SPEC® CPU2017 Floating Point Speed Result
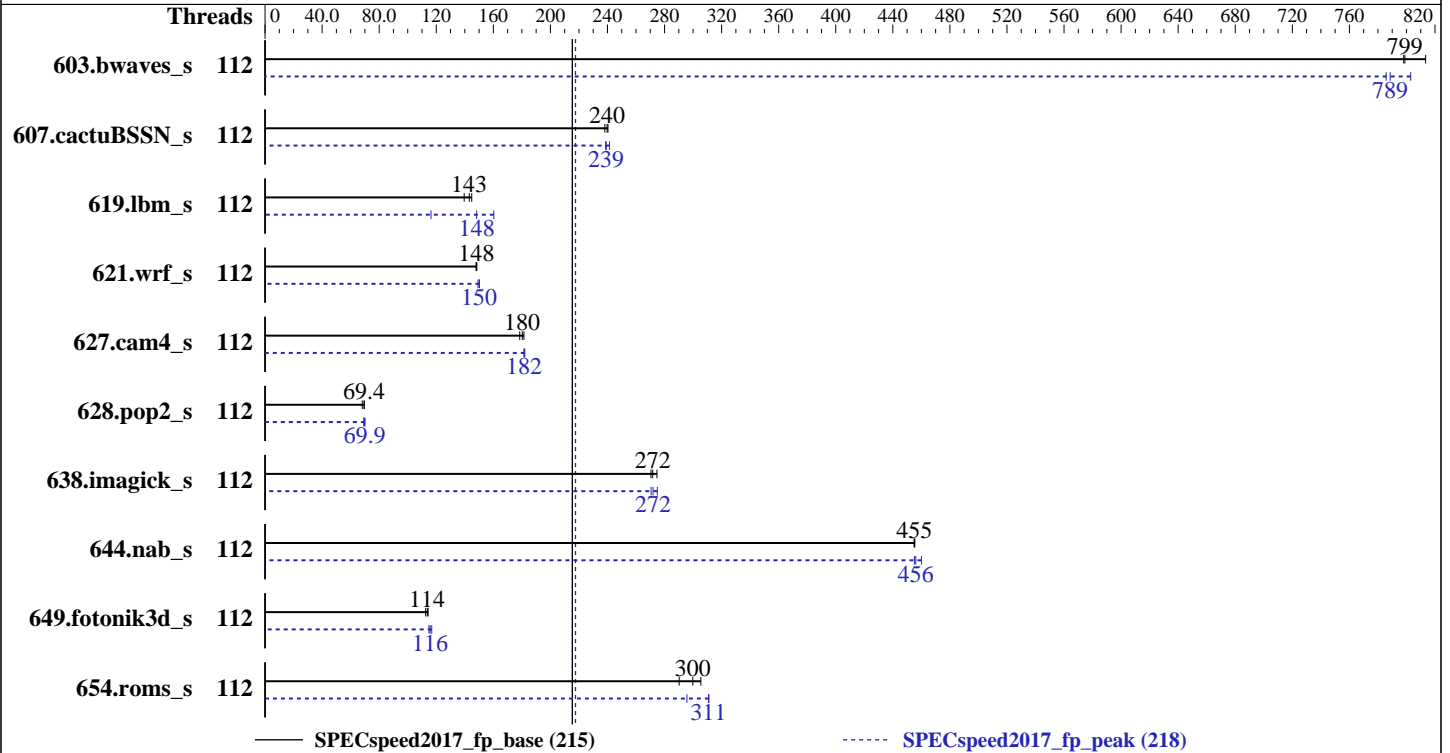
Copyright 2017-2019 Standard Performance Evaluation Corporation

Intel Corporation
Intel S9256WK1HLC

$SPECspeed2017\_fp\_base = 215$

$SPECspeed2017\_fp\_peak = 218$

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-2019

Threads		
603.bwaves_s	112	799 / 789
607.cactuBSSN_s	112	240 / 239
619.lbm_s	112	143 / 148
621.wrf_s	112	148 / 150
627.cam4_s	112	180 / 182
628.pop2_s	112	69.4 / 69.9
638.imagick_s	112	272 / 272
644.nab_s	112	455 / 456
649.fotonik3d_s	112	114 / 116
654.roms_s	112	300 / 311

