



SPEC® CPU2017 Floating Point Rate Result

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Fujitsu

SPECrate2017_fp_base = 28.9

PRIMERGY CX1430 M1, Intel Xeon D-1541, 2.10GHz

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19

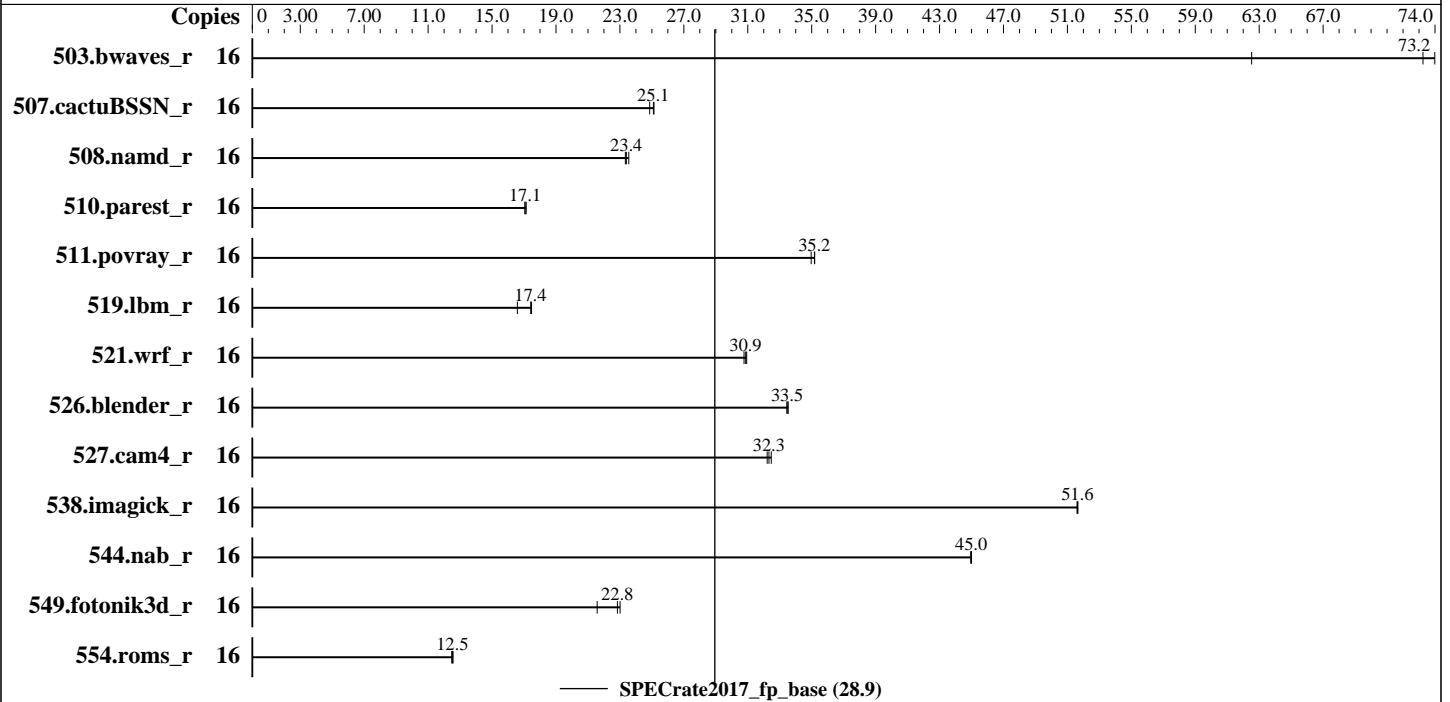
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2018

