



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358

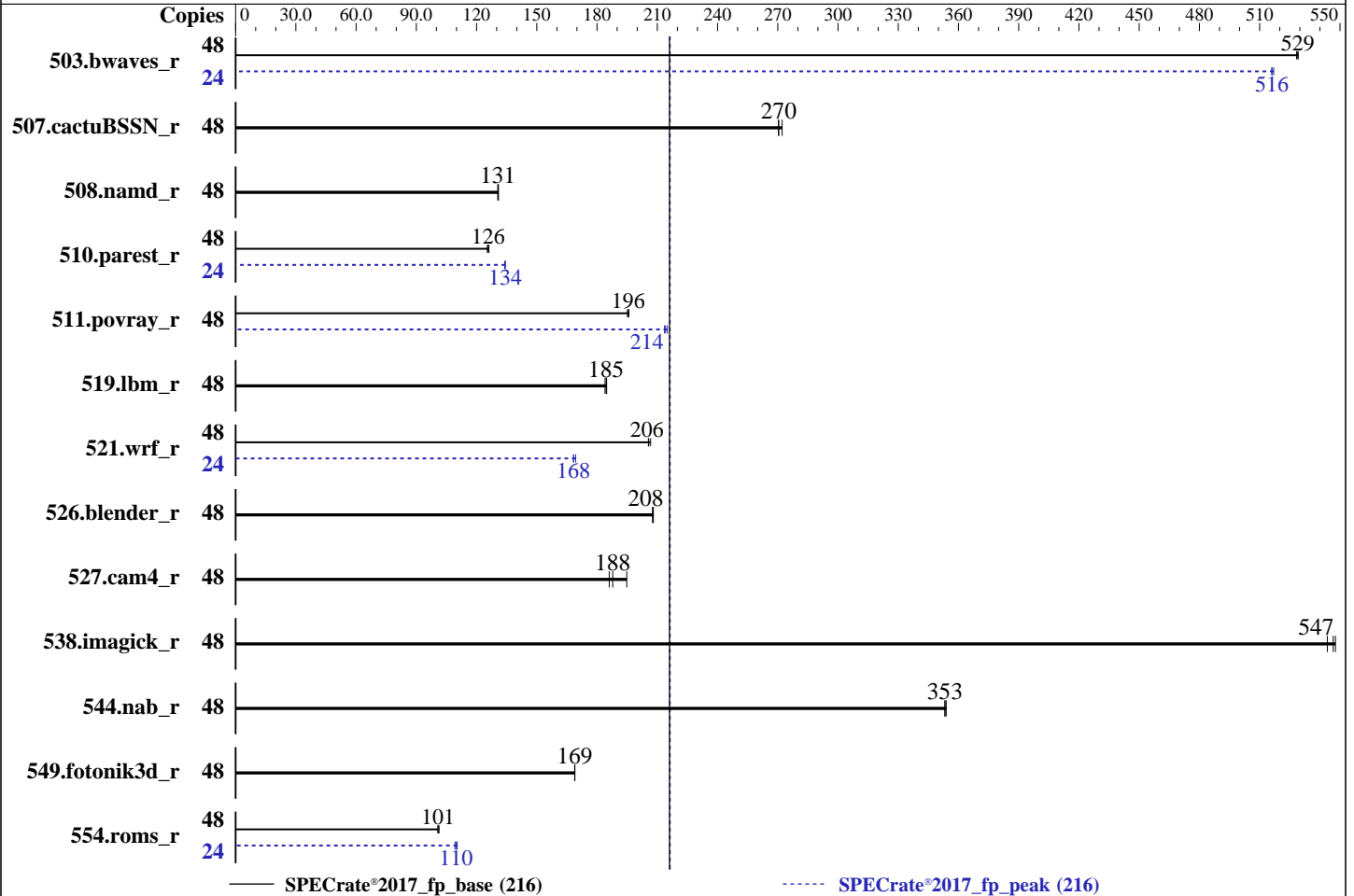
Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Aug-2022

