



CFP2000 Result

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IBM Corporation

IBM System p5 510 (2100 Mhz, 2 CPU, SLES)

SPECfp_rate2000 = 72.4

SPECfp_rate_base2000 = 66.5

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	79.0	93.9	4	71.1	104
171.swim	4	197	72.9	4	183	78.5
172.mgrid	4	163	51.2	4	137	60.8
173.applu	4	216	45.2	4	187	52.2
177.mesa	4	144	45.1	4	144	45.1
178.galgel	4	123	109	4	97.7	138
179.art	4	39.1	308	4	36.1	334
183.equake	4	50.7	119	4	39.4	153
187.facerec	4	123	71.9	4	123	71.9
188.amp	4	284	36.0	4	287	35.5
189.lucas	4	152	61.1	4	138	67.2
191.fma3d	4	206	47.2	4	203	47.9
200.sixtrack	4	169	30.2	4	164	31.2
301.apsi	4	236	51.2	4	235	51.4

Hardware

CPU: POWER5+
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip (SMT on)
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/ -t1 -Wl,--hugetlbfs-link=BDT
171.swim
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
172.mgrid
  +FDO -O4 -q64
  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
173.applu
  +FDO -O5 -q64
  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
177.mesa
  basepeak=1
178.galgel
  Fortran invoked as xlf90_r
  +FDO -O5 -qessl -lessl -lmass
  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
179.art
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
183.quake
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -t1 -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/ -t1 -Wl,--hugetlbfs-link=BDT
191.fma3d
  +FDO -O5
  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
200.sixtrack
  +FDO -O3 -qarch=auto -qtune=auto
  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
301.apsi
  Fortran invoked as xlf90_r
  +FDO -O5 -qessl
  -B/usr/share/libhugetlbfs/ -t1 -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 120 > /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

Each process was bound to a cpu using submit= with the taskset command
submit = taskset -p -c \\${SPECUSERNUM} \\${\\$} >/dev/null ; \$command

This result was measured on an IBM System p5 510. IBM System p5 505 and IBM System p5 510 (2-core version) are electronically equivalent.