SPECweb99_SSL Result

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Hewlett-Packard: HP Integrity rx4640
Zeus Technology Limited: Zeus 4.3r1

SPECweb99_SSL =4615

Test Date: Oct-2004
Tester: Hewlett-Packard Company

Hardware Avail:	Dec-2004	OS Avail:	Sep-2004	HTTPS Software Avail:	Jan-2005	Sup. Software Avail:	Sep-2004	SPEC license #:	3

Hardware

Vendor:	Hewlett-Packard
Model:	HP Integrity rx4640
Processor:	1.6 GHz Intel Itanium 2 9M
# Processors:	4 cores, 4 chips, 1 core/chip
Primary Cache:	16KBI+16KBD on chip
Secondary Cache:	256KB unified on chip
Other Cache:	9216KB unified on chip
Memory:	64 GB (32x2GB)
Disk Subsystem:	4x73GB (15K RPM)
Disk Controllers:	1 SCSI C1010 Fast Wide LVD (internal)
Other Hardware:	2 x HP Procurve 2724 Switch; DS2100

Software

Operating System:	HP-UX 11i v2 Update2
File System:	See SUT Notes
Other Software:	B3913DB C11.23.01 HP aC++

HTTPS Software

Vendor:	Zeus Technology Limited
HTTPS Software:	Zeus 4.3r1
API:	ISAPI
Server Cache:	None
Log Mode:	Binary Log Format

Test Sponsor

Test Date:	Oct-2004
Tested By:	Hewlett-Packard Company
SPEC License:	3

Network

# of Controllers:	4
Network Controllers:	HP A6825A PCI Gigabit Ethernet
# of Nets:	4
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:	12
Model:	HP Integrity rx2600
Processor:	1 GHz Intel Itanium 2
# of Processors:	2
Memory:	4 GB
Network Controller:	HP A6825A
Operating System:	HP-UX 11i v2
Compiler:	B3901BA HP C/ANSI C

Notes/Tuning Information

SUT Notes

All file systems are HP-UX HFS
1 disk used for OS
1 disk used for /spec
1 disk mounted read-only used for the file_set
1 disk with 64KB block size (def. 8KB) and 8KB fragments (def. 1KB)
mounted with largefiles, behind options used for logs
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 attribute for zeus.web and zeus.cgi binaries
chatr +pd 64k +pi 64k zeus.cgi
chatr +pd 64M +pi 64M zeus.web

Operating System Notes

HP-UX Tunable Parameters:
dbc_max_pct=40 Max Buffer Cache Size as Percent of RAM (50)
dbc_min_pct=40 Min bufer Cache Size as Percent of RAM (5)
maxfiles=60000 Soft File Limit per Process (60)
maxfiles_lim=60000 Hard File Limit per Process (1024)
nfile=120000 Max number of open files (790)
ninode=120000 Max number of inodes (444)
tcphashsz=16384 Relative Scaling Factor for TCP & IP Int. Tables(2048)
vps_ceiling=4096 Max System selected page size [KB] (16)
vps_pagesize=64 Default User page size [KB] (4)
fs_async=1 Enables write calls to return before write operation is complete Boolean (0)

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

scsi_max_qdepth=64 Maximum number of concurrent requests to a SCSI device (8)
creat_fastlinks=1 Enables storage of symbolic links in HFS inode structures (Boolean) (0)

HTTPS Software Notes

Zeus Global Parameters:
tuning!cache_files 356750
tuning!cache_max_bytes 0
tuning!cache_small_file 1024
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!modules!cgi!cbuff_size 1048576
tuning!modules!cgi!cleansize 0
tuning!ssl_keepalive yes
tuning!ssl_sessioncache_size 5011
tuning!ssl_sessioncache_expiry 120
tuning!ssl_diskcache no
tuning!softservers no
tuning!use_select yes
tuning!modules!cgi!minuid 0
tuning!modules!cgi!mingid 0
tuning!modules!stats!enabled no
tuning!modules!nsapi!enabled no
tuning!modules!isapi!enabled no
tuning!cache_cooling_time 0
tuning!maxaccept 2048
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 --checkconfig=yes --locking=semop --ssl=yes --64bit=yes --sendfile=no
CFLAGS=+Ofaster +DD64 +DSitanium2
LDFLAGS = +DSitanium2,+pd,64k,+pi,64k -b -B symbolic

Network Notes

Networking Tunable Parameters:
tcp_xmit_hiwater_def=2000000 Max unsent data triggers flow control(32768)
tcp_conn_request_max=2048 Max outstanding connection reqs (20)
socket_caching_tcp=4096 Controls socket caching for TCP sockets (512)

Gigabit Tunable Parameters:

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Notes/Tuning Information (Continued)

Network Notes (Continued)

send_max_bufs=128 Number of sending buffers consumed to trigger interrupt (16)
recv_max_bufs=128 Number of receiving buffers consumed to trigger interrupt (16)
recv_coal_ticks=12000 Number of ticks to wait to trigger interrupt (0)
send_coal_ticks=5000 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. CLIENTS=s1[9] s2[9] s3[9] s4[10] s5[10] s6[10]
HP-UX Tunable Parameters:
max_thread_proc=800 Number of threads per process (64)
maxusers=256 Value of MAXUSERS macro (32)
ncallout=5000 Increase number of pending timeouts
nkthread=8000 Maximum number of system-wide threads (499)
ninode=5000 Maximum number of inodes (444)
nfile=4096 Maximum number of open files (790)
maxswapchunks=2048 Maximum number of swap chunks (256)

Other Notes

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