## SPEC® CPU2017 Floating Point Speed Result

Fujitsu PRIMERGY TX1330 M4, Intel Core i3-8100, 3.60GHz

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>19</th>
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<td>Fujitsu</td>
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<td>Fujitsu</td>
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<td>Nov-2018</td>
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<td>Software Availability:</td>
<td>Sep-2018</td>
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</tbody>
</table>

### Software
- **OS:** Red Hat Enterprise Linux Server release 7.5 (Maipo)
  - 3.10.0-862.el7.x86_64
- **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:** Yes
- **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:** Not Applicable
- **Other:** None

### Hardware
- **CPU Name:** Intel Core i3-8100
- **Max MHz.:** 3600
- **Nominal:** 3600
- **Enabled:** 4 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:** 6 MB I+D on chip per chip
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E, running at 2400)
- **Storage:** 1 x SATA M.2 SSD, 240 GB
- **Other:** None

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
</tr>
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<tbody>
<tr>
<td>603.bwaves_s</td>
<td>4</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>4</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>4</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>4</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>4</td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>4</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>4</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>4</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>4</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>4</td>
</tr>
</tbody>
</table>

### SPECspeed2017_fp_base

- 23.2

### SPECspeed2017_fp_peak

Not Run
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>607.cactuBSSN_s</td>
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<td>487</td>
<td>34.3</td>
<td>487</td>
<td>34.3</td>
<td>486</td>
<td>34.3</td>
</tr>
<tr>
<td>619.lbm_s</td>
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<td>358</td>
<td>14.6</td>
<td>358</td>
<td>14.6</td>
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<tr>
<td>621.wrf_s</td>
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<td>501</td>
<td>26.4</td>
<td>498</td>
<td>26.6</td>
<td>500</td>
<td>26.4</td>
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<tr>
<td>627.cam4_s</td>
<td>4</td>
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<td>15.9</td>
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<tr>
<td>628.pop2_s</td>
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<td>27.3</td>
<td>436</td>
<td>27.2</td>
<td>436</td>
<td>27.3</td>
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<tr>
<td>638.imagick_s</td>
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<td>17.2</td>
<td>839</td>
<td>17.2</td>
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<tr>
<td>644.nab_s</td>
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<tr>
<td>649.fotonik3d_s</td>
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<tr>
<td>654.roms_s</td>
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<td>12.9</td>
<td>1221</td>
<td>12.9</td>
<td>1222</td>
<td>12.9</td>
</tr>
</tbody>
</table>

### 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"

### General Notes
Environment variables set by runcpu before the start of the run:
- KMP_AFFINITY = "granularity=fine,compact"
- OMP_STACKSIZE = "192M"
- LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017-ic19/ic19.0-lib/intel64"

Binaries compiled on a system with 1x Intel Xeon E-2186G CPU + 64GB RAM memory using Red Hat Enterprise Linux Server release 7.5

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) 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.

(Continued on next page)
**SPEC CPU2017 Floating Point Speed Result**  
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PRIMERGY TX1330 M4, Intel Core i3-8100, 3.60GHz  

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

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

### General Notes (Continued)

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

Sysinfo program /home/Benchmark/speccpu2017-ic19/bin/sysinfo  
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bccc09ic0f  
running on localhost.localdomain Wed Nov 7 16:51:27 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) Core(TM) i3-8100 CPU @ 3.60GHz  
  - "physical id"s (chips)  
  - "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) Core(TM) i3-8100 CPU @ 3.60GHz  
- Stepping: 11  
- CPU MHz: 3600.000  
- CPU max MHz: 3600.0000  
- CPU min MHz: 800.0000  
- BogoMIPS: 7200.00  
- Virtualization: VT-x  
- L1d cache: 32K  
- L1i cache: 32K  
- L2 cache: 256K

(Continued on next page)
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PRIMERGY TX1330 M4, Intel Core i3-8100, 3.60GHz

SPEC2017 fp_base = 23.2
SPEC2017 fp_peak = Not Run

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SPEC CPU2017 Floating Point Speed Result

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Platform Notes (Continued)

L3 cache: 6144K
NUMA node0 CPU(s): 0-3

Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dtls 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
aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma
cx16 xtpr pdcm pcdm sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch epb intel_pt tpr_shadow vnmi flexpriority
ept vpid fsgsbase tsc_adjust bmi1 avx2 smep bmi2 ets rmvpcd mxsr dtes64 smap
clflushopt xsaveopt xsavec xgetbv1 ibpb ibrs stibp dtherm arat pln pts hwp
hwlpotify hwp_act_window hwp_epp spec_ctrl intel_stibp

/proj/cpuinfo cache data
  cache size: 6144 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: 65277 MB
  node 0 free: 63212 MB
  node distances:
    node 0
      0: 10

From /proc/meminfo
  MemTotal: 65545088 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux Server"
    VERSION="7.5 (Maipo)"
    ID="rhel"
    ID_LIKE="fedora"
    VARIANT="Server"
    VARIANT_ID="server"
    VERSION_ID="7.5"
    PRETTY_NAME="Red Hat Enterprise Linux Server 7.5 (Maipo)"
  redhat-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
  system-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:7.5:ga:server

uname -a:
  Linux localhost.localdomain 3.10.0-862.el7.x86_64 #1 SMP Wed Mar 21 18:14:51 EDT 2018
  x86_64 x86_64 x86_64 GNU/Linux

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Platform Notes (Continued)

run-level 3 Nov 7 16:49

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

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 150G 59G 92G 40% /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 SK Hynix HMA82GU7CJR8N-VK 16 GB 2 rank 2667, configured at 2400

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
------------------------------------------------------------------------------
icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
FC  607.cactuBSSN_s(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  603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
------------------------------------------------------------------------------
ifort (IFORT) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

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**Compiler Version Notes (Continued)**

```bash
CC  621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
```

```bash
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:**

```bash
icc -m64 -std=c11
```

**Fortran benchmarks:**

```bash
ifort -m64
```

**Benchmarks using both Fortran and C:**

```bash
ifort -m64 icc -m64 -std=c11
```

**Benchmarks using Fortran, C, and C++:**

```bash
icpc -m64 icc -m64 -std=c11 ifort -m64
```

---

**Base Portability Flags**

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

---

**Base Optimization Flags**

**C benchmarks:**

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP

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

Fortran benchmarks:
-DSPEC_OPENMP -xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp
-nostandard-realloc-lhs -align array32byte

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevB.html

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-RevB.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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