



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECrate®2017\_fp\_base = 41.3

ThinkSystem ST250  
(4.00 GHz, Intel Xeon E-2286G)

SPECrate®2017\_fp\_peak = 41.8

CPU2017 License: 9017

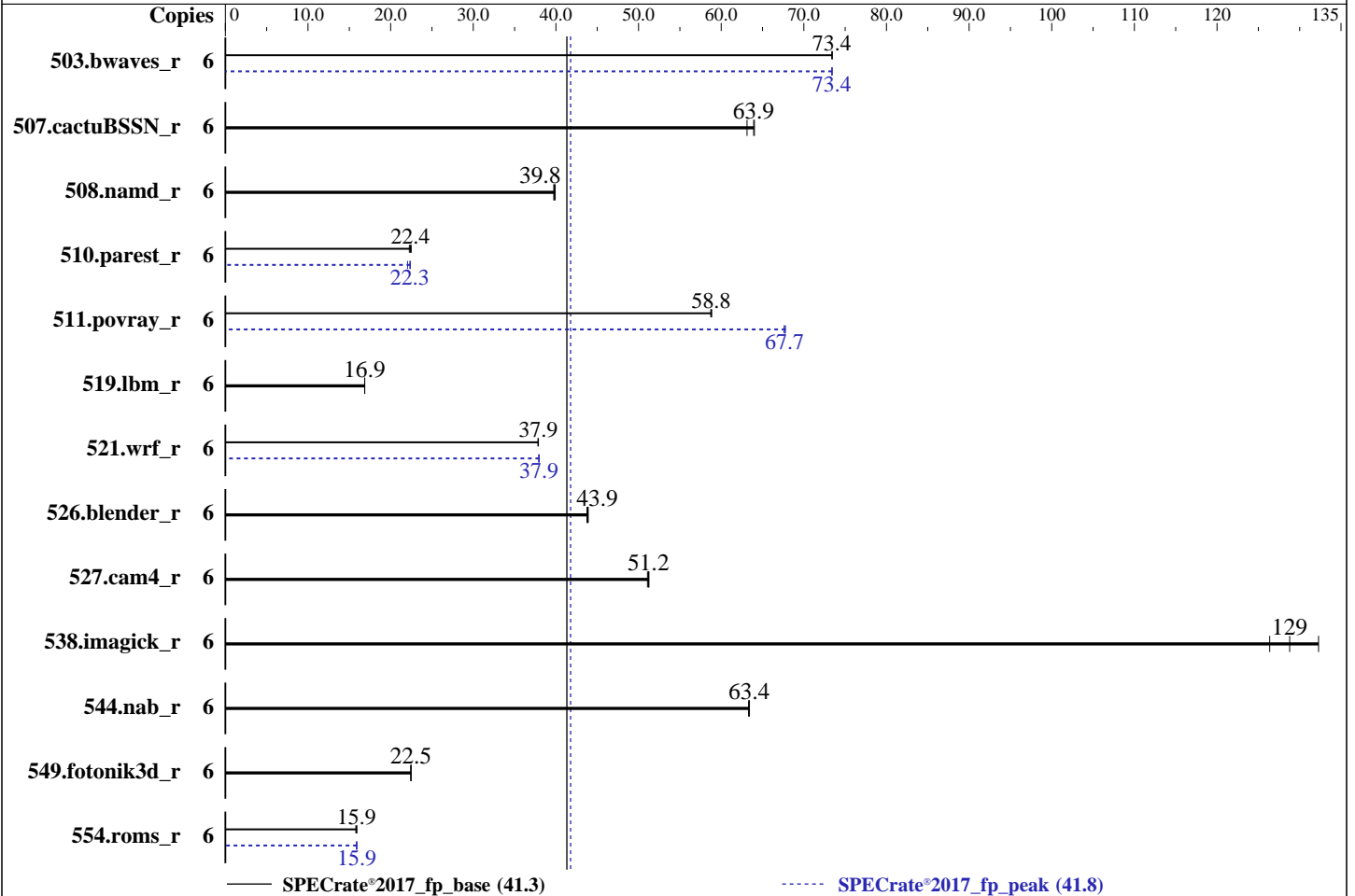
Test Date: Jun-2020

Test Sponsor: Lenovo Global Technology

Hardware Availability: Mar-2020

Tested by: Lenovo Global Technology

Software Availability: Apr-2020



### Hardware

CPU Name: Intel Xeon E-2286G  
 Max MHz: 4900  
 Nominal: 4000  
 Enabled: 6 cores, 1 chip  
 Orderable: 1 chip  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 256 KB I+D on chip per core  
 L3: 12 MB I+D on chip per chip  
 Other: None  
 Memory: 128 GB (4 x 32 GB 2Rx4 PC4-2666V-E)  
 Storage: 1 x 960 GB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 12 SP5 (x86\_64)  
 Kernel 4.12.14-120-default  
 Compiler: C/C++: Version 19.1.1.217 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 19.1.1.217 of Intel Fortran Compiler for Linux  
 Parallel: No  
 Firmware: Lenovo BIOS Version ISE115D 2.10 released Apr-2020  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc memory allocator V5.0.1  
 Power Management: BIOS set to prefer performance at the cost of additional power usage



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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	6	<b>820</b>	<b>73.4</b>	819	73.4	820	73.4	6	820	73.4	820	73.4	<b>820</b>	<b>73.4</b>
507.cactuBSSN_r	6	119	64.0	120	63.1	<b>119</b>	<b>63.9</b>	6	119	64.0	120	63.1	<b>119</b>	<b>63.9</b>
