SPECweb99 Result

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IBM: IBM pSeries 660 Model 6M1 (750MHz)
Zeus Technology Ltd.: Zeus 4.0

SPECweb99 = 10000

Test Date: Mar-2002
Tester: IBM

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

Hardware

Vendor:	IBM
Model:	IBM pSeries 660 Model 6M1 (750MHz)
Processor:	750MHz RS64 IV
# Processors:	8 cores, 8 chips, 1 core/chip
Primary Cache:	128KBI+128KBD on chip
Secondary Cache:	8MB(I+D) off chip
Other Cache:	None
Memory:	64 GB
Disk Subsystem:	1x9.1GB 16Bit SCSI Disk 16x18.2 SSA Disk(fast-write enabled)
Disk Controllers:	Wide/Ultra-2 SCSI I/O Controller IBM SSA 160 SerialDisk Adapter
Other Hardware:	10 x Alteon ACESwitch 180

Software

Operating System:	AIX 5L V5.1(64bit)
File System:	JFS and JFS2
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
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SPEC License:	11

Network

# of Controllers:	12
Network Controllers:	12 IBM Gigabit Ethernet-SX PCI Adapter
# of Nets:	12
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:	36
Model:	IBM eServer pSeries 640 Model B80
Processor:	375 MHz POWER3-II
# of Processors:	4
Memory:	4096MB
Network Controller:	1 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 first 8 Ethernet interrupts to 8 cpu's, the other 4 interrupts are not bound to any 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%)
9 different logs for 9 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, 13 disks striped for file_set, 2 disks web logfile)
Zeus doc_root using JFS2; OS, webserver, weblog using JFS
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 1000000 (set frca revalidation timeout to 100,000,0 seconds, default=300 seconds)
no(network option) tuning:
no -o tcp_sendspace=65536(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=102400(max file size for network buffer cache, default=1048576)
no -o nbc_pseg=1000000(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)
Used 1 external 7026-F/C6324 I/O drawer (3 adapters each).
Used 3 external 7026-F/C6325 I/O drawers (3 adapters each).

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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 9 unique instances of Zeus sharing a common docroot
First 8 instances each has 1 child process(1 IP address per child). The 9th instance has 4 child processes(4 IP addresses).
Zeus 4.0 global.cfg (one per instance)
tuning!bind_any no
tuning!cache_files 74017
tuning!cache_large_file 5120
tuning!cache_small_file 5120
tuning!cache_stat_expire 180000
tuning!cache_flush_interval 180000
tuning!cache_max_bytes 0
tuning!num_children 1
tuning!keepalive yes
tuning!keepalive_timeout 1000
tuning!keepalive_max -1
tuning!listen_queue_size 10240
tuning!cbuff_size 65536

tuning!multiple_accept yes
tuning!sendfile yes
tuning!sendfile_maxsize 1048576
tuning!sendfile_minsize 5120
tuning!sendfile_reservefd 25013
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
Tuning Disclosure: IBM-20011019.txt
Dynamic API: IBM-20011019_2-API.tar.gz