**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**

PRIMERGY TX2550 M5, Intel Xeon Gold 6230R, 2.10 GHz

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
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<tbody>
<tr>
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**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test Date:** Mar-2020  
**Hardware Availability:** May-2019  
**Software Availability:** May-2019

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**Hardware**

**CPU Name:** Intel Xeon Gold 6230R  
**Max MHz:** 4000  
**Nominal:** 2100  
**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:** 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)  
**Storage:** 1 x SATA M.2 SSD, 480 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 D3386-B1x released Apr-2020  
**File System:** btrfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Power Management:** BIOS set to prefer performance at the cost of additional power usage
## SPEC® CPU®2017 Integer Rate Result

**Fujitsu**

PRIMERGY TX2550 M5, Intel Xeon Gold 6230R, 2.10 GHz

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### Results Table

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**SPECrate®2017_int_base = 274**

**SPECrate®2017_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=1-103

### 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/speccpu20
17-1.1.0/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
```

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

Fujitsu

PRIMERGY TX2550 M5, Intel Xeon Gold 6230R, 2.10 GHz

| SPECrate®2017_int_base = | 274 |
| SPECrate®2017_int_peak = | Not Run |

| CPU2017 License: | 19 |
| Test Sponsor: | Fujitsu |
| Tested by: | Fujitsu |
| Test Date: | Mar-2020 |
| Hardware Availability: | May-2019 |
| Software Availability: | May-2019 |

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:
DCU Streamer Prefetcher = Disabled
DCU Ip Prefetcher = Disabled
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 295195f888a3d7ed8b1e6e46a485a0011
running on TX2550M5 Fri Mar 13 19:05:34 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 6230R CPU @ 2.10GHz
- 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

(Continued on next page)
Fujitsu
PRIMERGY TX2550 M5, Intel Xeon Gold 6230R, 2.10 GHz

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

SPECrater®2017_int_base = 274
SPECrater®2017_int_peak = Not Run

Test Date: Mar-2020
Hardware Availability: May-2019
Software Availability: May-2019

Platform Notes (Continued)

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
Model name: Intel(R) Xeon(R) Gold 6230R CPU @ 2.10GHz
Stepping: 7
CPU MHz: 2100.000
CPU max MHz: 4000.0000
CPU min MHz: 1000.0000
BogoMIPS: 4200.00
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): 26-29,33-35,39-41,46-48,78-81,85-87,91-93,98-100
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 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_tsc cpuid
aperfmpref 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 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3
invpcid_single intel_patin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmi
flexpriority eps vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl avx512vnni xsaveopt xsaves xsaveopt xgetbv1 xsaves cqm_ltc
cqm_occup_ltc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp
day_handler kernel unicode cqm_mbb

/platform/cpupower

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: 95032 MB
node 0 free: 91262 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: 96763 MB
node 1 free: 96494 MB

(Continued on next page)
Fujitsu
PRIMERGY TX2550 M5, Intel Xeon Gold 6230R, 2.10 GHz

SPECrates® 2017_int_base = 274
SPECrates® 2017_int_peak = Not Run

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

Platform Notes (Continued)

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 99 100
node 2 size: 96763 MB
node 2 free: 96527 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 97 101 102 103
node 3 size: 96543 MB
node 3 free: 96291 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: 394344048 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

uname -a:
Linux TX2550M5 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
Microarchitectural Data Sampling:
CVE-2017-5754 (Meltdown): Not affected
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 13 19:00

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

Fujitsu
PRIMERGY TX2550 M5, Intel Xeon Gold 6230R, 2.10 GHz

SPECrate®2017_int_base = 274
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Platform Notes (Continued)

SPEC is set to: /home/Benchmark/speccpu2017-1.1.0
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 btrfs 445G 59G 386G 14% /home

From /sys/devices/virtual/dmi/id
BIOS: FUJITSU // American Megatrends Inc. V5.0.0.14 R1.18.0 for D3386-B1x 02/10/2020
Vendor: FUJITSU
Product: PRIMERGY TX2550 M5
Product Family: SERVER
Serial: YMNSXXXX17

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.
Memory:
11x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933, configured at 2934
1x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

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,
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)

(Continued on next page)
**Fujitsu**

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**Compiler Version Notes (Continued)**

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  
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`
### Fujitsu

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**SPECrate®2017_int_base = 274**

**SPECrate®2017_int_peak = Not Run**

### Base Optimization Flags (Continued)

C++ benchmarks (continued):

- `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: