

# SPEC CPU®2017 Floating Point Speed Result

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not applicable

SPECspeed®2017\_fp\_base = 1.60

SPECspeed®2017\_fp\_peak = Not Run

CPU2017 License: nnn (Your SPEC license number)

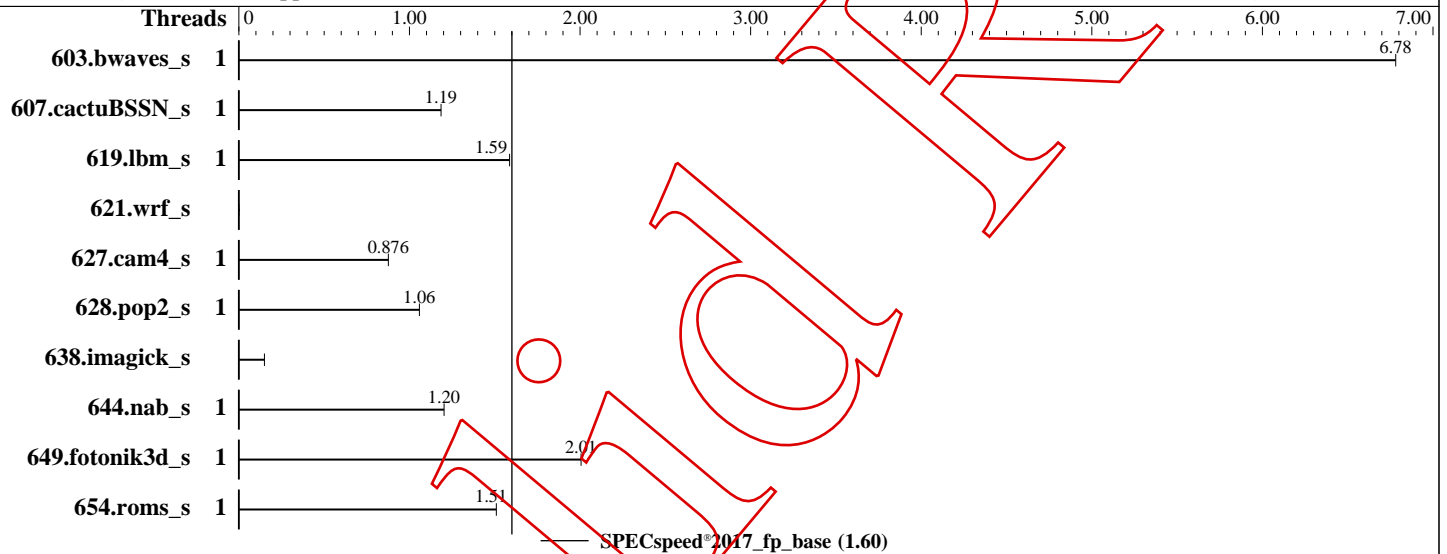
Test Sponsor: not applicable

Tested by: not applicable

Test Date: Nov-2020

Hardware Availability:

Software Availability:



## Hardware

CPU Name: Intel Xeon Bronze 3106  
Max MHz:  
Nominal:  
Enabled: cores, 1 chip, threads/core  
Orderable:  
Cache L1:  
L2:  
L3:  
Other:  
Memory: 78.334 GB fixme: If using DDR4, the format is:  
'N GB (N x N GB nRxn PC4-nnnnX-X)'  
Storage: 6.9 TB add more disk info here  
Other:

## Software

OS: Ubuntu 18.04.3 LTS  
4.15.0-70-generic  
Compiler: C/C++/Fortran: Version 10.1.0 of GCC, the  
GNU Compiler Collection  
Parallel: Yes  
Firmware:  
File System: nfs  
System State: Run level 5 (add definition here)  
Base Pointers: 64-bit  
Peak Pointers: Not Applicable  
Other:  
Power Management: --

## Errors

'reportable' flag not set during run  
607.cactuBSSN\_s (base) did not have enough runs!  
628.pop2\_s (base) did not have enough runs!  
603.bwaves\_s (base) did not have enough runs!  
619.lbm\_s (base) did not have enough runs!  
638.imagick\_s (base) did not have enough runs!  
621.wrf\_s (base) did not have enough runs!  
644.nab\_s (base) did not have enough runs!  
649.fotonik3d\_s (base) did not have enough runs!  
654.roms\_s (base) did not have enough runs!  
627.cam4\_s (base) did not have enough runs!

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## Errors (Continued)

638.imagick\_s (base) had invalid runs!

621.wrf\_s (base) had invalid runs!

