Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Gold 6154, 3.00GHz)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>152</td>
<td>148</td>
</tr>
</tbody>
</table>

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

Test date: Aug-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SpecValue</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>51.5</td>
</tr>
<tr>
<td>416.gamess</td>
<td>49.0</td>
</tr>
<tr>
<td>433.milc</td>
<td>78.7</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>269</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>62.9</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>490</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>36.5</td>
</tr>
<tr>
<td>447.dealII</td>
<td>72.3</td>
</tr>
<tr>
<td>450.soplex</td>
<td>51.2</td>
</tr>
<tr>
<td>453.povray</td>
<td>78.8</td>
</tr>
<tr>
<td>454.calculix</td>
<td>69.4</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>306</td>
</tr>
<tr>
<td>465.tonto</td>
<td>66.5</td>
</tr>
<tr>
<td>470.lbm</td>
<td>57.3</td>
</tr>
<tr>
<td>481.wrf</td>
<td>128</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>80.7</td>
</tr>
</tbody>
</table>

Hardware
- CPU Name: Intel Xeon Gold 6154
- CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
- CPU MHz: 3000
- FPU: Integrated
- CPU(s) enabled: 36 cores, 2 chips, 18 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
Cisco UCS C240 M5 (Intel Xeon Gold 6154, 3.00GHz)

SPECfp2006 = 152
SPECfp_base2006 = 148

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
<th>Peak Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>12.6</td>
<td>1080</td>
<td>12.8</td>
<td>1060</td>
<td>13.1</td>
<td>1040</td>
<td>12.6</td>
<td>1080</td>
<td>12.8</td>
<td>1060</td>
</tr>
<tr>
<td>416.gamess</td>
<td>399</td>
<td>49.0</td>
<td>399</td>
<td>49.0</td>
<td>399</td>
<td>49.0</td>
<td>380</td>
<td>51.5</td>
<td>380</td>
<td>51.6</td>
</tr>
<tr>
<td>433.milc</td>
<td>117</td>
<td>78.7</td>
<td>116</td>
<td>79.0</td>
<td>117</td>
<td>78.5</td>
<td>117</td>
<td>78.7</td>
<td>116</td>
<td>79.0</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>33.4</td>
<td>273</td>
<td>34.0</td>
<td>268</td>
<td>33.8</td>
<td>269</td>
<td>33.4</td>
<td>273</td>
<td>34.0</td>
<td>268</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>114</td>
<td>62.9</td>
<td>114</td>
<td>62.8</td>
<td>113</td>
<td>63.1</td>
<td>114</td>
<td>62.9</td>
<td>114</td>
<td>62.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>8.47</td>
<td>1410</td>
<td>8.46</td>
<td>1410</td>
<td>8.72</td>
<td>1370</td>
<td>8.47</td>
<td>1410</td>
<td>8.46</td>
<td>1410</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>19.2</td>
<td>490</td>
<td>19.3</td>
<td>488</td>
<td>19.2</td>
<td>491</td>
<td>19.2</td>
<td>490</td>
<td>19.3</td>
<td>488</td>
</tr>
<tr>
<td>444.namd</td>
<td>225</td>
<td>35.6</td>
<td>225</td>
<td>35.6</td>
<td>225</td>
<td>35.6</td>
<td>220</td>
<td>36.5</td>
<td>220</td>
<td>36.5</td>
</tr>
<tr>
<td>447.dealII</td>
<td>158</td>
<td>72.3</td>
<td>158</td>
<td>72.3</td>
<td>157</td>
<td>72.7</td>
<td>158</td>
<td>72.3</td>
<td>158</td>
<td>72.3</td>
</tr>
<tr>
<td>450.soplex</td>
<td>163</td>
<td>51.0</td>
<td>161</td>
<td>51.8</td>
<td>163</td>
<td>51.2</td>
<td>163</td>
<td>51.0</td>
<td>161</td>
<td>51.8</td>
</tr>
<tr>
<td>453.povray</td>
<td>76.6</td>
<td>69.4</td>
<td>76.9</td>
<td>69.2</td>
<td>76.6</td>
<td>69.5</td>
<td>67.4</td>
<td>78.9</td>
<td>67.6</td>
<td>78.7</td>
</tr>
<tr>
<td>454.calculix</td>
<td>110</td>
<td>74.9</td>
<td>110</td>
<td>74.8</td>
<td>110</td>
<td>74.9</td>
<td>108</td>
<td>76.5</td>
<td>108</td>
<td>76.7</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>40.2</td>
<td>264</td>
<td>42.3</td>
<td>251</td>
<td>39.6</td>
<td>268</td>
<td>34.6</td>
<td>306</td>
<td>33.9</td>
<td>313</td>
</tr>
<tr>
<td>465.tonto</td>
<td>172</td>
<td>57.3</td>
<td>176</td>
<td>55.9</td>
<td>170</td>
<td>57.9</td>
<td>148</td>
<td>66.6</td>
<td>148</td>
<td>66.3</td>
</tr>
<tr>
<td>470.lbm</td>
<td>9.21</td>
<td>1490</td>
<td>9.28</td>
<td>1480</td>
<td>9.16</td>
<td>1500</td>
<td>9.21</td>
<td>1490</td>
<td>9.28</td>
<td>1480</td>
</tr>
<tr>
<td>481.wrf</td>
<td>83.1</td>
<td>134</td>
<td>87.7</td>
<td>127</td>
<td>87.2</td>
<td>128</td>
<td>83.1</td>
<td>134</td>
<td>87.7</td>
<td>127</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>244</td>
<td>80.0</td>
<td>241</td>
<td>80.8</td>
<td>241</td>
<td>80.7</td>
<td>244</td>
<td>80.0</td>
<td>241</td>
<td>80.8</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 Aug 26 11:39:55 2017
Continued on next page
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 6154 CPU @ 3.00GHz
  2 "physical id"s (chips)
  36 "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 : 18
siblings : 18
  physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 25344 KB

From /proc/meminfo
MemTotal: 394653464 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 Aug 26 11:30

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
Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Gold 6154, 3.00GHz)

SPECfp2006 = 152
SPECfp_base2006 = 148

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

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 = "36"

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
## Cisco Systems

Cisco UCS C240 M5 (Intel Xeon Gold 6154, 3.00GHz)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>152</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>148</td>
</tr>
</tbody>
</table>

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

### 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 -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
Cisco UCS C240 M5 (Intel Xeon Gold 6154, 3.00GHz)

SPECfp2006 = 152
SPECfp_base2006 = 148

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

Test date: Aug-2017
Hardware Availability: Aug-2017
Software Availability: Apr-2017

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

Continued on next page
Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Gold 6154, 3.00GHz)

SPECfp2006 = 152
SPECfp_base2006 = 148

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

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

SPEC and SPECfp 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 19 September 2017.