



SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222, 3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19

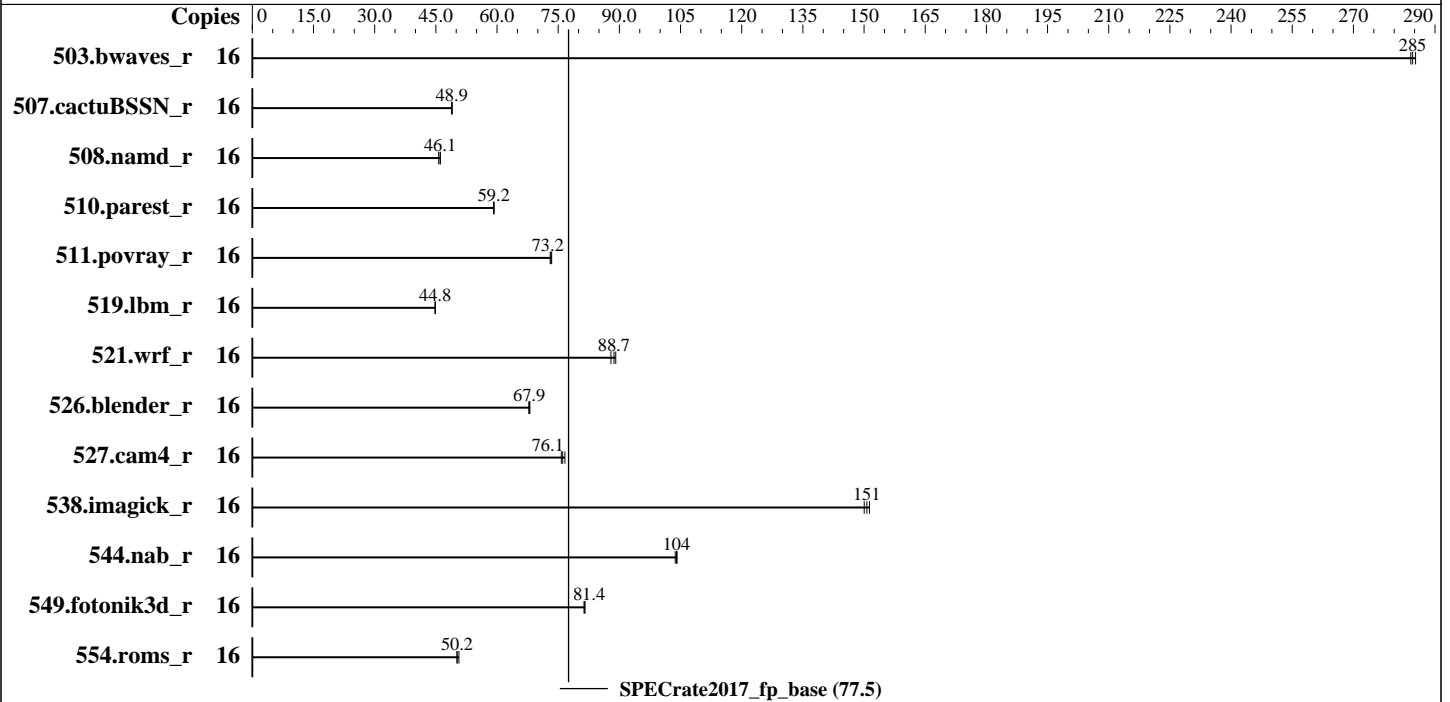
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Apr-2019

Hardware Availability: May-2019

Software Availability: Feb-2019



Hardware

CPU Name: Intel Xeon Gold 5222
 Max MHz.: 3900
 Nominal: 3800
 Enabled: 8 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: 16.5 MB I+D on chip per chip
 Other: None
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
 Storage: 1 x SATA M.2 SSD, 240GB
 Other: None

Software

OS: SUSE Linux Enterprise Server 15
 4.12.14-25.28-default
 Compiler: C/C++: Version 19.0.0.117 of Intel C/C++
 Compiler for Linux;
 Fortran: Version 19.0.0.117 of Intel Fortran
 Compiler for Linux
 Parallel: No
 Firmware: Fujitsu BIOS Version V5.0.0.14 R1.8.0 for D3384-B1x. Released Jun-2019 tested as V5.0.0.14 R1.2.0 for D3384-B1x Feb-2019
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: None



