## SPEC® CPU2017 Floating Point Rate Result

**Fujitsu**
PRIMERGY TX1330 M4, Intel Xeon E-2146G, 3.50GHz

**SPECrate2017_fp_peak = 37.9**

**SPECrate2017_fp_base = 37.1**

**CPU2017 License:** 19

**Test Sponsor:** Fujitsu

**Test Date:** Oct-2018

**Hardware Availability:** Nov-2018

**Tested by:** Fujitsu

**Software Availability:** Sep-2018

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<td>554.roms_r</td>
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</table>

### Hardware
- **CPU Name:** Intel Xeon E-2146G
- **Max MHz.:** 4500
- **Nominal:** 3500
- **Enabled:** 6 cores, 1 chip
- **Orderable:** 1 chip
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 256 KB I+D on chip per core
- **L3:** 12 MB I+D on chip per chip
- **Other:** None
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)
- **Storage:** 1 x SATA HDD, 1TB, 7200RPM
- **Other:** None

### Software
- **OS:** SUSE Linux Enterprise Server 15 4.12.14-23-default
- **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 V5.0.0.13 R1.4.0 for D3673-A1x. Released Nov-2018 tested as V5.0.0.13 R1.0.0 for D3673-A1x Sep-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** None
Specifications:

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### Results Table

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</table>

**SPECrate2017_fp_base** = **37.1**  
**SPECrate2017_fp_peak** = **37.9**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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### Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"  
Process tuning settings:  
```
echo 500000 > /proc/sys/kernel/sched_cfs_bandwidth_slice_us
```  
Environment variables set by runcpu before the start of the run:  
```
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19-20181011/icc19-lib/intel64"
```  
Binaries compiled on a system with 2x Intel Xeon Silver 4108 CPU + 384GB 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
```  
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
SPEC CPU2017 Floating Point Rate Result

Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2146G, 3.50GHz

SPECrate2017_fp_base = 37.1
SPECrate2017_fp_peak = 37.9

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<td>Hardware Availability:</td>
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<td>Tested by:</td>
<td>Fujitsu</td>
<td>Software Availability:</td>
<td>Sep-2018</td>
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</tbody>
</table>

General Notes (Continued)

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:
Hyper-Threading = Disabled
Fan Control = Full
Race To Halt (RTH) = Disabled
Energy Efficient Turbo = Disabled
Package C-State Un-demotion = Enabled
DMI Link ASPM Control = Disabled
Native PCIe Enable = Disabled
Sysinfo program /home/Benchmark/speccpu2017-ic19-20181011/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bce091c0f
running on TX1330M4 Fri Oct 26 21:48:28 2018

From /proc/cpuinfo

  model name : Intel(R) Xeon(R) E-2146G CPU @ 3.50GHz
  1 "physical id"s (chips)
  6 "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 : 6
    siblings : 6
    physical 0: cores 0 1 2 3 4 5

From lscpu:

  Architecture: x86_64
  CPU op-mode(s): 32-bit, 64-bit
  Byte Order: Little Endian
  CPU(s): 6
  On-line CPU(s) list: 0-5
  Thread(s) per core: 1
  Core(s) per socket: 6
  Socket(s): 1
  NUMA node(s): 1
  Vendor ID: GenuineIntel
  CPU family: 6

(Continued on next page)
Platform Notes (Continued)

Model: 158
Model name: Intel(R) Xeon(R) E-2146G CPU @ 3.50GHz
Stepping: 10
CPU MHz: 3500.000
CPU max MHz: 4500.0000
CPU min MHz: 800.0000
BogoMIPS: 7008.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-5
Flags: fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc arch_perfmon pebs tsx-repf good nopl xtopology

/proc/cpuinfo cache data
    cache size : 12288 KB
    From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
        available: 1 nodes (0)
        node 0 cpus: 0 1 2 3 4 5
        node 0 size: 63915 MB
        node 0 free: 63431 MB
        node distances:
            node 0
                0: 10

        From /proc/meminfo
            MemTotal: 65449524 kB
            HugePages_Total: 0
            Hugepagesize: 2048 kB

        From /etc/*release*/etc/*version*
