



SPEC® CPU2017 Floating Point Rate Result

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Fujitsu

PRIMERGY TX1330 M3, Intel Xeon E3-1240 v6, 3.70GHz

SPECrate2017_fp_base = 29.2

SPECrate2017_fp_peak = 29.6

CPU2017 License: 19

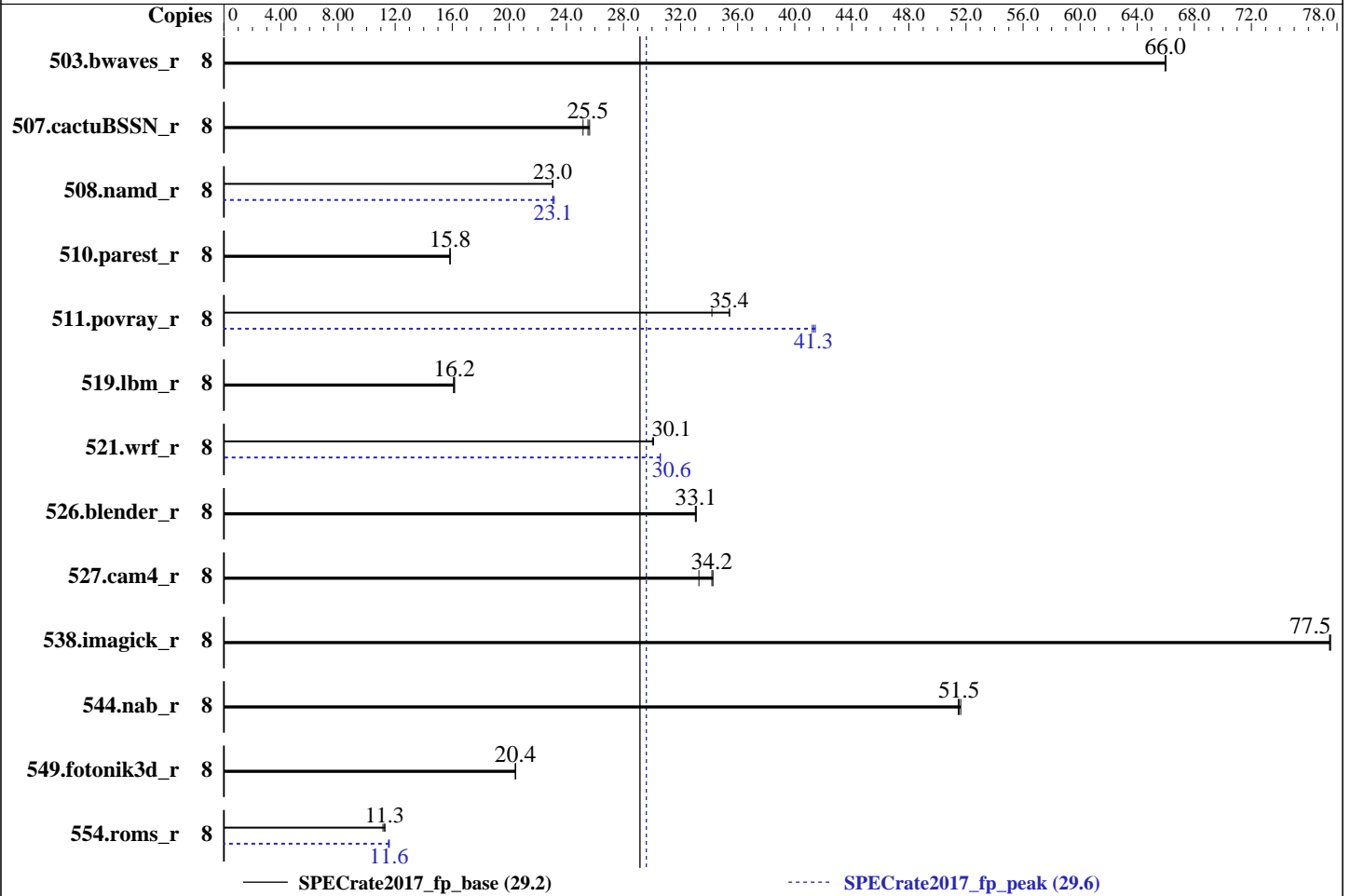
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Dec-2018

Hardware Availability: May-2017

Software Availability: Sep-2018



Hardware

CPU Name: Intel Xeon E3-1240 v6
 Max MHz.: 4100
 Nominal: 3700
 Enabled: 4 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: 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
 Parallel: No
 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



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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	8	1215	66.0	1216	66.0	1216	66.0	8	1215	66.0	1216	66.0	1216	66.0
507.cactuBSSN_r	8	402	25.2	395	25.6	397	25.5	8	402	25.2	395	25.6	397	25.5
508.namd_r	8	330	23.0	330	23.0	330	23.0	8	328	23.1	330	23.0	330	23.1
510.parest_r	8	1320	15.9	1320	15.8	1321	15.8	8	1320	15.9	1320	15.8	1321	15.8
511.povray_r	8	527	35.4	546	34.2	527	35.4	8	453	41.2	452	41.3	451	41.4
519.lbm_r	8	524	16.1	522	16.2	522	16.2	8	524	16.1	522	16.2	522	16.2
521.wrf_r	8	596	30.1	595	30.1	597	30.0	8	586	30.6	586	30.6	586	30.6
526.blender_r	8	368	33.1	368	33.1	369	33.0	8	368	33.1	368	33.1	369	33.0
527.cam4_r	8	409	34.2	408	34.3	420	33.3	8	409	34.2	408	34.3	420	33.3
538.imagick_r	8	257	77.5	257	77.5	257	77.5	8	257	77.5	257	77.5	257	77.5
544.nab_r	8	261	51.5	261	51.6	262	51.5	8	261	51.5	261	51.6	262	51.5
549.fotonik3d_r	8	1526	20.4	1526	20.4	1526	20.4	8	1526	20.4	1526	20.4	1526	20.4
554.roms_r	8	1129	11.3	1127	11.3	1140	11.1	8	1097	11.6	1102	11.5	1100	11.6

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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"
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/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:

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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 Sun Dec 2 02:05:14 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 E3-1240 v6 @ 3.70GHz
 1 "physical id"s (chips)
 8 "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  : 8
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):                8
On-line CPU(s) list:   0-7
Thread(s) per core:    2
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 E3-1240 v6 @ 3.70GHz
Stepping:              9
```

(Continued on next page)



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Platform Notes (Continued)

```

CPU MHz: 3700.000
CPU max MHz: 4100.0000
CPU min MHz: 800.0000
BogoMIPS: 7392.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-7
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
aperfperf 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 xsaves 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 4 5 6 7
node 0 size: 64033 MB
node 0 free: 63559 MB
node distances:
node 0
0: 10

```

```

From /proc/meminfo
MemTotal: 65570528 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"

```

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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 Dec 1 18:32
```

```
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.  
-----
```

```
=====
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)
-----
```

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

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Compiler Version Notes (Continued)

=====
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
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====
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.
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Compiler Version Notes (Continued)

=====
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
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.
=====

=====
CC 521.wrf_r(peak) 527.cam4_r(peak)
=====

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

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

ifort -m64 icc -m64 -std=c11

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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.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
```

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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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: basepeak = yes
```

```
538.imagick_r: basepeak = yes
```

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Peak Optimization Flags (Continued)

544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_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

510.parest_r: basepeak = yes

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: -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

527.cam4_r: basepeak = yes

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

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

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevF.html>



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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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