



# SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Huawei

SPECrate2017\_fp\_base = 55.3

### Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

CPU2017 License: 3175

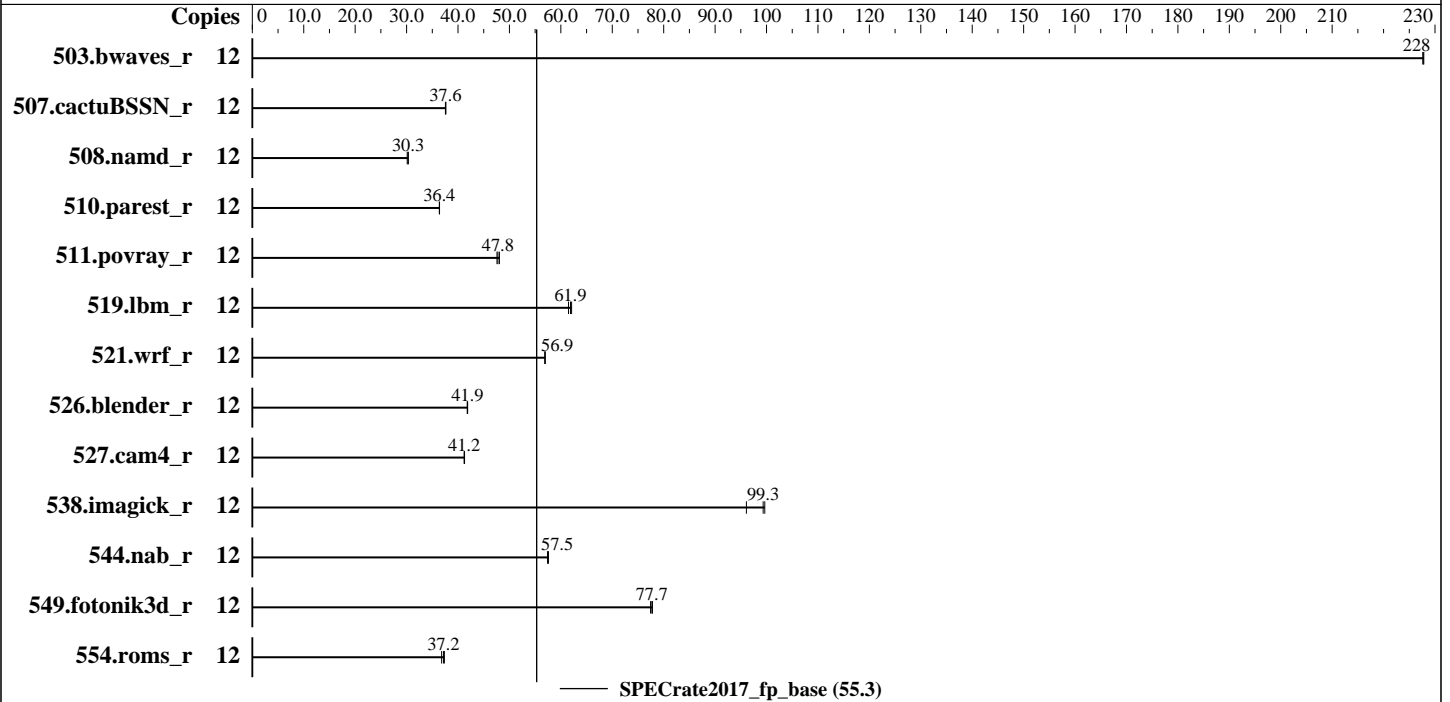
Test Date: Mar-2019

Test Sponsor: Huawei

Hardware Availability: Apr-2019

Tested by: Huawei

Software Availability: Dec-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: 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R, running at 2133)  
 Storage: 1 x 1200 GB SAS, 10000 RPM  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 12 SP4 (x86\_64) 4.12.14-94.41-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: Version 6.52 Released Mar-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

## Huawei

SPECrate2017\_fp\_base = 55.3

Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

CPU2017 License: 3175  
Test Sponsor: Huawei  
Tested by: Huawei

Test Date: Mar-2019  
Hardware Availability: Apr-2019  
Software Availability: Dec-2018