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222,
3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	16	564	<u>285</u>	563	285	565	284							
507.cactuBSSN_r	16	414	<u>48.9</u>	414	48.9	414	49.0							
508.namd_r	16	330	<u>46.1</u>	333	45.7	330	46.1							
510.parest_r	16	707	<u>59.2</u>	706	59.3	707	59.2							
511.povray_r	16	510	<u>73.2</u>	511	73.0	509	73.4							
519.lbm_r	16	376	44.8	376	44.9	376	44.8							
521.wrf_r	16	402	89.1	408	87.9	404	88.7							
526.blender_r	16	359	<u>67.9</u>	359	67.8	358	68.1							
527.cam4_r	16	365	76.6	368	<u>76.1</u>	369	75.8							
538.imagick_r	16	263	151	264	<u>151</u>	265	150							
544.nab_r	16	259	104	259	104	260	104							
549.fotonik3d_r	16	766	<u>81.4</u>	764	81.6	766	81.4							
554.roms_r	16	506	<u>50.2</u>	502	50.7	506	50.2							

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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"
Kernel Boot Parameter set with : nohz_full=1-111
Process tuning settings:
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-1.0.5/iccl9-lib/intel64"

Binaries compiled on a system with 2x Intel Xeon E5-2667 v2 CPU + 64GB RAM
memory using SUSE Linux Enterprise Server 12 SP2
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.:

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222,
3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

General Notes (Continued)

numactl --interleave=all runcpu <etc>
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:
Patrol Scrub = Disabled
WR CRC feature Control = Disabled
Fan Control = Full
Sysinfo program /home/Benchmark/speccpu2017-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on RX2540M5 Tue Apr 9 16:37:05 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) Gold 5222 CPU @ 3.80GHz
2 "physical id"s (chips)
16 "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 : 4
siblings : 8
physical 0: cores 5 8 9 13
physical 1: cores 5 8 9 12

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 16
On-line CPU(s) list: 0-15
Thread(s) per core: 2
Core(s) per socket: 4
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222,
3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Platform Notes (Continued)

```

Model name: Intel(R) Xeon(R) Gold 5222 CPU @ 3.80GHz
Stepping: 7
CPU MHz: 3800.000
CPU max MHz: 3900.0000
CPU min MHz: 1200.0000
BogoMIPS: 7600.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 16896K
NUMA node0 CPU(s): 0,2,9,10
NUMA node1 CPU(s): 1,3,8,11
NUMA node2 CPU(s): 4,7,12,15
NUMA node3 CPU(s): 5,6,13,14
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 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
invpcid_single mba ibrs ibpb stibp ibrs_enhanced 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 intel_pt avx512cd avx512bw avx512vl
xsaveopt xsavec xgetbv1 xsaves 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 pku ospke avx512_vnni
flush_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 16896 KB

```

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

```

available: 4 nodes (0-3)
node 0 cpus: 0 2 9 10
node 0 size: 191941 MB
node 0 free: 191679 MB
node 1 cpus: 1 3 8 11
node 1 size: 193534 MB
node 1 free: 193315 MB
node 2 cpus: 4 7 12 15
node 2 size: 193323 MB
node 2 free: 193081 MB
node 3 cpus: 5 6 13 14
node 3 size: 193534 MB
node 3 free: 193299 MB
node distances:

```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222,
3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Platform Notes (Continued)

node	0	1	2	3
0:	10	11	21	21
1:	11	10	21	21
2:	21	21	10	11
3:	21	21	11	10

```
From /proc/meminfo
MemTotal:          790870904 kB
HugePages_Total:   0
Hugepagesize:      2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15"
VERSION_ID="15"
PRETTY_NAME="SUSE Linux Enterprise Server 15"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15"
```

```
uname -a:
Linux RX2540M5 4.12.14-25.28-default #1 SMP Wed Jan 16 20:00:47 UTC 2019 (dd6077c)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

```
CVE-2017-5754 (Meltdown):          Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB
filling
```

run-level 3 Apr 9 16:35

```
SPEC is set to: /home/Benchmark/speccpu2017-1.0.5
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda5       xfs   191G   57G  135G  30% /home
```

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 FUJITSU // American Megatrends Inc. V5.0.0.14 R1.2.0 for D3384-B1x
02/28/2019

Memory:
24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222,
3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Platform Notes (Continued)

(End of data from sysinfo program)

Compiler Version Notes

```

=====
CC  519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
-----
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----

=====
CXXC 508.namd_r(base) 510.parest_r(base)
-----
icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----

=====
CC  511.povray_r(base) 526.blender_r(base)
-----
icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----

=====
FC  507.cactuBSSN_r(base)
-----
icpc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----

=====
FC  503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
-----
ifort (IFORT) 19.0.0.117 20180804
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

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222,
3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Compiler Version Notes (Continued)

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

ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 19.0.0.117 20180804
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
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 5222,
3.80 GHz

SPECrate2017_fp_base = 77.5

SPECrate2017_fp_peak = Not Run

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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

Base Portability Flags (Continued)

554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -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=3 -auto -nostandard-realloc-lhs

Benchmarks using both C and C++:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.html>
<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CSL-RevA.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.xml>
<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CSL-RevA.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 2019-04-09 03:37:04-0400.
Report generated on 2019-05-23 13:00:22 by CPU2017 PDF formatter v6067.
Originally published on 2019-05-14.