# SPECweb99 Result



## Fujitsu Siemens Computers: PRIMEPOWER 650
## Zeus Technology Ltd.: Zeus WebServer 4.0r1

SPECweb99 = 4704

Test Date: Jan-2002
Tester: Fujitsu Siemens

| Hardware Avail: | Mar-2002 | OS Avail: | Oct-2001 | HTTP Software Avail: | Oct-2001 | Sup. Software Avail: | NA | SPEC license #: | 22 |
|---|---|---|---|---|---|---|---|---|---|

### Hardware

| | |
|---|---|
| Vendor: | Fujitsu Siemens Computers |
| Model: | PRIMEPOWER 650 |
| Processor: | 675 MHz SPARC64 |
| # Processors: | 4 cores, 4 chips, 1 core/chip |
| Primary Cache: | 128 KBI+128 KBD on chip |
| Secondary Cache: | 8MB(I+D) off chip |
| Other Cache: | None |
| Memory: | 32GB |
| Disk Subsystem: | 21 x 17GB |
| Disk Controllers: | Dual Channel Ultra SCSI |
| Other Hardware: | 1 x PCI Box D:GP70M-GB60 |

### Software

| | |
|---|---|
| Operating System: | Solaris 8 7/01 |
| File System: | VxFS (for non-root disks) |
| Other Software: | NCA |

### 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: | Jan-2002 |
| Tested By: | Fujitsu Siemens |
| SPEC License: | 22 |

### Network

| | |
|---|---|
| # of Controllers: | 8 |
| Network Controllers: | Gigabit Ethernet X1141A-U |
| # of Nets: | 8 |
| 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: | 56 |
| Model: | PRIMEPOWER 100N |
| Processor: | 500 MHz UltraSPARC IIe |
| # of Processors: | 1 |
| Memory: | 256 MB |
| Network Controller: | Fast Ethernet X1093A-U |
| Operating System: | Solaris 8 7/01 |
| Compiler: | GNU cc 2.8 |

## Notes/Tuning Information

### 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 page I/O requests that can be queued)
__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 ge:ge_nos_txdvma = 8192 (def: 512, transmit descriptors)
__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=3000000 (def: 25% of physical memory, Max amount of physical memory (in pages) used by NCA)
__set nca:nca_vpmax=3000000 (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)
__
Settings in NCA control files (/etc/nca)
__nca.if: ge0 ge1 ge2 ge3 ge4 ge5 ge6 ge7
__ncalogd.conf: status=enabled, logd_file_size=1000000000
__ncalogd.conf: logd/path_name=/logs/log0 ... /logs/log12

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## Notes/Tuning Information (Continued)

### Operating System Notes (Continued)

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Disk usage:
__1 disk (internal): OS, Paging, Zeus, and /export/home
__3 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_children   8
tuning!num_cgid   1
tuning!cache_files   419999
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_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-4.0r1/runningsites/websvr)
__bindaddr gsvr0,gsvr1,gsvr2,gsvr3,gsvr4,gsvr5,gsvr6,gsvr7
__modules!cgi!enabled yes
__modules!isapi!enabled yes
__modules!log!enabled no

### 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"
LDFLAGS="-z muldefs -G"

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## Notes/Tuning Information (Continued)

### Network Notes

4 x Cisco Catalyst 3500 Series Switch XL

### 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

5x7 load generators used 5 GE interfaces in 66 MHz PCI slots
3x7 load generators used 3 GE interfaces in 33 MHz PCI slots

Used Prime Client system separate from the 56 load generators:
PRIMEPOWER 400, 4 x 500 MHz SPARC64, Solaris 8 7/01