Cisco Systems

Cisco UCS C220 M3 (Intel Xeon E5-2650, 2.0 GHz)

SPEClnt\textsuperscript{®}_rate2006 = \textbf{543}
SPEClnt_rate\_base2006 = \textbf{521}

<table>
<thead>
<tr>
<th>SPECint\textsuperscript{®}_rate2006 = 543</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006 = 521</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
<th>Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler: C\texttt{\textsc{C++}}: Version 12.1.3.293 of Intel C\texttt{\textsc{C++}} Studio XE for Linux</td>
<td></td>
</tr>
<tr>
<td>Auto Parallel: No</td>
<td></td>
</tr>
<tr>
<td>File System: ext4</td>
<td></td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td></td>
</tr>
<tr>
<td>Base Pointers: 32-bit</td>
<td></td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
<td></td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V9.01</td>
<td></td>
</tr>
</tbody>
</table>

Hardware

<table>
<thead>
<tr>
<th>CPU Name: Intel Xeon E5-2650</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz</td>
</tr>
<tr>
<td>CPU MHz: 2000</td>
</tr>
<tr>
<td>FPU: Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 chip</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache: 20 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache: None</td>
</tr>
<tr>
<td>Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem: 1 X 300 GB 10000 RPM SAS</td>
</tr>
<tr>
<td>Other Hardware: None</td>
</tr>
</tbody>
</table>

Test date: Apr-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011
Cisco Systems
Cisco UCS C220 M3 (Intel Xeon E5-2650, 2.0 GHz)

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

SPECint_rate2006 = 543
SPECint_rate_base2006 = 521

Test date: Apr-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

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>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>835</td>
<td>375</td>
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<td>374</td>
<td>834</td>
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<td>32</td>
<td>709</td>
<td>441</td>
<td>713</td>
<td>439</td>
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<td>401.bzip2</td>
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<td>287</td>
<td>1079</td>
<td>286</td>
<td>1080</td>
<td>286</td>
<td>32</td>
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<td>293</td>
<td>1054</td>
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<tr>
<td>403.gcc</td>
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<td>607</td>
<td>424</td>
<td>606</td>
<td>425</td>
<td>608</td>
<td>424</td>
<td>32</td>
<td>611</td>
<td>422</td>
<td>609</td>
<td>423</td>
<td>612</td>
<td>421</td>
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<tr>
<td>429.mcf</td>
<td>32</td>
<td>349</td>
<td>837</td>
<td>349</td>
<td>837</td>
<td>349</td>
<td>837</td>
<td>32</td>
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<td>837</td>
<td>349</td>
<td>837</td>
<td>349</td>
<td>837</td>
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<tr>
<td>445.gobmk</td>
<td>32</td>
<td>887</td>
<td>378</td>
<td>865</td>
<td>388</td>
<td>866</td>
<td>388</td>
<td>32</td>
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<tr>
<td>456.hmmer</td>
<td>32</td>
<td>468</td>
<td>638</td>
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<td>639</td>
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<td>32</td>
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<td>769</td>
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<td>770</td>
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<td>769</td>
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<td>458.sjeng</td>
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<td>1026</td>
<td>377</td>
<td>1005</td>
<td>385</td>
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<td>403</td>
<td>961</td>
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<tr>
<td>462.libquantum</td>
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<td>3060</td>
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<td>3060</td>
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<tr>
<td>464.h264ref</td>
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<td>634</td>
<td>1113</td>
<td>636</td>
<td>1108</td>
<td>639</td>
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<td>644</td>
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<td>646</td>
<td>1100</td>
<td>644</td>
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<tr>
<td>471.onetpp</td>
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<td>627</td>
<td>319</td>
<td>625</td>
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<td>625</td>
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<td>32</td>
<td>586</td>
<td>341</td>
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<tr>
<td>473.astar</td>
<td>32</td>
<td>730</td>
<td>308</td>
<td>727</td>
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<td>732</td>
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<td>730</td>
<td>308</td>
<td>727</td>
<td>309</td>
<td>732</td>
<td>307</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>385</td>
<td>573</td>
<td>385</td>
<td>573</td>
<td>386</td>
<td>572</td>
<td>32</td>
<td>385</td>
<td>573</td>
<td>385</td>
<td>573</td>
<td>386</td>
<td>572</td>
</tr>
</tbody>
</table>

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

Submit Notes
The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes
BIOS Configuration:
Intel(R) Hyper-Threading Technology set to Enabled
Processor Power State C6 set to Disabled
Processor Power State C1 Enhanced set to Disabled
Power Technology set to Custom
Energy Performance set to Performance
DRAM Clock Throttling set to Performance
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on speccpu-rhel6.2 Sat Apr  7 09:07:35 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2650 0 @ 2.00GHz

Continued on next page
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**CPU2006 license:** 9019

**Test sponsor:** Cisco Systems

**Test date:** Apr-2012

**Tested by:** Cisco Systems

**Hardware Availability:** Jun-2012

**Software Availability:** Dec-2011

---

**Platform Notes (Continued)**

- 2 "physical id"s (chips)
- 32 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  - cpu cores : 8
  - siblings : 16
  - physical 0: cores 0 1 2 3 4 5 6 7
  - physical 1: cores 0 1 2 3 4 5 6 7
- cache size : 20480 KB

From /proc/meminfo

- MemTotal: 132100640 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /usr/bin/lsb_release -d

- Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*

- redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
- system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)

uname -a:

```
Linux speccpu-rhel6.2 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Apr 7 09:05

SPEC is set to: /opt/cpu2006-1.2

Additional information from dmidecode:

```
Memory: 16x 0xCE00 M393B1K70DH0-YK0 8 GB 1600 MHz 1 rank
```

(End of data from sysinfo program)

---

**General Notes**

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64"
```

Binaries compiled on a system with 2 X Intel Xeon E5-2690 CPU + 128 GB memory using RHEL 6.2

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Filesystem page cache cleared with:

```
echo 1 > /proc/sys/vm/drop_caches
```
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<tr>
<td>Test sponsor:</td>
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</tr>
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</tr>
</tbody>
</table>

### Base Compiler Invocation

C benchmarks:
- icc  -m32

C++ benchmarks:
- icpc  -m32

---

### 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 -opt-mem-layout-trans=3

C++ benchmarks:
- -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
- -Wl,-z,muldefs -L/smartheap -lsmartheap

---

### Base Other Flags

C benchmarks:
- 403.gcc: -Dalloca=_alloca

---

### Peak Compiler Invocation

C benchmarks (except as noted below):
- icc  -m32
- icc.perlbench: -m64
- icc.bzip2: -m64
- icc.hmmer: -m64
- icc.sjeng: -m64

C++ benchmarks:
- icpc  -m32
Cisco Systems
Cisco UCS C220 M3 (Intel Xeon E5-2650, 2.0 GHz)

SPECint_rate2006 = 543
SPECint_rate_base2006 = 521

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

Test date: Apr-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

Peek Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -03 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/smartheap -lsmartheap

473.astar: basepeak = yes

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Peak Optimization Flags (Continued)

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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130607.xml

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

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