# SPEC® CPU2017 Floating Point Speed Result

## Cisco Systems

Cisco UCS C240 M5 (Intel Xeon Platinum 8180, 2.50GHz)

<table>
<thead>
<tr>
<th>SPECspeed2017_fp_base</th>
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<td>SPECspeed2017_fp_peak</td>
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**CPU2017 License:** 9019  
**Test Date:** Oct-2017  
**Test Sponsor:** Cisco Systems  
**Hardware Availability:** Sep-2017  
**Tested by:** Cisco Systems  
**Software Availability:** Sep-2017

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<tr>
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<td>56</td>
</tr>
<tr>
<td>654.roms_s</td>
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### Hardware

**CPU Name:** Intel Xeon Platinum 8180  
**Max MHz.:** 3800  
**Nominal:** 2500  
**Enabled:** 56 cores, 2 chips  
**Orderable:** 1,2 Chips  
**Cache L1:** 32 KB I + 32 KB D on chip per core  
**Cache L2:** 1 MB I+D on chip per core  
**Cache L3:** 38.5 MB I+D on chip per chip  
**Other:** None  
**Memory:** 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)  
**Storage:** 1 x 480 GB SSD SAS  
**Other:** None

### Software

**OS:** SUSE Linux Enterprise Server 12 SP3 (x86_64)  
**Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux  
**Parallel:** Yes  
**Compiler:** Version 3.1.1d released Jun-2017  
**Firmware:** ext4  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** None
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Results Table

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SPECspeed2017_fp_base = 132
SPECspeed2017_fp_peak = Not Run

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"

General Notes
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/opt/cpu2017/lib/ia32:/opt/cpu2017/lib/intel64:/opt/cpu2017/je5.0.1-32:/opt/cpu2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3> /proc/sys/vm/drop_caches

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 /opt/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

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Cisco UCS C240 M5 (Intel Xeon Platinum 8180, 2.50GHz)

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Platform Notes (Continued)

running on linux-vcj7 Sun Oct 15 12:27:18 2017

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo

```plaintext
model name : Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz
  2 "physical id"s (chips)
  56 "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 : 28
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
```

From lscpu:

```plaintext
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                56
On-line CPU(s) list:   0-55
Thread(s) per core:    1
Core(s) per socket:    28
Socket(s):             2
NUMA node(s):          2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz
Stepping:              4
CPU MHz:               2494.140
BogoMIPS:              4988.28
Virtualization:        VT-x
L1d cache:             32K
L1i cache:             32K
L2 cache:              1024K
L3 cache:              39424K
NUMA node0 CPU(s):     0-27
NUMA node1 CPU(s):     28-55
Flags:                 fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 ccf lafe pals mcm nx tflush dtsc mmx fxsr ss sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtsscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
```

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Platform Notes (Continued)

fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsavex avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb pln pts dtherm hwp_epp
intel_pt tpr_shadow vmx flexpriority ept vpid fsxgsbase tsc_adjust bmi1 hle avx2
sme p bmi2 erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb
avx512cd avx512bw avx512vl xsaveopt xsaveopt xsave xcetpg vml cqm llc cqm ocup llc pku ospke

\(/ proc/cpuinfo\) cache data

cache size: 39424 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.

available: 2 nodes (0-1)

node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
node 0 size: 192095 MB
node 0 free: 191691 MB

node 1 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
node 1 size: 193323 MB
node 1 free: 193066 MB

node distances:

node 0 1
0: 10 21
1: 21 10

From /proc/meminfo

MemTotal: 394873732 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 3
  # 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-SP3"
  VERSION_ID="12.3"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
  Linux linux-vcj7 4.4.73-5-default #1 SMP Tue Jul 4 15:33:39 UTC 2017 (b7ce4e4) x86_64

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Platform Notes (Continued)

x86_64 x86_64 GNU/Linux
run-level 3 Oct 15 12:21

SPEC is set to: /opt/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb2 ext4 296G 22G 274G 8% /

Additional information from dmidecode follows. 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

(End of data from sysinfo program)

Compiler Version Notes

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icc (ICC) 18.0.0 20170811
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### Base Compiler Invocation

- C benchmarks:
  - icc

- Fortran benchmarks:
  - ifort

- Benchmarks using both Fortran and C:
  - ifort icc

- Benchmarks using Fortran, C, and C++:
  - icpc icc ifort

### Base Portability Flags

- 603.bwaves_s: -DSPEC_LP64
- 607.cactusBSSN_s: -DSPEC_LP64
- 619.lbm_s: -DSPEC_LP64
- 621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
- 627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
- 628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian -assume byterecl
- 638.imagick_s: -DSPEC_LP64
- 644.nab_s: -DSPEC_LP64
- 649.fotonik3d_s: -DSPEC_LP64
- 654.roms_s: -DSPEC_LP64

### Base Optimization Flags

- C benchmarks:
  - -xCORE-AVX512 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP

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Base Optimization Flags (Continued)

Fortran benchmarks:
-DSPEC_OPENMP -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp
-nostandard-realloc-lhs -align array32byte

Benchmarks using both Fortran and C:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte

Benchmarks using Fortran, C, and C++:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte

Base Other Flags

C benchmarks:
-m64 -std=c11

Fortran benchmarks:
-m64

Benchmarks using both Fortran and C:
-m64 -std=c11

Benchmarks using Fortran, C, and C++:
-m64 -std=c11

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml
http://www.spec.org/cpu2017/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 info@spec.org.

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