raidcom add lun -port CL4-P -ldev_id 11:13 -lun_id 19
raidcom add lun -port CL4-P -ldev_id 11:17 -lun_id 23
```

```
raidcom add lun -port CL4-P -ldev_id 11:1B -lun_id 27
raidcom add lun -port CL4-P -ldev_id 11:1F -lun_id 31
raidcom add lun -port CL4-P -ldev_id 12:03 -lun_id 35
raidcom add lun -port CL4-P -ldev_id 12:07 -lun_id 39
raidcom add lun -port CL4-P -ldev_id 12:0B -lun_id 43
raidcom add lun -port CL4-P -ldev_id 12:0F -lun_id 47
raidcom add lun -port CL4-P -ldev_id 12:13 -lun_id 51
raidcom add lun -port CL4-P -ldev_id 12:17 -lun_id 55
raidcom add lun -port CL4-P -ldev_id 12:1B -lun_id 59
raidcom add lun -port CL4-P -ldev_id 12:1F -lun_id 63
raidcom add lun -port CL4-P -ldev_id 13:03 -lun_id 67
raidcom add lun -port CL4-P -ldev_id 13:07 -lun_id 71
raidcom add lun -port CL4-P -ldev_id 13:0B -lun_id 75
raidcom add lun -port CL4-P -ldev_id 13:0F -lun_id 79
raidcom add lun -port CL4-P -ldev_id 13:13 -lun_id 83
raidcom add lun -port CL4-P -ldev_id 13:17 -lun_id 87
raidcom add lun -port CL4-P -ldev_id 13:1B -lun_id 91
raidcom add lun -port CL4-P -ldev_id 13:1F -lun_id 95
```

diskpart_online.txt

