CFP2000 Result

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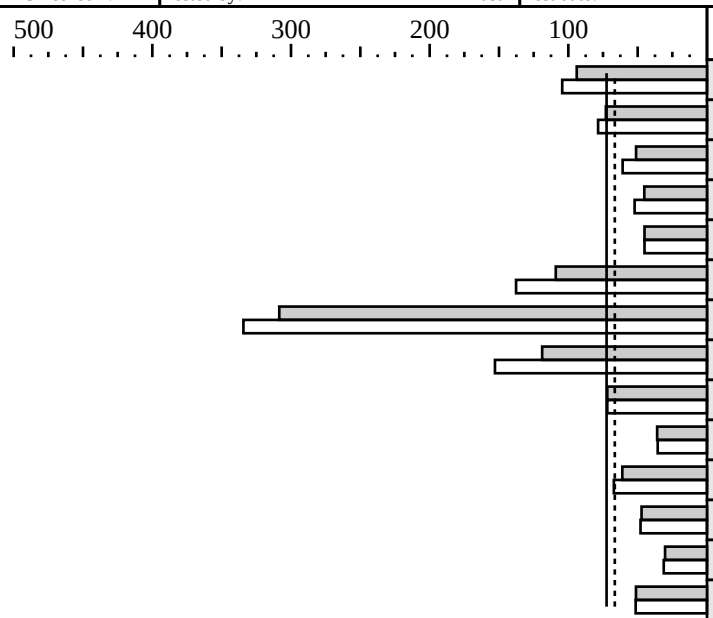
IBM Corporation

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.ammp	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/ -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 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.