## SPEC CFP2006 Result

**Hewlett-Packard Company**

**HP Integrity BL860c i2 (1.73 GHz/24MB Quad-Core Intel Itanium 9350)**

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong></td>
<td><strong>Operating System:</strong> HP-UX 11i v3 Data Center Operating Environment B.11.31.1003</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong> Intel Turbo Boost Technology up to 1.86 GHz</td>
<td><strong>Compiler:</strong> HP C/HP C++ Developer's Bundle C.11.31.05 HP Fortran 90 Compiler B.11.31.10</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong> 1730</td>
<td><strong>Auto Parallel:</strong> No</td>
</tr>
<tr>
<td><strong>FPU:</strong> Integrated</td>
<td><strong>File System:</strong> vxfs</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong> 8 cores, 2 chips, 4 cores/chip, 2 threads/core</td>
<td><strong>System State:</strong> Multi-user</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong> 1-2 chips</td>
<td><strong>Base Pointers:</strong> 32-bit</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong> 16 KB I + 16 KB D on chip per core</td>
<td><strong>Peak Pointers:</strong> 32-bit</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong> 512 KB I + 256 KB D on chip per core</td>
<td></td>
</tr>
</tbody>
</table>

**SPECfp_rate2006 = 136**

**SPECfp_rate_base2006 = 132**

### Test Results

<table>
<thead>
<tr>
<th>Copy</th>
<th>SPECfp_rate2006</th>
<th>SPECfp_rate_base2006</th>
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<tbody>
<tr>
<td>8</td>
<td>87.7</td>
<td>113</td>
</tr>
<tr>
<td>8</td>
<td>84.3</td>
<td>114</td>
</tr>
<tr>
<td>8</td>
<td>138</td>
<td>138</td>
</tr>
<tr>
<td>8</td>
<td>144</td>
<td>144</td>
</tr>
<tr>
<td>8</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>8</td>
<td>142</td>
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<tr>
<td>8</td>
<td>221</td>
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<td>8</td>
<td>72.8</td>
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<tr>
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<td>80.7</td>
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<tr>
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<td>8</td>
<td>97.0</td>
<td>97.0</td>
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<tr>
<td>8</td>
<td>121</td>
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</tr>
<tr>
<td>8</td>
<td>95.3</td>
<td>95.3</td>
</tr>
<tr>
<td>8</td>
<td>144</td>
<td>144</td>
</tr>
<tr>
<td>8</td>
<td>164</td>
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</table>

**Test date:** Jan-2010  
**Hardware Availability:** May-2010  
**Software Availability:** Mar-2010

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Hewlett-Packard Company
HP Integrity BL860c i2 (1.73 GHz/24MB Quad-Core Intel Itanium 9350)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>bwaves</td>
<td>582</td>
<td>583</td>
</tr>
<tr>
<td>gamess</td>
<td>1858</td>
<td>1859</td>
</tr>
<tr>
<td>milc</td>
<td>642</td>
<td>642</td>
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<tr>
<td>reusmp</td>
<td>528</td>
<td>528</td>
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<tr>
<td>gromacs</td>
<td>441</td>
<td>441</td>
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<tr>
<td>cactusADM</td>
<td>316</td>
<td>316</td>
</tr>
<tr>
<td>leslie3d</td>
<td>528</td>
<td>528</td>
</tr>
<tr>
<td>namd</td>
<td>291</td>
<td>291</td>
</tr>
<tr>
<td>dealII</td>
<td>521</td>
<td>521</td>
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<tr>
<td>soplex</td>
<td>920</td>
<td>917</td>
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<tr>
<td>povray</td>
<td>527</td>
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</tr>
<tr>
<td>calculix</td>
<td>463</td>
<td>461</td>
</tr>
<tr>
<td>GemsFDTD</td>
<td>875</td>
<td>880</td>
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<tr>
<td>tonto</td>
<td>649</td>
<td>649</td>
</tr>
<tr>
<td>lbm</td>
<td>1154</td>
<td>1154</td>
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<tr>
<td>wrf</td>
<td>620</td>
<td>620</td>
</tr>
<tr>
<td>sphinx3</td>
<td>959</td>
<td>957</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes
The config file option 'submit' was used.

