# CFP2000 Result

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## IBM Corporation

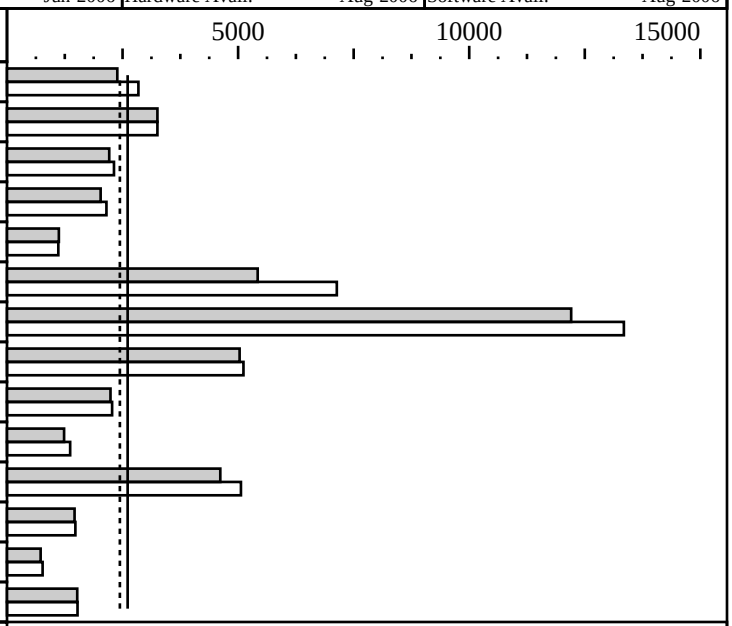
## IBM System p5 520Q (1650 MHz, 1 CPU)

SPECfp2000 = 2610

SPECfp_base2000 = 2442

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 |
|---|---|---|---|---|---|
| 168.wupwise | 1600 | 67.0 | 2386 | 56.3 | 2843 |
| 171.swim | 3100 | 95.3 | 3254 | 95.3 | 3254 |
| 172.mgrid | 1800 | 81.4 | 2212 | 77.8 | 2314 |
| 173.applu | 2100 | 104 | 2026 | 97.6 | 2151 |
| 177.mesa | 1400 | 125 | 1122 | 126 | 1110 |
| 178.galgel | 2900 | 53.5 | 5423 | 40.6 | 7136 |
| 179.art | 2600 | 21.3 | 12206 | 19.5 | 13346 |
| 183.equake | 1300 | 25.8 | 5032 | 25.4 | 5116 |
| 187.facerec | 1900 | 84.9 | 2239 | 83.6 | 2274 |
| 188.ammp | 2200 | 178 | 1235 | 161 | 1366 |
| 189.lucas | 2000 | 43.3 | 4614 | 39.5 | 5061 |
| 191.fma3d | 2100 | 144 | 1462 | 142 | 1479 |
| 200.sixtrack | 1100 | 151 | 728 | 143 | 770 |
| 301.apsi | 2600 | 171 | 1519 | 170 | 1526 |




### 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: | 2x73GB 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:
     -qfixed used in:        168.wupwise, 171.swim, 172.mgrid, 173.applu,
                             178.galgel, 200.sixtrack, 301.apsi
     -qsuffix=f=f90 used in: 178.galgel, 187.facerec, 189.lucas, 191.fma3d

Base Optimization Flags:
  Fortran:    -O5 -lhmu -blpdata -lmass
  C:          -qpdf1/pdf2
              -O5 -blpdata -qalign=natural

Peak Optimization Flags
  168.wupwise:  -O5 -qsave -blpdata -lhmu -lmass
  171.swim:     basepeak=1
  172.mgrid:    -qpdf1/pdf2
                -O4 -qipa=partition=large -q64 -blpdata
  173.applu:    -O5 -qarch=pwr3 -qtune=pwr3 -qalign=struct=natural -qfdpr -q64 -blpdata
                 fdpr -q -O3
```

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## Notes/Tuning Information (Continued)

```
  177.mesa:     -qpdf1/pdf2
                 -O5 -qfdpr
                 fdpr -q -O3
  178.galgel:   -qpdf1/pdf2
                -O5 -qfdpr -qalign=struct=natural -lhmu -blpdata -lmass -qessl -lessl
                fdpr -q -O3
  179.art:      -O5 -lhmu -blpdata
  183.equake:   -qpdf1/pdf2
                -O3 -qarch=auto -qtune=auto -qipa=level=2 -blpdata
  187.facerec:  -O5 -qsave -blpdata
  188.ammp:     -O5 -qalign=natural -qfdpr -blpdata -lhmu
                fdpr -q -O3
  189.lucas:    -O3 -qarch=auto -qtune=auto -qfdpr -blpdata -qessl -lessl
                fdpr -q -O3
  191.fma3d:    -qpdf1/pdf2
                -O3 -qarch=auto -qtune=auto -qipa=level=2 -q64 -lhmu -blpdata -lmass
  200.sixtrack: -O3 -qarch=auto -qtune=auto -qfdpr
                fdpr -q -O3
  301.apsi:     -O5


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"
ESSL: Engineering and Scientific Subroutine Library
PTF:  IBM identifier for "Program Fix Level"

ANSI C89:       IBM XL C for AIX invoked as xlc
Fortran 77:     IBM XL Fortran for AIX invoked as xlf90
Fortran 90:     IBM XL Fortran for AIX invoked as xlf90

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

This result was measured on an IBM System p5 505Q. IBM System p5 505Q and IBM System
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## Notes/Tuning Information (Continued)

p5 520Q are electronically equivalent.