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

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(1+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
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_fastdvm_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_q = 10240 (def: 1024, Max number of 3 way handshakes open)
  __set nca:nca_ppmax=520000 (def: 25% of physical memory, Max amount of physical memory (in pages) used by NCA)
  __set nca:nca_vmmax=520000 (def: 25% of virtual memory, Max amount of virtual memory (in pages) used by NCA)
  __set nca:nca_conh_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)
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=100000000

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 104856
- 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 104856
- tuning!so_rbuff_size 0
- tuning!modules!cgi!cleansize 0
- tuning!cbuff_size 65536
- tuning!sendfile_minsize 1
- tuning!sendfile_maxsize 104856
- tuning!sendfile_minsize 1
- tuning!sendfile_maxsize 104856
- 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="-cISINCLUDES -xarch=v8plus -Kpic -dalign -fns -fsimple=2 -ftrap=%none -xlibmil -xO5 -DCHECK_CONFIG"
HTTP API Notes (Continued)

LDFLAGS="-z muldefs -G"

Network Notes
Cisco Catalyst 6500 Series Switch

Client Notes
Network Tuning parameters (/usr/bin/nnd):
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