



**SPC BENCHMARK 2™
EXECUTIVE SUMMARY**

**IBM CORPORATION
IBM TOTALSTORAGE® DS8300**

SPC-2™ V1.0

**Submitted for Review: December 14, 2005
Submission Identifier: B00006**

EXECUTIVE SUMMARY**Test Sponsor and Contact Information**

Test Sponsor and Contact Information	
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Revision Information and Key Dates

Revision Information and Key Dates	
SPC-2 Specification revision number	V1.0
SPC-2 Workload Generator revision number	spc2rc9f
Date Results were first used publicly	December 14, 2005
Date FDR was submitted to the SPC	December 14, 2005
Date the TSC will be available for shipment to customers	currently available
Date the TSC completed audit certification	December 5 2005

SPC-2 Reported Data

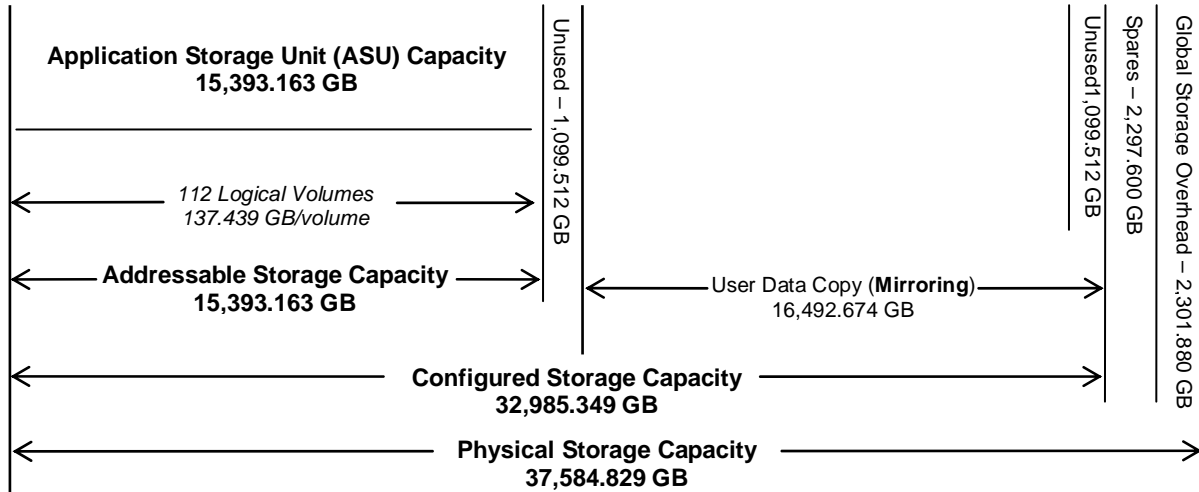
SPC-2 Reported Data consists of three groups of information:

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

SPC-2 Reported Data				
IBM TotalStorage™ DS8300				
SPC-2 MBPS™	SPC-2 Price-Performance	ASU Capacity (GB)	Total Price	Data Protection Level
3,217.53	\$539.38	15,393.163	\$1,735,472.50	Mirroring
<i>The above SPC-2 MBPS™ value represents the aggregate data rate of all three SPC-2 workloads: Large File Processing (LFP), Large Database Query (LDQ), and Video On Demand (VOD)</i>				
SPC-2 Large File Processing (LFP) Reported Data				
	Data Rate (MB/second)	Number of Streams	Data Rate per Stream	Price-Performance
LFP Composite	2,573.57			\$674.34
Write Only:				
1024 KiB Transfer	1,905.04	112	17.01	
256 KiB Transfer	1,850.41	112	16.52	
Read-Write:				
1024 KiB Transfer	2,312.43	112	20.65	
256 KiB Transfer	2,307.01	112	20.60	
Read Only:				
1024 KiB Transfer	3,532.09	112	31.54	
256 KiB Transfer	3,534.42	112	31.56	
<i>The above SPC-2 Data Rate value for LFP Composite represents the aggregate performance of all three LFP Test Phases: (Write Only, Read-Write, and Read Only).</i>				
SPC-2 Large Database Query (LDQ) Reported Data				
	Data Rate (MB/second)	Number of Streams	Data Rate per Stream	Price-Performance
LDQ Composite	3,697.33			\$469.39
1024 KiB Transfer Size				
4 I/Os Outstanding	3,733.18	112	33.33	
1 I/O Outstanding	3,733.76	112	33.34	
64 KiB Transfer Size				
4 I/Os Outstanding	3,654.84	112	32.63	
1 I/O Outstanding	3,667.54	112	32.75	
<i>The above SPC-2 Data Rate value for LDQ Composite represents the aggregate performance of the two LDQ Test Phases: (1024 KiB and 64 KiB Transfer Sizes).</i>				
SPC-2 Video On Demand (VOD) Reported Data				
	Data Rate (MB/second)	Number of Streams	Data Rate per Stream	Price-Performance
	3,381.70	4,300	0.79	\$513.20

