



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

CPU2017 License: 9016

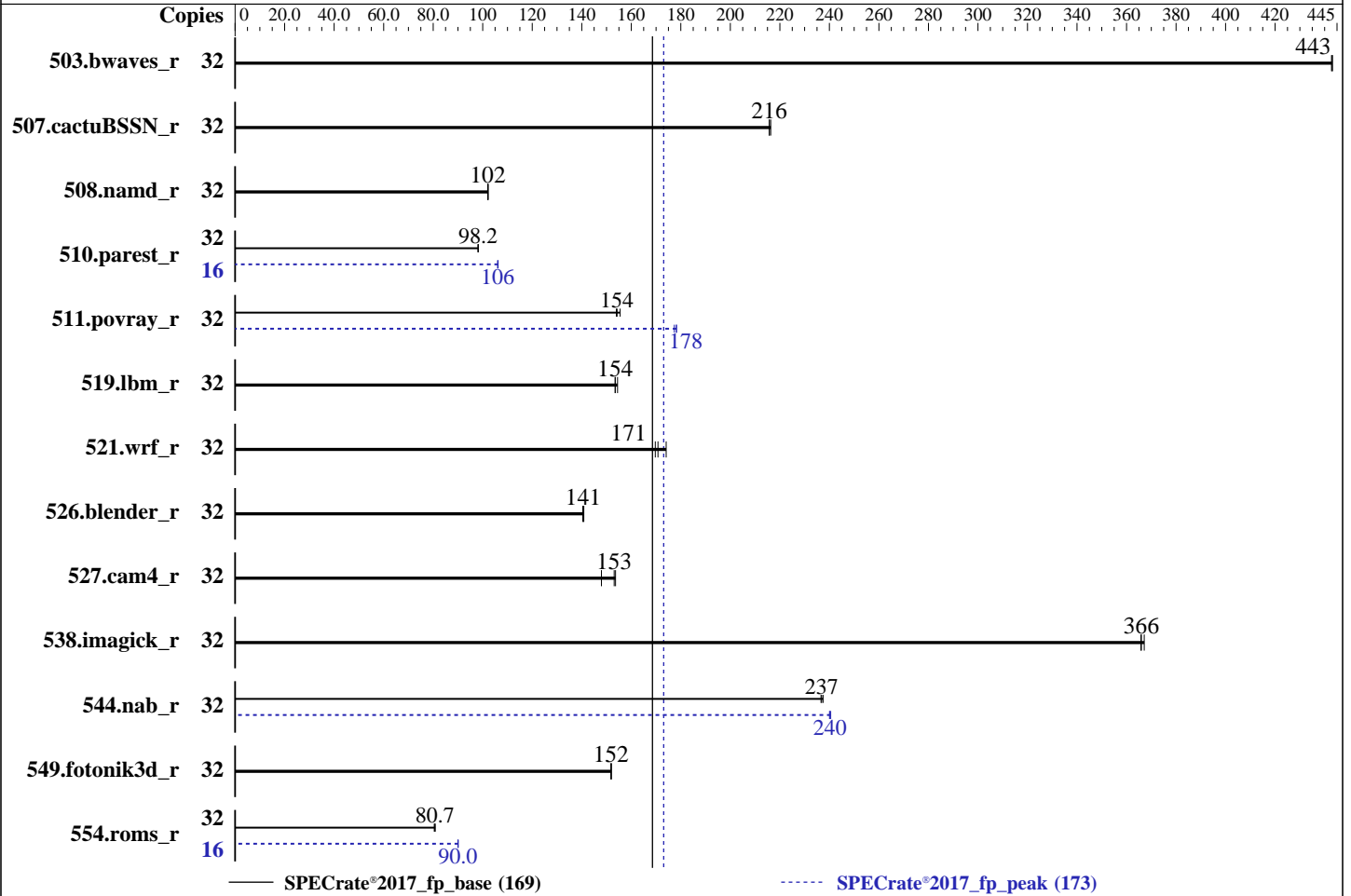
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jan-2022

Hardware Availability: May-2021

Software Availability: Mar-2021



### Hardware

CPU Name: Intel Xeon Silver 4309Y  
 Max MHz: 3600  
 Nominal: 2800  
 Enabled: 16 cores, 2 chips, 2 threads/core  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1.25 MB I+D on chip per core  
 L3: 12 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R, running at 2666)  
 Storage: 1 x 4 TB PCIE NVME SSD  
 Other: None

### Software

OS: Red Hat Enterprise Linux release 8.3 (Ootpa) 4.18.0-240.22.1.el8\_3.x86\_64  
 Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;  
 Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;  
 C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux  
 Parallel: No  
 Firmware: Version 0504 released May-2021  
 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 and OS set to prefer performance at the cost of additional power usage.