```
select disk 0
attributes disk clear readonly
online disk noerr

select disk 1
attributes disk clear readonly
online disk noerr

select disk 2
attributes disk clear readonly
online disk noerr

select disk 3
attributes disk clear readonly
online disk noerr

select disk 4
attributes disk clear readonly
online disk noerr

select disk 5
attributes disk clear readonly
online disk noerr

select disk 6
attributes disk clear readonly
online disk noerr

select disk 7
attributes disk clear readonly
online disk noerr

select disk 8
attributes disk clear readonly
online disk noerr

select disk 9
attributes disk clear readonly
online disk noerr

select disk 10
```

```
attributes disk clear readonly
online disk noerr

select disk 11
attributes disk clear readonly
online disk noerr

select disk 12
attributes disk clear readonly
online disk noerr

select disk 13
attributes disk clear readonly
online disk noerr

select disk 14
attributes disk clear readonly
online disk noerr

select disk 15
attributes disk clear readonly
online disk noerr

select disk 16
attributes disk clear readonly
online disk noerr

select disk 17
attributes disk clear readonly
online disk noerr

select disk 18
attributes disk clear readonly
online disk noerr

select disk 19
attributes disk clear readonly
online disk noerr

select disk 20
attributes disk clear readonly
online disk noerr

select disk 21
attributes disk clear readonly
online disk noerr

select disk 22
attributes disk clear readonly
online disk noerr

select disk 23
attributes disk clear readonly
online disk noerr

select disk 24
attributes disk clear readonly
online disk noerr

select disk 25
attributes disk clear readonly
online disk noerr
```

```
select disk 26
attributes disk clear readonly
online disk noerr

select disk 27
attributes disk clear readonly
online disk noerr

select disk 28
attributes disk clear readonly
online disk noerr

select disk 29
attributes disk clear readonly
online disk noerr

select disk 30
attributes disk clear readonly
online disk noerr

select disk 31
attributes disk clear readonly
online disk noerr

select disk 32
attributes disk clear readonly
online disk noerr

select disk 33
attributes disk clear readonly
online disk noerr

select disk 34
attributes disk clear readonly
online disk noerr

select disk 35
attributes disk clear readonly
online disk noerr

select disk 36
attributes disk clear readonly
online disk noerr

select disk 37
attributes disk clear readonly
online disk noerr

select disk 38
attributes disk clear readonly
online disk noerr

select disk 39
attributes disk clear readonly
online disk noerr

select disk 40
attributes disk clear readonly
online disk noerr

select disk 41
attributes disk clear readonly
online disk noerr
```

```
select disk 42
attributes disk clear readonly
online disk noerr

select disk 43
attributes disk clear readonly
online disk noerr

select disk 44
attributes disk clear readonly
online disk noerr

select disk 45
attributes disk clear readonly
online disk noerr

select disk 46
attributes disk clear readonly
online disk noerr

select disk 47
attributes disk clear readonly
online disk noerr

select disk 48
attributes disk clear readonly
online disk noerr

select disk 49
attributes disk clear readonly
online disk noerr

select disk 50
attributes disk clear readonly
online disk noerr

select disk 51
attributes disk clear readonly
online disk noerr

select disk 52
attributes disk clear readonly
online disk noerr

select disk 53
attributes disk clear readonly
online disk noerr

select disk 54
attributes disk clear readonly
online disk noerr

select disk 55
attributes disk clear readonly
online disk noerr

select disk 56
attributes disk clear readonly
online disk noerr

select disk 57
attributes disk clear readonly
```

```
online disk noerr

select disk 58
attributes disk clear readonly
online disk noerr

select disk 59
attributes disk clear readonly
online disk noerr

select disk 60
attributes disk clear readonly
online disk noerr

select disk 61
attributes disk clear readonly
online disk noerr

select disk 62
attributes disk clear readonly
online disk noerr

select disk 63
attributes disk clear readonly
online disk noerr

select disk 64
attributes disk clear readonly
online disk noerr

select disk 65
attributes disk clear readonly
online disk noerr

select disk 66
attributes disk clear readonly
online disk noerr

select disk 67
attributes disk clear readonly
online disk noerr

select disk 68
attributes disk clear readonly
online disk noerr

select disk 69
attributes disk clear readonly
online disk noerr

select disk 70
attributes disk clear readonly
online disk noerr

select disk 71
attributes disk clear readonly
online disk noerr

select disk 72
attributes disk clear readonly
online disk noerr

select disk 73
```

```
attributes disk clear readonly
online disk noerr

select disk 74
attributes disk clear readonly
online disk noerr

select disk 75
attributes disk clear readonly
online disk noerr

select disk 76
attributes disk clear readonly
online disk noerr

select disk 77
attributes disk clear readonly
online disk noerr

select disk 78
attributes disk clear readonly
online disk noerr

select disk 79
attributes disk clear readonly
online disk noerr

select disk 80
attributes disk clear readonly
online disk noerr

select disk 81
attributes disk clear readonly
online disk noerr

select disk 82
attributes disk clear readonly
online disk noerr

select disk 83
attributes disk clear readonly
online disk noerr

select disk 84
attributes disk clear readonly
online disk noerr

select disk 85
attributes disk clear readonly
online disk noerr

select disk 86
attributes disk clear readonly
online disk noerr

select disk 87
attributes disk clear readonly
online disk noerr

select disk 88
attributes disk clear readonly
online disk noerr
```

```
select disk 89
attributes disk clear readonly
online disk noerr

select disk 90
attributes disk clear readonly
online disk noerr

select disk 91
attributes disk clear readonly
online disk noerr

select disk 92
attributes disk clear readonly
online disk noerr

select disk 93
attributes disk clear readonly
online disk noerr

select disk 94
attributes disk clear readonly
online disk noerr

select disk 95
attributes disk clear readonly
online disk noerr
```

diskpart_gpt_dynamic.txt

