# SPEC SFS 1 Summary (Side 1 of 2) 097.LADDIS

## EMC Corporation
## Symmetrix Network Storage Director

### Server Hardware

| | *CPU, Memory, & Power* | *Disk Subsystem & Filesystems* | |
|---|---|---|---|
| | | (Full Configuration on Side 2) | |
| Model No. | EMC Celerra File Server (cluster) | | |
| CPU | 1 - 333MHz Pentium II | Num Disk Controllers | 16 (C1-C16) |
| # of CPUs | 14 (cluster of 14 uniprocessor hosts) | Num Disks | 281 |
| Primary Cache | 16KBI+16KBD on chip | Num File Systems | 112 |
| Secondary Cache | 512KB (I+D) off chip | | |
| Other Cache | Ethernet | | |
| Memory | 256MB per server CPU | *Network Subsystem* | |
| UPS | None | (Full Configuration On Side 2) | |
| Other hardware | 1 Control Station (host processor) | Num Net Controllers | 28 (2 per server CPU) |
| | | Num Networks | 1 (GIGAswitchFDDI 28 ports) |
| | | Type Network | FDDI |

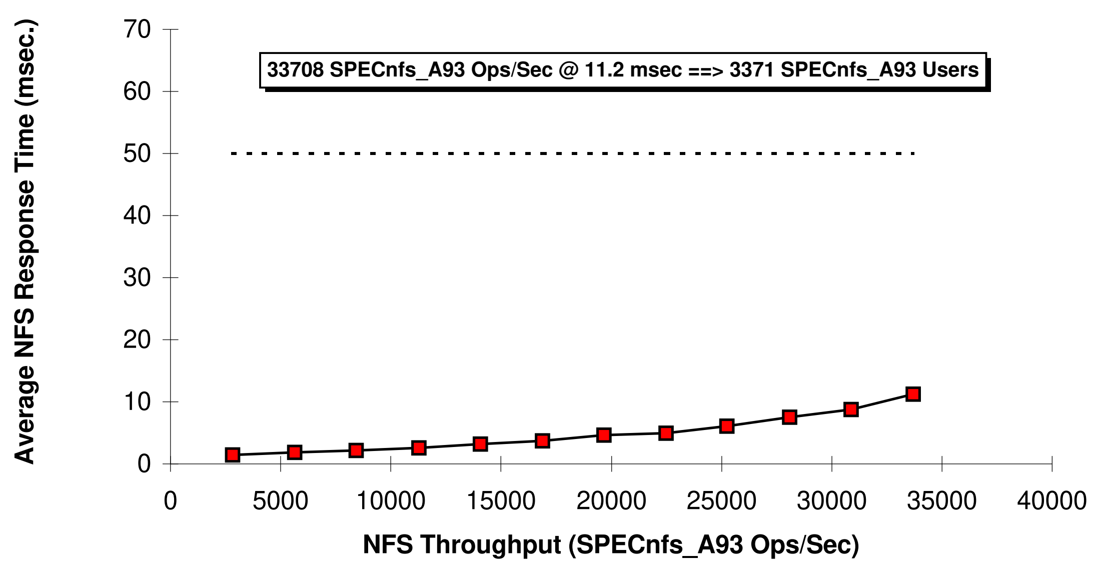
| | *Server Software* | *Server Tuning* | |
|---|---|---|---|
| OS Version | DARTv1.2.12 Data Access Real Time | (Also see Notes/Tuning below) | |
| Other software | UnixWare v2.1 on Control Station | Buffer Cache Size | Dynamic |
| File system | UxFS (based on BSD FFS) | Num NFS Daemons | 1344 (96 per server CPU) |
| | | Fileset Size | 213GB |