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jan-2022

Hardware Availability: May-2021

Software Availability: Mar-2021

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	32	724	443	725	443	<b>724</b>	<b>443</b>	32	724	443	725	443	<b>724</b>	<b>443</b>
507.cactuBSSN_r	32	<b>188</b>	<b>216</b>	187	216	188	216	32	<b>188</b>	<b>216</b>	187	216	188	216
508.namd_r	32	297	102	<b>298</b>	<b>102</b>	298	102	32	297	102	<b>298</b>	<b>102</b>	298	102
510.parest_r	32	853	98.2	853	98.1	<b>853</b>	<b>98.2</b>	16	<b>395</b>	<b>106</b>	394	106	395	106
511.povray_r	32	481	155	485	154	<b>484</b>	<b>154</b>	32	419	178	421	177	<b>419</b>	<b>178</b>
519.lbm_r	32	<b>220</b>	<b>154</b>	220	153	218	154	32	<b>220</b>	<b>154</b>	220	153	218	154
521.wrf_r	32	<b>420</b>	<b>171</b>	422	170	412	174	32	<b>420</b>	<b>171</b>	422	170	412	174
526.blender_r	32	346	141	347	140	<b>347</b>	<b>141</b>	32	346	141	347	140	<b>347</b>	<b>141</b>
527.cam4_r	32	<b>366</b>	<b>153</b>	378	148	364	154	32	<b>366</b>	<b>153</b>	378	148	364	154
538.imagick_r	32	<b>217</b>	<b>366</b>	217	367	218	366	32	<b>217</b>	<b>366</b>	217	367	218	366
544.nab_r	32	<b>227</b>	<b>237</b>	227	237	228	237	32	<b>224</b>	<b>240</b>	224	240	224	241
549.fotonik3d_r	32	<b>821</b>	<b>152</b>	821	152	822	152	32	<b>821</b>	<b>152</b>	821	152	822	152
554.roms_r	32	629	80.8	632	80.4	<b>630</b>	<b>80.7</b>	16	282	90.1	283	90.0	<b>283</b>	<b>90.0</b>

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

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"  
OS set to performance mode via cpupower frequency-set -g performance

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpull8/lib/intel64:/home/cpull8/je5.0.1-64"  
MALLOC\_CONF = "retain:true"

## General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM  
memory using Red Hat Enterprise Linux 8.1  
Transparent Huge Pages enabled by default  
Prior to runcpu invocation  
Filesystem page cache synced and cleared with:

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Jan-2022

**Hardware Availability:** May-2021

**Software Availability:** Mar-2021

### General Notes (Continued)

```
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.  
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:  
VT-d = Disabled  
Patrol Scrub = Disabled  
Engine Boost = Aggressive  
SR-IOV Support = Disabled  
BMC Configuration:  
Fan mode = Full speed mode

```
Sysinfo program /home/cpull8/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost.localdomain Fri Jan 14 13:29:21 2022
```

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) Silver 4309Y CPU @ 2.80GHz
 2 "physical id"s (chips)
32 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
```

```
From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jan-2022

Hardware Availability: May-2021

Software Availability: Mar-2021

### Platform Notes (Continued)

```

Byte Order:           Little Endian
CPU(s):               32
On-line CPU(s) list: 0-31
Thread(s) per core:  2
Core(s) per socket:  8
Socket(s):            2
NUMA node(s):        2
Vendor ID:            GenuineIntel
CPU family:           6
Model:                106
Model name:           Intel(R) Xeon(R) Silver 4309Y CPU @ 2.80GHz
Stepping:             6
CPU MHz:              1019.336
CPU max MHz:          3600.0000
CPU min MHz:          800.0000
BogoMIPS:             5600.00
Virtualization:       VT-x
L1d cache:            48K
L1i cache:            32K
L2 cache:             1280K
L3 cache:             12288K
NUMA node0 CPU(s):   0-7,16-23
NUMA node1 CPU(s):   8-15,24-31
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 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 cpuid_fault epb cat_l3 invpcid_single
intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept
vpid ept_ad fsgsbase tsc_adjust bmil hle avx2 smep bmi2 erms invpcid cqm rdt_a
avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ni
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
cqm_mbm_local split_lock_detect wbnoinvd dtherm ida arat pln pts hwp hwp_act_window
hwp_epp hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq
avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d
arch_capabilities

```

```

/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: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23
node 0 size: 506334 MB
node 0 free: 514438 MB

