



# SPEC® CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

CPU2017 License: 9016

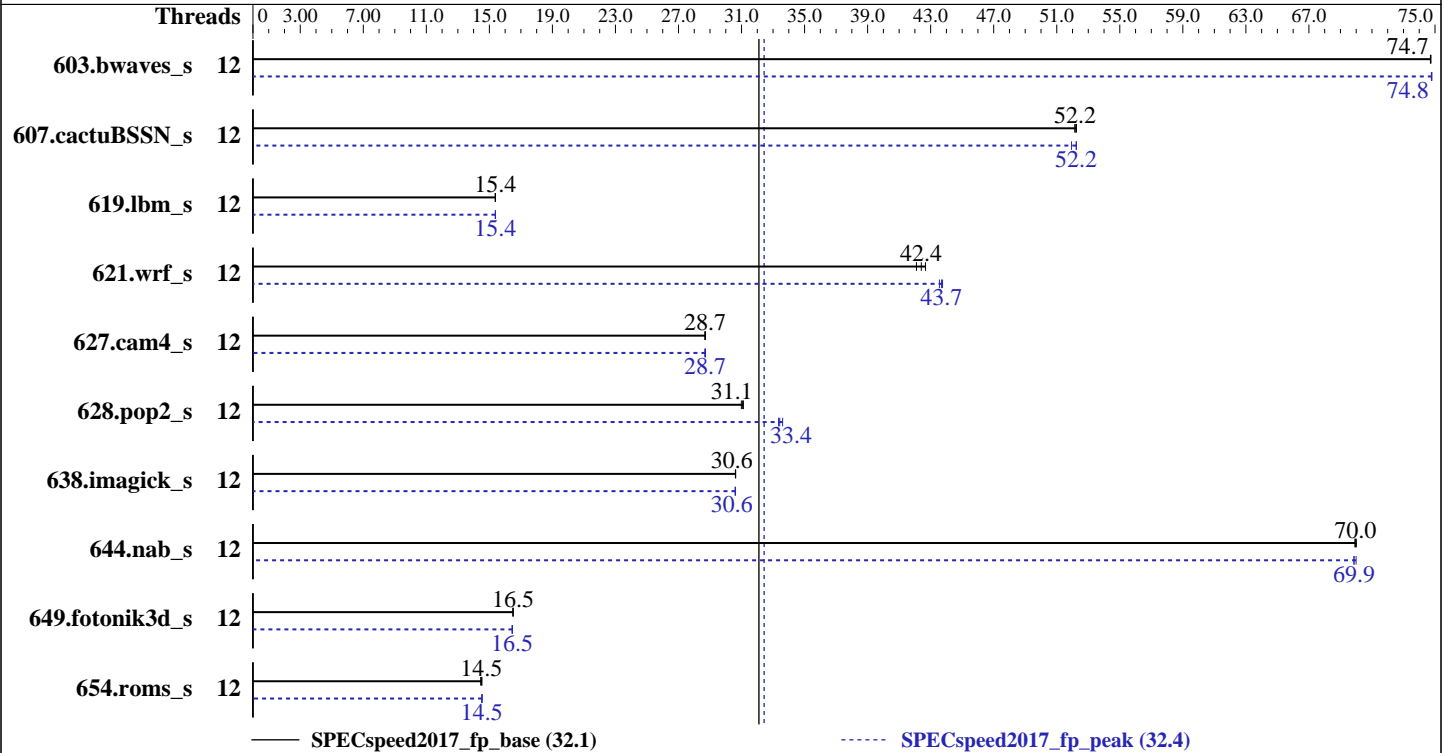
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Nov-2018



### Hardware

CPU Name: Intel Xeon E-2146G  
 Max MHz.: 4500  
 Nominal: 3500  
 Enabled: 6 cores, 1 chip, 2 threads/core  
 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: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)  
 Storage: 1 x 500 GB SATA HDD, 7200RPM  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 12 (x86\_64) SP3  
 Kernel 4.4.120-94.17-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: Yes  
 Firmware: Version 0502 released Nov-2018  
 File System: btrfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECSpeed2017\_fp\_base = 32.1

SPECSpeed2017\_fp\_peak = 32.4

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Nov-2018

## Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	12	790	74.7	789	74.7	<b>790</b>	<b>74.7</b>	12	789	74.8	<b>789</b>	<b>74.8</b>	789	74.8
607.cactuBSSN_s	12	320	52.1	319	52.3	<b>320</b>	<b>52.2</b>	12	321	51.9	<b>319</b>	<b>52.2</b>	319	52.2
619.lbm_s	12	<b>341</b>	<b>15.4</b>	341	15.4	341	15.4	12	341	15.4	<b>340</b>	<b>15.4</b>	340	15.4
621.wrf_s	12	310	42.7	<b>312</b>	<b>42.4</b>	314	42.1	12	302	43.8	304	43.6	<b>303</b>	<b>43.7</b>
627.cam4_s	12	309	28.7	309	28.7	<b>309</b>	<b>28.7</b>	12	309	28.7	<b>309</b>	<b>28.7</b>	309	28.7
628.pop2_s	12	383	31.0	382	31.1	<b>382</b>	<b>31.1</b>	12	356	33.4	<b>355</b>	<b>33.4</b>	353	33.6
638.imagick_s	12	<b>471</b>	<b>30.6</b>	471	30.6	471	30.6	12	472	30.6	471	30.6	<b>471</b>	<b>30.6</b>
644.nab_s	12	250	69.9	250	70.0	<b>250</b>	<b>70.0</b>	12	250	69.9	<b>250</b>	<b>69.9</b>	250	70.0
649.fotonik3d_s	12	552	16.5	553	16.5	<b>552</b>	<b>16.5</b>	12	554	16.4	<b>554</b>	<b>16.5</b>	554	16.5
654.roms_s	12	1090	14.4	<b>1085</b>	<b>14.5</b>	1084	14.5	12	1084	14.5	<b>1084</b>	<b>14.5</b>	1083	14.5

