SPECweb99 Result

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Sun Microsystems: Enterprise 420R with SNCA
Zeus Technology Ltd.: Zeus 3.3.8.4

SPECweb99 = 1400

Test Date: Oct-2001
Tester: gcocco software, inc.

Hardware Avail:	Jun-2000	OS Avail:	Sep-2001	HTTP Software Avail:	Mar-2001	Sup. Software Avail:	--	SPEC license #:	76

Hardware

Vendor:	Sun Microsystems
Model:	Enterprise 420R with SNCA
Processor:	450 MHz UltraSPARC II
# Processors:	4 cores, 4 chips, 1 core/chip
Primary Cache:	16KBI+16KBD on chip
Secondary Cache:	4MB(I+D) off chip
Other Cache:	None.
Memory:	4 GB
Disk Subsystem:	2x36GB(10,000RPM),6x18GB(10,000RPM)
Disk Controllers:	ultra-SCSI
Other Hardware:	HP ProCurve 4108gl Switch

Software

Operating System:	Solaris 8 4/01 + patches
File System:	UFS
Other Software:	Forte C/6.1

HTTP Software

Vendor:	Zeus Technology Ltd.
HTTP Software:	Zeus 3.3.8.4
API:	ISAPI - Zeus PEPP 0.6
Server Cache:	SNCA
Log Mode:	SNCA Binary CLF

Test Sponsor

Test Date:	Oct-2001
Tested By:	gcocco software, inc.
SPEC License:	76

Network

# of Controllers:	2
Network Controllers:	Gigabit Ethernet-SX PCI
# of Nets:	2
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:	4
Model:	Sun Enterprise 420R
Processor:	450MHz UltraSPARC II
# of Processors:	4
Memory:	2GB
Network Controller:	Sun Gigabit Adapter 2.0/P
Operating System:	Solaris 8 - 01/2001
Compiler:	Forte C/6.1

Notes/Tuning Information

SUT Notes

Solaris 8 - 4/01 + patches
__ 108813-06 Sun Gigabit Ethernet
__ 111293-04 libdevinfo
__ 108528-10 kernel update
__ 108991-13 libc
__ 108995-02 libproc
__ 109025-03 truss
__ 109472-07 TCP
__ 109234-06 NCA
__ 111295-01 pstack
__ 111297-01 libsendfile
__ 109279-15 ndd fix
Operating system changes in (/etc/system)
__ set sq_max_size = 0 (unlimited messages allowed on each IP queue)
__ set segmap_percent = 90 (def: 12, Size of kernel segmap segment)
__ set rlim_fd_max = 70000 (def: 1024 file descriptors)
__ set ge:ge_intr_mode=1 (1=bypass normal communication layer queuing)
__ set ge:ge_tx_fastdvma_min=512 (def: 1024, min packet size to use fast dvma interface)
__ set ge:ge_nos_tmds=2048 (def: 512, transmit descriptors)
__ set pcisch:pci_stream_buf_enable=0 (0=disable PCI cache streaming)
__ set nca:nca_conn_req_max_q=100000 (def: 256, Max number of TCP conns to listen to)
__ set nca:nca_conn_req_max_q0=100000 (def: 1024, Max number of 3 way handshakes open)
__ set nca:nca_ppmax=300000 (def: 124004, max physical pages used by NCA)
__ set nca:nca_vpmax=300000 (def: 123998, max virtual pages used by NCA)
__ set nca:nca_conn_hash_size=82500 (def: 383, hash table size)
__ set nca:ncaurihash_sz=12281 (def: 8053, URI hash table size)
Network Tuning parameters (/usr/sbin/ndd)
ndd -set /dev/tcp tcp_time_wait_interval 60000 (def: 240000 ms = 4 mins.)

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Notes/Tuning Information (Continued)

SUT Notes (Continued)

__ ndd -set /dev/nca nca_max_cache_size 900000 (def: 10,000,000 bytes Max file size to cache)
__ ndd -set /dev/nca nca_use_segmap 1 (NCA uses kernel segmap to share pages.)
Network Cache Accelerator files
__ /etc/nca/nca.if:
____ge0
____ge1
__ /etc/nca/ncakmod.conf:
____ status=enabled

____ httpd_door_path=/var/run/nca_httpd_1.door
____ ncad_status=enabled
____ nca_active=enabled
__ /etc/nca/ncalogd.conf:
____ status=enabled
____ logd_file_size=1000000000
____ logd_path_name="/log/log00 /log/log01 <..snip...> /log/log08 /log/log09"

Network Switch - HP Procurve 4108gl
__ Single switch, two subnets
Disk Layout (c0t0d0 and c0t1d01 are Internal)
__ c0t0d0 - OS, paging and Zeus
__ c0t1d0 - /log filesystem (Zeus Webserver Binary CLF files, NCA log files)
Disk Array (SG-XDSK060C-109G - Ultra SCSI, 10K RPM drives)
__ c0t2d0 - /ex filesystem (r/w portion of docroot - eg post.log)
__ c0t3d0 to c0t7d0 - /ex/file_set (r/o docroot)
__ /ex/file_set - 20 GB striped filesystem over 5 devices using DiskSuite