```
select disk 0
convert gpt noerr
convert dynamic noerr

select disk 1
convert gpt noerr
convert dynamic noerr

select disk 2
convert gpt noerr
convert dynamic noerr

select disk 3
convert gpt noerr
convert dynamic noerr

select disk 4
convert gpt noerr
convert dynamic noerr

select disk 5
convert gpt noerr
convert dynamic noerr

select disk 6
convert gpt noerr
convert dynamic noerr

select disk 7
convert gpt noerr
convert dynamic noerr
```

```
select disk 8
convert gpt noerr
convert dynamic noerr

select disk 9
convert gpt noerr
convert dynamic noerr

select disk 10
convert gpt noerr
convert dynamic noerr

select disk 11
convert gpt noerr
convert dynamic noerr

select disk 12
convert gpt noerr
convert dynamic noerr

select disk 13
convert gpt noerr
convert dynamic noerr

select disk 14
convert gpt noerr
convert dynamic noerr

select disk 15
convert gpt noerr
convert dynamic noerr

select disk 16
convert gpt noerr
convert dynamic noerr

select disk 17
convert gpt noerr
convert dynamic noerr

select disk 18
convert gpt noerr
convert dynamic noerr

select disk 19
convert gpt noerr
convert dynamic noerr

select disk 20
convert gpt noerr
convert dynamic noerr

select disk 21
convert gpt noerr
convert dynamic noerr

select disk 22
convert gpt noerr
convert dynamic noerr

select disk 23
convert gpt noerr
convert dynamic noerr
```

```
select disk 24
convert gpt noerr
convert dynamic noerr

select disk 25
convert gpt noerr
convert dynamic noerr

select disk 26
convert gpt noerr
convert dynamic noerr

select disk 27
convert gpt noerr
convert dynamic noerr

select disk 28
convert gpt noerr
convert dynamic noerr

select disk 29
convert gpt noerr
convert dynamic noerr

select disk 30
convert gpt noerr
convert dynamic noerr

select disk 31
convert gpt noerr
convert dynamic noerr

select disk 32
convert gpt noerr
convert dynamic noerr

select disk 33
convert gpt noerr
convert dynamic noerr

select disk 34
convert gpt noerr
convert dynamic noerr

select disk 35
convert gpt noerr
convert dynamic noerr

select disk 36
convert gpt noerr
convert dynamic noerr

select disk 37
convert gpt noerr
convert dynamic noerr

select disk 38
convert gpt noerr
convert dynamic noerr

select disk 39
convert gpt noerr
```

```
convert dynamic noerr

select disk 40
convert gpt noerr
convert dynamic noerr

select disk 41
convert gpt noerr
convert dynamic noerr

select disk 42
convert gpt noerr
convert dynamic noerr

select disk 43
convert gpt noerr
convert dynamic noerr

select disk 44
convert gpt noerr
convert dynamic noerr

select disk 45
convert gpt noerr
convert dynamic noerr

select disk 46
convert gpt noerr
convert dynamic noerr

select disk 47
convert gpt noerr
convert dynamic noerr

select disk 48
convert gpt noerr
convert dynamic noerr

select disk 49
convert gpt noerr
convert dynamic noerr

select disk 50
convert gpt noerr
convert dynamic noerr

select disk 51
convert gpt noerr
convert dynamic noerr

select disk 52
convert gpt noerr
convert dynamic noerr

select disk 53
convert gpt noerr
convert dynamic noerr

select disk 54
convert gpt noerr
convert dynamic noerr

select disk 55
```

```
convert gpt noerr
convert dynamic noerr

select disk 56
convert gpt noerr
convert dynamic noerr

select disk 57
convert gpt noerr
convert dynamic noerr

select disk 58
convert gpt noerr
convert dynamic noerr

select disk 59
convert gpt noerr
convert dynamic noerr

select disk 60
convert gpt noerr
convert dynamic noerr

select disk 61
convert gpt noerr
convert dynamic noerr

select disk 62
convert gpt noerr
convert dynamic noerr

select disk 63
convert gpt noerr
convert dynamic noerr

select disk 64
convert gpt noerr
convert dynamic noerr

select disk 65
convert gpt noerr
convert dynamic noerr

select disk 66
convert gpt noerr
convert dynamic noerr

select disk 67
convert gpt noerr
convert dynamic noerr

select disk 68
convert gpt noerr
convert dynamic noerr

select disk 69
convert gpt noerr
convert dynamic noerr

select disk 70
convert gpt noerr
convert dynamic noerr
```

```
select disk 71
convert gpt noerr
convert dynamic noerr

select disk 72
convert gpt noerr
convert dynamic noerr

select disk 73
convert gpt noerr
convert dynamic noerr

select disk 74
convert gpt noerr
convert dynamic noerr

select disk 75
convert gpt noerr
convert dynamic noerr

select disk 76
convert gpt noerr
convert dynamic noerr

select disk 77
convert gpt noerr
convert dynamic noerr

select disk 78
convert gpt noerr
convert dynamic noerr

select disk 79
convert gpt noerr
convert dynamic noerr

select disk 80
convert gpt noerr
convert dynamic noerr

select disk 81
convert gpt noerr
convert dynamic noerr

select disk 82
convert gpt noerr
convert dynamic noerr

select disk 83
convert gpt noerr
convert dynamic noerr

select disk 84
convert gpt noerr
convert dynamic noerr

select disk 85
convert gpt noerr
convert dynamic noerr

select disk 86
convert gpt noerr
convert dynamic noerr
```

```
select disk 87
convert gpt noerr
convert dynamic noerr

select disk 88
convert gpt noerr
convert dynamic noerr

select disk 89
convert gpt noerr
convert dynamic noerr

select disk 90
convert gpt noerr
convert dynamic noerr

select disk 91
convert gpt noerr
convert dynamic noerr

select disk 92
convert gpt noerr
convert dynamic noerr

select disk 93
convert gpt noerr
convert dynamic noerr

select disk 94
convert gpt noerr
convert dynamic noerr

select disk 95
convert gpt noerr
convert dynamic noerr
```

diskpart_create_stripes.txt

