### IBM Corporation

**IBM System p5 595 (2300 MHz, 1 CPU)**

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<tr>
<th>Benchmark</th>
<th>Reference Time</th>
<th>Base Runtime</th>
<th>Base Ratio</th>
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#### Hardware

- **CPU:** POWER5+
- **CPU MHz:** 2300
- **FPU:** Integrated
- **CPU(s) enabled:** 1 core, 1 chip, 2 cores/chip (SMT off)
- **CPU(s) orderable:** 16,32,48,64 cores
- **Parallel:** No
- **Primary Cache:** 64 KB I + 32 KB D on chip per core
- **Secondary Cache:** 1920 KB I+D on chip per chip
- **L3 Cache:** 36 MB I+D off chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (64x4 GB)
- **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
- **Other Software:** ESSL 4.2.0.4
- **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.facererec, 189.lucas, 191.fma3d

- **Base Optimization Flags:**
  - Fortran: `-O5 -lmu -blpdata -lmass`
  - C: `-qpdf1/pdf2`
    - `-O5 -blpdata -qalign=natural`

- **Peak Optimization Flags**
  - 168.wupwise: `-O5 -qsave -blpdata -lmu -lmass`
  - 171.swim: `basepeak=1`
  - 172.mgrid: `-qpdf1/pdf2`
    - `-O4 -qipa=partition=large -q64 -blpdata`
  - 173.applu: `-qpdf1/pdf2`
    - `-O4 -q64 -blpdata`
IBM Corporation
IBM System p5 595 (2300 MHz, 1 CPU)

**SPECfp2000 =** 3642
**SPECfp_base2000 =** 3369

**Notes/Tuning Information (Continued)**

177. mesa:  
-qpdf1/pdf2  
-O4 -qalign=natural

178. galgel:  
-qpdf1/pdf2  
-O5 -qfdpr -qalign=struct=natural -lhmu -blpdata -lmass -qessl -lessl  
fldr -q -O3

179. art:  
-O5 -lhmu -blpdata

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  
fdpr -q -O3

200. sixtrack:  
-O3 -qarch=auto -qtune=auto -qfdpr  
fdpr -q -O3

301. apsi:  
-O5 -qhot=arraypad -Q -qalign=struct=natural

The installed OS level is AIX 5L for POWER Version 5.3 with the 5300-05 Recommended Technology Level.
The installed C/C++ compiler is XL C/C++ Enterprise Edition Version 8.0 for AIX with the March 2006 PTF.
The installed Fortran copiler is XL Fortran Enterprise Edition Version 10.1 with the May 2006 AIX PTF.

**SMT:** Acronym for "Simultaneous Multi-Threaded". A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. (Enabled by default)

**SUT:** Acronym for "System Under Test"

**ESSL:** Engineering and Scientific Subroutine Library

**PTF:** IBM identifier for "Program Fix Level"

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=8192 -o lgpg_size=16777216  
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER  
bosboot -aD  
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 > 127") then let "MYCPU-=127"; fi; bindprocessor $\$ \$MYCPU; $command
```

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

Sixty-three cores were deconfigured and SMT disabled at the open-firmware prompt, using the command:

```
boot -s cpu=1 -s smt_off
```