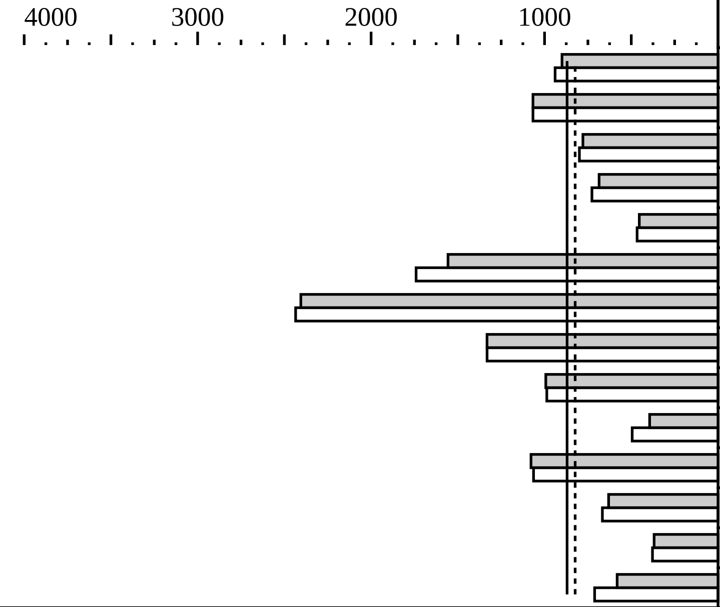
CFP2000 Result

IBM Corporation
IBM eServer p5 590 (1650 MHz, 32 CPU)

SPECfp_rate2000 = 870
SPECfp_rate_base2000 = 824

SPEC license #: 11	Tested by: IBM	Test date: Sep-2004	Hardware Avail: Nov-2004	Software Avail: Nov-2004



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
168.wupwise	64	132	899	64	126	939
171.swim	64	216	1067	64	216	1067
172.mgrid	64	172	779	32	83.6	799
173.applu	64	227	685	32	107	727
177.mesa	64	229	454	64	223	466
178.galgel	64	138	1556	64	124	1741
179.art	64	80.3	2405	32	39.6	2435
183.equake	64	72.5	1332	32	36.2	1331
187.facerec	64	142	993	64	143	987
188.ammp	64	414	394	64	330	495
189.lucas	64	138	1078	64	140	1063
191.fma3d	64	247	631	64	234	667
200.sixtrack	64	222	368	64	216	378
301.apsi	64	332	581	64	271	711

Hardware

CPU:	POWER5
CPU MHz:	1650
FPU:	Integrated
CPU(s) enabled:	32 cores, 16 chips, 2 cores/chip (SMT on)
CPU(s) orderable:	8,16,24,32
Parallel:	No
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified (on chip)/chip
L3 Cache:	36MB unified (off-chip)/chip, 4 chips/MCM, 4 MCMs/SUT
Other Cache:	None
Memory:	128 GB DDR2
Disk Subsystem:	2x36GB SCSI, 15K RPM
Other Hardware:	None

Software

Operating System:	AIX 5L V5.3
Compiler:	XL C/C++ Enterprise Edition V7.0 for AIX XL Fortran Enterprise Edition V9.1 for AIX Other Software: ESSL for AIX V4.2
File System:	AIX/JFS2
System State:	Multi-user

Notes/Tuning Information

```
Tested by IBM
  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:
    C:         -qpdf1/pdf2
               -O5 -blpdata -lmass
    Fortran:   -qpdf1/pdf2
               -O5 -blpdata -lmass

  Peak Optimization Flags:
     168.wupwise:    -O5
     171.swim:       basepeak=1
     172.mgrid:      -qpdf1/pdf2
```

Notes/Tuning Information (Continued)

```
                    -O5 -blpdata -lmass
                    users=32
   173.applu:       -O5 -qarch=pwr3 -qtune=pwr3 -blpdata -lmass
                    users=32
   177.mesa:        -qpdf1/pdf2
                    -O5
   178.galgel:      -O5 -blpdata -qessl -lessl
   179.art:         -O5 -lmass -qessl -lessl -blpdata -qsave
                    users=32
   183.equake:      -qpdf1/pdf2
                    -O5 -blpdata -lmass
                    users=32
   187.facerec:     -O3 -qhot -qarch=pwr5 -qtune=pwr5 -qfdpr
                    fdpr -R3
   188.ammp:        -qpdf1/pdf2
                    -O5 -blpdata -qalign=natural -D_ILS_MACROS
   189.lucas:       -O5 -blpdata -lmass
   191.fma3d:       -qpdf1/pdf2
                    -O5 -blpdata -qalign=natural -qhot=arraypad -Q
   200.sixtrack:    -O3 -qhot -qarch=pwr5 -qtune=pwr5 -qfdpr
                    fdpr -R3
   301.apsi:        -O5 -lmass -qessl -lessl -blpdata -qsave


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)
MCM: Acronym for "Multi-Chip Module" (four dual-core processor chips + four L3-cache chips)
     This system contains 4 MCMs.
SUT: Acronym for "System Under Test"
ESSL: Engineering and Scientific Subroutine Library

C:       IBM XL C for AIX invoked as xlc
Fortran: IBM XL Fortran for AIX invoked as xlf90

APAR IY60349 was applied to AIX to enable new hardware support.
ulimits set to unlimited.
Large page mode and memory affinity were set as follows:
   vmo -r -o lgpg_regions=4096 -o lgpg_size=16777216 -o memory_affinity=1
   chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
   shutdown -r
   export MEMORY_AFFINITY=MCM

The following config-file entry was used to assign each benchmark process to a core:
   submit = schedule.64 $SPECUSERNUM $command
with the "schedule.64" function defined as follows:
   #!/bin/ksh
   index=$1
   shift 1                    # Strip off the residual arguments; the rest is the command.
   if [[ $index -ge 32 ]]
   then
       target=$((1+2*(index-32)))
   else
       target=$((2*index))
   fi
   bindprocessor $$ $target        # Schedule this job to the corresponding core.
```

Notes/Tuning Information (Continued)

```
    $*                               # Now run the command.

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