Fujitsu
PRIMERGY CX2560 M5, Intel Xeon Silver 4215, 2.50 GHz

SPECrater®2017_fp_base = 102
SPECrater®2017_fp_peak = Not Run

**Hardware**

CPU Name: Intel Xeon Silver 4215  
Max MHz: 3500  
Nominal: 2500  
Enabled: 16 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: 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 19.0.0.117 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 D3854-B1x, released Jun-2019. Tested as V1.0.0.0 R1.3.3 for D3854-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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Results Table

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<th>Seconds Peak</th>
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<td>544.nab_r</td>
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<td>983</td>
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<td>983</td>
<td>51.7</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=1-31
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/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.:
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 = Disabled
LLC Prefetch = Enabled
Sysinfo program /home/Benchmark/speccpu2017-1.0.5_rate_fp/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-3m0d Fri May 31 01:07:48 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 4215 CPU @ 2.50GHz
  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
Fujitsu
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SPECrate®2017_fp_base = 102
SPECrate®2017_fp_peak = Not Run

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

Test Date: May-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) Silver 4215 CPU @ 2.50GHz
Stepping: 6
CPU MHz: 2500.000
CPU max MHz: 3500.0000
CPU min MHz: 1000.0000
BogoMIPS: 5000.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 11264K
NUMA node0 CPU(s): 0-7,16-23
NUMA node1 CPU(s): 8-15,24-31
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 rdtsscp
lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_ts cpuid
aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtpre pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrnd lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3
invpcid_single intel_pinning ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
flexpiority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mp xrdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsavec xsavec xsavecalls cqm_llc cqm_occcll cqm_mbb_total
cqm_mbb_local dtherm ida arat p1n pts hwp hwp_act_window hwp_epp hwp_pkg_req pku
ospke avx512_vnni flush_l1d arch_capabilities

From /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: 192226 MB
  node 0 free: 191834 MB
  node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
  node 1 size: 193499 MB
  node 1 free: 193211 MB
  node distances:

  From /proc/meminfo

(Continued on next page)
Platform Notes (Continued)

MemTotal: 394983264 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 May 31 01:01

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5_rate_fp
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2 btrfs 236G 150G 86G 64% /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 D3854-B1x 03/15/2019
  Memory:
  6x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933, configured at 2400
  4x Not Specified Not Specified
  6x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2400

(End of data from sysinfo program)
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| SPECrate®2017_fp_base | 102 |
| SPECrate®2017_fp_peak | Not Run |

CPU2017 License: 19
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Test Date: May-2019
Hardware Availability: Apr-2019
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Compiler Version Notes

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icc (ICC) 19.0.0.117 20180804
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ifort (IFORT) 19.0.0.117 20180804
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iccc (ICC) 19.0.0.117 20180804

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**SPEC CPU®2017 Floating Point Rate Result**

**Fujitsu**
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### SPECrate®2017_fp_base = 102
### SPECrate®2017_fp_peak = Not Run

**Compiler Version Notes (Continued)**

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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`
- `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`
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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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Tested with SPEC CPU®2017 v1.0.5 on 2019-05-30 12:07:47-0400.