# SPEC CPU®2017 Integer Rate Result

**Fujitsu**

PRIMERGY RX2540 M5, Intel Xeon Gold 6208U, 2.90 GHz

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>Not Run</td>
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**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** Mar-2020  
**Hardware Availability:** Feb-2020  
**Software Availability:** May-2019

<table>
<thead>
<tr>
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<td>119</td>
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<tr>
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<td>218</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>32</td>
<td>70.0</td>
</tr>
</tbody>
</table>

### Hardware

**CPU Name:** Intel Xeon Gold 6208U  
**Max MHz:** 3900  
**Nominal:** 2900  
**Enabled:** 16 cores, 1 chip, 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, 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 Version V5.0.0.14 R1.18.0 for D3384-B1x released Apr-2020  
**File System:** xfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** None  
**Power Management:** BIOS set to prefer performance at the cost of additional power usage
Results Table

<table>
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<th>Ratio</th>
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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

Environment Variables Notes
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
"/home/Benchmark/speccpu2017-1.1.0/lib/intel64:/home/Benchmark/speccpu2017-1.1.0/lib/ia32:/home/Benchmark/speccpu2017-1.1.0/je5.0.1-32"

General Notes
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

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**General Notes (Continued)**

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.
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:**
Stale AtoS = Enabled
Patrol Scrub = Disabled
WR CRC feature Control = Disabled
Fan Control = Full

Sysinfo program /home/Benchmark/speccpu2017-1.1.0/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7eb1e6e46a485a0011
running on RX2540M5_CLXR Mon Mar 9 13:23:57 2020

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 6208U CPU @ 2.90GHz
  1 "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 : 16
siblings : 32
physical 0: 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): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 16
Socket(s): 1
NUMA node(s): 2
Vendor ID: GenuineIntel

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

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PRIMERGY RX2540 M5, Intel Xeon Gold 6208U, 2.90 GHz

SPECraten®2017_int_base = 108
SPECraten®2017_int_peak = Not Run

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

Test Date: Mar-2020
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Platform Notes (Continued)

CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6208U CPU @ 2.90GHz
Stepping: 7
CPU MHz: 2900.000
CPU max MHz: 3900.0000
CPU min MHz: 1200.0000
BogoMIPS: 5800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 22528K
NUMA node0 CPU(s): 0-3,8-11,16-19,24-27
NUMA node1 CPU(s): 4-7,12-15,20-23,28-31
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 rdtscp
lm constant_tsc arch_perfmon pebs bts rep_good ntopology nonstop_tsc cpuid
aperfperf perf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
x2apic pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 cdp_l3
invcpcid_single intel_pm pending mba ibrs ibpb ibrs_enhanced tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erva invpcid rtm
cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsavevc xgetbv1 xsaveas cqm_l1c cqmm_occpr lll cqm_mbb total
cqm_mbb_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pge 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: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 8 9 10 11 16 17 18 19 24 25 26 27
node 0 size: 191946 MB
node 0 free: 191541 MB
node 1 cpus: 4 5 6 7 12 13 14 15 20 21 22 23 28 29 30 31
node 1 size: 193321 MB
node 1 free: 192923 MB
node distances:
node 0: 1
0: 10 11
1: 11 10

From /proc/meminfo
MemTotal: 394514732 kB

(Continued on next page)
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<tr>
<td>= 108</td>
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Test Date: Mar-2020
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**Platform Notes (Continued)**

| 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 RX2540M5_CLXR 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-2018-3620 (L1 Terminal Fault): | Not affected |
| CVE-2017-5754 (Meltdown):          | No status reported |
| CVE-2018-3639 (Speculative Store Bypass): | Mitigation: Speculative Store Bypass disabled via prctl and seccomp |
| 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 Mar 9 13:21

SPECC is set to: /home/Benchmark/speccpu2017-1.1.0

```
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda5      xfs   191G  113G   78G  60% /home
```

From /sys/devices/virtual/dmi/id

| BIOS: FUJITSU // American Megatrends Inc. V5.0.0.14 R1.18.0 for D3384-B1x |
| 02/10/2020 |
| Vendor: FUJITSU |
| Product: PRIMERGY RX2540 M5 |
| Product Family: SERVER |
| Serial: YMSQXXXXXX |

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.

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Platform Notes (Continued)

Memory:
12x NO DIMM NO DIMM
12x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

(End of data from sysinfo program)

Compiler Version Notes

<table>
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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.

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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
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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_2019.4.227/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:  
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-CSL-RevE.xml
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