



SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_base = 54.4

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

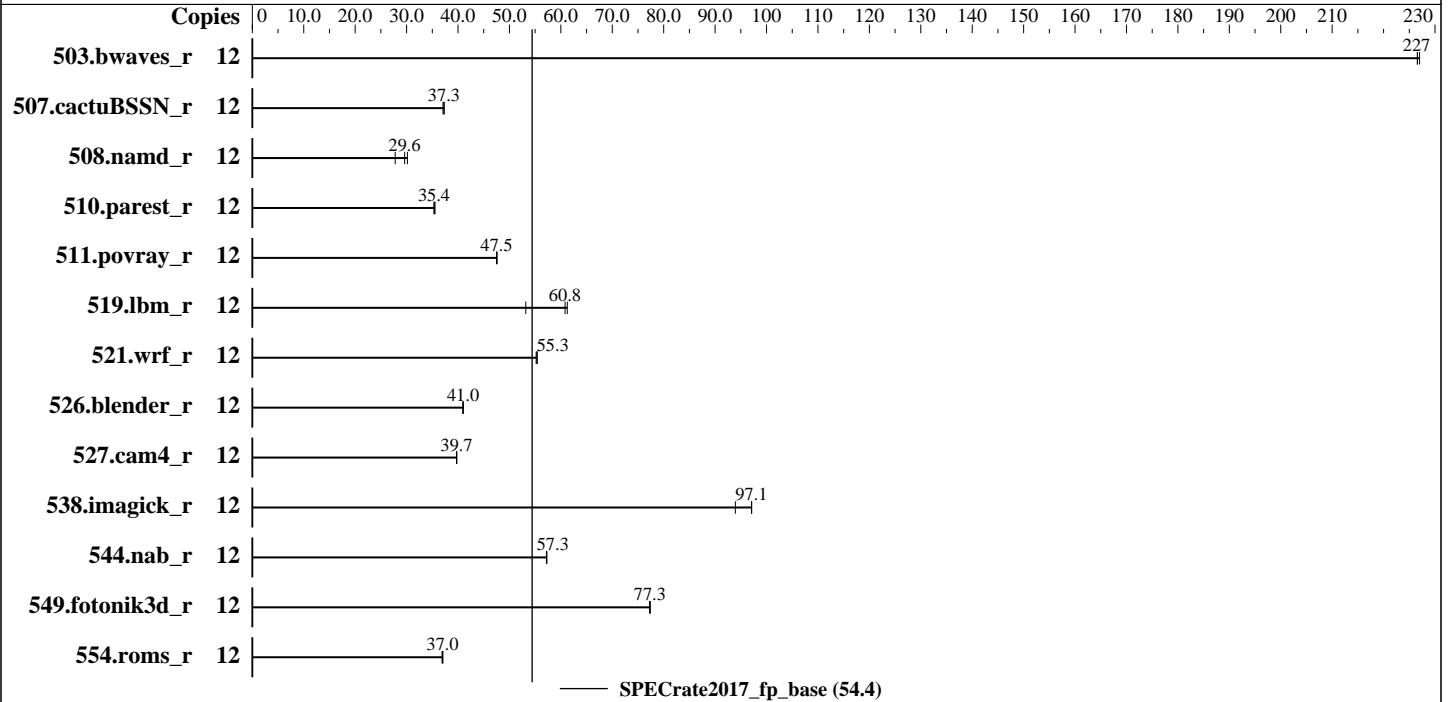
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: May-2019

Hardware Availability: Apr-2019

Software Availability: Nov-2018



Hardware

CPU Name: Intel Xeon Bronze 3204
 Max MHz.: 1900
 Nominal: 1900
 Enabled: 12 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: 8.25 MB I+D on chip per chip
 Other: None
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2666V-R, running at 2133)
 Storage: 1 x 960 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 (x86_64)
 Kernel 4.12.14-25.13-default
 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: No
 Firmware: Lenovo BIOS Version IVE135M 2.10 released Jan-2019
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: None



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_base = 54.4

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: May-2019

Hardware Availability: Apr-2019

Software Availability: Nov-2018

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	12	531	227	<u>531</u>	<u>227</u>	530	227							
507.cactuBSSN_r	12	407	37.3	<u>407</u>	<u>37.3</u>	410	37.1							
508.namd_r	12	<u>385</u>	<u>29.6</u>	410	27.8	378	30.2							
510.parest_r	12	884	35.5	888	35.3	<u>888</u>	<u>35.4</u>							
511.povray_r	12	589	47.6	<u>590</u>	<u>47.5</u>	590	47.5							
519.lbm_r	12	207	61.2	238	53.2	<u>208</u>	<u>60.8</u>							
521.wrf_r	12	<u>486</u>	<u>55.3</u>	487	55.2	485	55.4							
526.blender_r	12	<u>446</u>	<u>41.0</u>	446	40.9	446	41.0							
527.cam4_r	12	<u>528</u>	<u>39.7</u>	528	39.8	528	39.7							
538.imagick_r	12	<u>307</u>	<u>97.1</u>	307	97.1	318	93.9							
544.nab_r	12	<u>353</u>	<u>57.3</u>	353	57.3	353	57.2							
549.fotonik3d_r	12	604	77.4	605	77.3	<u>605</u>	<u>77.3</u>							
554.roms_r	12	515	37.1	517	36.9	<u>515</u>	<u>37.0</u>							

SPECrate2017_fp_base = 54.4

SPECrate2017_fp_peak = Not Run

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"

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017-1.0.5-ic19.0u1/lib/intel64"

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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate2017_fp_base = 54.4

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Date: May-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2019

Tested by: Lenovo Global Technology

Software Availability: Nov-2018

General Notes (Continued)

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.

