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>
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<tr>
<td>2</td>
<td>CD</td>
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<tr>
<td>3</td>
<td>CD</td>
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<td>Median</td>
<td>CD</td>
</tr>
</tbody>
</table>

**Availability Dates**

- All Hardware: May-2003
- HTTPS Software: Mar-2002
- Operating System: Jul-2002
- Supplemental System: Mar-2003

**Hardware**

- Vendor: IBM
- Model: eServer xSeries 235
- Processor: 2.8 GHz Intel Pentium 4
- # Processors: 2 cores, 2 chips, 1 core/chip
- Primary Cache: 12KB L1+8KB on chip
- Secondary Cache: 512KB
- Other Cache: None
- Memory: 6 GB
- Disk Subsystem: 6 36GB 15KRPM Ultra 320 SCSI Drives
- Disk Controllers: On-board LSI controller
- Other Hardware: 1 Extreme Networks Summit 71 GbE Switch

**Software**

- Operating System: Red Hat Linux 7.3
- File System: ext2
- Other Software: None

**HTTPS Software**

- Vendor: Zeus Technology Ltd.
- Model: Zeus V4.2r2
- API: Zeus PEPP 0.8 ISAPI used for Dynamic content
- Server Cache: None
- Log Mode: Zeus CLF

**Test Sponsor**

- Test Date: Apr-2003
- Tested By: IBM
- SPEC License: 11

**Network**

- # of Controllers: 1
- Network Controllers: Integrated Gigabit Ethernet
- # of Nets: 1
- Type of Nets: Gigabit Ethernet
- Network Speed: 1 Gb/s
- MLD (sec): 30 (Non RPC1122)
- Time-Wait (sec): 60 (Non RPC1122)
- MTU: 1500

**Clients**

- # of Clients: 16
- Model: IBM eServer xSeries 330
- Processor: 1133MHz Pentium III
- # of Processors: 1
- Memory: 256MB
- Network Controller: IBM Netfinity Gigabit Ethernet Adapter
- Operating System: Microsoft Windows 2000 Professional w/SP2
- Compiler: Microsoft VC++ v6.0
Benchmark Configuration

Requested Connections: 1740
Fileset Size (MB): 5685.2

===============================================================================
Notes/Tuning information

SUT Notes
2 disk hardware RAID0 for OS and logs
3 disk hardware RAID0 for web pages

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.ipv4.tcp_timestamps = 0, turns TCP timestamp support off, default 1
- net.ipv4.tcp_max_tw_buckets = 324000, sets TCP time-wait buckets pool size, default 180000
- net.core.rmem_max = 10000000, maximum receive socket buffer size, default 65535
- net.core.wmem_max = 10000000, maximum send socket buffer size, default 65535
- net.core.rmem_default = 10000000, default receive socket buffer size, default 65535
- net.core.wmem_default = 10000000, default send socket buffer size, default 65535
- net.core.optmem_max = 10000000, default 10240
- net.core.hz_list_length = 10000, maximum number of skb-heads to be cached, default 128
- net.core.netdev_max_backlog = 20000, default 300
- 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
Kernel is standard default Red Hat Linux (2.4.18-3smp)

HTTPS Software Notes
Zeus Configuration
- tuning!so_wbuff_size 1048576
- tuning!softservers no
- tuning!cbuff_size 65536
- tuning!clientfirst_optimise yes
- tuning!ssl_sessioncache_size 2251
- tuning!sendfile_minsize 1
- tuning!listen_queue_size 8192
- tuning!keepalive_timeout 20
- tuning!keepalive_max 1000
- tuning!maxaccept 64
- tuning!so_rbuff_size 0
- modules!cgi!enabled yes
- modules!isapi!enabled yes
See IBM-Zeus-tuning-20021224.txt for a description of the Zeus tuning parameters
ISAPI Source code is available in the SPECweb99_SSL support docs as HP-20020724-API.tar.gz

===============================================================================
Test Run Details

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<th>Connections</th>
<th>Percent</th>
<th>Throughput</th>
<th>Response</th>
<th>ops/sec</th>
<th>msec</th>
<th>loadgen</th>
<th>sec</th>
<th>Kbits/sec</th>
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<td>ops/sec</td>
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