



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

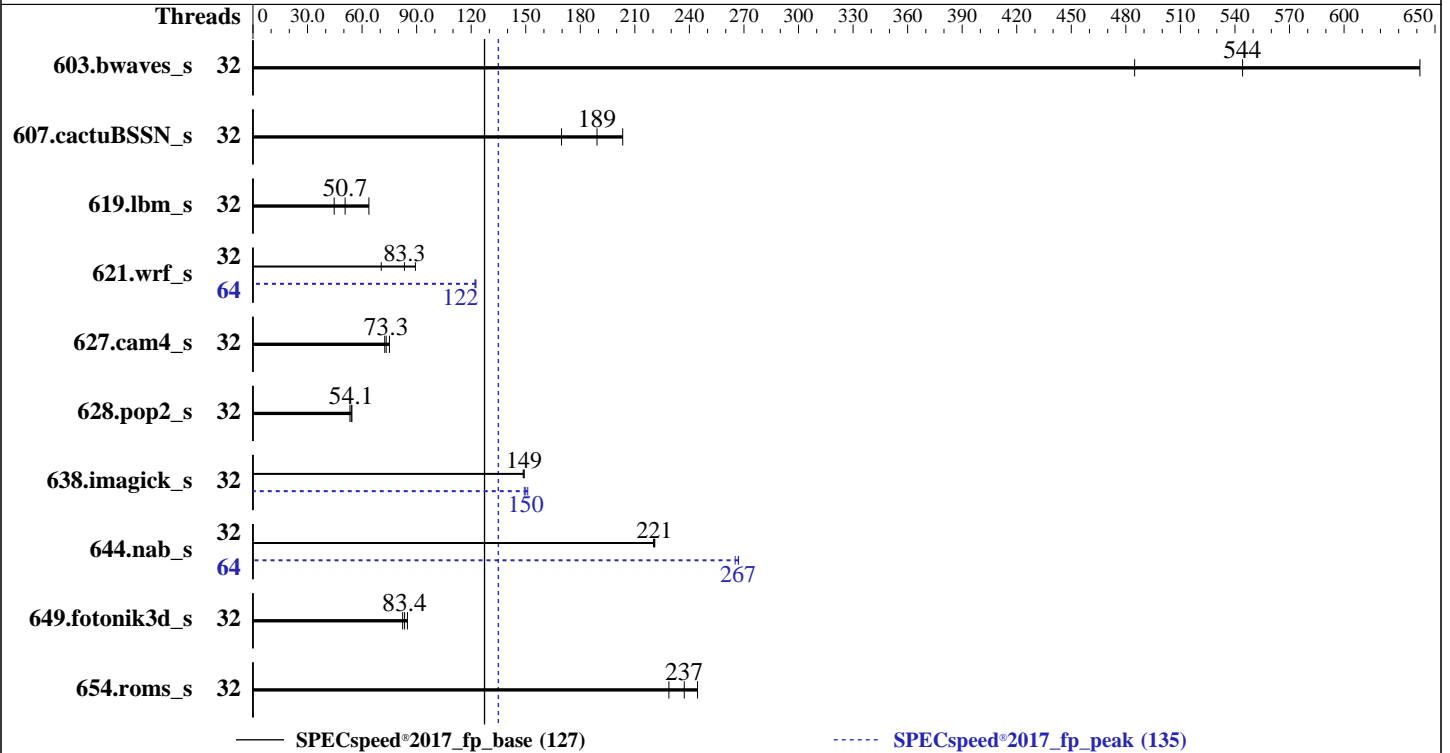
A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

CPU2017 License: 001176  
Test Sponsor: Supermicro  
Tested by: Supermicro

Test Date: Mar-2020  
Hardware Availability: Apr-2020  
Software Availability: Aug-2019



### Hardware

CPU Name: AMD EPYC 7F52  
Max MHz: 3900  
Nominal: 3500  
Enabled: 32 cores, 2 chips, 2 threads/core  
Orderable: 1,2 chips  
Cache L1: 32 KB I + 32 KB D on chip per core  
L2: 512 KB I+D on chip per core  
L3: 256 MB I+D on chip per chip, 16 MB per core  
Other: None  
Memory: 1 TB (16 x 64 GB 4DRx4 PC4-3200AA-L)  
Storage: 1 x 200 GB SATA III SSD  
Other: None

### Software

OS: Ubuntu 19.04  
kernel 5.0.0-25-generic  
Compiler: C/C++/Fortran: Version 2.0.0 of AOCC  
Parallel: Yes  
Firmware: Version 2.1 released Feb-2020  
File System: ext4  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 64-bit  
Other: jemalloc: jemalloc memory allocator library v5.1.0  
Power Management: BIOS set to prefer performance at the cost of additional power usage.



