## Cisco Systems
Cisco UCS C220 M3 (Intel Xeon E5-2609 v2, 2.50 GHz)

### SPECint_rate2006 = 246

<table>
<thead>
<tr>
<th>Test sponsor</th>
<th>Cisco Systems</th>
<th>Test date</th>
<th>Nov-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by</td>
<td>Cisco Systems</td>
<td>Hardware Availability</td>
<td>Sep-2013</td>
</tr>
<tr>
<td>CPU2006 license</td>
<td>9019</td>
<td>Software Availability</td>
<td>Sep-2013</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name</th>
<th>Intel Xeon E5-2609 v2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td></td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2500</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>8 cores, 2 chips, 4 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 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>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>10 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz and CL11)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 300 GB 15000 RPM SAS</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 6.4 (Santiago)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>ext4</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 V10.0</td>
</tr>
</tbody>
</table>

### SPECint_rate_base2006 = 238
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CPU2006 license: 9019
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Tested by: Cisco Systems

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Test date: Nov-2013
Hardware Availability: Sep-2013
Software Availability: Sep-2013

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>8</td>
<td>454</td>
<td>172</td>
<td>454</td>
<td>172</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>8</td>
<td>644</td>
<td>120</td>
<td>647</td>
<td>119</td>
</tr>
<tr>
<td>403.gcc</td>
<td>8</td>
<td>339</td>
<td>190</td>
<td>339</td>
<td>190</td>
</tr>
<tr>
<td>429.mcf</td>
<td>8</td>
<td>186</td>
<td>392</td>
<td>186</td>
<td>392</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>8</td>
<td>557</td>
<td>151</td>
<td>557</td>
<td>151</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>8</td>
<td>235</td>
<td>318</td>
<td>235</td>
<td>318</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>8</td>
<td>594</td>
<td>163</td>
<td>594</td>
<td>163</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>8</td>
<td>101</td>
<td>1640</td>
<td>101</td>
<td>1640</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>8</td>
<td>544</td>
<td>325</td>
<td>544</td>
<td>325</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>8</td>
<td>377</td>
<td>132</td>
<td>378</td>
<td>138</td>
</tr>
<tr>
<td>473.astar</td>
<td>8</td>
<td>406</td>
<td>138</td>
<td>406</td>
<td>138</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>8</td>
<td>193</td>
<td>286</td>
<td>193</td>
<td>286</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

CPU performance set to HPC
Power Technology set to Custom
CPU Power State C6 set to Enabled
CPU Power State C1 Enhanced set to Disabled
Energy Performance policy set to Performance
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
LV DDR Mode set to Performance-mode
DRAM Refresh Rate Set to 1x
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191 running on rhe16.4-speed Thu Nov 21 02:22:27 2013

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

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Platform Notes (Continued)

From /proc/cpuinfo
    model name : Intel(R) Xeon(R) CPU E5-2609 v2 @ 2.50GHz
    2 "physical id"s (chips)
    8 "processors"
core, siblings (Caution: counting these is hw and system dependent. The
    following excerpts from /proc/cpuinfo might not be reliable. Use with
    caution.)
    cpu cores : 4
    siblings : 4
    physical 0: cores 0 1 2 3
    physical 1: cores 0 1 2 3
    cache size : 10240 KB

From /proc/meminfo
    MemTotal:  264460960 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

uname -a:
    Linux rhel6.4-speed 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
    x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 21 02:21

SPEC is set to: /opt/cpu2006-1.2
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/sdb1 ext4 275G 81G 180G 32% /

Additional information from dmidecode:
    BIOS Cisco Systems, Inc. C220M3.1.5.2.27.071120132232 07/11/2013
    Memory:
        16x 0xAD00 HMT42GR7AFR4C-RD 16 GB 1333 MHz 2 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:/opt/cpu2006-1.2/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
    memory using RedHat EL 6.4
    Transparent Huge Pages enabled with:

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General Notes (Continued)

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1>       /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
umactl --interleave=all runspec <etc>
```

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/sh -lsmartheap

Base Other Flags

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

Peak Compiler Invocation

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

400.perlbench: icc  -m64

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Peak Compiler Invocation (Continued)

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

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Peak Optimization Flags (Continued)

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/sh -lsmartheap

473.astar: basepeak = yes
483.xalanchbm: 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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130717.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130717.xml

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