Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

SPECint®2006 = 58.8
SPECint_base2006 = 56.8

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

Hardware
CPU Name: Intel Xeon E5-2670 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip
CPU(s) orderable: 1.2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 600GB SAS, 10K RPM
Other Hardware: None

Software
Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler: Clang++ Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0

Test date: Feb-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014
## SPEC CINT2006 Result

### Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

<table>
<thead>
<tr>
<th>Benchmark</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>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>269</td>
<td>36.3</td>
<td>269</td>
<td>36.3</td>
<td>271</td>
<td>36.0</td>
<td>234</td>
<td>41.8</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>432</td>
<td>22.3</td>
<td>432</td>
<td>22.3</td>
<td>434</td>
<td>22.2</td>
<td>429</td>
<td>22.5</td>
</tr>
<tr>
<td>403.gcc</td>
<td>250</td>
<td>32.2</td>
<td>249</td>
<td>32.3</td>
<td>250</td>
<td>32.2</td>
<td>244</td>
<td>33.0</td>
</tr>
<tr>
<td>429.mcf</td>
<td>159</td>
<td>57.5</td>
<td>160</td>
<td>57.1</td>
<td>159</td>
<td>57.2</td>
<td>159</td>
<td>57.2</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>407</td>
<td>25.8</td>
<td>406</td>
<td>25.8</td>
<td>406</td>
<td>25.8</td>
<td>408</td>
<td>25.7</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>152</td>
<td>61.6</td>
<td>152</td>
<td>61.5</td>
<td>151</td>
<td>61.6</td>
<td>157</td>
<td>59.3</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>397</td>
<td>30.5</td>
<td>397</td>
<td>30.5</td>
<td>397</td>
<td>30.5</td>
<td>396</td>
<td>30.6</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.51</td>
<td>5900</td>
<td>3.47</td>
<td>5970</td>
<td>3.46</td>
<td>5990</td>
<td>3.51</td>
<td>5900</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>518</td>
<td>42.8</td>
<td>517</td>
<td>42.8</td>
<td>519</td>
<td>42.6</td>
<td>518</td>
<td>42.8</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>183</td>
<td>34.1</td>
<td>182</td>
<td>34.4</td>
<td>181</td>
<td>34.6</td>
<td>138</td>
<td>45.3</td>
</tr>
<tr>
<td>473.astar</td>
<td>234</td>
<td>29.9</td>
<td>234</td>
<td>30.0</td>
<td>233</td>
<td>30.1</td>
<td>235</td>
<td>29.9</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>116</td>
<td>59.5</td>
<td>116</td>
<td>59.5</td>
<td>116</td>
<td>59.5</td>
<td>117</td>
<td>59.1</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 rhel7 Mon Feb 16 23:03:41 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 E5-2670 v3 @ 2.30GHz
- 2 "physical id"s (chips)
- 24 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The continued on next page
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

SPECint2006 = 58.8
SPECint_base2006 = 56.8

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

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.

cpu cores : 12
siblings : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13

cache size : 30720 KB

From /proc/meminfo
MemTotal: 263867840 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
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 Feb 16 22:59

SPEC is set to: /opt/cpu2006-1.2

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.0.1111120141447 11/11/2014
Memory:
16x 0xCE00 M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
8x NO DIMM NO DIMM

(End of data from sysinfo program)
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

SPECint2006 = 58.8
SPECint_base2006 = 56.8

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems
Test date: Feb-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

General Notes
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 = "24"
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
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation
C benchmarks:
  icc -m64
C++ benchmarks:
  icpc -m64

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

Base Optimization Flags
C benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
C++ benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
  -Wl,-z,muldefs -L/sh -lsmartheap64
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

SPECint2006 = 58.8
SPECint_base2006 = 56.8

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

Test date: Feb-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

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/compiler_xe_2015/lib/ia32
445.gobmk: icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32
C++ benchmarks (except as noted below):
icpc -m32 -L/opt/intel/compiler_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
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

SPECint2006 = 58.8
SPECint_base2006 = 56.8

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

Test date: Feb-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

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 -unroll12 -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

Cisco UCS C220 M4 (Intel Xeon E5-2670 v3 @ 2.30GHz)

| SPECint2006 = | 58.8 |
| SPECint_base2006 = | 56.8 |

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

Test date: Feb-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Originally published on 24 March 2015.