CFP2000 Result

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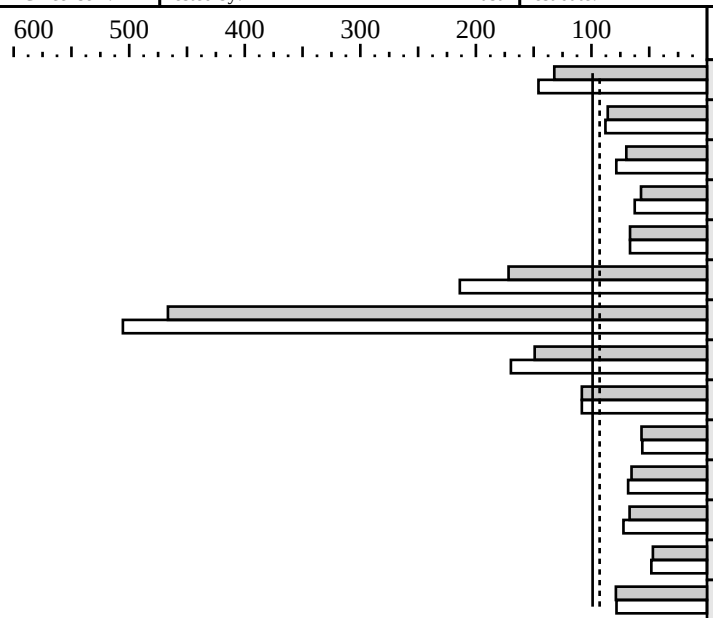
IBM Corporation

IBM System p5 520Q (1650 Mhz, 4 CPU, SLES)

SPECfp_rate2000 = 99.0

SPECfp_rate_base2000 = 92.9

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	8	112	132	8	102	146
171.swim	8	335	85.9	8	327	87.9
172.mgrid	8	239	69.8	8	213	78.5
173.applu	8	341	57.1	8	312	62.5
177.mesa	8	195	66.6	8	195	66.6
178.galgel	8	157	172	8	126	214
179.art	8	51.7	467	8	47.7	505
183.equake	8	80.9	149	8	71.1	170
187.facerec	8	163	108	8	163	108
188.ammp	8	360	56.7	8	365	56.0
189.lucas	8	284	65.3	8	272	68.3
191.fma3d	8	291	67.0	8	270	72.3
200.sixtrack	8	218	46.8	8	212	48.2
301.apsi	8	306	78.9	8	308	78.3

Hardware

CPU:	POWER5+
CPU MHz:	1650
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip (SMT on)
CPU(s) orderable:	4 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.equake
    +FDO -O5
    -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
187.facerec
    basepeak=1
188.ammp
    +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 240 > /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
```