

# SPECweb99 Result

© Copyright 1999, Standard Performance Evaluation Corporation

Fujitsu Siemens Computers: PRIMERGY TX300 S2  
Red Hat: RHCA 3.2(3.2.19-2)

SPECweb99 = 9540

Test Date: Jan-2005  
Tester: Fujitsu Siemens

Hardware Avail: Mar-2005 OS Avail: Sep-2004 HTTP Software Avail: Sep-2004 Sup. Software Avail: Sep-2004 SPEC license #: 22

## Hardware

Vendor: Fujitsu Siemens Computers  
Model: PRIMERGY TX300 S2  
Processor: 3.60GHz Intel Xeon  
# Processors: 2 cores, 2 chips, 1 core/chip (Hyper-Threading enabled)  
Primary Cache: 12KBI+16KBD on chip  
Secondary Cache: 2048KB  
Other Cache: --  
Memory: 16 GB  
Disk Subsystem: 14x18 GB Fujitsu MAS3184NC  
Disk Controllers: LSI MegaRAID 2x  
Other Hardware: Primergy S30 (via channel 0)  
BX300 Blade: 4 Broadcom Switches

## Software

Operating System: RH Linux EL3(2.4.21-27)  
File System: ext2  
Other Software: LSI driver megaraid-2.10.8.2-1  
NIC driver e1000-5.5.4  
gcc-3.2.3-47

## HTTP Software

Vendor: Red Hat  
HTTP Software: RHCA 3.2(3.2.19-2)  
API: RHCA user API  
Server Cache: none  
Log Mode: Binary CLF

## Test Sponsor

Test Date: Jan-2005  
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 XP Prof.(SP1)  
Compiler: --

## Notes/Tuning Information

### SUT Notes

- 1 disk for OS
- 13 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")

### 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=5000, 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

# SPECweb99 Result

© Copyright 1999, Standard Performance Evaluation Corporation

## Notes/Tuning Information (Continued)

### Operating System Notes (Continued)

- `ipv4.tcp_window_scaling=0`, turns TCP window scaling support off, default on
- `ipv4.ip_forward=1`, default off
- `/proc/sys/vm`
  - `dcache_priority=1000000`, lowers #entries zapped from dcache each iteration, default 0
- 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-20050201-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`
  - `52.smp_affinity=00000001`, lock IRQ of NIC to 1. processor; default 0xffffffff
  - `53.smp_affinity=00000002`, lock IRQ of NIC to 2. processor; default 0xffffffff
  - `54.smp_affinity=00000004`, lock IRQ of NIC to 3. processor; default 0xffffffff
  - `55.smp_affinity=00000008`, lock IRQ of NIC to 4. processor; default 0xffffffff
  - `irqbalance --noethernet`; default `irqbalance`

# SPECweb99 Result

© Copyright 1999, Standard Performance Evaluation Corporation

## Notes/Tuning Information (Continued)

### 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.
- 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.