



# SPEC® CPU2017 Floating Point Rate Result

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## Fujitsu

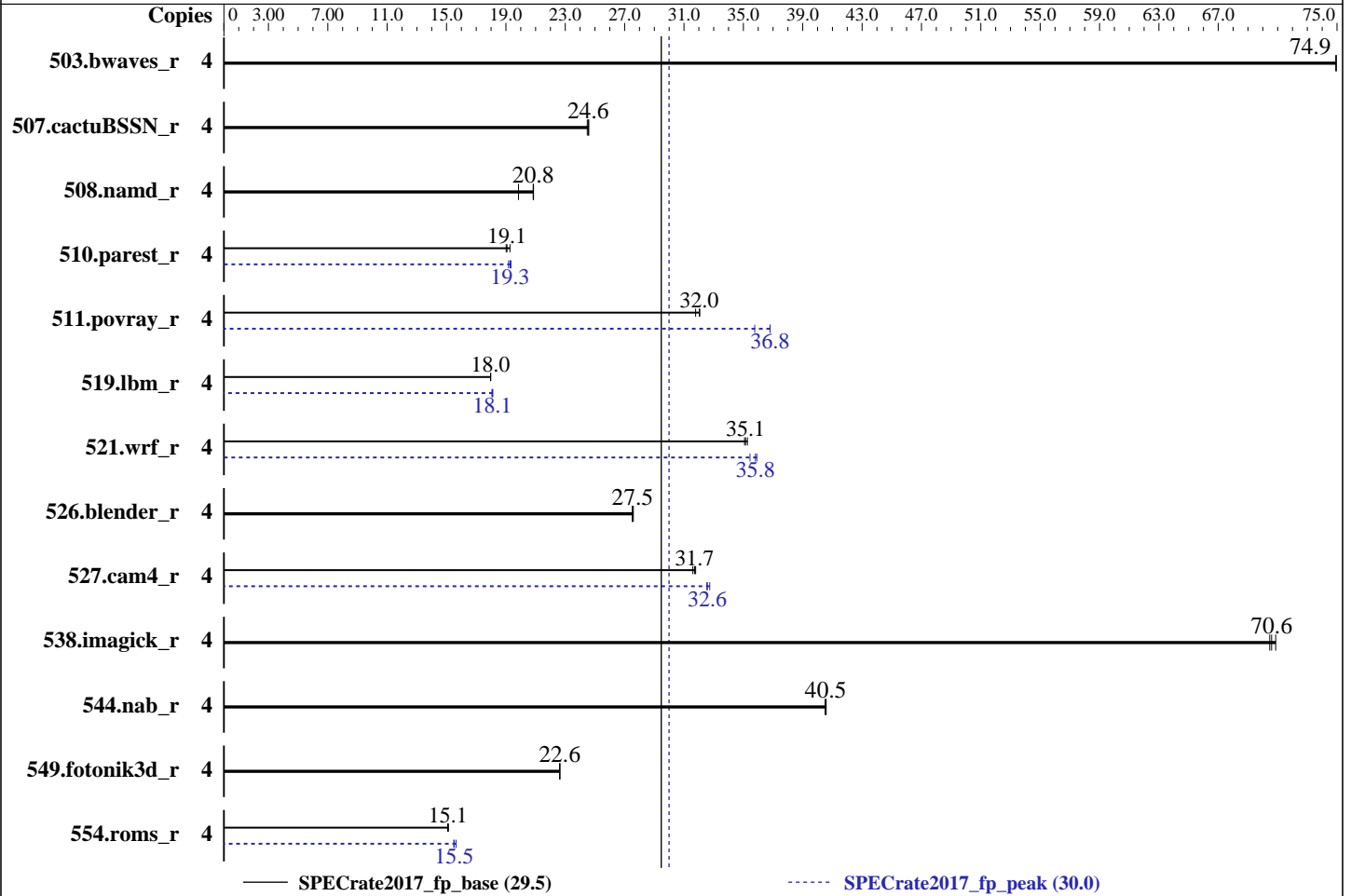
PRIMERGY TX1330 M4, Intel Xeon E-2124, 3.30GHz

SPECrate2017\_fp\_base = 29.5

SPECrate2017\_fp\_peak = 30.0

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

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



### Hardware

CPU Name: Intel Xeon E-2124  
Max MHz.: 4300  
Nominal: 3300  
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: 8 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



