SPECweb99_SSL Result

© Copyright 1999-2004, Standard Performance Evaluation Corporation

IBM: eServer xSeries 365
Zeus: Zeus V4.2r2

SPECweb99_SSL =2616

Test Date: Feb-2004
Tester: IBM

Hardware Avail:	Mar-2004	OS Avail:	Oct-2003	HTTPS Software Avail:	Dec-2003	Sup. Software Avail:	Mar-2003	SPEC license #:	11

Hardware

Vendor:	IBM
Model:	eServer xSeries 365
Processor:	3.0GHz Intel Xeon MP
# Processors:	4 cores, 4 chips, 1 core/chip (Hyper-Threading enabled)
Primary Cache:	12KBI+8KBD on chip
Secondary Cache:	512KB
Other Cache:	4MB L3 cache
Memory:	16 GB
Disk Subsystem:	15 36GB 15KRPM Ultra 320 SCSI Drives
Disk Controllers:	On-board LSI controller
Other Hardware:	1 Nortel Networks Switch 1 IBM EXP400 disk enclosure

Software

Operating System:	Red Hat Enterprise Linux 3.0
File System:	ext2
Other Software:	GCC 2.96

HTTPS Software

Vendor:	Zeus
HTTPS Software:	Zeus V4.2r2
API:	Zeus PEPP 0.8 ISAPI used for Dynamic content
Server Cache:	None
Log Mode:	Zeus Binary CLF

Test Sponsor

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

Network

# of Controllers:	4
Network Controllers:	Intel PRO 1000 MT Dual Port Server Adapter
# of Nets:	8
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:	24
Model:	IBM eServer xSeries 330
Processor:	933Mhz Pentium III
# of Processors:	1
Memory:	512MB
Network Controller:	IBM Netfinity Gigabit Ethernet Adapter
Operating System:	Red Hat Linux 7.3
Compiler:	GCC 2.96

Notes/Tuning Information

SUT Notes

1 U320 15K 36GB SCSI disk with EXT2 for OS
Software RAID0 stripe over 4 disks attached to external LSI channel & 3 disks attached to internal LSI channel for fileset
Software RAID0 stripe over 4 disks attached to external LSI channel & 3 disks attached to internal LSI channel for logs
Memory configuration 8 x 2GB PC2100 DIMMs
Hyper-Threading enabled
Adjacent Sector Prefetch enabled in BIOS, default disabled

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.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 = 30000000 30000000 30000000, maximum TCP read-buffer space allocatable, default 4096 87380 174760
- net.ipv4.tcp_wmem = 30000000 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
- fs.file-max = 524288, maximum number of open files, default 1024
- net.ipv4.ip_local_port_range 1024 65536
- net.core.netdev_max_backlog=300000, number of unprocessed input packets before kernel starts dropping them, default 300
- net.ipv4.tcp_max_tw_buckets = 2000000, set TCP time-wait bucket pool size, default 180000

Kernel is Red Hat Linux (2.4.21-4.EL-lsi4). See IBM-20040228-x365-config.txt
Each NIC IRQ bound to a seperate logical processor

© Copyright 1999-2004, Standard Performance Evaluation Corporation

Notes/Tuning Information (Continued)

Operating System Notes (Continued)

Each NIC's TX queue length set to 40000 via ifconfig, default 100
Log & fileset partition mounted with "noatime,nodiratime", no inode access time updating
ulimit -n 254108, 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 9109
- tuning!sendfile yes
- tuning!sendfile_minsize 1
- tuning!sendfile_maxsize 2147483647
- tuning!listen_queue_size 8192
- tuning!keepalive_timeout 20
- tuning!keepalive_max 8000
- tuning!maxaccept 64
- tuning!num_cgid 8
- tuning!unique_bind yes
- tuning!bind_any no
- tuning!modules!cgi!enabled yes
- tuning!isapi!enabled yes
- modules!security!enabled yes

Virtual Server Configuration
- ip_name = server
- bindaddr = 192.0.1.100,192.0.2.100,192.0.3.100,192.0.4.100,192.0.5.100,192.0.6.100,192.0.7.100,192.0.8.100

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 --64bit=no --sendfile=yes

Network Notes

Networking Tunable Parameters:
e1000 parameter: TxIntDelay = 32, change transmit interrupt delay, default 64

Client Notes

Client code generated with ./configure --enable-posix-threads
net.ipv4.ip_local_port_range 1024 65535