Storage Capacities and Relationships

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



Tested Storage Configuration Pricing (Priced Storage Configuration)

Product	Description	Quantity	Unit Price	Extended Purchase
2107-922	TotalStorage DS8300	1	190,000.00	190,000.00
	1 9xE factory merge	2	N/C	N/C
221	922 - 92E Position 1	1	N/C	N/C
222	922 - 92E Position 2	1	N/C	N/C
700	OEL Indicator	1	N/C	N/C
815	25.1 to 50.0 TB capacity	1	N/C	N/C
900	Non-Standby CoD	1	N/C	N/C
1050	Battery Assembly	3	1,700.00	5,100.00
1090	Line Cord (US/LA/AP/Canada)	1	1,900.00	1,900.00
1100	Management Console Internal	1	10,000.00	10,000.00
1210	Disk Enclosure Pair	4	10,000.00	40,000.00
1211	Disk Drive Cable Group 1	1	1,000.00	1,000.00
1300	I/O Enclosure Pair	2	12,500.00	25,000.00
1316	RIO-G Cable Group 6	1	1,600.00	1,600.00
1411	50 um Fibre Cable (LC/SC)	16	100.00	1,600.00
2016	73 GB 15K Drive Set	8	26,000.00	208,000.00
3011	Device Adapter Pair	4	10,000.00	40,000.00
3111	2Gb SW FCP/FICON Adapter	16	20,500.00	328,000.00
4103	64 GB Processor Memory	1	200,000.00	200,000.00
9090	AC Voltage: 200V - 240V	1	N/C	N/C
9100	MC Keyboard - US English	1	N/C	N/C
	Serial: N/A	Total		1,052,200.00
2107-92E	TotalStorage DS8000 Enclosure Unit	1	75,000.00	75,000.00
	1 9xE factory merge	1	N/C	N/C
222	922 - 92E Position 2	1	N/C	N/C
1090	Line Cord (US/LA/AP/Canada)	1	1,900.00	1,900.00
1210	Disk Enclosure Pair	4	10,000.00	40,000.00
1214	Disk Drive Cable Group 4	1	2,400.00	2,400.00
2016	73 GB 15K Drive Set	8	26,000.00	208,000.00
9090	AC Voltage: 200V - 240V	1	N/C	N/C
	Serial: N/A	Total		327,300.00

Tested Storage Configuration Pricing (*Priced Storage Configuration*) – cont.

