



**SPC BENCHMARK 1™
EXECUTIVE SUMMARY**

**DATA CORE SOFTWARE CORPORATION
DATA CORE SANMELODY™ DISK SERVER (*ISCSI-STD. NIC*)**

SPC-1 V1.8

Submitted for Review: November 12, 2004

Submission Identifier: A00036

Accepted: January 11, 2005



EXECUTIVE SUMMARY

Test Sponsor and Contact Information

Test Sponsor and Contact Information	
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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

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SPC-1 Specification revision number	V1.8
SPC-1 Workload Generator revision number	V2.00.04a
Date Results were first used publicly	November 12, 2004
Date FDR was submitted to the SPC	November 12, 2004
Date the TSC is/was available for shipment to customers	March 8, 2004
Date the TSC completed audit certification	October 26, 2004

Summary of Results

SPC-1 Results	
Tested Storage Configuration (TSC) Name: DataCore SANmelody™ Disk Server (iSCSI-Std. NIC)	
Metric	Reported Result
SPC-1 IOPS™	9,298.56
SPC-1 Price-Performance	\$4.86/SPC-1 IOPS™
Total ASU Capacity	200 GB
Data Protection Level	Mirroring
Total TSC Price (including three-year maintenance)	\$45,145.70

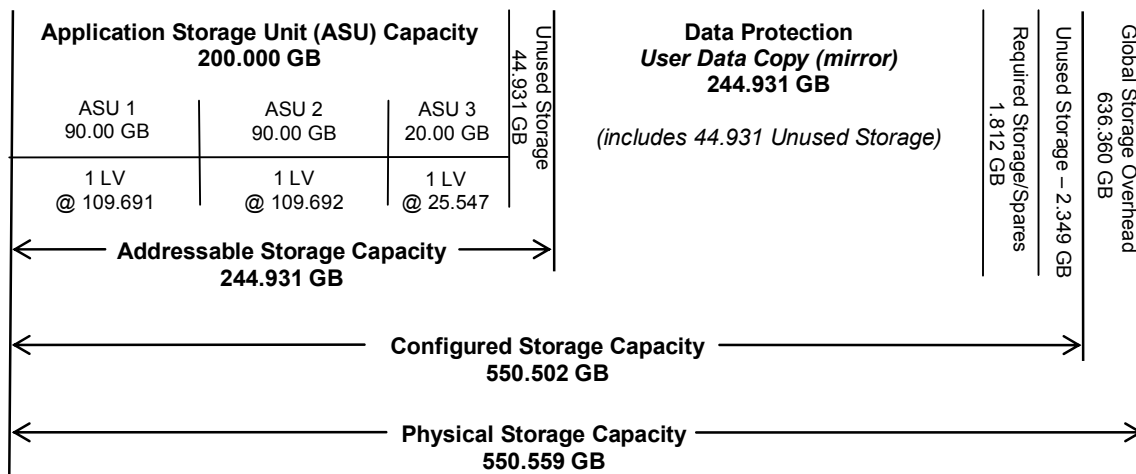
SPC-1 IOPS™ represents the maximum I/O Request Throughput at the 100% load point.

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 Mirroring configures two or more identical copies of user data.

