

# SPECweb99\_SSL Result

© Copyright 1999-2004, Standard Performance Evaluation Corporation

IBM: IBM eServer p5 570 (1900 MHz, 4 CPU, Linux)  
Zeus Technology Ltd.: Zeus 4.2r3(32bit)

SPECweb99\_SSL =4970

Test Date: Sep-2004  
Tester: IBM

Hardware Avail: Aug-2004 OS Avail: Aug-2004 HTTPS Software Avail: Jul-2003 Sup. Software Avail: Aug-2004 SPEC license #: 11

## Hardware

Vendor: IBM  
Model: IBM eServer p5 570 (1900 MHz, 4 CPU, Linux)  
Processor: 1900 MHz POWER5  
# Processors: 4 cores, 2 chips, 2 cores/chip (SMT on)  
Primary Cache: 64KBI+32KBD (on chip)/core  
Secondary Cache: 1920KB unified (on chip)/chip  
Other Cache: 36MB unified (off-chip)/DCM, 2 DCMs/SUT  
Memory: 32 GB (16 x 2GB)  
Disk Subsystem: 2x36GB (15 KRPM) SCSI  
Disk Controllers: PCI-X Dual channel Ultra320 SCSI controller  
Other Hardware: See SUT notes

## Software

Operating System: SUSE LINUX Enterprise Server 9 for IBM POWER  
File System: ext2  
Other Software: None

## HTTPS Software

Vendor: Zeus Technology Ltd.  
HTTPS Software: Zeus 4.2r3(32bit)  
API: ISAPI  
Server Cache: None  
Log Mode: Binary CLF

## Test Sponsor

Test Date: Sep-2004  
Tested By: IBM  
SPEC License: 11

## Network

# of Controllers: 8  
Network Controllers: 8 IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter  
# of Nets: 8  
Type of Nets: Gigabit Ethernet  
Network Speed: 1 Gb/sec  
MSL (sec): 30 (Non RFC1122)  
Time-Wait (sec): 60 (Non RFC1122)  
MTU: 1500

## Clients

# of Clients: 8  
Model: IBM eServer xSeries 335  
Processor: 2000 MHz Xeon  
# of Processors: 2  
Memory: 1GB  
Network Controller: 1 x BCM5703 Gigabit Ethernet  
Operating System: RedHat 9.0  
Compiler: gcc 3.2.2

## Notes/Tuning Information

### SUT Notes

- 1 SCSI 15K 36GB SCSI disk for OS
- 1 SCSI 15K 36GB SCSI disk for logs and fileset
- 2 x External IO Drawer 7311-D20 used for 6 Gigabit adapters (3 adapters per drawer)
- 2 Gigabit adapters installed in Internal CEC
- 2 IBM Crypto 2058 accelerator cards (1 card per drawer)
- 1 x Cisco 3750-T24 switch

### Operating System Notes

- ulimit -n 1000000, sets number of open files, default 1024
- Each NIC's TX queue length set to 20000 via ifconfig, default 100
- Each NIC's ITR set to 1800 via insmod InterruptThrottleRate=1800, default=dynamic
- log, & fileset partitions mounted with 'noatime,nodiratime,nobh', no inode access time updating, no attach-buffer\_head to file pagecache
- One NIC irq bound per logical CPU
- One Zeus webserver process bound per logical CPU via taskset
- 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 = 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 10240
- net.ipv4.tcp\_rmem = 3000000 30000000 30000000, maximum TCP read-buffer space allocatable, default 4096 87380 174760
- net.ipv4.tcp\_wmem = 3000000 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.core.somaxconn=20480, size of the listen queue for accepting new TCP connections, default 128

# SPECweb99\_SSL Result

© Copyright 1999-2004, Standard Performance Evaluation Corporation

## Notes/Tuning Information (Continued)

### Operating System Notes (Continued)

- net.core.netdev\_max\_backlog=300000, number of unprocessed input packets before kernel starts dropping them, default 300
- IBM Crypto 2058 driver and openCryptoki software come with SuSe SLES 9 distribution
- DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)
- SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of -
- multiple thread contexts within a single processor core. (Enabled by default)

### HTTPS Software Notes

Starts 4 instances of Zeus sharing a common docroot

Zeus 4.2r3 global.cfg:

```
tuning!bind_any no
tuning!cache_files 35023
tuning!cache_large_file 1048576
tuning!cache_small_file 102400
tuning!cache_stat_expire 180000
tuning!cache_flush_interval 180000
tuning!cache_max_bytes 0
tuning!num_children 2
tuning!keepalive yes
tuning!ssl_keepalive yes
tuning!ssl_diskcache no
tuning!ssl_sessioncache_size 5003
tuning!keepalive_timeout 1200
tuning!keepalive_max -1
tuning!listen_queue_size 10240
tuning!cbuff_size 1048576
tuning!multiple_accept yes
tuning!sendfile no
tuning!so_rbuff_size 32768
tuning!softservers no
tuning!unique_bind yes
tuning!use_poll no
tuning!cache_cooling_time 0
tuning!modules!cgi!cleansize 0
tuning!modules!cgi!cbuff_size 921632
tuning!modules!stats!enabled no
tuning!modules!nsapi!enabled no
tuning!clientfirst_optimise yes
tuning!maxaccept 256
tuning!ssl_cbuff_size 32840
tuning!modules!ssld!library libZica.so
tuning!modules!ssld!ica_lib /usr/lib/pkcs11/PKCS11_API.so
tuning!modules!ssld!nworkers 256
tuning!modules!ssld!queuelen 10240
tuning!modules!ssld!failurecount 0 (the number of successive zeus.ssld failures the web server-
-will tolerate before fall back to software permanently, set to 0 so the web server will never-
-fall back to software permanently, and always try to contact zeus.ssld first. default 5)
```

### HTTP API Notes

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

Zeus PEPP compiled with default gcc (v3.3.3)

### Client Notes

Client binary from SPEC SPECweb99\_SSL package  
net.ipv4.ip\_local\_port\_range 1024 65535

# SPECweb99\_SSL Result

© Copyright 1999-2004, Standard Performance Evaluation Corporation

## Notes/Tuning Information (Continued)

### Other Notes

Tuning Disclosure: See above

Dynamic API: HP-20020724-API.tgz

Server kernel config: Standard default SuSe Linux Ent. Server 9 config config-2.6.5-7.97-pseries64