



# SPEC® CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

CPU2017 License: 9019

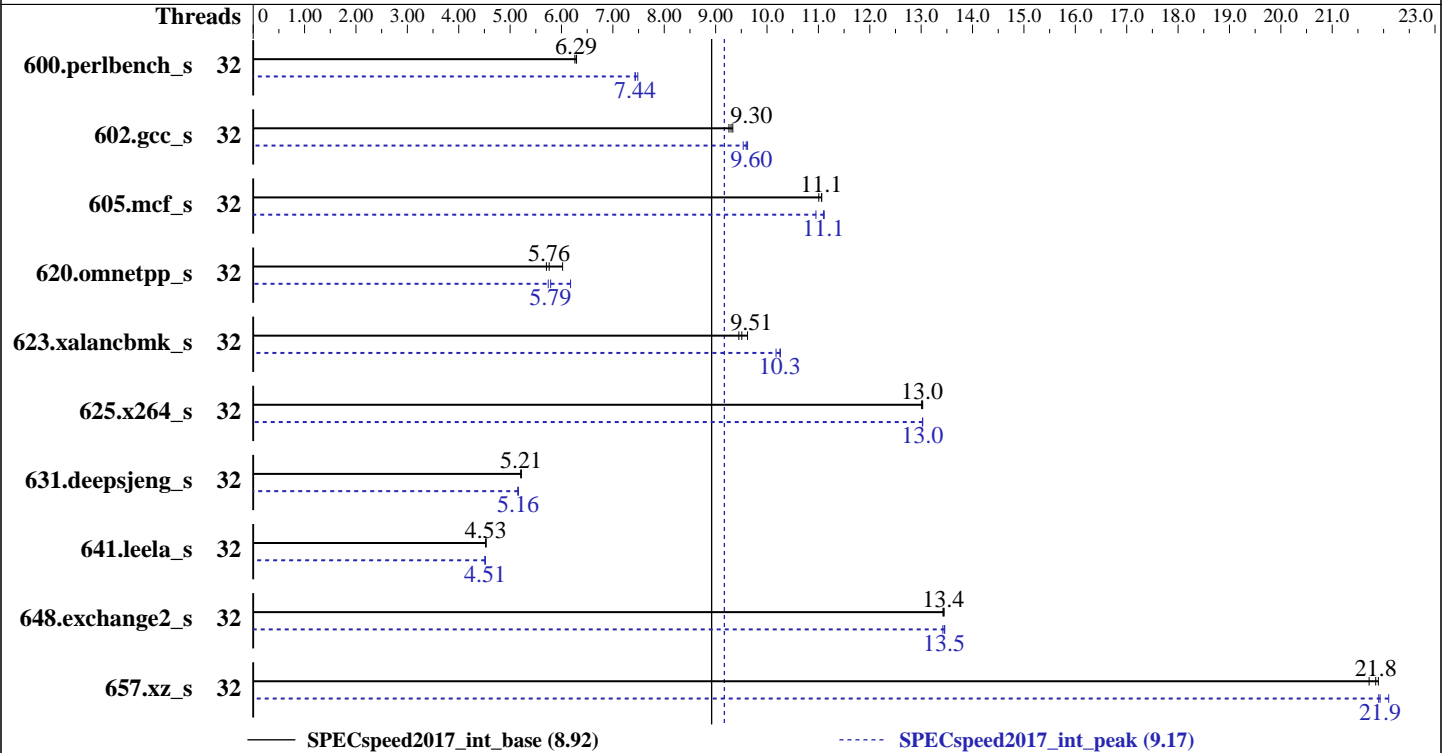
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2018

Hardware Availability: Aug-2017

Software Availability: Oct-2018



### 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  
 Other: None  
 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: 32/64-bit  
 Other: jemalloc memory allocator V5.0.1



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

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

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	282	6.29	284	6.26	<b>282</b>	<b>6.29</b>	32	237	7.49	<b>239</b>	<b>7.44</b>	239	7.43
602.gcc_s	32	<b>428</b>	<b>9.30</b>	430	9.26	427	9.33	32	418	9.54	<b>415</b>	<b>9.60</b>	414	9.62
605.mcf_s	32	<b>427</b>	<b>11.1</b>	427	11.1	429	11.0	32	431	11.0	425	11.1	<b>425</b>	<b>11.1</b>
620.omnetpp_s	32	<b>283</b>	<b>5.76</b>	271	6.02	286	5.71	32	264	6.18	<b>282</b>	<b>5.79</b>	284	5.74
623.xalancbmk_s	32	<b>149</b>	<b>9.51</b>	150	9.45	147	9.62	32	138	10.3	139	10.2	<b>138</b>	<b>10.3</b>
625.x264_s	32	135	13.0	136	13.0	<b>136</b>	<b>13.0</b>	32	135	13.0	135	13.0	<b>135</b>	<b>13.0</b>
631.deepsjeng_s	32	275	5.21	<b>275</b>	<b>5.21</b>	275	5.22	32	<b>278</b>	<b>5.16</b>	278	5.15	278	5.16
641.leela_s	32	377	4.53	<b>377</b>	<b>4.53</b>	377	4.53	32	<b>378</b>	<b>4.51</b>	378	4.51	378	4.51
648.exchange2_s	32	<b>219</b>	<b>13.4</b>	219	13.4	219	13.4	32	<b>219</b>	<b>13.5</b>	219	13.4	218	13.5
657.xz_s	32	282	21.9	<b>283</b>	<b>21.8</b>	285	21.7	32	280	22.1	<b>282</b>	<b>21.9</b>	282	21.9