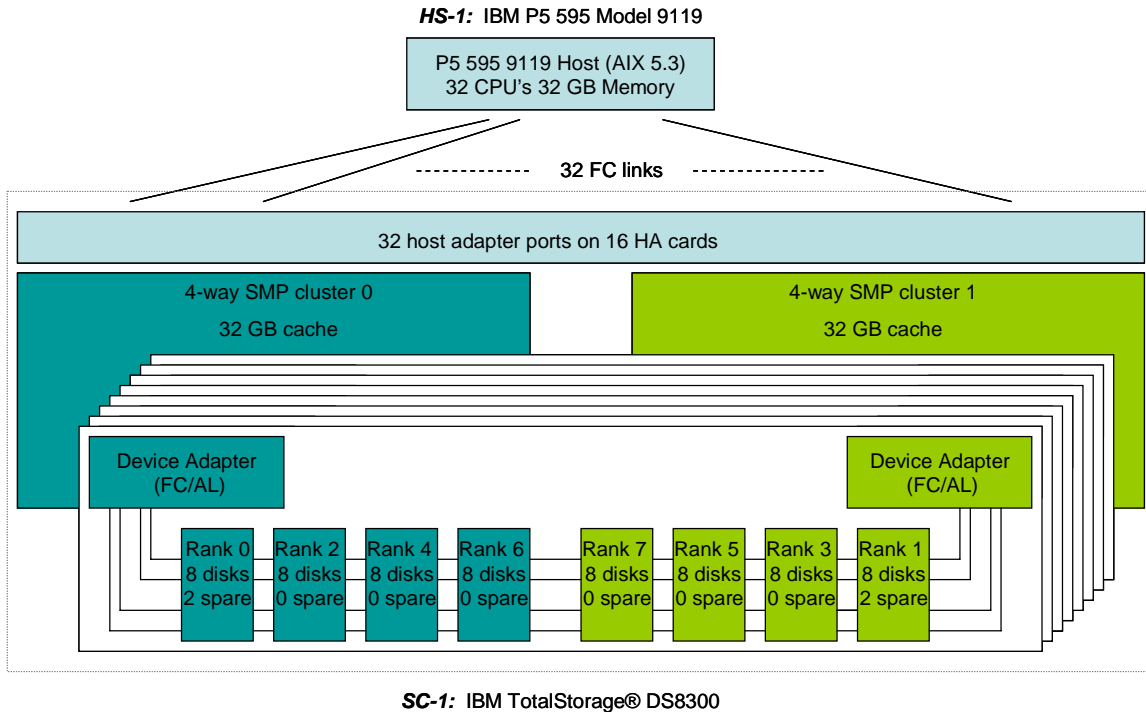
Product	Description	Quantity	Unit Price	Extended Purchase
2107-92E	TotalStorage DS8000 Enclosure Unit	1	75,000.00	75,000.00
	1 9xE factory merge	1	N/C	N/C
	221 922 - 92E Position 1	1	N/C	N/C
1020	Power Module second pair	1	N/C	N/C
1050	Battery Assembly	3	1,700.00	5,100.00
1090	Line Cord (US/LA/AP/Canada)	1	1,900.00	1,900.00
1210	Disk Enclosure Pair	8	10,000.00	80,000.00
1212	Disk Drive Cable Group 2	1	1,900.00	1,900.00
1300	I/O Enclosure Pair	2	12,500.00	25,000.00
1314	RIO-G Cable Group 4	1	2,300.00	2,300.00
2016	73 GB 15K Drive Set	16	26,000.00	416,000.00
3011	Device Adapter Pair	4	10,000.00	40,000.00
9090	AC Voltage: 200V - 240V	1	N/C	N/C
	Serial: N/A	Total		647,200.00
2244-OEL	DS8000 Function Authorization	1	N/C	N/C
7001	OEL - 1 TB Unit	3	6,750.00	20,250.00
7003	OEL - 10 TB Unit	1	54,500.00	54,500.00
7004	OEL - 25 TB Unit	1	87,500.00	87,500.00
	Serial: N/A	Total		162,250.00
====	Non- S8300 charges =====			
	5716 P5 595 adapter (2 Gbit, PCI-X)	32	2,720.00	87,040.00
	Short wave FC cable (2 Gbit, 25m)	32	210.00	6,720.00
		Total		93,760.00
	Total DS8300 Charges			2,188,950.00
	Field Delegation Discount of 25%			547,237.50
	Total DS8300 Charges after discount			1,641,712.50
	Non-DS8300 Charges			93,760.00
	Total Charges			1,735,472.50

The above pricing provides maintenance/support for 24 hours per day, 7 days per week for three years with four hour acknowledgement and four hour subsequent response (support engineer onsite or customer replaceable part available)

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

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

Benchmark Configuration/Tested Storage Configuration Diagram



Host System(s) and Tested Storage Configuration Components

Host Systems:	Tested Storage Configuration (TSC):
UID=HS-1	32 – P5 595 adapters (2Gb, PCI-X)
IBM P5 595 Model 9119	UID=SC-1: TotalStorage® DS8300 Each cluster contains: 4 POWER5 CPUs 64 GB processor memory total
32 – 1.9 GHz CPUs – 2 CPUs/POWER5 chip 32 KB L1 cache, 960 KB L2 cache, and 18 MB L3 cache per CPU	
32 GB main memory	
AIX 5.3	
PCI-X/RIO	
WG	
	8 – 4-port 2Gb/s FC-AL device adapter pairs
	16 – 2Gb SW FCP/FICON adapters
	16 – Disk enclosure pairs
	16 – 73 GB, 15K RPM disk drives per enclosure