Storage Capacities and Relationships

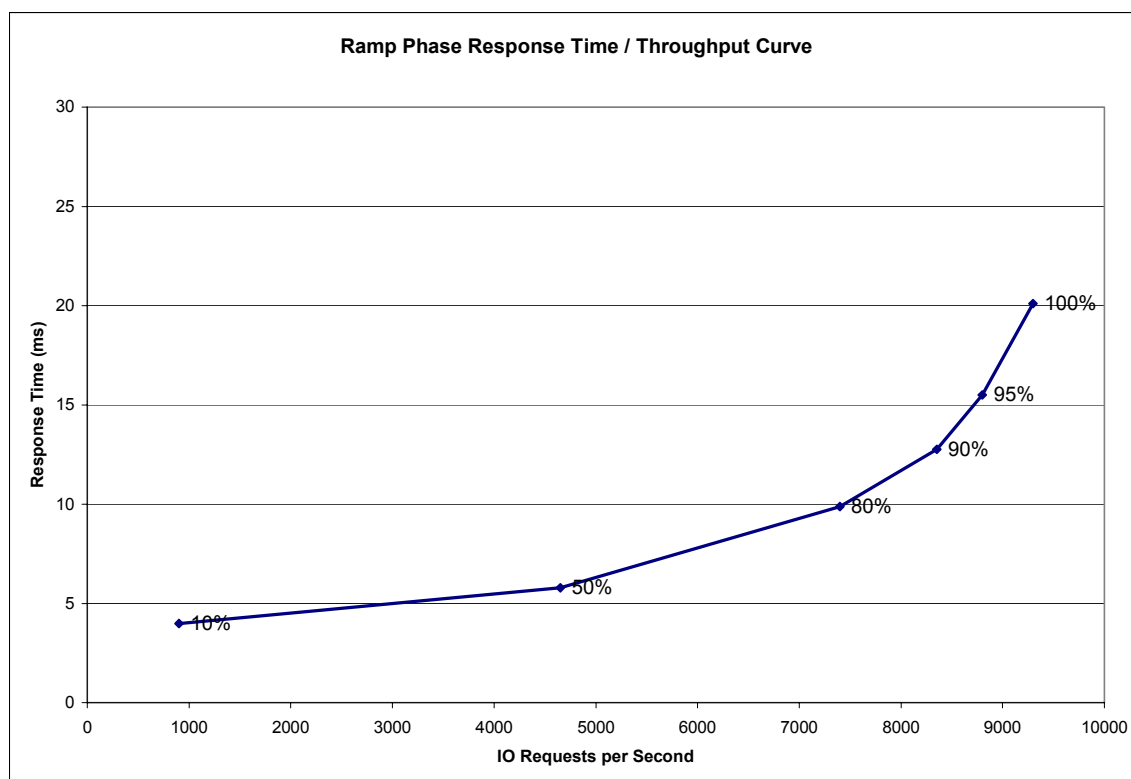
The following diagram documents the various storage capacities, used in this benchmark, and their relationships.



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 the 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	901.85	4,650.62	7,400.37	8,352.50	8,800.67	9,298.56
Average Response Time (ms):						
All ASUs	3.98	5.78	9.87	12.76	15.51	20.10
ASU-1	5.29	7.52	12.74	16.73	20.78	26.63
ASU-2	2.78	5.81	7.93	9.40	10.05	12.01
ASU-3	1.74	2.08	4.64	5.82	6.73	9.81
Reads	6.41	10.97	19.00	24.71	30.76	38.14
Writes	2.40	2.41	3.92	4.99	5.58	8.35

Tested Storage Configuration Pricing (*Priced Storage Configuration*)

ITEM	SOFTWARE	Qty	Unit Price	Extended Price
MDB-EWR-140-BSV	DataCore SANmelody™ Category D - Base Software	1	\$7,857.00	\$7,857.00
MDP-EWR-140-FSV	DataCore SANmelody Auto Provisioning Option for Category D	1	\$3,928.00	\$3,928.00
S1087526	Window 2000 Server Edition	1	\$932.95	\$932.95
Software Subtotal				\$12,717.95
SERVERS (see 3rd party quotes)				
PowerEdge 2850	Dell PowerEdge 2600 Server, Dual Xeon 2.80GHZ CPU, 1.5GB DDR SDRAM Server 2003 & 3 year Silver Support 4Hr Onsite [Disk Server] w/ Windows	1	\$3,516.00	\$3,516.00
CHANNELS, DISKS & ENCLOSURES (see 3rd party quotes)				
QLA2344-CK	Qlogic Fibre Channel Quad, 4 SFF LC Multimode Optic	1	\$3,217.00	\$3,217.00
FR10-F22-2S	JMR JBOD 10 Bay, Fibre Channel, black Fortra Rackmountable	3	\$2,000.00	\$6,000.00
ST318453FC	18.4GB Seagate Fibre Channel Disk, 15k rpm	24	\$195.00	\$4,680.00
ST336753FCO	36GB Seagate Fibre Channel Disk, 15k rpm	3	\$288.00	\$864.00
MDB-9-6-1	Fiber Media Interface Adaptor DB-9/SC (MIA Copper to Fiber)	4	\$299.00	\$1,196.00
N82E16833106202	Intel Pro1000 MT Dual Port Ethernet Adapter	4	\$141.00	\$564.00
I69-6008	Intel Pro1000 MT Desktop Ethernet Adapter	2	\$41.99	\$83.98
GCP0888905	Cat5 Ethernet cable, 5 ft.	5	\$1.22	\$6.10
GCAZCL	SC:LC Fibre Multimode Duplex Fiber Optic Patch Cables, 5 meters, 62.5uM	4	\$29.49	\$117.96
Servers, Channels, Disks & Enclosures Subtotal				\$20,245.04
SM1-EWV-PLT-PY3	3- year S/W + H/W Maintenance (7x24x365 with 4hr response)			\$12,182.71
Total TSC Price (Including 3-year maintenance):				\$45,145.70

