## SPEC® CPU2017 Floating Point Speed Result

### Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6142, 2.60 GHz)

| Test Sponsor | Cisco Systems | Hardware Availability: Aug-2017 |
| Test Date   | Dec-2018      | Software Availability: Oct-2018 |
| Tested by   | Cisco Systems |                            |

**CPU2017 License:** 9019

**Hardware**

- **CPU Name:** Intel Xeon Gold 6142
- **Max MHz.:** 3700
- **Nominal:** 2600
- **Enabled:** 32 cores, 2 chips
- **Orderable:** 1,2 Chips
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 1 MB I+D on chip per core
- **L3:** 22 MB I+D on chip per chip
- **Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2666V-R)
- **Storage:** 1 x 400 GB SAS SSD
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.120-92.70-default
- **Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++ Compiler for Linux;
  Fortran: Version 19.0.1.144 of Intel Fortran Compiler for Linux
- **Parallel:** Yes
- **Firmware:** Version 4.0.1 released Oct-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** None

**SPECspeed2017_fp_base = 125**

**SPECspeed2017_fp_peak = Not Run**
SPEC CPU2017 Floating Point Speed Result

Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6142, 2.60 GHz)

SPECspeed2017_fp_base = 125
SPECspeed2017_fp_peak = Not Run

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

Test Date: Dec-2018
Hardware Availability: Aug-2017
Software Availability: Oct-2018

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>32</td>
<td>128</td>
<td>463</td>
<td>128</td>
<td>461</td>
<td>128</td>
<td>460</td>
<td></td>
<td></td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>32</td>
<td>125</td>
<td>134</td>
<td>125</td>
<td>134</td>
<td>124</td>
<td>134</td>
<td></td>
<td></td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>32</td>
<td>58.0</td>
<td>90.3</td>
<td>58.0</td>
<td>90.3</td>
<td>58.0</td>
<td>90.3</td>
<td>90.3</td>
<td></td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>32</td>
<td>106</td>
<td>125</td>
<td>106</td>
<td>125</td>
<td>106</td>
<td>124</td>
<td></td>
<td></td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>32</td>
<td>107</td>
<td>83.2</td>
<td>106</td>
<td>83.3</td>
<td>106</td>
<td>83.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>32</td>
<td>175</td>
<td>68.0</td>
<td>173</td>
<td>68.6</td>
<td>175</td>
<td>68.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>32</td>
<td>134</td>
<td>108</td>
<td>142</td>
<td>101</td>
<td>141</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>644.nab_s</td>
<td>32</td>
<td>88.5</td>
<td>197</td>
<td>88.6</td>
<td>197</td>
<td>88.7</td>
<td>197</td>
<td></td>
<td></td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>32</td>
<td>115</td>
<td>79.5</td>
<td>116</td>
<td>78.3</td>
<td>115</td>
<td>79.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td>32</td>
<td>106</td>
<td>149</td>
<td>106</td>
<td>149</td>
<td>106</td>
<td>148</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed2017_fp_base = 125
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 = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64"
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
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: 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.
Yes: 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.

Platform Notes
BIOS Settings:
Intel HyperThreading Technology set to Disabled
CPU performance set to Enterprise

(Continued on next page)
Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6142, 2.60 GHz)

Platform Notes (Continued)

Power Performance Tuning set to OS Controls
SNC set to Disabled
Patrol Scrub set to Disabled
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618b091c0f
running on linux-dssz Fri Dec 7 19:34:05 2018

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
model name: Intel(R) Xeon(R) Gold 6142 CPU @ 2.60GHz
  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

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 1
Core(s) per socket: 16
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6142 CPU @ 2.60GHz
Stepping: 4
CPU MHz: 1123.047
CPU max MHz: 3700.0000
CPU min MHz: 1000.0000
BogoMIPS: 5187.86
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 22528K
NUMA node0 CPU(s): 0-15
Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Gold 6142, 2.60 GHz)

