# CINT2000 Result

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## IBM Corporation

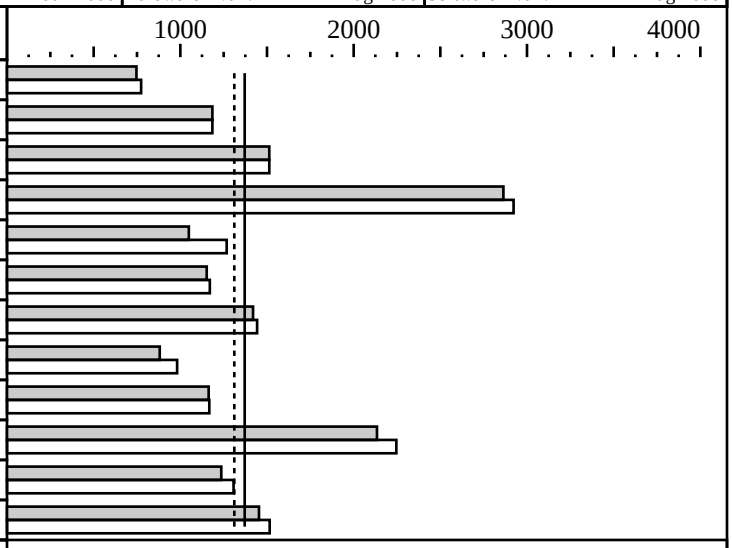
## IBM System p5 510Q (1650 MHz, 1 CPU)

SPECint2000 = 1371

SPECint_base2000 = 1311

SPEC license #: 11 | Tested by: IBM Austin | Test date: Jun-2006 | Hardware Avail: Aug-2006 | Software Avail: Aug-2006

| Benchmark | Reference Time | Base Runtime | Base Ratio | Runtime | Ratio |
|---|---|---|---|---|---|
| 164.gzip | 1400 | 187 | 747 | 181 | 774 |
| 175.vpr | 1400 | 118 | 1185 | 118 | 1185 |
| 176.gcc | 1100 | 72.7 | 1513 | 72.7 | 1513 |
| 181.mcf | 1800 | 62.9 | 2864 | 61.6 | 2923 |
| 186.crafty | 1000 | 95.3 | 1049 | 78.9 | 1267 |
| 197.parser | 1800 | 156 | 1152 | 154 | 1170 |
| 252.eon | 1300 | 91.6 | 1419 | 90.1 | 1443 |
| 253.perlbmk | 1800 | 204 | 881 | 183 | 982 |
| 254.gap | 1100 | 94.5 | 1163 | 94.2 | 1167 |
| 255.vortex | 1900 | 89.0 | 2135 | 84.6 | 2246 |
| 256.bzip2 | 1500 | 121 | 1236 | 115 | 1307 |
| 300.twolf | 3000 | 206 | 1454 | 198 | 1515 |




### Hardware

| | |
|---|---|
| CPU: | POWER5+ |
| CPU MHz: | 1650 |
| FPU: | Integrated |
| CPU(s) enabled: | 1 core, 1 chip, 2 cores/chip (SMT off) |
| CPU(s) orderable: | 4 cores |
| Parallel: | No |
| Primary Cache: | 64 KB I + 32 KB D on chip per core |
| Secondary Cache: | 1920 KB I+D on chip per chip |
| L3 Cache: | 36 MB I+D off chip per chip |
| Other Cache: | None |
| Memory: | 16 GB (8x2 GB) |
| 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<br>XL Fortran Enterprise Edition Version 10.1 for AIX<br>Other Software: ESSL 4.2.0.4 |
| File System: | AIX/JFS2 |
| System State: | Multi-user |

## Notes/Tuning Information

```
Portability Flags:
  176.gcc:      -ma -DHOST_WORDS_BIG_ENDIAN
  186.crafty:   -DAIX
  253.perlbmk:  -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:      basepeak=1
  176.gcc:      basepeak=1
```

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## Notes/Tuning Information (Continued)

```
  181.mcf:      -qpdf1/pdf2
                -O5 -blpdata -qalign=natural -qhot=arraypad -qfdpr -Q -qmaxmem=-1
                fdpr -q -O3
  186.crafty:   -qpdf1/pdf2
                -O4 -qalign=natural -q64 -lhmu -blpdata
  197.parser:   -qpdf1/pdf2
                -O4 -qfdpr -D_ILS_MACROS -blpdata
                fdpr -q -O3
  252.eon:      -qpdf1/pdf2
                -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural
  253.perlbmk:  -qpdf1/pdf2
                -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata -lhmu
  254.gap:      -qpdf1/pdf2
                -O4 -qarch=pwr4 -qtune=pwr4 -qalign=natural -blpdata
  255.vortex:   -qpdf1/pdf2
                -O4 -qfdpr -lhmu -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 5300-05 Recommended Technology Level.
The installed C/C++ compiler is XL C/C++ Enterprise Edition Version 8.0 for AIX with the March 2006 PTF.
The installed Fortran copiler is XL Fortran Enterprise Edition Version 10.1 with the May 2006 AIX PTF.

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)
SUT:  Acronym for "System Under Test"
PTF:  IBM identifier for "Program Fix Level"

Extended C:     IBM XL C for AIX invoked as cc
ANSI C89:       IBM XL C for AIX invoked as xlc
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 lgpg_regions=128 -o lgpg_size=16777216
    chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
    bosboot -aD
    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.
Three cores were deconfigured and SMT disabled using the AIX commands
     smtctl -m off -w boot
     bosboot -aD
     shutdown -rF
     drmgr -r -c cpu
     drmgr -r -c cpu
     drmgr -r -c cpu
```

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## Notes/Tuning Information (Continued)

This result was measured on an IBM System p5 505Q. IBM System p5 505Q and IBM System p5 510Q are electronically equivalent.