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	12	528	228	<u>529</u>	<u>228</u>	529	228							
507.cactuBSSN_r	12	404	37.6	405	37.6	<b>404</b>	<b>37.6</b>							
508.namd_r	12	378	30.1	<u>376</u>	<u>30.3</u>	376	30.3							
510.parest_r	12	<b>863</b>	<b>36.4</b>	862	36.4	863	36.4							
511.povray_r	12	589	47.6	<u>587</u>	<u>47.8</u>	583	48.1							
519.lbm_r	12	<b>204</b>	<b>61.9</b>	206	61.5	204	62.1							
521.wrf_r	12	<b>472</b>	<b>56.9</b>	472	56.9	472	56.9							
526.blender_r	12	<b>437</b>	<b>41.9</b>	436	41.9	437	41.8							
527.cam4_r	12	<b>509</b>	<b>41.2</b>	509	41.2	509	41.3							
538.imagick_r	12	299	99.7	<b>300</b>	<b>99.3</b>	311	96.1							
544.nab_r	12	<b>351</b>	<b>57.5</b>	352	57.4	351	57.6							
549.fotonik3d_r	12	<b>602</b>	<b>77.7</b>	601	77.8	604	77.4							
554.roms_r	12	511	37.3	<u>513</u>	<u>37.2</u>	518	36.8							

SPECrate2017\_fp\_base = 55.3

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 = "/spec2017/lib/ia32:/spec2017/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>

Yes: 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

## Huawei

SPECrate2017\_fp\_base = 55.3

Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

**CPU2017 License:** 3175  
**Test Sponsor:** Huawei  
**Tested by:** Huawei

**Test Date:** Mar-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Dec-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.

### Platform Notes

BIOS configuration:  
Power Policy Set to Performance  
XPT Prefetch Set to Enabled  
Sysinfo program /spec2017/bin/sysinfo  
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
running on sles12sp4 Wed Mar 27 10:10:09 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
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
```

(Continued on next page)



# SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Huawei

SPECrate2017\_fp\_base = 55.3

### Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

**CPU2017 License:** 3175  
**Test Sponsor:** Huawei  
**Tested by:** Huawei

**Test Date:** Mar-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Dec-2018

### Platform Notes (Continued)

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 aperfperf 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: 191935 MB
node 0 free: 190613 MB
node 1 cpus: 6 7 8 9 10 11
node 1 size: 193253 MB
node 1 free: 191917 MB
node distances:
node  0  1
 0:  10  21
 1:  21  10
```

```
From /proc/meminfo
MemTotal: 394433036 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
```

(Continued on next page)



# SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Huawei

SPECrate2017\_fp\_base = 55.3

Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

CPU2017 License: 3175  
Test Sponsor: Huawei  
Tested by: Huawei

Test Date: Mar-2019  
Hardware Availability: Apr-2019  
Software Availability: Dec-2018

## Platform Notes (Continued)

```

PATCHLEVEL = 4
# 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-SP4"
VERSION_ID="12.4"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp4"

uname -a:
Linux sles12sp4 4.12.14-94.41-default #1 SMP Wed Oct 31 12:25:04 UTC 2018 (3090901)
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 Mar 26 11:46

SPEC is set to: /spec2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       xfs   700G   15G  686G   3% /

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. 6.52 03/16/2019
Memory:
24x Samsung M393A2K43CB2-CVF 16 GB 2 rank 2933, 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,
Version 19.0.1.144 Build 20181018

```

(Continued on next page)



# SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Huawei

SPECrate2017\_fp\_base = 55.3

Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

CPU2017 License: 3175  
Test Sponsor: Huawei  
Tested by: Huawei

Test Date: Mar-2019  
Hardware Availability: Apr-2019  
Software Availability: Dec-2018

## Compiler Version Notes (Continued)

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

Huawei

SPECrate2017\_fp\_base = 55.3

Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Mar-2019

Hardware Availability: Apr-2019

Software Availability: Dec-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
```

```
554.roms_r: -DSPEC_LP64
```



# SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Huawei

SPECrate2017\_fp\_base = 55.3

Huawei CH121 V5 (Intel Xeon Bronze 3204)

SPECrate2017\_fp\_peak = Not Run

**CPU2017 License:** 3175  
**Test Sponsor:** Huawei  
**Tested by:** Huawei

**Test Date:** Mar-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Dec-2018

## 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/Huawei-Platform-Settings-SKL-V1.9-revC.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/Huawei-Platform-Settings-SKL-V1.9-revC.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 2019-03-27 10:10:08-0400.

Report generated on 2019-05-15 13:29:27 by CPU2017 PDF formatter v6067.

Originally published on 2019-05-14.