```
================================================================================
                                            ||
 IBM : eServer xSeries 345                  ||         CD SPECweb99_SSL
 Zeus : Zeus V4.2                           ||
                                            ||
================================================================================
      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               Feb-2003
HTTPS Software             Nov-2002
Operating System           Jul-2002
Supplemental System        May-2002

                             Hardware

Vendor                     IBM
Model                      eServer xSeries 345
Processor                  2.8B GHz Intel Xeon
# Processors               2 cores, 2 chips, 1 core/chip
Primary Cache              12KBI+8KBD on chip
Secondary Cache            512KB
Other Cache                None
Memory                     4 GB
Disk Subsystem             6 36GB 15KRPM Ultra 320 SCSI Drives
Disk Controllers           1 LSI 1030 Ultra 320 SCSI LOM
Other Hardware             1 Extreme Networks Summit 7i GbE Switch

                              Software

Operating System           Red Hat Linux 7.3
File System                ext2
Other Software             None

                            HTTPS Software

Vendor                     Zeus
HTTPS Software             Zeus V4.2
API                        Zeus PEPP 0.8 ISAPI used for Dynamic content
Server Cache               None
Log Mode                   Zeus CLF

                            Test Sponsor

Test Date                  Feb-2003
Tested By                  IBM
SPEC License               11

                               Network

# of Controllers           1
Network Controllers        Integrated Gigabit Ethernet
# of Nets                  1
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               8
Model                      IBM eServer xSeries 330
Processor                  933Mhz Pentium III
# of Processors            1
Memory                     256MB
Network Controller         IBM Netfinity Gigabit Ethernet Adapter
Operating System           Microsoft Windows 2000 Professional w/SP3
Compiler                   Microsoft VC++ v6.0
```

Benchmark Configuration

Requested Connections          1150
Fileset Size (MB)              3801.52


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

SUT Notes
     1 disk for OS
     6 disk software RAID0, using 64KB chunk size, for web pages and logs

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.ipv4.tcp_timestamps = 0, turns TCP timestamp support off, default 1
     - net.ipv4.tcp_max_tw_buckets = 200000, sets TCP time-wait buckets pool size, default 180000
     - net.core.rmem_max = 10000000, maximum receive socket buffer size, default 65535
     - net.core.rmem_default = 10000000, default receive socket buffer size, default 65535
     - net.core.wmem_max = 10000000, maximum send socket buffer size, default 65535
     - net.core.wmem_default = 10000000, default send socket buffer size, default 65535
     - net.core.optmem_max = 10000000, default 10240
     - net.core.hot_list_length = 10000, maximum number of skb-heads to be cached, default 128
     " - net.core.netdev.max_backlog = 20000, default 300
     - 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
     Kernel is standard default Red Hat Linux (2.4.18-3bigmem)

HTTPS Software Notes
     Zeus Configuration
     - tuning!num_children 4
     - tuning!so_wbuff_size 1048576
     - tuning!softservers no
     - tuning!cbuff_size 65536
     - tuning!clientfirst_optimise yes
     - tuning!ssl_sessioncache_size 4951
     - tuning!sendfile yes
     - tuning!sendfile_minsize 1
     - tuning!listen_queue_size 8192
     - tuning!so_rbuff_size 0
     - tuning!modules!cgi!cleansize 0
     - tuning!timeout 600
     - tuning!keepalive_timeout 20
     - tuning!keepalive_max 3300
     - tuning!maxaccept 64
     See IBM-Zeus-tuning-20021224.txt for a description of the Zeus tuning parameters
     ISAPI Source code is available in the SPECweb99_SSL support docs as HP-20020724-API.tar.gz


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

Test Run Details

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