Run of 621.wrf\_s (base) was not valid; status is CE

Run of 638.imagick\_s (base) was not valid; status is RE

Unknown flags were used! See

<https://www.spec.org/cpu2017/Docs/runcpu.html#flagsurl>  
for information about how to get rid of this error.

## Results Table

Benchmark	Threads	Base						Peak					
		Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	1	<b>8700</b>	<b>6.78</b>										
607.cactuBSSN_s	1	<b>14065</b>	<b>1.19</b>										
619.lbm_s	1	<b>3301</b>	<b>1.59</b>										
621.wrf_s	1	0.00	0.00										
627.cam4_s	1	<b>10114</b>	<b>0.876</b>										
628.pop2_s	1	<b>11219</b>	<b>1.06</b>										
638.imagick_s	1	96234	0.00										
644.nab_s	1	<b>14525</b>	<b>1.20</b>										
649.fotonik3d_s	1	<b>4544</b>	<b>2.01</b>										
654.roms_s	1	<b>10432</b>	<b>1.51</b>										

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

## Submit Notes

The config file option 'submit' was used.

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

LD\_LIBRARY\_PATH =

"/u/home/schmidt/riscv-float-toolchain/build/lib64:/u/home/schmidt/riscv-float-toolchain/build/lib:/lib64"

OMP\_STACKSIZE = "120M"

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## Platform Notes

Sysinfo program /u/home/schmidt/spec/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
running on sksmall Tue Nov 17 02:06:54 2020

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) Bronze 3106 CPU @ 1.70GHz

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 : 8

siblings : 8

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): 8

On-line CPU(s) list: 0-7

Thread(s) per core: 1

Core(s) per socket: 8

Socket(s): 1

NUMA node(s): 1

Vendor ID: GenuineIntel

CPU family: 6

Model: 85

Model name: Intel(R) Xeon(R) Bronze 3106 CPU @ 1.70GHz

Stepping: 4

CPU MHz: 1600.044

CPU max MHz: 1700.0000

CPU min MHz: 800.0000

BogoMIPS: 3400.00

Virtualization: VT-x

L1d cache: 32K

L1i cache: 32K

L2 cache: 1024K

L3 cache: 11264K

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

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## Platform Notes (Continued)

aperfmp perf\_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 fl6c rdrand lahf\_lm abm 3dnowprefetch cpuid\_fault epb cat\_l3 cdp\_l3  
invpcid\_single pti intel\_ppin ssbd mba ibrs ibpb stibp tpr\_shadow vnmi flexpriority  
ept vpid fsgsbase tsc\_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt\_a  
avx512f avx512dq rdseed adx smap clflushopt clwb intel\_pt avx512cd avx512bw avx512vl  
xsaveopt xsavec xgetbv1 xsaves cqm\_llc cqm\_occup\_llc cqm\_mbm\_total cqm\_mbm\_local  
dtherm arat pln pts hwp hwp\_act\_window hwp\_pkg\_req pku ospke md\_clear flush\_lld

/proc/cpuinfo cache data  
cache size : 11264 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

From /proc/meminfo  
MemTotal: 82139464 kB  
HugePages\_Total: 0  
Hugepagesize: 2048 kB

/usr/bin/lsc\_release -d  
Ubuntu 18.04.3 LTS

From /etc/\*release\* /etc/\*version\*  
debian\_version: buster/sid  
os-release:  
NAME="Ubuntu"  
VERSION="18.04.3 LTS (Bionic Beaver)"  
ID=ubuntu  
ID\_LIKE=debian  
PRETTY\_NAME="Ubuntu 18.04.3 LTS"  
VERSION\_ID="18.04"  
HOME\_URL="https://www.ubuntu.com/"  
SUPPORT\_URL="https://help.ubuntu.com/"

uname -a:  
Linux sksmall 4.15.0-70-generic #79-Ubuntu SMP Tue Nov 12 10:36:11 UTC 2019 x86\_64  
x86\_64 x86\_64 GNU/Linux

Kernel self-reported vulnerability status:

itlb_multihit:	KVM: Mitigation: Split huge pages
CVE-2018-3620 (L1 Terminal Fault):	Mitigation: PTE Inversion; VMX: conditional cache flushes, SMT disabled
Microarchitectural Data Sampling:	Mitigation: Clear CPU buffers; SMT disabled
CVE-2017-5754 (Meltdown):	Mitigation: PTI
CVE-2018-3639 (Speculative Store Bypass):	Mitigation: Speculative Store Bypass disabled