            os-release:
                NAME="SLES"
                VERSION="15"
                VERSION_ID="15"

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

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PRIMERGY TX1330 M4, Intel Xeon E-2146G, 3.50GHz

| SPECrate2017_fp_base | 37.1 |
| SPECrate2017_fp_peak | 37.9 |

CPU2017 License: 19
Test Sponsor: Fujitsu
Test Date: Oct-2018
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Test Sponsor: Fujitsu
Test Date: Oct-2018

Tested by: Fujitsu
Hardware Availability: Nov-2018
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Platform Notes (Continued)

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 TX1330M4 4.12.14-23-default #1 SMP Tue May 29 21:04:44 UTC 2018 (cd0437b) x86_64
   x86_64 x86_64 GNU/Linux

run-level 3 Oct 26 21:44

SPEC is set to: /home/Benchmark/speccpu2017-ic19-20181011

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda3      xfs   828G  102G  726G  13% /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. V5.0.0.13 R1.0.0 for D3673-A1x
09/14/2018

Memory:
   4x Samsung M391A2K43BB1-CTD 16 GB 2 rank 2667

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
==============================================================================
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================
CXXC 508.namd_r(base) 510.parest_r(base)
(Continued on next page)
Compiler Version Notes (Continued)

icpc (ICC) 19.0.0.117 20180804
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ifort (IFORT) 19.0.0.117 20180804
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Compiler Version Notes (Continued)

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Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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Base Compiler Invocation (Continued)

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=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

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PRIMERGY TX1330 M4, Intel Xeon E-2146G, 3.50GHz

SPEC CPU2017 Floating Point Rate Result
Copyright 2017-2018 Standard Performance Evaluation Corporation

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-avoid-memory-reference

Benchmarks using both C and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-avoid-memory-reference

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-avoid-memory-reference

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

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

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags
C benchmarks:
(Continued on next page)
### Peak Optimization Flags (Continued)

519.1bm_r: basepeak = yes

538.imagick_r: basepeak = yes

544.nab_r: basepeak = yes

C++ benchmarks:
- `--prof-gen(pass 1) --prof-use(pass 2) --ipo -xCORE-AVX2 -O3`
- `--no-prec-div --qopt-prefetch --ffinite-math-only`
- `--qopt-mem-layout-trans=3`

Fortran benchmarks:

503.bwaves_r: basepeak = yes

549.fotonik3d_r: basepeak = yes

554.roms_r: `--prof-gen(pass 1) --prof-use(pass 2) --ipo -xCORE-AVX2 -O3`
- `--no-prec-div --qopt-prefetch --ffinite-math-only`
- `--qopt-mem-layout-trans=3` `--auto --nostandard-realloc-lhs`

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

527.cam4_r: `--prof-gen(pass 1) --prof-use(pass 2) --ipo -xCORE-AVX2 -O3`
- `--no-prec-div --qopt-prefetch --ffinite-math-only`
- `--qopt-mem-layout-trans=3` `--auto --nostandard-realloc-lhs`

Benchmarks using both C and C++:

511.povray_r: `--prof-gen(pass 1) --prof-use(pass 2) --ipo -xCORE-AVX2 -O3`
- `--no-prec-div --qopt-prefetch --ffinite-math-only`
- `--qopt-mem-layout-trans=3`

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes

The flags files that were used to format this result can be browsed at:

SPEC CPU2017 Floating Point Rate Result

Fujitsu

PRIMERGY TX1330 M4, Intel Xeon E-2146G, 3.50GHz

SPECrate2017_fp_base = 37.1
SPECrate2017_fp_peak = 37.9

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

Test Date: Oct-2018
Hardware Availability: Nov-2018
Software Availability: Sep-2018

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.xml
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-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 v1.0.2 on 2018-10-26 08:48:27-0400.