—— SPECspeed2017_fp_base (215)   ----- **SPECspeed2017_fp_peak (218)**

Hardware

CPU Name: Intel Xeon Platinum 9282
 Max MHz.: 3800
 Nominal: 2600
Enabled: 112 cores, 2 chips
Orderable: 2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 77 MB I+D on chip per chip, 38.5 MB shared / 28 cores
 Other: None
Memory: 768 GB (24 x 32 GB 2Rx8 PC4-2933Y-R, running at 2933)
Storage: Toshiba XG5 NVMe SSD 512GB, M.2 PCIe
Other: None

Software

OS: CentOS Linux release 7.6.1810 (Core) 3.10.0-957.12.2.el7.x86_64
Compiler: C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux; Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux
Parallel: Yes
Firmware: Version SE5C620.86B.0D.01.0541.052120190651 released May-2019
File System: xfs
System State: Run level 5 (multi-user graphical)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None

SPEC CPU2017 Floating Point Speed Result
Copyright 2017-2019 Standard Performance Evaluation Corporation

Intel Corporation
Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-2019

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	112	**73.8**	**799**	72.5	813	73.9	798	112	73.5	803	75.1	786	**74.8**	**789**
607.cactuBSSN_s	112	**69.5**	**240**	69.4	240	70.0	238	112	69.8	239	**69.7**	**239**	69.0	241
619.lbm_s	112	**36.6**	**143**	37.5	140	36.2	145	112	32.7	160	45.0	116	**35.3**	**148**
621.wrf_s	112	89.1	148	**89.2**	**148**	89.5	148	112	88.0	150	**88.1**	**150**	88.6	149
627.cam4_s	112	49.7	178	**49.2**	**180**	48.8	181	112	48.8	181	48.7	182	**48.8**	**182**
628.pop2_s	112	**171**	**69.4**	171	69.5	174	68.1	112	172	69.1	**170**	**69.9**	170	70.0
638.imagick_s	112	52.5	275	53.3	270	**53.1**	**272**	112	**53.0**	**272**	53.3	271	52.5	275
644.nab_s	112	38.4	455	**38.4**	**455**	38.4	455	112	38.0	460	38.4	455	**38.3**	**456**
649.fotonik3d_s	112	81.0	113	**80.2**	**114**	79.8	114	112	78.0	117	79.3	115	**78.8**	**116**
654.roms_s	112	54.2	290	**52.5**	**300**	51.5	305	112	**50.7**	**311**	53.3	296	50.6	311
SPECspeed2017_fp_base =		**215**												
SPECspeed2017_fp_peak =		**218**												

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/DCPerfKit/src/cpu2017/lib/ia32:/home/DCPerfKit/src/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
 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
 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.
```

Platform Notes

```
BIOS Configuration:
Intel Hyper-Threading Tech set to Disabled
Advanced -> Processor Configuration -> Intel Hyper-Threading Tech -> Disabled
```

(Continued on next page)

Intel Corporation

Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13

Test Sponsor: Intel Corporation

Tested by: Intel Corporation

Test Date: Jun-2019

Hardware Availability: Jun-2019

Software Availability: Mar-2019

Platform Notes (Continued)

```
CPU Power and Performance Policy set to Performance
Advanced -> Power & Performance -> CPU Power and Performance Policy -> Performance
IMC Interleaving set to Auto
Advanced -> Memory Configuration -> IMC Interleaving -> Auto
Sub_NUMA Cluster set to Disabled
Advanced -> Memory Configuration -> Memory RAS and Performance Configuration -> Sub_NUMA Cluster -> Disabled
 Sysinfo program /home/DCPerfKit/src/cpu2017/bin/sysinfo
 Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
 running on 9282-t1.jf.intel.com Mon Jun  3 11:13:32 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 : Genuine Intel(R) CPU 0000%@
       4  "physical id"s (chips)
       112 "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
       physical 2: 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 3: 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:
       Architecture:          x86_64
       CPU op-mode(s):        32-bit, 64-bit
       Byte Order:            Little Endian
       CPU(s):                112
       On-line CPU(s) list:   0-111
       Thread(s) per core:    1
       Core(s) per socket:    28
       Socket(s):             4
       NUMA node(s):          4
       Vendor ID:             GenuineIntel
       CPU family:            6
       Model:                 85
       Model name:            Genuine Intel(R) CPU 0000%@
       Stepping:              6
       CPU MHz:               999.914
```

(Continued on next page)

Intel Corporation
Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-2019

Platform Notes (Continued)

