CFP2000 Result

Copyright ©1999-2005, Standard Performance Evaluation Corporation

IBM Corporation

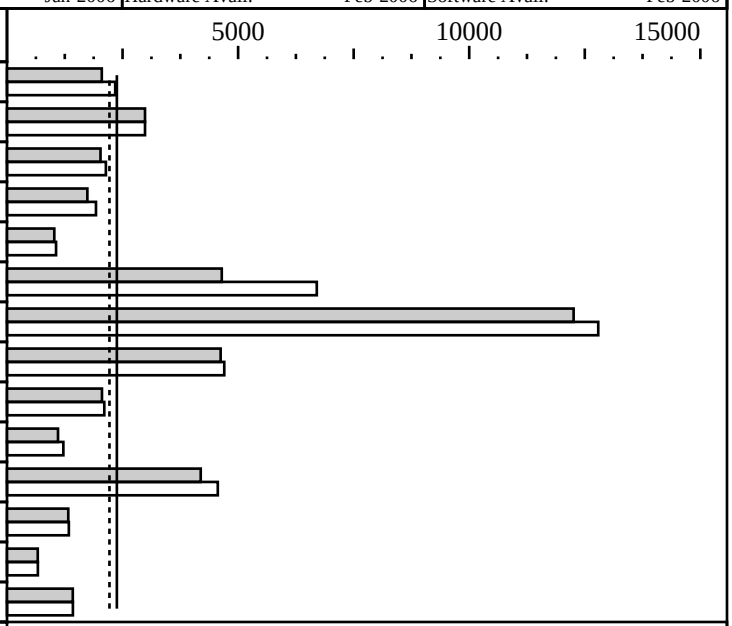
IBM System p5 510Q (1500 MHz, 1 CPU)

SPECfp2000 = 2377

SPECfp_base2000 = 2217

SPEC license #: 11 | Tested by: IBM | Test date: Jan-2006 | Hardware Avail: Feb-2006 | Software Avail: Feb-2006

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio
168.wupwise	1600	78.0	2051	68.3	2341
171.swim	3100	104	2986	104	2986
172.mgrid	1800	89.0	2023	84.1	2139
173.applu	2100	121	1738	109	1925
177.mesa	1400	137	1023	132	1061
178.galgel	2900	62.4	4646	43.3	6702
179.art	2600	21.2	12259	20.3	12791
183.equake	1300	28.1	4622	27.7	4700
187.facerec	1900	92.5	2055	90.3	2105
188.ammp	2200	199	1104	180	1219
189.lucas	2000	47.7	4191	43.9	4560
191.fma3d	2100	158	1326	157	1338
200.sixtrack	1100	165	665	165	668
301.apsi	2600	183	1423	182	1426



Hardware

CPU:	POWER5+
CPU MHz:	1500
FPU:	Integrated
CPU(s) enabled:	1 core, 2 chips, 2 cores/chip (SMT off)
CPU(s) orderable:	4
Parallel:	No
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified, shared (on chip)/chip
L3 Cache:	2x36MB unified (off-chip)/QCM, 1 QCM/SUT
Other Cache:	None
Memory:	8x4GB
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 4.2.0.3
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
```

Copyright ©1999-2005, Standard Performance Evaluation Corporation

Notes/Tuning Information (Continued)

```
  177.mesa:      -qpdf1/pdf2
                  -O5 -qfdpr
                  fdpr -q -O3
  178.galgel:    -qpdf1/pdf2
                 -O5 -qfdpr -lhmu -blpdata -lmass -qessl -lessl
                 fdpr -q -O3
  179.art:       -qpdf1/pdf2
                 -O5 -qhot=arraypad -Q -qalign=natural -blpdata -lhmu
  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:  -qpdf1/pdf2
                 -O4 -qfdpr
                 fdpr -q -O3
  301.apsi:      -O5
```

The installed OS level is AIX 5L for POWER version 5.3 with the 5300-04 Recommended Technology Level.

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)
QCM: Acronym for "Quad-Core Module" (Two dual-core processor chips + two L3-cache chips)
SUT: Acronym for "System Under Test"
ESSL: Engineering and Scientific Subroutine Library

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 and memory affinity were set as follows:

```
vmo -r -o lgpg_regions=400 -o lgpg_size=16777216
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
shutdown -rF
export MEMORY_AFFINITY=MCM
```

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.
Three cores were deconfigured and SMT disabled using the AIX commands

```
smtctl -m off -w boot
bosboot -aD
shutdown -rF
drmgr -r -c cpu
drmgr -r -c cpu
drmgr -r -c cpu
```