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## Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1): via prctl and seccomp  
Mitigation: usercopy/swaps barriers and \_\_user pointer sanitization

CVE-2017-5715 (Spectre variant 2): Mitigation: Full generic retpoline, IBPB: conditional, IBRS\_FW, STIBP: disabled, RSB filling

tsx\_async\_abort: Mitigation: Clear CPU buffers; SMT disabled

run-level 5 Nov 28 09:46

SPEC is set to: /u/home/schmidt/spec

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
nasill10.informatik.tu-muenchen.de:/srv/ll10/home	nfs	6.9T	4.4T	2.3T	67%	/u/home

From /sys/devices/virtual/dmi/id

BIOS: HPE U32 11/13/2019

Vendor: HPE

Product: ProLiant DL360 Gen10

Product Family: ProLiant

Cannot run dmidecode; consider saying (as root)  
chmod +s /usr/sbin/dmidecode

(End of data from sysinfo program)

## Compiler Version Notes

```
=====
C | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
=====
Using built-in specs.
COLLECT_GCC=/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-gcc
COLLECT_LTO_WRAPPER=/u/home/schmidt/riscv-float-toolchain/build/libexec/gcc/riscv64-unknown-linux-gnu/10.1.0/lto-wrapper
Target: riscv64-unknown-linux-gnu
Configured with: /u/home/schmidt/riscv-float-toolchain/riscv-gcc/configure
--target=riscv64-unknown-linux-gnu
--prefix=/u/home/schmidt/riscv-float-toolchain/build
--with-sysroot=/u/home/schmidt/riscv-float-toolchain/build/sysroot
--with-system-zlib --enable-shared --enable-tls
--enable-languages=c,c++,fortran --disable-libmudflap --disable-libssp
--disable-libquadmath --disable-libsanitizer --disable-nls
--disable-bootstrap --src=../riscv-gcc --disable-multilib
--with-abi=lp64d --with-arch=rv64imafd --with-tune=rocket
'CFLAGS_FOR_TARGET=-O2 -mcmodel=medlow' 'CXXFLAGS_FOR_TARGET=-O2
-mcmodel=medlow'
```

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## Compiler Version Notes (Continued)

Thread model: posix  
Supported LTO compression algorithms: zlib  
gcc version 10.1.0 (GCC)

=====  
C++, C, Fortran | 607.cactuBSSN\_s(base)

Using built-in specs.

COLLECT\_GCC=/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-g++

COLLECT\_LTO\_WRAPPER=/u/home/schmidt/riscv-float-toolchain/build/libexec/gcc/riscv64-unknown-linux-gnu/10.1.0/lto-wrapper

Target: riscv64-unknown-linux-gnu

Configured with: /u/home/schmidt/riscv-float-toolchain/riscv-gcc/configure

--target=riscv64-unknown-linux-gnu

--prefix=/u/home/schmidt/riscv-float-toolchain/build

--with-sysroot=/u/home/schmidt/riscv-float-toolchain/build/sysroot

--with-system-zlib --enable-shared --enable-tls

--enable-languages=c,c++,fortran --disable-libmudflap --disable-libssp

--disable-libquadmath --disable-lsanitizer --disable-nls

--disable-bootstrap --src=../riscv-gcc --disable-multilib

--with-abi=lp64d --with-arch=rv64imafd --with-tune=rocket

'CFLAGS\_FOR\_TARGET=-O2 -mmodel=medlow' 'CXXFLAGS\_FOR\_TARGET=-O2

-mmodel=medlow'

Thread model: posix

Supported LTO compression algorithms: zlib

gcc version 10.1.0 (GCC)

Using built-in specs.

COLLECT\_GCC=/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-gcc

COLLECT\_LTO\_WRAPPER=/u/home/schmidt/riscv-float-toolchain/build/libexec/gcc/riscv64-unknown-linux-gnu/10.1.0/lto-wrapper

Target: riscv64-unknown-linux-gnu

Configured with: /u/home/schmidt/riscv-float-toolchain/riscv-gcc/configure

--target=riscv64-unknown-linux-gnu

--prefix=/u/home/schmidt/riscv-float-toolchain/build

--with-sysroot=/u/home/schmidt/riscv-float-toolchain/build/sysroot

--with-system-zlib --enable-shared --enable-tls

--enable-languages=c,c++,fortran --disable-libmudflap --disable-libssp

--disable-libquadmath --disable-lsanitizer --disable-nls

--disable-bootstrap --src=../riscv-gcc --disable-multilib

--with-abi=lp64d --with-arch=rv64imafd --with-tune=rocket

'CFLAGS\_FOR\_TARGET=-O2 -mmodel=medlow' 'CXXFLAGS\_FOR\_TARGET=-O2

-mmodel=medlow'

Thread model: posix

Supported LTO compression algorithms: zlib

gcc version 10.1.0 (GCC)

Using built-in specs.

