



# CINT2000 Result

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IBM Corporation  
IBM System p5 510 (1900 MHz, 2 CPU)

SPECint\_rate2000 = 39.9  
SPECint\_rate\_base2000 = 39.4

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    | 4           | 242          | 26.9       | 4      | 238     | 27.3  |
| 175.vpr     | 4           | 194          | 33.4       | 4      | 192     | 33.8  |
| 176.gcc     | 4           | 120          | 42.4       | 4      | 120     | 42.5  |
| 181.mcf     | 4           | 150          | 55.7       | 4      | 173     | 48.2  |
| 186.crafty  | 4           | 151          | 30.7       | 4      | 123     | 37.7  |
| 197.parser  | 4           | 218          | 38.3       | 4      | 220     | 37.9  |
| 252.eon     | 4           | 129          | 46.8       | 4      | 129     | 46.8  |
| 253.perlbnk | 4           | 273          | 30.6       | 4      | 269     | 31.0  |
| 254.gap     | 4           | 134          | 38.2       | 4      | 133     | 38.3  |
| 255.vortex  | 4           | 138          | 63.8       | 4      | 130     | 67.6  |
| 256.bzip2   | 4           | 165          | 42.3       | 4      | 160     | 43.5  |
| 300.twolf   | 4           | 367          | 37.9       | 4      | 382     | 36.4  |

### Hardware

CPU: POWER5+  
CPU MHz: 1900  
FPU: Integrated  
CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip (SMT on)  
CPU(s) orderable: 1,2  
Parallel: No  
Primary Cache: 64KBI+32KBD (on chip)/core  
Secondary Cache: 1920KB unified, shared (on chip)/chip  
L3 Cache: 36MB unified (off-chip)/DCM, 1 DCM/SUT  
Other Cache: None  
Memory: 8x2GB  
Disk Subsystem: 2x146GB 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
              -O4 -qalign=natural -blpdata
186.crafty:   -qpdf1/pdf2
              -O4 -qalign=natural -q64 -lhm -blpdata
197.parser:   -qpdf1/pdf2
              -O4 -qfdpr -D_ILS_MACROS -blpdata
              fdpr -q -O3
252.eon:      -qpdf1/pdf2
              -O4 -qalign=natural
253.perlbnk:  -qpdf1/pdf2
              -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata -lhm
254.gap:      -qpdf1/pdf2
              -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata
255.vortex:   -qpdf1/pdf2
              -O4 -qfdpr -lhm -blpdata
              fdpr -q -O3
256.bzip2:    -qpdf1/pdf2
              -O5 -qfdpr -blpdata
              fdpr -q -O3
300.twolf:    -O5 -qfdpr -blpdata
              fdpr -q -O3

```

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)

DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)

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 lpgg_regions=512 -o lpgg_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 = bindprocessor \$$ \$$SPECUSERNUM; $command
```

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