## SPECweb99_SSL Result

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

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<table>
<thead>
<tr>
<th>Hardware</th>
<th>Test Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor: Hewlett-Packard</td>
<td>Test Date: Jan-2003</td>
</tr>
<tr>
<td>Model: hp server rp8400</td>
<td>Tested By: Hewlett-Packard Company</td>
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<tr>
<td>Processor: PA8700 875Mhz</td>
<td>SPEC License: 3</td>
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<tr>
<td># Processors: 16 cores, 16 chips, 1 core/chip</td>
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<tr>
<td>Primary Cache: 768KBI+1536KBD on chip</td>
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<tr>
<td>Secondary Cache: None</td>
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<tr>
<td>Other Cache: None</td>
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<tr>
<td>Memory: 64 GB</td>
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<tr>
<td>Disk Subsystem: 1-36GB(10K rpm), 1-36GB(15K rpm)</td>
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<tr>
<td>Disk Controllers: SCSI Ultra, SCSI Ultra 2</td>
<td></td>
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<tr>
<td>Other Hardware: 16 x HP Procurve 1600M Switches</td>
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</tbody>
</table>

| 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 | |

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<tr>
<th>Notes/Tuning Information</th>
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### 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  
Pagination/Cache tuning 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 buffer Cache Size as Percent of RAM (5)  
    - default_disk_ir=1 Set immediate reporting (Write Cache Enable) for SCSI disks (0)
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)

  maxdsize_64bit=0x1800000000 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)
  tcp_hashsz=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
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