CFP2000 Result

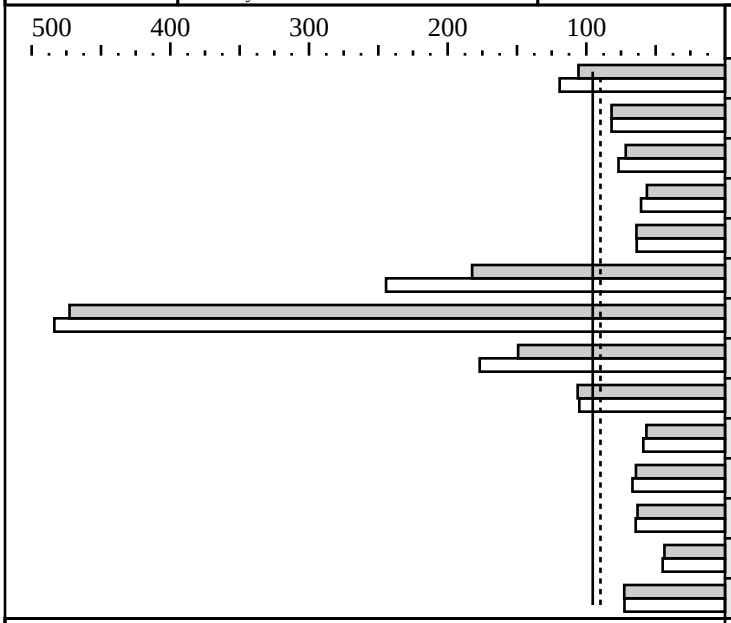
IBM Corporation

IBM System p5 510Q (1500 MHz, 4 CPU)

SPECfp_rate2000 = 95.5

SPECfp_rate_base2000 = 89.8

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	8	141	106	8	125	119
171.swim	8	352	81.8	8	352	81.8
172.mgrid	8	233	71.6	4	109	76.8
173.applu	8	346	56.3	4	161	60.5
177.mesa	8	203	63.9	8	204	63.7
178.galgel	8	148	182	4	55.0	244
179.art	8	51.1	473	8	49.9	484
183.equake	8	80.9	149	4	34.1	177
187.facerec	8	166	106	8	168	105
188.ammp	8	360	56.7	8	347	58.9
189.lucas	8	289	64.2	4	139	66.7
191.fma3d	8	309	63.1	8	303	64.4
200.sixtrack	8	234	43.7	8	227	44.9
301.apsi	8	332	72.6	8	333	72.5

Hardware

CPU:	POWER5+
CPU MHz:	1500
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip (SMT on)
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
```

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:  -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 5300-04 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=800 -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 = let "MYCPU=2*\$SPECUSERNUM"; if (("\$MYCPU > 7")) then let "MYCPU-=7"; fi; bindprocessor \$\$ \$MYCPU; $command
```

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