# SPEC CPU®2017 Integer Rate Result

## Fujitsu

**PRIMERGY RX2530 M5, Intel Xeon Gold 5215, 2.50 GHz**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r 40</td>
<td>91.9</td>
<td>Not Run</td>
</tr>
<tr>
<td>502.gcc_r 40</td>
<td>96.8</td>
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<tr>
<td>505.mcf_r 40</td>
<td>160</td>
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<tr>
<td>520.omnetpp_r 40</td>
<td>81.4</td>
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<tr>
<td>523.xalancbmk_r 40</td>
<td>140</td>
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<td>525.x264_r 40</td>
<td>235</td>
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<td>531.deepsjeng_r 40</td>
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<tr>
<td>541.leela_r 40</td>
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<tr>
<td>548.exchange2_r 40</td>
<td>246</td>
<td></td>
</tr>
<tr>
<td>557.xz_r 40</td>
<td>80.3</td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 5215
- **Max MHz:** 3400
- **Nominal:** 2500
- **Enabled:** 20 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:** 13.75 MB I+D on chip per chip
- **Other:** None
- **Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R, running at 2666)
- **Storage:** 1 x SATA M.2 SSD, 240 GB
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15
- **Compiler:** C/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:** --

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SPECrate®2017_int_base = 121
SPECrate®2017_int_peak = Not Run

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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</thead>
<tbody>
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<tr>
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<td>505.mcf_r</td>
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<td>233</td>
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<td>237</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>40</td>
<td>453</td>
<td>101</td>
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<td>453</td>
<td>101</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>40</td>
<td>728</td>
<td>91.0</td>
<td>718</td>
<td>92.2</td>
<td>729</td>
<td>90.8</td>
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<tr>
<td>548.exchange2_r</td>
<td>40</td>
<td>428</td>
<td>245</td>
<td>426</td>
<td>246</td>
<td>427</td>
<td>246</td>
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<tr>
<td>557.xz_r</td>
<td>40</td>
<td>538</td>
<td>80.2</td>
<td>538</td>
<td>80.3</td>
<td>538</td>
<td>80.3</td>
</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.:
    numacl --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.

(Continued on next page)
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PRIMERGY RX2530 M5, Intel Xeon Gold 5215, 2.50 GHz

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 Thu Oct 24 02:43:55 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 5215 CPU @ 2.50GHz
  2 "physical id"s (chips)
  40 "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 : 10
  siblings : 20
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 40
On-line CPU(s) list: 0-39
Thread(s) per core: 2
Core(s) per socket: 10
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 5215 CPU @ 2.50GHz
Stepping: 6

(Continued on next page)
## Fujitsu

**PRIMERGY RX2530 M5, Intel Xeon Gold 5215, 2.50 GHz**

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<table>
<thead>
<tr>
<th>SPEC CPU®2017 Integer Rate Result</th>
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</thead>
<tbody>
<tr>
<td><strong>CPU MHz:</strong> 2500.000</td>
</tr>
<tr>
<td><strong>CPU max MHz:</strong> 3400.0000</td>
</tr>
<tr>
<td><strong>CPU min MHz:</strong> 1000.0000</td>
</tr>
<tr>
<td><strong>BogoMIPS:</strong> 5000.00</td>
</tr>
<tr>
<td><strong>Virtualization:</strong> VT-x</td>
</tr>
<tr>
<td><strong>L1d cache:</strong> 32K</td>
</tr>
<tr>
<td><strong>L1i cache:</strong> 32K</td>
</tr>
<tr>
<td><strong>L2 cache:</strong> 1024K</td>
</tr>
<tr>
<td><strong>L3 cache:</strong> 14080K</td>
</tr>
<tr>
<td><strong>NUMA node0 CPU(s):</strong> 0-9,20-29</td>
</tr>
<tr>
<td><strong>NUMA node1 CPU(s):</strong> 10-19,30-39</td>
</tr>
<tr>
<td><strong>Flags:</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

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**Platform Notes (Continued)**

- CPU MHz: 2500.000
- CPU max MHz: 3400.0000
- CPU min MHz: 1000.0000
- BogoMIPS: 5000.00
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 14080K
- NUMA node0 CPU(s): 0-9,20-29
- NUMA node1 CPU(s): 10-19,30-39
- 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
- aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
- xtpref pdcm pcid dcasse4_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_pinn ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow vnmi
- flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
- cmq mxpx rdtd_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
- avx512bw avx512vl xsaveopt xsaves xgetbv1 xsaves cmqm_llc cmq_occup_llc cmq_mbb_total
- cmq_mbb_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku
- ospke avx512_vnni flush_lid arch_capabilities

---

**/proc/cpuinfo cache data**

- cache size : 14080 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 8 9 20 21 22 23 24 25 26 27 28 29
- node 0 size: 385423 MB
- node 0 free: 384839 MB
- node 1 cpus: 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39
- node 1 size: 386826 MB
- node 1 free: 386381 MB
- node distances:
  - node 0 1
  - 0: 10 21
  - 1: 21 10

---

**From /proc/meminfo**

- MemTotal: 790784120 kB
- HugePages_Total: 0
- Hugepagesize: 2048 KB

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From /etc/*release* /etc/*version*

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SPECRate®2017_int_base = 121
SPECRate®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)

```plaintext
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-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 24 02:42

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 2666
  23x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2666

(End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C       | 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,
Fujitsu
PRIMERGY RX2530 M5, Intel Xeon Gold 5215, 2.50 GHz

SPECrater®2017_int_base = 121
SPECrater®2017_int_peak = Not Run

Compiler Version Notes (Continued)

Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

---------------------------------------------------------------------

C++    | 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 19.0.4.227 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
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

---------------------------------------------------------------------

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

(Continued on next page)
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PRIMERGY RX2530 M5, Intel Xeon Gold 5215, 2.50 GHz

<table>
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**SPECrate®2017_int_peak** = Not Run

---

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

## Base Portability Flags (Continued)

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_2019.4.227/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_2019.4.227/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_2019.4.227/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:

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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 2019-10-23 13:43:54-0400.  
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