# SPECweb99_SSL Result

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## Hewlett-Packard: hp server rp5405
## Zeus Technology Limited: Zeus 4.1r3

SPECweb99_SSL = 990

Test Date: Sep-2002
Tester: Hewlett-Packard Company

| Hardware Avail: | Sep-2002 | OS Avail: | Dec-2001 | HTTPS Software Avail: | Feb-2002 | Sup. Software Avail: | Jun-2002 | SPEC license #: | 3 |
|---|---|---|---|---|---|---|---|---|---|

### Hardware

| | |
|---|---|
| Vendor: | Hewlett-Packard |
| Model: | hp server rp5405 |
| Processor: | 650 Mhz PA-8700 |
| # Processors: | 4 cores, 4 chips, 1 core/chip |
| Primary Cache: | 768KBI+1536KBD on chip |
| Secondary Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB |
| Disk Subsystem: | 1x18GB,1x36GB(10K rpm),15x18GB(15K rpm) |
| Disk Controllers: | 1 HP A5158A FC Card |
| Other Hardware: | HP VA7100 Disk Array |

### Software

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

### HTTPS Software

| | |
|---|---|
| Vendor: | Zeus Technology Limited |
| HTTPS Software: | Zeus 4.1r3 |
| API: | ISAPI |
| Server Cache: | None |
| Log Mode: | Binary Log Format |

### Test Sponsor

| | |
|---|---|
| Test Date: | Sep-2002 |
| Tested By: | Hewlett-Packard Company |
| SPEC License: | 3 |

### Network

| | |
|---|---|
| # of Controllers: | 4 |
| Network Controllers: | HP A4926A 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: | 4 |
| Model: | HP 9000/A500-5X |
| Processor: | 550 Mhz PA-8600 |
| # of Processors: | 2 |
| Memory: | 4 GB |
| Network Controller: | HP A4926A PCI Gigabit Ethernet |
| Operating System: | HP-UX 11i |
| Compiler: | B3901BA B.11.11.04 HP C/ANSI C |

## Notes/Tuning Information

### SUT Notes

Bound each zeus instance to processor corresponding to its NIC
Bound cgi instance to processor corresponding to NIC running at 95% load (see Client Notes)
Processor binding performed by: mpsched -c cpu# -p pid
Set page size attribute for all zeus binaries
chatr zeus.web +pd 64M +pi 64M
chatr zeus.cgi +pd 64K +pi 64K
All filesystems are HP-UX HFS
1 (18 GB) disk used for /(root)
1 (36 GB) disk used for logs
1 (HP VA7100 Disk Array) used for file_set

### Operating System Notes

HP-UX Enterprise Operating Environment with following patches:
PHKL_25233 - select(2) and poll(2) hang
PHKL_25389 - Core PM, vPar, Psets Cumulative Patch
PHNE_25388 - LAN product cumulative patch
PHNE_26728 - Cumulative STREAMS Patch
PHNE_26939 - 1000Base-SX/T B.11.11.14 cumulative patch
PHNE_27063 - 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)
maxfiles=50000 Soft File Limit per Process (60)
maxfiles_lim=50000 Hard File Limit per Process (1024)
maxssiz_64bit=0x180000000 Max Stack Size for 64-Bit Procs (0x800000)

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## Notes/Tuning Information (Continued)

### Operating System Notes (Continued)

maxswapchunks=4868 Max number of swap chunks (256)
maxuprc=1000 Max number of user processes (75)
nfile=5000 Max number of open files (790)
ninode=40000 Max number of inodes (444)
nkthread=8000 Max number of kernel threads (499)
nproc=256 Max number of processes (276)
tcphashsz=16384 Relative Scaling Factor for TCP & IP Int. Tables(2048)
vps_ceiling=4096 Maximum System_Selected Page Size (16)
vps_pagesize=64 Default User Page Size (4)

### 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!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 2048

### 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

Clients were connected to the SUT via MMF Fiber Optic cables (point-to-point).
Networking Tunable Parameters:
tcp_xmit_hiwater_def=2000000 Max unsent data triggers flow control(32768)
tcp_conn_request_max=1024 Max outstanding connection reqs (20)
tcp_conn_strategy=1 Selects TCP connection strategy (0)

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## Notes/Tuning Information (Continued)

### Client Notes

Client code generated with ./configure --enable-posix-threads
Use client speed setting in rc file to force a 95% load on one NIC.
i.e., CLIENTS=sweb741[20] sweb742[20] sweb743[20] sweb744[19]
HP-UX Tunable Parameters:
max_thread_proc=800  Number of threads per process (64)
maxfiles=5000 Sort file limit per process (60)
maxfiles_lim=5000 Hard File Limit per Process (1024)
maxusers=256  Value of MAXUSERS macro (32)
nfile=10000 Max mumber of open files (790)
ninode=10000 Max number of inodes (444)
nkthread=8000 Maximum number of system-wide threads (499)

### Other Notes

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