



SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

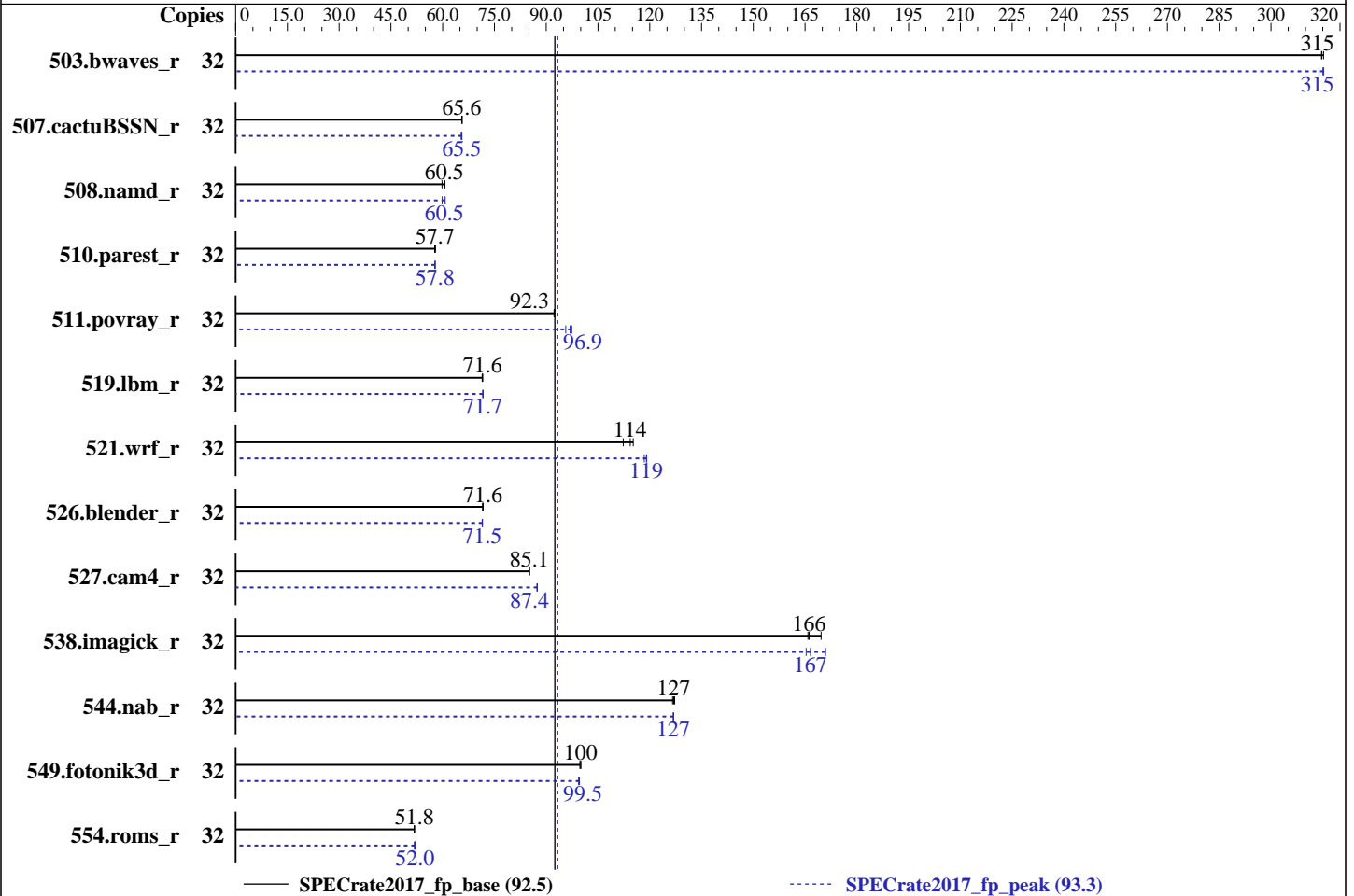
Test Date: Jul-2019

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Hardware Availability: Apr-2019

