

# SPECweb99\_SSL Result

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IBM: eServer xSeries x306  
Zeus: Zeus V4.2r4

SPECweb99\_SSL = 977

Test Date: Nov-2004  
Tester: IBM

Hardware Avail: Jan-2005 OS Avail: Aug-2004 HTTPS Software Avail: Nov-2003 Sup. Software Avail: Mar-2004 SPEC license #: 11

## Hardware

Vendor: IBM  
Model: eServer xSeries x306  
Processor: 3.4GHz Intel Pentium 4 / 800MHz FSB  
# Processors: 1 core, 1 chip, 1 core/chip (Hyper-Threading enabled)  
Primary Cache: 12KBI+16KBD on chip  
Secondary Cache: 1 MB  
Other Cache: NA  
Memory: 4 x 1GB PC3200 SDRAM unbuffered  
Disk Subsystem: 1 x 75GB Serial ATA Drive  
35 x 36GB Ultra320 15KPM Fibre Channel Drives  
Disk Controllers: Integrated IBM ServeRAID-7e controller  
IBM TotalStorage DS4400  
Other Hardware: 1 Nortel 8010 GbE Switch  
3 EXP700 Total Storage Expansion Unit

## Software

Operating System: SuSE Linux Enterprise Server 9 32bit  
File System: ext2  
Other Software: GCC 3.3.3

## HTTPS Software

Vendor: Zeus  
HTTPS Software: Zeus V4.2r4  
API: Zeus PEPP 0.8 ISAPI used for Dynamic content  
Server Cache: None  
Log Mode: Zeus Binary CLF

## Test Sponsor

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

## Network

# of Controllers: 2  
Network Controllers: Intel PRO/1000 CT Network Connection  
IBM 82541GI/PI GbEnet Controller  
# of Nets: 2  
Type of Nets: Gigabit Ethernet  
Network Speed: 1 Gb/s  
MSL (sec): 30 (Non RFC1122)  
Time-Wait (sec): 60 (Non RFC1122)  
MTU: 1500

## Clients

# of Clients: 4  
Model: IBM eServer xSeries 335  
Processor: 3.06GHz Intel Xeon  
# of Processors: 2  
Memory: 2GB  
Network Controller: IBM NetXtreme BCM5703 Gigabit Ethernet Adapter  
Operating System: SuSE Linux Professional 9  
Compiler: GCC 3.3.1

## Notes/Tuning Information

### SUT Notes

1 x 75GB onboard Serial ATA drive configured with EXT2 for OS and web server  
Hyper-Threading enabled  
Memory configuration 4 x 1GB PC3200 SDRAM unbuffered DIMMs  
Hardware RAID0 stripe over 20 x 36GB disks for fileset  
Enable read cache  
cache read ahead multiplier for fileset = 3, default 0  
Hardware RAID0 stripe over 7 x 36GB disks for httplog  
Hardware RAID0 stripe over 8 x 36GB disks for logs  
Enable write cache for httplog and logs

### Operating System Notes

Tuning parameters:  
- net.ipv4.ip\_forward=1, 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 = 2000000, sets TCP time-wait buckets pool size, default 180000  
- 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.core.hot\_list\_length = 10000, maximum number of skb-heads to be cached, default 128  
- net.ipv4.tcp\_rmem = 3000000 3000000 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 = 3000000 30000000 30000000, maximum TCP buffer space, default 31744 32256 32768  
- fs.file-max = 102400, maximum number of open files, default 1024  
- net.ipv4.ip\_local\_port\_range 1024 65536

For more  
Information  
Contact

SPEC

info@spec.org  
http://www.spec.org

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## 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"
- Kernel is default SuSE Linux Enterprise Server 9
- Each NIC IRQ bound to a separate processor
- Each NIC's TX queue length set to 40000 via ifconfig, default 100
- Log & fileset partition mounted with "noatime,nodiratime,nocheck", no inode access time updating
- ulimit -n 102400, default 1024

### 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 7507
- tuning!listen\_queue\_size 8192
- tuning!keepalive yes
- tuning!keepalive\_timeout 360
- tuning!multiple\_accept yes
- tuning!keepalive\_max -1
- tuning!maxaccept 2048
- tuning!num\_children 2
- tuning!unique\_bind no
- tuning!bind\_any yes
- tuning!modules!cgi!enabled yes
- tuning!isapi!enabled yes
- modules!security!enabled yes
- tuning!max\_connections 3000

Virtual Server Configuration

- ip\_name = server
- bindaddr = 192.0.1.100,192.0.2.100

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

### HTTP API Notes

Zeus ISAPI interface used

Zeus PEPP 0.8 ISAPI used for Dynamic content

./Configure --ssl=yes --checkconfig=yes

### Client Notes

Client code generated with ./configure --enable-posix-threads

net.ipv4.ip\_local\_port\_range 1024 65535