



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

CPU2017 License: 9019

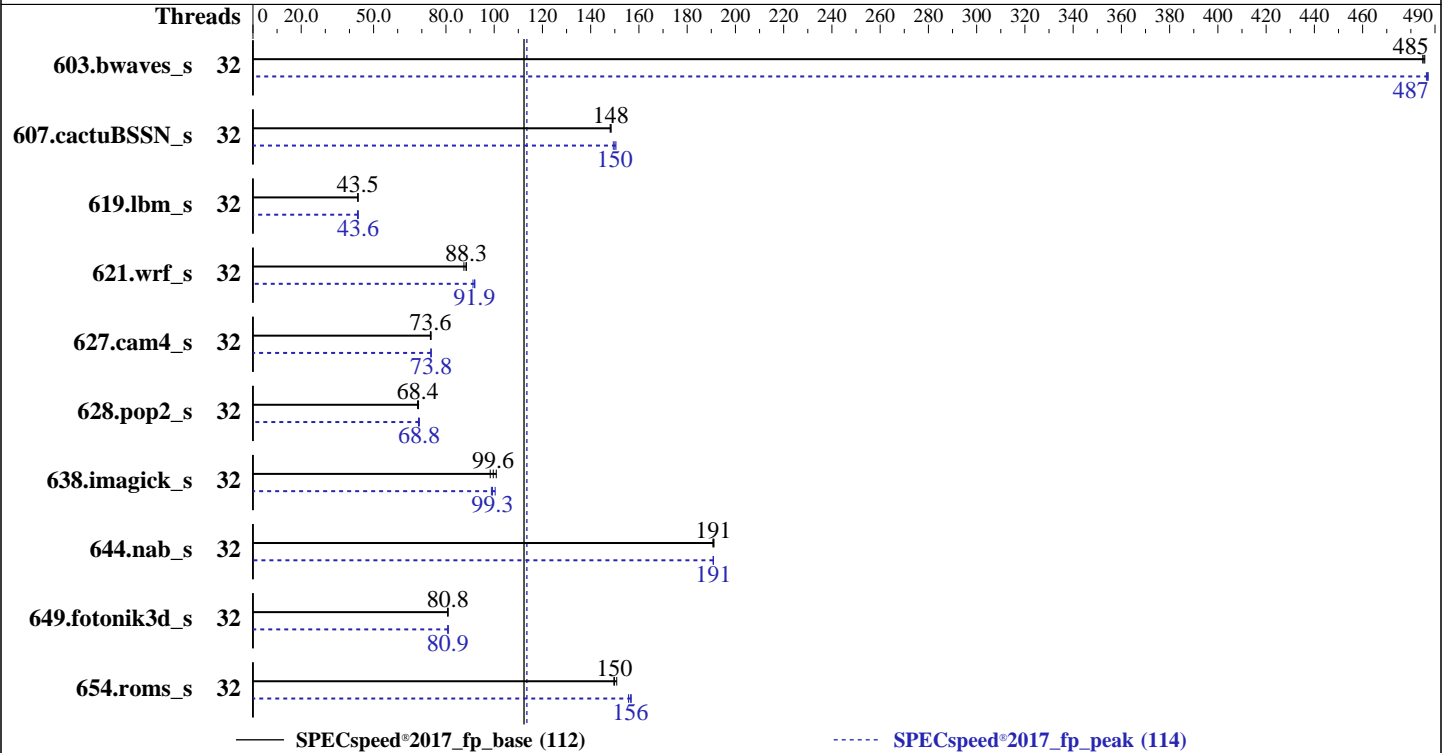
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon Gold 6142M
 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: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
 Storage: 1 x 480 GB SAS SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-69-default
 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
 Firmware: Version 3.1.1d released Jun-2017
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: None
 Power Management: --



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

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

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

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	32	122	485	121	486	<u>122</u>	<u>485</u>	32	121	487	<u>121</u>	<u>487</u>	121	486
607.cactuBSSN_s	32	112	148	<u>112</u>	<u>148</u>	113	148	32	111	150	112	149	<u>111</u>	<u>150</u>
619.lbm_s	32	120	43.5	120	43.5	<u>120</u>	<u>43.5</u>	32	120	43.6	121	43.3	<u>120</u>	<u>43.6</u>
621.wrf_s	32	149	88.5	151	87.5	<u>150</u>	<u>88.3</u>	32	145	91.2	144	92.0	<u>144</u>	<u>91.9</u>
627.cam4_s	32	<u>120</u>	<u>73.6</u>	120	73.6	120	73.9	32	<u>120</u>	<u>73.8</u>	120	73.8	120	73.9
628.pop2_s	32	174	68.3	173	68.6	<u>174</u>	<u>68.4</u>	32	172	69.0	173	68.6	<u>172</u>	<u>68.8</u>
638.imagick_s	32	<u>145</u>	<u>99.6</u>	143	101	147	98.4	32	<u>145</u>	<u>99.3</u>	144	100	146	98.8
644.nab_s	32	91.4	191	91.6	191	<u>91.5</u>	<u>191</u>	32	91.5	191	<u>91.5</u>	<u>191</u>	91.6	191
649.fotonik3d_s	32	113	80.7	<u>113</u>	<u>80.8</u>	113	80.9	32	<u>113</u>	<u>80.9</u>	113	81.0	113	80.8
654.roms_s	32	<u>105</u>	<u>150</u>	104	151	105	150	32	<u>101</u>	<u>156</u>	101	156	100	157

