SPECweb99 Result

Fujitsu Siemens Computers: Primergy RX300
Red Hat: RHCA 2.2(2.2.9-1)

SPECweb99 =	6396
Test Date:	Jul-2003
Tester:	Fujitsu Siemens

Hardware Avail:	OS Avail:	HTTP Software Avail:	Sup. Software Avail:	SPEC license #:
Sep-2003	Nov-2002	Nov-2002	Jan-2003	22

Hardware

Vendor:	Fujitsu Siemens Computers
Model:	Primergy RX300
Processor:	3.06GHz Intel Xeon
# Processors:	2 cores, 2 chips, 1 core/chip (Hyper-Threading enabled)
Primary Cache:	12KBI+8KBD on chip
Secondary Cache:	512KB
Other Cache:	1MB L3 cache
Memory:	12 GB
Disk Subsystem:	5x18 GB Seagate ST318452LC
Disk Controllers:	Onboard Adaptec 7902 (1 channel)
Other Hardware:	BX300 Blade: 4 Broadcom Switches

Software

Operating System:	Red Hat Linux 8.0(2.4.18-24)
File System:	ext2
Other Software:	NIC driver e1000-5.0.43 gcc-3.2 (2002-09-03)

HTTP Software

Vendor:	Red Hat
HTTP Software:	RHCA 2.2(2.2.9-1)
API:	RHCA user API
Server Cache:	none
Log Mode:	Binary CLF

Test Sponsor

Test Date:	Jul-2003
Tested By:	Fujitsu Siemens
SPEC License:	22

Network

# of Controllers:	2
Network Controllers:	Intel PRO/1000 MT dual (PCI-X)
# of Nets:	4
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:	20
Model:	Primergy BX300 Blade
Processor:	933MHz Pentium III
# of Processors:	2
Memory:	1024 MB
Network Controller:	Broadcom NetXtreme onboard
Operating System:	MS Windows 2000 Server (SP3)
Compiler:	--

Notes/Tuning Information

SUT Notes

1 disk for OS
4 disk for 'specweb' (file_set, logs),software RAID0
- using 2MB chunk size for the raid array (/etc/raidtab: default 64k)
set noatime,nodiratime,nocheck for specweb mount (etc/fstab):
- noatime/nodiratime: Do not update inode access times on this file system.
- nocheck: No checking is done. ("no check on mount")
Hyper-Threading enabled

Operating System Notes

ulimit -n 10000, sets number of open files, default 1024
/proc/sys/net
- core.optmem_max=10000000, maximum amount of option memory buffers, default 10240
- core.rmem_default=10000000, default receive socket buffer size, default 65535
- core.rmem_max=10000000, maximum receive socket buffer size, default 131071
- core.wmem_default=10000000, default send socket buffer size, default 65535
- core.wmem_max=10000000, maximum send socket buffer size, default 131071
- core.hot_list_length=300000, maximm number of skb-heads to be cached, default 128
- core.netdev_max_backlog=300000, number of unprocessed input packets before kernel starts dropping them, default 300
- ipv4.tcp_max_tw_buckets=2000000, set TCP time-wait buckets pool size, default 180000
- ipv4.tcp_rmem=30000000 30000000 30000000, maximum TCP read-buffer space allocatable, default 4096 87380 174760
- ipv4.tcp_wmem=30000000 30000000 30000000, maximum TCP write-buffer space allocatable, default 4096 16384 131072
- ipv4.tcp_mem=30000000 30000000 30000000, maximum TCP buffer space allocatable, default 195584 196096 196608
- ipv4.tcp_timestamps=0, turns TCP timestamp support off, default on
- ipv4.tcp_dsack=0, turns DSACK support off, default on
- ipv4.tcp_sack=0, turns SACK support off, default on
- ipv4.tcp_window_scaling=0, turns TCP window scaling support off, default on

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Notes/Tuning Information (Continued)

Operating System Notes (Continued)

