Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2623 v3 @ 3.00GHz)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>58.3</th>
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<tr>
<td>SPECint_base2006</td>
<td>56.3</td>
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</tbody>
</table>

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

Hardware

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon E5-2623 v3</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.50 GHz</td>
</tr>
<tr>
<td>CPU MHZ:</td>
<td>3000</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 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>None</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 600GB SAS, 10K RPM</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

Software

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System:</td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo)</td>
</tr>
<tr>
<td></td>
<td>3.10.0-123.el7.x86_64</td>
</tr>
<tr>
<td>Compiler:</td>
<td>C/C++ Version 15.0.0.0.90 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>Yes</td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32/64-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>

Test date: Mar-2015
Hardware Availability: Sep-2014
Software Availability: Jul-2014
Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2623 v3 @ 3.00GHz)

**SPECint2006 =** 58.3
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CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Test date: Mar-2015
Hardware Availability: Sep-2014
Software Availability: Jul-2014

---

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>242</td>
<td>40.5</td>
<td>243</td>
<td>40.3</td>
<td>242</td>
<td>40.3</td>
<td>210</td>
<td>46.6</td>
<td>209</td>
<td>46.7</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>380</td>
<td>25.4</td>
<td>380</td>
<td>25.4</td>
<td>382</td>
<td>25.3</td>
<td>377</td>
<td>25.6</td>
<td>377</td>
<td>25.6</td>
</tr>
<tr>
<td>403.mcf</td>
<td>252</td>
<td>32.0</td>
<td></td>
<td>251</td>
<td>32.1</td>
<td>251</td>
<td>32.1</td>
<td>247</td>
<td>32.6</td>
<td>248</td>
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<tr>
<td>429.mcf</td>
<td></td>
<td>62.0</td>
<td></td>
<td>62.1</td>
<td>145</td>
<td>63.0</td>
<td>147</td>
<td>62.0</td>
<td>146</td>
<td>62.6</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>134</td>
<td>69.5</td>
<td>134</td>
<td>69.4</td>
<td>134</td>
<td>69.6</td>
<td>140</td>
<td>66.8</td>
<td>139</td>
<td>67.0</td>
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<tr>
<td>458.sjeng</td>
<td>360</td>
<td>33.6</td>
<td>360</td>
<td>33.6</td>
<td>360</td>
<td>33.6</td>
<td>360</td>
<td>33.6</td>
<td>359</td>
<td>33.7</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>5.94</td>
<td>3490</td>
<td>6.08</td>
<td>3410</td>
<td>5.94</td>
<td>3490</td>
<td>5.94</td>
<td>3490</td>
<td>6.08</td>
<td>3410</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>409</td>
<td>54.1</td>
<td>409</td>
<td>54.1</td>
<td>408</td>
<td>54.3</td>
<td>409</td>
<td>54.1</td>
<td>409</td>
<td>54.1</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>306</td>
<td>20.4</td>
<td>306</td>
<td>20.4</td>
<td>344</td>
<td>18.2</td>
<td>245</td>
<td>25.5</td>
<td>246</td>
<td>25.4</td>
</tr>
<tr>
<td>473.astar</td>
<td>222</td>
<td>31.7</td>
<td>219</td>
<td>32.0</td>
<td>221</td>
<td>31.8</td>
<td>221</td>
<td>31.8</td>
<td>221</td>
<td>31.8</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>114</td>
<td>60.7</td>
<td>114</td>
<td>60.6</td>
<td>113</td>
<td>60.9</td>
<td>108</td>
<td>63.7</td>
<td>107</td>
<td>64.5</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.

---

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

---

### Platform Notes

CPU performance set to Enterprise
Power Technology set to Performance
Energy Performance BIAS setting set to Performance
Memory RAS configuration set to Maximum Performance
Intel Hyper-Threading Technology option set to Disabled
QPI Snoop Mode set to Early Snoop
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on rhe17 Thu Mar  5 14:02:44 2015

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 E5-2623 v3 @ 3.00GHz
  - 2 "physical id"s (chips)
  - 8 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
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Platform Notes (Continued)

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: 263869684 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
- os-release:
  - NAME="Red Hat Enterprise Linux Server"
  - VERSION="7.0 (Maipo)"
  - ID="rhel"
  - ID_LIKE="fedora"
  - VERSION_ID="7.0"
  - PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
  - ANSI_COLOR="0;31"
  - CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
- redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
- system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
- system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
- Linux rhel7 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64
- x86_64 x86_64 GNU/Linux

run-level 3 Mar 5 01:04

SPEC is set to: /opt/cpu2006-1.2
- Filesystem Type Size Used Avail Use% Mounted on
  /dev/sdb2 xfs 439G 66G 373G 15% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to
hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Cisco Systems, Inc. C220M4.2.0.3d.0.111120141447 11/11/2014
- Memory:
  - 16x 0xCE00 M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1866 MHz
  - 8x NO DIMM NO DIMM

(End of data from sysinfo program)
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2623 v3 @ 3.00GHz)  

**SPECint2006** = 58.3  
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**Environment variables set by runspec before the start of the run:**  
KMP_AFFINITY = "granularity=fine,compact,1,0"  
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"  
OMP_NUM_THREADS = "8"  

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1> /proc/sys/vm/drop_caches  
runcspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>  

**Base Compiler Invocation**  
C benchmarks:  
  ```bash  
  icc -m64  
  ```  
C++ benchmarks:  
  ```bash  
  icpc -m64  
  ```  

**Base Portability Flags**  
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64  
401.bzip2:  
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  
464.h264ref:  
471.omnetpp: -DSPEC_CPU_LP64  
473.astar: -DSPEC_CPU_LP64  
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX  

**Base Optimization Flags**  
C benchmarks:  
  ```bash  
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
  ```  
C++ benchmarks:  
  ```bash  
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
  -Wl,-z,muldefs -L/sh -lsmartheap64  
  ```
Cisco Systems
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Test date: Mar-2015  
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Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m64
  400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
  445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks (except as noted below):
  icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
  473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32  
401.bzip2: -DSPEC_CPU_LP64  
403.gcc: -DSPEC_CPU_LP64  
429.mcf: -DSPEC_CPU_LP64  
456.hmmer: -DSPEC_CPU_LP64  
458.sjeng: -DSPEC_CPU_LP64  
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX  
464.h264ref: -DSPEC_CPU_LP64  
473.astar: -DSPEC_CPU_LP64  
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
  400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
  -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
  -opt-prefetch -ansi-alias
  401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
  -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
  -opt-prefetch -ansi-alias

Continued on next page
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Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-ra-region-strategy=block -ansi-alias  
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

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-ic15.0-official-linux64.html  
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.html

You can also download the XML flags sources by saving the following links:  
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml  
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revC.xml
## Cisco Systems

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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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