Cisco Systems

Cisco UCS B230 M1 (Intel Xeon X7560, 2.27 GHz)

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon X7560</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 2.67 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2266</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>16 cores, 2 chips, 8 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chips</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>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>24 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>128 GB (32 x 8 GB 2Rx4 PC3-10600R-9, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>128 GB SSD, SATA Gen2, 3Gb/s</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
</tr>
</tbody>
</table>

Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 6.1 Beta</td>
</tr>
<tr>
<td>Compiler</td>
<td>Intel C++ Compiler XE for applications running on IA-32</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>No</td>
</tr>
<tr>
<td>File System</td>
<td>ext3</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V9.01</td>
</tr>
</tbody>
</table>

SPECint_rate2006 = 407
SPECint_rate_base2006 = 394

Graph showing performance results for various benchmarks.

Software:

- Operating System: Red Hat Enterprise Linux Server release 6.1 Beta
- Compiler: Intel C++ Compiler XE for applications running on IA-32
- Auto Parallel: No
- File System: ext3
- System State: Run level 3 (multi-user)
- Base Pointers: 32-bit
- Peak Pointers: 32/64-bit
- Other Software: Microquill SmartHeap V9.01

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## Cisco Systems

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>979</td>
<td>319</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>32</td>
<td>1323</td>
<td>233</td>
</tr>
<tr>
<td>403.gcc</td>
<td>32</td>
<td>802</td>
<td>321</td>
</tr>
<tr>
<td>429.mcf</td>
<td>32</td>
<td>577</td>
<td>505</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>32</td>
<td>934</td>
<td>360</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>32</td>
<td>639</td>
<td>468</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>32</td>
<td>1107</td>
<td>350</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>32</td>
<td>394</td>
<td>1680</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>32</td>
<td>1385</td>
<td>511</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>32</td>
<td>824</td>
<td>243</td>
</tr>
<tr>
<td>473.astar</td>
<td>32</td>
<td>928</td>
<td>242</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>572</td>
<td>386</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. numactl was used to bind copies to the cores.

### Operating System Notes

ulimit -s unlimited was used to set the stacksize to unlimited prior to run. Large pages were disabled for this run.

### Platform Notes

BIOS Configuration: Data Reuse Optimization = Disabled

### Base Compiler Invocation

C benchmarks:

```bash
icc -m32
```

C++ benchmarks:

```bash
icpc -m32
```
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CPU2006 license: 9019
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Tested by: Cisco Systems
Test date: May-2011
Hardware Availability: Mar-2011
Software Availability: Mar-2011

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -Lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
    -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
    -opt-prefetch -auto-ilp32 -ansi-alias
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
    -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
    -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
    -ansi-alias -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
    -ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
    -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
    -unroll14 -auto-ilp32
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
    -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
    -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
    -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
    -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
    -L/smartheap -lsmartheap

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Peak Optimization Flags (Continued)

473.astar: basepeak = yes
483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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