508.namd_r	6	143	39.8	<b>143</b>	<b>39.8</b>	143	39.9	6	143	39.8	<b>143</b>	<b>39.8</b>	143	39.9
510.parest_r	6	698	22.5	705	22.3	<b>701</b>	<b>22.4</b>	6	<b>703</b>	<b>22.3</b>	712	22.1	701	22.4
511.povray_r	6	<b>238</b>	<b>58.8</b>	238	58.8	239	58.7	6	207	67.6	207	67.8	<b>207</b>	<b>67.7</b>
519.lbm_r	6	375	16.9	<b>375</b>	<b>16.9</b>	375	16.9	6	375	16.9	<b>375</b>	<b>16.9</b>	375	16.9
521.wrf_r	6	355	37.9	355	37.8	<b>355</b>	<b>37.9</b>	6	354	37.9	<b>354</b>	<b>37.9</b>	354	38.0
526.blender_r	6	<b>208</b>	<b>43.9</b>	208	43.9	209	43.8	6	<b>208</b>	<b>43.9</b>	208	43.9	209	43.8
527.cam4_r	6	<b>205</b>	<b>51.2</b>	205	51.3	205	51.1	6	<b>205</b>	<b>51.2</b>	205	51.3	205	51.1
538.imagick_r	6	113	132	118	126	<b>116</b>	<b>129</b>	6	113	132	118	126	<b>116</b>	<b>129</b>
544.nab_r	6	159	63.3	159	63.4	<b>159</b>	<b>63.4</b>	6	159	63.3	159	63.4	<b>159</b>	<b>63.4</b>
549.fotonik3d_r	6	<b>1041</b>	<b>22.5</b>	1042	22.4	1041	22.5	6	<b>1041</b>	<b>22.5</b>	1042	22.4	1041	22.5
554.roms_r	6	604	15.8	599	15.9	<b>601</b>	<b>15.9</b>	6	<b>601</b>	<b>15.9</b>	<b>600</b>	<b>15.9</b>	599	15.9

SPECrate®2017\_fp\_base = **41.3**

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

## Compiler Notes

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler. The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux  
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

## Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH =  
"/home/cpu2017-1.1.0-ic19.1.1/lib/intel64:/home/cpu2017-1.1.0-ic19.1.1/j  
e5.0.1-64"  
MALLOC\_CONF = "retain:true"