COLLECT\_GCC=/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-gfortran

COLLECT\_LTO\_WRAPPER=/u/home/schmidt/riscv-float-toolchain/build/libexec/gcc/riscv64-unknown-linux-gnu/10.1.0/lto-wrapper

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## Compiler Version Notes (Continued)

Target: riscv64-unknown-linux-gnu  
Configured with: /u/home/schmidt/riscv-float-toolchain/riscv-gcc/configure  
--target=riscv64-unknown-linux-gnu  
--prefix=/u/home/schmidt/riscv-float-toolchain/build  
--with-sysroot=/u/home/schmidt/riscv-float-toolchain/build/sysroot  
--with-system-zlib --enable-shared --enable-tls  
--enable-languages=c,c++,fortran --disable-libmudflap --disable-libssp  
--disable-libquadmath --disable-lsanitizer --disable-nls  
--disable-bootstrap --src=../riscv-gcc --disable-multilib  
--with-abi=lp64d --with-arch=rv64imafd --with-tune=rocket  
'CFLAGS\_FOR\_TARGET=-O2 -mcmmodel=medlow' 'CXXFLAGS\_FOR\_TARGET=-O2  
-mcmmodel=medlow'  
Thread model: posix  
Supported LTO compression algorithms: zlib  
gcc version 10.1.0 (GCC)

Fortran | 603.bwaves\_s(base) 649.fotonik3d\_s(base) 654.roms\_s(base)

Using built-in specs.

COLLECT\_GCC=/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-gfortran

COLLECT\_LTO\_WRAPPER=/u/home/schmidt/riscv-float-toolchain/build/libexec/gcc/riscv64-unknown-linux-gnu/10.1.0/lto-wrapper

Target: riscv64-unknown-linux-gnu

Configured with: /u/home/schmidt/riscv-float-toolchain/riscv-gcc/configure

--target=riscv64-unknown-linux-gnu  
--prefix=/u/home/schmidt/riscv-float-toolchain/build  
--with-sysroot=/u/home/schmidt/riscv-float-toolchain/build/sysroot  
--with-system-zlib --enable-shared --enable-tls  
--enable-languages=c,c++,fortran --disable-libmudflap --disable-libssp  
--disable-libquadmath --disable-lsanitizer --disable-nls  
--disable-bootstrap --src=../riscv-gcc --disable-multilib  
--with-abi=lp64d --with-arch=rv64imafd --with-tune=rocket  
'CFLAGS\_FOR\_TARGET=-O2 -mcmmodel=medlow' 'CXXFLAGS\_FOR\_TARGET=-O2  
-mcmmodel=medlow'

Thread model: posix

Supported LTO compression algorithms: zlib

gcc version 10.1.0 (GCC)

Fortran, C | 627.cam4\_s(base) 628.pop2\_s(base)

Using built-in specs.

COLLECT\_GCC=/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-gfortran

COLLECT\_LTO\_WRAPPER=/u/home/schmidt/riscv-float-toolchain/build/libexec/gcc/riscv64-unknown-linux-gnu/10.1.0/lto-wrapper

Target: riscv64-unknown-linux-gnu

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## Compiler Version Notes (Continued)

Configured with: /u/home/schmidt/riscv-float-toolchain/riscv-gcc/configure

--target=riscv64-unknown-linux-gnu

--prefix=/u/home/schmidt/riscv-float-toolchain/build

--with-sysroot=/u/home/schmidt/riscv-float-toolchain/build/sysroot

--with-system-zlib --enable-shared --enable-tls

--enable-languages=c,c++,fortran --disable-libmudflap --disable-libssp

--disable-libquadmath --disable-lsanitizer --disable-nls

--disable-bootstrap --src=../riscv-gcc --disable-multilib

--with-abi=lp64d --with-arch=rv64imafd --with-tune=rocket

'CFLAGS\_FOR\_TARGET=-O2 -mmodel=medlow' 'CXXFLAGS\_FOR\_TARGET=-O2

-mmodel=medlow'

Thread model: posix

Supported LTO compression algorithms: zlib

gcc version 10.1.0 (GCC)

Using built-in specs.

