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>
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<tbody>
<tr>
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<td>3</td>
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</table>

Availability Dates

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

Hardware

- Vendor: Appro
- Model: 4100H
- Processor: AMD Opteron 240, 1.4 GHz
- # Processors: 2 cores, 2 chips, 1 core/chip
- Primary Cache: 64KBI+64KBD
- Secondary Cache: 1MB on chip
- Other Cache: none
- Memory: 16 GB pc2100 DDR
- Disk Subsystem: 3 36GB 15KRPM Ultra 320 SCSI Drives
- Disk Controllers: Onboard LSI SCSI
- Other Hardware: 1 Extreme Networks Summit 5i GbE Switch

Software

- Operating System: SuSE Linux Enterprise Server 8 for AMD64
- File System: ext2
- Other Software: None

HTTPS Software

- Vendor: Zeus Technology Ltd.
- HTTPS Software: Zeus Web Server V4.2r2 (64-bit)
- API: Zeus PEPP 0.8 ISAPI used for Dynamic content
- Server Cache: None
- Log Mode: Binary Log Format

Test Sponsor

- Test Date: Apr-2003
- Tested By: Advanced Micro Devices
- SPEC License: 49

Network

- # of Controllers: 1
- Network Controllers: Intel Pro/1000 MT Dual Port Server Adapter
- # of Nets: 2
- Type of Nets: Gigabit Ethernet
- Network Speed: 1 Gb/s
- MCL (sec): 30 (Non RFC1122)
- Time-Wait (sec): 60 (Non RFC1122)
- MTU: 1500

Clients

- # of Clients: 8
- Model: Tyan Tiger/AMD Athlon MP
- Processor: AMD Athlon MP 1900+
- # of Processors: 2
- Memory: 1024MB
- Network Controller: Intel Pro/1000 XT
- Operating System: Windows 2000 Professional, w/ SP3
- Compiler: Microsoft Visual C++ 6.0
Benchmark Configuration

Requested Connections   1700  
Fileset Size (MB)        5558.32

Notes/Tuning information

SUT Notes
1 U320 15K 36GB SCSI disk for OS
1 U320 15K 36GB SCSI disk for log
1 U320 15K 36GB SCSI disk for fileset

Operating System Notes
One NIC irq bound per CPU
Each NIC's TX queue length set to 8192 via ifconfig, default 100
File systems mounted with "noatime,nodiratime", no inode access time updating

Tuning Parameters:
- net.ipv4.ip_forward = 0
- net.ipv4.conf.all.rc_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 = 2000000, sets TCP time-wait buckets pool size, default 180000
- net.core.rmem_max = 10000000, maximum receive socket buffer size, default 65535
- net.core.rmem_default = 10000000, default receive socket buffer size, default 65535
- net.core.wmem_max = 10000000, maximum send socket buffer size, default 65535
- net.core.wmem_default = 10000000, default send socket buffer size, default 65535
- net.core.optmem_max = 10000000, default 128
- 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
- fs.file-max = 524288, maximum number of open files, default 1024

HTTP/S Software Notes
Zeus Configuration:
  - tuning!bind any no
  - tuning!unique bind yes
  - tuning!cache_cooling_time 0
  - tuning!cache_files 95989
  - tuning!cache_flush_interval 86400
  - tuning!cache_max_bytes 12884901688
  - tuning!cache_stat_expire 86400
  - tuning!cbuff_size 65536
  - tuning!client_first_optimize yes
  - tuning!keepalive_max = 1
  - tuning!keepalive_timeout 20
  - tuning!listen_queue_size 8192
  - tuning!maxaccept 64
  - tuning!modules!cgi!cleansize 0
  - tuning!sendfile no
  - tuning!sendfile_maxsize 0
  - tuning!sendfile_minsize 0
  - tuning!so_wbuf_size 1048576
  - tuning!softservers no
  - tuning!ssl_diskoache no
  - tuning!ssl_session_cache_size 2617
  - tuning!ssl_cipher_size 32840
  - tuning!modules!state!enabled no
  - tuning!modules!ap!enabled no
  - tuning!modules!ap_api!enabled no

Other Zeus 4.2r2 virtual_server performance parameters:
  (%zeushome%/web-4.2r2/runningsites/ssl-64)
    modules!cgi!enable yes
    modules!ap_api!enabled yes

HTTP API Notes
Zeus PEPP configured with command: ./Configure --ssl=yes

Client Notes
Clients require a Tyan Tiger motherboard and an ATX capable case.
Case uses 300W ATX power supply, Clients use a 40G ATA 133 IDE hard drive.
Clients use DDR pc2100 memory.

Other Notes
Tuning Disclosure: See above.
Dynamic API: HP-20020724-API.tgz
Kernel config: AMD-20030401-kernel64-config.txt

Test Run Details

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<th>Conforming Percent</th>
<th>Throughput</th>
<th>Response</th>
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<th>m/sec</th>
<th>loadgen</th>
<th>Kbits/</th>
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