CFP2000 Result

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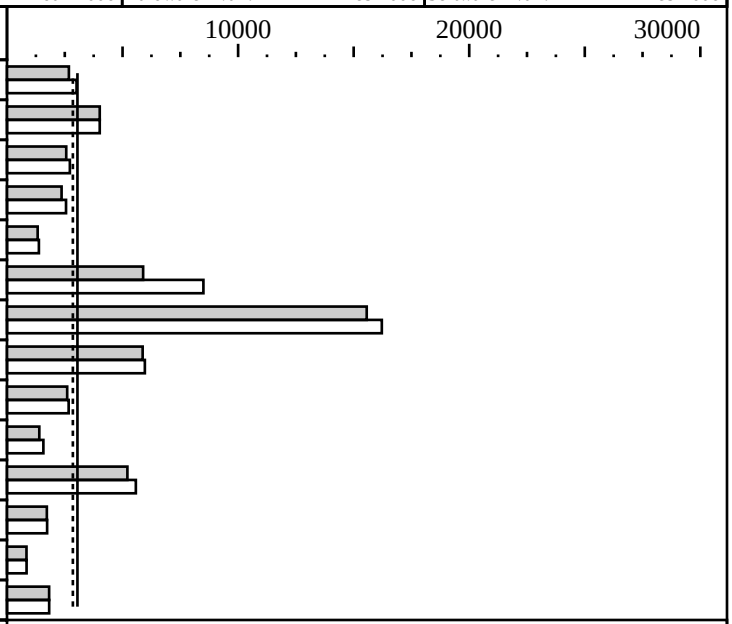
IBM Corporation
IBM System p5 510 (1900 MHz, 1 CPU)

SPECfp2000 = 3048

SPECfp_base2000 = 2850

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	59.8	2678	53.2	3010
171.swim	3100	77.3	4013	77.3	4013
172.mgrid	1800	70.2	2563	66.2	2720
173.applu	2100	88.9	2362	82.2	2554
177.mesa	1400	106	1327	101	1380
178.galgel	2900	49.2	5890	34.1	8498
179.art	2600	16.7	15565	16.0	16218
183.equake	1300	22.1	5869	21.8	5965
187.facerec	1900	73.0	2604	71.2	2668
188.ammp	2200	157	1398	140	1574
189.lucas	2000	38.4	5210	35.9	5575
191.fma3d	2100	122	1724	121	1736
200.sixtrack	1100	130	843	130	847
301.apsi	2600	143	1823	143	1824



Hardware

CPU:	POWER5+
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 2 cores/chip (SMT off)
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=256 -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.
One core was deconfigured and SMT disabled using the AIX commands

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