



# SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Huawei

SPECrate2017\_fp\_base = 275

### Huawei 9008 V5 (Intel Xeon Platinum 8156)

SPECrate2017\_fp\_peak = 282

CPU2017 License: 3175

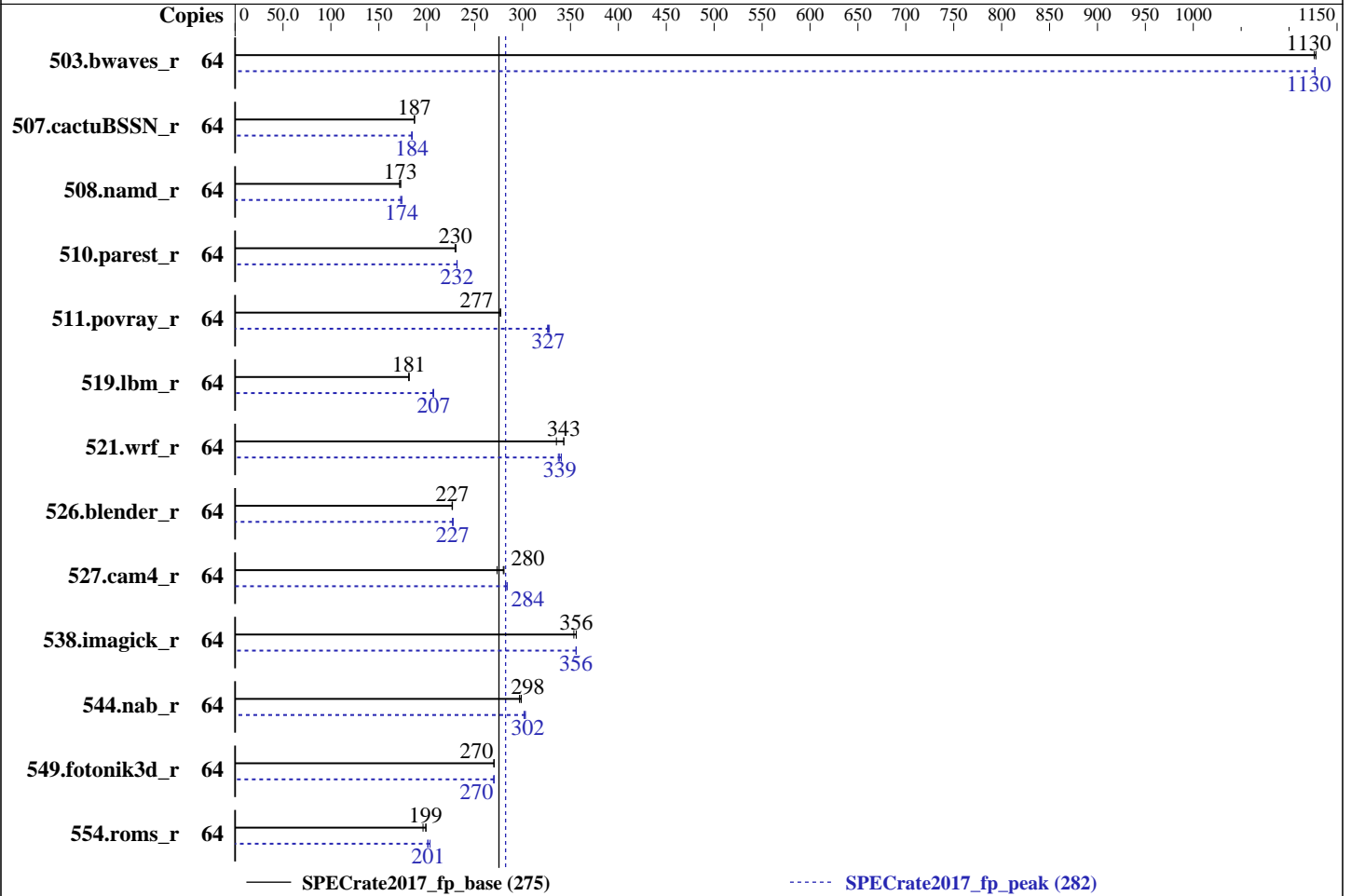
Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2018