- ipv4.ip_forward=1, default off
Kernel parameters:
- idle=poll, idle threads poll reschedule flag, default: use HLT instruction

HTTP Software Notes

/etc/sysconfig/tux:
- DOCROOT=/specweb, default: /var/www/html
- CGI_UID=99, userid for cgi scripts; default: -1
- CGI_GID=99, groupid for cgi scripts; default: -1
- CGIROOT=/, cgi root check; default: /var/www/html
- TUXMODULES=CAD_u.tux, list of user-space TUX modules
- MODULEPATH=/, path to user-space TUX modules
/proc/sys/net
- tux.mode_allowed=255, allowed file permission bits; default: 4
- tux.mode_forbidden=2, forbidden file permission bits; default: 0
- tux.logging=1, enable logging; default: off (0)
- tux.logfile=/specweb/log/tux, TUX logfile; default: /var/log/tux
- tux.max_connect=50000, default: 1000
- tux.max_backlog=3000, max size of SYN backlog (TUX listening socket); default: 2048
- tux.generate_etags=0, no ETag header; default: 1
- tux.generate_last_mod=0, no last modified header; default: 1
- tux.noid=1, no server ID string; default: 0
- tux.cgi_inherit_cpu=1, CGI scripts inherit the CPU-binding; default: off (0)
/proc/net
- tux.0.listen.0=http://10.100.1.100:80, tie NIC to 1. TUX thread, default 0
- tux.1.listen.0=http://10.100.2.100:80, tie NIC to 2. TUX thread, default 0
- tux.2.listen.0=http://10.100.3.100:80, tie NIC to 3. TUX thread, default 0
- tux.3.listen.0=http://10.100.4.100:80, tie NIC to 4. TUX thread, default 0
/etc/tux.mime.types
- uncomment: TUX/redirect, TUX/CGI, TUX/module

HTTP API Notes

Archived in 'Fujitsu-Siemens-20030526-tux.tar'
- CAD_u.c, DYN_get_script.c, dof (compiler flags)
- config.tux, config.kernel

Network Notes

Intel PRO/1000 MT Server Adapter
(insmod e1000 eth0 eth1 eth2 eth3)
- FlowControl=0 (off), default read settings from the EEPROM
- RxDescriptors=768, default 256
- TxDescriptors=4096, default 256
(ifconfig eth0 eth1 eth2 eth3)
- txqueuelen=20000, transmit queue length; default 100
/proc/irq
- 20.smp_affinity=00000001, lock IRQ of NIC to 1. processor; default 0xffffffff
- 21.smp_affinity=00000002, lock IRQ of NIC to 2. processor; default 0xffffffff
- 22.smp_affinity=00000004, lock IRQ of NIC to 3. processor; default 0xffffffff
- 23.smp_affinity=00000008, lock IRQ of NIC to 4. processor; default 0xffffffff

Client Notes

NDIS registry tuning parameters [HKLMSystemCurrentControlSetServicesNDISParameters]:
- ProcessorAffinityMask=0, default 1 (any processor)

TCP/IP registry tuning parameters [HKLMSystemCurrentControlSetServicesTcpipParameters]:
- MaxHashTableSize=0x4000, sets TCB hash table size to 16384 entries, default is 512.
- TcpTimedWaitDelay=0x3c, sets TIME_WAIT parameter to 60 seconds (non-RFC 1122), default is 240.

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Notes/Tuning Information (Continued)

Client Notes (Continued)

- MaxFreeTwTcbs=400000, sets maximum number of TIME_WAIT tcbs to 400,000.
- MaxFreeTcbs=0x16000, sets number of cached (pre-allocated) TCBs, default 1000
- MaxUserPort=0xfffe, sets maximum open ports to 65534.
- TcpWindowSize=65535, sets TCP send/receive window size, default 8192.
- NumTcbTablePartitions=32, sets number of independent TCB table segments, default 4.