



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

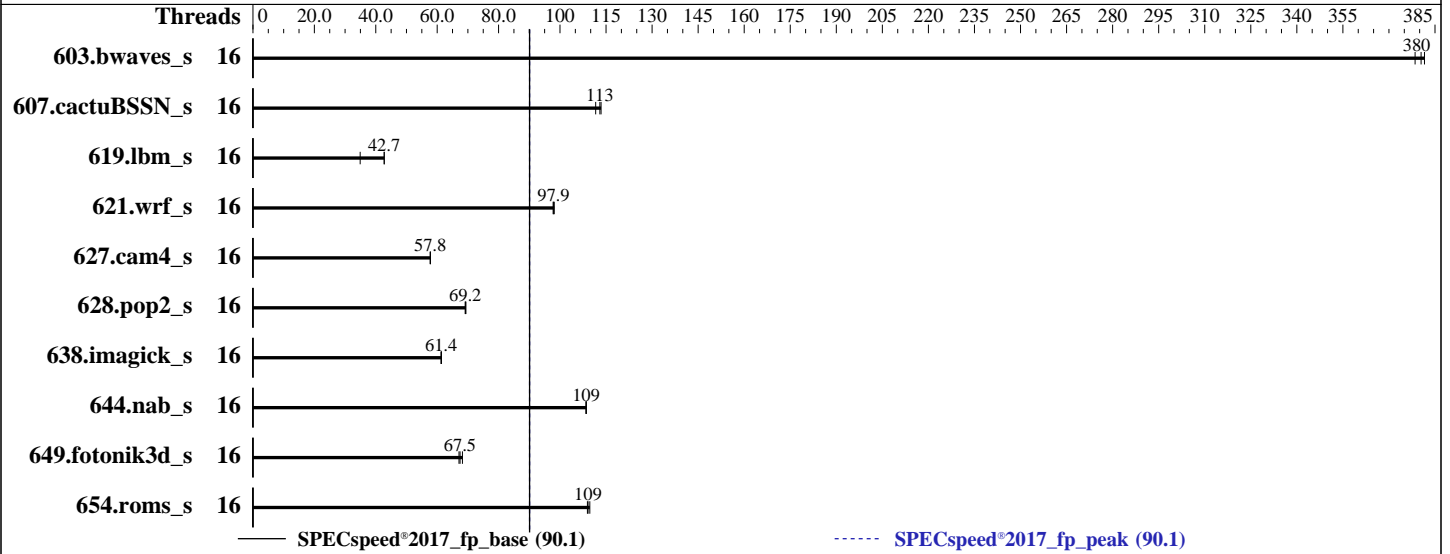
Test Date: Dec-2021

Test Sponsor: Cisco Systems

Hardware Availability: Jun-2021

Tested by: Cisco Systems

Software Availability: Jun-2021



### Hardware

CPU Name: AMD EPYC 72F3  
 Max MHz: 4100  
 Nominal: 3700  
 Enabled: 8 cores, 1 chip, 2 threads/core  
 Orderable: 1 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,  
 32 MB per core  
 Other: None  
 Memory: 1 TB (8 x 128 GB 4Rx4 PC4-3200V-L)  
 Storage: 1 x 960 GB M.2 SSD SATA  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP3 (x86\_64)  
 kernel version  
 5.3.18-57-default  
 Compiler: C/C++/Fortran: Version 3.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Version 4.2.1c released Aug-2021  
 File System: xfs  
 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 and OS set to prefer performance at the cost of additional power usage



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECSpeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECSpeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	16	156	379	155	382	<b>155</b>	<b>380</b>	16	156	379	155	382	<b>155</b>	<b>380</b>
607.cactuBSSN_s	16	149	112	<b>148</b>	<b>113</b>	147	113	16	149	112	<b>148</b>	<b>113</b>	147	113
619.lbm_s	16	123	42.8	150	34.9	<b>123</b>	<b>42.7</b>	16	123	42.8	150	34.9	<b>123</b>	<b>42.7</b>
621.wrf_s	16	<b>135</b>	<b>97.9</b>	135	97.8	135	98.1	16	<b>135</b>	<b>97.9</b>	135	97.8	135	98.1
627.cam4_s	16	153	57.8	<b>153</b>	<b>57.8</b>	153	57.8	16	153	57.8	<b>153</b>	<b>57.8</b>	153	57.8
628.pop2_s	16	<b>172</b>	<b>69.2</b>	171	69.4	172	69.1	16	<b>172</b>	<b>69.2</b>	171	69.4	172	69.1
638.imagick_s	16	236	61.2	235	61.4	<b>235</b>	<b>61.4</b>	16	236	61.2	235	61.4	<b>235</b>	<b>61.4</b>
644.nab_s	16	161	109	<b>161</b>	<b>109</b>	161	109	16	161	109	<b>161</b>	<b>109</b>	161	109
649.fotonik3d_s	16	136	67.1	<b>135</b>	<b>67.5</b>	134	68.2	16	136	67.1	<b>135</b>	<b>67.5</b>	134	68.2
654.roms_s	16	145	109	144	110	<b>144</b>	<b>109</b>	16	145	109	144	110	<b>144</b>	<b>109</b>