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

CPU2017 License: 001176  
Test Sponsor: Supermicro  
Tested by: Supermicro

Test Date: Mar-2020  
Hardware Availability: Apr-2020  
Software Availability: Aug-2019

## Results Table

| Benchmark       | Base    |         |       |             |             |            |             | Peak    |         |       |             |             |            |             |
|-----------------|---------|---------|-------|-------------|-------------|------------|-------------|---------|---------|-------|-------------|-------------|------------|-------------|
|                 | Threads | Seconds | Ratio | Seconds     | Ratio       | Seconds    | Ratio       | Threads | Seconds | Ratio | Seconds     | Ratio       | Seconds    | Ratio       |
| 603.bwaves_s    | 32      | 91.9    | 642   | <b>108</b>  | <b>544</b>  | 122        | 485         | 32      | 91.9    | 642   | <b>108</b>  | <b>544</b>  | 122        | 485         |
| 607.cactuBSSN_s | 32      | 82.0    | 203   | <b>88.1</b> | <b>189</b>  | 98.3       | 170         | 32      | 82.0    | 203   | <b>88.1</b> | <b>189</b>  | 98.3       | 170         |
| 619.lbm_s       | 32      | 82.2    | 63.8  | 117         | 44.7        | <b>103</b> | <b>50.7</b> | 32      | 82.2    | 63.8  | 117         | 44.7        | <b>103</b> | <b>50.7</b> |
| 621.wrf_s       | 32      | 187     | 70.6  | 148         | 89.3        | <b>159</b> | <b>83.3</b> | 64      | 108     | 123   | 108         | 122         | <b>108</b> | <b>122</b>  |
| 627.cam4_s      | 32      | 118     | 75.1  | <b>121</b>  | <b>73.3</b> | 122        | 72.5        | 32      | 118     | 75.1  | <b>121</b>  | <b>73.3</b> | 122        | 72.5        |
| 628.pop2_s      | 32      | 218     | 54.4  | 223         | 53.3        | <b>220</b> | <b>54.1</b> | 32      | 218     | 54.4  | 223         | 53.3        | <b>220</b> | <b>54.1</b> |
| 638.imagick_s   | 32      | 96.8    | 149   | <b>96.8</b> | <b>149</b>  | 97.1       | 149         | 32      | 96.7    | 149   | <b>96.2</b> | <b>150</b>  | 95.5       | 151         |
| 644.nab_s       | 32      | 79.1    | 221   | <b>79.1</b> | <b>221</b>  | 79.3       | 220         | 64      | 65.4    | 267   | <b>65.5</b> | <b>267</b>  | 65.9       | 265         |
| 649.fotonik3d_s | 32      | 107     | 84.9  | <b>109</b>  | <b>83.4</b> | 111        | 82.3        | 32      | 107     | 84.9  | <b>109</b>  | <b>83.4</b> | 111        | 82.3        |
| 654.roms_s      | 32      | 64.4    | 244   | <b>66.4</b> | <b>237</b>  | 68.8       | 229         | 32      | 64.4    | 244   | <b>66.4</b> | <b>237</b>  | 68.8       | 229         |

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

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

## Compiler Notes

The AMD64 AOCC Compiler Suite is available at  
<http://developer.amd.com/amd-aocc/>

## Submit Notes

The config file option 'submit' was used.  
'numactl' was used to bind copies to the cores.  
See the configuration file for details.

