IBM Corporation
IBM eServer p5 520 Express (1500 MHz, 2 CPU)

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Copies</th>
<th>Base Runtime</th>
<th>Base Ratio</th>
<th>Copies</th>
<th>Runtime</th>
<th>Ratio</th>
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</tbody>
</table>

Hardware
- CPU: POWER5
- CPU MHz: 1500
- FPU: Integrated
- CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip (SMT on)
- CPU(s) orderable: 2
- Parallel: No
- Primary Cache: 64KB+32KBD (on chip)/core
- Secondary Cache: 1920KB unified (on chip)/chip
- L3 Cache: 36MB unified (off chip)/DCM, 1 DCM/SUT
- Other Cache: None
- Memory: 8x2 GB
- Disk Subsystem: 2x36GB SCSI, 15K RPM

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: IBM ESSL for AIX V4.2
- 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:
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### Notes/Tuning Information (Continued)

<table>
<thead>
<tr>
<th>Program</th>
<th>C Flags</th>
<th>Fortran Flags</th>
</tr>
</thead>
</table>
| C:      | -qpdf1/pdf2  
-05 -blpdata -lmass | -qpdf1/pdf2  
-05 -blpdata -lmass |
| Fortran: | -qpdf1/pdf2  
-05 -blpdata -lmass | -qpdf1/pdf2  
-05 -blpdata -lmass |

Peak Optimization Flags:

- 168.wupwise: -05 -qarch=pwr3 -qtune=pwr3 -blpdata -lmass  
  F77=xlf
- 171.swim: -05 -qarch=pwr3 -qtune=pwr3 -blpdata -lmass  
  F77=xlf
- 172.mgrid: -qpdf1/pdf2  
  -05 -blpdata -lmass
- 173.applu: -05 -qarch=pwr3 -qtune=pwr3 -blpdata -lmass  
  F77=xlf
- 177.mesa: -qpdf1/pdf2  
  -05
- 178.galgel: -05 -blpdata -qessl -lessl
- 179.art: -05 -lmass -qessl -lessl -blpdata -qsave
- 183.equake: -qpdf1/pdf2  
  -05 -blpdata -lmass
- 187.facerec: -03 -qhot -qarch=pwr5 -qtune=pwr5 -qfdpr  
  fdp -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=araypad -Q
- 200.sixtrack: -03 -qhot -qarch=pwr5 -qtune=pwr5 -qfdpr  
  fdp -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)

ESSL: Engineering and Scientific Subroutine Library

DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)

SUT: Acronym for "System Under Test"

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

APAR IY 62534 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=400 -o lgpg_size=16777216 -o memory_affinity=1
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Notes/Tuning Information (Continued)
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
shutdown -r
export MEMORY_AFFINITY=MCM