SPECsfs97 Result

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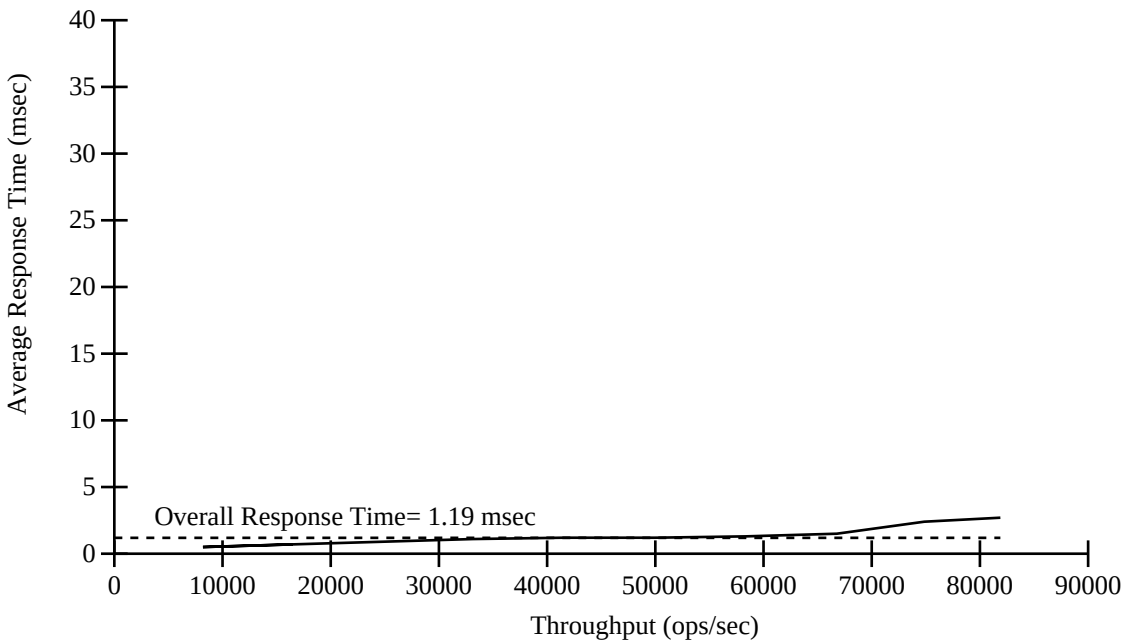
IBM Corporation
IBM eServer p5 570 (1.9GHz, 4 CPU, TCP, Linux)

SPECsfs97_R1.v3 =
81889 Ops/Sec (Overall Response Time = 1.19 msec)

Tested:	January 2005	By:	IBM Corporation	License #:	11	Hardware Avail:	August 2004	Software Avail:	January 2005

Throughput (ops/sec)	Average Response (msec)
8190	0.5
16502	0.7
24852	0.9
33142	1.1
41476	1.2
49956	1.2
58327	1.3
66774	1.5
74856	2.4
81889	**2.7**



CPU, Memory and Power

Model Name:	IBM eServer p5 570 (1.9GHz, 4 CPU, TCP, Linux)
Processor:	1.9GHz POWER5
# of Processors:	4 cores, 2 chips, 2 cores/chip (SMT on)
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified (on chip)/chip
Other Cache:	36MB unified (off chip)/DCM, 2 DCMs/SUT
UPS:	N/A
Other Hardware:	N/A
Memory Size:	64 GB
NVRAM Size:	10 GB (10 x 1GB)
NVRAM Type:	1GB battery-backed DRAM per controller
NVRAM Description:	5-day battery; cache bypass on battery failure

Server Software

OS Name and Version:	SUSE LINUX Enterprise Server 9 SP1 for IBM POWER
Other Software:	N/A
File System:	OS on EXT3, test file systems on JFS
NFS version:	3

Network Subsystem

Network Type:	Jumbo Frame Gigabit
Network Controller Desc.:	IBM Dual Port 10/100/1000 Base-TX Ethernet
Number Networks:	7 (N1-N7)
Number Network Controllers:	4(See Other Notes)
Protocol Type:	TCP
Switch Type:	N/A
Bridge Type:	N/A
Hub Type:	N/A
Other Network Hardware:	N/A

