**SPEC® CPU2017 Floating Point Speed Result**

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

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**Fujitsu**  
**PRIMERGY TX1330 M4, Intel Xeon E-2176G, 3.70GHz**

**SPECspeed2017_fp_base =** 32.1

**SPECspeed2017_fp_peak =** Not Run

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**CPU2017 License:** 19  
**Test Date:** Oct-2018

**Hardware Availability:** Nov-2018

**Software Availability:** Sep-2018

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**Threads**

<table>
<thead>
<tr>
<th>Test</th>
<th>SPECspeed2017_fp_base (32.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>6</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>6</td>
</tr>
<tr>
<td>619.hm_s</td>
<td>6</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>6</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>6</td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>6</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>6</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>6</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>6</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>6</td>
</tr>
</tbody>
</table>

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**Hardware**

- **CPU Name:** Intel Xeon E-2176G  
- **Max MHz.:** 4700  
- **Nominal:** 3700  
- **Enabled:** 6 cores, 1 chip, 2 threads/core  
- **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 M.2 SSD, 240 GB  
- **Other:** None

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**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
SPEC CPU2017 Floating Point Speed Result

Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2176G, 3.70GHz

SPECspeed2017_fp_base = 32.1
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>
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<td>649.fotonik3d_s</td>
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<td>17.2</td>
<td>532</td>
<td>17.1</td>
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<td>17.2</td>
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<td>654.roms_s</td>
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<td>16.5</td>
<td>952</td>
<td>16.5</td>
<td>951</td>
<td>16.6</td>
</tr>
</tbody>
</table>

SPECspeed2017_fp_base = 32.1
SPECspeed2017_fp_peak = Not Run

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"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
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

**Fujitsu**

PRIMERGY TX1330 M4, Intel Xeon E-2176G, 3.70GHz

<table>
<thead>
<tr>
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<th>32.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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<td>Fujitsu</td>
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</tbody>
</table>

## 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

BIOS configuration:
Energy Efficient Turbo = Disabled
Sysinfo program /home/Benchmark/speccpu2017-ic19/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618b0c091c0f
running on localhost.localdomain Mon Oct 29 13:59:21 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) E-2176G CPU @ 3.70GHz
  1 "physical id"s (chips)
  12 "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 : 12
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):              12
On-line CPU(s) list: 0-11
Thread(s) per core:  2
Core(s) per socket:  6
Socket(s):           1
NUMA node(s):        1
Vendor ID:           GenuineIntel
CPU family:         6
Model:              158
Model name:          Intel(R) Xeon(R) E-2176G CPU @ 3.70GHz
Stepping:           10
CPU MHz:            4512.536
CPU max MHz:        4700.0000
CPU min MHz:        800.0000
BogoMIPS:          7392.00
Virtualization:     VT-x
L1d cache:          32K
```

(Continued on next page)
Fujitsu
PRIMERGY TX1330 M4, Intel Xeon E-2176G, 3.70GHz

SPEC CPU2017 License: 19
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Platform Notes (Continued)

L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-11
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 tsxtor tm tsa xtpxe optmrom=aarch64=0

From /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 6 7 8 9 10 11
node 0 size: 65277 MB
node 0 free: 63178 MB
node distances:
node 0
0: 10

From /proc/meminfo

MemTotal: 65543968 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:

(Continued on next page)
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SPECspeak2017_fp_base = 32.1
SPECspeed2017_fp_peak = Not Run

Platform Notes (Continued)

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

run-level 3 Oct 29 13:52

SPEC is set to: /home/Benchmark/speccpu2017-ic19
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 150G 33G 118G 22% /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

(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)
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==============================================================================
CC 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
------------------------------------------------------------------------------
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:
icc -m64 -std=c11

Fortran benchmarks:
ifort -m64

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

Benchmarks using Fortran, C, and C++:
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
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**SPECspeed2017_fp_base** = 32.1

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**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

**Fortran benchmarks:**
-DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp
-nostandard-realloc-lhs -align array32byte

**Benchmarks using Fortran and C:**
-DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -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++:**
-DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -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.

Tested with SPEC CPU2017 v1.0.2 on 2018-10-29 00:59:20-0400.
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