SPECspeed®2017_fp_base = **112**

SPECspeed®2017_fp_peak = **114**

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:/home/cpu2017/je5.0.1-32:/home/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 /home/cpu2017/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

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

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

Platform Notes (Continued)

running on linux-79ix Sun Nov 12 10:36:51 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

```
model name : Intel(R) Xeon(R) Gold 6142M 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 6142M CPU @ 2.60GHz
Stepping:              4
CPU MHz:               1321.281
CPU max MHz:           3700.0000
CPU min MHz:           1000.0000
BogoMIPS:              5187.80
Virtualization:        VT-x
L1d cache:             32K
L1i cache:             32K
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
aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

Platform Notes (Continued)

```
fma cx16 xtpr pdcn pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb pln pts dtherm hwp
hwp_act_window hwp_epp hwp_pkg_req intel_pt 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: 192019 MB
node 0 free: 188140 MB
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
node 1 size: 193384 MB
node 1 free: 188902 MB
node distances:
node 0 1
0: 10 21
1: 21 10
```

```
From /proc/meminfo
MemTotal: 394653864 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:
Linux linux-79ix 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

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

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

Platform Notes (Continued)

x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 12 05:29

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb7	xfs	416G	81G	336G	20%	/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. C220M5.3.1.1d.0.0615170645 06/15/2017

Memory:

24x 0xCE00 M393A2G40EB2-CTD 16 GB 2 rank 2666

(End of data from sysinfo program)

Compiler Version Notes

```

=====
C | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
  | 644.nab_s(base, peak)
=====

```

```

-----
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

```

```

=====
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
=====

```

```

-----
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

```

```

=====
Fortran | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
        | 654.roms_s(base, peak)
=====

```

```

-----
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

Compiler Version Notes (Continued)

```

=====
Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak)
                | 628.pop2_s(base, peak)
=====

```

```

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
=====

```

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.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 CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

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
```

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
```

Peak Compiler Invocation

C benchmarks:

```
icc
```

Fortran benchmarks:

```
ifort
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

```
ifort icc
```

Benchmarks using Fortran, C, and C++:

```
icpc icc ifort
```

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
619.lbm_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX512  
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div  
-qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP
```

```
638.imagick_s: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp  
-DSPEC_OPENMP
```

644.nab_s: Same as 638.imagick_s

Fortran benchmarks:

```
-prof-gen(pass 1) -prof-use(pass 2) -DSPEC_SUPPRESS_OPENMP  
-DSPEC_OPENMP -O2 -xCORE-AVX512 -qopt-prefetch -ipo -O3  
-ffinite-math-only -no-prec-div -qopt-mem-layout-trans=3 -qopenmp  
-nonstandard-realloc-lhs -align array32byte
```

Benchmarks using both Fortran and C:

```
621.wrf_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX512  
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div  
-qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP -nonstandard-realloc-lhs -align array32byte
```

```
627.cam4_s: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp  
-DSPEC_OPENMP -nonstandard-realloc-lhs -align array32byte
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Cisco Systems

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

SPECspeed®2017_fp_base = 112

SPECspeed®2017_fp_peak = 114

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Sep-2017

Peak Optimization Flags (Continued)

628.pop2_s: Same as 621.wrf_s

Benchmarks using Fortran, C, and C++:

```
-prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX512 -qopt-prefetch  
-ipo -O3 -ffinite-math-only -no-prec-div -qopt-mem-layout-trans=3  
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -nostandard-realloc-lhs  
-align array32byte
```

Peak 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>

<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.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.2-revH.xml>

SPEC CPU and SPECspeed 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 info@spec.org.

Tested with SPEC CPU®2017 v1.0.2 on 2017-11-12 13:36:50-0500.

Report generated on 2020-06-25 19:01:26 by CPU2017 PDF formatter v6255.

Originally published on 2017-12-09.