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

Auspex Systems, Inc.

NS 7000 NetServer 250

Server Hardware

CPU, Memory, & Power

Model No.	NS 7000 Model 250
CPU	66MHz Dual CPU HyperSPARC
# of CPUs	1
Primary Cache	n/a
Secondary Cache	n/a
Memory	256MB
Other Cache	1 2MB NVRAM Write Accelerator
UPS	None
Other hardware	None

Server Software

OS Version	1.8.1
Other software	None
File system	Auspex LFS (BSD FFS)

Load Generators (LGs)

Number of Load Generators:	4
Processes Per Load Generator:	6
Biod_Max_Reads:	2
Biod_Max_Writes:	2

Disk Subsystem & Filesystems

(Full Configuration on Side 2)

Num Disk Controllers	1 Storage Processor (SP)
Num Disks	22
Num File Systems	4 (F1 - F4)

Network Subsystem

(Full Configuration On Side 2)

Num Net Controllers	1 Network Processor (NP)
Num Networks	1 (N1)
Type Network	100Base-T

Server Tuning

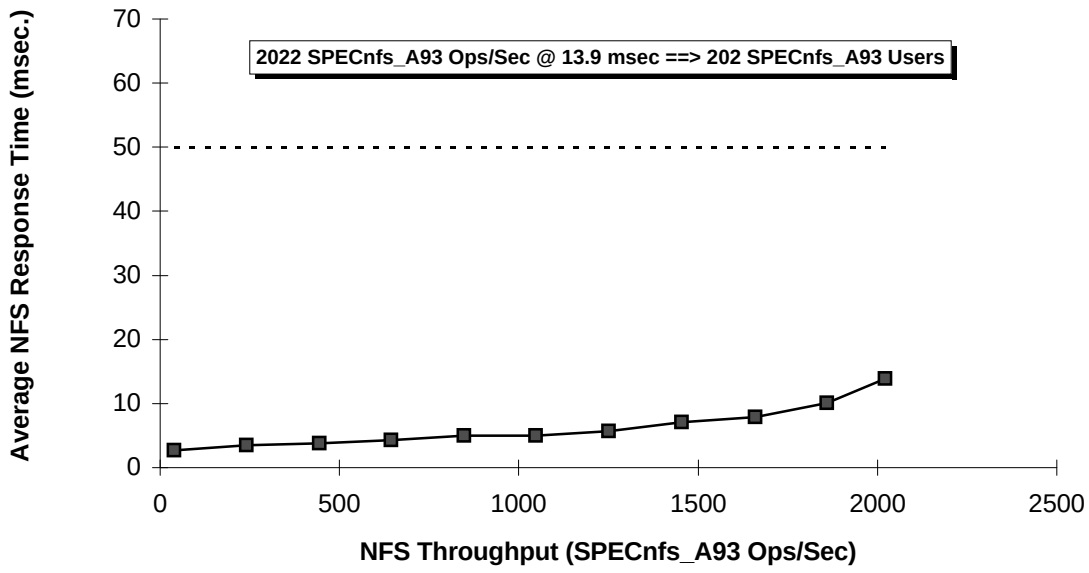
(Also see Notes/Tuning below)

Buffer Cache Size	180MB (Data Cache)
Num NFS Daemons	48
Fileset Size	11.1GB

Hardware Availability: Nov-95 **Software Availability:** May-96

License #: 29 **Tested:** Mar-96 **By:** Auspex **Of:** Santa Clara, CA

NFS Throughput SPECnfs_A93 Ops/Sec	Avg. Response Time (NFS) Milliseconds
39	2.7
241	3.5
445	3.8
645	4.3
847	5.0
1048	5.0
1250	5.7
1455	7.1
1659	7.9
1859	10.1
2022	13.9



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

The adb tool was used to enable UDP checksumming on all load generators:

adb -w /vmunix /dev/kmem
udp_cksum?W1
udp_cksum/W1

The Auspex NetServer responds to checksummed requests with checksummed replies, by default.

The LADDIS Prime-Client was the Server's Host Processor (no router was needed).

All load generators used the same LADDIS mount points list with the same /etc/fstab entries.

Network Processors: NP0; Storage Processors: SP0

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Detailed Server Description

Network Subsystem

Network Processor (Model NP-III):
- Dual HyperSPARC (66MHz), 256MB
- One processor does Protocol processing, and the other processor does Filesystem processing
- 4MB Static RAM
- 1 100Base-T (SunFastEthernet) Adapter

Number of NP-III processors: 1

Disk Subsystem & Filesystems

Storage Processor (Model SP-V):
- M68030 (50MHz), 1MB local memory
- 2MB NVRAM Write Accelerator
- 5 SCSI Channels
- 20 data disks (4.29GB Seagate "Barracuda") configured
- 4 Virtual Partitions: Each Virtual Partition stripes across 5 disks (unit=128KB) on 5 different channels
- 4 Filesystems (1 Virtual Partition each)

Number of SP-V processors: 1

SP0: Disks: 2 - 21; Filesystems: 1, 2, 3, 4

SP0 also supported Disk0 (OS, Swap space) and Disk1 (LADDIS files).

Detailed Load Generator (LG) Description

Load Gen. Type	*Model*	*# of CPUs*	*RAM*	*OS*	*Compiler*
LG1	Sun SPARCstation 20 (Model 71)	1	64MB	SunOS 4.1.3	/bin/cc

Testbed Configuration

Load Gen. #	*Load Gen. Type*	*Network*	*Target File Systems*	*Notes*
1	LG1	N1	F1, F2, F3, F4, F1, F2	
2	LG1	N1	F3, F4, F1, F2, F3, F4	
3	LG1	N1	F1, F2, F3, F4, F1, F2	
4	LG1	N1	F3, F4, F1, F2, F3, F4	

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

On all the load generators, udp_sendspace = 32768 and udp_recvspace = 32768.
The 100Base-T network used was generic (not full-duplex).