Hewlett-Packard Company
ProLiant ML310 G4
(2.4 GHz, Intel Xeon processor 3060)

SPECint\_rate\_2006 = 29.3
SPECint\_rate\_base\_2006 = 26.8

Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon 3060</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>2.4 GHz, 4 MB L2, 1066 MHz system bus</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2400</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>2 cores, 1 chip, 2 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>4 MB I+D on chip per chip</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>2 GB (4x512 MB PC2-5300E CL5)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>2x250 GB SATA</td>
</tr>
<tr>
<td>Other Hardware:</td>
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</table>

Software

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>NTFS</td>
</tr>
<tr>
<td>System State:</td>
<td>Default</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>SmartHeap Library Version 8.0</td>
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</tbody>
</table>
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>2</td>
<td>579</td>
<td>33.7</td>
<td>579</td>
<td>33.8</td>
<td>578</td>
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<tr>
<td>401.bzip2</td>
<td>2</td>
<td>879</td>
<td>22.0</td>
<td>860</td>
<td>22.4</td>
<td>864</td>
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<td>403.gcc</td>
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<td>1044</td>
<td>15.4</td>
<td>1044</td>
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<tr>
<td>429.mcf</td>
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<td>674</td>
<td>31.8</td>
<td>673</td>
<td>31.2</td>
<td>673</td>
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<tr>
<td>445.gobmk</td>
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<td>841</td>
<td>22.5</td>
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<td>22.5</td>
<td>841</td>
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<tr>
<td>462.libquantum</td>
<td>2</td>
<td>907</td>
<td>48.9</td>
<td>906</td>
<td>48.8</td>
<td>906</td>
<td>48.8</td>
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<td></td>
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<tr>
<td>471.omnetpp</td>
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<td>20.6</td>
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<td>33.5</td>
<td>412</td>
<td>33.5</td>
</tr>
</tbody>
</table>

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

Operating System Notes

The start /b /wait /affinity command is used to bind CPU(s) to processes.

Platform Notes

BIOS configuration:
Power Regulator set to Static High Performance Mode
Adjacent Sector Prefetch Enabled
Hardware Prefetcher Enabled

Base Compiler Invocation

C benchmarks:
icl -Qvc7.1 -Qc99

C++ benchmarks:
icl -Qvc7.1

Base Portability Flags

403.gcc: -DSPEC_CPU_WIN32
464.h264ref: -DSPEC_CPU_NO_INTTYPES -DWIN32
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SPECint_rate2006 = 29.3
SPECint_rate_base2006 = 26.8

CPU2006 license: 3
Test date: Oct-2007
Test sponsor: Hewlett-Packard Company
Hardware Availability: Sep-2006
Tested by: Hewlett-Packard Company
Software Availability: Jun-2007

Base Optimization Flags

C benchmarks:
-fast /F512000000 shlw32m.lib
-link /FORCE:MULTIPLE

C++ benchmarks:
-fast -Qcxx_features /F512000000 shlw32m.lib
-link /FORCE:MULTIPLE

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks:
icl -Qvc7.1 -Qc99
C++ benchmarks:
icl -Qvc7.1

Peak Portability Flags

403.gcc: -DSPEC_CPU_WIN32
464.h264ref: -DSPEC_CPU_NO_INTTYPES -DWIN32

Peak Optimization Flags

C benchmarks:
400.perlbench: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qansi-alias
-Qprefetch /F512000000 shlw32m.lib
-Link /FORCE:MULTIPLE

401.bzip2: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast /F512000000
shlw32m.lib
-Link /FORCE:MULTIPLE

403.gcc: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast /F512000000
-Link /FORCE:MULTIPLE

429.mcf: basepeak = yes

Continued on next page
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Peak Optimization Flags (Continued)

445.gobmk: -Qprof_gen(pass 1) -Qprof_use(pass 2) -QxT -O2 -Qipo
-Qprec_div -Qansi-alias /F512000000
-link /FORCE:MULTIPLE

456.hmmer: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qunroll12
-Qansi-alias /F512000000 shlw32m.lib
-link /FORCE:MULTIPLE

458.sjeng: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qunroll14
/F512000000 shlw32m.lib
-link /FORCE:MULTIPLE

462.libquantum: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qunroll14
-Ob0 -Qprefetch -Qopt-streaming-stores:always /F512000000
shlw32m.lib
-link /FORCE:MULTIPLE

464.h264ref: Same as 456.hmmer

C++ benchmarks:
- Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qansi-alias
- Qcxx_features /F512000000 shlw32m.lib
-link /FORCE:MULTIPLE

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Other Flags

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/hp-ic10-flags.20090714.01.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/hp-ic10-flags.20090714.01.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.