Yes: The test sponsor attests, as of date of publication, that CVE-2018-3640 (Spectre variant 3a) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4) is mitigated in the system as tested and documented.

Platform Notes

BIOS configuration:

Choose Operating Mode set to Maximum Performance

Trusted Execution Technology set to Enable

CPU Frequency Limits set to Restrict Maximum Frequency

Workload Configuration set to I/O Sensitive

sysinfo program /home/cpu2017-1.0.5-ic19.0u1/bin/sysinfo

Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9

running on linux-30ed Mon May 13 23:45:32 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 : Intel(R) Xeon(R) Bronze 3204 CPU @ 1.90GHz

2 "physical id"s (chips)

12 "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

physical 1: cores 0 1 2 3 4 5

From lscpu:

Architecture: x86_64

CPU op-mode(s): 32-bit, 64-bit

Byte Order: Little Endian

CPU(s): 12

On-line CPU(s) list: 0-11

Thread(s) per core: 1

Core(s) per socket: 6

Socket(s): 2

NUMA node(s): 2

Vendor ID: GenuineIntel

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate2017_fp_base = 54.4

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Date: May-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2019

Tested by: Lenovo Global Technology

Software Availability: Nov-2018

Platform Notes (Continued)

```

CPU family:      6
Model:          85
Model name:     Intel(R) Xeon(R) Bronze 3204 CPU @ 1.90GHz
Stepping:      6
CPU MHz:       1900.000
CPU max MHz:   1900.0000
CPU min MHz:   800.0000
BogoMIPS:      3800.00
Virtualization: VT-x
L1d cache:     32K
L1i cache:     32K
L2 cache:     1024K
L3 cache:     8448K
NUMA node0 CPU(s): 0-5
NUMA node1 CPU(s): 6-11
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 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 cpuid_fault epb cat_l3 cdp_l3 invpcid_single ssbd
mba ibrs ibpb stibp 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 arat pln pts pku ospke
avx512_vnni flush_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 8448 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
node 0 size: 386634 MB
node 0 free: 380295 MB
node 1 cpus: 6 7 8 9 10 11
node 1 size: 387047 MB
node 1 free: 386485 MB
node distances:
node  0  1
  0:  10  21
  1:  21  10

```

```

From /proc/meminfo
MemTotal:      792249944 kB
HugePages_Total:      0

```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate2017_fp_base = 54.4

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Date: May-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2019

Tested by: Lenovo Global Technology

Software Availability: Nov-2018

Platform Notes (Continued)

Hugepagesize: 2048 kB

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

os-release:

```
NAME="SLES"
VERSION="15"
VERSION_ID="15"
PRETTY_NAME="SUSE Linux Enterprise Server 15"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15"
```

uname -a:

```
Linux linux-30ed 4.12.14-25.13-default #1 SMP Tue Aug 14 15:07:35 UTC 2018 (947aa51)
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: Indirect Branch Restricted Speculation,
IBPB, IBRS_FW
```

run-level 3 May 13 23:43

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 893G 41G 852G 5% /
```

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 Lenovo -[IVE135M-2.10]- 01/16/2019

Memory:

24x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666, configured at 2133

(End of data from sysinfo program)

Compiler Version Notes

```
=====  
CC 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)  
=====
```

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

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate2017_fp_base = 54.4

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Date: May-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2019

Tested by: Lenovo Global Technology

Software Availability: Nov-2018

Compiler Version Notes (Continued)

Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

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

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 511.povray_r(base) 526.blender_r(base)

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.

=====
FC 507.cactuBSSN_r(base)

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 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(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.

=====
CC 521.wrf_r(base) 527.cam4_r(base)

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate2017_fp_base = 54.4

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Date: May-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2019

Tested by: Lenovo Global Technology

Software Availability: Nov-2018

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.
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
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

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

Benchmarks using both C and C++:

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

Benchmarks using Fortran, C, and C++:

```
icpc -m64 icc -m64 -std=c11 ifort -m64
```

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

```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate2017_fp_base = 54.4

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Date: May-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2019

Tested by: Lenovo Global Technology

Software Availability: Nov-2018

Base Portability Flags (Continued)

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=4

C++ benchmarks:

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

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -auto -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=4 -auto -nostandard-realloc-lhs
-align array32byte

Benchmarks using both C and C++:

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

Benchmarks using Fortran, C, and C++:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs
-align array32byte

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.html>

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

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.xml>

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



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SN550
(1.90 GHz, Intel Xeon Bronze 3204)

SPECrate2017_fp_base = 54.4

SPECrate2017_fp_peak = Not Run

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: May-2019

Hardware Availability: Apr-2019

Software Availability: Nov-2018

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.

Tested with SPEC CPU2017 v1.0.5 on 2019-05-13 11:45:31-0400.

Report generated on 2019-06-11 17:22:38 by CPU2017 PDF formatter v6067.

Originally published on 2019-06-11.