Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6242, 2.80 GHz

| SPECrate2017_int_base = | 211 |
| SPECrate2017_int_peak = | Not Run |

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

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate2017_int_base (211)</th>
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<tbody>
<tr>
<td>500.perlbench_r 64</td>
<td>165</td>
</tr>
<tr>
<td>502.gcc_r 64</td>
<td>161</td>
</tr>
<tr>
<td>505.mcf_r 64</td>
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<tr>
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<td></td>
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<tr>
<td>557.xz_r 64</td>
<td></td>
</tr>
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</table>

Hardware
CPU Name: Intel Xeon Gold 6242
Max MHz.: 3900
Nominal: 2800
Enabled: 32 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: 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
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 V1.0.0.0 R1.3.3 for D3853-B1x
Released Jun-2019 tested as V1.0.0.0 R1.6.0 for D3853-B1x Mar-2019
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
SPEC CPU2017 Integer Rate Result

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Results Table

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SPECrate2017_int_base = 211
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=1-63

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-1.0.5_rate_int/lib/intel64"

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>
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)
### SPEC CPU2017 Integer Rate Result

**Fujitsu**

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| CPU2017 License | 19 |
| Test Sponsor | Fujitsu |
| Tested by | Fujitsu |
| Test Date | Apr-2019 |
| Hardware Availability | Apr-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:
- Adjacent Cache Line Prefetch = Disabled
- DCU Ip Prefetcher = Disabled
- DCU Streamer Prefetcher = Disabled
- Power Technology = Custom
- Energy Performance = Balanced Performance
- Uncore Frequency Scaling = Disabled
- Sub NUMA Clustering = Enabled
- Stale AtoS = Enable
- LLC Prefetch = Enabled

Sysinfo program /home/Benchmark/speccpu2017-1.0.5_rate_int/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-5cpq Wed Apr 17 00:19:58 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 6242 CPU @ 2.80GHz
  - 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:
- 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

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

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**Platform Notes (Continued)**

- Model: 85
- Model name: Intel(R) Xeon(R) Gold 6242 CPU @ 2.80GHz
- Stepping: 6
- CPU MHz: 2800.000
- CPU max MHz: 3900.0000
- CPU min MHz: 1200.0000
- BogoMIPS: 5600.00
- 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): 20-23,28-31,60-63
- 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 art 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 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single intel_ppn ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bm1 hle avx2 smep bmi2 erms invpcid tpm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pni pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni flush_lid arch_capabilities

```
From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a physical chip.
```

---

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

node distances:
node  0  1  2  3
  0: 10 11 19 19
  1: 11 10 19 19
  2: 19 19 10 11
  3: 19 19 11 10

From `/proc/meminfo`
- MemTotal: 394971828 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 linux-5cpq 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 17 00:14

SPEC is set to: /home/Benchmark/speccpu2017-1.0.5_rate_int
- Filesystem     Type   Size  Used Avail Use% Mounted on
- /dev/sda2      btrfs  117G   48G   69G  41% /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 V1.0.0.0 R1.3.3 for D3853-B1x 03/15/2019
- Memory:
  - 12x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933
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Hardware Availability: Apr-2019
Software Availability: Feb-2019

Platform Notes (Continued)

4x Not Specified Not Specified

(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:
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