### SPEC® CPU2017 Floating Point Rate Result

**Fujitsu**

PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.00GHz

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>SPECrate2017_fp_peak</th>
</tr>
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<tbody>
<tr>
<td>26.0</td>
<td>26.5</td>
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**Cpu2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Hardware Availability:** May-2017  
**Software Availability:** Sep-2018  
**Test Date:** Nov-2018

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

**Hardware**

- **CPU Name:** Intel Xeon E3-1220 v6  
- **Max MHz.:** 3500  
- **Nominal:** 3000  
- **Enabled:** 4 cores, 1 chip  
- **Orderable:** 1 chip  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **Cache L2:** 256 KB I+D on chip per core  
- **Cache L3:** 8 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)  
- **Storage:** 1 x SATA HDD, 2TB, 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:**  
- **Firmware:** Fujitsu BIOS Version V5.0.0.11 R1.21.0 for D3373-B1x. Released Nov-2018  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** None
**SPEC CPU2017 Floating Point Rate Result**

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PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.00GHz

SPECraten2017_fp_base = 26.0
SPECraten2017_fp_peak = 26.5

**Results Table**

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</tr>
</tbody>
</table>

SPECraten2017_fp_base = 26.0
SPECraten2017_fp_peak = 26.5

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

**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"
echo always > /sys/kernel/mm/transparent_hugepage/enabled
echo 1 > /proc/sys/vm/drop_caches
echo 1000000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 1500000000 > /proc/sys/kernel/sched_wakeup_granularity_ns

**General Notes**

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "~/home/Benchmark/speccpu2017-ic19-20181011/icc19-lib/intel164"

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:

(Continued on next page)
Fujitsu
PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.00GHz

General Notes (Continued)

sync; echo 3 > /proc/sys/vm/drop_caches

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:
Fan Control = Full
Sysinfo program /home/Benchmark/speccpu2017-ic19-20181011/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bCc091c0f
running on TX1330M3 Tue Nov 27 00:02:54 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) CPU E3-1220 v6 @ 3.00GHz
 1 "physical id"s (chips)
 4 "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 : 4
siblings : 4
physical 0: cores 0 1 2 3

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 4
On-line CPU(s) list: 0-3
Thread(s) per core: 1
Core(s) per socket: 4
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) CPU E3-1220 v6 @ 3.00GHz
Stepping: 9
### Fujitsu

**PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.00GHz**

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**CPU2017 License:** 19  
**Test Date:** Nov-2018  
**Test Sponsor:** Fujitsu  
**Hardware Availability:** May-2017  
**Tested by:** Fujitsu  
**Software Availability:** Sep-2018

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**Platform Notes (Continued)**

CPU MHz: 3000.000
CPU max MHz: 3500.0000
CPU min MHz: 800.0000
BogoMIPS: 6000.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-3

Flags: fpu vme de pse tsc msr pae 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 aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single pti tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2  1
emms invpcid rtm mxr rseed adx smap clflushopt intel_pt xsaveopt xsavec xgetbv1 xsaveas ibpb ibrs ibrs txbp dtherm ida arat pln pts hwp hwp_notify hwp_act_window hwp_epp ssbd

From /proc/cpuinfo

```

cache data
    cache size : 8192 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
    node 0 size: 64034 MB
    node 0 free: 63566 MB
    node distances:
      node 0
    0: 10
```

From /proc/meminfo

```
MemTotal: 65571408 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"
```

(Continued on next page)
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Platform Notes (Continued)

```
ANSI_COLOR="0;32"
CPE_NAME="cpe:o:suse:sles:15"

uname -a:
    Linux TX1330M3 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 Nov 26 18:44

SPEC is set to: /home/Benchmark/speccpu2017-ic19-20181011
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/sda4      xfs   1.7T   27G  1.7T   2% /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. V5.0.0.11 R1.21.0 for D3373-B1x
   11/20/2018
   Memory:
       4x Samsung M391A2K43BB1-CRC 16 GB 2 rank 2400

(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.
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FC 507.cactuBSSN_r(base)

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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 507.cactuBSSN_r(peak)

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**SPECrate2017_fp_base = 26.0**

**SPECrate2017_fp_peak = 26.5**

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### Compiler Version Notes (Continued)

```plaintext
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.
```

```plaintext
FC  503.bwaves_r(peak) 549.fotonik3d_r(peak) 554.roms_r(peak)

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```plaintext
CC  521.wrf_r(base) 527.cam4_r(base)

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icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
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CC  521.wrf_r(peak) 527.cam4_r(peak)

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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
```

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(Continued on next page)
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Hardware Availability: May-2017
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Base Compiler Invocation (Continued)

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.ibm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -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

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

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SPEC CPU2017 Floating Point Rate Result
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Fujitsu
PRIMERGY TX1330 M3, Intel Xeon E3-1220 v6, 3.00GHz

SPECrate2017_fp_base = 26.0
SPECrate2017_fp_peak = 26.5

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

Test Date: Nov-2018
Hardware Availability: May-2017
Software Availability: Sep-2018

Base Optimization Flags (Continued)

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

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:
519.lbm_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

(Continued on next page)
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Peak Optimization Flags (Continued)

538.imagick_r: basepeak = yes
544.nab_r: basepeak = yes

C++ benchmarks:
508.namd_r: basepeak = yes
510.parest_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

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:
-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

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-V1.2-BDW-RevF.xml
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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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