**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**

PRIMERGY RX2530 M5, Intel Xeon Silver 4216, 2.10 GHz

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base = 177</th>
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<tbody>
<tr>
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<tr>
<td>502.gcc_r 64</td>
<td>134</td>
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<td>505.mcf_r 64</td>
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<tr>
<td>557.xz_r 64</td>
<td>119</td>
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</table>

--- SPECrate®2017_int_base (177)

### Hardware

**CPU Name:** Intel Xeon Silver 4216  
**Max MHz:** 3200  
**Nominal:** 2100  
**Enabled:** 32 cores, 2 chips, 2 threads/core  
**Orderable:** 1.2 chips  
**Cache L1:** 32 KB I+D on chip per core  
**L2:** 1 MB I+D on chip per core  
**L3:** 22 MB I+D on chip per chip  
**Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R, running at 2400)  
**Storage:** 1 x SATA M.2 SSD, 240 GB  
**Other:** None

### Software

**OS:** SUSE Linux Enterprise Server 15  
**Compiler:** 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 D3384-B1x. Version V5.0.0.14 R1.13.0 released Aug-2019  
**File System:** xfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** None  
**Power Management:** --
SPEC CPU®2017 Integer Rate Result

Fujitsu
PRIMERGY RX2530 M5, Intel Xeon Silver 4216, 2.10 GHz

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

Test Date: Oct-2019
Hardware Availability: May-2019
Software Availability: May-2019

Results Table

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</tr>
</tbody>
</table>

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=1-39

General Notes
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-1.0.5/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.:
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.
### General Notes (Continued)

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
- DCU Ip Prefetcher = Disabled
- DCU Streamer Prefetcher = Disabled
- Fan Control = Full
- Stale AtoS = Enable
- WR CRC feature Control = Disabled

Sysinfo program /home/Benchmark/speccpu2017-1.0.5/bin/sysinfo

Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on RX2530M5-AD-545 Fri Oct 25 04:53:39 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

```plaintext
model name : Intel(R) Xeon(R) Silver 4216 CPU @ 2.10GHz
    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:

```plaintext
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
Vendor ID:          GenuineIntel
CPU family:         6
Model:              85
Model name:         Intel(R) Xeon(R) Silver 4216 CPU @ 2.10GHz
Stepping:           6
```

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

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SPECrater®2017_int_base = 177
SPECrater®2017_int_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Test Date: Oct-2019
Hardware Availability: May-2019
Software Availability: May-2019

Platform Notes (Continued)

CPU MHz: 2100.000
CPU max MHz: 3200.0000
CPU min MHz: 800.0000
BogoMIPS: 4200.00
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): 16-19,24-27,48-51,56-59
NUMA node3 CPU(s): 20-23,28-31,52-55,60-63

Flags: fpu vme de pse tsc msr pae mce 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 est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abhp_l1m 3dnowprefetch cpuid_fault ebpx cpuid_l3 cdcp_l3 invpcid_single intel_p profound ssbd mba ibrs ibp ibbp ibrs enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invvpic rdt dm cqm px rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsavesopt xsaveopt xsaves xsavec xgetbv1 xsavecr 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 pk u ospke avx512_vnni flush_lid arch_capabilities

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: 191858 MB
node 0 free: 191556 MB
node 1 cpus: 4 5 6 7 12 13 14 15 36 37 38 39 44 45 46 47
node 1 size: 193532 MB
node 1 free: 193205 MB
node 2 cpus: 16 17 18 19 24 25 26 27 48 49 50 51 56 57 58 59
node 2 size: 193532 MB
node 2 free: 193205 MB
node 3 cpus: 20 21 22 23 28 29 30 31 52 53 54 55 60 61 62 63
node 3 size: 193320 MB
node 3 free: 193070 MB

(Continued on next page)
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Platform Notes (Continued)

1:  11  10  21  21
2:  21  21  10  11
3:  21  21  11  10

From /proc/meminfo
MemTotal: 790779264 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
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 RX2530M5-AD-545 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 25 04:47

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 191G 79G 113G 42% /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 R1.13.0 for D3383-B1x 08/29/2019
Memory:
1x Hynix HMA84GR7CJR4N-WM 32 GB 2 rank 2933, configured at 2400
23x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2400

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

Platform Notes (Continued)

(End of data from sysinfo program)

Compiler Version Notes

C

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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.

C++

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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.

Fortran

| 548.exchange2_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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Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64
CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leea_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-W1,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-Qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

C++ benchmarks:
-W1,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-Qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

Fortran benchmarks:
-W1,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-Qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

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.

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