## Operating System Notes

'ulimit -s unlimited' was used to set environment stack size  
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:  
numactl --interleave=all runcpu <etc>

Set dirty\_ratio=8 to limit dirty cache to 8% of memory  
Set swappiness=1 to swap only if necessary  
Set zone\_reclaim\_mode=1 to free local node memory and avoid remote memory  
sync then drop\_caches=3 to reset caches before invoking runcpu

dirty\_ratio, swappiness, zone\_reclaim\_mode and drop\_caches were  
all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

### Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
GOMP\_CPU\_AFFINITY = "0-63"  
LD\_LIBRARY\_PATH =  
"/home/cpu2017/amd\_speed\_aocc200\_rome\_C\_lib/64;/home/cpu2017/amd\_speed\_aocc200\_rome\_C\_lib/32:"  
MALLOC\_CONF = "retain:true"  
OMP\_DYNAMIC = "false"  
OMP\_SCHEDULE = "static"  
OMP\_STACKSIZE = "128M"  
OMP\_THREAD\_LIMIT = "64"

Environment variables set by runcpu during the 621.wrf\_s peak run:  
GOMP\_CPU\_AFFINITY = "0 32 1 33 2 34 3 35 4 36 5 37 6 38 7 39 8 40 9 41 10 42  
11 43 12 44 13 45 14 46 15 47 16 48 17 49 18 50 19 51 20 52 21 53 22 54  
23 55 24 56 25 57 26 58 27 59 28 60 29 61 30 62 31 63"

Environment variables set by runcpu during the 638.imagick\_s peak run:  
GOMP\_CPU\_AFFINITY = "0-31"

Environment variables set by runcpu during the 644.nab\_s peak run:  
GOMP\_CPU\_AFFINITY = "0 32 1 33 2 34 3 35 4 36 5 37 6 38 7 39 8 40 9 41 10 42  
11 43 12 44 13 45 14 46 15 47 16 48 17 49 18 50 19 51 20 52 21 53 22 54  
23 55 24 56 25 57 26 58 27 59 28 60 29 61 30 62 31 63"

### General Notes

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

NA: 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.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto  
jemalloc 5.1.0 is available here:  
<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>

### Platform Notes

BIOS Settings:  
Determinism Control = Manual  
Determinism Slider = Power

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

### Platform Notes (Continued)

cTDP Control = Manual  
cTDP = 240  
Package Power Limit Control = Manual  
Package Power Limit = 240  
APBDIS = 1  
NUMA Nodes Per Socket = NPS4

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
running on h11dsu-02 Fri Mar 20 02:16:53 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 : AMD EPYC 7F52 16-Core Processor  
2 "physical id"s (chips)  
64 "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 : 16  
siblings : 32  
physical 0: cores 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60  
physical 1: cores 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60

From lscpu:  
Architecture: x86\_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
Address sizes: 43 bits physical, 48 bits virtual  
CPU(s): 64  
On-line CPU(s) list: 0-63  
Thread(s) per core: 2  
Core(s) per socket: 16  
Socket(s): 2  
NUMA node(s): 8  
Vendor ID: AuthenticAMD  
CPU family: 23  
Model: 49  
Model name: AMD EPYC 7F52 16-Core Processor  
Stepping: 0  
CPU MHz: 1795.885  
CPU max MHz: 3500.0000  
CPU min MHz: 2500.0000  
BogoMIPS: 7000.18  
Virtualization: AMD-V

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

### Platform Notes (Continued)

```

L1d cache:          32K
L1i cache:          32K
L2 cache:           512K
L3 cache:           16384K
NUMA node0 CPU(s):  0-3,32-35
NUMA node1 CPU(s):  4-7,36-39
NUMA node2 CPU(s):  8-11,40-43
NUMA node3 CPU(s):  12-15,44-47
NUMA node4 CPU(s):  16-19,48-51
NUMA node5 CPU(s):  20-23,52-55
NUMA node6 CPU(s):  24-27,56-59
NUMA node7 CPU(s):  28-31,60-63
Flags:               fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
constant_tsc rep_good noopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf pni
pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes xsave avx f16c
rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb
cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2
smep bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1
xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero irperf xsaveerptr
wbnoinvd arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid
decodeassists pausefilter pfthreshold avic v_vmsave_vmload vgif umip rdpid
overflow_recov succor smca

