

# SPECweb99 Result

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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:ncaurishash\_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)

\_\_ 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)

— 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\_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