The following TSC components were priced using third-party price quotations:

- Dell PowerEdge 2600 Server – SANmelody™ Disk Server system
- Qlogic HBA
- Intel Ethernet adapters
- Disk drives and chassis
- Fiber media interface adapters
- cables

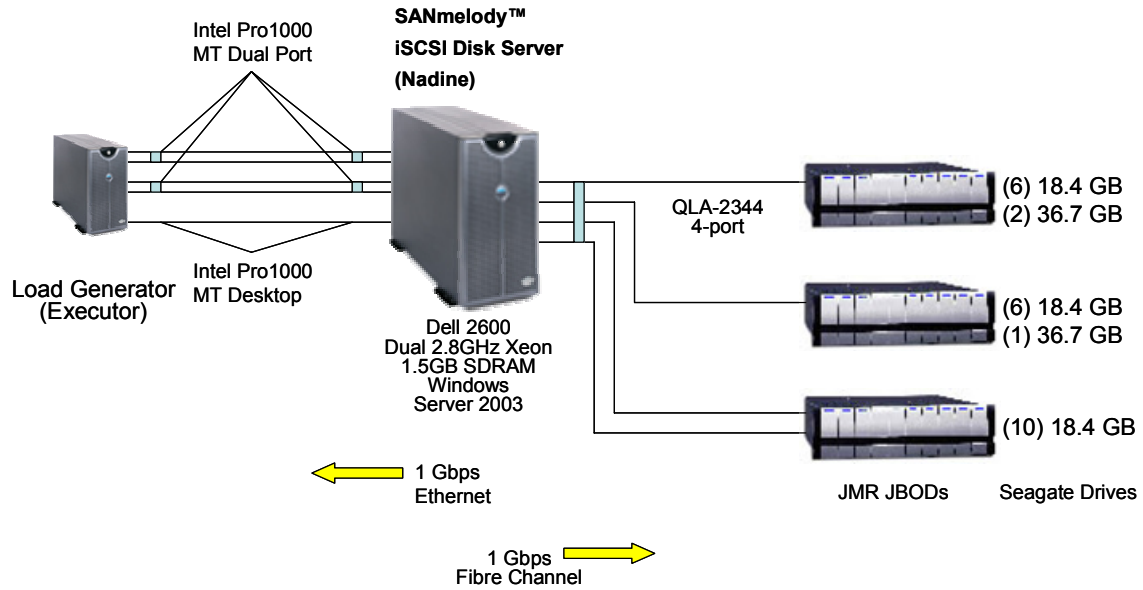
The third-party price quotations may be found in “Appendix D: Third-Party Price Quotations” on page 59 of the SPC-1 Full Disclosure Report.