```
create volume stripe disk=24,0,72,48,25,1,73,49
assign letter=E

create volume stripe disk=26,2,74,50,27,3,75,51
assign letter=F

create volume stripe disk=28,4,76,52,29,5,77,53
assign letter=G

create volume stripe disk=30,6,78,54,31,7,79,55
assign letter=H

create volume stripe disk=32,8,80,56,33,9,81,57
assign letter=N

create volume stripe disk=34,10,82,58,35,11,83,59
assign letter=O

create volume stripe disk=36,12,84,60,37,13,85,61
assign letter=P

create volume stripe disk=38,14,86,62,39,15,87,63
assign letter=Q
```

```
create volume stripe disk=40,16,88,64,41,17,89,65
assign letter=W

create volume stripe disk=42,18,90,66,43,19,91,67
assign letter=X

create volume stripe disk=44,20,92,68,45,21,93,69
assign letter=Y

create volume stripe disk=46,22,94,70,47,23,95,71
assign letter=Z
```

APPENDIX D: SPC-1 WORKLOAD GENERATOR STORAGE COMMANDS AND PARAMETERS

The content of SPC-1 Workload Generator command and parameter files, used in this benchmark to execute the Primary Metrics and Repeatability, is listed below.

```
host=master
slaves=(sun141_1,sun141_2,sun141_3,sun141_4,sun141_5,sun141_6,sun141_7,sun141_8,sun1
42_1,sun142_2,sun142_3,sun142_4,sun142_5,sun142_6,sun142_7,sun142_8,sun143_1,sun143_
2,sun143_3,sun143_4,sun143_5,sun143_6,sun143_7,sun143_8,sun144_1,sun144_2,sun144_3,s
un144_4,sun144_5,sun144_6,sun144_7,sun144_8,sun145_1,sun145_2,sun145_3,sun145_4,sun1
45_5,sun145_6,sun145_7,sun145_8,sun146_1,sun146_2,sun146_3,sun146_4,sun146_5,sun146_
6,sun146_7,sun146_8,sun147_1,sun147_2,sun147_3,sun147_4,sun147_5,sun147_6,sun147_7,s
un147_8,sun148_1,sun148_2,sun148_3,sun148_4,sun148_5,sun148_6,sun148_7,sun148_8)

javaparms="-Xms1280m -Xmx1280m -Xss96k"

sd=asu1_1,lun=\\.\E:,size=5565182902270
sd=asu1_2,lun=\\.\F:,size=5565182902270
sd=asu1_3,lun=\\.\G:,size=5565182902270
sd=asu1_4,lun=\\.\H:,size=5565182902270

sd=asu2_1,lun=\\.\N:,size=5565182902270
sd=asu2_2,lun=\\.\O:,size=5565182902270
sd=asu2_3,lun=\\.\P:,size=5565182902270
sd=asu2_4,lun=\\.\Q:,size=5565182902270

sd=asu3_1,lun=\\.\W:,size=1235855867900
sd=asu3_2,lun=\\.\X:,size=1235855867900
sd=asu3_3,lun=\\.\Y:,size=1235855867900
sd=asu3_4,lun=\\.\Z:,size=1235855867900
```

Persistence Test

The content of SPC-2 Workload Generator command and parameter files, used in this benchmark to execute the Persistence Test, is listed below.

Persistence Test Run 1 (write phase)

```
host=localhost,jvms=8,maxstreams=200

sd=sd1,lun=\\.\E:,size=5565182902270
sd=sd2,lun=\\.\F:,size=5565182902270
sd=sd3,lun=\\.\G:,size=5565182902270
sd=sd4,lun=\\.\H:,size=5565182902270
sd=sd5,lun=\\.\N:,size=5565182902270
sd=sd6,lun=\\.\O:,size=5565182902270
sd=sd7,lun=\\.\P:,size=5565182902270
sd=sd8,lun=\\.\Q:,size=5565182902270
sd=sd9,lun=\\.\W:,size=1235855867900
sd=sd10,lun=\\.\X:,size=1235855867900
sd=sd11,lun=\\.\Y:,size=1235855867900
sd=sd12,lun=\\.\Z:,size=1235855867900

maxlatestart=1
reportinginterval=5
segmentlength=512m

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

```
rd=default,rdpct=0,xfersize=1024k
rd=TR1-200s_SPC-2-persist-w,streams=200
```