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems
Test Date: Dec-2018
Hardware Availability: Aug-2017
Software Availability: Oct-2018

SPEC CPU2017 Floating Point Speed Result

SPECspeed2017_fp_base = 125
SPECspeed2017_fp_peak = Not Run

Platform Notes (Continued)

NUMA node1 CPU(s): 16-31
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
       pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
       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
       fma cx16 txn2 pdcm pcd dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
       xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts
       dtherm hwp hwp_act_window hwp_epp hwp_pkg_req intel_pt rsb_cxsw spec_ctrl stibp
       repotoline kaiser tpr_shadow vmni flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle
       avx2 smep bmi2 erms invpcid rtm cmq mxp avx512f avx512dq rdseed adx smap clflushopt
       clwb avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 cmq_llc cmq_occ散布的

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
node 0 size: 385627 MB
node 0 free: 381065 MB
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
node 1 size: 387054 MB
node 1 free: 383631 MB
node distances:
   node 0  1
0:  10  21
1:  21  10

From /proc/meminfo
MemTotal: 791226568 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"

(Continued on next page)
Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6142, 2.60 GHz)

SPEC CPU2017 Floating Point Speed Result

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Dec-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>Tested by</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>Hardware</td>
<td>Aug-2017</td>
</tr>
<tr>
<td>Software</td>
<td>Oct-2018</td>
</tr>
</tbody>
</table>

SPECspeed2017_fp_base = 125
SPECspeed2017_fp_peak = Not Run

Platform Notes (Continued)

ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
Linux linux-dssz 4.4.120-92.70-default #1 SMP Wed Mar 14 15:59:43 UTC 2018 (52a83de)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 7 14:31

SPEC is set to: /home/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 212G 147G 66G 70% /home

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. C220M5.4.0.1.139.1003182107 10/03/2018

Memory:
24x 0xCE00 M393A4K40BB2-CTD 32 GB 2 rank 2666

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
<table>
<thead>
<tr>
<th>CC 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>icc (ICC) 19.0.1.144 20181018</td>
</tr>
<tr>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>icpc (ICC) 19.0.1.144 20181018</td>
</tr>
<tr>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td>icc (ICC) 19.0.1.144 20181018</td>
</tr>
<tr>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td>ifort (IFORT) 19.0.1.144 20181018</td>
</tr>
<tr>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>FC 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)</td>
</tr>
</tbody>
</table>
==============================================================================

(Continued on next page)
Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6142, 2.60 GHz)

SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

SPECspeed2017_fp_base = 125
SPECspeed2017_fp_peak = Not Run

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Hardware Availability: Aug-2017
Test Date: Dec-2018
Tested by: Cisco Systems
Software Availability: Oct-2018

Compiler Version Notes (Continued)

ifort (IFORT) 19.0.1.144 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
  icc -m64 -std=c11

Fortran benchmarks:
  ifort -m64

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

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

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_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
## SPEC CPU2017 Floating Point Speed Result

**Cisco Systems**

Cisco UCS C220 M5 (Intel Xeon Gold 6142, 2.60 GHz)

<table>
<thead>
<tr>
<th>SPECspeed2017_fp_base</th>
<th>125</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems  
**Test Date:** Dec-2018  
**Hardware Availability:** Aug-2017  
**Software Availability:** Oct-2018

### Base Optimization Flags

**C benchmarks:**
- `-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch`
- `-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP`

**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`

The flags files that were used to format this result can be browsed at:
- [Cisco Platform Settings V1.2 revH.html](http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.2-revH.html)

You can also download the XML flags sources by saving the following links:
- [Cisco Platform Settings V1.2 revH.xml](http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.2-revH.xml)

---

SPEC is a registered trademark 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 info@spec.org.

Tested with SPEC CPU2017 v1.0.2 on 2018-12-07 09:04:04-0500.
Report generated on 2019-02-01 14:40:20 by CPU2017 PDF formatter v6067.
Originally published on 2019-01-29.