

SPECweb99_SSL Result

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Dell : PowerEdge 1850                ||
Zeus Technology Ltd. : Zeus Web Server 4.2r4  ||      NC SPECweb99_SSL
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SPEC has determined that this result was not in compliance with the SPECweb99_SSL Run and Reporting Rules. Specifically, the implementation of TCP Segmentation Offload (TSO) in the networking stack of the operating system revision used in this result did not follow the slow-start algorithm as required by RFC1122.

PERFORMANCE

Iteration	Conforming Simultaneous Connections
1	NC
2	NC
3	NC
Median	NC

Availability Dates

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All Hardware          Nov-2004
HTTPS Software        Nov-2003
Operating System      Aug-2004
Supplemental System   Nov-2003

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Hardware

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Vendor                Dell
Model                 PowerEdge 1850
Processor             3.6GHz/1MB Intel Xeon
# Processors          2 cores, 2 chips, 1 core/chip (Hyper-Threading enabled)
Primary Cache         12KBI+16KBD on chip
Secondary Cache       1MB(I+D) on chip
Other Cache           N/A
Memory                12 GB
Disk Subsystem        8 36GB 15KRPM drives
Disk Controllers      Onboard SCSI, Adaptec 39160
Other Hardware        Dell PowerConnect 5224

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Software

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Operating System      SUSE LINUX Enterprise Server 9
File System           ext2
Other Software        None

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HTTPS Software

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Vendor                Zeus Technology Ltd.
HTTPS Software        Zeus Web Server 4.2r4 (64 bit)
API                  Zeus PEPP 0.9pre1 ISAPI for Dynamic content
Server Cache         None
Log Mode              Zeus Binary CLF

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Test Sponsor

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Test Date             Aug-2004
Tested By             Dell
SPEC License          55

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Network

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# of Controllers      2
Network Controllers   Dual On-board NICs
# of Nets             2
Type of Nets          Gigabit Ethernet
Network Speed         1 Gb/s
MSL (sec)             30
Time-Wait (sec)       60
MTU                   1500

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Clients

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# of Clients          8
Model                 Dell PowerEdge 1650
Processor             1.4GHz Pentium III
# of Processors       2
Memory                256MB
Network Controller    Onboard NIC
Operating System      Microsoft Windows XP Professional
Compiler              Microsoft Visual C++ 6.0

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Benchmark Configuration

Requested Connections 2510
Fileset Size (MB) 8149.6

Notes/Tuning information

SUT Notes

36GB U320 disk for OS, web server and access log; attached to onboard SCSI
14x18GB U320 disk software RAID0 stripe for file set; attached to 39160

Operating System Notes

ulimit -n 10000, sets number of open files, default 1024
One NIC IRQ bound per logical CPU, default not bound
Each NIC's TX queue length set to 40000 via ifconfig, default 100
Each NIC had TSO enabled via ethtool, default disabled
File systems mounted with "noatime,nodiratime", no inode access time updating
net.ipv4.conf.all.rp_filter = 1, enables source route verification, default disabled
net.ipv4.tcp_timestamps = 0, turns TCP timestamp support off, default on
net.ipv4.tcp_max_tw_buckets = 520000, sets TCP time-wait buckets pool size, default 180000
net.ipv4.tcp_rmem = 30000000 30000000 30000000, sets min/default/max TCP read buffer, default 4096 87380 174760
net.ipv4.tcp_wmem = 30000000 30000000 30000000, sets min/pressure/max TCP write buffer, default 4096 16384 131072
net.ipv4.tcp_mem = 30000000 30000000 30000000, sets min/pressure/max TCP buffer space, default 31744 32256 32768
net.ipv4.tcp_max_syn_backlog = 8192, sets maximum queued connection requests before kernel drops them, default 1024
net.ipv4.tcp_syncookies = 0, disable TCP SYN cookie protection, default enabled
net.core.rmem_max = 10000000, maximum receive socket buffer size, default 131071
net.core.wmem_max = 10000000, maximum send socket buffer size, default 131071
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, maximum amount of option memory buffers, default 10240
net.core.netdev_max_backlog = 300000, number of unprocessed input packets before kernel starts dropping them, default 300
net.core.hot_list_length = 10000, maximum number of skb-heads to be cached, default 128
fs.file-max = 254108, increases number of open file handles kernel allocates, default 4096

HTTPS Software Notes

Zeus tunes (\$ZEUSHOME/web/global.cfg):
tuning!listen_queue_size 8192
tuning!so_wbuff_size 1048576
tuning!so_rbuff_size 0
tuning!maxaccept 2048
tuning!clientfirst_optimise yes
tuning!unique_bind no
tuning!cache_stat_expire 31536000
tuning!cache_max_bytes 0
tuning!cache_flush_interval 31536000
tuning!cache_files 282011
tuning!cache_cooling_time 0
tuning!sendfile yes
tuning!sendfile_minsize 0
tuning!sendfile_maxsize 0
tuning!softservers no
tuning!keepalive_timeout 30
tuning!keepalive_max -1
tuning!ssl_sessioncache_size 6037
tuning!cbuff_size 65536
tuning!isapi!enabled yes
tuning!modules!stats!enabled no
tuning!modules!cgi!enabled yes
tuning!modules!cgi!cleansize 0
tuning!modules!security!enabled yes

Client Notes

manager.ssl.rcp.alt.WIN32, alt.WIN32 client used
Registry tunes: (HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\)
- Tcpip\Parameters\MaxUserPort=0xffff, sets maximum open ports to 65534
- Tcpip\Parameters\TcpTimedWaitDelay=60, sets TIME_WAIT parameter to 60 seconds (non-RFC 1122), default 240
- Tcpip\Parameters\MaxFreeTWTcbs=100000, sets maximum number of TIME_WAIT TCBS
- Tcpip\Parameters\TcpWindowSize=65535, sets TCP send/receive window size, default 8192

Other Notes

Tuning Disclosure: See above.
Dynamic API: HP-20020724-API.tgz

Test Run Details

Table with 8 columns: Run Num, Conforming Connections, Percent Conform, Throughput ops/sec, Response msec, ops/sec/loadgen, Kbits/sec. Contains 3 rows of test results, all showing 'NC' (Not Connected).