```

```

/proc/cpuinfo cache data
cache size : 512 KB

```

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

```

available: 8 nodes (0-7)
node 0 cpus: 0 1 2 3 32 33 34 35
node 0 size: 128896 MB
node 0 free: 128660 MB
node 1 cpus: 4 5 6 7 36 37 38 39
node 1 size: 128996 MB
node 1 free: 128800 MB
node 2 cpus: 8 9 10 11 40 41 42 43
node 2 size: 129020 MB
node 2 free: 128831 MB
node 3 cpus: 12 13 14 15 44 45 46 47
node 3 size: 129008 MB
node 3 free: 128819 MB
node 4 cpus: 16 17 18 19 48 49 50 51
node 4 size: 129020 MB
node 4 free: 128763 MB
node 5 cpus: 20 21 22 23 52 53 54 55

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

### Platform Notes (Continued)

```

node 5 size: 129020 MB
node 5 free: 128838 MB
node 6 cpus: 24 25 26 27 56 57 58 59
node 6 size: 129020 MB
node 6 free: 128619 MB
node 7 cpus: 28 29 30 31 60 61 62 63
node 7 size: 129020 MB
node 7 free: 128832 MB
node distances:
node  0  1  2  3  4  5  6  7
 0:  10 12 12 12 32 32 32 32
 1:  12 10 12 12 32 32 32 32
 2:  12 12 10 12 32 32 32 32
 3:  12 12 12 10 32 32 32 32
 4:  32 32 32 32 10 12 12 12
 5:  32 32 32 32 12 10 12 12
 6:  32 32 32 32 12 12 10 12
 7:  32 32 32 32 12 12 12 10

```

```

From /proc/meminfo
MemTotal:      1056769720 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
Ubuntu 19.04

```

```

From /etc/*release* /etc/*version*
debian_version: buster/sid
os-release:
  NAME="Ubuntu"
  VERSION="19.04 (Disco Dingo)"
  ID=ubuntu
  ID_LIKE=debian
  PRETTY_NAME="Ubuntu 19.04"
  VERSION_ID="19.04"
  HOME_URL="https://www.ubuntu.com/"
  SUPPORT_URL="https://help.ubuntu.com/"

```

```

uname -a:
Linux h11dsu-02 5.0.0-25-generic #26-Ubuntu SMP Thu Aug 1 12:04:58 UTC 2019 x86_64
x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2018-3620 (L1 Terminal Fault):      Not affected
Microarchitectural Data Sampling:      Not affected

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

### Platform Notes (Continued)

CVE-2017-5754 (Meltdown): Not affected  
 CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp  
 CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swaps barriers and \_\_user pointer sanitization  
 CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBPB: conditional, IBRS\_FW, STIBP: conditional, RSB filling

run-level 3 Mar 19 07:23

SPEC is set to: /home/cpu2017

| Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
|------------|------|------|------|-------|------|------------|
| /dev/sda2  | ext4 | 183G | 23G  | 151G  | 14%  | /          |

From /sys/devices/virtual/dmi/id  
 BIOS: American Megatrends Inc. 2.1 02/21/2020  
 Vendor: Supermicro  
 Product: Super Server  
 Serial: 0123456789

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.

Memory:  
 16x NO DIMM Unknown  
 16x Samsung M386A8K40DM2-CWE 64 kB 4 rank 3200

(End of data from sysinfo program)

### Compiler Version Notes

```
=====
C          | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
          | 644.nab_s(base, peak)
-----
```

```
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
-----
```

```
=====
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
-----
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

### Compiler Version Notes (Continued)

```

-----
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
-----

```

```

=====
Fortran          | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
                  | 654.roms_s(base, peak)
-----

```

```

-----
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
-----

```

```

=====
Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak)
                  | 628.pop2_s(base, peak)
-----

```

