Cisco Systems
Cisco UCS B200 M5 (Intel Xeon Gold 6130, 2.10GHz)

SPECfp®2006 = 146
SPECfp_base2006 = 139

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

Hardware
CPU Name: Intel Xeon Gold 6130
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 32 cores, 2 chips, 16 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)
## Cisco Systems

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### SPEC CFP2006 Result

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
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<tr>
<td>bwaves</td>
<td>11.7</td>
<td>1160</td>
<td>12.0</td>
<td>1130</td>
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<tr>
<td>gamsess</td>
<td>410</td>
<td>47.8</td>
<td>409</td>
<td>47.8</td>
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<tr>
<td>mili</td>
<td>127</td>
<td>72.1</td>
<td>127</td>
<td>72.4</td>
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<tr>
<td>zeusmp</td>
<td>35.9</td>
<td>254</td>
<td>36.3</td>
<td>251</td>
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<tr>
<td>gromacs</td>
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<td>47.6</td>
<td>150</td>
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<td>cactusADM</td>
<td>9.42</td>
<td>1270</td>
<td>9.35</td>
<td>1280</td>
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<td>454</td>
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<td>namd</td>
<td>225</td>
<td>35.7</td>
<td>225</td>
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<tr>
<td>dealII</td>
<td>159</td>
<td>71.7</td>
<td>160</td>
<td>71.7</td>
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<tr>
<td>soplex</td>
<td>164</td>
<td>50.9</td>
<td>165</td>
<td>50.4</td>
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<tr>
<td>povray</td>
<td>76.5</td>
<td>69.6</td>
<td>76.2</td>
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<td>115</td>
<td>71.8</td>
<td>115</td>
<td>71.7</td>
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<tr>
<td>GemsFDTD</td>
<td>38.1</td>
<td>278</td>
<td>38.2</td>
<td>278</td>
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<tr>
<td>tonto</td>
<td>214</td>
<td>46.1</td>
<td>213</td>
<td>46.3</td>
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<tr>
<td>wrf</td>
<td>92.0</td>
<td>121</td>
<td>87.2</td>
<td>128</td>
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<tr>
<td>sphinx3</td>
<td>296</td>
<td>65.8</td>
<td>297</td>
<td>65.5</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 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 (b5e8d4b4eb51ed28d7f98696cbe290c1)
  - running on linux Fri Jan 1 19:28:13 2010

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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 6130 CPU @ 2.10GHz
2 "physical id"s (chips)
32 "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 : 16
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size : 22528 KB

From /proc/meminfo
MemTotal: 791029252 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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 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 Jan 1 19:26

SPEC is set to: /home/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 xfs 280G 20G 261G 7% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
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Platform Notes (Continued)

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. B200M5.3.2.1d.5.0727171353 07/27/2017
Memory:
24x 0xCE00 M393A4K40BB2-CTD 32 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 = "32"

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 -nofor_main
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64

Continued on next page
## Base Portability Flags (Continued)

- 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 -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

- Benchmarks using both Fortran and C:
  - -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

## Peak Portability Flags

Same as Base Portability Flags
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SPECfp2006 = 146
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CPU2006 license: 9019
Test sponsor: Cisco Systems
Test date: Jan-2010
Hardware Availability: Aug-2017
Tested by: Cisco Systems
Software Availability: Apr-2017

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

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes

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SPECfp2006 = 146
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Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32
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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2-revH.xml

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

Tested with SPEC CPU2006 v1.2.