



# CFP2000 Result

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IBM Corporation  
IBM eServer pSeries 655 (1500 MHz, 8 CPU)

SPECfp\_rate2000 = 92.8  
SPECfp\_rate\_base2000 = 89.4

SPEC license #: 11 | Tested by: IBM, Austin, TX | Test date: Apr-2003 | Hardware Avail: Jul-2003 | Software Avail: May-2003

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	8	114	131	8	112	133
171.swim	8	250	115	8	250	115
172.mgrid	8	228	73.1	8	207	80.8
173.applu	8	259	75.3	8	236	82.5
177.mesa	8	189	68.9	8	159	81.7
178.galgel	8	151	179	8	141	191
179.art	8	335	72.1	8	334	72.2
183.quake	8	96.3	125	8	96.3	125
187.facerec	8	134	132	8	132	134
188.amp	8	318	64.2	8	318	64.2
189.lucas	8	188	98.5	8	186	99.6
191.fma3d	8	236	82.7	8	227	86.0
200.sixtrack	8	273	37.3	8	270	37.9
301.apsi	8	275	87.6	8	274	88.0

**Hardware**

CPU: POWER4+  
CPU MHz: 1500  
FPU: Integrated  
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 4 chips/MCM  
CPU(s) orderable: 1 (order by # MCM)  
Parallel: No  
Primary Cache: 64KBI+32KBD (on chip) per core  
Secondary Cache: 1536KB unified (on chip) per chip  
L3 Cache: 128MB unified (off-chip) per MCM, 1 MCM in SUT (4 chips per MCM)  
Other Cache: None  
Memory: 32 GB  
Disk Subsystem: 1x36GB SCSI, 10K RPM  
Other Hardware: None

**Software**

Operating System: AIX 5L V5.2  
Compiler: IBM C for AIX, Version 6.0  
IBM XL FORTRAN for AIX, Version 8.1.0.3  
Other Software: ESSL 3.3, MASS 3.0  
File System: AIX/JFS  
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:

C:  
-O5 -qalign=natural -blpdata -lmass  
Fortran:  
-O5 -qalign=natural -blpdata -lmass

### Floating Point Peak Flags

168.wupwise  
-O5 -qipa=partition=large  
171.swim  
-O4 -q64 -blpdata  
172.mgrid



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## Notes/Tuning Information (Continued)

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-05 -qarch=pwr3 -qtune=pwr3 -blpdata
173.applu
-03 -qarch=pwr3 -qtune=pwr3 -lmass -qhot -blpdata
177.mesa
-qpdf1/pdf2
fdpr -v -R3
-03 -qarch=pwr3 -qtune=pwr3 -qipa=level=2 -qalign=natural -blpdata
178.galgel
-qpdf1/pdf2
fdpr -v -R3
-05 -qalign=natural -qessl -lessl -lmass -blpdata
179.art
-04 -lhmu
183.quake
BASEPEAK = 1
187.facerec
fdpr -v -R3
-05 -lmass -blpdata
188.ammp
BASEPEAK = 1
189.lucas
-03 -q64 -blpdata
191.fma3d
-qpdf1/pdf2
-05 -qarch=pwr4 -qtune=pwr3 -lhmu -qalign=natural -blpdata
200.sixtrack
-qpdf1/pdf2
-05 -lmass
301.apsi
-05 -qarch=pwr4 -qtune=pwr3 -blpdata

```

MCM: Acronym for "Multi-Chip Module"  
SUT: Acronym for "System Under Test"

fpdr: Feedback directed program restructuring tool  
/usr/spec2000 filesystem mounted with no JFS log file I/O.  
APAR IY 43549 was applied to AIX to enable new hardware support.  
ulimits set to unlimited.  
C: IBM VAC++ invoked as xlc  
Fortran 77 and 90: IBM XL Fortran for AIX invoked as xlf90.  
Large page mode and memory affinity were set as follows:  
vmo -r -o lpgg\_regions=256 -o lpgg\_size=16777216 -o memory\_affinity=1  
chuser capabilities=CAP\_BYPASS\_RAC\_VMM,CAP\_PROPAGATE \$USER  
shutdown -r  
export MEMORY\_AFFINITY=MCM