SPEC CPU®2017 Floating Point Rate Result

Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6242, 2.80 GHz

SPECrated®2017_fp_base = 195
SPECrated®2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Hardware Availability: Apr-2019
Software Availability: Feb-2019

Test Date: Apr-2019

503.bwaves_r 64
507.cactuBSSN_r 64
508.namd_r 64
510.parest_r 64
511.povray_r 64
519.lbm_r 64
521.wrf_r 64
526.blender_r 64
527.cam4_r 64
538.imagick_r 64
544.nab_r 64
549.fotonik3d_r 64
554.roms_r 64

Hardware
CPU Name: Intel Xeon Gold 6242
Max MHz: 3900
Nominal: 2800
Enabled: 32 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: 22 MB I+D on chip per chip
Other: None
Memory: 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1 x SATA M.2 SSD, 256 GB
Other: None

Software
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 V1.0.0.0 R1.6.0 for D3853-B1x, released Jun-2019. Tested as V1.0.0.0 R1.3.3 for D3853-B1x Mar-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

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SPECratre®2017_fp_base = 195
SPECratre®2017_fp_peak = Not Run

Results Table

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<td>84.7</td>
<td>1201</td>
<td>84.7</td>
<td>1203</td>
<td>84.5</td>
</tr>
</tbody>
</table>

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
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/icc19-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 CPU®2017 Floating Point Rate Result**

Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6242, 2.80 GHz

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<tr>
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</tbody>
</table>

**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:
- Power Technology = Custom
- Energy Performance = Balanced Performance
- Uncore Frequency Scaling = Disabled
- Sub NUMA Clustering = Enabled
- LLC Prefetch = Enabled
- Sysinfo program /home/Benchmark/speccpu2017-1.0.5/bin/sysinfo
- Rev: r5974 of 2018-05-19 9bce0f2999c33d61f64985e45859ea9
- running on linux-3m0d Tue Apr 9 01:48:03 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 6242 CPU @ 2.80GHz
- 2 "physical id"s (chips)
- 64 "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: 16
  - siblings: 32
  - 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

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 64
- On-line CPU(s) list: 0-63
- Thread(s) per core: 2
- Core(s) per socket: 16
- Socket(s): 2
- NUMA node(s): 4

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result

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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Test Date: Apr-2019
Hardware Availability: Apr-2019
Software Availability: Feb-2019

Platform Notes (Continued)

Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6242 CPU @ 2.80GHz
Stepping: 6
CPU MHz: 2800.000
CPU max MHz: 3900.0000
CPU min MHz: 1200.0000
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, 32-35, 40-43
NUMA node1 CPU(s): 4-7, 12-15, 36-39, 44-47
NUMA node2 CPU(s): 16-19, 24-27, 36-39, 56-59
NUMA node3 CPU(s): 20-23, 28-31, 52-55, 60-63
Flags: fpu vme de pse mce pmtr 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 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_patin ssbd mba ibrs ibbp stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ets invpcid bmi rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves xsavec xsaveopt xsavecs xsavecab qmm6 cqm_llc cqm_occp_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni flush_l1d 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: 4 nodes (0-3)
   node 0 cpus: 0 1 2 3 8 9 10 11 32 33 34 35 40 41 42 43
   node 0 size: 95458 MB
   node 0 free: 95238 MB
   node 1 cpus: 4 5 6 7 12 13 14 15 36 37 38 39 44 45 46 47
   node 1 size: 96761 MB
   node 1 free: 96562 MB
   node 2 cpus: 16 17 18 19 24 25 26 27 48 49 50 51 56 57 58 59
   node 2 size: 96732 MB
   node 2 free: 96534 MB
   node 3 cpus: 20 21 22 23 28 29 30 31 52 53 54 55 60 61 62 63

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result

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Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6242, 2.80 GHz

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

Platform Notes (Continued)

node 3 size: 96760 MB
node 3 free: 96555 MB
node distances:
node 0 1 2 3
0: 10 11 19 19
1: 11 10 19 19
2: 19 19 10 11
3: 19 19 11 10

From /proc/meminfo
MemTotal: 394970360 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 linux-3m0d 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 01:41

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2 btrfs 236G 70G 167G 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 V1.0.0.0 R1.3.3 for D3853-B1x 03/15/2019

(Continued on next page)
## SPEC CPU®2017 Floating Point Rate Result

**Fujitsu**

PRIMERGY CX2550 M5, Intel Xeon Gold 6242, 2.80 GHz

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19

### Test Sponsor:
Fujitsu

### Tested by:
Fujitsu

### Test Date:
Apr-2019

### Hardware Availability:
Apr-2019

### Software Availability:
Feb-2019

### Platform Notes (Continued)

Memory:
- 6x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933
- 4x Not Specified Not Specified
- 6x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(End of data from sysinfo program)

### Compiler Version Notes

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<tr>
<th>Language</th>
<th>Version Numbers</th>
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<tr>
<td>C</td>
<td>519.lblm_r(base)</td>
<td>538.imagick_r(base) 544.nab_r(base)</td>
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<tr>
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<td>icc (ICC) 19.0.0.117 20180804</td>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
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<td>icpc (ICC) 19.0.0.117 20180804</td>
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<td>ifort (IFORT) 19.0.0.117 20180804</td>
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<td>549.fotonik3d_r(base) 554.roms_r(base)</td>
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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

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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:
-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

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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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.0.5 on 2019-04-08 12:48:02-0400.