SPECspeed2017\_int\_base = **8.92**

SPECspeed2017\_int\_peak = **9.17**

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,scatter"

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.

jemalloc, a general purpose malloc implementation

built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Dec-2018

**Hardware Availability:** Aug-2017

**Software Availability:** Oct-2018

## 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 /home/cpu2017/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

running on linux-dssz Fri Dec 7 14:33:41 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: 1905.711

CPU max MHz: 3700.0000

CPU min MHz: 1000.0000

BogoMIPS: 5187.86

Virtualization: VT-x

L1d cache: 32K

L1i cache: 32K

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2018

Hardware Availability: Aug-2017

Software Availability: Oct-2018

### Platform Notes (Continued)

L2 cache: 1024K  
L3 cache: 22528K  
NUMA node0 CPU(s): 0-15  
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 xtpr pdcm pcid 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\_ctxsw spec\_ctrl stibp retpoline kaiser tpr\_shadow vnmi flexpriority ept vpid fsgsbase tsc\_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm\_llc cqm\_occup\_llc

/proc/cpuinfo cache data  
cache size : 22528 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  
node 0 size: 385627 MB  
node 0 free: 385182 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: 386586 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"

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

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

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

### Platform Notes (Continued)

```
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="/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  141G   72G   67% /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

```
=====  
CC 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base,  
peak) 657.xz_s(base)  
-----
```

```
icc (ICC) 19.0.1.144 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.  
-----
```

```
=====  
CC 600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)  
-----
```

```
icc (ICC) 19.0.1.144 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.  
-----
```

```
=====  
CXXC 620.omnetpp_s(base) 623.xalanbmk_s(base) 631.deepsjeng_s(base)  
641.leela_s(base)  
-----
```

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2018

Hardware Availability: Aug-2017

Software Availability: Oct-2018

## Compiler Version Notes (Continued)

```
-----
icpc (ICC) 19.0.1.144 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----
```

```
=====
CXXC 620.omnetpp_s(peak) 623.xalancbmk_s(peak) 631.deepsjeng_s(peak)
      641.leela_s(peak)
-----
```

```
icpc (ICC) 19.0.1.144 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----
```

```
=====
FC 648.exchange2_s(base, peak)
-----
```

```
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
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

## Base Portability Flags

```
600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
```

```
602.gcc_s: -DSPEC_LP64
```

```
605.mcf_s: -DSPEC_LP64
```

```
620.omnetpp_s: -DSPEC_LP64
```

```
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
```

```
625.x264_s: -DSPEC_LP64
```

```
631.deepsjeng_s: -DSPEC_LP64
```

```
641.leela_s: -DSPEC_LP64
```

```
648.exchange2_s: -DSPEC_LP64
```

```
657.xz_s: -DSPEC_LP64
```



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

**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:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP  
-L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

C++ benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

Fortran benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte  
-L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

## Peak Compiler Invocation

C benchmarks:

```
icc -m64 -std=c11
```

C++ benchmarks (except as noted below):

```
icpc -m64
```

```
623.xalancbmk_s: icpc -m32 -L/opt/intel/lib/ia32
```

Fortran benchmarks:

```
ifort -m64
```

## Peak Portability Flags

```
600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64  
602.gcc_s: -DSPEC_LP64  
605.mcf_s: -DSPEC_LP64  
620.omnetpp_s: -DSPEC_LP64  
623.xalancbmk_s: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX  
625.x264_s: -DSPEC_LP64  
631.deepsjeng_s: -DSPEC_LP64  
641.leela_s: -DSPEC_LP64  
648.exchange2_s: -DSPEC_LP64  
657.xz_s: -DSPEC_LP64
```



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

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

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

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2  
-xCORE-AVX512 -qopt-mem-layout-trans=3 -ipo -O3  
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP -fno-strict-overflow  
-L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

```
602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2  
-xCORE-AVX512 -qopt-mem-layout-trans=3 -ipo -O3  
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP -L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

```
605.mcf_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3  
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP  
-L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

```
625.x264_s: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP  
-L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

657.xz\_s: Same as 602.gcc\_s

C++ benchmarks:

```
620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3  
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP  
-L/home/cpu2017/je5.0.1-64/ -ljemalloc
```

```
623.xalancbmk_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3  
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP  
-L/home/cpu2017/je5.0.1-32/ -ljemalloc
```

631.deepsjeng\_s: Same as 620.omnetpp\_s

641.leela\_s: Same as 620.omnetpp\_s

Fortran benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte  
-L/home/cpu2017/je5.0.1-64/ -ljemalloc
```





# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Cisco Systems

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

SPECspeed2017\_int\_base = 8.92

SPECspeed2017\_int\_peak = 9.17

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Dec-2018

**Hardware Availability:** Aug-2017

**Software Availability:** Oct-2018

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2018-06-13.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:

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2018-06-13.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](mailto:info@spec.org).

Tested with SPEC CPU2017 v1.0.2 on 2018-12-07 04:03:40-0500.

Report generated on 2019-02-01 14:40:39 by CPU2017 PDF formatter v6067.

Originally published on 2019-01-29.