CFP2000 Result

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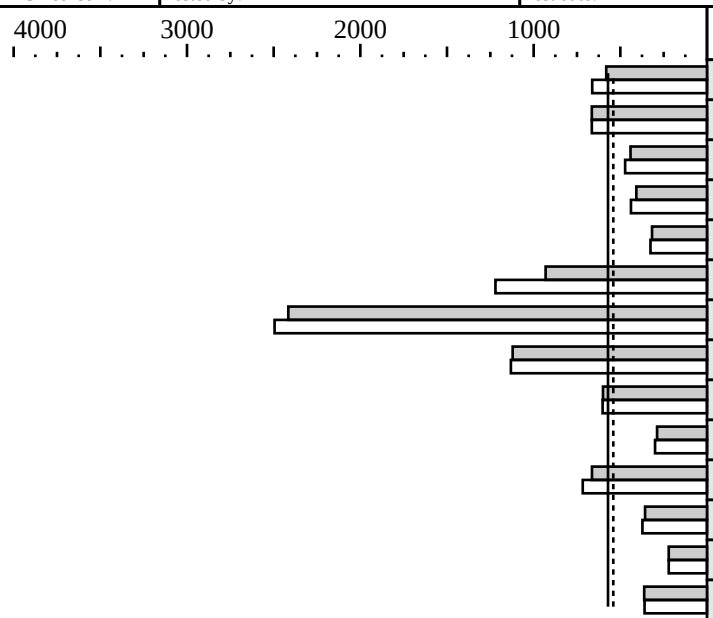
IBM Corporation

IBM System p5 575 (1900 MHz, 16 CPU)

SPECfp_rate2000 = 571

SPECfp_rate_base2000 = 541

SPEC license #: 11 | Tested by: IBM | Test date: Dec-2005 | Hardware Avail: Feb-2006 | Software Avail: Feb-2006



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	32	102	581	32	89.7	662
171.swim	32	173	665	32	173	665
172.mgrid	32	151	441	32	141	472
173.applu	32	191	408	16	88.8	439
177.mesa	32	164	317	32	159	326
178.galgel	32	116	931	16	44.1	1220
179.art	32	40.0	2416	32	38.7	2495
183.equake	32	43.0	1121	32	42.7	1131
187.facerec	32	118	600	32	117	602
188.ammp	32	284	288	32	273	300
189.lucas	32	112	664	16	51.8	717
191.fma3d	32	218	357	32	209	373
200.sixtrack	32	185	221	32	185	221
301.apsi	32	266	362	32	268	360

Hardware

CPU:	POWER5+
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	16 cores, 8 chips, 2 cores/chip (SMT on)
CPU(s) orderable:	8,16
Parallel:	No
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified, shared (on chip)/chip
L3 Cache:	36MB unified (off-chip)/DCM, 8 DCMs/SUT
Other Cache:	None
Memory:	64x2GB
Disk Subsystem:	2x73GB 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 -qalign=struct=natural -lhmu -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)

```
                users=16
  177.mesa:     -qpdf1/pdf2
                -O4 -qalign=natural
  178.galgel:   -qpdf1/pdf2
                -O5 -qfdpr -qalign=struct=natural -lhmu -blpdata -lmass -qessl -lessl
                fdpr -q -O3
                users=16
  179.art:      -qpdf1/pdf2
                -O3 -qarch=auto -qtune=auto -qipa=level=2 -lhmu -blpdata
  183.equake:   -qpdf1/pdf2
                -O3 -qarch=auto -qtune=auto -qipa=level=2 -blpdata
  187.facerec:  -O5 -qhot=arraypad -Q -qalign=struct=natural -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
                users=16
  191.fma3d:    -qpdf1/pdf2
                -O5 -qhot=arraypad -Q -qalign=struct=natural -q64 -lhmu -blpdata -lmass
  200.sixtrack: basepeak=1
  301.apsi:     -O5 -qalign=struct=natural
```

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=3200 -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 = submit = let "MYCPU=2*$SPECUSERNUM"; if (("$MYCPU > 31")) then let "MYCPU-=31"; fi; bindprocessor $$ $MYCPU; $command
```

The "bindprocessor" AIX command binds a process to a CPU core.