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

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

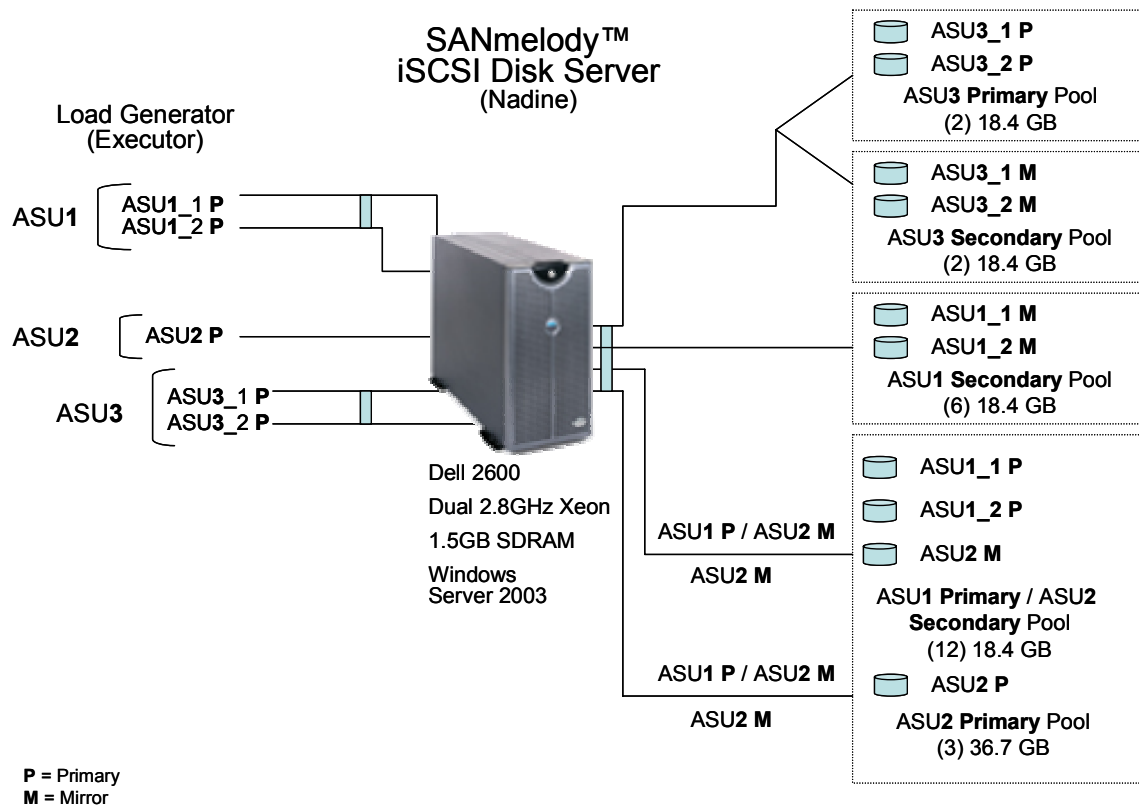
Benchmark Configuration/Tested Storage Configuration Diagram 1

The first Benchmark Configuration (BC)/Tested Storage Configuration (TSC) diagram illustrates the complete configuration.



Benchmark Configuration/Tested Storage Configuration Diagram 2

The second Benchmark Configuration (BC)/Tested Storage Configuration (TSC) diagram illustrates the relationships between the ASUs, Host System, storage pools/disk drives, and data paths.



Benchmark Configuration/Tested Storage Configuration Details

Host System:	Tested Storage Configuration (TSC):
HS-1: Dell PowerEdge 2600	Host System Adapters:
2 – Intel 3.0 GHz Xeon CPUs	1 – Intel Pro1000 MT Desktop Ethernet Adapter
512 KB L2 cache per CPU	2 – Intel Pro1000 MT Dual Port Ethernet Adapter
1.5 GB main memory	SC-1: DataCore SANmelody™ Disk Server
Microsoft Windows Server™ 2003, Standard Edition	Dell PowerEdge 2600 Server with:
WG	2 – Intel 2.8 GHz Xeon CPUs
	512 KB L2 cache per CPU
	1.5 GB main memory
	1 – QLogic QLA-2344 4-port HBA
	1 – Intel Pro1000 MT Desktop Ethernet Adapter
	2 – Intel Pro1000 MT Dual Port Ethernet Adapter
	Microsoft Windows Server™ 2003, Standard Edition
	5 – 1 Gbps Ethernet front-end ports
	4 – 1 Gbps FC backend ports
	3 – JMR JBOD 10 Bay Enclosures
	24 – 18.4 GB, 15k rpm Seagate disk drives
	3 – 36.7 GB, 15k rpm Seagate disk drives