```

-----
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
-----

```





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

## Base Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Base Portability Flags

603.bwaves\_s: -DSPEC\_LP64  
607.cactuBSSN\_s: -DSPEC\_LP64  
619.ibm\_s: -DSPEC\_LP64  
621.wrf\_s: -DSPEC\_CASE\_FLAG -Mbyteswapio -DSPEC\_LP64  
627.cam4\_s: -DSPEC\_CASE\_FLAG -DSPEC\_LP64  
628.pop2\_s: -DSPEC\_CASE\_FLAG -Mbyteswapio -DSPEC\_LP64  
638.imagick\_s: -DSPEC\_LP64  
644.nab\_s: -DSPEC\_LP64  
649.fotonik3d\_s: -DSPEC\_LP64  
654.roms\_s: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math  
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50  
-fremap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist  
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp  
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000  
-flv-function-specialization -z muldefs -DSPEC\_OPENMP -fopenmp  
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc  
-lflang

Fortran benchmarks:

-flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver2
-funroll-loops -Mrecursive -mllvm -vector-library=LIBMVEC -z muldefs
-Kieee -fno-finite-math-only -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang
```

Benchmarks using both Fortran and C:

```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-freemap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -funroll-loops -Mrecursive -z muldefs
-Kieee -fno-finite-math-only -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang
```

Benchmarks using Fortran, C, and C++:

```
-std=c++98 -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-fstruct-layout=3 -mllvm -unroll-threshold=50 -freemap-arrays
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -unroll-threshold=100 -mllvm -enable-partial-unswitch
-funroll-loops -Mrecursive -z muldefs -Kieee -fno-finite-math-only
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lpthread -ldl -lmvec
-lamdlibm -ljemalloc -lflang
```

## Base Other Flags

C benchmarks:

```
-Wno-return-type
```

Fortran benchmarks:

```
-Wno-return-type
```

Benchmarks using both Fortran and C:

```
-Wno-return-type
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

## Base Other Flags (Continued)

Benchmarks using Fortran, C, and C++:  
-Wno-return-type

## Peak Compiler Invocation

C benchmarks:  
clang

Fortran benchmarks:  
flang

Benchmarks using both Fortran and C:  
flang clang

Benchmarks using Fortran, C, and C++:  
clang++ clang flang

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

619.lbm\_s: basepeak = yes

638.imagick\_s: -flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver2 -mno-sse4a -fstruct-layout=5  
-mllvm -vectorize-memory-aggressively  
-mllvm -function-specialize -mllvm -enable-gvn-hoist  
-mllvm -unroll-threshold=50 -fremap-arrays  
-mllvm -vector-library=LIBMVEC  
-mllvm -reduce-array-computations=3  
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000  
-flv-function-specialization -DSPEC\_OPENMP -fopenmp  
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

## Peak Optimization Flags (Continued)

638.imagick\_s (continued):

-ljemalloc -lflang

644.nab\_s: Same as 638.imagick\_s

Fortran benchmarks:

603.bwaves\_s: basepeak = yes

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf\_s: -flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver2 -mno-sse4a -fstruct-layout=5  
-mllvm -vectorize-memory-aggressively  
-mllvm -function-specialize -mllvm -enable-gvn-hoist  
-mllvm -unroll-threshold=50 -fremap-arrays  
-mllvm -vector-library=LIBMVEC  
-mllvm -reduce-array-computations=3  
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000  
-flv-function-specialization -O3 -funroll-loops  
-Mrecursive -Kieee -fno-finite-math-only -DSPEC\_OPENMP  
-fopenmp -fopenmp=libomp -lomp -lpthread -ldl -lmvec  
-lamdlibm -ljemalloc -lflang

627.cam4\_s: basepeak = yes

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes

## Peak Other Flags

C benchmarks:

-Wno-return-type

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN , AMD EPYC 7F52)

SPECspeed®2017\_fp\_base = 127

SPECspeed®2017\_fp\_peak = 135

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Mar-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Aug-2019

## Peak Other Flags (Continued)

Fortran benchmarks:  
-Wno-return-type

Benchmarks using both Fortran and C:  
-Wno-return-type

Benchmarks using Fortran, C, and C++:  
-Wno-return-type

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-C4.html>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revB.html>

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-C4.xml>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revB.xml>

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 2020-03-19 22:16:52-0400.  
Report generated on 2020-04-14 14:16:39 by CPU2017 PDF formatter v6255.  
Originally published on 2020-04-14.