Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Gold 6142M 2.60 GHz)

SPECfp®2006 = 149
SPECfp_base2006 = 144

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

Hardware
CPU Name: Intel Xeon Gold 6142M
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2600
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)
SPEC CFP2006 Result

Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Gold 6142M 2.60 GHz)

<table>
<thead>
<tr>
<th></th>
<th>SPECfp2006 = 149</th>
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CPU2006 license: 9019
Test date: Sep-2017
Test sponsor: Cisco Systems
Hardware Availability: Aug-2017
Tested by: Cisco Systems
Software Availability: Apr-2017

L3 Cache: 22 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 1 x 300 GB SAS HDD, 15K RPM
Other Hardware: None
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>74.3</td>
<td></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-sca0 Sat Sep 9 14:01:41 2017

Continued on next page
Cisco Systems
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Test date: Sep-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

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 6142M CPU @ 2.60GHz
2 "physical id"s (chips)
32 "processors"
core, 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: 394653480 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-sca0 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 Sep 9 13:38

SPEC is set to: /home/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb3 xfs 237G 13G 224G 6% /home

Continued on next page
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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. C240M5.3.1.1d.0.0615170707 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 = "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
435.gromacs: -DSPEC_CPU_LP64 -nofor_main

Continued on next page
Cisco UCS C240 M5 (Intel Xeon Gold 6142M 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
463.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
Cisco Systems
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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.GemsFD: -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
**SPEC CFP2006 Result**

Cisco Systems  
Cisco UCS C240 M5 (Intel Xeon Gold 6142M 2.60 GHz)  

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</table>

Test date: Sep-2017  
Hardware Availability: Aug-2017  
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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-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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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