# SPEC CPU®2017 Floating Point Rate Result

## Fujitsu

**PRIMERGY RX2530 M6, Intel Xeon Platinum 8380, 2.30GHz**

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Sponsor</th>
<th>Tested by</th>
<th>Test Date</th>
<th>Hardware Availability</th>
<th>Software Availability</th>
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<tbody>
<tr>
<td>19</td>
<td>Fujitsu</td>
<td>Fujitsu</td>
<td>Apr-2021</td>
<td>May-2021</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

### SPECrate®2017_fp_base = 463

### SPECrate®2017_fp_peak = Not Run

### Hardware

- **CPU Name:** Intel Xeon Platinum 8380
- **Max MHz:** 3400
- **Nominal:** 2300
- **Enabled:** 80 cores, 2 chips
- **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:** 60 MB I+D on chip per chip
- **Other:** None
- **Memory:** 1 TB (32 x 32 GB 2Rx4 PC4-3200AA-R)
- **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 2021.1 of Intel oneAPI DPC++/C++
  - Compiler Build 20201113 for Linux;
  - C/C++: Version 2021.1 of Intel C/C++
  - Compiler Classic Build 20201112 for Linux;
  - Fortran: Version 2021.1 of Intel Fortran
  - Compiler Classic Build 20201112 for Linux
- **Parallel:** No
- **Firmware:** Fujitsu BIOS Version V1.0.0.0 R1.4.0 for D3890-A1x. Released May-2021
tested as V1.0.0.0 R1.2.0 for D3890-A1x Apr-2021
- **File System:** btrfs
- **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

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**Copies**

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<tr>
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<td>510.parest_r 80</td>
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**Performance Results**

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Test Date: Apr-2021
Hardware Availability: May-2021
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</table>

SPECrate®2017_fp_base = 463
SPECrate®2017_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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = 
"/home/speccpu-1.1.5_fprate/lib/intel64:/home/speccpu-1.1.5_fprate/je5.0.1-64"
MALLOCONF = "retain:true"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7940X CPU + 64GB RAM memory using openSUSE Leap 15.2
Transparent Huge Pages enabled by default

(Continued on next page)
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General Notes (Continued)

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

Platform Notes

BIOS configuration:
Hyper Threading = Disabled
Adjacent Cache Line Prefetch = Disabled
DCU Streamer Prefetcher = Disabled
Intel Virtualization Technology = Disabled
Override OS Energy Performance = Enabled
Energy Performance = Performance
CPU C1E Support = Disabled
Patrol Scrub = Enabled
SNC = Enable SNC2
FAN Control = Full

Sysinfo program /home/speccpu-1.1.5_fprate/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost Sun Apr 25 23:38:33 2021

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) Platinum 8380 CPU @ 2.30GHz
    2 "physical id"s (chips)
    80 "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 : 40
  siblings : 40
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

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PRIMERGY RX2530 M6, Intel Xeon Platinum 8380, 2.30GHz

Fujitsu
2.30GHz
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Platform Notes (Continued)

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 46 bits physical, 57 bits virtual
CPU(s): 80
On-line CPU(s) list: 0-79
Thread(s) per core: 1
Core(s) per socket: 40
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz
Stepping: 6
CPU MHz: 800.000
CPU max MHz: 3400.0000
CPU min MHz: 800.0000
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 61440K
NUMA node0 CPU(s): 0-19
NUMA node1 CPU(s): 20-39
NUMA node2 CPU(s): 40-59
NUMA node3 CPU(s): 60-79
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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfmpref pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtr 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 invpcid_single ssbd
mba ibrs ibrs_enhanced tpr_shadow vni flexpriority ept vpid ept_ad
fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ersedv rtm cqm rdt_a avx512f
avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni
avx512bw avx512vl xsavesopt xsaveopt xsaves xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc
cq_mbb_total cqm_mbb_local wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp
hwp_pkg_req avx512vbm iumip pku ospke avx512_vbmi2 gfn vaes vpc1mulqdq avx512_vnni
avx512_bitalg tme avx512_vpocndq la57 rdpid md_clear pconfig flush_l1d
arch_capabilities

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

/proc/cpuinfo cache data
   cache size : 61440 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 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
   node 0 size: 257648 MB
   node 0 free: 257152 MB
   node 1 cpus: 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
   node 1 size: 258009 MB
   node 1 free: 257627 MB
   node 2 cpus: 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59
   node 2 size: 258043 MB
   node 2 free: 257675 MB
   node 3 cpus: 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
   node 3 size: 257763 MB
   node 3 free: 257408 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:       1056219636 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB
   /sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has powersave

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
**Platform Notes (Continued)**

x86_64 x86_64 GNU/Linux

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 Apr 25 07:47

SPEC is set to: /home/speccpu-1.1.5_fprate

Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb2 btrfs 445G 85G 360G 20% /home

From /sys/devices/virtual/dmi/id

- Vendor: FUJITSU
- Product: PRIMERGY RX2530 M6
- Product Family: SERVER
- Serial: EWABxxxxxx

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 SBMIO" standard.

Memory:

32x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200

BIOS:

- BIOS Vendor: FUJITSU
- BIOS Version: V1.0.0.0 R1.2.0 for D3890-A1x
- BIOS Date: 04/01/2021
- BIOS Revision: 1.2
- Firmware Revision: 3.20

(End of data from sysinfo program)
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
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Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

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.cactusbssn_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 -funsinged-char

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**Base Portability Flags (Continued)**

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
- qopt-multiple-gather-scatter-by-shuffles -qopt-mem-layout-trans=4
- nostandard-realloc-lhs -align array32byte
- 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 -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

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Fujitsu
PRIMERGY RX2530 M6, Intel Xeon Platinum 8380, 2.30GHz

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<th>SPECrate®2017_fp_base =</th>
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
- flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -03
- no-prec-div -qopt-prefetch -ffinite-math-only
- qopt-multiple-gather-scatter-by-shuffles
- mbranches-within-32B-boundaries -nostandard-realloc-lhs
- align array32byte -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

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

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Tested with SPEC CPU®2017 v1.1.5 on 2021-04-25 10:38:32-0400.
Originally published on 2021-05-11.