# SPECweb99 Result

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## IBM: IBM eServer pSeries 660 Model 6H0 (750MHz)
## Zeus Technology Ltd.: Zeus 4.0

SPECweb99 = 5480

Test Date: Mar-2002
Tester: IBM

| Hardware Avail: | Apr-2002 | OS Avail: | Apr-2002 | HTTP Software Avail: | Oct-2001 | Sup. Software Avail: | Apr-2002 | SPEC license #: | 11 |
|---|---|---|---|---|---|---|---|---|---|

### Hardware

| | |
|---|---|
| Vendor: | IBM |
| Model: | IBM eServer pSeries 660 Model 6H0 (750MHz) |
| Processor: | 750MHz RS64 IV |
| # Processors: | 4 cores, 4 chips, 1 core/chip |
| Primary Cache: | 128KBI+128KBD on chip |
| Secondary Cache: | 8MB(I+D) off chip |
| Other Cache: | None |
| Memory: | 32 GB |
| Disk Subsystem: | 1x9.1GB 16Bit SCSI Disk<br>12x18.2 SSA Disk(fast-write enabled) |
| Disk Controllers: | Wide/Ultra-2 SCSI I/O Controller,<br>IBM SSA 160 SerialDisk Adapter |
| Other Hardware: | 5 x Alteon ACESwitch 180 |

### Software

| | |
|---|---|
| Operating System: | AIX 5L V5.1(64bit) |
| File System: | JFS |
| Other Software: | None |

### HTTP Software

| | |
|---|---|
| Vendor: | Zeus Technology Ltd. |
| HTTP Software: | Zeus 4.0 |
| API: | ISAPI |
| Server Cache: | FRCA (Fast Response Cache Accelerator) |
| Log Mode: | Binary CLF for Zeus, CLF for FRCA |

### Test Sponsor

| | |
|---|---|
| Test Date: | Mar-2002 |
| Tested By: | IBM |
| SPEC License: | 11 |

### Network

| | |
|---|---|
| # of Controllers: | 8 |
| Network Controllers: | 8 IBM Gigabit Ethernet-SX PCI 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: | 24 |
| Model: | IBM eServer pSeries 640 Model B80 |
| Processor: | 375 MHz POWER3-II |
| # of Processors: | 4 |
| Memory: | 4096MB |
| Network Controller: | 1 IBM Gigabit Ethernet-SX PCI Adapter |
| Operating System: | AIX 4.3.3 |
| Compiler: | IBM VAC 5.0.1 |

## Notes/Tuning Information

### SUT Notes

APAR IY28102 was applied to AIX 5L V5.1
bosdebug -H (enables secondary thread on the processor)
bindintcpu [interrupt level] [cpu] (Interrupt affinity - bind 8 Ethernet interrupts to 4 cpu's(2 interrupt to 1 cpu))
maxpgahead=32(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) for dynamic requests
frca-log.N (once the frca-log.N reaches 1GB, a new frca-log.N+1 is generated) for static requests
Disk layout: 1 disk for OS, 1 disk for webserver, 10 disks striped for file_set, 1 disks for web logfile)
Set Gigabit Ethernet driver attribute copy_bytes=256 (copy packet into contiguous buffer on transmit if this many or less bytes, defult=2048)
Set Gigabit Ethernet driver attribute large_send=yes (turn on large_send capability of TCPIP, default=no)
frcactrl pctonintr 100 (frca set to allow 100% cpu time on interrupt, default=90)
frcactrl revaltimeout 100000 (set frca revalidation timeout to 100,000 seconds, default=300 seconds)
no(network option) tuning:
no -o tcp_sendspace=131072(default socket send buffer size, default=16384)
no -o tcp_recvspace=65536(default socket receive buffer size, default=16384)
no -o send_file duration=100000(cached send_file expiration time, default=300)
no -o somaxconn=10240(max listen backlog, default=1024)
no -o nbc_max_cache=409600(max file size for network buffer cache, default=131072)
no -o nbc_pseg=800000(max file entries in private segment,default=0)
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)

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## Notes/Tuning Information (Continued)

### HTTP API Notes

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

### Client Notes

APAR IY17356 was applied to AIX 4.3.3
no (network option) tuning:
no -o delayack=3(delay ack for connection setup and shutdown,default=0)
no -o delayackports={80}(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)

### Other Notes

Starts 4 unique instances of Zeus sharing a common docroot
The 2 child iprocesses of each Zeus instance bind to two unique IP address
Zeus 4.0 global.cfg (one per instance)
tuning!bind_any no
tuning!cache_files 100003
tuning!cache_large_file 9216
tuning!cache_small_file 4096
tuning!cache_stat_expire 180000
tuning!cache_flush_interval 180000
tuning!cache_max_bytes 0
tuning!num_children 2
tuning!keepalive yes
tuning!keepalive_timeout 1000
tuning!keepalive_max -1
tuning!listen_queue_size 9216
tuning!cbuff_size 1048576
tuning!multiple_accept yes
tuning!sendfile yes
tuning!sendfile_maxsize 1048576
tuning!sendfile_minsize 4096
tuning!sendfile_reservefd 31991
tuning!so_nagle_off 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!stats!enabled no
tuning!modules!nsapi!enabled no
tuning!accelerator!frca!enabled yes
tuning!accelerator!frca!log!enabled yes
tuning!accelerator!frca!log!filename /weblog/log/frca-log
tuning!accelerator!frca!log!format CLF
tuning!accelerator!frca!maxsize 1048576
tuning!accelerator!frca!minsize 100
Zeus_Site_Configuration (one per instance):
modules!cgi!enabled yes
modules!isapi!enabled yes
bindaddr ip_addr1, ip_addr2
Tuning Disclosure: IBM-20011019.txt
Dynamic API: IBM-20011019_2-API.tar.gz