

# SPECweb99 Result

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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: Sep-2003 OS Avail: Nov-2002 HTTP Software Avail: Nov-2002 Sup. Software Avail: Jan-2003 SPEC license #: 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, maximum 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 [HKLM\System\CurrentControlSet\Services\NDIS\Parameters]:
- ProcessorAffinityMask=0, default 1 (any processor)
  
- TCP/IP registry tuning parameters [HKLM\System\CurrentControlSet\Services\Tcpip\Parameters]:
- 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=0xffff, 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.