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	4	<b>535</b>	<b>74.9</b>	535	74.9	535	74.9	4	<b>535</b>	<b>74.9</b>	535	74.9	535	74.9
507.cactuBSSN_r	4	207	24.5	<b>206</b>	<b>24.6</b>	206	24.6	4	207	24.5	<b>206</b>	<b>24.6</b>	206	24.6
508.namd_r	4	182	20.9	<b>182</b>	<b>20.8</b>	191	19.8	4	182	20.9	<b>182</b>	<b>20.8</b>	191	19.8
510.parest_r	4	543	19.3	550	19.0	<b>549</b>	<b>19.1</b>	4	546	19.2	<b>543</b>	<b>19.3</b>	541	19.3
511.povray_r	4	291	32.1	294	31.8	<b>292</b>	<b>32.0</b>	4	261	35.8	<b>254</b>	<b>36.8</b>	254	36.8
519.lbm_r	4	<b>235</b>	<b>18.0</b>	235	18.0	235	18.0	4	233	18.1	<b>233</b>	<b>18.1</b>	233	18.1
521.wrf_r	4	<b>255</b>	<b>35.1</b>	255	35.1	254	35.3	4	250	35.9	<b>250</b>	<b>35.8</b>	253	35.4
526.blender_r	4	221	27.6	221	27.5	<b>221</b>	<b>27.5</b>	4	221	27.6	221	27.5	<b>221</b>	<b>27.5</b>
527.cam4_r	4	221	31.6	220	31.8	<b>221</b>	<b>31.7</b>	4	214	32.7	<b>215</b>	<b>32.6</b>	215	32.5
538.imagick_r	4	141	70.5	<b>141</b>	<b>70.6</b>	140	70.9	4	141	70.5	<b>141</b>	<b>70.6</b>	140	70.9
544.nab_r	4	<b>166</b>	<b>40.5</b>	166	40.6	166	40.5	4	<b>166</b>	<b>40.5</b>	166	40.6	166	40.5
549.fotonik3d_r	4	689	22.6	689	22.6	<b>689</b>	<b>22.6</b>	4	689	22.6	689	22.6	<b>689</b>	<b>22.6</b>
554.roms_r	4	420	15.1	<b>421</b>	<b>15.1</b>	422	15.1	4	410	15.5	406	15.6	<b>409</b>	<b>15.5</b>

SPECrate2017\_fp\_base = 29.5

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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"  
Process tuning settings:  
echo 500000 > /proc/sys/kernel/sched\_cfs\_bandwidth\_slice\_us

## General Notes

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

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### General Notes (Continued)

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  
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 96c45e4568ad54c135fd618bcc091c0f  
running on TX1330M4 Mon Oct 22 20:09:25 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-2124 CPU @ 3.30GHz  
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

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### Platform Notes (Continued)

```

Model: 158
Model name: Intel(R) Xeon(R) E-2124 CPU @ 3.30GHz
Stepping: 10
CPU MHz: 3300.000
CPU max MHz: 4300.0000
CPU min MHz: 800.0000
BogoMIPS: 6624.00
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 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 cpuid
aperfmpperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx 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 erms invpcid rtm mpx rdseed adx smap clflushopt intel_pt xsaveopt xsavec
xgetbv1 xsave ibpb ibrs stibp dtherm ida arat pln pts hwp hwp_notify hwp_act_window
hwp_epp ssbd

```

```

/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: 63916 MB
node 0 free: 63437 MB
node distances:
node 0
0: 10

```

```

From /proc/meminfo
MemTotal: 65450984 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```

```

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

```

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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="/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 22 20:07
```

```
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-Alx
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.  
-----
```

```
=====  
CC 519.lbm_r(peak) 538.imagick_r(peak) 544.nab_r(peak)  
-----
```

```
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)  
-----
```

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### Compiler Version Notes (Continued)

icpc (ICC) 19.0.0.117 20180804  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====  
CXXC 508.namd\_r(peak) 510.parest\_r(peak)

icpc (ICC) 19.0.0.117 20180804  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====  
CC 511.povray\_r(base) 526.blender\_r(base)

icpc (ICC) 19.0.0.117 20180804  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.  
icc (ICC) 19.0.0.117 20180804  
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=====  
CC 511.povray\_r(peak) 526.blender\_r(peak)

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.

=====  
FC 507.cactuBSSN\_r(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 507.cactuBSSN\_r(peak)

icpc (ICC) 19.0.0.117 20180804  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.  
icc (ICC) 19.0.0.117 20180804  
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### Compiler Version Notes (Continued)

ifort (IFORT) 19.0.0.117 20180804  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====  
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.

=====  
FC 503.bwaves\_r(peak) 549.fotonik3d\_r(peak) 554.roms\_r(peak)

ifort (IFORT) 19.0.0.117 20180804  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====  
CC 521.wrf\_r(base) 527.cam4\_r(base)

ifort (IFORT) 19.0.0.117 20180804  
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icc (ICC) 19.0.0.117 20180804  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====  
CC 521.wrf\_r(peak) 527.cam4\_r(peak)

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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

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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## Base Optimization Flags (Continued)

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
```

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:

(Continued on next page)



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## Peak Optimization Flags (Continued)

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

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



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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.html>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0.2-CFL-RevA.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-RevA.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU2017 v1.0.2 on 2018-10-22 07:09:24-0400.

Report generated on 2018-11-13 15:17:40 by CPU2017 PDF formatter v6067.

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