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

Test Date: Apr-2019
Hardware Availability: May-2019
Software Availability: Feb-2019

CPU Name: Intel Xeon Gold 6248
Max MHz.: 3900
Nominal: 2500
Enabled: 40 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: 27.5 MB I+D on chip per chip
Other: None
Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1 x SATA M.2 SSD, 240GB
Other: None

Compiler: C/C++: Version 19.0.0.117 of Intel C/C++ Compiler for Linux;
Fortran: Version 19.0.0.117 of Intel Fortran Compiler for Linux
Parallel: No
Firmware: Fujitsu BIOS Version V5.0.0.14 R1.8.0 for D3384-B1x. Released Jun-2019 tested as V5.0.0.14 R1.2.0 for D3384-B1x Feb-2019
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
SPEC CPU2017 Floating Point Rate Result

Fujitsu

PRIMERGY RX2540 M5, Intel Xeon Gold 6248, 2.50 GHz

|
| SPECrate2017_fp_base = | 229 |
| SPECrate2017_fp_peak = | Not Run |

CPU2017 License: 19  
Test Sponsor: Fujitsu  
Tested by: Fujitsu  
Test Date: Apr-2019  
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Results Table

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</tbody>
</table>

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  
Process tuning settings:  
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns

General Notes

Environment variables set by runcpu before the start of the run:  
LD_LIBRARY_PATH = "~/home/Benchmark/speccpu2017-1.0.5/icc19-lib/intel64"

Binaries compiled on a system with 2x Intel Xeon E5-2667 v2 CPU + 64GB RAM  
memory using SUSE Linux Enterprise Server 12 SP2  
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.:
**General Notes (Continued)**

numactl --interleave=all runcpu <etc>

Yes: 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:
Patrol Scrub  = Disabled
WR CRC feature Control = Disabled
Fan Control = Full
Sysinfo program /home/Benchmark/speccpu2017-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on RX2540M5 Wed Apr 17 15:00:10 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 6248 CPU @ 2.50GHz
  2 "physical id"s (chips)
  80 "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 : 20
siblings : 40
physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 80
On-line CPU(s) list: 0-79
Thread(s) per core: 2
Core(s) per socket: 20
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85

(Continued on next page)
## SPEC CPU2017 Floating Point Rate Result

**Fujitsu**

PRIMERGY RX2540 M5, Intel Xeon Gold 6248, 2.50 GHz

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>Not Run</th>
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<tbody>
<tr>
<td>SPECrate2017_fp_peak</td>
<td>229</td>
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</table>

**CPU2017 License:** 19

**Test Date:** Apr-2019

**Test Sponsor:** Fujitsu

**Hardware Availability:** May-2019

**Tested by:** Fujitsu

**Software Availability:** Feb-2019

---

### Platform Notes (Continued)

Model name: Intel(R) Xeon(R) Gold 6248 CPU @ 2.50GHz  
Stepping: 6  
CPU MHz: 2500.000  
CPU max MHz: 3900.0000  
CPU min MHz: 1000.0000  
BogoMIPS: 5000.00  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K  
L3 cache: 28160K  
NUMA node0 CPU(s): 0-2,5,6,10-12,15,16,40-42,45,46,50-52,55,56  
NUMA node1 CPU(s): 3,4,7-9,13,14,17,43,44,47-49,53,54,55,57-59  
NUMA node2 CPU(s): 20-22,25,26,30-32,35,36,60-62,65,66,70-72,75,76  
NUMA node3 CPU(s): 23,24,27-29,33,34,37-39,63,64,67-69,73,74,77-79  
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 pdpte1gb rdtsscp lm constant_tsc art arch_perfmon pebs bs rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64监控 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 3nowprefetch cpuid_fault epb cat_l3 cdp_l3 invvpcl_single ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2  ibrms invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xsaveopt xgetbv1 xsave csaves cqm_llc cqm_occup LLC cqm_mbb_total cqm_mbb_local dtcstrom ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni flush_lld arch_capabilities

```
/proc/cpuinfo cache data
size: 28160 KB
```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.  
available: 4 nodes (0-3)  
nodes 0 cpus: 0 1 2 5 6 10 11 12 15 16 40 41 42 45 46 50 51 52 55 56  
nodes 0 size: 191938 MB  
nodes 0 free: 191615 MB  
nodes 1 cpus: 3 4 7 8 9 13 14 17 18 19 44 47 48 49 53 54 57 58 59  
nodes 1 size: 193532 MB  
nodes 1 free: 193110 MB  
nodes 2 cpus: 20 21 22 25 26 30 31 32 35 36 66 67 69 70 71 72 75 76  
nodes 2 size: 193532 MB  
nodes 2 free: 193260 MB  
nodes 3 cpus: 23 24 27 28 29 33 34 37 38 39 63 64 67 68 69 73 74 77 78 79  
nodes 3 size: 193319 MB  
nodes 3 free: 193064 MB

