SPECweb99 Result

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IBM Corporation: IBM eServer p5 570 (1900 MHz, 8 CPU, Linux)

Red Hat: Red Hat Content Accelerator 3.2.18-2

SPECweb99 = 25000

Test Date: Jan-2005

Tester: IBM

Hardware Avail:	Sep-2004	OS Avail:	Feb-2005	HTTP Software Avail:	Feb-2005	Sup. Software Avail:	Feb-2005	SPEC license #:	11

Hardware

Vendor:	IBM Corporation
Model:	IBM eServer p5 570 (1900 MHz, 8 CPU, Linux)
Processor:	1900 MHz POWER5
# Processors:	8 cores, 4 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, 4 DCM/SUT
Memory:	128GB (32x4GB)
Disk Subsystem:	7x73.4GB 15K Ultra320 SCSI disks
Disk Controllers:	PCI-X Dual Channel Ultra320 SCSI Adapter
Other Hardware:	8 Cisco Catalyst 3550 Switches

Software

Operating System:	Red Hat Enterprise Linux AS 4
File System:	ext3 for OS ext2 for raids/mounts
Other Software:	none

HTTP Software

Vendor:	Red Hat
HTTP Software:	Red Hat Content Accelerator 3.2.18-2
API:	RHCA API
Server Cache:	None
Log Mode:	Binary CLF

Test Sponsor

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Tested By:	IBM
SPEC License:	11

Network

# of Controllers:	16
Network Controllers:	16 IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter
# of Nets:	16
Type of Nets:	Gigabit Ethernet
Network Speed:	1 Gb/sec
MSL (sec):	30 (Non RFC1122)
Time-Wait (sec):	60 (Non RFC1122)
MTU:	1500

Clients

# of Clients:	48
Model:	IBM eServer xSeries 335
Processor:	Intel(R) Xeon(TM) CPU 2.80GHz
# of Processors:	2
Memory:	1.5GB
Network Controller:	Integrated Broadcom NetXtreme BCM5703X Gigabit Ethernet
Operating System:	Red Hat Linux release 9
Compiler:	gcc-3.2.2-5

Notes/Tuning Information

SUT Notes

1 disk for OS 1 disk for docroot 2 disks for tux log and 3 disks for fileset internal raid0 raids
SMT enabled - smt-enabled=on
TSO disabled on network adapters
InterruptThrottlingRate set to 1900 on network adapters
4 external 7311-D11 I/O drawers used for 16 Gigabit adapters (4 adapters per drawer)

Operating System Notes

Tuning parameters:
ulimit -n 1000000, sets number of open files, default 1024
One NIC IRQ bound per logical CPU
File systems mounted with "noatime,nodiratime,nobh", no inode access time updating
net.ipv4.nonlocal_bind = 1, allows processes to bind to non-local IP adresses
net.ipv4.tcp_timestamps = 0, turns TCP timestamp support off, default on
net.ipv4.tcp_max_tw_buckets = 6500000, sets TCP time-wait buckets pool size, default 180000
net.ipv4.tcp_rmem = 30000000 30000000 30000000, sets min/default/max TCP read buffer, default 4096 87380 174760
net.ipv4.tcp_wmem = 30000000 30000000 30000000, sets min/pressure/max TCP write buffer, default 4096 16384 131072
net.ipv4.tcp_mem = 30000000 30000000 30000000, sets min/pressure/max TCP buffer space, default 31744 32256 32768
net.ipv4.tcp_window_scaling = 0, turn TCP window scaling support off, default on
net.ipv4.tcp_tso_win_divisor = 8,allows control over what percentage of the congestion window can be consumed by a single TSO frame, default 8
net.core.rmem_max = 1048576, maximum receive socket buffer size, default 131071
net.core.wmem_max = 1048576, maximum send socket buffer size, default 131071
net.core.rmem_default = 1048576, default receive socket buffer size, default 65535
net.core.wmem_default = 1048576, default send socket buffer size, default 65535
net.core.optmem_max = 10000000, maximum amount of option memory buffers, default 20480
net.core.netdev_max_backlog = 300000, number of unprocessed input packets before kernel starts dropping them, default 300
net.ipv4.conf.all.arp_filter=1, default=0
DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of -- multiple thread contexts within a single processor core. (Enabled by default)

HTTP Software Notes

HTTP Software Notes
One network bound per TUX thread
net.tux.logging = 1, turns on logging of requests, default 0
net.tux.cgiroot = /, cgi root check, default /var/www/tux/cgiroot/
CGI_UID=root, userid for cgi scripts; default: 0
CGI_GID=root, groupid for cgi scripts; default: 0
net.tux.max_backlog = 3000, maximum per-listening-socket TCP backlog size, default 2048
" net.tux.generate_etags = 0, don’t generate ETag header, default 1
net.tux.generate_last_mod = 0, don’t generate Last-Modified header, default 1
net.tux.noid = 1, suppress the Server id string, default 0

Client Notes

./configure --enable-posix-threads
ulimit -n 1000000, sets number of open files, default 1024
net.ipv4.ip_local_port_range = 1024 65535

Other Notes

Other Notes
Tuning Disclosure: See above.
Dynamic API, flag descriptions, kernel config: IBM-20040617-RHCA.tgz
Dynamic API renamed to f.tux, CGI renamed to x.cgi