Hardware Availability: May-2018

Software Availability: Apr-2018



Hardware

CPU Name: Intel Xeon D-1541
 Max MHz.: 2700
 Nominal: 2100
 Enabled: 8 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: 128 GB (4 x 32 GB 2Rx4 PC4-2400T-R)
 Storage: 1 x SAS HDD, 1 TB, 7200 RPM
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2
 4.4.114-92.64-default
 Compiler: C/C++: Version 18.0.1.163 of Intel C/C++
 Compiler for Linux;
 Fortran: Version 18.0.1.163 of Intel Fortran
 Compiler for Linux
 Parallel: No
 Firmware: American Megatrends BIOS Version C419A020. Released Apr-2018
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 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	16	2566	62.5	2190	73.2	2169	74.0							
507.cactuBSSN_r	16	815	24.9	807	25.1	806	25.1							
508.namd_r	16	645	23.6	651	23.3	649	23.4							
510.parest_r	16	2443	17.1	2452	17.1	2454	17.1							
511.povray_r	16	1062	35.2	1062	35.2	1068	35.0							
519.lbm_r	16	1017	16.6	965	17.5	968	17.4							
521.wrf_r	16	1159	30.9	1161	30.9	1165	30.8							
526.blender_r	16	728	33.5	728	33.5	727	33.5							
527.cam4_r	16	866	32.3	869	32.2	862	32.5							
538.imagick_r	16	770	51.7	771	51.6	771	51.6							
544.nab_r	16	599	44.9	599	45.0	598	45.0							
549.fotonik3d_r	16	2890	21.6	2710	23.0	2730	22.8							
554.roms_r	16	2038	12.5	2030	12.5	2024	12.6							

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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"
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
cpu idle state set with:
cpupower idle-set -d 1
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/SPECcpu/speccpu2017-ic18.1-20171215/icc18.1-lib/intel64"
Binaries compiled on a system with 4x Intel Xeon Platinum 8180 CPU + 768GB 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 1 > /proc/sys/vm/drop_caches
```

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General Notes (Continued)

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
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:
Intel Virtualization Technology = Disabled
HWPM Support = Disabled
Sysinfo program /home/SPECcpu/speccpu2017-ic18.1-20171215/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-as6c Tue Jun 19 12:29:52 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 D-1541 @ 2.10GHz
1 "physical id"s (chips)
16 "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 : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 16
On-line CPU(s) list: 0-15
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 86
Model name: Intel(R) Xeon(R) CPU D-1541 @ 2.10GHz

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Platform Notes (Continued)

Stepping: 3
CPU MHz: 1382.210
CPU max MHz: 2700.0000
CPU min MHz: 800.0000
BogoMIPS: 4200.12
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-15

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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmperf
eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts dtherm
intel_pt spec_ctrl retpoline kaiser tpr_shadow vnm flexpriority ept vpid fsgsbase
tsc_adjust bml hle avx2 smep bmi2 erms invpcid rtm cqm rdseed adx smap xsaveopt
cqm_llc cqm_occup_llc

```
/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 12 13 14 15
node 0 size: 128657 MB
node 0 free: 128074 MB
node distances:
node 0
0: 10
```

```
From /proc/meminfo
MemTotal: 131745784 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
```

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Platform Notes (Continued)

This file is deprecated and will be removed in a future service pack or release.
Please check /etc/os-release for details about this release.

os-release:

```
NAME="SLES"
VERSION="12-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

uname -a:

```
Linux linux-as6c 4.4.114-92.64-default #1 SMP Thu Feb 1 19:18:19 UTC 2018 (c6ce5db)
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jun 19 12:10

SPEC is set to: /home/SPECcpu/speccpu2017-ic18.1-20171215

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda7       xfs   570G   17G  554G   3% /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 American Megatrends Inc. C419A020 04/03/2018

Memory:

4x Hynix Semiconductor HMA84GR7AFR4N-UH 32 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) 18.0.1 20171018

Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

```
=====  
CXXC 508.namd_r(base) 510.parest_r(base)  
-----
```

icpc (ICC) 18.0.1 20171018

Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

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Compiler Version Notes (Continued)

```

=====
CC  511.povray_r(base) 526.blender_r(base)
-----

icpc (ICC) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

=====
FC  507.cactuBSSN_r(base)
-----

icpc (ICC) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

=====
FC  503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
-----

ifort (IFORT) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

=====
CC  521.wrf_r(base) 527.cam4_r(base)
-----

ifort (IFORT) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.1 20171018
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-----

```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

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Base Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icc

Benchmarks using both C and C++:

icpc icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort

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 -nostandard-realloc-lhs -align array32byte

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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 -nostandard-realloc-lhs -align array32byte
```

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 -nostandard-realloc-lhs -align array32byte
```

Base Other Flags

C benchmarks:

```
-m64 -std=c11
```

C++ benchmarks:

```
-m64
```

Fortran benchmarks:

```
-m64
```

Benchmarks using both Fortran and C:

```
-m64 -std=c11
```

Benchmarks using both C and C++:

```
-m64 -std=c11
```

Benchmarks using Fortran, C, and C++:

```
-m64 -std=c11
```

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.html>

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

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.xml>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-SKL-RevD.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 2018-06-18 23:29:51-0400.

Report generated on 2018-10-31 18:57:34 by CPU2017 PDF formatter v6067.

Originally published on 2018-07-10.