



# CFP2000 Result

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IBM Corporation  
IBM eServer p5 520 Express (1500 MHz, 1 CPU)

SPECfp2000 = 2041  
SPECfp\_base2000 = 1909

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	78.8	2031	74.5	2148
171.swim	3100	145	2131	130	2383
172.mgrid	1800	91.5	1968	91.5	1968
173.applu	2100	133	1576	137	1533
177.mesa	1400	147	953	142	983
178.galgel	2900	68.3	4244	47.8	6062
179.art	2600	34.4	7563	29.7	8764
183.quake	1300	32.7	3976	32.7	3978
187.facerec	1900	99.0	1919	92.5	2054
188.amp	2200	203	1081	191	1152
189.lucas	2000	82.5	2423	82.5	2424
191.fma3d	2100	173	1214	166	1265
200.sixtrack	1100	168	653	163	676
301.apsi	2600	198	1315	188	1381

### Hardware

CPU: POWER5  
 CPU MHz: 1500  
 FPU: Integrated  
 CPU(s) enabled: 1 core, 1 chip, 1 core/chip (SMT off)  
 CPU(s) orderable: 2  
 Parallel: no  
 Primary Cache: 64KBI+32KBD (on chip)  
 Secondary Cache: 1920KB unified (on chip)  
 L3 Cache: 36MB unified (off-chip)/DCM, 1 DCM/SUT  
 Other Cache: None  
 Memory: 8x2GB  
 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=xlf90  
 172.mgrid: basepeak=1



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## Notes/Tuning Information (Continued)

```

173.applu:  fdpr -q -O3
            -O5 -q64 -blpdata -qalign=struct=natural -qfdpr
            F77=xlf90
177.mesa:   -qpdl1/pdf2
            -O3 -qarch=auto -qtune=auto -qipa=level=2
178.galgel: fdpr -q -O3
            -O5 -blpdata -lmass -qessl -lessl -qfdpr
179.art:    -O5 -lhmu -blpdata -lmass
183.earth:  -qpdl1/pdf2
            -O5 -blpdata -lmass -qipa=partition=large -qmaxmem=-1
187.facerec: fdpr -q -O3
            -O5 -blpdata -lmass -qfdpr
188.ammmp:  -qpdl1/pdf2
            -O5 -q64 -blpdata -qalign=natural
189.lucas:  -O5 -blpdata -lmass
191.fma3d:  fdpr -q -O3
            -O5 -blpdata -qalign=struct=natural -qfdpr
200.sixtrack: fdpr -q -O3
            -O5 -blpdata -lmass -qfdpr
301.apsi:   -O5 -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=400 -o lpgg_size=16777216 -o memory_affinity=1
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
reboot -q
export MEMORY_AFFINITY=MCM

```

One core was deconfigured and SMT disabled at the open-firmware prompt, using the command

```
boot -s cpu=1 -s smt_off
```