

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_tmids = 8192 (def: 512, transmit descriptors)
__set ge:ge_tx_fastdma_min = 95 (def: 1024, min packet size to use fast dma 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:ncaurhash_sz = 289669 (def: 8053, URI hash table size)
__set nca:nca vnodehash_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