

# SPECweb99\_SSL Result

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Dell: PowerEdge 6650  
Zeus: Zeus 4.2r2

SPECweb99\_SSL =2540

Test Date: Jan-2004  
Tester: Dell

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

## Hardware

Vendor: Dell  
Model: PowerEdge 6650  
Processor: 3.0 GHz Intel Xeon processor MP  
# Processors: 4 cores, 4 chips, 1 core/chip (Hyper-Threading enabled)  
Primary Cache: 12KBI+8KBD on chip  
Secondary Cache: 512KB  
Other Cache: 4MB L3  
Memory: 16 GB  
Disk Subsystem: 1 36GB, 14 18GB 15K RPM drives  
Disk Controllers: Onboard Adaptec SCSI, LSI 21320-IS  
Other Hardware: 4 Dell PowerConnect 5012 switch  
1 Dell PowerConnect 5224 switch  
1 Dell PowerVault 220S disk enclosure

## Software

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

## HTTPS Software

Vendor: Zeus  
HTTPS Software: Zeus 4.2r2  
API: Zeus PEPP 0.8  
Server Cache: None  
Log Mode: Binary CLF

## Test Sponsor

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

## Network

# of Controllers: 4  
Network Controllers: Intel PRO/1000 MT Dual Port Server Adapter  
# of Nets: 8  
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: 8 Dell PowerEdge 1550, 8 Dell PowerEdge 1650  
Processor: 1.26/1.4GHz Pentium III  
# of Processors: 2  
Memory: 256MB  
Network Controller: Intel PRO/1000 XT  
Operating System: Windows XP Professional  
Compiler: Microsoft Visual C++ 6.0

## Notes/Tuning Information

### SUT Notes

1 disk for OS attached to onboard SCSI  
7 disk software RAID0 stripe for logs attached to external LSI channel  
7 disk software RAID0 stripe for file attached to external LSI channel  
Hyper-Threading enabled, Sequential Memory Access enabled in BIOS

### Operating System Notes

ulimit -n 10000, sets number of open files, default 1024  
Each NIC's TX queue length set to 20000 via ifconfig, default 1000  
Each NIC IRQ bound to a separate logical CPU (Hyper-Threading enabled)  
Timer IRQ bound to CPU1, default CPU0  
File systems mounted with "noatime,nodiratime", no inode access time updating  
fs.file-max = 524288, sets open file limit, default 3355443  
net.ipv4.tcp\_timestamps = 0, turns TCP timestamp support off, default on  
net.ipv4.tcp\_max\_tw\_buckets = 450000, sets TCP time-wait buckets pool size, default 180000  
net.ipv4.tcp\_rmem = 3000000 3000000 3000000, sets min/default/max TCP read buffer, default 4096 87380 174760  
net.ipv4.tcp\_wmem = 3000000 3000000 3000000, sets min/pressure/max TCP write buffer, default 4096 16384 131072  
net.ipv4.tcp\_mem = 3000000 3000000 3000000, sets min/pressure/max TCP buffer space, default 31744 32256 32768  
net.core.hot\_list\_length = 10000, maximum number of skb-heads to be cached, default 128  
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.optmem\_max = 10000000, maximum amount of option memory buffers, default 10240  
net.core.netdev\_max\_backlog = 300000, number of unprocessed input packets before kernel starts dropping them, default 300  
Kernel parameters:  
idle=poll, idle threads poll reschedule flag, default is to use HLT instruction

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## Notes/Tuning Information (Continued)

### HTTPS Software Notes

global.cfg settings:  
tuning!bind\_any no, Zeus instances listen on all interfaces, default yes  
tuning!cbuff\_size 65536, CGI buffer size, default 8192  
tuning!clientfirst\_optimise yes, accept connections only when client data available, default no  
tuning!isapi!enabled yes, enable ISAPIs  
tuning!keepalive\_max 1000, max number of keepalives allowed, default 256  
tuning!keepalive\_timeout 20, close connection after 20 secs inactivity, default 15  
tuning!listen\_queue\_size 8192, increase TCP listen queue, default 256  
tuning!maxaccept 64, maximum number of accepts per socket per poll/select, default 32  
tuning!sendfile\_minsize 0, smallest file to be sent with sendfile, default 32768  
tuning!sendfile\_maxsize 0, largest file to be sent with sendfile, default 2GB  
tuning!so\_wbuff\_size 1048576, set socket write buffer, default not set  
tuning!softservers no, disable software virtual servers, default yes  
tuning!ssl\_sessioncache\_size 7573, SSL session cache size, default 199  
tuning!unique\_bind yes, bind each network to a specific Zeus instance, default no  
modules!cgi!enabled yes, enable CGIs  
modules!security!enabled yes, enable SSL  
Virtual Server configuration:  
ip\_name = sol  
bind\_addr = 192.2.1.132 192.2.2.132 192.2.3.132 192.2.4.132 \  
192.2.5.132 192.6.132 192.2.7.132 192.2.8.132

### Network Notes

One PowerConnect 5012 connected per net (4 networks)  
One PowerConnect 5224 segmented into 4 VLANs (1 network per VLAN)

### Client Notes

manager.ssl.rcp.alt.WIN32, alt.WIN32 client used  
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  
Kernel .config: Dell-20040202-PE6650-config.txt  
Dynamic API and compiler flags: HP-20020724-API.tar.gz  
API configured with --locking=lockf --ssl=yes --64bit=no