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Software Availability: Nov-2018



Hardware

CPU Name: Intel Xeon Silver 4208
 Max MHz.: 3200
 Nominal: 2100
 Enabled: 16 cores, 2 chips, 2 threads/core
 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: 11 MB I+D on chip per chip
 Other: None
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2666V-R, running at 2400)
 Storage: 1 x 960 GB SSD SATA III
 Other: None

Software

OS: Red Hat Enterprise Linux Server release 7.4 (Maipo)
 3.10.0-693.21.1.el7.x86_64
 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 BIOS 02.01.0008 released Mar-2019
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: None



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_base = 92.5
SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081
Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa
Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Jul-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	32	1020	315	1020	315	1018	315	32	1019	315	1018	315	1022	314
507.cactuBSSN_r	32	617	65.6	618	65.6	618	65.6	32	618	65.6	620	65.3	618	65.5
508.namd_r	32	508	59.8	503	60.5	501	60.7	32	508	59.9	503	60.5	501	60.7
510.parest_r	32	1450	57.7	1451	57.7	1445	57.9	32	1449	57.8	1448	57.8	1449	57.8
511.povray_r	32	810	92.3	809	92.3	808	92.4	32	767	97.4	771	96.9	781	95.7
519.lbm_r	32	471	71.6	471	71.6	472	71.4	32	471	71.6	471	71.7	470	71.7
521.wrf_r	32	627	114	622	115	638	112	32	602	119	605	118	602	119
526.blender_r	32	681	71.6	680	71.7	680	71.6	32	682	71.4	682	71.5	681	71.5
527.cam4_r	32	658	85.1	658	85.0	657	85.2	32	640	87.5	641	87.4	641	87.3
538.imagick_r	32	480	166	479	166	469	170	32	466	171	478	167	481	165
544.nab_r	32	424	127	425	127	423	127	32	424	127	424	127	425	127
549.fotonik3d_r	32	1247	100	1250	99.7	1247	100	32	1252	99.6	1254	99.5	1254	99.4
554.roms_r	32	981	51.9	983	51.8	982	51.8	32	978	52.0	978	52.0	982	51.8

SPECrate2017_fp_base = 92.5

SPECrate2017_fp_peak = 93.3

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 = "/cpu2017/lib/ia32:/cpu2017/lib/intel64"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5

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.

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: Nov-2018

General Notes (Continued)

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>

Platform Notes

BIOS Settings:

Intel(R) Hyper-Threading Tech = Enabled
CPU Power and Performance Policy = Performance
Intel(R) Turbo Boost Technology = Enabled
ClE = Disabled
Processor C6 = Disabled
IMC Interleaving = Auto
Sub_NUMA Cluster = Disabled
Set FAN Profile = Performance
Patrol Scrub = Disabled

Sysinfo program /cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on SUT Sat Jul 20 04:51:20 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) Silver 4208 CPU @ 2.10GHz
 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:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Date: Jul-2019

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Hardware Availability: Apr-2019

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Software Availability: Nov-2018

Platform Notes (Continued)

```

Thread(s) per core:      2
Core(s) per socket:     8
Socket(s):               2
NUMA node(s):          2
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  85
Model name:             Intel(R) Xeon(R) Silver 4208 CPU @ 2.10GHz
Stepping:               7
CPU MHz:                2500.312
CPU max MHz:            3200.0000
CPU min MHz:            800.0000
BogoMIPS:               4200.00
Virtualization:         VT-x
L1d cache:              32K
L1i cache:              32K
L2 cache:               1024K
L3 cache:               11264K
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
aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 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 epb cat_l3 cdp_l3 invpcid_single
intel_pt spec_ctrl ibpb_support 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 avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1
cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln pts hwp
hwp_act_window hwp_epp hwp_pkg_req

