



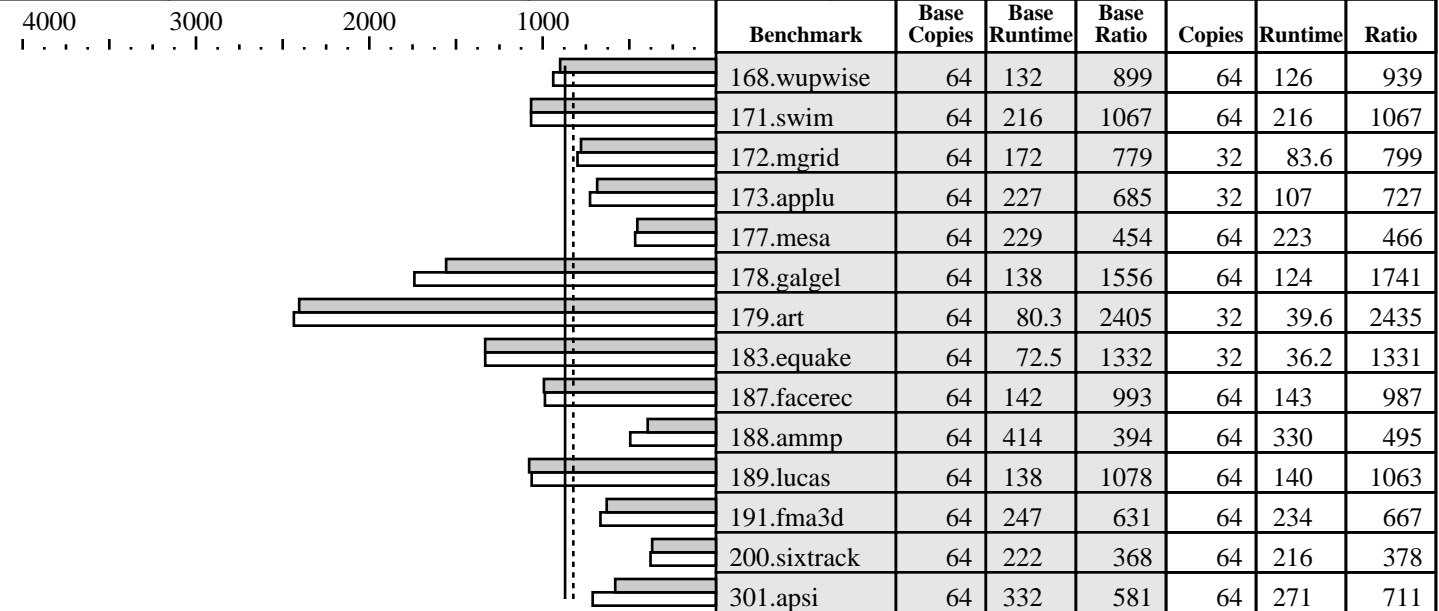
CFP2000 Result

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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



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



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Notes/Tuning Information (Continued)

```

-05 -blpdata -lmass
users=32
173.applu: -05 -qarch=pwr3 -qtune=pwr3 -blpdata -lmass
users=32
177.mesa: -qpdf1/pdf2
-05
178.galgel: -05 -blpdata -qessl -lessl
179.art: -05 -lmass -qessl -lessl -blpdata -qsave
users=32
183.quake: -qpdf1/pdf2
-05 -blpdata -lmass
users=32
187.facerec: -03 -qhot -qarch=pwr5 -qtune=pwr5 -qfdpr
fdpr -R3
188.ammp: -qpdf1/pdf2
-05 -blpdata -qalign=natural -D_ILS_MACROS
189.lucas: -05 -blpdata -lmass
191.fma3d: -qpdf1/pdf2
-05 -blpdata -qalign=natural -qhot=arraypad -Q
200.sixtrack: -03 -qhot -qarch=pwr5 -qtune=pwr5 -qfdpr
fdpr -R3
301.apsi: -05 -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 lpgg_regions=4096 -o lpgg_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.

```



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Notes/Tuning Information (Continued)

\$*

Now run the command.

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