SPEC has determined that this result was not in compliance with the SPECweb99_SSL run and reporting rules. Specifically, the result did not meet the 3 month availability requirement in the SPECweb99_SSL run rules due to a change in availability of a dependency of the web server.

PERFORMANCE

<table>
<thead>
<tr>
<th>Iteration</th>
<th>Conforming Simultaneous Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NC</td>
</tr>
<tr>
<td>2</td>
<td>NC</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
</tr>
<tr>
<td>Median</td>
<td>NC</td>
</tr>
</tbody>
</table>

Availability Dates

- All Hardware: Dec-2004
- HTTPS Software: Oct-2005
- Operating System: Jul-2005
- Supplemental System: Jul-2005

Hardware

- Vendor: Hewlett-Packard
- Model: HP Integrity rx4640
- Processor: 1.6 GHz Intel Itanium2 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: 1x73GB(15K RPM)
- Disk Controllers: 1x73GB(15K RPM)
- Other Hardware: 4 x HP Procurve 2724 Switches

Software

- Operating System: SuSE SLES9 SP2
- File System: See Notes
- Other Software: gcc 3.3.3 from distro

HTTPS Software

- Vendor: Zeus Technology Limited
- HTTPS Software: Zeus 4.3r2
- API: ISAPI
- Server Cache: none
- Log Mode: Binary Log Format

Test Sponsor

- Test Date: Jun-2005
- Tested By: Hewlett-Packard Company
- SPEC License: 3

Network

- # of Controllers: 4
- Network Controllers: A9900A PCI-X 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: 16
- Model: HP Integrity rx2600
- Processor: 1.0GHz Intel Itanium2
- # of Processors: 2
- Memory: 6GB
- Network Controller: HP A6825A
Operating System: HP-UX 11i V2
Compiler: B3901A HP C/ANSI C

Benchmark Configuration

Requested Connections: 5008
Fileset Size (MB): 16143.04

Notes/Tuning information

SUT Notes
Two 73GB 15K RPM SCSI
1x73GB disk partitioned for OS, logs and file_set
OS ReiserFS with defaults
Log filesystem ext2 with noatime,nodiratime - no inode access time updates, no access control lists
File_set filesystem ext2 mount ro,nodiratime - read-only, no inode access time updates, no access control lists
Bound each Zeus process to the CPU corresponding to its NIC with taskset
Zeus.cgi bound to one CPU, and client loading adjusted accordingly

Operating System Notes
sysctl tunes:
net.core.rmem_max=1048576, maximum receive socket buffer size (default 65535)
net.core.rmem_default=1048576, default receive socket buffer size (default 65535)
net.core.wmem_max=1048576, , maximum send socket buffer size (default 65535)
net.core.wmem_default=1048576, default send socket buffer size (default 65535)
net.ipv4.tcp_max_syn_backlog=20480, sets length of per-socket backlog queue (default 1024)
net.ipv4.tcp_syncookies=0, Disable TCP SYN Cookie Protection (default 1)
net.ipv4.tcp_timestamps=0, turns TCP timestamp support off (default 1)
net.ipv4.tcp_max_tw_buckets=2000000, sets TCP time-wait buckets pool size (default 180000)
net.core.netdev_max_backlog=20000, number of unprocessed input packets before kernel starts dropping them (default 300)
net.core.somaxconn=20480, maximum length of the listen queue (128)
sys.vm.max_map_count=131072, maximum number of active map areas (65536)
fs.file-max=1000000, maximum number of open files (default 1024)
ulimit -n 500000 (prior to launching web server), sets number of open files (default 1024)

HTTPS Software Notes
Zeus Global Parameters:
tuning/bind_any no
tuning/cache_cooling_time 0
tuning/cache_files 569263
tuning/cache_flush_interval 180000
tuning/cache_large_file 1048576
tuning/cache_max_bytes 0
tuning/cache_small_file 16384
tuning/cache_stat_expire 180000
tuning/cbuff_size 65536
tuning/fadvise/max_unflushed 2147483647
tuning/keepalive yes
tuning/keepalive_timeout 1200
tuning/keepalive_max -1
tuning/listen_queue_size 8192
tuning/maxaccept 2048
tuning/max_connections -1
tuning/modules/cgi/clean_size 0
tuning/modules/isapi/enabled yes
tuning/modules/isapi/enabled no
tuning/modules/stats/enabled no
tuning/multiple_accept yes
tuning/sendfile no
tuning/sendfile_reusedfd 56000
tuning/softservers no
tuning/so_rbuf_size 0
tuning/so_sbuf_size 1048576
tuning/timer 600
tuning/unique_bind yes
tuning/modules/cgi/cbuff_size 1048576
Zeus runningsite configuration:
modules/cgi/enabled yes
modules/isapi/enabled yes

HTTP API Notes
Zeus ISAPI interface used
Zeus PEPP Toolkit (0.9) used for SPECweb99 dynamic content
compiled with gcc 3.3.3 from distro

Network Notes
Networking Tunable Parameters:
Ethtool used to disable TSO on the NIC (default enabled)
InterruptThrottleRate=700 (via modprobe) Set maximum interrupt rate for NIC (default dynamic)
RdDescriptors=512 (via modprobe) Number of receive descriptors allocated (default 256)
TxqueueMax=20000 (via ifconfig) Sets transmit queue length (default 100)

Client Notes
Client code generated with ./configure --enable-posix-threads
HP-UX Tunable Parameters:
max_thread_proc=4096 Number of threads per process (64)

Other Notes
Tuning Disclosure: HP-20030414.txt
Dynamic API: 20020724-API.tgz
### Test Run Details

<table>
<thead>
<tr>
<th>Run</th>
<th>Conforming Percent</th>
<th>Throughput ops/sec</th>
<th>Response msec</th>
<th>ops/sec/sec</th>
<th>Kbits/sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>1</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>1</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>