

SPECweb99 Result

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Dell: PowerEdge 2650
Red Hat: Red Hat Content Accelerator 3.2

SPECweb99 = 7219

Test Date: Oct-2003
Tester: Dell

Hardware Avail: Oct-2003 OS Avail: Oct-2003 HTTP Software Avail: Oct-2003 Sup. Software Avail: Oct-2003 SPEC license #: 55

Hardware

Vendor: Dell
Model: PowerEdge 2650
Processor: 3.20GHz Intel Xeon Processor DP
Processors: 2 cores, 2 chips, 1 core/chip (Hyper-Threading enabled)
Primary Cache: 12KBI+8KBD on chip
Secondary Cache: 512KB
Other Cache: 1MB L3
Memory: 12 GB
Disk Subsystem: 2 36GB, 14 18GB 15KRPM U320 drives
Disk Controllers: Onboard Adaptec SCSI, LSI 21320-IS
Other Hardware: Dell PowerConnect 5224
Dell PowerVault 220S

Software

Operating System: Red Hat Enterprise Linux AS 3
File System: ext2
Other Software: None

HTTP Software

Vendor: Red Hat
HTTP Software: Red Hat Content Accelerator 3.2
API: RHCA API
Server Cache: None
Log Mode: Binary CLF

Test Sponsor

Test Date: Oct-2003
Tested By: Dell
SPEC License: 55

Network

of Controllers: 2
Network Controllers: Intel PRO/1000 MT Dual Port Server Adapters
of Nets: 4
Type of Nets: Gigabit Ethernet
Network Speed: 1 Gb/s
MSL (sec): 30 (Non RFC1122)
Time-Wait (sec): 60 (Non RFC1122)
MTU: 1500

Clients

of Clients: 16
Model: Dell PowerEdge 1650
Processor: 1.4GHz Pentium III
of Processors: 2
Memory: 256MB
Network Controller: Onboard Intel 82544EI
Operating System: Microsoft Windows XP
Compiler: Microsoft Visual C++ 6.0

Notes/Tuning Information

SUT Notes

1 disk for OS, 1 disk logs; attached to onboard SCSI
14-disk SW RAID-0 stripe for file set; attached to LSI adapter
Hyper-Threading enabled, Sequential Memory Access disabled

Operating System Notes

ulimit -n 10000, sets number of open files, default 1024
One NIC IRQ bound per logical CPU; timer and LSI (file set) IRQs bound to CPU 1, default 0
Each NIC's TX queue length set to 20000 via ifconfig, default 100
File systems mounted with "noatime,nodiratime", no inode access time updating
net.ipv4.nonlocal_bind = 1, allows processes to bind to non-local IP addresses
net.ipv4.tcp_timestamps = 0, turns TCP timestamp support off, default on
net.ipv4.tcp_max_tw_buckets = 1500000, 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.core.hot_list_length = 5000, maximum number of skb-heads to be cached, default 128
net.core.optmem_max = 10000000, maximum amount of option memory buffers, default 10240
net.core.rmem_max = 10000000, maximum receive socket buffer size, default 131071
net.core.wmem_max = 10000000, maximum send socket buffer size, default 131071
net.core.rmem_default = 10000000, default receive socket buffer size, default 65535
net.core.wmem_default = 10000000, default send socket buffer size, default 65535
net.core.netdev_max_backlog = 300000, number of unprocessed input packets before kernel starts dropping them, default 300
sys.vm.dcache_priority = 1000000, lowers # entries zapped from dcache each iteration, default 0

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

Kernel parameters:

idle=poll, idle threads poll reschedule flag, default is to use HLT instruction

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/

net.tux.cgi_uid = 99, uid 'nobody' for cgi scripts; default -1

net.tux.cgi_gid = 99, gid 'nobody' for cgi scripts; default -1

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 0

net.tux.noid = 1, suppress the Server id string, default 0

net.tux.max_connect = 50000, maximum # simultaneous connections, default 1000

net.tux.cgi_inherit_cpu = 1, CGIs inherit CPU binding, default 0

Client Notes

Registry tunes:

- Tcpip\Parameters\MaxUserPort=0xffff, sets maximum open ports to 65534

- Tcpip\Parameters\TcpTimedWaitDelay=60, sets TIME_WAIT parameter to 60 seconds (non-RFC 1122), default 240

- Tcpip\Parameters\MaxFreeTWTcbs=100000, sets maximum number of TIME_WAIT tcbs to 100,000

- Tcpip\Parameters\TcpWindowSize=65535, sets TCP send/receive window size, default 8192

Other Notes

Tuning Disclosure: See above.

Dynamic API, flag descriptions, kernel config: Dell-20031027-RHCA.tgz