SPECweb99 Result

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Fujitsu Siemens Computers: PRIMEPOWER 800
Zeus Technology Ltd.: Zeus WebServer 4.0r1

SPECweb99 = 11223

Test Date: Nov-2001
Tester: Fujitsu Siemens

Hardware Avail:	Nov-2001	OS Avail:	Jul-2001	HTTP Software Avail:	Oct-2001	Sup. Software Avail:	NA	SPEC license #:	22

Hardware

Vendor:	Fujitsu Siemens Computers
Model:	PRIMEPOWER 800
Processor:	675 MHz SPARC64
# Processors:	12 cores, 12 chips, 1 core/chip
Primary Cache:	128 KBI+128 KBD on chip
Secondary Cache:	8MB(I+D) off chip
Other Cache:	None
Memory:	64GB
Disk Subsystem:	21 x 17GB
Disk Controllers:	Dual Channel Ultra SCSI
Other Hardware:	None

Software

Operating System:	Solaris 8 7/01
File System:	VxFS (for non-root disks)
Other Software:	None

HTTP Software

Vendor:	Zeus Technology Ltd.
HTTP Software:	Zeus WebServer 4.0r1
API:	Zeus PEPP 0.6 ISAPI
Server Cache:	SNCA
Log Mode:	SNCA Binary CLF

Test Sponsor

Test Date:	Nov-2001
Tested By:	Fujitsu Siemens
SPEC License:	22

Network

# of Controllers:	12
Network Controllers:	Gigabit Ethernet X1141A-U
# of Nets:	12
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:	72
Model:	PRIMEPOWER 100N
Processor:	500 MHz UltraSPARC IIe
# of Processors:	1
Memory:	256 MB
Network Controller:	Fast Ethernet X1093A-U
Operating System:	Solaris 8
Compiler:	GNU cc 2.8

Notes/Tuning Information

SUT Notes

Bound 12 zeus.web and 12 zeus.cgi processes to 1 CPU each
__Binding performed by "pbind -b processor_id -pid"

Operating System Notes

Operating System settings, in /etc/system
__General settings:
__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=350000 (def: 1024 file descriptors)
__set rlim_fd_cur=350000 (def: max (256,rlim_fd_max))
__set autoup=60 (def: 30, seconds before dirty page buffers are sync'd)
__set maxphys=65536 (def: 131072, maximal size of physical I/O requests)
__set maxpgio=128 (def: 40, maximal number of I/O requests that can be queued by the paging system)
__Specific modules:
__set ge:ge_intr_mode=1 (bypass normal communication layer queuing)
__set ge:ge_nos_tmds = 8192 (def: 512, transmit descriptors)
__set ge:ge_tx_fastdvma_min = 95 (def: 1024, min packet size to use fast dvm a interface)
__set ge:ge_tx_bcopy_max = 96 (def: 256, Maximum packet size to use copy of buffer)
__set pcipsy:pci_stream_buf_enable = 0 (disable PCI cache streaming)
__set nca:nca_conn_req_max_q = 10240 (def: 256, Max number of TCP conns to listen to)
__set nca:nca_conn_req_max_q0 = 10240 (def: 1024, Max number of 3 way handshakes open)
__set nca:nca_ppmax=5200000 (def: 25% of physical memory, Max amount of physical memory (in pages) used by NCA)
__set nca:nca_vpmax=5200000 (def: 25% of virtual memory, Max amount of virtual memory (in pages) used by NCA)
__set nca:nca_conn_hash_size=393209 (def: 383, hash table size)
__set nca:ncaurihash_sz = 289669 (def: 8053, URI hash table size)
__set nca:ncavnodehash_sz = 289669 (def: 12281, Controls the vnode hash table size in the NCA module)
__

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

Settings in NCA control files (/etc/nca)
__nca.if: ge0 ge1 ge2 ge3 ge4 ge6 ge7 ge8 ge9 ge10 ge11
__ncalogd.conf: status=enabled, ncad_status=disabled, ncad_active=disabled
__ncalogd.conf: logd/path_name=/logs/log0 ... /logs/log12
__ncalogd.conf: logd_file_size=1000000000
__
Disk usage:
__1 disk (internal): OS, Paging, Zeus, and /export/home
__5 disks (striped): /logs
__1 disk: /web99 except file_set (r/w portion of docroot, e.g. post.log)
__15 disks (striped): /web99/file_set (r/o portion of docroot)
__File Systems, Striping with Veritas Volume Manager

Tuning disclosure: Fujitsu-Siemens-20011126.txt

HTTP Software Notes

Zeus 4.0r1 global.cfg performance parameters
__Refer to: http://support.zeus.com/faq/entries/tuning.html
__
__tuning!modules!stats!enabled no
__tuning!accelerator!nca!enabled yes
__tuning!num_cgid 12
__tuning!num_children 12
__tuning!cache_max_bytes 0
__tuning!cache_small_file 4096
__tuning!cache_large_file 1048576
__tuning!cache_stat_expire 31536000
__tuning!cache_flush_interval 31536000
__tuning!cache_cooling_time 0
__tuning!sendfile yes
__tuning!listen_queue_size 8192
__tuning!so_wbuff_size 1048576
__tuning!so_rbuff_size 0
__tuning!modules!cgi!cleansize 0
__tuning!cbuff_size 65536
__tuning!sendfile_minsize 1
__tuning!sendfile_maxsize 1048576
__ tuning!sendfile_minsize 1
__ tuning!sendfile_maxsize 1048576
__ tuning!sendfile_reservefd 299993
__ tuning!bind_any no
__ tuning!softservers no
__
Other Zeus 4.0r1 global.cfg parameters
__gid root
__uid root
__controlport 9080
__controlallow 127.0.0.1

Other Zeus 4.0r1 virtual_server performance parameters (%zeushome%/web-40r1/runningsites/websvr)
__bindaddr gsvr0,gsvr1,gsvr2,gsvr3,gsvr4,gsvr5,gsvr6,gsvr7,gsvr8,gsvr9,gsvr10,gsvr11

HTTP API Notes

Zeus PEPP 0.6 ISAPI used for dynamic content
Archived in Fujitsu-Siemens-20011126-API.tar.gz
Compiled with Sun Forte 6.2
./Configure --sendfile=no --locking=semop
Compilation options:
CCFLAGS="-I$INCLUDES -xarch=v8plus -Kpic -dalign -fns -fsimple=2 -ftrap=%none -xlibmil -xO5 -DCHECK_CONFIG"

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Notes/Tuning Information (Continued)

HTTP API Notes (Continued)

LDFLAGS="-z muldefs -G"

Network Notes

Cisco Catalyst 6500 Series Switch

Client Notes

Network Tuning parameters (/usr/bin/ndd):
ndd -set /dev/tcp tcp_smallest_anon_port 2048 (def: 32768)
ndd -set /dev/tcp tcp_time_wait_interval 60000 (def: 240000 ms = 4 mins.)
Client code generated with "Configure OPTIMIZE="-O2 -Wall"; export OPTIMIZE
and with ./configure --enable-posix-threads --enable-gethostbyname_r --enable-pthread_scope_system
--enable-rlimit --enable-nanosleep --enable-safe-usleep=no

Used Prime Client system separate from the 72 Load Generators:
__PRIMEPOWER 400, 4 x 500MHz SPARC64, Solaris 8 7/01