SPECweb99_SSL Result

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Hewlett-Packard: hp server rp8400
Zeus Technology Limited: Zeus 4.2r1

SPECweb99_SSL =4700

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

Hardware Avail:	OS Avail:	HTTPS Software Avail:	Sup. Software Avail:	SPEC license #:
Aug-2002	Dec-2002	Feb-2003	Aug-2002	3

Hardware

Vendor:	Hewlett-Packard
Model:	hp server rp8400
Processor:	PA8700 875Mhz
# Processors:	16 cores, 16 chips, 1 core/chip
Primary Cache:	768KBI+1536KBD on chip
Secondary Cache:	None
Other Cache:	None
Memory:	64 GB
Disk Subsystem:	1-36GB(10K rpm), 1-36GB(15K rpm)
Disk Controllers:	SCSI Ultra, SCSI Ultra 2
Other Hardware:	16 x HP Procurve 1600M Switches

Software

Operating System:	HP-UX 11i
File System:	See SUT Notes
Other Software:	B3913DB C.03.33.01 HP aC++ Compiler

HTTPS Software

Vendor:	Zeus Technology Limited
HTTPS Software:	Zeus 4.2r1
API:	ISAPI
Server Cache:	None
Log Mode:	Binary Log Format

Test Sponsor

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

Network

# of Controllers:	16
Network Controllers:	HP A6847A PCI Gigabit Ethernet
# 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:	156
Model:	HP 9000/A180C
Processor:	180Mhz PA-7300LC
# of Processors:	1
Memory:	128MByte
Network Controller:	HP A5230A, PCI 100BaseT
Operating System:	HPUX 11i
Compiler:	B3901BA B.11.11.04 HP C/ANSI C

Notes/Tuning Information

SUT Notes

All filesystems are HP-UX HFS
1 (36GB 10K rpm) disk used for OS
1 (36GB 15K rpm) used for fileset and logs
Bound each Zeus instance to the processor corresponding to its NIC
A lighter web load was given to the CPU with CGI bound to it
Processor binding is performed by: mpsched -c cpu# -p pid
Set page size attributes for zeus.web and zeus.cgi binaries
chatr +pd 64M +pi 64M zeus.web
chatr +pd 4M +pi 4M zeus.cgi

Operating System Notes

HP-UX 11i Patches:
PHKL_25233 - select(2) and poll(2) hang
PHKL_25729 - signals,threads enhancement,Psets Enablement
PHKL_27091 - Core PM, vPar, Psets Cumulative Patch
PHKL_27094 - Psets Enablement Patch, slpq1 perf
PHKL_27317 - detach; NOSTOP, Abort; Psets; slpq1 perf
PHNE_25388 - Cumulative LAN Products Patch
PHNE_26939 - 1000Base-SX/T B.11.11.14 cumulative patch
PHNE_27703 - Cumulative STREAMS Patch
PHNE_28089 - Cumulative ARPA Patch
HP-UX Tunable Parameters:
dbc_max_pct=20 Max Buffer Cache Size as Percent of RAM (50)
dbc_min_pct=20 Min bufer Cache Size as Percent of RAM (5)
default_disk_ir=1 Set immediate reporting (Write Cache Enable) for SCSI disks (0)

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

fs_async=1 Select Asynchronous Writes (0)
maxfiles=60000 Soft File Limit per Process (60)
maxfiles_lim=60000 Hard File Limit per Process (1024)

maxdsiz_64bit=0x180000000 Max Data Size for 64-Bit Procs (0x40000000)
maxswapchunks=16384 Max number of swap chunks (256)
ncallout=8000 Max number of pending timeouts (515)
nfile=20010 Max number of open files (790)
ninode=320000 Max number of inodes (444)
nproc=512 Max number of processes (276)
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)
Filesystem for logs created with following options:
behind - Queue writes for flushing when page is full
largefiles - Enable creation of files greater than 2 gigabytes in size
64KB block size (def. 8KB) and 8KB fragments (def. 1KB)

HTTPS Software Notes

tuning!cache_max_bytes 0
tuning!cache_small_file 400000
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_diskcache no
tuning!ssl_sessioncache_size 251
tuning!softservers no
tuning!use_poll no
tuning!modules!stats!enabled no
tuning!modules!nsapi!enabled no
tuning!modules!isapi!enabled yes
tuning!cache_cooling_time 0
tuning!maxaccept 4096
security!enabled yes

Zeus Global Parameters:

tuning!cache_files 356750

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Notes/Tuning Information (Continued)

HTTP API Notes

Zeus ISAPI interface used
Zeus PEPP Toolkit(0.8) used for SPECweb99_SSL dynamic content
./Configure --sendfile=no --checkconfig=yes --locking=semop --ssl=yes --64bit=yes

Network Notes

Networking Tunable Parameters:
tcp_xmit_hiwater_def=1000000 Max unsent data triggers flow control (32768)
tcp_conn_request_max=4096 Max outstanding connection reqs (20)
tcp_conn_strategy=1 Selects TCP connection strategy (0)
Gigabit Tunable Parameters:
recv_coal_ticks=2000 Number of ticks to wait to trigger interrupt (0)
recv_max_bufs=128 Number of recv buffers consumed to trigger interrupt (1)
send_coal_ticks=1000 Number of ticks to wait to trigger interrupt (0)
send_max_bufs=128 Number of send buffers consumed to trigger interrupt (16)

Client Notes

10 Clients connected via a switch to each NIC
(6 Clients for NIC for CPU with cgi)
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

Other Notes

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