



# CINT2000 Result

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IBM Corporation

IBM System p5 510Q (1500 MHz, 4 CPU)

SPECint\_rate2000 = 63.3

SPECint\_rate\_base2000 = 61.5

SPEC license #: 11 | Tested by: IBM | Test date: Jan-2006 | Hardware Avail: Feb-2006 | Software Avail: Feb-2006

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	8	308	42.1	8	308	42.2
175.vpr	8	247	52.7	8	245	53.1
176.gcc	8	154	66.1	8	155	66.0
181.mcf	8	191	87.4	8	188	88.9
186.crafty	8	196	47.4	8	159	58.4
197.parser	8	279	59.9	8	279	59.9
252.eon	8	167	72.5	8	166	72.5
253.perlbnk	8	354	47.2	8	354	47.2
254.gap	8	172	59.3	8	170	59.9
255.vortex	8	176	100.0	8	167	106
256.bzip2	8	209	66.6	8	200	69.6
300.twolf	8	466	59.7	8	466	59.7

### Hardware

CPU: POWER5+  
CPU MHz: 1500  
FPU: Integrated  
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip (SMT on)  
CPU(s) orderable: 4  
Parallel: No  
Primary Cache: 64KBI+32KBD (on chip)/core  
Secondary Cache: 1920KB unified, shared (on chip)/chip  
L3 Cache: 2x36MB unified (off-chip)/QCM, 1 QCM/SUT  
Other Cache: None  
Memory: 8x4GB  
Disk Subsystem: 1x73GB SCSI, 15K RPM  
Other Hardware: None

### Software

Operating System: AIX 5L V5.3  
Compiler: XL C/C++ Enterprise Edition Version 8.0 for AIX  
File System: AIX/JFS2  
System State: Multi-user

## Notes/Tuning Information

### Portability Flags:

```
176.gcc: -ma -DHOST_WORDS_BIG_ENDIAN
186.crafty: -DAIX
253.perlbnk: -DSPEC_CPU2000_AIX
254.gap: -DSYS_IS_BSD -DSYS_STRING_H
          -DSYS_HAS_MALLOC_PROTO -DSYS_HAS_CALLOC_PROTO
300.twolf: -DHAVE_SIGNED_CHAR
```

### Base Optimization Flags:

```
C: -qpdf1/pdf2
   -O5 -blpdata -D_ILS_MACROS
C++: -qpdf1/pdf2
      -O4 -qalign=natural
```

### Peak Optimization Flags

```
164.gzip: -qpdf1/pdf2
          -O4 -qfdpr -blpdata
          fdpr -q -O3
175.vpr: -qpdf1/pdf2
         -O5 -qfdpr -blpdata
```



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## Notes/Tuning Information (Continued)

```

176.gcc:      fdpr -q -O3
              -qpdf1/pdf2
              -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata
181.mcf:      -qpdf1/pdf2
              -O5 -qalign=natural -blpdata -qfdpr -Q
186.crafty:   fdpr -q -O3
              -qpdf1/pdf2
              -O4 -qalign=natural -q64 -lhm -blpdata
197.parser:   basepeak=1
252.eon:      -qpdf1/pdf2
              -O4 -qalign=natural
253.perlbmk:  basepeak=1
254.gap:      -qpdf1/pdf2
              -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata
255.vortex:   -qpdf1/pdf2
              -O4 -qfdpr -lhm -blpdata
256.bzip2:    fdpr -q -O3
              -qpdf1/pdf2
              -O5 -qfdpr -blpdata
300.twolf:    fdpr -q -O3
              basepeak=1

```

The installed OS level is AIX 5L for POWER version 5.3 with the 5300-04 Recommended Technology Level.

SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. (Enabled by default)

QCM: Acronym for "Quad-Core Module" (Two dual-core processor chips + two L3-cache chips)

SUT: Acronym for "System Under Test"

Extended C: IBM XL C for AIX invoked as cc  
C++: IBM XL C for AIX invoked as xlC

ulimits set to unlimited.

Large page mode and memory affinity were set as follows:

```

vmo -r -o lpgp_regions=800 -o lpgp_size=16777216
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
shutdown -rF
export MEMORY_AFFINITY=MCM

```

The following config-file entry was used to assign each benchmark process to a core:

```

submit = let "MYCPU=2*\$SPECUSERNUM"; if ("\"$MYCPU > 7") then let "MYCPU=7"; fi; bindprocessor \$\$ \$MYCPU; $command

```

The "bindprocessor" AIX command binds a process to a CPU core.