

# SPECweb99 Result

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Dell: PowerEdge 2650  
Red Hat: Red Hat Content Accelerator 3.2

SPECweb99 = 7800

Test Date: Jan-2004  
Tester: Dell

Hardware Avail: Feb-2004 OS Avail: Oct-2003 HTTP Software Avail: Oct-2003 Sup. Software Avail: Oct-2003 SPEC license #: 55

## Hardware

Vendor: Dell  
Model: PowerEdge 2650  
Processor: 3.20GHz Intel Xeon Processor DP  
# Processors: 2 cores, 2 chips, 1 core/chip (Hyper-Threading enabled)  
Primary Cache: 12KBI+8KBD on chip  
Secondary Cache: 512KB  
Other Cache: 2MB L3  
Memory: 12 GB  
Disk Subsystem: 2 36GB, 14 18GB 15KRPM drives  
Disk Controllers: Onboard Adaptec SCSI, LSI 21320-IS  
Other Hardware: Dell PowerConnect 5224  
Dell PowerVault 220S

## Software

Operating System: Red Hat Enterprise Linux AS 3  
File System: ext2  
Other Software: None

## HTTP Software

Vendor: Red Hat  
HTTP Software: Red Hat Content Accelerator 3.2  
API: RHCA API  
Server Cache: None  
Log Mode: Binary CLF

## Test Sponsor

Test Date: Jan-2004  
Tested By: Dell  
SPEC License: 55

## Network

# of Controllers: 2  
Network Controllers: Intel PRO/1000 MT Dual Port Server Adapters  
# 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: 16  
Model: Dell PowerEdge 1650  
Processor: 1.4GHz Pentium III  
# of Processors: 2  
Memory: 256MB  
Network Controller: Onboard Intel 82544EI  
Operating System: Microsoft Windows XP  
Compiler: Microsoft Visual C++ 6.0

## Notes/Tuning Information

### SUT Notes

1 disk for OS, 1 disk logs; attached to onboard SCSI  
14-disk SW RAID-0 stripe for file set; attached to LSI adapter  
Hyper-Threading enabled, Sequential Memory Access disabled

### Operating System Notes

ulimit -n 10000, sets number of open files, default 1024  
One NIC IRQ bound per logical CPU; timer and LSI (file set) IRQs bound to CPU 1, default 0  
Each NIC's TX queue length set to 20000 via ifconfig, default 100  
File systems mounted with "noatime,nodiratime", no inode access time updating  
net.ipv4.nonlocal\_bind = 1, allows processes to bind to non-local IP addresses  
net.ipv4.tcp\_timestamps = 0, turns TCP timestamp support off, default on  
net.ipv4.tcp\_max\_tw\_buckets = 1500000, sets TCP time-wait buckets pool size, default 180000  
net.ipv4.tcp\_rmem = 30000000 30000000 30000000, sets min/default/max TCP read buffer, default 4096 87380 174760  
net.ipv4.tcp\_wmem = 30000000 30000000 30000000, sets min/pressure/max TCP write buffer, default 4096 16384 131072  
net.ipv4.tcp\_mem = 30000000 30000000 30000000, sets min/pressure/max TCP buffer space, default 31744 32256 32768

net.ipv4.tcp\_window\_scaling = 0, turn TCP window scaling support off, default on  
net.core.hot\_list\_length = 5000, maximum number of skb-heads to be cached, default 128  
net.core.optmem\_max = 10000000, maximum amount of option memory buffers, default 10240  
net.core.rmem\_max = 10000000, maximum receive socket buffer size, default 131071  
net.core.wmem\_max = 10000000, maximum send socket buffer size, default 131071  
net.core.rmem\_default = 10000000, default receive socket buffer size, default 65535  
net.core.wmem\_default = 10000000, default send socket buffer size, default 65535  
net.core.netdev\_max\_backlog = 300000, number of unprocessed input packets before kernel starts dropping them, default 300  
sys.vm.dcache\_priority = 1000000, lowers # entries zapped from dcache each iteration, default 0

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## Notes/Tuning Information (Continued)

### Operating System Notes (Continued)

Kernel parameters:

idle=poll, idle threads poll reschedule flag, default is to use HLT instruction

### HTTP Software Notes

One network bound per TUX thread

net.tux.logging = 1, turns on logging of requests, default 0

net.tux.cgiroot = /, cgi root check, default /var/www/tux/cgiroot/

net.tux.cgi\_uid = 99, uid 'nobody' for cgi scripts; default -1

net.tux.cgi\_gid = 99, gid 'nobody' for cgi scripts; default -1

net.tux.max\_backlog = 3000, maximum per-listening-socket TCP backlog size, default 2048

net.tux.generate\_etags = 0, don't generate ETag header, default 1

net.tux.generate\_last\_mod = 0, don't generate Last-Modified header, default 0

net.tux.noid = 1, suppress the Server id string, default 0

net.tux.max\_connect = 50000, maximum # simultaneous connections, default 1000

net.tux.cgi\_inherit\_cpu = 1, CGIs inherit CPU binding, default 0

### Client Notes

Registry tunes:

- Tcpip\Parameters\MaxUserPort=0xffff, sets maximum open ports to 65534

- Tcpip\Parameters\TcpTimedWaitDelay=60, sets TIME\_WAIT parameter to 60 seconds (non-RFC 1122), default 240

- Tcpip\Parameters\MaxFreeTWTcbs=100000, sets maximum number of TIME\_WAIT tcbs to 100,000

- Tcpip\Parameters\TcpWindowSize=65535, sets TCP send/receive window size, default 8192

### Other Notes

Tuning Disclosure: See above.

Dynamic API, flag descriptions, kernel config: Dell-20031027-RHCA.tgz

Dynamic API renamed to f.x, CGI renamed to x.cgi