Hewlett-Packard Company
HP Integrity rx2660
(1.6GHz/18MB Dual-Core Intel Itanium 2)

SPECint²006 = 12.3
SPECint_base2006 = 11.7

CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Jan-2007
Hardware Availability: Feb-2007
Software Availability: Nov-2006

Hewlett-Packard Company

Hardware
CPU Name: Dual-Core Intel Itanium 2 9040
CPU Characteristics: 1.6GHz/18MB, 533MHz FSB
CPU MHz: 1600
FPU: Integrated
CPU(s) enabled: 1 core, 1 chip, 2 cores/chip
CPU(s) orderable: 1-2 chips
Primary Cache: 16 KB I + 16 KB D on chip per core
Secondary Cache: 1 MB I + 256 KB D on chip per core
L3 Cache: 9 MB I+D on chip per core
Other Cache: None
Memory: 8 GB (4x2GB DIMMs)
Disk Subsystem: 73GB 10K RPM SAS
Other Hardware: None

Software
Operating System: Red Hat Enterprise Linux AS release 4 (Update 4)
Compiler: Intel C++ Compiler 9.1 for Linux (Build 20061105)
Auto Parallel: No
File System: ext3
System State: Multi-user
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other Software: MicroQuill Smartheap 8.0
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base</td>
<td>Peak</td>
<td>Base</td>
<td>Peak</td>
<td>Base</td>
<td>Peak</td>
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<tr>
<td>400.perlbench</td>
<td>1094  8.93</td>
<td>1095 8.92</td>
<td><strong>1095</strong> 8.93</td>
<td><strong>923</strong> 10.6</td>
<td><strong>923</strong> 10.6</td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>1115  8.65</td>
<td><strong>1116</strong> 8.65</td>
<td>1116 8.65</td>
<td><strong>1102</strong> 8.76</td>
<td>1101 8.76</td>
<td>1103 8.75</td>
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<td>403.gcc</td>
<td><strong>973</strong> 8.27</td>
<td>972 8.28</td>
<td>974 8.26</td>
<td><strong>864</strong> 9.32</td>
<td>865 9.31</td>
<td>863 9.33</td>
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<tr>
<td>445.gobmk</td>
<td><strong>1013</strong> 10.4</td>
<td>1013 10.4</td>
<td>1014 10.3</td>
<td>891 11.8</td>
<td><strong>891</strong> 11.8</td>
<td>892 11.8</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>367 25.4</td>
<td>368 25.4</td>
<td><strong>368</strong> 25.4</td>
<td>367 25.4</td>
<td>368 25.4</td>
<td><strong>368</strong> 25.4</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>1417 8.54</td>
<td>1416 8.54</td>
<td><strong>1417</strong> 8.54</td>
<td><strong>1239</strong> 9.77</td>
<td>1238 9.77</td>
<td>1240 9.76</td>
</tr>
<tr>
<td>462.libquantum</td>
<td><strong>449</strong> 46.2</td>
<td>449 46.2</td>
<td>441 47.0</td>
<td><strong>449</strong> 46.2</td>
<td>449 46.2</td>
<td>441 47.0</td>
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<tr>
<td>464.h264ref</td>
<td>1162 19.1</td>
<td><strong>1161</strong> 19.1</td>
<td>1161 19.1</td>
<td><strong>1161</strong> 19.1</td>
<td>1161 19.1</td>
<td><strong>1161</strong> 19.1</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td><strong>1055</strong> 5.92</td>
<td>1056 5.92</td>
<td>1054 5.93</td>
<td>996 6.27</td>
<td><strong>997</strong> 6.27</td>
<td>998 6.26</td>
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<tr>
<td>473.astar</td>
<td><strong>686</strong> 10.2</td>
<td>683 10.3</td>
<td>688 10.2</td>
<td>662 10.6</td>
<td>668 10.5</td>
<td><strong>663</strong> 10.6</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>806 8.56</td>
<td>811 8.51</td>
<td><strong>806</strong> 8.56</td>
<td>789 8.74</td>
<td>790 8.74</td>
<td><strong>789</strong> 8.74</td>
</tr>
</tbody>
</table>

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

Operating System Notes

- stacksize set to unlimited prior to run
- system was booted uniprocessor by setting "maxcpus=0"
- kernel parameter in elilo.conf

Base Compiler Invocation

- C benchmarks: icc
- C++ benchmarks: icpc

Base Portability Flags

- 400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_IA64
- 401.bzip2: -DSPEC_CPU_LP64
- 403.gcc: -DSPEC_CPU_LP64
- 429.mcf: -DSPEC_CPU_LP64
- 445.gobmk: -DSPEC_CPU_LP64
- 456.hmmer: -DSPEC_CPU_LP64
- 458.sjeng: -DSPEC_CPU_LP64
- 462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

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SPEC CINT2006 Result

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Base Portability Flags (Continued)

<table>
<thead>
<tr>
<th>Base Optimization Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>C benchmarks:</td>
</tr>
<tr>
<td>-fast -IPF_fp_relaxed -ansi-alias</td>
</tr>
<tr>
<td>C++ benchmarks:</td>
</tr>
<tr>
<td>-fast -IPF_fp_relaxed -ansi-alias -Wl,-z,muldefs</td>
</tr>
<tr>
<td>/opt/SmartHeap_8/lib/libsmartheapC64.a</td>
</tr>
<tr>
<td>/opt/SmartHeap_8/lib/libsmartheap64.a</td>
</tr>
</tbody>
</table>

Peak Compiler Invocation

C benchmarks:
icc
C++ benchmarks:
icpc

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
400.perlbench: -prof_gen(pass 1) -prof_use(pass 2) -fast -IPF_fp_relaxed -ansi-alias
401.bzip2: Same as 400.perlbench
403.gcc: Same as 400.perlbench
429.mcf: basepeak = yes
445.gobmk: Same as 400.perlbench

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Peak Optimization Flags (Continued)

456.hmmer: basepeak = yes
458.sjeng: Same as 400.perlbench
462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -prof_gen(pass 1) -prof_use(pass 2) -fast -IPF_fp_relaxed
-ansi-alias -Wl,-z,muldefs
/opt/SmartHeap_8/lib/libsmartheapC64.a
/opt/SmartHeap_8/lib/libsmartheap64.a

473.astar: -prof_gen(pass 1) -prof_use(pass 2) -fast -IPF_fp_relaxed
-ansi-alias -inline-factor=150 -Wl,-z,muldefs
/opt/SmartHeap_8/lib/libsmartheapC64.a
/opt/SmartHeap_8/lib/libsmartheap64.a

483.xalancbmk: Same as 471.omnetpp

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/IPF_intel91_flags.20090715.00.html
You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/IPF_intel91_flags.20090715.00.xml

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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 v1.0.