SPEC has discovered a code defect in the SPECweb99_SSL test harness run on the client systems used in this result. The defect prevents these client systems from generating the correct SPECweb99_SSL workload. Specifically, the defect in the SPECweb99_SSL code results in the clients not generating any of the required SSL ClientKeyExchanges during the benchmark. Therefore, the results presented here are not comparable with any other SPECweb99_SSL results.

**PERFORMANCE**

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

**Availability Dates**

- All Hardware: Nov-2002
- HTTPS Software: Mar-2002
- Operating System: May-2002
- Supplemental System: May-2002

**Hardware**

- Vendor: IBM
- Model: BladeCenter HS20
- Processor: 2.4 GHz Intel Xeon
- # Processors: 2 cores, 2 chips, 1 core/chip
- Primary Cache: 12KB+8KB on chip
- Secondary Cache: 256KB L2
- Other Cache: 512 KB L3
- Memory: 4 GB
- Disk Subsystem: 2 x 40GB 5400 RPM IDE
- Disk Controllers: OnBoard IDE
- Other Hardware: 1 x Alteon ACEswitch 180 Ethernet Switch
  1 x Extreme Network Summit 7i switch

**Software**

- Operating System: Red Hat Linux 7.3
- File System: Ext. 2
- Other Software: None

**HTTPS Software**

- Vendor: Zeus
- HTTPS Software: Zeus V4.1R1
- API: Zeus PFP 0.8 ISAPI used for dynamic content
- Server Cache: None
- Log Mode: Zeus Binary CLF

**Test Sponsor**

- Test Date: Dec-2002
- Tested By: IBM
- SPEC License: 11

**Network**

- # of Controllers: 1
- Network Controllers: 1 On-Board Broadcom Gb Ethernet
- # of Nets: 1
- Type of Nets: 1
- Network Speed: 1 Gb/s
- MSL (sec): 30 (Non RFC1122)
- Time-Wait (sec): 60 (Non RFC1122)
- MTU: 1500

**Clients**

- # of Clients: 5
- Model: IBM xSeries 330
- Processor: 1.13GHz Intel Pentium III
- # of Processors: 1
Memory                        256MB
Network Controller            Alteon ACENIC
Operating System              Windows 2000
Compiler                      Visual C++ 6.0

Benchmark Configuration

Requested Connections         870
Filesset Size (MB)             2903.6

Notes/Tuning information

SUT Notes
1 Disk OS and File Set, 1 Disk Logfiles
BladeCenter chassis includes:
- 1 HS20 blade server in single chassis slot
- 1 4-Port Gb Ethernet Switch Module

Operating System Notes
Tuning parameters:
- net.ipv4.ip_forward = 0, default 0
- net.ipv4.conf.all.rp_filter = 1, enables source route verification, default 0
- net.core.rmem_default=1000000, default 10240
- net.core.rmem_max=10000000, default receive socket buffer size, default 65535
- net.core.wmem_default=10000000, default send socket buffer size, default 65535
- net.core.wmem_max=10000000, maximum send socket buffer size, default 65535
- net.core.hot_list_length=10000, maximum number of skb-heads to be cached, default 128
- net.core.netdev_max_backlog=10000, default 300
- net.ipv4.tcp_max_tw_buckets=160000, sets TCP time-wait buckets pool size, default 180000
- net.ipv4.tcp_rmem=30000000 30000000 30000000, maximum TCP read-buffer space allocatable, default 4096 87380 174760
- net.ipv4.tcp_wmem=30000000 30000000 30000000, maximum TCP write-buffer space allocatable, default 4096 16384 131072
- net.ipv4.tcp_mem=30000000 30000000 30000000, maximum TCP buffer space, default 31744 32256 32768
- net.ipv4.tcp_timestamps=0, turns TCP timestamp support off, default 1

HTTPS Software Notes
- Zeus Configuration
  - tuning!so_wbuff_size 1048576
  - tuning!softservers no
  - tuning!cbuff_size 65536
  - tuning!ssl_sessioncache_size 2617
  - tuning!keepalive_timeout 20
  - tuning!keepalive_max 3000
  - tuning!sendfile_minsize 1
  - tuning!listen_queue_size 8192
  - tuning!so_rbuff_size 0
  - tuning!modules!cgi!cleansize 0
  - tuning!clientfirst_optimise yes
  - tuning!maxaccept 64

Network Notes
The tg3 driver was used for the network controller. This is the default for RH 7.3.
Three switches used because the clients have fiber adapters and the SUT has copper switches.
- The clients were connected to the ACESwitch with fiber cables.
- The ACESwitch was connected to the Summit switch with a fiber cable.
- The SUT was connected to the Summit switch with a copper cable.

Other Notes
Tuning disclosure: IBM-Zeus-tuning-20021224.txt
API: HP-20020723.-API.tar.gz

Test Run Details

<table>
<thead>
<tr>
<th>Run</th>
<th>Conforming</th>
<th>Percent</th>
<th>Throughput</th>
<th>Response</th>
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