CFP2000 Result

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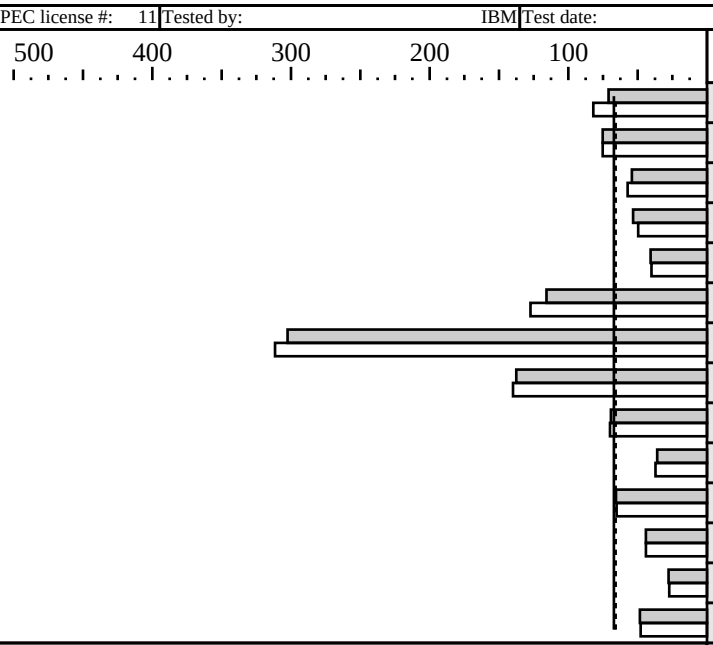
IBM Corporation

IBM System p5 510 (1900 MHz, 2 CPU)

SPECfp_rate2000 = 67.1

SPECfp_rate_base2000 = 65.9

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



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	4	105	71.0	4	90.6	82.0
171.swim	4	191	75.2	4	191	75.2
172.mgrid	4	154	54.2	4	146	57.2
173.applu	4	183	53.3	4	196	49.6
177.mesa	4	160	40.7	4	162	40.0
178.galgel	4	116	116	4	106	127
179.art	4	39.9	302	4	38.7	312
183.equake	4	43.9	138	4	43.1	140
187.facerec	4	127	69.3	4	126	70.0
188.ammp	4	284	35.9	4	275	37.1
189.lucas	4	141	65.6	4	142	65.2
191.fma3d	4	221	44.1	4	221	44.0
200.sixtrack	4	184	27.7	4	187	27.2
301.apsi	4	249	48.4	4	252	47.8

Hardware

CPU:	POWER5+
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip (SMT on)
CPU(s) orderable:	1,2
Parallel:	No
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified, shared (on chip)/chip
L3 Cache:	36MB unified (off-chip)/DCM, 1 DCM/SUT
Other Cache:	None
Memory:	8x2GB
Disk Subsystem:	2x146GB 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
```

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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)
DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)
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=512 -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.