```

```

/proc/cpuinfo cache data
cache size : 11264 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: 391875 MB
node 0 free: 368394 MB
node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
node 1 size: 393216 MB
node 1 free: 371807 MB
node distances:
node  0  1
0:  10  21

```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Date: Jul-2019

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Hardware Availability: Apr-2019

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Software Availability: Nov-2018

Platform Notes (Continued)

1: 21 10

From /proc/meminfo

MemTotal: 791013240 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.4 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VARIANT="Server"
VARIANT_ID="server"
VERSION_ID="7.4"
PRETTY_NAME="Red Hat Enterprise Linux"
redhat-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.4:ga:server

uname -a:

Linux SUT 3.10.0-693.21.1.el7.x86_64 #1 SMP Fri Feb 23 18:54:16 UTC 2018 x86_64 x86_64
x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: Load fences
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS (kernel)

run-level 3 Jul 17 20:35

SPEC is set to: /cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda1	ext4	825G	128G	656G	17%	/

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 Intel Corporation SE5C620.86B.02.01.0008.031920191559 03/19/2019

Memory:

24x Samsung M393A4K40CB2-CTD 32 GB 2 rank 2666, configured at 2400

(End of data from sysinfo program)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Date: Jul-2019

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Hardware Availability: Apr-2019

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Software Availability: Nov-2018

Compiler Version Notes

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

=====
CC 519.lbm_r(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.

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

=====
CXXC 508.namd_r(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.

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

=====
CC 511.povray_r(peak)

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

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Date: Jul-2019

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Hardware Availability: Apr-2019

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Software Availability: Nov-2018

Compiler Version Notes (Continued)

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, 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 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 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.

=====

FC 554.roms_r(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 521.wrf_r(base) 527.cam4_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.
 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.

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: Nov-2018

Compiler Version Notes (Continued)

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

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

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Date: Jul-2019

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Hardware Availability: Apr-2019

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Software Availability: Nov-2018

Base Portability Flags (Continued)

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:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4

C++ benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4

Fortran benchmarks:

-xCORE-AVX512 -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-AVX512 -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-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4

Benchmarks using Fortran, C, and C++:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -auto
-nostandard-realloc-lhs -align array32byte

Peak Compiler Invocation

C benchmarks:

icc -m64 -std=c11

C++ benchmarks:

icpc -m64

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Date: Jul-2019

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Hardware Availability: Apr-2019

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Software Availability: Nov-2018

Peak Compiler Invocation (Continued)

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
```

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
519.lbm_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX512  
-O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=4
```

```
538.imagick_r: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=4
```

544.nab_r: Same as 538.imagick_r

C++ benchmarks:

```
508.namd_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX512  
-O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=4
```

```
510.parest_r: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=4
```

Fortran benchmarks:

```
503.bwaves_r: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=4 -auto
```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa

SPECrate2017_fp_base = 92.5

eterio 220 RA1 (Intel Xeon Silver 4208, 2.10 GHz)

SPECrate2017_fp_peak = 93.3

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: Nov-2018

Peak Optimization Flags (Continued)

503.bwaves_r (continued):

```
-nostandard-realloc-lhs -align array32byte
```

549.fotonik3d_r: Same as 503.bwaves_r

```
554.roms_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX512
-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:

```
-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX512 -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++:

```
511.povray_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX512
-O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4
```

```
526.blender_r: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4
```

Benchmarks using Fortran, C, and C++:

```
-xCORE-AVX512 -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-ic19.0u1-official-linux64.2019-08-06.html>

<http://www.spec.org/cpu2017/flags/Epsilon-Platform-Flags-RevA-Feb-2018-For-Intel-Platform.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-08-06.xml>

<http://www.spec.org/cpu2017/flags/Epsilon-Platform-Flags-RevA-Feb-2018-For-Intel-Platform.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.

Tested with SPEC CPU2017 v1.0.5 on 2019-07-19 22:51:19-0400.

Report generated on 2019-08-06 17:57:12 by CPU2017 PDF formatter v6067.

Originally published on 2019-08-06.