Server Tuning

Buffer Cache Size:	Dynamic
# NFS Processes:	170
Fileset Size:	788.1 GB

Disk Subsystem

Number Disk Controllers:	11
Number of Disks:	351
Number of Filesystems:	70 (F1-F70)
File System Creation Ops:	default
File System Config:	default
Disk Controller:	PCI-X Dual Channel Ultra320 SCSI Adapter (integrated)
# of Controller Type:	1
Number of Disks:	1
Disk Type:	72GB 15Krpm 16-Bit LVD SCSI Disk Drive
File Systems on Disks:	OS, page space
Special Config Notes:	N/A
Disk Controller:	IBM Fiber Channel Adapter (FC 6239)
# of Controller Type:	10
Number of Disks:	350
Disk Type:	18.2GB 15Krpm 2Gb FC
File Systems on Disks:	F1-F7,F8-F14,F15-F21,F22-F28,...,F64-F70
Special Config Notes:	See Other Notes

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Load Generator (LG) Configuration

Number of Load Generators:	7
Number of Processes per LG:	30
Biod Max Read Setting:	2
Biod Max Write Setting:	2
LG Type:	LG1
LG Model:	IBM eServer xSeries 335
Number and Type Processors:	2 x 2.0GHz Intel Xeon(HT disabled)
Memory Size:	1 GB
Operating System:	RedHat 9.0
Compiler:	gcc (GCC) 3.2.2 20030222 (Red Hat Linux 3.2.2-5)
Compiler Options:	-O -DNO_T_TYPES -DUSE_INTTYPES -lm
Network Type:	Integrated Broadcom Gigabit

Testbed Configuration

LG #	LG Type	Network	Target File Systems	Notes
1	LG1	N1	F1,F8,F15,F22,...,F64,F2,F9,F16,F23,...,F65,F3,F10,F17,F24,...,F66	N/A
2	LG1	N2	F2,F9,F16,F23,...,F65,F3,F10,F17,F24,...,F66,F4,F11,F18,F25,...,F67	N/A
3	LG1	N3	F3,F10,F17,F24,...,F66,F4,F11,F18,F25,...,F67,F5,F12,F19,F26,...,F68	N/A
4	LG1	N4	F4,F11,F18,F25,...,F67,F5,F12,F19,F26,...,F68,F6,F13,F20,F27,...,F69	N/A
5	LG1	N5	F5,F12,F19,F26,...,F68,F6,F13,F20,F27,...,F69,F7,F14,F21,F28,...,F70	N/A
6	LG1	N6	F6,F13,F20,F27,...,F69,F7,F14,F21,F28,...,F70,F1,F8,F15,F22,...,F64	N/A
7	LG1	N7	F7,F14,F21,F28,...,F70,F1,F8,F15,F22,...,F64,F2,F9,F16,F23,...,F65	N/A

Notes/Tuning Information

Other Notes
-There are 5 IBM TotalStorage DS4400 Storage Server units attached to
-the SUT. Each DS4400 contains 2 controllers. Each controller is
-connected to an FC adapter. Also, each controller has a 1GB cache.
-Writes to either cache are mirrored in the other such that the total
-effective write cache is 1GB per DS4400. There are 5 EXP700 expansion
-units connected to each DS4400. Every EXP700 contains 14 physical
-disks. A logical disk is composed of 5 physical disks in a RAID-5
-configuration. There is one test filesystem per logical disk.
-
-EXT3 is used for the OS. JFS is used for the test filesystems (F1-F70).
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-DCM is a Dual-Chip Module, one dual-core cpu chip plus one L3-cache chip.
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-SMT stands for Simultaneous Multi-Threading. SMT is a processor technology
-that allows the simultaneous execution of multiple thread contexts within a
-single processor core. SMT enabled is the default mode of operation.
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-There were 2 external 7311-D11 I/O drawers used in this configuration.
-Each drawer contained 5 Fiber Channel adapters.
-Used one of the integrated gigabit ports, plus all ports of the 3 dual port
-gigabit adapters, which were placed in the internal slots.
-
-Server specific tuning:
-"noatime" and "nodatime" specified when mounting the JFS file systems.
-sys.vm.min_free_kbytes = 40960, boot options: "selinux=0 elevator=noop
-iommu=vmerge dhash_entries=16777216 ihash_entries=16777216"
-The number of NFS threads is 170 (/usr/sbin/rpc.nfsd 170).
-F1-F70 exported with no_wdelay(no write delay) option.
-Client and Server tuning: Gigabit Ethernet MTU=9000
-net.core.rmem_max = 20971520 (4194304 Client) receive socket buffer size
-net.core.rmem_default = 20971520 (4194304 Client)
-net.core.wmem_max = 20971520 (4194304 Client) send socket buffer size
-net.core.wmem_default = 20971520 (4194304 Client)