**SPEC® CPU2017 Floating Point Rate Result**

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**Fujitsu**

PRIMERGY RX2530 M4, Intel Xeon Gold 5115, 2.40GHz

SPECTate2017_fp_base = **113**

SPECTate2017_fp_peak = **Not Run**

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**CPU2017 License:** 19

**Test Date:** Mar-2018

**Test Sponsor:** Fujitsu

**Hardware Availability:** Jul-2017

**Tested by:** Fujitsu

**Software Availability:** Feb-2018

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<table>
<thead>
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<th>Copies</th>
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<tr>
<td>554.roms_r</td>
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<td>SPECrate2017_fp_base (113)</td>
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</tbody>
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**Hardware**

- **CPU Name:** Intel Xeon Gold 5115
- **Max MHz.:** 3200
- **Nominal:** 2400
- **Enabled:** 20 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:** 13.75 MB I+D on chip per chip
- **Other:** None
- **Memory:** 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R, running at 2400)
- **Storage:** 384 GB tmpfs
- **Other:** 1 x SATA HDD, 1000 GB, 7200 RPM, used for swap

**Software**

- **OS:** SUSE Linux Enterprise Server 12 SP2 4.4.14-92.64-default
- **Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux;
  Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
- **Parallel:** No
- **Firmware:** Fujitsu BIOS Version V5.0.0.12 R1.17.0 for D3383-A1x. Released Feb-2018
- **File System:** tmpfs
- **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 RX2530 M4, Intel Xeon Gold 5115, 2.40GHz

**SPECrate2017_fp_base** = 113  
**SPECrate2017_fp_peak** = Not Run

## Results Table

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</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"
Set Kernel Boot Parameter: nohz_full=1-39  
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance  
Set tmpfs filesystem with:
mkdir /home/memory  
mount -t tmpfs -o size=384g,rw tmpfs /home/memory  
Process tuning settings:
cpu idle state set with:
cpupower idle-set -d 1

## General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/memory/speccpu/lib/ia32:/home/memory/speccpu/lib/intel64"
LD_LIBRARY_PATH = "*/home/memory/speccpu/lib/ia32:/home/memory/speccpu/lib/intel64"

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

Fujitsu
PRIMERGY RX2530 M4, Intel Xeon Gold 5115, 2.40GHz

SPECrate2017_fp_base = 113
SPECrate2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Test Date: Mar-2018
Hardware Availability: Jul-2017
Software Availability: Feb-2018

General Notes (Continued)

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4
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>

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:
DCU Streamer Prefetcher = Disabled
Override OS Energy Performance = Enabled
Energy Performance = Performance
Package C State limit = C0
LLC Dead Line Alloc = Disabled
Stale AtoS = Enabled
Sub NUMA Clustering = Disabled
IMC Interleaving = 2-way
Fan Control = Full
Sysinfo program /home/memory/speccpu/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bccc091c0f
running on RX2530M4 Wed Mar 28 06:37:13 2018

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 5115 CPU @ 2.40GHz
    2 "physical id"s (chips)
    40 "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 : 10
    siblings : 20
    physical 0: cores 0 1 2 3 4 8 9 10 11 12
    physical 1: cores 0 1 2 3 4 8 9 10 11 12

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

From `lscpu`:
- **Architecture:** x86_64
- **CPU op-mode(s):** 32-bit, 64-bit
- **Byte Order:** Little Endian
- **CPU(s):** 40
- **On-line CPU(s) list:** 0-39
- **Thread(s) per core:** 2
- **Core(s) per socket:** 10
- **Socket(s):** 2
- **NUMA node(s):** 2
- **Vendor ID:** GenuineIntel
- **CPU family:** 6
- **Model:** 85
- **Model name:** Intel(R) Xeon(R) Gold 5115 CPU @ 2.40GHz
- **Stepping:** 4
- **CPU MHz:** 2894.072
- **CPU max MHz:** 3200.0000
- **CPU min MHz:** 1000.0000
- **BogoMIPS:** 4788.74
- **Virtualization:** VT-x
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 1024K
- **L3 cache:** 14080K
- **NUMA node0 CPU(s):** 0-9,20-29
- **NUMA node1 CPU(s):** 10-19,30-39
- **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 aperfmperf eagerfpu 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 ida arat epb invpcid_single pln pts dtherm hwp hwp_act_window hwp_epp hwp_pkg_req intel_pt rsb_ctxsw spec_ctrl retpoline kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ets invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavesvc xgetbv1 cqm_llc cqm_occip_llc

From `numactl --hardware` WARNING: a numactl 'node' might or might not correspond to a physical chip.
- **available:** 2 nodes (0-1)
- **node 0 cpus:** 0 1 2 3 4 5 6 7 8 9 20 21 22 23 24 25 26 27 28 29
- **node 0 size:** 191784 MB
- **node 0 free:** 182346 MB

(Continued on next page)
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Platform Notes (Continued)

node 1 cpus: 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39
node 1 size: 193388 MB
node 1 free: 192958 MB
node distances:
node 0 1
  0: 10 21
  1: 21 10

From /proc/meminfo
MemTotal: 394417256 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
SuSE-release:
  NAME="SLES"
  VERSION="12-SP2"
  VERSION_ID="12.2"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
Linux RX2530M4 4.4.114-92.64-default #1 SMP Thu Feb 1 19:18:19 UTC 2018 (c6ce5db)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 28 00:24

SPEC is set to: /home/memory/speccpu
Filesystem   Type   Size  Used  Avail Use% Mounted on
tmpfs        tmpfs    384G  8.8G  376G  3% /home/memory

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. V5.0.0.12 R1.17.0 for D3383-A1x

(Continued on next page)
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02/08/2018
Memory:
24x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666, configured at 2400

(End of data from sysinfo program)

Platform Notes (Continued)

Compiler Version Notes

==============================================================================
<p>| CC  519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)                  |
| icc (ICC) 18.0.0 20170811                                               |</p>
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**Compiler Version Notes (Continued)**

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```
--------------------------------------------------------------------------------
CC  521.wrf_r(base) 527.cam4_r(base)
--------------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------
```

**Base Compiler Invocation**

**C benchmarks:**
- icc

**C++ benchmarks:**
- icpc

**Fortran benchmarks:**
- ifort

**Benchmarks using both Fortran and C:**
- ifort icc

**Benchmarks using both C and C++:**
- icpc icc

**Benchmarks using Fortran, C, and C++:**
- icpc icc ifort

**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

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**Base Portability Flags (Continued)**

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=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 -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=3 -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=3

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte

---

**Base Other Flags**

C benchmarks:
-m64 -std=c11

C++ benchmarks:
-m64

Fortran benchmarks:
-m64

(Continued on next page)
Base Other Flags (Continued)

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

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

Benchmarks using Fortran, C, and C++:
- `m64 -std=c11`

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-V1.2-SKL-RevE.xml

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Tested with SPEC CPU2017 v1.0.2 on 2018-03-27 17:37:12-0400.
Originally published on 2018-04-17.