

# SPECweb99 Result

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Hewlett-Packard: hp server rp8400  
Zeus Technology Limited: Zeus 3.4r3 64bit

SPECweb99 = 15000

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

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

## Hardware

Vendor: Hewlett-Packard  
Model: hp server rp8400  
Processor: PA-8700 750MHz  
# Processors: 16 cores, 16 chips, 1 core/chip  
Primary Cache: 768KBI+1536KBD on chip  
Secondary Cache: None  
Other Cache: None  
Memory: 64 GB  
Disk Subsystem: 15x18GB 15Krpm, 1x18GB 10Krpm  
Disk Controllers: 1xHP A5158A FC Card  
Other Hardware: HP VA7100 Disk Array

## Software

Operating System: HP-UX 11i (64-bit) + patches  
File System: HFS - Largefiles  
Other Software: HP A4926A PCI Gigabit Ethernet

## 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: Aug-2001  
Tested By: Hewlett-Packard Company  
SPEC License: 3

## Network

# of Controllers: 15  
Network Controllers: HP A4926A PCI Gigabit Ethernet  
# of Nets: 15  
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: 180  
Model: HP 9000/A180C  
Processor: 180MHz PA-7300LC  
# of Processors: 1  
Memory: 128MByte  
Network Controller: HP A5230A, PCI 100BaseT  
Operating System: HP-UX 11.0 ACE  
Compiler: B3901BA B.11.11.02 HP C/ANSI C

## Notes/Tuning Information

### SUT Notes

Each Zeus instance bound to processor corresponding to its NIC  
Bound Zeus cgi process to remaining CPU  
Processor binding performed by: mpsched -c &lt;cpu&gt;; -p &lt;pid&gt;;

### Operating System Notes

HP-UX Internet Operating Environment with following patches:  
PHCO\_23094 - libc cumulative header file patch  
PHCO\_23772 - libc cumulative patch  
PHNE\_24506 - cumulative ARPA transport patch

#### HP-UX Tunable Parameters:

dbc\_max\_pct=80 Max buffer cache size as percent of RAM (50)  
dbc\_min\_pct=80 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=0x40000000 Max stack size for 64-bit procs (0x00800000)  
maxswapchunks=16384 Max number of swap chunks (256)  
maxuprc=512 Max number of user processes (75)  
maxusers=512 Value of MAXUSERS macro (32)  
nfile=1000000 Max number of open files (790)  
ninode=1000000 Max number of inodes (444)  
nkthread=8000 Max number of kernel threads (499)  
nproc=512 Max number of processes (276)  
tcpshasz=16384 Relative scaling factor for TCP & IP int. tables (2048)  
semnmu=256 Number of semaphore undo structures (10)  
vps\_ceiling=4096 Max system selected page size [KB] (16)  
vps\_pagesize=64 Default user page size [KB] (4)

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## Notes/Tuning Information (Continued)

### Operating System Notes (Continued)

Filesystem for logs created with following options:  
behind - Queue writes for flushing when page is full  
largefiles - Enable creation of files greater than 2 gigabytes in size  
64KB block size (def. 8KB) and 8KB fragments (def. 1KB)

### HTTP Software Notes

Zeus Global Parameters:  
tuning!bind\_any no  
tuning!cache\_cooling\_time 0  
tuning!cache\_files 59990  
tuning!cache\_flush\_interval 86400  
tuning!cache\_large\_file 10000  
tuning!cache\_max\_bytes 0  
tuning!cache\_small\_file 0  
tuning!cache\_stat\_expire 86400  
tuning!cbuff\_size 65536  
tuning!keepalive yes  
tuning!keepalive\_timeout 1200  
tuning!keepalive\_max -1  
tuning!listen\_queue\_size 8192  
tuning!maxaccept 1024  
tuning!multiple\_accept yes  
tuning!sendfile 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!modules!cgi!cbuff\_size 1048576  
tuning!modules!cgi!cleansize 0  
tuning!modules!isapi!enabled yes  
tuning!modules!nsapi!enabled no  
tuning!modules!stats!enabled no

### 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

15 HP Procurve 1600M Switches  
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:  
send\_max\_bufs=32 Number of send buffers consumed to trigger interrupt (16)  
recv\_max\_bufs=12 Number of send buffers consumed to trigger interrupt (1)  
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)

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## Notes/Tuning Information (Continued)

### Client Notes

HP-UX Tunable Parameters:

max\_thread\_proc=800 Number of threads per process (64)

maxusers=256 Value of MAXUSERS macro (32)

### Other Notes

Tuning Disclosure: HP-20010917.txt

Dynamic API: HP-20010917-API.tar.gz