# 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<br>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 adresses
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:
- TcpipParametersMaxUserPort=0xfffe, sets maximum open ports to 65534
- TcpipParametersTcpTimedWaitDelay=60, sets TIME_WAIT parameter to 60 seconds (non-RFC 1122), default 240
- TcpipParametersMaxFreeTWTcbs=100000, sets maximum number of TIME_WAIT tcbs to 100,000
- TcpipParametersTcpWindowSize=65535, sets TCP send eceive 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