CFP2000 Result

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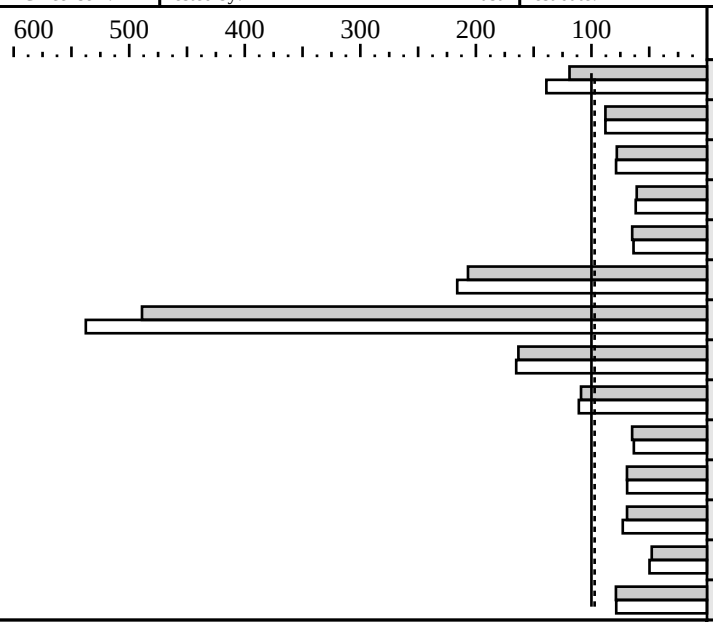
IBM Corporation

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.equake	8	73.9	163	8	73.1	165
187.facerec	8	162	109	8	159	111
188.ammp	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.equake:    -qpdf1/pdf2
                 -O3 -qarch=auto -qtune=auto -qipa=level=2 -blpdata
  187.facerec:   -O5 -qsave -blpdata
  188.ammp:      -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 lgpg_regions=800 -o lgpg_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.