Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6136, 3.00GHz)

**SPECfp®2006 = 152**

**SPECfp_base2006 = 147**

**CPU2006 license:** 9019  
**Test date:** Aug-2017  
**Test sponsor:** Cisco Systems  
**Hardware Availability:** Aug-2017  
**Tested by:** Cisco Systems  
**Software Availability:** Apr-2017

### Hardware
- **CPU Name:** Intel Xeon Gold 6136  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
- **CPU MHz:** 3000  
- **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:** 1 MB I+D on chip per core

### Software
- **Operating System:** SUSE Linux Enterprise Server 12 SP2 (x86_64)  
  4.4.21-69-default
- **Compiler:** C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
- **Auto Parallel:** Yes
- **File System:** xfs
- **System State:** Run level 3 (multi-user)

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# SPEC CFP2006 Result

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base Pointers</th>
<th>64-bit</th>
<th>Peak Pointers</th>
<th>32/64-bit</th>
<th>Other Software</th>
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<td>64.1</td>
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<td>459.GemsFDTD</td>
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<tr>
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<td>80.8</td>
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</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 HyperThreading Technology set to Disabled
- CPU performance set to Enterprise
- Power Performance Tuning set to OS
- SNC set to Disabled
- IMC Interleaving set to Auto
- Patrol Scrub set to Disabled
- Sysinfo program /home/cpu2006-1.2/config/sysinfo.rev6993
- Revision 6993 of 2015-11-06 (b5e8d48eb51ed28d7f98696cbe290c1)
- running on linux-ox2h Thu Aug 31 14:02:56 2017

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Platform Notes (Continued)

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) Gold 6136 CPU @ 3.00GHz
2 "physical id"s (chips)
24 "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 : 12
siblings : 12
physical 0: cores 0 1 2 3 4 8 9 11 17 18 19 20
physical 1: cores 0 1 2 3 4 8 9 11 17 18 19 20
cache size : 25344 KB

From /proc/meminfo
MemTotal: 394653896 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
# 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-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
Linux linux-ox2h 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
(9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 31 13:59

SPEC is set to: /home/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb5 xfs 317G 8.3G 309G 3% /home

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Platform Notes (Continued)

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. C220M5.3.1.1d.0.0615170645 06/15/2017
Memory:
24x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666 MHz

(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 = "/home/cpu2006-1.2/lib/ia32:/home/cpu2006-1.2/lib/intel64:/home/cpu2006-1.2/sh10.2"
OMP_NUM_THREADS = "24"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2
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

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### SPEC CFP2006 Result

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<td>436.cactusADM</td>
<td>-DSPEC_CPU_LP64 -nofor_main</td>
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<td>437.leslie3d</td>
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<td>-DSPEC_CPU_LP64</td>
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<tr>
<td>481.wrf</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
</tbody>
</table>

### Base Optimization Flags

- **C benchmarks:**
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

- **C++ benchmarks:**
  -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

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

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

Fortran benchmarks:
410.bwaves: basepeak = yes
416.gamess: –prof-gen(pass 1) –prof-use(pass 2) –xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) –ipo(pass 2) –O3(pass 2)
-no-prec-div(pass 2) –unroll2 –inline-level=0 –scalar-rep–
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: –prof-gen(pass 1) –prof-use(pass 2) –xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) –ipo(pass 2) –O3(pass 2)
-no-prec-div(pass 2) –unroll2 –inline-level=0 –qopt-prefetch –parallel
465.tonto: –prof-gen(pass 1) –prof-use(pass 2) –xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) –ipo(pass 2) –O3(pass 2)
-no-prec-div(pass 2) –inline-calloc –qopt-malloc-options=3
-auto –unroll4

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**Cisco Systems**

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### Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

- **435.gromacs:** `basepeak = yes`
- **436.cactusADM:** `basepeak = yes`
- **454.calculix:** `-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-llp32`
- **481.wrf:** `basepeak = yes`

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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