```
        CPU max MHz:            3800.0000
        CPU min MHz:            1000.0000
        BogoMIPS:              5200.00
        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
        NUMA node2 CPU(s):     56-83
        NUMA node3 CPU(s):     84-111
        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 epb cat_l3 cdp_l3 intel_pt 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 avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1
    cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln pts hwp
    hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni md_clear spec_ctrl
    intel_stibp flush_l1d arch_capabilities

 /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: 4 nodes (0-3)
   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: 195275 MB
   node 0 free: 188165 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
   53 54 55
   node 1 size: 196608 MB
   node 1 free: 188757 MB
   node 2 cpus: 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
   81 82 83
   node 2 size: 196608 MB
   node 2 free: 189669 MB
   node 3 cpus: 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105
   106 107 108 109 110 111
   node 3 size: 196608 MB
   node 3 free: 190083 MB
   node distances:
```

(Continued on next page)

Intel Corporation
Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13　　　　　　　　　　　　　　　　　**Test Date:**　　　Jun-2019
Test Sponsor:　Intel Corporation　　　　　　　　　**Hardware Availability:** Jun-2019
Tested by:　　　Intel Corporation　　　　　　　　　**Software Availability:**　Mar-2019

Platform Notes (Continued)

```
   node   0   1   2   3
     0:  10  21  21  21
     1:  21  10  21  21
     2:  21  21  10  21
     3:  21  21  21  10

From /proc/meminfo
   MemTotal:       790946540 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

From /etc/*release* /etc/*version*
   centos-release: CentOS Linux release 7.6.1810 (Core)
   centos-release-upstream: Derived from Red Hat Enterprise Linux 7.6 (Source)
   os-release:
      NAME="CentOS Linux"
      VERSION="7 (Core)"
      ID="centos"
      ID_LIKE="rhel fedora"
      VERSION_ID="7"
      PRETTY_NAME="CentOS Linux 7 (Core)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:centos:centos:7"
   redhat-release: CentOS Linux release 7.6.1810 (Core)
   system-release: CentOS Linux release 7.6.1810 (Core)
   system-release-cpe: cpe:/o:centos:centos:7

uname -a:
   Linux 9282-t1.jf.intel.com 3.10.0-957.12.2.el7.x86_64 #1 SMP Tue May 14 21:24:32 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: Load fences, __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB

run-level 5 Jun 3 07:37

SPEC is set to: /home/DCPerfKit/src/cpu2017
   Filesystem                 Type  Size  Used Avail Use% Mounted on
   /dev/mapper/centos-home xfs   422G   28G  395G   7% /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.
```

(Continued on next page)

SPEC CPU2017 Floating Point Speed Result

Intel Corporation
Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-2019

Platform Notes (Continued)

```
    BIOS Intel Corporation SE5C620.86B.0D.01.0541.052120190651 05/21/2019
    Memory:
     24x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933, configured at 2934

  (End of data from sysinfo program)
The inconsistent CPU information under Platform notes is due to Kernel not recognizing the CPU model.
The correct name of CPU is Intel Xeon Platinum 9282
The correct number of chips is 2, total number of threads is 112
The correct cache size is 78848 KB.
More info about the CPU being used at https://
ark.intel.com/content/www/us/en/ark/products/194146/intel-xeon-platinum-9282-processor-77m-cache-2-60-ghz.html
```

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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
  FC  603.bwaves_s(peak) 649.fotonik3d_s(peak)
```

(Continued on next page)

Intel Corporation

Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-2019

Compiler Version Notes (Continued)

```
--------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.1.144 Build 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`

SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Intel Corporation
Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-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-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP

Fortran benchmarks:
-DSPEC_OPENMP -xCORE-AVX512 -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-AVX512 -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-AVX512 -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)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Intel Corporation
Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-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-AVX512 -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-AVX512 -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-AVX512 -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-AVX512
-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-AVX512 -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)

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Intel Corporation

Intel S9256WK1HLC

SPECspeed2017_fp_base = 215

SPECspeed2017_fp_peak = 218

CPU2017 License: 13
Test Sponsor: Intel Corporation
Tested by: Intel Corporation

Test Date: Jun-2019
Hardware Availability: Jun-2019
Software Availability: Mar-2019

Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:
```
-xCORE-AVX512 -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/Intel-Platform-Settings-V1.1.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/Intel-Platform-Settings-V1.1.xml

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU2017 v1.0.5 on 2019-06-03 14:13:31-0400.
Report generated on 2019-07-09 15:46:42 by CPU2017 PDF formatter v6067.
Originally published on 2019-07-09.