SPEC® CPU2017 Floating Point Rate Result

Fujitsu
PRIMERGY RX1330 M4, Intel Xeon E-2186G, 3.80GHz

SPECRate2017_fp_base = 38.5
SPECRate2017_fp_peak = 39.1

CPU2017 License: 19
Test Date: Oct-2018
Test Sponsor: Fujitsu
Hardware Availability: Nov-2018
Tested by: Fujitsu
Software Availability: Sep-2018

<table>
<thead>
<tr>
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<tr>
<td>Parallel:</td>
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<tr>
<td>Firmware:</td>
<td>Fujitsu BIOS Version V5.0.0.13 R1.4.0 for D3675-A1x. Released Nov-2018 tested as V5.0.0.13 R1.0.0 for D3675-A1x Sep-2018</td>
<td></td>
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<tr>
<td>File System:</td>
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</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
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</tr>
<tr>
<td>Base Pointers:</td>
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<tr>
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<tbody>
<tr>
<td>CPU Name:</td>
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<tr>
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<tr>
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Fujitsu
3.80GHz
PRIMERGY RX1330 M4, Intel Xeon E-2186G, 3.80GHz

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SPECrate2017_fp_base = 38.5

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Fujitsu
PRIMERGY RX1330 M4, Intel Xeon E-2186G, 3.80GHz

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Results Table

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<td>617</td>
<td>15.5</td>
</tr>
</tbody>
</table>

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

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)

(Continued on next page)
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| CPU2017 License: | 19 |
| Test Sponsor: | Fujitsu |
| Tested by: | Fujitsu |

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

General Notes (Continued)

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:
Hyper-Threading = Disabled
Software Guard Extensions (SGX) = Disabled
Fan Control = Full
Race To Halt (RTH) = Disabled
Energy Efficient Turbo = Disabled
DMI Link ASPM Control = Disabled
Package C-State Un-demotion = Enabled
Native PCIE Enable = Disabled

Sysinfo program /home/Benchmark/speccpu2017-ic19-20181011/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618b091c0f
running on RX1330M4 Mon Oct 15 18:05:13 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-2186G CPU @ 3.80GHz
1 "physical id"s (chips)
6 "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 : 6
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): 6
On-line CPU(s) list: 0-5
Thread(s) per core: 1
Core(s) per socket: 6
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel

(Continued on next page)
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Platform Notes (Continued)

CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) E-2186G CPU @ 3.80GHz
Stepping: 10
CPU MHz: 3800.000
CPU max MHz: 4700.0000
CPU min MHz: 800.0000
BogoMIPS: 7584.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 12288K
NUMA node0 CPU(s): 0-5

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 nop1 xtopology nonstop_tsc cpuid
aperfmpcrf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3
sdbe fma cx16 xtpr pdcm pclid 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 vmmi flexpriority ept vpid fgsgsbase tsc_adjust bmi1 hle avx2 smep
bmi2 erms invpcid intel_pt xsaveopt xsaves xsave ibpb ibrs stibp dtherm ida arat pln
pts hwp hwp_notify hwp_act_window hwp_epp ssbd

/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
      node 0 size: 63915 MB
      node 0 free: 63431 MB
      node distances:
         node 0
            0: 10

From /proc/meminfo
MemTotal: 65449492 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME("SLES")
      VERSION("15")

(Continued on next page)
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**Fujitsu**
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---

**Platform Notes (Continued)**

```plaintext
VERSION_ID="15"
PRETTY_NAME="SUSE Linux Enterprise Server 15"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15"

uname -a:
  Linux RX1330M4 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 15 18:04

SPEC is set to: /home/Benchmark/speccpu2017-ic19-20181011

Filesystem  Type  Size  Used  Avail  Use% Mounted on
/dev/sda10  xfs  113G  16G  98G  15%  /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 D3675-A1x 09/14/2018

Memory:
  4x SK Hynix HMA82GU7CJR8N-VK 16 GB 2 rank 2667

(End of data from sysinfo program)
```

---

**Compiler Version Notes**

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

==============================================================================
CXXC 508.namd_r(base) 510.parest_r(base)
(Continued on next page)
```
**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)
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icpc (ICC) 19.0.0.117 20180804
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CC 511.povray_r(base) 526.blender_r(base)
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icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

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CC 511.povray_r(peak) 526.blender_r(peak)
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icc (ICC) 19.0.0.117 20180804
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
ifort (IFORT) 19.0.0.117 20180804
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icc (ICC) 19.0.0.117 20180804

(Continued on next page)
Compiler Version Notes (Continued)

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

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

ICC 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.                
==============================================================================

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64
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**Fujitsu**  
PRIMERGY RX1330 M4, Intel Xeon E-2186G, 3.80GHz  

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### Base Compiler Invocation (Continued)

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`

---

### 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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Fujitsu
PRIMERGY RX1330 M4, Intel Xeon E-2186G, 3.80GHz

SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

SPECrate2017_fp_base = 38.5
SPECrate2017_fp_peak = 39.1

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu
Test Date: Oct-2018
Hardware Availability: Nov-2018
Software Availability: Sep-2018

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

Peak Optimization Flags (Continued)

519.lbm_r: basepeak = yes
538.imagick_r: basepeak = yes
544.nab_r: basepeak = yes

C++ benchmarks:
508.namd_r: basepeak = yes
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:
-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

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-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.

Tested with SPEC CPU2017 v1.0.2 on 2018-10-15 05:05:12-0400.