Hardware Availability: Apr-2021

Software Availability: Sep-2021



Hardware

CPU Name: Intel Xeon Silver 4310
 Max MHz: 3300
 Nominal: 2100
 Enabled: 24 cores, 2 chips, 2 threads/core
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 1.25 MB I+D on chip per core
 L3: 18 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (32 x 32 GB 2Rx8 PC4-3200AA-R, running at 2666)
 Storage: 1 x 2 TB NVME SSD
 Other: None

Software

OS: Red Hat Enterprise Linux release 8.3 (Ootpa) 4.18.0-240.el8.x86_64
 Compiler: C/C++: Version 2021.4.0 of Intel oneAPI DPC++/C++ Compiler Build 20210924 for Linux;
 Fortran: Version 2021.4.0 of Intel Fortran Compiler Classic Build 20210910 for Linux;
 C/C++: Version 2021.4.0 of Intel C/C++ Compiler Classic Build 20210910 for Linux;
 Parallel: No
 Firmware: Version 04.12.02 released Apr-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

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Aug-2022
Hardware Availability: Apr-2021
Software Availability: Sep-2021

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	48	910	529	911	528	910	529	24	466	516	466	516	466	517
507.cactuBSSN_r	48	225	270	223	272	225	270	48	225	270	223	272	225	270
508.namd_r	48	349	131	348	131	349	131	48	349	131	348	131	349	131
510.parest_r	48	999	126	1002	125	995	126	24	468	134	468	134	468	134
511.povray_r	48	573	196	572	196	574	195	48	521	215	525	214	523	214
519.lbm_r	48	274	185	274	185	275	184	48	274	185	274	185	275	184
521.wrf_r	48	520	207	523	206	523	206	24	319	168	317	169	319	168
526.blender_r	48	352	208	351	208	352	208	48	352	208	351	208	352	208
527.cam4_r	48	451	186	447	188	431	195	48	451	186	447	188	431	195
538.imagick_r	48	218	547	220	544	218	548	48	218	547	220	544	218	548
544.nab_r	48	229	353	228	354	229	353	48	229	353	228	354	229	353
549.fotonik3d_r	48	1107	169	1108	169	1107	169	48	1107	169	1108	169	1107	169
554.roms_r	48	756	101	753	101	757	101	24	346	110	347	110	349	109

SPECrate®2017_fp_base = **216**

SPECrate®2017_fp_peak = **216**

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"

Scaling_Governor set to Performance

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOCONF = "retain:true"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Aug-2022

Hardware Availability: Apr-2021

Software Availability: Sep-2021

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>`

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:
 ENERGY_PERF_BIAS_CFG mode set to Performance
 Hardware Prefetch set to Disable
 VT Support set to Disable
 Sub NUMA Cluster (SNC) set to Enable

Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
 running on localhost.localdomain Thu Aug 11 11:22:53 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 4310 CPU @ 2.10GHz
 2 "physical id"s (chips)
 48 "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 : 12
 siblings : 24
 physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11
 physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11

From lscpu from util-linux 2.32.1:

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Aug-2022
Hardware Availability: Apr-2021
Software Availability: Sep-2021

Platform Notes (Continued)

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                48
On-line CPU(s) list:  0-47
Thread(s) per core:    2
Core(s) per socket:    12
Socket(s):              2
NUMA node(s):          4
Vendor ID:              GenuineIntel
CPU family:             6
Model:                 106
Model name:             Intel(R) Xeon(R) Silver 4310 CPU @ 2.10GHz
Stepping:               6
CPU MHz:                2700.000
CPU max MHz:           3300.0000
CPU min MHz:           800.0000
BogoMIPS:              4200.00
Virtualization:        VT-x
L1d cache:             48K
L1i cache:             32K
L2 cache:               1280K
L3 cache:               18432K
NUMA node0 CPU(s):    0-5,24-29
NUMA node1 CPU(s):    6-11,30-35
NUMA node2 CPU(s):    12-17,36-41
NUMA node3 CPU(s):    18-23,42-47
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
intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bml 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 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 : 18432 KB
```

```
From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 4 nodes (0-3)
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Aug-2022
Hardware Availability: Apr-2021
Software Availability: Sep-2021

