Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2623 v4 2.60 GHz)

SPECfp®2006 = 94.8
SPECfp_base2006 = 90.9

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems
Hardware Availability: Apr-2016
Software Availability: Dec-2015

CPU Name: Intel Xeon E5-2623 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2600
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 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

Software
Operating System: SUSE Linux Enterprise Server 12 SP1 (x86_64) 3.12.49-11-default
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
**SPEC CFP2006 Result**

**Cisco Systems**

Cisco UCS C220 M4 (Intel Xeon E5-2623 v4 2.60 GHz)  

| SPECfp2006 | 94.8 |
| SPECfp_base2006 | 90.9 |

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

| L3 Cache: | 10 MB I+D on chip per chip | Base Pointers: | 64-bit |
| Other Cache: | None | Peak Pointers: | 32/64-bit |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz) | Other Software: | None |
| Disk Subsystem: | 1 x 960 GB SAS SSD |

| Software Availability: | Dec-2015 |
| Hardware Availability: | Apr-2016 |
| Test date: | Dec-2016 |

| Tested by: | Cisco Systems |

**Base Pointers:** 64-bit  
**Peak Pointers:** 32/64-bit

**Results Table**

<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>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>41.4</td>
<td>328</td>
<td>41.7</td>
<td>326</td>
<td>42.6</td>
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<td>416.gamess</td>
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<td>35.8</td>
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<td>35.8</td>
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<td>433.milc</td>
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<td>70.8</td>
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<td>71.4</td>
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<td>434.zeusmp</td>
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<td>157</td>
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<td>158</td>
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<td>435.gromacs</td>
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<td>141</td>
<td>50.5</td>
<td>142</td>
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<td>27.2</td>
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<td>27.2</td>
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<td>197</td>
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<td>444.namd</td>
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<td>453.povray</td>
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<td>459.GemsFDTD</td>
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<td>71.1</td>
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<td>69.7</td>
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<td>62.6</td>
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<td>465.tonto</td>
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<td>43.1</td>
<td>229</td>
<td>43.0</td>
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<td>43.1</td>
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<td>54.1</td>
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<td>33.4</td>
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<td>32.7</td>
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<td>81.2</td>
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<td>82.3</td>
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<td>79.4</td>
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<td>81.2</td>
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<tr>
<td>482.sphinx3</td>
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<td>74.3</td>
<td>262</td>
<td>74.4</td>
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<td>74.9</td>
<td>262</td>
<td>74.3</td>
<td>262</td>
<td>74.4</td>
</tr>
</tbody>
</table>

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

**Operating System Notes**

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

**Platform Notes**

BIOS Settings:
Intel Hyper-Threading Technology option set to Disabled
CPU performance set to Enterprise
Power Technology set to Energy Efficient
Energy Performance BIAS setting set to Balanced Performance
Memory RAS configuration set to Maximum Performance
Memory Power Saving Mode set to Disabled
QPI Snoop Mode set to Home Directory Snoop with OSB
Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6914

Continued on next page
Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2623 v4  2.60 GHz)

**SPEC CFP2006 Result**

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>94.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>90.9</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 9019  
**Test date:** Dec-2016  
**Test sponsor:** Cisco Systems  
**Hardware Availability:** Apr-2016  
**Tested by:** Cisco Systems  
**Software Availability:** Dec-2015

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**Platform Notes (Continued)**

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667bSa285932ceab81e28219e1  
running on linux-40jf Thu Dec 15 00:55:48 2016

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 v4 @ 2.60GHz  
- 2 "physical id"s (chips)  
- 8 "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 : 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: 264570780 kB  
- HugePages_Total: 0  
- Hugepagesize: 2048 kB

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

**SuSE-release:**

- SUSE Linux Enterprise Server 12 (x86_64)  
- VERSION = 12  
- PATCHLEVEL = 1  

# This file is deprecated and will be removed in a future service pack or release.  
# Please check /etc/os-release for details about this release.

**os-release:**

- NAME="SLES"  
- VERSION="12-SP1"  
- VERSION_ID="12.1"  
- PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"  
- ID="sles"  
- ANSI_COLOR="0;32"  
- CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:

(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 15 00:39

SPEC is set to: /opt/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda1 xfs 893G 17G 877G 2% /  

Additional information from dmidecode:

Continued on next page
Cisco Systems

Cisco UCS C220 M4 (Intel Xeon E5-2623 v4 2.60 GHz)

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Platform Notes (Continued)

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. C220M4.2.0.13d.0.0.0812161113 08/12/2016
Memory:
16x 0xCE00 M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 2133 MHz
8x NO DIMM NO DIMM

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
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 Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled

Base Compiler Invocation

C benchmarks:
  icc -m64

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

Benchmarks using both Fortran and C:
  icc -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main

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Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2623 v4 2.60 GHz)

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Base Portability Flags (Continued)

436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64
## Cisco Systems
Cisco UCS C220 M4 (Intel Xeon E5-2623 v4 2.60 GHz)  
**SPECfp2006 =** 94.8  
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### CPU2006 license: 9019  
**Test date:** Dec-2016  
**Test sponsor:** Cisco Systems  
**Hardware Availability:** Apr-2016  
**Tested by:** Cisco Systems  
**Software Availability:** Dec-2015

### Peak Portability Flags

Same as Base Portability Flags

### Peak Optimization Flags

#### C benchmarks:
- 433.milc: basepeak = yes
- 470.lbm: basepeak = yes
- 482.sphinx3: basepeak = yes

#### C++ benchmarks:
- 444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-pref-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias -auto-ilp32
- 447.dealII: basepeak = yes
- 450.soplex: basepeak = yes
- 453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-pref-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -ansi-alias

#### Fortran benchmarks:
- 410.bwaves: basepeak = yes
- 416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-pref-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-
- 434.zeusmp: basepeak = yes
- 437.leslie3d: basepeak = yes
- 459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-pref-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -opt-prefetch -parallel
- 465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-pref-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -inline-cALLOC

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Peak Optimization Flags (Continued)

465.tonto (continued):
- opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revE.xml

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

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