



# SPEC® CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55

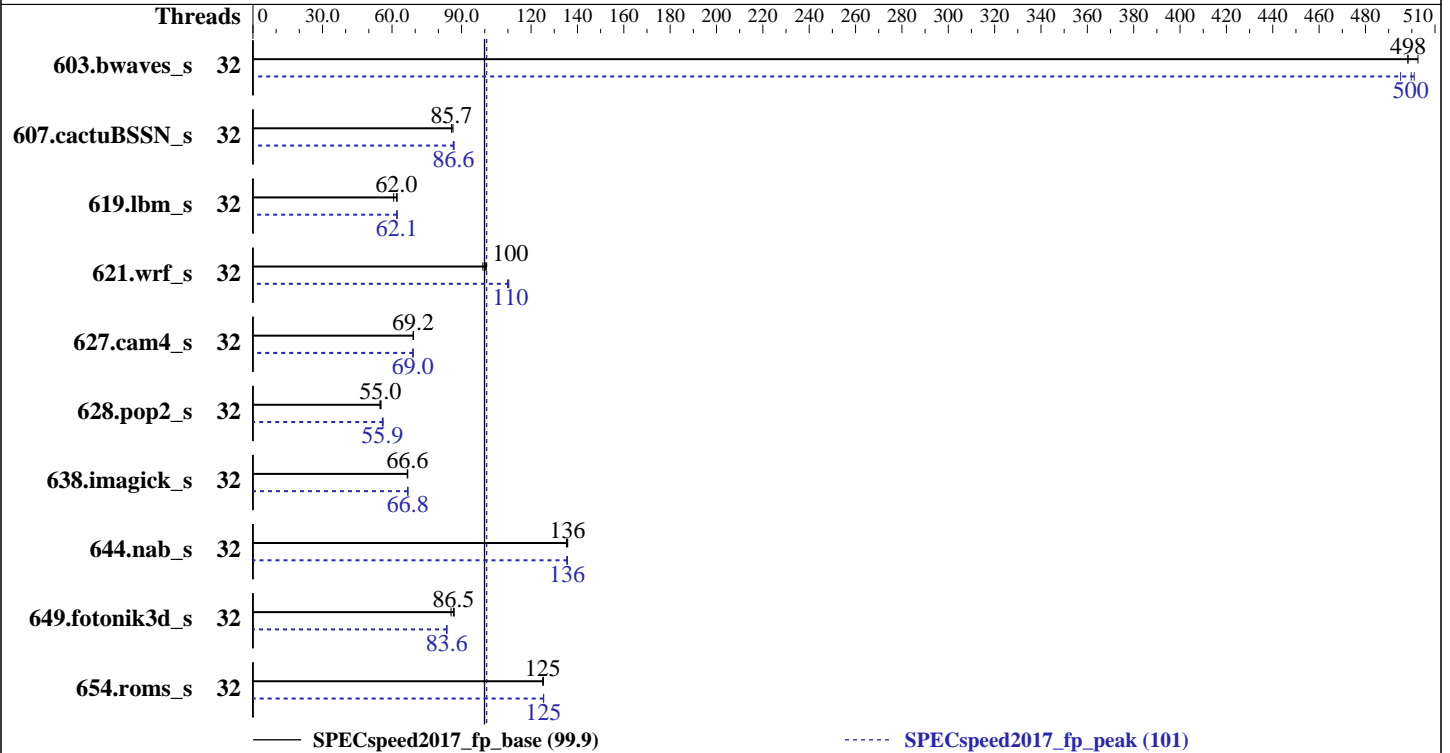
Test Date: Jul-2019

Test Sponsor: Dell Inc.

Hardware Availability: Apr-2019

Tested by: Dell Inc.

Software Availability: May-2019



### Hardware

CPU Name: Intel Xeon Gold 5222  
 Max MHz.: 3900  
 Nominal: 3800  
 Enabled: 16 cores, 4 chips, 2 threads/core  
 Orderable: 2,4 chips  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 16.5 MB I+D on chip per chip  
 Other: None  
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)  
 Storage: 1 x 1.6 TB NVMe SSD  
 Other: None

### Software

OS: Ubuntu 18.04.2 LTS  
 kernel 4.15.0-45-generic  
 Compiler: C/C++: Version 19.0.4.227 of Intel C/C++  
 Compiler Build 20190416 for Linux;  
 Fortran: Version 19.0.4.227 of Intel Fortran  
 Compiler Build 20190416 for Linux  
 Parallel: Yes  
 Firmware: Version 2.2.9 released May-2019  
 File System: ext4  
 System State: Run level 5 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECSpeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECSpeed2017\_fp\_peak = 101

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Jul-2019  
Hardware Availability: Apr-2019  
Software Availability: May-2019