Platform Notes (Continued)

```

node 0 cpus: 0 1 2 3 4 5 24 25 26 27 28 29
node 0 size: 254972 MB
node 0 free: 249735 MB
node 1 cpus: 6 7 8 9 10 11 30 31 32 33 34 35
node 1 size: 255366 MB
node 1 free: 252424 MB
node 2 cpus: 12 13 14 15 16 17 36 37 38 39 40 41
node 2 size: 255647 MB
node 2 free: 252466 MB
node 3 cpus: 18 19 20 21 22 23 42 43 44 45 46 47
node 3 size: 255658 MB
node 3 free: 252517 MB
node distances:
node  0  1  2  3
  0:  10  11  20  20
  1:  11  10  20  20
  2:  20  20  10  11
  3:  20  20  11  10

```

```

From /proc/meminfo
MemTotal:      1056496212 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.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
x86_64 x86_64 x86_64 GNU/Linux

```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Aug-2022
Hardware Availability: Apr-2021
Software Availability: Sep-2021

Platform Notes (Continued)

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 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 Aug 11 00:53

```
SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   1.4T  111G  1.3T   8% /home
```

```
From /sys/devices/virtual/dmi/id
Vendor:          Inspur
Product:         NF5180M6
Product Family: Family
Serial:         380827124
```

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:
 32x Micron 18ASF4G72PDZ-3G2E1 32 GB 2 rank 3200, configured at 2666
```

```
BIOS:
 BIOS Vendor:    American Megatrends Inc.
 BIOS Version:   04.12.02
 BIOS Date:     04/02/2021
 BIOS Revision:  5.21
```

(End of data from sysinfo program)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Aug-2022
Hardware Availability: Apr-2021
Software Availability: Sep-2021

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 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
=====

=====
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 2021.4.0 Build 20210924
Copyright (C) 1985-2021 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 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 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 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.4.0 Build 20210924
Copyright (C) 1985-2021 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 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.4.0 Build 20210910_000000
=====

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Aug-2022
Hardware Availability: Apr-2021
Software Availability: Sep-2021

Compiler Version Notes (Continued)

Copyright (C) 1985-2021 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 2021.4.0 Build 20210924

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.4.0 Build 20210924

Copyright (C) 1985-2021 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 2021.4.0 Build 20210924

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.4.0 Build 20210924

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.4.0 Build 20210910_000000

Copyright (C) 1985-2021 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 2021.4.0 Build 20210910_000000

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====
Fortran, C | 521.wrf_r(peak)

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.4.0 Build 20210910_000000

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.4.0 Build 20210910_000000

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Aug-2022

Hardware Availability: Apr-2021

Software Availability: Sep-2021

Compiler Version Notes (Continued)

=====
Fortran, C | 521.wrf_r(base) 527.cam4_r(base, peak)
=====

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
=====

=====
Fortran, C | 521.wrf_r(peak)
=====

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
=====

=====
Fortran, C | 521.wrf_r(base) 527.cam4_r(base, peak)
=====

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
=====

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Aug-2022

Hardware Availability: Apr-2021

Software Availability: Sep-2021

Base Compiler Invocation (Continued)

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
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Aug-2022

Hardware Availability: Apr-2021

Software Availability: Sep-2021

Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-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:

521.wrf_r: ifort icc

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Aug-2022

Hardware Availability: Apr-2021

Software Availability: Sep-2021

Peak Compiler Invocation (Continued)

527.cam4_r: ifort icx

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: basepeak = yes

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: -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

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Inspur Corporation

SPECrate®2017_fp_base = 216

Inspur NF5180M6 (Intel Xeon Silver 4310)

SPECrate®2017_fp_peak = 216

CPU2017 License: 3358

Test Sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test Date: Aug-2022

Hardware Availability: Apr-2021

Software Availability: Sep-2021

Peak Optimization Flags (Continued)

549.fotonik3d_r: basepeak = yes

554.roms_r: Same as 503.bwaves_r

Benchmarks using both Fortran and C:

```
521.wrf_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
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

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/Intel-ic2021-official-linux64_revA.html

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V2.5.html>

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

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V2.5.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.

Tested with SPEC CPU®2017 v1.1.8 on 2022-08-11 11:22:52-0400.

Report generated on 2022-08-31 20:10:37 by CPU2017 PDF formatter v6442.

Originally published on 2022-08-30.