HTTP Software Notes

This result was tested with Zeus version 3.3.8.4. Minor performance neutral logging issues were noted with this version of Zeus and it was subsequently replaced by Zeus 3.3.8.6. If Zeus 3.3.8.4 is not available, Zeus 3.3.8.6 should be used to reproduce this result.
Zeus 3.3.8.4 Global.cfg performance parameters
__ Refer to: http://support.zeus.com/faq/entries/tuning.html
__
__ tuning!num_children 4
__
__ tuning!cache_files 98041
__ tuning!cache_large_file 1048576
__ tuning!cache_small_file 4096
__ tuning!cache_max_bytes 0
__ tuning!cache_cooling_time 0
__ tuning!cache_stat_expire 31536000
__ tuning!cache_flush_interval 31536000
__
__ tuning!use_nca yes
__ tuning!keepalive no
__ ##tuning!keepalive_max -1
__
__ tuning!sendfile yes
__ tuning!sendfile_maxsize 1048576
__ tuning!sendfile_minsize 1
__ tuning!sendfile_reservefd 69000
__
__ tuning!listen_queue_size 8192
__ tuning!unique_bind yes
__ tuning!bind_any no
__ tuning!use_poll yes
__
__ tuning!so_wbuff_size 1048576

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Notes/Tuning Information (Continued)

HTTP Software Notes (Continued)

__ tuning!so_rbuff_size 0
__ tuning!so_nagle_off no
__
__ tuning!modules!cgi!cleansize 0
__ tuning!cbuff_size 1048576
__ tuning!softservers no
__
Zeus 3.3.8.4 virtual_server performance parameters
__ dnslookup no
__ docroot /ex
__
__ modules!cgi!allowanywhere yes
__ modules!cgi!allowcmd yes
__ modules!cgi!enabled yes
__ modules!get!enabled yes
__ modules!isapi!enabled yes
__ modules!log!enabled yes
__ modules!log!filename /log/binlog
__ modules!log!format %B
__ modules!map!enabled yes
__ modules!mime!enabled yes
__ modules!index!enabled yes
__ modules!index!files index.html, index.htm, index.shtml, index.cgi
__
__ modules!access!enabled no
__ modules!access!ldap!enabled no
__ modules!dirlist!enabled no
__ modules!distributed!enabled no
__ modules!errors!enabled no
__ modules!fastcgi!enabled no
__ modules!frontpage!enabled no
__ modules!htaccess!enabled no
__ modules!imagemap!enabled no
__ modules!jserv!enabled no
__ modules!map!homedir!enabled no
__ modules!nsapi!enabled no
__ modules!put!enabled no
__ modules!put!save_as_user no
__ modules!referrer!enabled no
__ modules!search!enabled no
__ modules!spelling!enabled no
__ modules!stats!enabled no
__ modules!subserver!enabled no
__ modules!throttle!enabled no
__ modules!throttle!subserver no
__ modules!usertrack!enabled no
__ modules!usertrack!expire no
__
__ security!client_cert 0
__ security!enabled no
__
__ modules!map!alias!/!filepath /ex/
__ modules!map!alias!/!type simple
__ modules!map!alias!/cgi-bin/!filepath /ex/cgi-bin/
__ modules!map!alias!/cgi-bin/!type cgi
__ modules!map!alias!/isapi-bin/!filepath /ex/isapi-bin/
__ modules!map!alias!/isapi-bin/!type isapi
__
__ modules!map!alias_types!cgi application/x-httpd-cgi
__ modules!map!alias_types!fastcgi application/x-httpd-fcgi

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Notes/Tuning Information (Continued)

HTTP Software Notes (Continued)

__ modules!map!alias_types!simple application/x-httpd-alias
__
__ modules!mime!default text/plain
__ modules!mime!types! ** no changes to mime types **
__
__ bindaddr 192.1.1.59,192.2.3.59,192.1.1.59,192.2.3.59

HTTP API Notes

Zeus PEPP SPECweb99 toolkit (0.6) used for dynamic content
__ ./Configure --sendfile=no --locking=semop

Client Notes

Solaris 8 - 4/01 + patches
Operating system changes in (/etc/system)
__ set sq_max_size = 0 (unlimited messages allowed on each IP queue)
__ set hires_tick = 1 (def: 0, 10 ms resolution, set to 1 ms resolution)
__ set rlim_fd_max = 32760 (def: 1024 file descriptors)
__ set rlim_fd_cur = 32760 (def: 256 or rlim_fd_max, whichever is smaller)
Network Tuning parameters (/usr/sbin/ndd)
__ ndd -set /dev/tcp tcp_time_wait_interval 60000 (def: 240000 ms = 4 mins.)
__ ndd -set /dev/tcp tcp_smallest_anon_port 5001 (def: 32768)
__ ndd -set /dev/tcp tcp_conn_req_max_q 1024 (def: 128)
SPECweb99 V1.02 src.alt
__ Sun WorkShop 6 update 1 C 5.2 2000/09/11
__ Client build: