



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

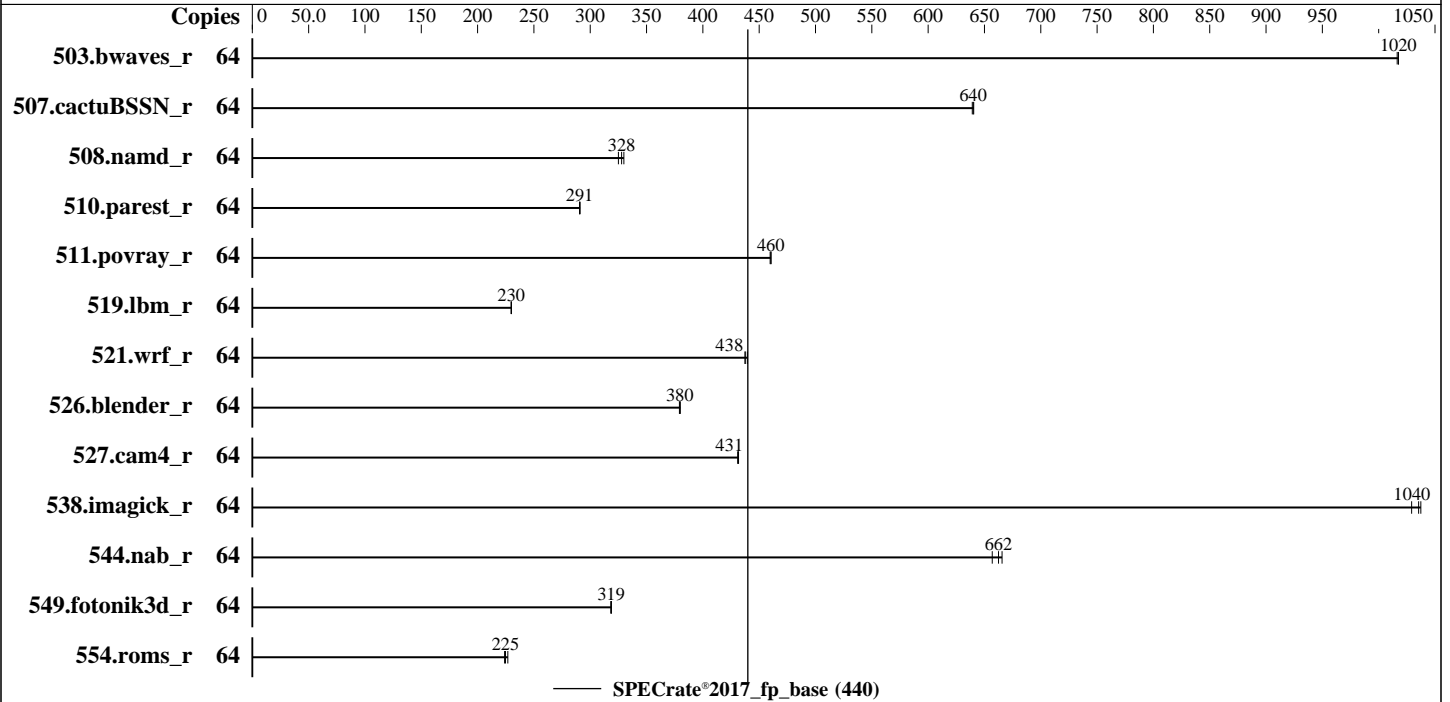
PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020



Hardware

CPU Name: Intel Xeon Gold 6328HL
Max MHz: 4300
Nominal: 2800
Enabled: 64 cores, 4 chips
Orderable: 2,4 chips
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 22 MB I+D on chip per chip
Other: None
Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-3200AA-R, running at 2933)
Storage: 1 x SATA M.2 SSD, 480GB
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP2 5.3.18-22-default
Compiler: C/C++: Version 19.1.2.275 of Intel C/C++ Compiler for Linux;
Fortran: Version 19.1.2.275 of Intel Fortran Compiler for Linux
Parallel: No
Firmware: Fujitsu BIOS Version V1.0.0.0 R1.8.0 for D3892-A1x. Released Jan-2021 tested as V1.0.0.0 R1.1.1 for D3892-A1x Sep-2020
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer performance at the cost of additional power usage



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|-----------------|--------|------------|-------------|------------|------------|------------|------------|--------|---------|-------|---------|-------|---------|-------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 503.bwaves_r | 64 | 631 | 1020 | 631 | 1020 | 631 | 1020 | | | | | | | |
| 507.cactuBSSN_r | 64 | 127 | 640 | 127 | 639 | 127 | 640 | | | | | | | |
| 508.namd_r | 64 | 184 | 330 | 187 | 325 | 185 | 328 | | | | | | | |
| 510.parest_r | 64 | 576 | 291 | 576 | 291 | 575 | 291 | | | | | | | |
| 511.povray_r | 64 | 325 | 460 | 325 | 460 | 325 | 460 | | | | | | | |
| 519.lbm_r | 64 | 293 | 230 | 294 | 230 | 293 | 230 | | | | | | | |
| 521.wrf_r | 64 | 328 | 438 | 328 | 437 | 326 | 439 | | | | | | | |
| 526.blender_r | 64 | 257 | 379 | 257 | 380 | 257 | 380 | | | | | | | |
| 527.cam4_r | 64 | 259 | 432 | 260 | 431 | 260 | 431 | | | | | | | |
| 538.imagick_r | 64 | 154 | 1040 | 153 | 1040 | 155 | 1030 | | | | | | | |
| 544.nab_r | 64 | 164 | 657 | 162 | 666 | 163 | 662 | | | | | | | |
| 549.fotonik3d_r | 64 | 784 | 318 | 782 | 319 | 783 | 319 | | | | | | | |
| 554.roms_r | 64 | 454 | 224 | 448 | 227 | 452 | 225 | | | | | | | |

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

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

Compiler Notes

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler. The correct version of C/C++ compiler is: Version 19.1.2.275 Build 20200623 Compiler for Linux
The correct version of Fortran compiler is: Version 19.1.2.275 Build 20200623 Compiler for Linux

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"
Kernel Boot Parameter set with : nohz_full=1-63
Irqbalance disabled with "systemctl stop irqbalance"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
"/home/Benchmark/speccpu-ic19_lu2/lib/intel64:/home/Benchmark/speccpu-ic19_lu2/je5.0.1-64"

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

Environment Variables Notes (Continued)

MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0
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:
Hyper Threading = Disabled
Utilization Profile = Unbalanced
Stale AtoS = Enabled
LLC Deadline Alloc = Disabled
SNC = Enabled
FAN Control = Full

Sysinfo program /home/Benchmark/speccpu-ic19_lu2/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on localhost Fri Nov 20 17:02:51 2020

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) Gold 6328HL CPU @ 2.80GHz
4 "physical id"s (chips)
64 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

Platform Notes (Continued)

excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 16
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
```

From lscpu:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
Address sizes:         46 bits physical, 48 bits virtual
CPU(s):                64
On-line CPU(s) list:  0-63
Thread(s) per core:   1
Core(s) per socket:   16
Socket(s):             4
NUMA node(s):         8
Vendor ID:            GenuineIntel
CPU family:            6
Model:                85
Model name:           Intel(R) Xeon(R) Gold 6328HL CPU @ 2.80GHz
Stepping:             11
CPU MHz:              1000.019
CPU max MHz:          4300.0000
CPU min MHz:          1000.0000
BogoMIPS:             5600.00
Virtualization:       VT-x
L1d cache:            32K
L1i cache:            32K
L2 cache:             1024K
L3 cache:             22528K
NUMA node0 CPU(s):   0-3,8-11
NUMA node1 CPU(s):   4-7,12-15
NUMA node2 CPU(s):   16-19,24-27
NUMA node3 CPU(s):   20-23,28-31
NUMA node4 CPU(s):   32-35,40-43
NUMA node5 CPU(s):   36-39,44-47
NUMA node6 CPU(s):   48-51,56-59
NUMA node7 CPU(s):   52-55,60-63
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 cdp_l3
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

Platform Notes (Continued)

invpcid_single intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bml 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 avx512_bf16 dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni md_clear flush_lld arch_capabilities

```
/proc/cpuinfo cache data
cache size : 22528 KB
```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

```
available: 8 nodes (0-7)
node 0 cpus: 0 1 2 3 8 9 10 11
node 0 size: 192131 MB
node 0 free: 191871 MB
node 1 cpus: 4 5 6 7 12 13 14 15
node 1 size: 193500 MB
node 1 free: 193252 MB
node 2 cpus: 16 17 18 19 24 25 26 27
node 2 size: 193533 MB
node 2 free: 193317 MB
node 3 cpus: 20 21 22 23 28 29 30 31
node 3 size: 193533 MB
node 3 free: 193350 MB
node 4 cpus: 32 33 34 35 40 41 42 43
node 4 size: 193533 MB
node 4 free: 193359 MB
node 5 cpus: 36 37 38 39 44 45 46 47
node 5 size: 193533 MB
node 5 free: 193362 MB
node 6 cpus: 48 49 50 51 56 57 58 59
node 6 size: 193533 MB
node 6 free: 193344 MB
node 7 cpus: 52 53 54 55 60 61 62 63
node 7 size: 193308 MB
node 7 free: 193101 MB
```

```
node distances:
node  0  1  2  3  4  5  6  7
 0:  10 11 20 20 20 20 20 20
 1:  11 10 20 20 20 20 20 20
 2:  20 20 10 11 20 20 20 20
 3:  20 20 11 10 20 20 20 20
 4:  20 20 20 20 10 11 20 20
 5:  20 20 20 20 11 10 20 20
 6:  20 20 20 20 20 20 10 11
 7:  20 20 20 20 20 20 11 10
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

Platform Notes (Continued)

From /proc/meminfo

MemTotal: 1583726192 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

os-release:
NAME="SLES"
VERSION="15-SP2"
VERSION_ID="15.2"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp2"

uname -a:

Linux localhost 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba) x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

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
srbds: Not affected
tsx_async_abort: Not affected

run-level 3 Nov 20 09:03

SPEC is set to: /home/Benchmark/speccpu-ic19_lu2

| Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
|------------|------|------|------|-------|------|------------|
| /dev/sdb3 | xfs | 376G | 92G | 284G | 25% | /home |

From /sys/devices/virtual/dmi/id

BIOS: FUJITSU V1.0.0.0 R1.1.1 for D3892-A1x 09/25/2020
Vendor: FUJITSU
Product: PRIMERGY RX4770 M6
Product Family: SERVER

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

Platform Notes (Continued)

Serial: MABTxxxxxx

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.

Memory:
48x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200

(End of data from sysinfo program)

Compiler Version Notes

=====
C | 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
=====

Intel(R) C Compiler for applications running on Intel(R) 64, Version
19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
=====

=====
C++ | 508.namd_r(base) 510.parest_r(base)
=====

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version
19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
=====

=====
C++, C | 511.povray_r(base) 526.blender_r(base)
=====

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version
19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Compiler for applications running on Intel(R) 64, Version
19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
=====

=====
C++, C, Fortran | 507.cactuBSSN_r(base)
=====

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version
19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

Compiler Version Notes (Continued)

Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200604

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

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200623

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

=====
Fortran | 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 19.1.2.275 Build 20200623

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

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

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200623

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

Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.2.275 Build 20200604

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

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icc

Benchmarks using both C and C++:

icpc icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL, 2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2020
Hardware Availability: Nov-2020
Software Availability: Aug-2020

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:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

C++ benchmarks:

```
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -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
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using both Fortran and C:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -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
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX4770 M6, Intel Xeon Gold 6328HL,
2.80GHz

SPECrate®2017_fp_base = 440

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Nov-2020

Hardware Availability: Nov-2020

Software Availability: Aug-2020

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

```
-ljemalloc
```

Benchmarks using both C and C++:

```
-m64 -qnextgen -std=c11  
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs  
-xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:

```
-m64 -qnextgen -std=c11  
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -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  
-nostandard-realloc-lhs -align array32byte -auto  
-mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib  
-ljemalloc
```

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

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CPL-RevA.html>

http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64_revA.html

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

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CPL-RevA.xml>

http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-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.

Tested with SPEC CPU®2017 v1.1.0 on 2020-11-20 03:02:50-0500.

Report generated on 2021-01-05 14:45:57 by CPU2017 PDF formatter v6255.

Originally published on 2021-01-05.