# SPECweb99_SSL Result

**IBM: pSeries 630 Model 6E4**  
Zeus Technology Ltd.: Zeus 4.2r1

**Hardware**
- **Vendor:** IBM  
- **Model:** pSeries 630 Model 6E4  
- **Processor:** 1450MHz POWER4+  
- **# Processors:** 4 cores, 1 chip, 2 cores/chip, 1 chip/SCM  
- **Primary Cache:** 64KBI+32KBD (on chip) per core  
- **Secondary Cache:** 1536KB(I+D) unified (on chip) per chip  
- **Other Cache:** 8MB unified (off chip)/SCM, 2SCM in SUT  
- **Memory:** 32 GB  
- **Disk Subsystem:** 2x18.2GB (10KRPM) 16Bit SCSI Disk  
- **Disk Controllers:** Wide/Ultra-2 SCSI I/O Controller  
- **Other Hardware:** 4 x Alteon ACESwitch 180

**Operating System:** AIX 5L V5.2(64bit)  
**File System:** JFS2  
**Other Software:** None

**Software**
- **Vendor:** Zeus Technology Ltd.  
- **HTTPS Software:** Zeus 4.2r1  
- **API:** ISAPI  
- **Server Cache:** None  
- **Log Mode:** Binary CLF

**Test Sponsor**
- **Test Date:** Feb-2003  
- **Tested By:** IBM  
- **SPEC License:** 11

**Network**
- **# of Controllers:** 4  
- **Network Controllers:** 4 IBM Gigabit Ethernet-SX PCI-X Adapter(14106802)  
- **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 pSeries 640 Model B80  
- **Processor:** 375 MHz POWER3-II  
- **Memory:** 4GB  
- **Network Controller:** 1 Gigabit Ethernet-SX PCI Adapter (14100401)  
- **Operating System:** AIX 5.2  
- **Compiler:** IBM Cset++ Version 5.1

**Notes/Tuning Information**

**SUT Notes**
- APAR IY35693 was applied to AIX 5L V5.2  
- bindintcpu [interrupt level] [cpu] (Interrupt affinity - bind 4 Ethernet interrupts to 4 cpu's(1 interrupt to 1 cpu))  
- bindprocessor [processor] [cpu] (Process affinity - bind 4 Zeus child processes to 4 CPU's(1 process to 1 cpu))  
- maxpgahead=64 (the maximum number of pages to be read ahead, default=8)  
- minperm=5% (the point below which the page-stealer will steal file of computational pages, default=20%)  
- maxperm=95% (the point above which the page stealing algorithm steals only file page, default=80%)  
- 4 different logs for 4 zeus instances (1 log per zeus instance)  
- Disk layout: 1 disk for OS, 1 disk for webserver, 14 disks striped for file_set, 2 disks web logfile)  
- Set Gigabit Ethernet driver attribute rxdesc_que_sz=512 (set RX descriptor queue size, default=1024)  
- Set Gigabit Ethernet driver attribute rxbuf_pool_sz=512 (set Receive buffer pool size, default=1024)  
- Set Gigabit Ethernet driver attribute copy_bytes=256 (copy packet into contiguous buffer on transmit if this many or less bytes, default=2048)  
- no (network option) tuning:  
  - no -o tcp_sendspace=65536 (default socket send buffer size, default=16384)  
  - no -o tcp_recspace=65536 (default socket receive buffer size, default=16384)  
  - no -o somaxconn=10240 (max listen backlog, default=1024)  
  - no -o tcp_timewait=5 (ensure that TIME_WAIT is at least 60 seconds, default=1)  
  - no -o tcp_newreno=0 (disables the modification to TCP's Fast Recovery algorithm as described in RFC 2582, default=1)  
  - no -o tcp_inpcb_ha”,”sh_tab_siz=128021 (increase TCP PCB hash table size, default=24499)  
- SCM stands for Single Chip Module

**HTTP API Notes**
Zeus PEPP-06 SPECweb99 toolkit used for dynamic content  
post.log in weblog directory instead of doc_root  
./Configure --sendfile=no --locking=semop  
Compiled with IBM VAC 5.0.1
HTTP API Notes (Continued)

CFLAGS = -q64 -qlargetype -O2 -qmaxmem=8192
LDFLAGS = -q64 -qlargetype -bnoentry -Wl -G -bexpall -bM:SRE -lc -lbsd

Client Notes

no (network option) tuning:
no -o delayack=3(delay ack for connection setup and shutdown,default=0)
no -o delayackports={443} (delay ack ports,default={})
no -o tcp_timewait=5 (ensure that TIME_WAIT is at least 60 seconds,default=1)
no -o tcp_sendspace=65536 (default socket send buffer size, default=16384)
no -o tcp_recvspace=65536 (default socket receive buffer size, default=16384)
AIX (thread-scheduling option) tuning:
AIXTHREAD_SCOPE=S (AIX pthread environment variable, set all threads have system based contention scope, [1:1], default=P{8:1})
AIXTHREAD_SLP_RATIO=11 (AIX pthread environment variable, controls the number of kernel threads that should be held in reserve for sleeping threads, default={12:1})
YIELDLOOPTIME=1000 (AIX pthread environment variable, controls the number of times to yield the processor before blocking on a busy lock, default=0)

Other Notes

Starts 4 unique instances of Zeus sharing a common docroot
Each Zeus child process was bound to the processor corresponding to its NIC
Zeus 4.2r1 global.cfg (one per instance)
tuning!bind_any no
tuning!cache_files 50021
tuning!cache_large_file 1048576
tuning!cache_small_file 4096
tuning!cache_stat_expire 180000
tuning!cache_flush_interval 180000
tuning!cache_max_bytes 0
tuning!num_children 1
tuning!keeplive yes
tuning!ssl_keeplive yes
tuning!ssl_diskcache no
tuning!ssl_sessioncache_size 1031
tuning!keeplive_timeout 300
tuning!keeplive_max -1
tuning!listen_queue_size 9216
 tuning!cbuff_size 1048576
tuning!multiple_accept yes
tuning!max_connections 1031
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
Zeus_Site_Configuration (one per instance):
 modules!cgi!enabled yes
 modules!isapi!enabled yes
 bindaddr ip_addrl
Tuning Disclosure: IBM-20011019.txt
Dynamic API: IBM-20011019_2-API.tar.gz