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	32	117	503	<b>118</b>	<b>498</b>	118	498	32	119	495	118	501	<b>118</b>	<b>500</b>
607.cactuBSSN_s	32	<b>194</b>	<b>85.7</b>	194	85.7	193	86.3	32	192	86.8	193	86.4	<b>193</b>	<b>86.6</b>
619.lbm_s	32	84.2	62.2	86.3	60.7	<b>84.5</b>	<b>62.0</b>	32	<b>84.3</b>	<b>62.1</b>	84.4	62.1	84.2	62.2
621.wrf_s	32	131	101	<b>132</b>	<b>100</b>	133	99.2	32	120	110	120	110	<b>120</b>	<b>110</b>
627.cam4_s	32	128	69.1	<b>128</b>	<b>69.2</b>	128	69.2	32	<b>128</b>	<b>69.0</b>	128	69.1	129	68.9
628.pop2_s	32	<b>216</b>	<b>55.0</b>	215	55.3	217	54.8	32	<b>212</b>	<b>55.9</b>	211	56.2	213	55.8
638.imagick_s	32	<b>217</b>	<b>66.6</b>	217	66.6	216	66.8	32	216	66.7	<b>216</b>	<b>66.8</b>	216	66.9
644.nab_s	32	129	135	<b>129</b>	<b>136</b>	129	136	32	<b>129</b>	<b>136</b>	129	135	129	136
649.fotonik3d_s	32	105	86.8	<b>105</b>	<b>86.5</b>	107	85.5	32	109	83.7	109	83.5	<b>109</b>	<b>83.6</b>
654.roms_s	32	126	125	126	125	<b>126</b>	<b>125</b>	32	126	125	<b>126</b>	<b>125</b>	126	125

SPECSpeed2017\_fp\_base = 99.9

SPECSpeed2017\_fp\_peak = 101

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

Environment variables set by runcpu before the start of the run:  
KMP\_AFFINITY = "granularity=fine,compact"  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64"  
OMP\_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5

NA: 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.

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:

ADDDC setting disabled

Virtualization Technology disabled

DCU Streamer Prefetcher disabled

System Profile set to Custom

CPU Performance set to Maximum Performance

C States set to Autonomous

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: May-2019

## Platform Notes (Continued)

C1E disabled  
 Uncore Frequency set to Dynamic  
 Energy Efficiency Policy set to Performance  
 Memory Patrol Scrub disabled  
 Logical Processor enabled  
 CPU Interconnect Bus Link Power Management disabled  
 PCI ASPM L1 Link Power Management disabled  
 Sysinfo program /home/cpu2017/bin/sysinfo  
 Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
 running on intel-sut Sat Jul 27 14:01:28 2019

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 5222 CPU @ 3.80GHz  
 4 "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 : 4  
 siblings : 8  
 physical 0: cores 1 5 8 13  
 physical 1: cores 2 5 8 13  
 physical 2: cores 5 8 9 13  
 physical 3: cores 5 8 9 12

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: 2  
 Core(s) per socket: 4  
 Socket(s): 4  
 NUMA node(s): 8  
 Vendor ID: GenuineIntel  
 CPU family: 6  
 Model: 85  
 Model name: Intel(R) Xeon(R) Gold 5222 CPU @ 3.80GHz  
 Stepping: 6  
 CPU MHz: 2514.447  
 BogoMIPS: 7600.00  
 Virtualization: VT-x  
 L1d cache: 32K

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55

Test Date: Jul-2019

Test Sponsor: Dell Inc.

Hardware Availability: Apr-2019

Tested by: Dell Inc.

Software Availability: May-2019

## Platform Notes (Continued)

```

L1i cache:          32K
L2 cache:           1024K
L3 cache:           16896K
NUMA node0 CPU(s): 0,8,16,24
NUMA node1 CPU(s): 1,9,17,25
NUMA node2 CPU(s): 2,6,18,22
NUMA node3 CPU(s): 3,7,19,23
NUMA node4 CPU(s): 4,12,20,28
NUMA node5 CPU(s): 5,13,21,29
NUMA node6 CPU(s): 10,14,26,30
NUMA node7 CPU(s): 11,15,27,31
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 cpuid
aperfmpperf 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 aes xsave avx f16c rdrand
lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single intel_ppin
ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid
fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f
avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
dtherm ida arat pln pts pku ospke avx512_vnni flush_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 16896 KB

```

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

```

available: 8 nodes (0-7)
node 0 cpus: 0 8 16 24
node 0 size: 95149 MB
node 0 free: 94726 MB
node 1 cpus: 1 9 17 25
node 1 size: 96767 MB
node 1 free: 96058 MB
node 2 cpus: 2 6 18 22
node 2 size: 96767 MB
node 2 free: 95770 MB
node 3 cpus: 3 7 19 23
node 3 size: 96766 MB
node 3 free: 95697 MB
node 4 cpus: 4 12 20 28
node 4 size: 96767 MB
node 4 free: 95108 MB
node 5 cpus: 5 13 21 29
node 5 size: 96767 MB
node 5 free: 96230 MB

