IBM Corporation
IBM System p5 505 (2100 Mhz, 2 CPU, SLES)

**SPECfp_rate2000** = 72.4
**SPECfp_rate_base2000** = 66.5

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU: POWER5+</td>
<td>Operating System: SLES</td>
</tr>
<tr>
<td>CPU MHz: 2100</td>
<td>SUSE Linux Enterprise Server 10 (ppc) VERSION = 10 w/2.6.16.21-0.8-ppc64 Linux kernel</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>Compiler: IBM XL C/C++ Advanced Edition V8.0.1 for Linux</td>
</tr>
<tr>
<td>CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip (SMT on)</td>
<td>Other software: IBM XL Fortran Advanced Edition V10.1.1 for Linux</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 core</td>
<td>File System: reiserfs</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>System State: Multi-User</td>
</tr>
</tbody>
</table>
| Primary Cache: 64 KB I + 32 KB D on chip per core | Notes/Tuning Information
| Secondary Cache: 1920 KB I+D on chip per chip | +FDO Feedback directed optimization enabled by: PASS1=-qpdf1 PASS2=-qpdf2 |
| L3 Cache: 36 MB I+D off chip per chip | FP compilers
| Other Cache: None | C: invoked as xlc |
| Memory: 16 GB (8x2GB) | Fortran 77 and Fortran 90: invoked as xlf90, except as noted below |
| Disk Subsystem: 1x73GB SCSI, 15K RPM | FP Portability Flags
| Other Hardware: None | -qfixed used in: 168.wupwise, 171.swim, 172.mgrid, 173 apllu, 178.galgel, 200.sixtrack, 301.apsi |

<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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</thead>
<tbody>
<tr>
<td>168.wupwise</td>
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<td>79.0</td>
<td>93.9</td>
<td>4</td>
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<td>171.swim</td>
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<td>4</td>
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<td>4</td>
<td>187</td>
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<tr>
<td>177.mesa</td>
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<td>144</td>
<td>45.1</td>
<td>4</td>
<td>144</td>
<td>45.1</td>
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<tr>
<td>178.galgel</td>
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<td>109</td>
<td>4</td>
<td>97.7</td>
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<tr>
<td>179.art</td>
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<td>39.1</td>
<td>308</td>
<td>4</td>
<td>36.1</td>
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<tr>
<td>183.equake</td>
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<td>39.4</td>
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<tr>
<td>187.facerc</td>
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<td>123</td>
<td>71.9</td>
<td>4</td>
<td>123</td>
<td>71.9</td>
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<tr>
<td>188.ammp</td>
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<td>287</td>
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<tr>
<td>189.lucas</td>
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<td>67.2</td>
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<tr>
<td>191.fma3d</td>
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<td>47.9</td>
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<tr>
<td>200.sixtrack</td>
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<td>30.2</td>
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<td>164</td>
<td>31.2</td>
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<tr>
<td>301.apsi</td>
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<td>236</td>
<td>51.2</td>
<td>4</td>
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<td>51.4</td>
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</tbody>
</table>

IBM Austin Tested by: Tested date: Oct-2006 Hardware Avail: Aug-2006 Software Avail: Dec-2006

**Benchmark**
- 168.wupwise
- 171.swim
- 172.mgrid
- 173.applu
- 177.mesa
- 178.galgel
- 179.art
- 183.equake
- 187.facerc
- 188.ammp
- 189.lucas
- 191.fma3d
- 200.sixtrack
- 301.apsi

**Hardware**

**Software**
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Notes/Tuning Information (Continued)

Floating Point Peak Flags

168.wupwise
   +FDO -O5 -qsave -lmass
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
171.swim
   +FDO -O5
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
172.mgrid
   +FDO -O4 -g64
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
173.applu
   +FDO -O5 -q64
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
177.mesa
   basepeak=1
178.galgel
   Fortran invoked as xlf90_r
   +FDO -O5 -qessl -lessl -lmass
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
179.art
   +FDO -O5
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
183.equake
   +FDO -O5
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
187.facerec
   basepeak=1
188.ammp
   +FDO -O3 -qalign=linuxppc
189.lucas
   +FDO -O3 -qarch=auto -qtune=auto
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
191.fma3d
   +FDO -O5
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
200.sixtrack
   +FDO -O3 -qarch=auto -qtune=auto
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
301.apsi
   Fortran invoked as xlf90_r
   +FDO -O5 -qessl
   -B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT
   extra_libs = -lessl

System Settings:
-- ulimit stack size set to unlimited

SMT: Acronym for 'Simultaneous Multi-Threading'. A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. SMT is enabled by default.

Large pages reserved as follows by root user:
   echo 120 > /proc/sys/vm/nr_hugepages
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**Notes/Tuning Information (Continued)**

System configured with libhugetlbfs library for application access to large pages

Environment variables set as follows:

```
export HUGETLB_MORECORE=yes
```

Each process was bound to a CPU using `submit= with the taskset command`

```
submit = taskset -p -c \$SPECUSERNUM \$\$ >/dev/null ; $command
```

This result was measured on an IBM System p5 510. IBM System p5 505 and IBM System p5 510 (2-core version) are electronically equivalent.