Software Availability: Mar-2018



### Hardware

CPU Name: Intel Xeon Platinum 8156  
 Max MHz.: 3700  
 Nominal: 3600  
 Enabled: 32 cores, 8 chips, 2 threads/core  
 Orderable: 2,4,6,8 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: 1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)  
 Storage: 2 x 900 GB SAS HDD 10K RPM, RAID 0  
 Other: None

### Software

OS: SUSE Linux Enterprise Server for SAP Applications  
 12 SP2  
 4.4.120-92.70-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: No  
 Firmware: Version 8.92 released May-2018  
 File System: btrfs  
 System State: Run level 5 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	64	569	1130	570	1130	<b>569</b>	<b>1130</b>	64	<b>569</b>	<b>1130</b>	570	1130	569	1130
507.cactuBSSN_r	64	433	187	433	187	<b>433</b>	<b>187</b>	64	438	185	<b>439</b>	<b>184</b>	439	184
508.namd_r	64	354	172	<b>352</b>	<b>173</b>	352	173	64	352	173	<b>350</b>	<b>174</b>	350	174
510.parest_r	64	726	230	<b>728</b>	<b>230</b>	729	230	64	<b>723</b>	<b>232</b>	723	231	722	232
511.povray_r	64	540	277	<b>540</b>	<b>277</b>	539	277	64	458	326	<b>457</b>	<b>327</b>	456	328
519.lbm_r	64	372	181	371	182	<b>372</b>	<b>181</b>	64	<b>326</b>	<b>207</b>	326	207	327	206
521.wrf_r	64	418	343	<b>418</b>	<b>343</b>	428	335	64	421	340	425	337	<b>423</b>	<b>339</b>
526.blender_r	64	431	226	<b>430</b>	<b>227</b>	430	227	64	428	228	<b>429</b>	<b>227</b>	429	227
527.cam4_r	64	399	281	409	273	<b>400</b>	<b>280</b>	64	<b>395</b>	<b>284</b>	394	284	397	282
538.imagick_r	64	450	354	<b>447</b>	<b>356</b>	447	356	64	447	356	447	356	<b>447</b>	<b>356</b>
544.nab_r	64	361	299	<b>361</b>	<b>298</b>	363	297	64	355	303	357	302	<b>356</b>	<b>302</b>
549.fotonik3d_r	64	923	270	<b>923</b>	<b>270</b>	922	270	64	924	270	<b>923</b>	<b>270</b>	923	270
554.roms_r	64	518	196	510	199	<b>511</b>	<b>199</b>	64	506	201	500	203	<b>505</b>	<b>201</b>

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa\_balancing"

## General Notes

Environment variables set by runcpu before the start of the run:

LD\_LIBRARY\_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"

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  
runcpu command invoked through numactl i.e.:  
numactl --interleave=all runcpu <etc>

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### General Notes (Continued)

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 configuration:

Sub NUMA Cluster (SNC) set to enabled  
IMC (Integrated memory controller) Interleaving set to 1 way interleave  
Xtended Prediction Table (XPT) Prefetch set to Enable  
Memory Patrol Scrub set to Disable  
Last Level Cache (LLC) Prefetch set to Disable  
Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f  
running on linux-0mnb Tue Oct 16 16:57:23 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) Platinum 8156 CPU @ 3.60GHz
 8 "physical id"s (chips)
64 "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 9 13
physical 1: cores 1 5 9 13
physical 2: cores 0 1 12 13
physical 3: cores 1 5 9 13
physical 4: cores 1 5 9 13
physical 5: cores 2 3 4 10
physical 6: cores 2 3 4 10
physical 7: cores 1 5 9 13
```

From lscpu:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 64
On-line CPU(s) list: 0-63
```

(Continued on next page)