```

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: May-2019

## Platform Notes (Continued)

```

node 6 cpus: 10 14 26 30
node 6 size: 96767 MB
node 6 free: 96237 MB
node 7 cpus: 11 15 27 31
node 7 size: 96745 MB
node 7 free: 93204 MB
node distances:
node  0  1  2  3  4  5  6  7
 0: 10 21 31 21 11 21 31 21
 1: 21 10 21 31 21 11 21 31
 2: 31 21 10 21 31 21 11 21
 3: 21 31 21 10 21 31 21 11
 4: 11 21 31 21 10 21 31 21
 5: 21 11 21 31 21 10 21 31
 6: 31 21 11 21 31 21 10 21
 7: 21 31 21 11 21 31 21 10

```

From /proc/meminfo

```

MemTotal: 791037464 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```

```

/usr/bin/lsb_release -d
Ubuntu 18.04.2 LTS

```

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

```

debian_version: buster/sid
os-release:
  NAME="Ubuntu"
  VERSION="18.04.2 LTS (Bionic Beaver)"
  ID=ubuntu
  ID_LIKE=debian
  PRETTY_NAME="Ubuntu 18.04.2 LTS"
  VERSION_ID="18.04"
  HOME_URL="https://www.ubuntu.com/"
  SUPPORT_URL="https://help.ubuntu.com/"

```

uname -a:

```

Linux intel-sut 4.15.0-45-generic #48-Ubuntu SMP Tue Jan 29 16:28:13 UTC 2019 x86_64
x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2017-5754 (Meltdown): Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB

```

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Jul-2019  
Hardware Availability: Apr-2019  
Software Availability: May-2019

## Platform Notes (Continued)

run-level 5 Jul 26 22:03

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	ext4	439G	43G	374G	11%	/

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 Dell Inc. 2.2.9 05/08/2019

Memory:

24x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933

24x Not Specified Not Specified

(End of data from sysinfo program)

## Compiler Version Notes

=====  
CC 619.lbm\_s(base, peak) 638.imagick\_s(base, peak) 644.nab\_s(base, peak)  
=====

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.4.227 Build 20190416  
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

=====  
FC 607.cactuBSSN\_s(base, peak)  
=====

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.4.227 Build 20190416  
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.  
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.4.227 Build 20190416  
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.  
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
64, Version 19.0.4.227 Build 20190416  
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

=====  
FC 603.bwaves\_s(base) 649.fotonik3d\_s(base) 654.roms\_s(base, peak)  
=====

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
64, Version 19.0.4.227 Build 20190416

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.

Test Date: Jul-2019  
Hardware Availability: Apr-2019  
Software Availability: May-2019

## Compiler Version Notes (Continued)

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

=====  
FC 603.bwaves\_s(peak) 649.fotonik3d\_s(peak)  
-----

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

=====  
CC 621.wrf\_s(base) 627.cam4\_s(base, peak) 628.pop2\_s(base)  
-----

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

=====  
CC 621.wrf\_s(peak) 628.pop2\_s(peak)  
-----

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416

Copyright (C) 1985-2019 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



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: May-2019

## 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
```

## Base Optimization Flags

C benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
```

Fortran benchmarks:

```
-DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-nostandard-realloc-lhs
```

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs
```

Benchmarks using Fortran, C, and C++:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs
```

## Peak Compiler Invocation

C benchmarks:

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

Fortran benchmarks:

```
ifort -m64
```

(Continued on next page)





# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: May-2019

## Peak Compiler Invocation (Continued)

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
```

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
```

Fortran benchmarks:

```
603.bwaves_s: -prof-gen(pass 1) -prof-use(pass 2) -DSPEC_SUPPRESS_OPENMP  
-DSPEC_OPENMP -O2 -xCORE-AVX2 -qopt-prefetch -ipo -O3  
-ffinite-math-only -no-prec-div -qopt-mem-layout-trans=4  
-qopenmp -nostandard-realloc-lhs
```

649.fotonik3d\_s: Same as 603.bwaves\_s

```
654.roms_s: -DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4  
-qopenmp -nostandard-realloc-lhs
```

Benchmarks using both Fortran and C:

```
621.wrf_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2  
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div  
-qopt-mem-layout-trans=4 -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP -nostandard-realloc-lhs
```

```
627.cam4_s: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp  
-DSPEC_OPENMP -nostandard-realloc-lhs
```

628.pop2\_s: Same as 621.wrf\_s

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed2017\_fp\_base = 99.9

PowerEdge R840 (Intel Xeon Gold 5222, 3.80GHz)

SPECspeed2017\_fp\_peak = 101

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: May-2019

## Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP  
-nostandard-realloc-lhs
```

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

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.html>  
<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-revE3.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.xml>  
<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-revE3.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 v1.0.5 on 2019-07-27 10:01:27-0400.

Report generated on 2019-08-21 12:04:31 by CPU2017 PDF formatter v6067.

Originally published on 2019-08-20.