```
                          SPECweb99_SSL Result


===========================================================================
                                         ||
 IBM : BladeCenter HS20                   ||       CD SPECweb99_SSL
 Zeus : Zeus V4.1R1                        ||
                                         ||
===========================================================================
    SPEC has discovered a code defect in the SPECweb99_SSL test harness run on
    the client systems used in this result.  The defect prevents these client
    systems from generating the correct SPECweb99_SSL workload.  Specifically,
    the defect in the SPECweb99_SSL code results in the clients not generating
    any of the required SSL ClientKeyExchanges during the benchmark.  Therefore,
    the results presented here are not comparable with any other SPECweb99_SSL
    results.
===========================================================================


PERFORMANCE

                |  Conforming Simultaneous
     Iteration  |       Connections
   ---------------+----------------------------
       1         |          CD
       2         |          CD
       3         |          CD
   ---------------+----------------------------
     Median      |          CD


===========================================================================
                          Availability Dates


All Hardware                  Nov-2002
HTTPS Software                Mar-2002
Operating System              May-2002
Supplemental System           May-2002


                         Hardware

Vendor                        IBM
Model                         BladeCenter HS20
Processor                     2.4 GHz Intel Xeon
# Processors                  2 cores, 2 chips, 1 core/chip
Primary Cache                 12KBI+8KBD on chip
Secondary Cache               256kB L2
Other Cache                   512 KB L3
Memory                        4 GB
Disk Subsystem                2 x 40GB 5400 RPM IDE
Disk Controllers              OnBoard IDE
Other Hardware                1 x Alteon ACEswitch 180 Ethernet Switch
                              1 x Extreme Network Summit 7i switch


                         Software

Operating System              Red Hat Linux 7.3
File System                   Ext. 2
Other Software                None


                        HTTPS Software

Vendor                        Zeus
HTTPS Software                Zeus V4.1R1
API                           Zeus PEPP 0.8 ISAPI used for dynamic content
Server Cache                  None
Log Mode                      Zeus Binary CLF


                        Test Sponsor

Test Date                     Dec-2002
Tested By                     IBM
SPEC License                  11


                           Network

# of Controllers              1
Network Controllers           1 On-Board Broadcom Gb ethernet
# of Nets                     1
Type of Nets                  1
Network Speed                 1 Gb/s
MSL (sec)                     30 (Non RFC1122)
Time-Wait (sec)               60 (Non RFC1122)
MTU                           1500


                           Clients

# of Clients                  5
Model                         IBM xSeries 330
Processor                     1.13Ghz Intel Pentium III
# of Processors               1
```

```
Memory                   256MB
Network Controller       Alteon ACENIC
Operating System         Windows 2000
Compiler                 Visual C++ 6.0

                      Benchmark Configuration

Requested Connections    870
Fileset Size (MB)        2903.6


===============================================================================
                      Notes/Tuning information

SUT Notes
    1 Disk OS and File Set, 1 Disk Logfiles
    BladeCenter chassis includes:
    - 1 HS20 blade server in single chassis slot
    - 1 4-Port Gb Ethernet Switch Module

Operating System Notes
    Tuning parameters:
    -net.ipv4.ip_forward = 0, default 0
    -net.ipv4.conf.all.rp_filter = 1, enables source route verification, default 0
    -net.core.optmem_max=10000000, default 10240
    -net.core.rmem_default=10000000,default receive socket buffer size, default 65535
    -net.core.rmem_max=10000000, maximum receive socket buffer size, default 65535
    -net.core.wmem_default=10000000, default send socket buffer size, default 65535
    -net.core.wmem_max=10000000, maximum send socket buffer size, default 65535
    -net.core.hot_list_length=10000, maximum number of skb-heads to be cached, default 128
    -net.core.netdev_max_backlog=10000, default 300
    -net.ipv4.tcp_max_tw_buckets=160000, sets TCP time-wait buckets pool size, default 180000
    -net.ipv4.tcp_rmem=30000000 30000000 30000000, maximum TCP read-buffer space allocatable, default 4096 87380 174760
    -net.ipv4.tcp_wmem=30000000 30000000 30000000, maximum TCP write-buffer space allocatable, default 4096 16384 131072
    -net.ipv4.tcp_mem=30000000 30000000 30000000, maximum TCP buffer space, default 31744 32256 32768
    -net.ipv4.tcp_timestamps=0, turns TCP timestamp support off, default 1

HTTPS Software Notes
    " Zeus Configuration
    -tuning!so_wbuff_size 1048576
    -tuning!softservers no
    -tuning!cbuff_size 65536
    -tuning!ssl_sessioncache_size 2617
    -tuning!keepalive_timeout 20
    -tuning!keepalive_max 3000
    -tuning!sendfile_minsize 1
    -tuning!listen_queue_size 8192
    -tuning!so_rbuff_size 0
    -tuning!modules!cgi!cleansize 0
    -tuning!clientfirst_optimise yes
    -tuning!maxaccept 64

Network Notes
    The tg3 driver was used for the network controller.  This is the default for RH 7.3.
    Three switches used because the clents have fiber adapters and the SUT has copper switches.
    - The clients were connected to the ACESwitch with fiber cables.
    - The ACESwitch was connected to the Summit switch with a fiber cable.
    - The SUT was connected to the Summit switch with a copper cable.

Other Notes
    Tuning disclosure: IBM-Zeus-tuning-20021224.txt
    API: HP-20020723.-API.tar.gz

===============================================================================

Test Run Details
```

Run Num	Conforming Connections	Percent Conform	Throughput ops/sec	Response msec	ops/sec/ loadgen	Kbits/ sec
1	CD	CD	CD	CD	CD	CD
2	CD	CD	CD	CD	CD	CD
=> 3	CD	CD	CD	CD	CD	CD