## SPEC® CPU2017 Integer Rate Result

**Fujitsu**

PRIMERGY RX2530 M5, Intel Xeon Platinum 8270, 2.70GHz

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>19</th>
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<tr>
<td>Test Sponsor:</td>
<td>Fujitsu</td>
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<td>Tested by:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Apr-2019</td>
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<td>Hardware Availability:</td>
<td>May-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2019</td>
</tr>
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### SPECrate2017_int_base = 317

### SPECrate2017_int_peak = Not Run

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<th>Test</th>
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<th>SPECrate2017_int_base</th>
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<tr>
<td>502.gcc_r</td>
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<td>104</td>
<td>215</td>
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### Hardware

- **CPU Name:** Intel Xeon Platinum 8270
- **Max MHz.:** 4000
- **Nominal:** 2700
- **Enabled:** 52 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:** 35.75 MB I+D on chip per chip
- **Other:** None
- **Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
- **Storage:** 1 x SATA M.2 SSD, 240GB
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 4.12.14-25.28-default
- **Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux;
  Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux
- **Parallel:** No
- **Firmware:** Fujitsu BIOS Version V5.0.0.14 R1.8.0 for D3383-B1x. Released Jun-2019 tested as V5.0.0.14 R1.2.0 for D3383-B1x Feb-2019
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** None
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**SPECrate2017_int_base = 317**
**SPECrate2017_int_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"
Kernel Boot Parameter set with : nohz_full=1-111

**General Notes**

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-1.0.5/lib/intel164"

Binaries compiled on a system with 1x Intel Core i9-7900X 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>
Yes: 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.

(Continued on next page)
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**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** Apr-2019  
**Hardware Availability:** May-2019  
**Software Availability:** Feb-2019

**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 9bcede8f2999c33d61f64985e45859ea9
running on RX2530M5 Tue Apr 2 10:51:59 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) Platinum 8270 CPU @ 2.70GHz
- 2 "physical id"s (chips)
- 104 "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 : 26
  - siblings : 52
- physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28 29
- physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28 29

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 104
- On-line CPU(s) list: 0-103
- Thread(s) per core: 2
- Core(s) per socket: 26
- Socket(s): 2
- NUMA node(s): 4
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85

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

Model name:     Intel(R) Xeon(R) Platinum 8270 CPU @ 2.70GHz
Stepping:       6
CPU MHz:        2700.000
CPU max MHz:    4000.0000
CPU min MHz:    1000.0000
BogoMIPS:       5400.00
Virtualization: VT-x
L1d cache:      32K
L1i cache:      32K
L2 cache:       1024K
L3 cache:       36608K
NUMA node0 CPU(s):  0-3,7-9,13-15,20-22,52-55,59-61,65-67,72-74
NUMA node1 CPU(s):  4-6,10-12,16-19,23-25,56-58,62-64,68-71,75-77
NUMA node2 CPU(s):  26-29,33-35,39-41,46-49,78-81,85-87,91-93,98-100
NUMA node3 CPU(s):  30-32,36-38,42-45,49-51,82-84,88-90,94-97,101-103
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 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 abm_prefetchcp cpuid_fault epb cat_l3 cdp_l3 invpcid_single ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2  ertz cqm mxn xv612f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xsaves 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 pku ospke avx512_vnni flush_lld arch_capabilities

```
/proc/cpuinfo cache data
    cache size : 36608 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 7 8 9 13 14 15 20 21 22 52 53 54 55 59 60 61 65 66 67 72 73 74
  node 0 size: 191966 MB
  node 0 free: 191626 MB
  node 1 cpus: 4 5 6 10 11 12 16 17 18 19 23 24 25 56 57 58 62 63 64 68 69 70 71 75 76 77
  node 1 size: 193530 MB
  node 1 free: 193154 MB
  node 2 cpus: 26 27 28 29 33 34 35 39 40 41 46 47 48 78 79 80 81 85 86 87 91 92 93 98 99
  node 2 size: 193501 MB
  node 2 free: 193167 MB
  node 3 cpus: 30 31 32 36 37 38 42 43 44 45 49 50 51 82 83 84 88 89 90 94 95 96 97 101
  node 3 size: 193318 MB

(Continued on next page)
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Platform Notes (Continued)

node 3 free: 192931 MB
node distances:
  node  0  1  2  3
   0: 10 11 21 21
   1: 11 10 21 21
   2: 21 21 10 11
   3: 21 21 11 10

From /proc/meminfo
  MemTotal: 790853296 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 RX2530M5 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 2 10:51

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda5 xfs 191G 57G 135G 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 // American Megatrends Inc. V5.0.0.14 R1.2.0 for D3383-B1x
  02/28/2019

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

Memory:
24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

*(End of data from sysinfo program)*

**Compiler Version Notes**

```
==============================================================================
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
   557.xz_r(base)
==============================================================================
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
   Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

```
==============================================================================
CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
   541.leela_r(base)
==============================================================================
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
   Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

```
==============================================================================
FC  548.exchange2_r(base)
==============================================================================
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
   64, Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

**Base Compiler Invocation**

C benchmarks:
```
icc -m64 -std=c11
```

C++ benchmarks:
```
icpc -m64
```

Fortran benchmarks:
```
ifort -m64
```
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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.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64 -lqkmalloc

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64 -lqkmalloc

Fortran benchmarks:
-Wl,-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_2019.1.144/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-RevA.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 CPU2017 v1.0.5 on 2019-04-01 21:51:59-0400.