COLLECT\_GCC=/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-gcc

COLLECT\_LTO\_WRAPPER=/u/home/schmidt/riscv-float-toolchain/build/libexec/gcc/riscv64-unknown-linux-gnu/10.1.0/lto-wrapper

Target: riscv64-unknown-linux-gnu

Configured with: /u/home/schmidt/riscv-float-toolchain/riscv-gcc/configure

--target=riscv64-unknown-linux-gnu

--prefix=/u/home/schmidt/riscv-float-toolchain/build

--with-sysroot=/u/home/schmidt/riscv-float-toolchain/build/sysroot

--with-system-zlib --enable-shared --enable-tls

--enable-languages=c,c++,fortran --disable-libmudflap --disable-libssp

--disable-libquadmath --disable-lsanitizer --disable-nls

--disable-bootstrap --src=../riscv-gcc --disable-multilib

--with-abi=lp64d --with-arch=rv64imafd --with-tune=rocket

'CFLAGS\_FOR\_TARGET=-O2 -mmodel=medlow' 'CXXFLAGS\_FOR\_TARGET=-O2

-mmodel=medlow'

Thread model: posix

Supported LTO compression algorithms: zlib

gcc version 10.1.0 (GCC)

## Base Unknown Flags

603.bwaves\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in FC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

607.cactuBSSN\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in CXX)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in CC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in FC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

619.lbm\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in CC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

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## Base Unknown Flags (Continued)

627.cam4\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in FC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in CC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

628.pop2\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in FC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in CC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

638.imagick\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in CC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

644.nab\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in CC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

649.fotonik3d\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in FC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

654.roms\_s: "/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in FC)  
"/u/home/schmidt/riscv-float-toolchain/build/bin/riscv64-unknown-linux-gnu-" (in LD)

## Base Compiler Invocation

C benchmarks:

gcc

Fortran benchmarks:

gfortran

Benchmarks using both Fortran and C (except as noted below):

gfortran gcc

Benchmarks using Fortran, C, and C++:

g++ gcc gfortran

## Base Portability Flags

603.bwaves\_s: -static(\*) -DSPEC\_LP64  
607.cactuBSSN\_s: -static(\*) -DSPEC\_LP64  
619.lbm\_s: -static(\*) -DSPEC\_LP64

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## Base Portability Flags (Continued)

627.cam4\_s: -static(\*) -DSPEC\_CASE\_FLAG -DSPEC\_LP64  
628.pop2\_s: -static(\*) -DSPEC\_CASE\_FLAG -fconvert=big-endian  
-DSPEC\_LP64  
638.imagick\_s: -static(\*) -DSPEC\_LP64  
644.nab\_s: -static(\*) -DSPEC\_LP64  
649.fotonik3d\_s: -static(\*) -DSPEC\_LP64  
654.roms\_s: -static(\*) -DSPEC\_LP64

(\*) Indicates a portability flag that was found in a non-portability variable.

## Base Optimization Flags

C benchmarks:

-std=c99 -O3 -DSPEC\_SUPPRESS\_OPENMP -fno-unsafe-math-optimizations  
-fno-openmp

Fortran benchmarks:

-DSPEC\_SUPPRESS\_OPENMP -O3 -fno-unsafe-math-optimizations -fno-openmp

Benchmarks using both Fortran and C:

627.cam4\_s: -std=c99 -DSPEC\_SUPPRESS\_OPENMP -O3  
-fno-unsafe-math-optimizations -fno-openmp

628.pop2\_s: Same as 627.cam4\_s

Benchmarks using Fortran, C, and C++:

-std=c++03 -std=c99 -O3 -DSPEC\_SUPPRESS\_OPENMP  
-fno-unsafe-math-optimizations -fno-openmp

## Base Other Flags

C benchmarks:

-fcommon -fallow-argument-mismatch

Fortran benchmarks:

-fcommon -fallow-argument-mismatch

Benchmarks using both Fortran and C (except as noted below):

-fcommon -fallow-argument-mismatch

(Continued on next page)

# SPEC CPU®2017 Floating Point Speed Result

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not applicable

SPECspeed®2017\_fp\_base = 1.60

SPECspeed®2017\_fp\_peak = Not Run

**CPU2017 License:** nnn (Your SPEC license number)

**Test Sponsor:** not applicable

**Tested by:** not applicable

**Test Date:** Nov-2020

**Hardware Availability:**

**Software Availability:**

## Base Other Flags (Continued)

Benchmarks using Fortran, C, and C++:

-fcommon -fallow-argument-mismatch

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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 CPU®2017 v1.1.0 on 2020-11-17 02:06:53+0000.

Report generated on 2020-11-19 02:26:10 by CPU2017 PDF formatter v6255.