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### General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0  
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>

### Platform Notes

BIOS configuration:  
Choose Operating Mode set to Maximum Performance  
Hyper-Threading set to Disable

Sysinfo program /home/cpu2017-1.1.0-ic19.1.1/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
running on linux-tzna Tue Jun 30 09:26:56 2020

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) E-2286G CPU @ 4.00GHz  
1 "physical id"s (chips)  
6 "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 : 6  
siblings : 6  
physical 0: cores 0 1 2 3 4 5

From lscpu:  
Architecture: x86\_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
Address sizes: 39 bits physical, 48 bits virtual  
CPU(s): 6

(Continued on next page)



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### Platform Notes (Continued)

```

On-line CPU(s) list: 0-5
Thread(s) per core: 1
Core(s) per socket: 6
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) E-2286G CPU @ 4.00GHz
Stepping: 10
CPU MHz: 4000.000
CPU max MHz: 4900.0000
CPU min MHz: 800.0000
BogoMIPS: 8016.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-5
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 tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3
sdbg fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer
aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single
pti ssbd ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust
bmi1 hle avx2 smep bmi2 erms invpcid rtm mpx rdseed adx smap clflushopt intel_pt
xsaveopt xsavec xgetbv1 xsaves dtherm ida arat pln pts hwp hwp_notify hwp_act_window
hwp_epp md_clear flush_l1d

```

```

/proc/cpuinfo cache data
cache size : 12288 KB

```

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

```

available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5
node 0 size: 128865 MB
node 0 free: 128362 MB
node distances:
node 0
0: 10

```

```

From /proc/meminfo
MemTotal: 131958660 kB
HugePages_Total: 0

```

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### Platform Notes (Continued)

Hugepagesize: 2048 kB

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

SuSE-release:

SUSE Linux Enterprise Server 12 (x86\_64)

VERSION = 12

PATCHLEVEL = 5

# 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-SP5"

VERSION\_ID="12.5"

PRETTY\_NAME="SUSE Linux Enterprise Server 12 SP5"

ID="sles"

ANSI\_COLOR="0;32"

CPE\_NAME="cpe:/o:suse:sles:12:sp5"

uname -a:

Linux linux-tzna 4.12.14-120-default #1 SMP Thu Nov 7 16:39:09 UTC 2019 (fd9dc36)  
x86\_64 x86\_64 x86\_64 GNU/Linux

Kernel self-reported vulnerability status:

itlb\_multihit:

CVE-2018-3620 (L1 Terminal Fault):

KVM: Mitigation: Split huge pages

Mitigation: PTE Inversion; VMX: conditional cache flushes, SMT disabled

Microarchitectural Data Sampling:

CVE-2017-5754 (Meltdown):

Mitigation: Clear CPU buffers; SMT disabled

Mitigation: PTI

CVE-2018-3639 (Speculative Store Bypass):

Mitigation: Speculative Store Bypass disabled via prctl and seccomp

CVE-2017-5753 (Spectre variant 1):

Mitigation: usercopy/swaps barriers and \_\_user pointer sanitization

CVE-2017-5715 (Spectre variant 2):

Mitigation: Full generic retpoline, IBPB: conditional, IBRS\_FW, RSB filling

tsx\_async\_abort:

Mitigation: Clear CPU buffers; SMT disabled

run-level 3 Jun 30 09:26

SPEC is set to: /home/cpu2017-1.1.0-ic19.1.1

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb3	xfs	893G	64G	829G	8%	/

From /sys/devices/virtual/dmi/id

BIOS: Lenovo -[ISE115D-2.10]- 04/24/2020

Vendor: Lenovo

Product: ThinkSystem ST250 -[7Y45CTO0WW]-

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### Platform Notes (Continued)

Product Family: ThinkSystem  
Serial: 1234567890

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.

