## SPEC® CFP2006 Result

### Cisco Systems

Cisco UCS B480 M5 (Intel Xeon Gold 6148, 2.40 GHz)

| SPECfp®2006 = | 150 |
| SPECfp_base2006 = | 143 |

**CPU2006 license:** 9019  
**Test date:** Nov-2017  
**Test sponsor:** Cisco Systems  
**Hardware Availability:** Aug-2017

**Tested by:** Cisco Systems  
**Software Availability:** Sep-2017

| Test date: | Nov-2017 |
| CPU2006 license: | 9019 |
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| Hardware Availability: | Aug-2017 |
| Software Availability: | Sep-2017 |

### Hardware

| SPECfp®2006 = | 150 |
| SPECfp_base2006 = | 143 |

**CPU Name:** Intel Xeon Gold 6148  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
**CPU MHz:** 2400  
**FPU:** Integrated  
**CPU(s) enabled:** 80 cores, 4 chips, 20 cores/chip  
**CPU(s) orderable:** 2.4 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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L3 Cache: 27.5 MB I+D on chip per chip
Other Cache: None
Memory: 768 GB (48 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 1 x 600 GB SAS HDD, 10K RPM
Other Hardware: None

Test date: Nov-2017
Hardware Availability: Aug-2017
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Software Availability: Sep-2017

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

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<th>Ratio</th>
<th>Seconds</th>
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<td>67.8</td>
</tr>
</tbody>
</table>

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 Controls
- SNC set to Disabled
- Patrol Scrub set to Disabled
- Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6993

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-qiw Sun Nov 26 22:20:34 2017

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CPU2006 license: 9019
Test sponsor: Cisco Systems
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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 6148 CPU @ 2.40GHz
- 4 "physical id"s (chips)
- 80 "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**: 20
- **siblings**: 20
- **physical 0**: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
- **physical 1**: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
- **physical 2**: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
- **physical 3**: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
- **cache size**: 28160 KB

From /proc/meminfo
- MemTotal: 791028648 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:
  (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 4 06:35

SPEC is set to: /opt/cpu2006-1.2
- Filesystem Type Size Used Avail Use% Mounted on
- /dev/sdal xfs 280G 142G 138G 51% /

Additional information from dmidecode:

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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. B480M5.3.2.2a.0.0919171641 09/19/2017
Memory:
48x 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 = "/opt/cpu2006-1.2/lib/ia32:/opt/cpu2006-1.2/lib/intel64:/opt/cpu2006-1.2/sh10.2"
OMP_NUM_THREADS = "80"

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
No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, http://www.spec.org/osg/policy.html

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

C benchmarks:
icc -m64

Base Compiler Invocation

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Base Compiler Invocation (Continued)

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.zeusmpi: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
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 -nofor_main
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDX: -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
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**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

**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-llp32`
  - `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-
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Peak Optimization Flags (Continued)

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) -auto-ilp32
-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
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.

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