*Load Generators (LGs)*

| | |
|---|---|
| Number of Load Generators: | 28 |
| Processes Per Load Generator: | 28 |
| Biod_Max_Reads: | 2 |
| Biod_Max_Writes: | 2 |

| | | | | |
|---|---|---|---|---|
| **Hardware Availability:** | Jul-98 | | **Software Availability:** | Jun-98 |
| **License #:** 47 | **Tested:** | Jun-98 | **By:** EMC Corpora | **Of:** Hopkinton, MA |

| NFS Throughput SPECnfs_A93 Ops/Sec | Avg. Response Time (NFS) Milliseconds |
|---|---|
| 2814 | 1.4 |
| 5628 | 1.9 |
| 8431 | 2.2 |
| 11257 | 2.6 |
| 14060 | 3.2 |
| 16867 | 3.7 |
| 19680 | 4.6 |
| 22473 | 4.9 |
| 25257 | 6.1 |
| 28077 | 7.5 |
| 30886 | 8.8 |
| 33708 | 11.2 |




**Notes/Summary Of Tuning Parameters: (Continued on Side 2 of 2)**

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### Detailed Server Description

***Network Subsystem***

2 FDDI adapter per Server CPU
1 FDDI adapter per LG
1 Bay Networks Model 5000 hub with 14 5904 concentrator modules
14 Digital Equipment Co. FDDI Concentrators (900MX)
1 DEC GIGAswitchFDDI system (DEFGA-BA)
Using 28 FDDI ports (DEFGL)
Each GIGAswitch port connects to a FDDI concentrator,
a Server CPU, and one load generator

N1 -- Gigaswitch port 1-7
N2 -- Gigaswitch port 8-14
N3 -- Gigaswitch port 15-21
N4 -- Gigaswitch port 22-28

***Disk Subsystem & Filesystems***

Disk Storage System: 4 Symmetrix Model 3430s
Each Symmetrix contains: 4GB cache (Model MEM4096)
Each Symmetrix contains: 70 18GB 3.5" disk drives (Model 3030-182)
Each Symmetrix contains: 4 Ultra SCSI Adapters (Model DP-USD4SW) (C1-C16)
Contents: even file sys. stripped across Symmetrix 3&4 (C9-C12 & C13-C16)
C1/C5: F1,F3,F5,F29,F31,F33,F57,F59,F61,F85,F87,F89,UnixWare
C2/C6: F7,F9,F11,F13,F35,F37,F39,F41,F63,F65,F67,F69,F91,F93,F95,F97
C3/C7: F15,F17,F19,F21,F43,F45,F47,F49,F71,F73,F75,F77,F99,F101,F103,F105
C4/C8: F23,F25,F27,F51,F53,F55,F79,F81,F83,F107,F109,F101
56 drives are used for logging (14 in each Symmetrix, 4 per server CPU)
C9/C13: F2,F4,F6,F30,F32,F34,F58,F60,F62,F86,F88,F90
C10/C14: F8,F10,F12,F14,F36,F38,F40,F42,F64,F66,F68,F70,F92,F94,F96,F98
C11/C15: F16,F18,F20,F22,F44,F46,F48,F50,F72,F74,F76,F78,F100,F102,F104,F106
C12/C16: F24,F26,F28,F52,F54,F56,F80,F82,F84,F108,F110,F112
C1 supports 1 additional disk for the Control Station (UnixWare)

### Detailed Load Generator (LG) Description

| *Load Gen. Type* | *Model* | *# of CPUs* | *RAM* | *OS* | *Compiler* |
|---|---|---|---|---|---|

### Testbed Configuration

| *Load Gen. #* | *Load Gen. Type* | *Network* | *Target File Systems* | *Notes* |
|---|---|---|---|---|
| 1,5,…21,25 | LG1 | N1 | F1-F28 | Default |
| 2,6,...,22,26 | LG1 | N2 | F29-F56 | Default |
| 3,7,...,23,27 | LG1 | N3 | F57-F84 | Default |
| 4,8,…,24,28 | LG1 | N4 | F85-F112 | Default |

### Notes/Summary Of Tuning Parameters: (Continued from Side 1 of 2)

no