---

(Continued on next page)
### SPEC CPU2017 Floating Point Rate Result

**Fujitsu**  
PRIMERGY RX2540 M5, Intel Xeon Gold 6248, 2.50 GHz  

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

#### Platform Notes (Continued)

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<td>11</td>
<td>21</td>
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<td>1:</td>
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<tr>
<td>2:</td>
<td>21</td>
<td>21</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>3:</td>
<td>21</td>
<td>21</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

From `/proc/meminfo`  
- **MemTotal:** 790857828 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 RX2540M5 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 14:58**

**SPEC is set to:** /home/Benchmark/speccpu2017-1.0.5  
**Filesystem** | **Type** | **Size** | **Used** | **Avail** | **Use%** | **Mounted on**
|----------------|---------|---------|---------|----------|---------|----------------|
| /dev/sda5      | xfs     | 191G    | 57G     | 135G     | 30%     | /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 R1.2.0 for D3384-B1x**  
02/28/2019  
**Memory:**  
- 24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

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

(End of data from sysinfo program)

### Compiler Version Notes

<table>
<thead>
<tr>
<th>Compiler</th>
<th>Version</th>
<th>Flags</th>
<th>License</th>
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<td>CC</td>
<td>519.lbm_r(base)</td>
<td>538.imagick_r(base)</td>
<td>544.nab_r(base)</td>
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<tr>
<td>icc (ICC)</td>
<td>19.0.0.117 20180804</td>
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<tr>
<td>Copyright (C) 1985-2018 Intel Corporation. All rights reserved.</td>
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</table>

| CXXC | 508.namd_r(base) | 510.parest_r(base) |
| icpc (ICC) | 19.0.0.117 20180804 | |
| Copyright (C) 1985-2018 Intel Corporation. All rights reserved. |

| CC | 511.povray_r(base) | 526.blender_r(base) |
| icpc (ICC) | 19.0.0.117 20180804 |  |
| Copyright (C) 1985-2018 Intel Corporation. All rights reserved. |
| icc (ICC) | 19.0.0.117 20180804 |  |
| Copyright (C) 1985-2018 Intel Corporation. All rights reserved. |

| FC | 507.cactuBSSN_r(base) |
| icpc (ICC) | 19.0.0.117 20180804 |
| Copyright (C) 1985-2018 Intel Corporation. All rights reserved. |
| icc (ICC) | 19.0.0.117 20180804 |
| Copyright (C) 1985-2018 Intel Corporation. All rights reserved. |
| ifort (IFORT) | 19.0.0.117 20180804 |
| Copyright (C) 1985-2018 Intel Corporation. All rights reserved. |

| FC | 503.bwaves_r(base) | 549.fotonik3d_r(base) | 554.roms_r(base) |
| ifort (IFORT) | 19.0.0.117 20180804 |  |
| Copyright (C) 1985-2018 Intel Corporation. All rights reserved. |

(Continued on next page)
Fujitsu
PRIMERGY RX2540 M5, Intel Xeon Gold 6248, 2.50 GHz

**SPEC CPU2017 Floating Point Rate Result**

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---

**Compiler Version Notes (Continued)**

```plaintext
CC  521.wrf_r(base) 527.cam4_r(base)
ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

---

**Base Compiler Invocation**

C benchmarks:
```plaintext
icc -m64 -std=c11
```

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

Fortran benchmarks:
```plaintext
ifort -m64
```

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

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

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

---

**Base Portability Flags**

```plaintext
503.bwaves_r: -DSPEC_LP64
507.cactusBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
```

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

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| SPECrate2017_fp_base = | 229 |
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---

**Base Portability Flags (Continued)**

554.roms_r: -DSPEC_LP64

---

**Base Optimization Flags**

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both C and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

---

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-RevA.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 CPU2017 v1.0.5 on 2019-04-17 02:00:10-0400.  
Report generated on 2019-05-23 13:00:22 by CPU2017 PDF formatter v6067.  