Memory:  
4x SK Hynix HMAA4GU7AJR8N-VK 32767 MB 2 rank 2666

(End of data from sysinfo program)

### Compiler Version Notes

```
=====
C                | 519.lbm_r(base, peak) 538.imagick_r(base, peak)
                  | 544.nab_r(base, peak)
-----
```

Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1  
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
C++              | 508.namd_r(base, peak) 510.parest_r(base, peak)
-----
```

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1  
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
C++, C           | 511.povray_r(base) 526.blender_r(base, peak)
-----
```

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1  
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1  
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====
C++, C           | 511.povray_r(peak)
-----
```

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,

(Continued on next page)



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### Compiler Version Notes (Continued)

Version 19.1.1.217 Build 20200306  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
 Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
 Version 19.1.1.217 Build 20200306  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

=====  
 C++, C | 511.povray\_r(base) 526.blender\_r(base, peak)  
 =====

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1  
 NextGen Build 20200304  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
 Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1  
 NextGen Build 20200304  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

=====  
 C++, C | 511.povray\_r(peak)  
 =====

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
 Version 19.1.1.217 Build 20200306  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
 Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
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 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

=====  
 C++, C, Fortran | 507.cactuBSSN\_r(base, peak)  
 =====

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 NextGen Build 20200304  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
 Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1  
 NextGen Build 20200304  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
 Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
 64, Version 19.1.1.217 Build 20200306  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

=====  
 Fortran | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak)  
 | 554.roms\_r(base, peak)  
 =====

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### Compiler Version Notes (Continued)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base, peak)  
=====

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1 NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

=====  
Fortran, C | 521.wrf\_r(peak)  
=====

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Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306  
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=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base, peak)  
=====

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=====  
Fortran, C | 521.wrf\_r(peak)  
=====

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## Compiler Version Notes (Continued)

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## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icc

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



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## Base Optimization Flags

### C benchmarks:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### C++ benchmarks:

```
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX2 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### Fortran benchmarks:

```
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX2 -O3 -ipo -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### Benchmarks using both Fortran and C:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### Benchmarks using both C and C++:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### Benchmarks using Fortran, C, and C++:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX2 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
```

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# SPEC CPU®2017 Floating Point Rate Result

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**Lenovo Global Technology**

SPECrate®2017\_fp\_base = 41.3

ThinkSystem ST250  
(4.00 GHz, Intel Xeon E-2286G)

SPECrate®2017\_fp\_peak = 41.8

**CPU2017 License:** 9017

**Test Date:** Jun-2020

**Test Sponsor:** Lenovo Global Technology

**Hardware Availability:** Mar-2020

**Tested by:** Lenovo Global Technology

**Software Availability:** Apr-2020

## Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

## Peak Compiler Invocation

C benchmarks:

`icc`

C++ benchmarks:

`icpc`

Fortran benchmarks:

`ifort`

Benchmarks using both Fortran and C:

`ifort icc`

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: basepeak = yes

538.imagick\_r: basepeak = yes

544.nab\_r: basepeak = yes

C++ benchmarks:

(Continued on next page)



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Software Availability: Apr-2020

## Peak Optimization Flags (Continued)

508.namd\_r: basepeak = yes

```
510.parest_r: -m64 -qnextgen
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX2 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

Fortran benchmarks:

```
503.bwaves_r: -m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

549.fotonik3d\_r: basepeak = yes

554.roms\_r: Same as 503.bwaves\_r

Benchmarks using both Fortran and C:

```
521.wrf_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

527.cam4\_r: basepeak = yes

Benchmarks using both C and C++:

```
511.povray_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

526.blender\_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

(Continued on next page)



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**Test Date:** Jun-2020

**Hardware Availability:** Mar-2020

**Software Availability:** Apr-2020

## Peak Optimization Flags (Continued)

507.cactuBSSN\_r: basepeak = yes

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

[http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64\\_revA.html](http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64_revA.html)

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-J.html>

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

[http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64\\_revA.xml](http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64_revA.xml)

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-J.xml>

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