## SPEC CPU®2017 Floating Point Rate Result

**Fujitsu**

PRIMERGY RX2530 M5, Intel Xeon Silver 4208, 2.10 GHz

**SPECRate®2017_fp_base = 92.3**

**SPECRate®2017_fp_peak = Not Run**

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<th>Copies</th>
<th>SPECrate®2017_fp_base</th>
<th>SPECrate®2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>308</td>
<td>92.3</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**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
- **Cache L2:** 1 MB I+D on chip per core
- **Cache L3:** 11 MB I+D on chip per chip
- **Other:** None
- **Memory:** 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R, running at 2400)
- **Storage:** 1 x SATA M.2 SSD, 256 GB
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 15 4.12.14-25.28-default
- **Compiler:** C/C++: Version 19.0.4.227 of Intel C/C++ Compiler Build 20190416 for Linux;
  Fortran: Version 19.0.4.227 of Intel Fortran Compiler Build 20190416 for Linux
- **Parallel:** No
- **Firmware:** Fujitsu BIOS for D3386-B1x. Version V5.0.0.14 R1.13.0 released Aug-2019
- **File System:** btrfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** None
- **Power Management:** --
SPEC CPU®2017 Floating Point Rate Result

Fujitsu
PRIMERGY RX2530 M5, Intel Xeon Silver 4208, 2.10 GHz

<table>
<thead>
<tr>
<th>CPU2017 License: 19</th>
<th>Test Date: October 2019</th>
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<tr>
<td>Test Sponsor: Fujitsu</td>
<td>Hardware Availability: June 2019</td>
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<tr>
<td>Tested by: Fujitsu</td>
<td>Software Availability: May 2019</td>
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Results Table

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</table>

SPECrate®2017_fp_base = 92.3
SPECrate®2017_fp_peak = Not Run

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=1-31
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_rate_fp/lib/intel64"

Binaries compiled on a system with 1x Intel Core i9-799X 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
runcpu command invoked through numactl i.e.:
Fujitsu
PRIMERGY RX2530 M5, Intel Xeon Silver 4208, 2.10 GHz

| SPECrate®2017_fp_base = 92.3 |
| SPECrate®2017_fp_peak = Not Run |

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

General Notes (Continued)

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.

Platform Notes

BIOS configuration:
Patrol Scrub = Disabled
WR CRC feature Control = Disabled
Fan Control = Full
Sub NUMA Clustering = Disabled

Sysinfo program /home/Benchmark/speccpu2017-1.0.5_rate_fp/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcd8f2999c33d61f64985e45859ea9
running on TX2550M5 Thu Oct 24 18:59:25 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
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6

(Continued on next page)
### Fujitsu
**PRIMERGY RX2530 M5, Intel Xeon Silver 4208, 2.10 GHz**

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<td>Not Run</td>
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**Platform Notes (Continued)**

<table>
<thead>
<tr>
<th>Model:</th>
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<tbody>
<tr>
<td>Model name:</td>
<td>Intel(R) Xeon(R) Silver 4208 CPU @ 2.10GHz</td>
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<tr>
<td>Stepping:</td>
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<tr>
<td>CPU MHz:</td>
<td>2100.000</td>
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<tr>
<td>CPU max MHz:</td>
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<tr>
<td>CPU min MHz:</td>
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<td>BogoMIPS:</td>
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<td>L1d cache:</td>
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<td>L1i cache:</td>
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<tr>
<td>L2 cache:</td>
<td>1024K</td>
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<td>L3 cache:</td>
<td>11264K</td>
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<tr>
<td>NUMA node0 CPU(s):</td>
<td>0-7,16-23</td>
</tr>
<tr>
<td>NUMA node1 CPU(s):</td>
<td>8-15,24-31</td>
</tr>
<tr>
<td>Flags:</td>
<td>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 aperfmperf 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 intel_pppin ssbd mba ibrs ibpb stibp ibrs_enabled tpr_shadow vmi flexpriority ept vpid fsgsbase tsc_adjust bm1 hle avx2 smep bmi2 erms invpcid rtm cmqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsavesopt xsaveopt xsavecr xsave xe86crs cmqm_llc cmqm_occurs_llc cmqm_mbmt_total cmqm_mbmt_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni flush_lid arch_capabilities</td>
</tr>
</tbody>
</table>

/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: 191931 MB
  node 0 free: 188460 MB
  node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
  node 1 size: 193532 MB
  node 1 free: 193175 MB
  node distances:
  node 0 1
  0: 10 21
  1: 21 10

From /proc/meminfo

  MemTotal: 394715036 kB
  HugePages_Total: 0

(Continued on next page)
### Platform Notes (Continued)

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 TX2550M5 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 Oct 24 18:55

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5_rate_fp

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>btrfs</td>
<td>236G</td>
<td>159G</td>
<td>77G</td>
<td>68%</td>
<td>/home</td>
</tr>
</tbody>
</table>

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 R1.13.0 for D3386-B1x
08/29/2019
```

```
Memory:
12x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933, configured at 2400
```

(End of data from `sysinfo` program)

### Compiler Version Notes

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

(Continued on next page)
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Compiler Version Notes (Continued)

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

==============================================================================
C++             | 508.namd_r(base) 510.parest_r(base)
==============================================================================
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

==============================================================================
C++, C          | 511.povray_r(base) 526.blender_r(base)
==============================================================================
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
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Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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 19.0.4.227 Build 20190416
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Compiler Version Notes (Continued)

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 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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
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Hardware Availability: Jun-2019
Software Availability: May-2019

Base Portability Flags (Continued)

549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4

C++ benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4

Fortran benchmarks:
-xCORE-AVX2 -ipo -03 -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-AVX2 -ipo -03 -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-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -03 -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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CSL-RevE.xml
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| **Tested by:**      | Fujitsu |

| **Test Date:** | Oct-2019 |
| **Hardware Availability:** | Jun-2019 |
| **Software Availability:** | May-2019 |

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Tested with SPEC CPU®2017 v1.0.5 on 2019-10-24 05:59:24-0400.