SPECSpeed2017\_fp\_base = 32.1

SPECSpeed2017\_fp\_peak = 32.4

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

## 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:

KMP\_AFFINITY = "granularity=fine,compact"

LD\_LIBRARY\_PATH = "/spec2017\_new/lib/ia32:/spec2017\_new/lib/intel64"

OMP\_STACKSIZE = "192M"

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
```

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:

VT-d = Disabled

AES = Disabled

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Nov-2018

### Platform Notes (Continued)

sysinfo program /spec2017\_new/bin/sysinfo  
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
running on linux-pmm5 Mon May 13 18:31:58 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) E-2146G CPU @ 3.50GHz
 1 "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 : 12
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
CPU(s): 12
On-line CPU(s) list: 0-11
Thread(s) per core: 2
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-2146G CPU @ 3.50GHz
Stepping: 10
CPU MHz: 4349.803
CPU max MHz: 4500.0000
CPU min MHz: 800.0000
BogoMIPS: 7007.99
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-11
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
aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
```

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** May-2019

**Hardware Availability:** Dec-2018

**Software Availability:** Nov-2018

### Platform Notes (Continued)

```
fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts dtherm
hwp hwp_notify hwp_act_window hwp_epp intel_pt rsb_ctxsw spec_ctrl stibp retpoline
kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep
bmi2 erms invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1
```

```
/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 6 7 8 9 10 11
node 0 size: 64313 MB
node 0 free: 63799 MB
node distances:
node 0
0: 10
```

```
From /proc/meminfo
```

```
MemTotal: 65857384 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

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

```
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 3
# 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-SP3"
VERSION_ID="12.3"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

```
uname -a:
```

```
Linux linux-pmm5 4.4.120-94.17-default #1 SMP Wed Mar 14 17:23:00 UTC 2018 (cf3a7bb)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown): Mitigation: PTI

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: May-2019

Hardware Availability: Dec-2018

Software Availability: Nov-2018

### Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1): Mitigation: \_\_user pointer sanitization  
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

run-level 3 May 13 18:31

SPEC is set to: /spec2017\_new

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	btrfs	445G	129G	315G	30%	/

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 American Megatrends Inc. 0502 11/15/2018

Memory:

4x Samsung M391A2K43BB1-CTD 16 GB 2 rank 2667, configured at 2666

(End of data from sysinfo program)

### Compiler Version Notes

=====  
CC 619.lbm\_s(base, peak) 638.imagick\_s(base, peak) 644.nab\_s(base, peak)  
-----

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 607.cactuBSSN\_s(base, peak)  
-----

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 603.bwaves\_s(base) 649.fotonik3d\_s(base) 654.roms\_s(base, peak)  
-----

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** May-2019

**Hardware Availability:** Dec-2018

**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.

=====  
FC 603.bwaves\_s(peak) 649.fotonik3d\_s(peak)  
-----

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 621.wrf\_s(base) 627.cam4\_s(base, peak) 628.pop2\_s(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.  
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 621.wrf\_s(peak) 628.pop2\_s(peak)  
-----

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

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

ifort -m64 icc -m64 -std=c11

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** May-2019

**Hardware Availability:** Dec-2018

**Software Availability:** Nov-2018

## Base Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:

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

## Base Portability Flags

```
603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
```

## Base Optimization Flags

C benchmarks:

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

Fortran benchmarks:

```
-DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-nostandard-realloc-lhs
```

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs
```

Benchmarks using Fortran, C, and C++:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs
```



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** May-2019

**Hardware Availability:** Dec-2018

**Software Availability:** Nov-2018

## Peak Compiler Invocation

C benchmarks:

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

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

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

Benchmarks using Fortran, C, and C++:

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

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

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

Fortran benchmarks:

```
603.bwaves_s: -prof-gen(pass 1) -prof-use(pass 2) -DSPEC_SUPPRESS_OPENMP  
-DSPEC_OPENMP -O2 -xCORE-AVX2 -qopt-prefetch -ipo -O3  
-ffinite-math-only -no-prec-div -qopt-mem-layout-trans=4  
-qopenmp -nostandard-realloc-lhs
```

649.fotonik3d\_s: Same as 603.bwaves\_s

```
654.roms_s: -DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4  
-qopenmp -nostandard-realloc-lhs
```

Benchmarks using both Fortran and C:

```
621.wrf_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2  
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div  
-qopt-mem-layout-trans=4 -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP -nostandard-realloc-lhs
```

(Continued on next page)





# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**ASUSTeK Computer Inc.**

ASUS RS300-E10(P11C-C/4L) Server System  
(3.50 GHz, Intel Xeon E-2146G)

SPECspeed2017\_fp\_base = 32.1

SPECspeed2017\_fp\_peak = 32.4

**CPU2017 License:** 9016

**Test Sponsor:** ASUSTeK Computer Inc.

**Tested by:** ASUSTeK Computer Inc.

**Test Date:** May-2019

**Hardware Availability:** Dec-2018

**Software Availability:** Nov-2018

## Peak Optimization Flags (Continued)

```
627.cam4_s: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs
```

628.pop2\_s: Same as 621.wrf\_s

Benchmarks using Fortran, C, and C++:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs
```

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-p11-V2.0-revA.html>

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

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-p11-V2.0-revA.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.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 2019-05-13 06:31:57-0400.

Report generated on 2019-06-25 18:49:50 by CPU2017 PDF formatter v6067.

Originally published on 2019-06-25.