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Jan-2022

**Hardware Availability:** May-2021

**Software Availability:** Mar-2021

### Platform Notes (Continued)

```

node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
node 1 size: 506377 MB
node 1 free: 514776 MB
node distances:
node    0    1
  0:   10   20
  1:   20   10

```

From /proc/meminfo

```

MemTotal:      1056483868 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

/sbin/tuned-adm active

Current active profile: throughput-performance

/sys/devices/system/cpu/cpu\*/cpufreq/scaling\_governor has performance

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

```

os-release:
  NAME="Red Hat Enterprise Linux"
  VERSION="8.3 (Ootpa)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="8.3"
  PLATFORM_ID="platform:el8"
  PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
  ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
  system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

```

uname -a:

```

Linux localhost.localdomain 4.18.0-240.22.1.el8_3.x86_64 #1 SMP Thu Mar 25 14:36:04
EDT 2021 x86_64 x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2018-12207 (iTLB Multihit):          Not affected
CVE-2018-3620 (L1 Terminal Fault):       Not affected
Microarchitectural Data Sampling:       Not affected
CVE-2017-5754 (Meltdown):               Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store
Bypass disabled via prctl and
seccomp
CVE-2017-5753 (Spectre variant 1):      Mitigation: usercopy/swapgs

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jan-2022

Hardware Availability: May-2021

Software Availability: Mar-2021

### Platform Notes (Continued)

```

barriers and __user pointer
sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB:
conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

```

run-level 3 Jan 14 04:42

SPEC is set to: /home/cpul18

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel-home	xfs	3.6T	31G	3.6T	1%	/home

```

From /sys/devices/virtual/dmi/id
Vendor: ASUSTeK COMPUTER INC.
Product: RS700-E10-RS12U
Product Family: Server

```

Additional information from dmidecode 3.2 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:
16x NO DIMM NO DIMM
16x Samsung M393A8G40AB2-CWE 64 GB 2 rank 3200, configured at 2666

```

```

BIOS:
BIOS Vendor: American Megatrends Inc.
BIOS Version: 0504
BIOS Date: 05/26/2021
BIOS Revision: 5.4

```

(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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
=====

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Jan-2022

**Hardware Availability:** May-2021

**Software Availability:** Mar-2021

### Compiler Version Notes (Continued)

C++ | 508.namd\_r(base, peak) 510.parest\_r(base, peak)

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

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

-----  
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

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

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

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

-----  
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

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

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
-----

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Jan-2022

Hardware Availability: May-2021

Software Availability: Mar-2021

### Compiler Version Notes (Continued)

Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000

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)

-----  
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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

-----  
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

### Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Jan-2022

**Hardware Availability:** May-2021

**Software Availability:** Mar-2021

## Base Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx 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:

-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math

-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4

-mbranches-within-32B-boundaries -ljemalloc

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

C++ benchmarks:

-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto

-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4

-mbranches-within-32B-boundaries -ljemalloc

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

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Jan-2022

**Hardware Availability:** May-2021

**Software Availability:** Mar-2021

## Base Optimization Flags (Continued)

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -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 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -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
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both C and C++:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icx

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Jan-2022

**Hardware Availability:** May-2021

**Software Availability:** Mar-2021

## Peak Compiler Invocation (Continued)

Benchmarks using both C and C++:

511.povray\_r: icpc icc

526.blender\_r: icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx 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: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto  
-Ofast -qopt-mem-layout-trans=4  
-fimf-accuracy-bits=14:sqrt  
-mbranches-within-32B-boundaries -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:

508.namd\_r: basepeak = yes

510.parest\_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries  
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves\_r: basepeak = yes

549.fotonik3d\_r: basepeak = yes

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017\_fp\_base = 169

SPECrate®2017\_fp\_peak = 173

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** Jan-2022

**Hardware Availability:** May-2021

**Software Availability:** Mar-2021

## Peak Optimization Flags (Continued)

```
554.roms_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -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
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both Fortran and C:

521.wrf\_r: basepeak = yes

527.cam4\_r: basepeak = yes

Benchmarks using both C and C++:

```
511.povray_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -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++:

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/ASUSTekPlatform-Settings-z12-V1.2.html>

[http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64\\_revA.html](http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html)

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z12-V1.2.xml>

[http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64\\_revA.xml](http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml)

SPEC CPU and SPECrate are registered trademarks 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 CPU®2017 v1.1.8 on 2022-01-14 13:29:21-0500.

Report generated on 2022-03-02 16:36:01 by CPU2017 PDF formatter v6442.

Originally published on 2022-03-01.