



CFP2000 Result

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IBM Corporation
IBM System p5 520 (2100 Mhz, 1 CPU, SLES)

SPECfp2000 = 3283
SPECfp_base2000 = 2772

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	47.0	3408	40.9	3914
171.swim	3100	90.9	3411	73.6	4210
172.mgrid	1800	75.3	2392	58.3	3087
173.applu	2100	96.5	2177	72.8	2887
177.mesa	1400	100	1398	100	1398
178.galgel	2900	52.2	5552	32.3	8991
179.art	2600	18.4	14141	16.2	16068
183.earth	1300	23.4	5544	19.4	6699
187.facerec	1900	67.4	2817	67.4	2817
188.amp	2200	158	1395	155	1419
189.lucas	2000	59.3	3371	34.6	5784
191.fma3d	2100	122	1727	110	1901
200.sixtrack	1100	120	917	116	949
301.apsi	2600	127	2044	127	2042

Hardware

CPU: POWER5+
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 1 core, 1 chip, 2 cores/chip (SMT off)
CPU(s) orderable: 1,2 core
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 (8x2GB)
Disk Subsystem: 1x73GB SCSI, 15K RPM
Other Hardware: None

Software

Operating System: SLES
SUSE Linux Enterprise Server 10 (ppc) VERSION = 10
w/2.6.16.21-0.8-ppc64 Linux kernel
Compiler: IBM XL C/C++ Advanced Edition V8.0.1 for Linux
IBM XL Fortran Advanced Edition V10.1.1 for Linux
Other software:
- IBM Engineering and Scientific Subroutine
Library (ESSL) for Linux - Version 4.2.5
File System: reiserfs
System State: Multi-User

Notes/Tuning Information

+FDO
Feedback directed optimization enabled by: PASS1=-qpdf1 PASS2=-qpdf2

FP compilers
C: invoked as xlc
Fortran 77 and Fortran 90: invoked as xlf90, except as noted below

FP 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

FP Base Optimization Flags:
C: +FDO -O5
Fortran: +FDO -O5



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Notes/Tuning Information (Continued)

Floating Point Peak Flags

```
168.wupwise
  +FDO -O5 -qsave -lmass
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
171.swim
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
172.mgrid
  +FDO -O4 -q64
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
173.applu
  +FDO -O5 -q64
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
177.mesa
  basepeak=1
178.galgel
  Fortran invoked as xlf90_r
  +FDO -O5 -qessl -lessl -lmass
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
179.art
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
183.quake
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
187.facerec
  basepeak=1
188.amp
  +FDO -O3 -qalign=linuxppc
189.lucas
  +FDO -O3 -qarch=auto -qtune=auto
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
191.fma3d
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
200.sixtrack
  +FDO -O3 -qarch=auto -qtune=auto
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
301.apsi
  Fortran invoked as xlf90_r
  +FDO -O5 -qessl
  -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
  extra_libs = -lessl
```

System Settings:

```
-- ulimit stack size set to unlimited
```

SMT: Acronym for 'Simultaneous Multi-Threading'. A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. SMT is enabled by default.

Large pages reserved as follows by root user:

```
echo 30 > /proc/sys/vm/nr_hugepages
```



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Notes/Tuning Information (Continued)

System configured with libhugetlbfs library for application access to large pages

Environment variables set as follows:

```
export HUGETLB_MORECORE=yes
```

Linux booted with the options:

```
maxcpus=1 smt-enabled=off
```

Each process was bound to a cpu using submit= with the taskset command

```
submit = taskset -p -c \${SPECUSERNUM} \${\$} >/dev/null ; \$command
```