SPECweb99_SSL Result

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Hewlett-Packard: HP Integrity rx8620
Zeus Technology Limited: Zeus 4.2r3

SPECweb99_SSL =9060

Test Date: Oct-2003
Tester: Hewlett-Packard Company

Hardware Avail:	Nov-2003	OS Avail:	Sep-2003	HTTPS Software Avail:	Jul-2003	Sup. Software Avail:	Sep-2003	SPEC license #:	3

Hardware

Vendor:	Hewlett-Packard
Model:	HP Integrity rx8620
Processor:	1.5 GHz Intel Itanium 2 6M
# Processors:	16 cores, 16 chips, 1 core/chip
Primary Cache:	16KBI+16KBD on chip
Secondary Cache:	256KB unified on chip
Other Cache:	6144KB unified on chip
Memory:	96 GB (48x2GB)
Disk Subsystem:	3x36GB, 1x72GB (15K RPM)
Disk Controllers:	SCSI C1010 UW SE (internal)
Other Hardware:	4 x HP Procurve Switch 2474

Software

Operating System:	HP-UX 11i v2
File System:	See SUT Notes
Other Software:	B3901BA HP C/ANSI C

HTTPS Software

Vendor:	Zeus Technology Limited
HTTPS Software:	Zeus 4.2r3
API:	ISAPI
Server Cache:	None
Log Mode:	Binary Log Format

Test Sponsor

Test Date:	Oct-2003
Tested By:	Hewlett-Packard Company
SPEC License:	3

Network

# of Controllers:	16
Network Controllers:	HP A6825A
# of Nets:	16
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:	48
Model:	HP Server rx2600
Processor:	1.0 GHz Intel Itanium 2
# of Processors:	2
Memory:	6GB
Network Controller:	HP A6825A Ginabit Ethernet
Operating System:	HPUX 11i v1.6
Compiler:	B3901BA B.11.22 HP C/ANSI C

Notes/Tuning Information

SUT Notes

All file systems are HP-UX HFS
1 (36 GB) used for OS
1 (36 GB) disk mounted with behind option used for doc_root & post.log
1 (36 GB) disk mounted with largefiles, behind options used for logs
1 (72 GB) disk mounted with read-only option used for the file_set
File system containing logs is 64KB block size (def. 8KB) and 8KB fragments (def. 1KB)
Bound each zeus instance to the processor corresponding to its NIC
Bound cgi instance to the processor corresponding to NIC with lighter load (See client notes)
Processor binding is performed by: mpsched -c cpu# -p pid
Set page size attributs for zeus.web, zeus.cgi binaries and zeus.cgi in zeus-kit
chatr +pd 64K +pi 64K zeus.cgi
chatr +pd 4G +pi 4G zeus.web
System was configured as a single partition with 4 cells and 4 processors per cell.
System memory modules were distributed evenly across cells.

Operating System Notes

HP-UX Tunable Parameters:
dbc_max_pct=50 Max Buffer Cache Size as Percent of RAM (50)
dbc_min_pct=50 Min bufer Cache Size as Percent of RAM (5)
fs_async=1 Enables asynchrous writes of file-system data structures Boolean (0)
max_thread_proc=2048 Maximum number of threads in each process (256)
maxdsiz_64bit=274877906944 Maximum size of the data segment of a 64-bit process (bytes) (4294967296)
maxfiles=60000 Soft File Limit per Process (2048)
maxfiles_lim=60000 Hard File Limit per Process (1024)
maxssiz_64bit=1073741824 Max Stack Segment Size (Bytes) (268435456)

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

nfile=120000 Max number of open files (65536)
ninode=240000 Max number of inodes (4880)
scsi_max_qdepth=64 Maximum number of concurrent requests to a SCSI device (8)
tcphashsz=16384 Relative Scaling Factor for TCP & IP Int. Tables(0)
vps_ceiling=4096 Max System selected page size [KB] (16)
vps_chatr_ceiling=4194304 Maximum chatr-Selected Page Size [KB] (1048576)
vps_pagesize=64 Default User page size [KB] (4)
vxfs_ifree_timelag=3600000 VxFS Free Inode minimum existence time (0)

HTTPS Software Notes

Zeus Global Parameters:
tuning!cache_files 356750
tuning!cache_max_bytes 0
tuning!cache_small_file 0
tuning!cache_large_file 1048576
tuning!cache_stat_expire 86400
tuning!cache_flush_interval 86400
tuning!listen_queue_size 8192
tuning!multiple_accept yes
tuning!so_rbuff_size 0
tuning!so_wbuff_size 1048576
tuning!cbuff_size 65536
tuning!keepalive yes
tuning!keepalive_timeout 1200
tuning!keepalive_max -1
tuning!timeout 600
tuning!unique_bind yes
tuning!bind_any no
tuning!sendfile no
tuning!ssl_keepalive yes
tuning!ssl_sessioncache_size 5011
tuning!ssl_sessioncache_expiry 120
tuning!ssl_diskcache no
tuning!modules!cgi!cbuff_size 1048576
tuning!modules!cgi!cleansize 0
tuning!softservers no
tuning!use_select yes
tuning!modules!stats!enabled no
tuning!modules!nsapi!enabled no
tuning!modules!isapi!enabled no
tuning!cache_cooling_time 0
tuning!maxaccept 4096
Zeus runningsite configuration:
modules!security!enabled yes
modules!cgi!enabled yes
modules!isapi!enabled yes

HTTP API Notes

Zeus PEPP Toolkit(0.8) used for SPECweb99_SSL dynamic content
./Configure --sendfile=no --checkconfig=yes --locking=semop --ssl=yes --64bit=yes
Compiled with HP C/ANSI C developer's Bundle (B3901BA)
CFLAGS=+Ofaster +DD64 +DSitanium2
LDFLAGS = +DSitanium2,+pd,64k,+pi,64k

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Notes/Tuning Information (Continued)

Network Notes

Networking Tunable Parameters:
tcp_xmit_hiwater_def=2000000 Max unsent data triggers flow control(32768)
tcp_conn_request_max=4096 Max outstanding connection reqs (20)
socket_caching_tcp=4096 Size of the socket cache (512)

Gigabit Tunable Parameters:
send_max_bufs=128 Number of sending buffers consumed to trigger interrupt (16)
recv_max_bufs=256 Number of receiving buffers consumed to trigger interrupt (16)
recv_coal_ticks=24000 Number of ticks to wait to trigger interrupt (0)
send_coal_ticks=10000 Number of ticks to wait to trigger interrupt (0)

Client Notes

Client code generated with ./configure --enable-posix-threads
Use client speed setting in rc file to force lighter load on one NIC
i.e. CLIENT=s1[5] s2[5] s3[5] s4[4] s5[4] s6[4]
HP-UX Tunable Parameters:
max_thread_proc=800 Number of threads per process (64)
maxfiles=2048 Soft File Limit Per Process (60)
maxusers=256 Value of MAXUSERS macro (32)
ncallout=5000 Increase number of pending timeouts
nfile=4096 Max mumber of open files (790)
ninode=5000 Max Number of Open Inodes (444)
nkthread=8000 Maximum number of system-wide threads (499)

Other Notes

Tuning Disclosure: HP-20030626.txt
Dynamic API: HP-20020723.-API.tar.gz