

# SPECweb99\_SSL Result

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Dell: PowerEdge 6650 (2-node cluster)  
Red Hat: Zeus 4.2r2

SPECweb99\_SSL =4224

Test Date: Sep-2003  
Tester: Dell

Hardware Avail: Jun-2003 OS Avail: Sep-2002 HTTPS Software Avail: Mar-2002 Sup. Software Avail: Sep-2003 SPEC license #: 55

## Hardware

Vendor: Dell  
Model: PowerEdge 6650 (2-node cluster)  
Processor: 2.8 GHz Intel Xeon processor MP  
# Processors: 8 cores, 8 chips, 1 core/chip (Hyper-Threading enabled)  
Primary Cache: 12KBI+8KBD on chip  
Secondary Cache: 512KB  
Other Cache: 2MB L3  
Memory: 32 GB (16 GB per node)  
Disk Subsystem: 2 36GB, 8 18GB 15K RPM drives  
(1 36GB, 4 18GB per node)  
Disk Controllers: Onboard SCSI  
Other Hardware: Dell PowerConnect 5224 switch

## Software

Operating System: Red Hat Linux 8.0  
File System: ext2  
Other Software: RHSA-2003-098  
Intel e1000 5.1.11

## HTTPS Software

Vendor: Red Hat  
HTTPS Software: Zeus 4.2r2  
API: Zeus PEPP 0.9pre2  
Server Cache: None  
Log Mode: Binary CLF

## Test Sponsor

Test Date: Sep-2003  
Tested By: Dell  
SPEC License: 55

## Network

# of Controllers: 4  
Network Controllers: Intel PRO/1000 MT Dual Port  
Server Adapter (2 per node)  
# of Nets: 5  
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: 12  
Model: Dell PowerEdge 1650  
Processor: 1.4GHz Pentium III  
# of Processors: 2  
Memory: 256MB  
Network Controller: Onboard Intel 82544EI  
Operating System: Windows XP Professional  
Compiler: Microsoft Visual C++ 6.0

## Notes/Tuning Information

### SUT Notes

Each node has 1 disk for OS and access log, 4 disk SW RAID0 stripe for file set  
Nodes used ntpd to synchronize time to a central clock  
Second node accessed first node's User.Personality, Custom.Ads, post.log via NFS  
Hyper-Threading enabled, Sequential Memory Access disabled

### 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  
NFS file system mounted with "acregmin=0,acregmax=0", disable file attribute caching  
net.ipv4.tcp\_timestamps = 0, turns TCP timestamp support off, default on  
net.ipv4.tcp\_max\_tw\_buckets = 600000, 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\_max\_syn\_backlog = 8192, sets length of per-socket backlog queue, default 1024  
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

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## Notes/Tuning Information (Continued)

### HTTPS Software Notes

Two instances of Zeus per node, one with HTTPS virtual server, one with HTTP virtual server

Common global.cfg settings:

tuning!cbuff\_size 65536, CGI buffer size, default 8192

tuning!chunk no, disable chunked encoding, default yes

tuning!clientfirst\_optimise yes, accept connections only when client data available, default no

tuning!keepalive\_max 2100, max number of keepalives allowed, default 256

tuning!keepalive\_timeout 3600, close connection after 3600 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!modules!stats!enabled no, disable statistics gathering, default yes

tuning!sendfile\_minsize 1, smallest file to be sent with sendfile, default 32768

tuning!so\_wbuff\_size 1048576, set socket write buffer, default not set

tuning!softservers no, disable software virtual servers, default yes

modules!cgi!enabled yes, enable CGIs

modules!isapi!enabled yes, enable ISAPIs

HTTPS virtual server settings:

tuning!ssl\_sessioncache\_size 13217, SSL session cache size, default 199

tuning!ssl\_sessioncache\_expiry 120, number of seconds cache data is valid, default 86400

HTTP virtual server settings:

tuning!num\_children 1, sets number of Zeus children, default # CPUs

tuning!bind\_any no, bind Zeus to any address, default yes

tuning!unique\_bind yes, bind each Zeus child to a unique address, default no

### Network Notes

Each node connected to two separate client networks

Servers connected to each other via crossover CAT5 on a separate network

e1000 parameter: TxIntDelay = 32, change transmit interrupt delay, default 64

### Client Notes

alt.WIN32, manager.ssl.rcp.alt.WIN32 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

Compiler flags and descriptions: Dell-20030818-flags.txt

Kernel .config: Dell-20030818-2PE6650-config.txt

Dynamic API: Dell-20030916-API.tgz

API configured with --ssl=yes