## SPEC CPU®2017 Floating Point Rate Result

### Fujitsu

PRIMERGY CX2570 M5, Intel Xeon Gold 6258R, 2.70 GHz

| Copies | 0 | 40.0 | 80.0 | 120 | 160 | 200 | 240 | 280 | 320 | 360 | 400 | 440 | 480 | 520 | 560 | 600 | 640 | 680 | 720 | 760 | 800 | 840 | 880 | 920 | 960 | 1000 |
|--------|---|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 503.bwaves_r | 112 | 248 |
| 507.cactuBSSN_r | 112 | 248 |
| 508.namd_r | 112 | 245 |
| 510.parest_r | 112 | 124 |
| 511.povray_r | 112 | 369 |
| 519.lbm_r | 112 | 125 |
| 521.wrf_r | 112 | 225 |
| 526.blender_r | 112 | 329 |
| 527.cam4_r | 112 | 339 |
| 538.imagick_r | 112 | 746 |
| 544.nab_r | 112 | 573 |
| 549.fotonik3d_r | 112 | 164 |
| 554.roms_r | 112 | 94.8 |

**SPECrate®2017_fp_base = 263**

**SPECrate®2017_fp_peak = Not Run**

<table>
<thead>
<tr>
<th>CPU2017 License: 19</th>
<th>Test Date: Mar-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Fujitsu</td>
<td>Hardware Availability: Feb-2020</td>
</tr>
<tr>
<td>Tested by: Fujitsu</td>
<td>Software Availability: May-2019</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 6258R
- **Max MHz:** 4000
- **Nominal:** 2700
- **Enabled:** 56 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:** 38.5 MB I+D on chip per chip
- **Memory:** 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)
- **Storage:** 1 x SATA M.2 SSD, 240 GB
- **Other:** None
- **OS:** SUSE Linux Enterprise Server 15 4.12.14-25.28-default
- **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 V1.0.0.0 R1.13.0 for D3854-B1x released Feb-2020
- **File System:** btrfs
- **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
Fujitsu
PRIMERGY CX2570 M5, Intel Xeon Gold 6258R, 2.70 GHz

CPU2017 License: 19
Test Sponsor: Fujitsu
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
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<td>1877</td>
<td>94.8</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=1-111

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"

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

(Continued on next page)
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CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

SPECrater®2017_fp_base = 263
SPECrater®2017_fp_peak = Not Run

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

General Notes (Continued)

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.
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:
Power Technology = Custom
Energy Performance = Balanced Performance
Uncore Frequency Scaling = Disabled
Sub NUMA Clustering = Enabled
LLC Prefetch = Enabled

Sysinfo program /home/Benchmark/speccpu2017-1.1.0/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbbe6e46a485a0011
running on linux-dftw Thu Mar 5 03:29:50 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 6258R CPU @ 2.70GHz
  2 "physical id"s (chips)
  112 "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: 28
siblings: 56
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 112

(Continued on next page)
Platform Notes (Continued)

On-line CPU(s) list: 0-111
Thread(s) per core: 2
Core(s) per socket: 28
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6258R CPU @ 2.70GHz
Stepping: 7
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: 39424K
NUMA node0 CPU(s): 0-3,7-9,14-17,21-23,56-59,63-65,70-73,77-79
NUMA node1 CPU(s): 4-6,10-13,18-20,24-27,60-62,66-69,74-76,80-83
NUMA node2 CPU(s): 28-31,35-37,42-45,49-51,84-87,91-93,98-101,105-107
NUMA node3 CPU(s): 32-34,38-41,46-48,52-55,58-60,94-97,102-104,108-111
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acp1 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
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_pppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mpx rdtx a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsave avx512_vnni flush_l1d arch_capabilities

/proc/cpuinfo cache data
cache size : 39424 KB

From numacl --hardware WARNING: a numacl '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 14 15 16 17 21 22 23 56 57 58 59 63 64 65 70 71 72 73 77 78
79
node 0 size: 95377 MB
node 0 free: 95010 MB
node 1 cpus: 4 5 6 10 11 12 13 18 19 20 24 25 26 27 60 61 62 66 67 68 69 74 75 76 80 81

(Continued on next page)
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Fujitsu

**SPECrate®2017_fp_base =** 263
**SPECrate®2017_fp_peak =** Not Run

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</tr>
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</table>

**Platform Notes (Continued)**

```
82 83
node 1 size: 96756 MB
node 1 free: 96328 MB
node 2 cpus: 28 29 30 31 35 36 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57
101 105 106 107
node 2 size: 96756 MB
node 2 free: 96506 MB
node 3 cpus: 32 33 34 38 40 41 46 47 48 52 53 54 55 56 57 58 59 60 64 65 66 67
108 109 110 111
node 3 size: 96753 MB
node 3 free: 96512 MB
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:       394898000 kB
- HugePages_Total:       0
- Hugepagesize:       2048 kB

From `/etc/*release*` /`/etc/*version*`
- 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-dftw 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:           No status reported
- 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,

(Continued on next page)
## Fujitsu

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</table>

### SPECrate®2017_fp_base = 263

### SPECrate®2017_fp_peak = Not Run

### Platform Notes (Continued)

**RSB filling**

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**run-level 3 Mar 5 03:27**

**SPEC is set to:** /home/Benchmark/speccpu2017-1.1.0

**Filesystem**

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>btrfs</td>
<td>238G</td>
<td>96G</td>
<td>141G</td>
<td>41%</td>
<td>/home</td>
</tr>
</tbody>
</table>

**From /sys/devices/virtual/dmi/id**

**BIOS:** FUJITSU V1.0.0.0 R1.13.0 for D3854-B1x

**Vendor:** FUJITSU

**Product:** PRIMERGY CX2570 M5

**Product Family:** SERVER

**Serial:** YMPE000005

**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:**

- 12x Micron 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933
- 4x Not Specified Not Specified

(End of data from sysinfo program)

### Compiler Version Notes

**C**

```
| 519.lbm_r(base) 538.imagick_r(base) 544.nab_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++**

```
| 508.namd_r(base) 510.parest_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++, C**

```
| 511.povray_r(base) 526.blender_r(base) |
```

(Continued on next page)
**Base Compiler Invocation**

C benchmarks:

```bash
icc -m64 -std=c11
```

(Continued on next page)
### Base Compiler Invocation (Continued)

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

Fortran benchmarks:
```bash
ifort -m64
```

Benchmarks using both Fortran and C:
```bash
ifort -m64 icc -m64 -std=c11
```

Benchmarks using both C and C++:
```bash
icpc -m64 icc -m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```bash
icpc -m64 icc -m64 -std=c11 ifort -m64
```

### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tbody>
<tr>
<td>503.bwaves_r</td>
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<tr>
<td>519.lbm_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>-DSPEC_LP64 -DSPEC_LINUX -funsigned-char</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>-DSPEC_LP64 -DSPEC_CASE_FLAG</td>
</tr>
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</table>

### Base Optimization Flags

C benchmarks:
```bash
-xCORE-AVX2  -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4
```

C++ benchmarks:
```bash
-xCORE-AVX2  -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4
```
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Base Optimization Flags (Continued)

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs
-align array32byte

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs
-align array32byte

Benchmarks using both C and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs
-align array32byte

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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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.0 on 2020-03-04 13:29:49-0500.