

# SPECweb99 Result

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Hewlett-Packard: hp server rp5470  
Zeus Technology Limited: Zeus 3.4r3 64bit

SPECweb99 = 4646

Test Date: Oct-2001  
Tester: Hewlett-Packard Company

Hardware Avail: Nov-2001 OS Avail: Dec-2001 HTTP Software Avail: Oct-2001 Sup. Software Avail: Oct-2001 SPEC license #: 3

## Hardware

Vendor: Hewlett-Packard  
Model: hp server rp5470  
Processor: PA-8700 750Mhz  
# Processors: 4 cores, 4 chips, 1 core/chip  
Primary Cache: 768KBI+1512KBD on chip  
Secondary Cache: None  
Other Cache: None  
Memory: 16 GB  
Disk Subsystem: 15x18GB 15Krpm, 2x32GB (10K rpm)  
Disk Controllers: 1xHP A5158A FC Card  
Other Hardware: HP VA7100 Disk Array

## Software

Operating System: HP-UX 11i (64-bit) + patch  
File System: See SUT Notes  
Other Software: B3929CA HP OnLineJFS

## HTTP Software

Vendor: Zeus Technology Limited  
HTTP Software: Zeus 3.4r3 64bit  
API: ISAPI  
Server Cache: See Zeus parameters  
Log Mode: Binary Log Format

## Test Sponsor

Test Date: Oct-2001  
Tested By: Hewlett-Packard Company  
SPEC License: 3

## Network

# of Controllers: 4  
Network Controllers: HP A4926A PCI Gigabit Ethernet  
# 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: 15  
Model: HP 9000/A500-5x  
Processor: 550Mhz PA-8600  
# of Processors: 2  
Memory: 4 GB  
Network Controller: HP A5230A, PCI 100BaseT  
Operating System: HPUX 11.0 ACE  
Compiler: B3901BA B.11.02.02 HP C/ANSI C

## Notes/Tuning Information

### SUT Notes

Bound two Zeus instances to processor corresponding to its NIC  
Bound Zeus cgi process to the processor that services the fewest clients  
Processor binding performed by: mpsched -c cpu# -p pid  
OnLineJFS with largefiles option used for logs  
All other filesystems are HP-UX HFS  
15 (18GB) disks (disk array) used for file\_set  
1 (32GB) disk used for logs  
1 (32GB) disk for OS

### Operating System Notes

HP-UX 11i Internet Operating Environment with following patch:  
PHNE\_24506 - cumulative ARPA transport patch

HP-UX Tunable Parameters:

dbc\_max\_pct=81 Max buffer cache size as percent of RAM (50)  
dbc\_min\_pct=81 Min buffer cache size as percent of RAM (5)  
maxfiles=60000 Soft file limit per process (60)  
maxfiles\_lim=60000 Hard file limit per process (1024)  
maxssiz\_64bit=0x180000000 Max stack size for 64-bit procs (0x00800000)  
maxswapchunks=4868 Max number of swap chunks (256)  
maxuprc=10000 Max number of user processes (75)  
nfile=550000 Max number of open files (790)  
ninode=150000 Max number of inodes (444)  
nkthread=8000 Max number of kernel threads (499)  
nproc=1000 Max number of processes (276)

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## Notes/Tuning Information (Continued)

### Operating System Notes (Continued)

tcpshashsz=16384 Relative scaling factor for TCP&IP int. tables (2048)  
vps\_ceiling=4096 Max system selected page size [KB] (16)  
vps\_pagesize=64 Default user page size [KB] (4)  
maxdsiz\_64bit=0x180000000 (0x40000000)  
maxssiz=0x10000000 (0x800000)  
maxtsiz=0x10000000 (0x4000000)  
ncallout=8000 Max number of pending timeouts (515)

### HTTP Software Notes

Zeus Global Parameters:

tuning!bind\_any no  
tuning!cache\_cooling\_time 0  
tuning!cache\_files 356750  
tuning!cache\_flush\_interval 86400  
tuning!cache\_large\_file 512001  
tuning!cache\_max\_bytes 0  
tuning!cache\_small\_file 1000  
tuning!cache\_stat\_expire 86400  
tuning!cbuff\_size 65536  
tuning!keepalive\_timeout 1200  
tuning!keepalive\_max -1  
tuning!listen\_queue\_size 8192  
tuning!maxaccept 1024  
tuning!modules!cgi!cbuff\_size 1048576  
tuning!modules!isapi!enabled yes  
tuning!sendfile\_reservefd 57000  
tuning!sendfile\_minsize 0  
tuning!sendfile\_maxsize 1048576  
tuning!softservers no  
tuning!so\_rbuff\_size 0  
tuning!so\_wbuff\_size 1048576  
tuning!timeout 600  
tuning!unique\_bind yes  
tuning!use\_poll no  
tuning!num\_children 8  
tuning!multiple\_accept yes  
tuning!sendfile yes  
tuning!modules!cgi!cleansize 0  
tuning!modules!stats!enabled no  
tuning!modules!nsapi!enabled no  
tuning!keepalive yes

### HTTP API Notes

Zeus ISAPI interface used  
Zeus PEPP Toolkit(0.6) used for SPECweb99 dynamic content  
./Configure --sendfile=yes --checkconfig=yes --locking=semop

### Network Notes

4 HP Procurve 1600M Switches used

Network Tunable Parameters:

tcp\_xmit\_hiwater\_def=2000000 Max unsent data triggers flow control (32768)  
tcp\_conn\_request\_max=1024 Max outstanding connection reqs (20)  
tcp\_conn\_strategy=1 Selects TCP connection strategy (0)

Gigabit Tunable Parameters:

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## Notes/Tuning Information (Continued)

### Network Notes (Continued)

send\_max\_bufs=32 Number of sending buffers consumed to trigger interrupt (16)  
recv\_max\_bufs=12 Number of receiving buffers consumed to trigger interrupt (16)  
recv\_coal\_ticks=10000 Number of ticks to wait to trigger interrupt (0)  
send\_coal\_ticks=1000 Number of ticks to wait to trigger interrupt (1000)

### Client Notes

3 networks with 4 clients each  
1 network with 3 clients

#### HP-UX Tunable Parameters:

max\_thread\_proc=800 Number of threads per process (64)  
maxusers=256 Value of MAXUSERS macro (32)  
ncallout=500 Increase number of pending timeouts  
nkthread=8000 Maximum number of system-wide threads

### Other Notes

Tuning Disclosure: HP-20010917.txt  
Dynamic API: HP-20010917-API.tar.gz