Operating System Notes
The following kernel tunables were set, in addition to the defaults set by the Base Operating Environment:

- filecache_max=25%
- filecache_min=25%
- maxdsiz=3221225472
- fcache_fb_policy=1
- base_pagesize=64
- pagezero_daemon_enabled=0
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SPECfp_rate_base2006 = 132

CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
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Software Availability: Mar-2010

Operating System Notes (Continued)

vxfs_ifree_timelag=-1
maxssiz=0x17f00000
lcpu_attr=0

Platform Notes
Use of Hardware Threading by the OS was disabled via kctune
The following config file entry was used to bind
processes to cores using the HP-UX "mpsched" utility:
submit = let "MYCPU=\$SPECCOPYNUM*2" ;mpsched -c \$MYCPU $command

Base Compiler Invocation

C benchmarks:
/opt/ansic/bin/cc -AC99

C++ benchmarks:
/opt/aCC/bin/aCC -Aa

Fortran benchmarks:
/opt/fortran90/bin/f90

Benchmarks using both Fortran and C:
/opt/ansic/bin/cc -AC99 /opt/fortran90/bin/f90

Base Portability Flags

453.povray: -DSPEC_CPU_NEED_INVHYP
481.wrf: -DNOUNDERSCORE +noppu

Base Optimization Flags

C benchmarks:
+Ofaster +Otype_safety=ansi -Wl,-aarchive_shared -Wl,+pd,64M -Wl,+pi,64K -Wl,-N

C++ benchmarks:
+Ofaster +Otype_safety=ansi -Wl,-aarchive_shared -Wl,+pd,64M -Wl,+pi,64K -Wl,-N -lmallocng

Fortran benchmarks:
+Ofaster -Wl,-aarchive_shared -Wl,+pd,64M -Wl,+pi,64K -Wl,-N

Benchmarks using both Fortran and C:
+Ofaster +Otype_safety=ansi -Wl,-aarchive_shared -Wl,+pd,64M -Wl,+pi,64K -Wl,-N
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Peak Compiler Invocation

C benchmarks:
/opt/ansic/bin/cc -AC99

C++ benchmarks:
/opt/aCC/bin/aCC -Aa

Fortran benchmarks:
/opt/fortran90/bin/f90

Benchmarks using both Fortran and C:
/opt/ansic/bin/cc -AC99 /opt/fortran90/bin/f90

Peak Portability Flags

453.povray: -DSPEC_CPU_NEED_INVHYP
481.wrf: -DNOUNDERSCORE +noppu

Peak Optimization Flags

C benchmarks:
433.milc: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster
 +Otype_safety=ansi -Wl, -a, archive_shared -Wl, +pd, 64M
 -Wl, +pi, 64M +Onoparmsoverlap -Wl, -N

470.lbm: basepeak = yes
482.sphinx3: Same as 433.milc

C++ benchmarks:
444.namd: basepeak = yes
447.dealII: basepeak = yes

450.soplex: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster
 +Otype_safety=ansi -Wl, -a, archive_shared -Wl, +pd, 64M
 -Wl, +pi, 64M +Onoparmsoverlap -Wl, -N -lmallocng

453.povray: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster
 +Otype_safety=ansi -Wl, -a, archive_shared -Wl, +pd, 64M
 -Wl, +pi, 64M -Wl, -N -lmallocng

Fortran benchmarks:

Continued on next page
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</tr>
</tbody>
</table>

#### Peak Optimization Flags (Continued)

- 410.bwaves: basepeak = yes
- 416.gamess: +Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct -Wl,-N
- 434.zeusmp: basepeak = yes
- 437.leslie3d: basepeak = yes
- 459.GemsFDTD: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct -Wl,-N
- 465.tonto: Same as 459.GemsFDTD

Benchmarks using both Fortran and C:

- 435.gromacs: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmeoverlap -Wl,-N
- 436.cactusADM: basepeak = yes
- 454.calculix: basepeak = yes
- 481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

You can also download the XML flags source by saving the following link:

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For questions about this result, please contact the tester.

For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.


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