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### Platform Notes (Continued)

```

Thread(s) per core:      2
Core(s) per socket:     4
Socket(s):              8
NUMA node(s):          16
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  85
Model name:             Intel(R) Xeon(R) Platinum 8156 CPU @ 3.60GHz
Stepping:               4
CPU MHz:                3601.000
CPU max MHz:            3601.0000
CPU min MHz:            1200.0000
BogoMIPS:               7199.96
Virtualization:        VT-x
L1d cache:              32K
L1i cache:              32K
L2 cache:               1024K
L3 cache:               16896K
NUMA node0 CPU(s):     0,2,32,34
NUMA node1 CPU(s):     1,3,33,35
NUMA node2 CPU(s):     4,6,36,38
NUMA node3 CPU(s):     5,7,37,39
NUMA node4 CPU(s):     8,9,40,41
NUMA node5 CPU(s):     10,11,42,43
NUMA node6 CPU(s):     12,14,44,46
NUMA node7 CPU(s):     13,15,45,47
NUMA node8 CPU(s):     16,18,48,50
NUMA node9 CPU(s):     17,19,49,51
NUMA node10 CPU(s):    20,23,52,55
NUMA node11 CPU(s):    21,22,53,54
NUMA node12 CPU(s):    24,27,56,59
NUMA node13 CPU(s):    25,26,57,58
NUMA node14 CPU(s):    28,30,60,62
NUMA node15 CPU(s):    29,31,61,63
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
aperfperf eagerfpu pni pclmulqdq dtes64 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
intel_pt rsb_ctxsw spec_ctrl stibp retpoline kaiser tpr_shadow vmmi 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 : 16896 KB
```

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## Platform Notes (Continued)

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

```

available: 16 nodes (0-15)
node 0 cpus: 0 2 32 34
node 0 size: 95025 MB
node 0 free: 94438 MB
node 1 cpus: 1 3 33 35
node 1 size: 96762 MB
node 1 free: 96467 MB
node 2 cpus: 4 6 36 38
node 2 size: 96762 MB
node 2 free: 96540 MB
node 3 cpus: 5 7 37 39
node 3 size: 96762 MB
node 3 free: 96491 MB
node 4 cpus: 8 9 40 41
node 4 size: 96762 MB
node 4 free: 96489 MB
node 5 cpus: 10 11 42 43
node 5 size: 96762 MB
node 5 free: 96590 MB
node 6 cpus: 12 14 44 46
node 6 size: 96762 MB
node 6 free: 96558 MB
node 7 cpus: 13 15 45 47
node 7 size: 96762 MB
node 7 free: 96598 MB
node 8 cpus: 16 18 48 50
node 8 size: 96762 MB
node 8 free: 96579 MB
node 9 cpus: 17 19 49 51
node 9 size: 96762 MB
node 9 free: 96579 MB
node 10 cpus: 20 23 52 55
node 10 size: 96762 MB
node 10 free: 96525 MB
node 11 cpus: 21 22 53 54
node 11 size: 96762 MB
node 11 free: 96501 MB
node 12 cpus: 24 27 56 59
node 12 size: 96762 MB
node 12 free: 96562 MB
node 13 cpus: 25 26 57 58
node 13 size: 96762 MB
node 13 free: 96592 MB
node 14 cpus: 28 30 60 62

```

(Continued on next page)



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### Platform Notes (Continued)

```

node 14 size: 96762 MB
node 14 free: 96538 MB
node 15 cpus: 29 31 61 63
node 15 size: 96605 MB
node 15 free: 96397 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
 0: 10 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 1: 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 2: 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20
 3: 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20
 4: 20 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20
 5: 20 20 20 20 20 10 20 20 20 20 20 20 20 20 20 20
 6: 20 20 20 20 20 20 10 20 20 20 20 20 20 20 20 20
 7: 20 20 20 20 20 20 20 10 20 20 20 20 20 20 20 20
 8: 20 20 20 20 20 20 20 20 10 20 20 20 20 20 20 20
 9: 20 20 20 20 20 20 20 20 20 10 20 20 20 20 20 20
10: 20 20 20 20 20 20 20 20 20 20 10 20 20 20 20 20
11: 20 20 20 20 20 20 20 20 20 20 20 10 20 20 20 20
12: 20 20 20 20 20 20 20 20 20 20 20 20 10 20 20 20
13: 20 20 20 20 20 20 20 20 20 20 20 20 20 10 20 20
14: 20 20 20 20 20 20 20 20 20 20 20 20 20 20 10 20
15: 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 10

```

```

From /proc/meminfo
MemTotal:      1583410940 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

```

```

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"

```

(Continued on next page)



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### Platform Notes (Continued)

```

uname -a:
Linux linux-0mnb 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 5 Oct 15 23:40

SPEC is set to: /home/cpu2017
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda4        btrfs    1.5T      23G  1.5T    2% /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 INSYDE Corp. 8.92 05/02/2018
Memory:
48x NO DIMM NO DIMM
48x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666

(End of data from sysinfo program)