Persistence Test Run 2 (read phase)

```
host=localhost,jvms=8,maxstreams=200

sd=sd1,lun=\\.\E:,size=5565182902270
sd=sd2,lun=\\.\F:,size=5565182902270
sd=sd3,lun=\\.\G:,size=5565182902270
sd=sd4,lun=\\.\H:,size=5565182902270
sd=sd5,lun=\\.\N:,size=5565182902270
sd=sd6,lun=\\.\O:,size=5565182902270
sd=sd7,lun=\\.\P:,size=5565182902270
sd=sd8,lun=\\.\Q:,size=5565182902270
sd=sd9,lun=\\.\W:,size=1235855867900
sd=sd10,lun=\\.\X:,size=1235855867900
sd=sd11,lun=\\.\Y:,size=1235855867900
sd=sd12,lun=\\.\Z:,size=1235855867900

maxlatestart=1
reportinginterval=5
segmentlength=512m
maxpersistenceerrors=10

rd=default,buffers=1,rdpct=100,xfersize=1024k
rd=TR1-200s_SPC-2-persist-r
```

APPENDIX E: SPC-1 WORKLOAD GENERATOR INPUT PARAMETERS

Primary Metrics Test, Repeatability Test, and Persistence Test Run 1

The following scripts was used to execute the Primary Metrics Test *(Sustainability Test Phase, IOPS Test Phase, and Response Time Ramp Test Phase)*, Repeatability Test *(Repeatability Test Phase 1 and Repeatability Test Phase 2)*, and Persistence Test Run 1 in an uninterrupted sequence.

audit1.bat

```
set LIBPATH=C:\spc\spc1;C:\spc\spc2
set CLASSPATH=C:\spc\spc1;C:\spc\spc2
set BSU=5390
set XMS=1280m
set XMX=1280m
set XSS=96k

cd C:\spc\spc1

psexec \\sun141 C:\spc\spc1\slavestart.bat
psexec \\sun142 C:\spc\spc1\slavestart.bat
psexec \\sun143 C:\spc\spc1\slavestart.bat
psexec \\sun144 C:\spc\spc1\slavestart.bat
psexec \\sun145 C:\spc\spc1\slavestart.bat
psexec \\sun146 C:\spc\spc1\slavestart.bat
psexec \\sun147 C:\spc\spc1\slavestart.bat
psexec \\sun148 C:\spc\spc1\slavestart.bat

java -Xms%XMS% -Xmx%XMX% -Xss%XSS% metrics -b %BSU%
java -Xms%XMS% -Xmx%XMX% -Xss%XSS% repeat1 -b %BSU%
java -Xms%XMS% -Xmx%XMX% -Xss%XSS% repeat2 -b %BSU%

psexec \\sun141 C:\spc\spc1\slavestop.bat
psexec \\sun142 C:\spc\spc1\slavestop.bat
psexec \\sun143 C:\spc\spc1\slavestop.bat
psexec \\sun144 C:\spc\spc1\slavestop.bat
psexec \\sun145 C:\spc\spc1\slavestop.bat
psexec \\sun146 C:\spc\spc1\slavestop.bat
psexec \\sun147 C:\spc\spc1\slavestop.bat
psexec \\sun148 C:\spc\spc1\slavestop.bat

cd C:\spc\spc2

call spc2.bat -f persist1.cfg -o init -init
call spc2.bat -f persist1.cfg -o persist1
```

slavestart.bat

```
set LIBPATH=C:\spc\spc1
set CLASSPATH=C:\spc\spc1
set XMS=1280m
set XMX=1280m
set XSS=96k

cd "C:\spc\spc1"
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave1.txt
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave2.txt
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave3.txt
```

```
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave4.txt
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave5.txt
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave6.txt
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave7.txt
start java -Xms%XMS% -Xmx%XMX% -Xss%XSS% spc1 -f C:\spc\spc1\slave8.txt
```

slavestop.bat

```
taskkill /f /im java.exe
```

Persistence Test Run 2

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

```
set LIBPATH=C:\spc\spc1;C:\spc\spc2
set CLASSPATH=C:\spc\spc1;C:\spc\spc2
set XMS=1280m
set XMX=1280m
set XSS=96k

cd C:\spc\spc2

call spc2.bat -f persist2.cfg -o persist2
```