



CFP2000 Result

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IBM Corporation
IBM eServer p5 510 (1650 MHz, 2 CPU)

SPECfp_rate2000 = 43.2
SPECfp_rate_base2000 = 41.5

SPEC license #: 11 | Tested by: IBM | Test date: Jan-2005 | Hardware Avail: Feb-2005 | Software Avail: Dec-2004

| Benchmark | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|--------------|-------------|--------------|------------|--------|---------|-------|
| 168.wupwise | 4 | 139 | 53.4 | 4 | 128 | 58.1 |
| 171.swim | 4 | 425 | 33.9 | 4 | 418 | 34.4 |
| 172.mgrid | 4 | 259 | 32.2 | 4 | 265 | 31.5 |
| 173.applu | 4 | 374 | 26.1 | 4 | 377 | 25.8 |
| 177.mesa | 4 | 217 | 30.0 | 4 | 216 | 30.1 |
| 178.galgel | 4 | 134 | 100 | 4 | 116 | 116 |
| 179.art | 4 | 76.3 | 158 | 4 | 75.8 | 159 |
| 183.quake | 4 | 91.8 | 65.7 | 4 | 91.6 | 65.9 |
| 187.facerec | 4 | 188 | 46.9 | 4 | 161 | 54.8 |
| 188.amp | 4 | 334 | 30.6 | 4 | 343 | 29.8 |
| 189.lucas | 4 | 333 | 27.9 | 4 | 332 | 28.0 |
| 191.fma3d | 4 | 343 | 28.4 | 4 | 328 | 29.7 |
| 200.sixtrack | 4 | 215 | 23.7 | 4 | 209 | 24.4 |
| 301.apsi | 4 | 347 | 34.8 | 4 | 300 | 40.2 |

Hardware

CPU: POWER5
 CPU MHz: 1650
 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 (on chip)/chip
 L3 Cache: 36MB unified (off-chip)/DCM, 1 DCM/SUT
 Other Cache: None
 Memory: 8x4GB
 Disk Subsystem: 2x36GB SCSI, 15K RPM
 Other Hardware: None

Software

Operating System: AIX 5L V5.3
 Compiler: XL C/C++ Enterprise Edition Version 7.0 for AIX
 XL Fortran Enterprise Edition V9.1 for AIX
 Other Software: ESSL 4.2
 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 -blpdata -lmass
 C: -qpdf1/pdf2
 -O5 -blpdata -qalign=natural

Peak Optimization Flags
 168.wupwise: fdpr -q -O3
 -O5 -q64 -blpdata -lmass -qalign=struct=natural -qfdpr
 171.swim: fdpr -q -O3
 -O5 -q64 -qarch=pwr3 -qtune=pwr3 -blpdata -lmass -qalign=struct=natural -qfdpr
 F77=xl f90
 172.mgrid: -qpdf1/pdf2



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Notes/Tuning Information (Continued)

```

-05 -q64 -blpdata -lmass
F77=xlf90
173.applu: fdpr -q -03
          -05 -q64 -blpdata -qalign=struct=natural -qfdpr
          F77=xlf90
177.mesa:  -qpdl1/pdf2
          -03 -qarch=pwr3 -qtune=pwr3 -qipa=level=2
178.galgel: fdpr -q -03
          -05 -blpdata -lmass -qessl -lessl -qfdpr
179.art:   -05 -lhm1 -blpdata -lmass
183.earth: -qpdl1/pdf2
          -05 -blpdata -lmass -qipa=partition=large -qmaxmem=-1
187.facerec: fdpr -q -03
          -05 -blpdata -lmass -qfdpr
188.ammp:  -qpdl1/pdf2
          -05 -q64 -blpdata -qalign=natural
189.lucas: -05 -blpdata -lmass
191.fma3d: fdpr -q -03
          -05 -blpdata -qalign=struct=natural -qfdpr
200.sixtrack: fdpr -q -03
          -05 -blpdata -lmass -qfdpr
301.apsi:  -05 -blpdata -lmass -qessl -lessl -qsave

```

APAR IY62267 was applied to AIX 5L V5.3 to achieve Maintenance Level 1.

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"

ESSL: Engineering and Scientific Subroutine Library

C: IBM XL C for AIX invoked as xlc

Fortran 77: IBM XL Fortran for AIX invoked as xlf90 unless explicitly reassigned

Fortran 90: IBM XL Fortran for AIX invoked as xlf

ulimits set to unlimited.

Large page mode and memory affinity were set as follows:

```

vmo -r -o lpgg_regions=1024 -o lpgg_size=16777216 -o memory_affinity=1
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
reboot -q
export MEMORY_AFFINITY=MCM

```

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

```
submit = let "MYCPU=\$SPECUSERNUM"; bindprocessor \$\$ \$MYCPU; $command
```

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