```

### Compiler Version Notes

```

=====
CC 519.lbm_r(base) 538.imagick_r(base, peak) 544.nab_r(base)
-----

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

=====
CC 519.lbm_r(peak) 544.nab_r(peak)
-----

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

=====
CXXC 508.namd_r(base) 510.parest_r(base)
-----

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

=====

```

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### Compiler Version Notes (Continued)

CXXC 508.namd\_r(peak) 510.parest\_r(peak)

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

=====  
CC 511.povray\_r(base) 526.blender\_r(base)

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.

=====  
CC 511.povray\_r(peak) 526.blender\_r(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.

=====  
FC 507.cactuBSSN\_r(base)

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.

=====  
FC 507.cactuBSSN\_r(peak)

icpc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.  
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## Compiler Version Notes (Continued)

FC 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak) 554.roms\_r(base)

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

=====

FC 554.roms\_r(peak)  
-----  
ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.  
-----

=====

CC 521.wrf\_r(base) 527.cam4\_r(base)  
-----  
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.  
-----

=====

CC 521.wrf\_r(peak) 527.cam4\_r(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

C++ benchmarks:  
icpc

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
ifort icc

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## Base Compiler Invocation (Continued)

Benchmarks using both C and C++:

icpc icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort

## Base Portability Flags

503.bwaves\_r: -DSPEC\_LP64  
507.cactuBSSN\_r: -DSPEC\_LP64  
508.namd\_r: -DSPEC\_LP64  
510.parest\_r: -DSPEC\_LP64  
511.povray\_r: -DSPEC\_LP64  
519.lbm\_r: -DSPEC\_LP64  
521.wrf\_r: -DSPEC\_LP64 -DSPEC\_CASE\_FLAG -convert big\_endian  
526.blender\_r: -DSPEC\_LP64 -DSPEC\_LINUX -funsigned-char  
527.cam4\_r: -DSPEC\_LP64 -DSPEC\_CASE\_FLAG  
538.imagick\_r: -DSPEC\_LP64  
544.nab\_r: -DSPEC\_LP64  
549.fotonik3d\_r: -DSPEC\_LP64  
554.roms\_r: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte

Benchmarks using both C and C++:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only

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## Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):

`-qopt-mem-layout-trans=3`

Benchmarks using Fortran, C, and C++:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte`

## Base Other Flags

C benchmarks:

`-m64 -std=c11`

C++ benchmarks:

`-m64`

Fortran benchmarks:

`-m64`

Benchmarks using both Fortran and C:

`-m64 -std=c11`

Benchmarks using both C and C++:

`-m64 -std=c11`

Benchmarks using Fortran, C, and C++:

`-m64 -std=c11`

## Peak Compiler Invocation

C benchmarks:

`icc`

C++ benchmarks:

`icpc`

Fortran benchmarks:

`ifort`

Benchmarks using both Fortran and C:

`ifort icc`

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## Peak Compiler Invocation (Continued)

Benchmarks using both C and C++:

icpc icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

538.imagick\_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3

544.nab\_r: Same as 519.lbm\_r

C++ benchmarks:

-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

Fortran benchmarks:

503.bwaves\_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3  
-nostandard-realloc-lhs -align array32byte

549.fotonik3d\_r: Same as 503.bwaves\_r

554.roms\_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs  
-align array32byte

(Continued on next page)



# SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECrate2017\_fp\_base = 275

Huawei 9008 V5 (Intel Xeon Platinum 8156)

SPECrate2017\_fp\_peak = 282

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Jun-2018

Hardware Availability: Jul-2018

Software Availability: Mar-2018

## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Benchmarks using both C and C++:

```
-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3
```

Benchmarks using Fortran, C, and C++:

```
-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

## Peak Other Flags

C benchmarks:

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

C++ benchmarks:

```
-m64
```

Fortran benchmarks:

```
-m64
```

Benchmarks using both Fortran and C:

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

Benchmarks using both C 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/Huawei-Platform-Settings-SKL-V1.7.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/Huawei-Platform-Settings-SKL-V1.7.xml>



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