



CFP2000 Result

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IBM Corporation

IBM System p5 510Q (1650 MHz, 4 CPU)

SPECfp_rate2000 = 100.0

SPECfp_rate_base2000 = 97.2

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	8	125	119	8	107	139
171.swim	8	327	87.9	8	327	87.9
172.mgrid	8	214	78.0	8	212	78.7
173.applu	8	320	60.8	8	316	61.7
177.mesa	8	201	64.7	8	204	63.6
178.galgel	8	130	207	8	125	216
179.art	8	49.3	489	8	44.9	538
183.quake	8	73.9	163	8	73.1	165
187.facerec	8	162	109	8	159	111
188.amp	8	315	64.8	8	323	63.3
189.lucas	8	268	69.3	8	269	69.1
191.fma3d	8	282	69.2	8	267	72.9
200.sixtrack	8	213	47.8	8	205	49.7
301.apsi	8	306	78.8	8	307	78.5

Hardware

CPU: POWER5+
 CPU MHz: 1650
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip (SMT on)
 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, 2 chips per SUT
 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
 XL Fortran Enterprise Edition Version 10.1 for AIX
 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 -lhmu -qalign=struct=natural -blpdata -lmass -qessl -lessl
               fdpr -q -O3
179.art:       -O5 -lhmu -blpdata
183.quake:     -qpdf1/pdf2
               -O3 -qarch=auto -qtune=auto -qipa=level=2 -blpdata
187.facerec:   -O5 -qsave -blpdata
188.ampp:      -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, memory affinity and MATMUL threading were set as follows:

```

vmo -r -o lpgg_regions=800 -o lpgg_size=16777216
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
bosboot -aD
shutdown -rF
export MEMORY_AFFINITY=MCM
export XLFRTEOPTS=intrinthds=1

```

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.

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