## Fujitsu

**PRIMERGY CX2550 M5, Intel Xeon Gold 6258R, 2.70 GHz**

| SPECrate®2017_fp_base | 265 |
| SPECrate®2017_fp_peak | Not Run |

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

### 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  
- **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 V1.0.0.0 R1.13.0 for D3853-B1x released Apr-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 CX2550 M5, Intel Xeon Gold 6258R, 2.70 GHz

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

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>First:</th>
<th>Second:</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>112</td>
<td>2226</td>
<td>505</td>
<td>2215</td>
<td>507</td>
<td>2218</td>
<td>506</td>
<td></td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>112</td>
<td>567</td>
<td>250</td>
<td>568</td>
<td>250</td>
<td>567</td>
<td>250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>112</td>
<td>431</td>
<td>247</td>
<td>430</td>
<td>248</td>
<td>430</td>
<td>248</td>
<td></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>112</td>
<td>2363</td>
<td>124</td>
<td>2352</td>
<td>125</td>
<td>2351</td>
<td>125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>112</td>
<td>699</td>
<td>374</td>
<td>701</td>
<td>373</td>
<td>702</td>
<td>372</td>
<td></td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>112</td>
<td>948</td>
<td>124</td>
<td>948</td>
<td>124</td>
<td>948</td>
<td>125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>112</td>
<td>1118</td>
<td>224</td>
<td>1117</td>
<td>225</td>
<td>1116</td>
<td>225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>112</td>
<td>514</td>
<td>332</td>
<td>514</td>
<td>332</td>
<td>514</td>
<td>332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>112</td>
<td>571</td>
<td>343</td>
<td>576</td>
<td>340</td>
<td>579</td>
<td>338</td>
<td></td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>112</td>
<td>369</td>
<td>754</td>
<td>371</td>
<td>751</td>
<td>371</td>
<td>751</td>
<td></td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>112</td>
<td>326</td>
<td>578</td>
<td>321</td>
<td>587</td>
<td>323</td>
<td>584</td>
<td></td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>112</td>
<td>2636</td>
<td>166</td>
<td>2631</td>
<td>166</td>
<td>2637</td>
<td>166</td>
<td></td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>112</td>
<td>1884</td>
<td>94.4</td>
<td>1877</td>
<td>94.8</td>
<td>1878</td>
<td>94.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECrate®2017_fp_base = 265
SPECrate®2017_fp_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=1-111

**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)
**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 295195f888a3d7ed1b1e6e46a485a0011
running on linux-dftw Wed Feb 19 23:49:50 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](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)
Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6258R, 2.70 GHz

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

SPECrater®2017_fp_base = 265
SPECrater®2017_fp_peak = Not Run

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: 4000.000
CPU min MHz: 1000.000
BogoMIPS: 5400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 39424K
NUMA node0 CPU(s): 0-3,7-9,14-17,21-23,25-27,30-36,38-40,42-45,47-50,52-55,57-59,63-65,67-70,72-73,77-79
NUMA node1 CPU(s): 4-6,10-13,18-20,24-27,31-34,36-39,46-49,51-54,56-59,60-63,66-69,71-74,76-79,80-83

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 nopl xtopology nonstop_tsc cpuid aperfform perf pni pclmulqdq dtstor64 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 cld3 invpcid_single intel_patin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept viol 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 xsaveopt xsavec xsaveq xsaves cqm_llc cqm_occnp_llc cqm_mmm_total cqm_mmm_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni flush_l1d arch_capabilities

/proc/cpuinfo cache data
cache size: 39424 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 14 15 16 17 21 22 23 56 57 58 59 63 64 65 70 71 72 73 77 78 79
node 0 size: 95406 MB
node 0 free: 94965 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)
Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6258R, 2.70 GHz

SPECrate®2017_fp_base = 265
SPECrate®2017_fp_peak = Not Run

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

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

Platform Notes (Continued)

82 83
node 1 size: 96756 MB
node 1 free: 96500 MB
node 2 cpus: 28 29 30 31 35 36 42 43 44 45 49 50 51 84 85 86 87 91 92 93 98 99 100 101 105 106 107
node 2 size: 96756 MB
node 2 free: 96525 MB
node 3 cpus: 32 33 34 38 39 40 41 46 47 48 52 53 54 55 88 89 90 94 95 96 97 102 103 104 108 109 110 111
node 3 size: 96724 MB
node 3 free: 96464 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: 394898064 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-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,
Platform Notes (Continued)

RSB filling

run-level 3 Feb 19 23:43

SPEC is set to: /home/Benchmark/spec_cpu2017-1.1.0

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 btrfs 238G 96G 142G 41% /home

From /sys/devices/virtual/dmi/id
BIOS: FUJITSU V1.0.0.0 R1.13.0 for D3853-B1x 02/06/2020
Vendor: FUJITSU
Product: PRIMERGY CX2550 M5
Product Family: SERVER
Serial: YMPC000001

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)
Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6258R, 2.70 GHz

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

Fujitsu

**SPECrate®2017_fp_base = 265**

**SPECrate®2017_fp_peak = Not Run**

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

---

### Compiler Version Notes (Continued)

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.

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.

---

**Base Compiler Invocation**

C benchmarks:
```
icc -m64 -std=c11
```
Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6258R, 2.70 GHz

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>= 265</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>= Not Run</td>
</tr>
</tbody>
</table>

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

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

Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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

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

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

Base Portability Flags

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_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
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=4

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

(Continued on next page)
Fujitsu
PRIMERGY CX2550 M5, Intel Xeon Gold 6258R, 2.70 GHz

SPECrate®2017_fp_base = 265
SPECrate®2017_fp_peak = Not Run

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

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

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 2020-02-19 09:49:49-0500.
Originally published on 2020-04-14.