SPECSpeed®2017\_fp\_base = **90.1**

SPECSpeed®2017\_fp\_peak = **90.1**

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 limit  
'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>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty\_ratio=8' run as root.  
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.  
To free node-local memory and avoid remote memory usage,  
'sysctl -w vm.zone\_reclaim\_mode=1' run as root.  
To clear filesystem caches, 'sync; sysctl -w vm.drop\_caches=3' run as root.  
To disable address space layout randomization (ASLR) to reduce run-to-run variability, 'sysctl -w kernel.randomize\_va\_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

Test Date: Dec-2021

Test Sponsor: Cisco Systems

Hardware Availability: Jun-2021

Tested by: Cisco Systems

Software Availability: Jun-2021

## Operating System Notes (Continued)

```
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
To enable THP only on request for peak runs of 628.pop2_s, and 638.imagick_s,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To disable THP for peak runs of 627.cam4_s, 644.nab_s, 649.fotonik3d_s, and 654.roms_s,
'echo never > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
```

## Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-15"
LD_LIBRARY_PATH =
    "/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib;/home/cpu2017/amd_speed
    _aocc300_milan_B_lib/lib32:"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "16"
```

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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 v4.8.2 in RHEL 7.4 (No options specified)

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

```
SMT Mode set to Auto
NUMA nodes per socket set to NPS1
ACPI SRAT L3 Cache As NUMA Domain set to Enabled
DRAM Scrub Time set to Disabled
Determinism Slider set to Power
L1 Stream HW Prefetcher set to Enabled
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Dec-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Platform Notes (Continued)

APBDIS set to 1

sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on specsrv Tue Dec 7 11:04:18 2021

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 72F3 8-Core Processor  
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 from util-linux 2.36.2:  
Architecture: x86\_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
Address sizes: 48 bits physical, 48 bits virtual  
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): 2  
Vendor ID: AuthenticAMD  
CPU family: 25  
Model: 1  
Model name: AMD EPYC 72F3 8-Core Processor  
Stepping: 1  
Frequency boost: enabled  
CPU MHz: 1497.217  
CPU max MHz: 3700.0000  
CPU min MHz: 1500.0000  
BogoMIPS: 7386.58  
Virtualization: AMD-V  
L1d cache: 256 KiB  
L1i cache: 256 KiB  
L2 cache: 4 MiB  
L3 cache: 256 MiB  
NUMA node0 CPU(s): 0-3,8-11

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

Test Date: Dec-2021

Test Sponsor: Cisco Systems

Hardware Availability: Jun-2021

Tested by: Cisco Systems

Software Availability: Jun-2021

### Platform Notes (Continued)

```

NUMA node1 CPU(s):          4-7,12-15
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:         Not affected
Vulnerability Mds:          Not affected
Vulnerability Meltdown:     Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1:    Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:    Mitigation; Full AMD retpoline, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling
Vulnerability Srbds:         Not affected
Vulnerability Tsx async abort: Not affected
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 nopl nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq monitor ssse3 fma cx16 pcid 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 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid 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 amd_ppin arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_recov succor smca fsrm

```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	256K	8	Data	1	64	1	64
L1i	32K	256K	8	Instruction	1	64	1	64
L2	512K	4M	8	Unified	2	1024	1	64
L3	32M	256M	16	Unified	3	32768	1	64

/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: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 8 9 10 11
node 0 size: 515872 MB
node 0 free: 506458 MB
node 1 cpus: 4 5 6 7 12 13 14 15
node 1 size: 516078 MB
node 1 free: 509074 MB
node distances:

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Dec-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

### Platform Notes (Continued)

```
node    0    1
0:     10   12
1:     12   10
```

```
From /proc/meminfo
MemTotal:      1056717764 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
ondemand
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP3"
VERSION_ID="15.3"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp3"
```

```
uname -a:
Linux specsrv 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021 (ba3c2e9) x86_64
x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):	Not affected
CVE-2018-3620 (L1 Terminal Fault):	Not affected
Microarchitectural Data Sampling:	Not affected
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/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):	Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: always-on, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

```
run-level 3 Dec 6 15:20
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021

### Platform Notes (Continued)

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb2	xf	223G	30G	194G	14%	/

From /sys/devices/virtual/dmi/id

```
Vendor:      Cisco Systems Inc
Product:    UCSC-C225-M6S
Serial:     WZP2524931G
```

Additional information from dmidecode 3.2 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:

8x 0xCE00 M386AAG40AM3-CWE 128 GB 4 rank 3200

BIOS:

```
BIOS Vendor:    Cisco Systems, Inc.
BIOS Version:   C225M6.4.2.1c.0.0806211349
BIOS Date:      08/06/2021
BIOS Revision:  5.22
```

(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)  
-----
```

```
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on  
LLVM Mirror.Version.12.0.0)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin  
-----
```

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

```
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on  
LLVM Mirror.Version.12.0.0)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin  
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021

### Compiler Version Notes (Continued)

```

LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
-----

```

```

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

```

```

AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
-----

```

```

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

```

```

AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
-----

```

### Base Compiler Invocation

C benchmarks:  
clang

Fortran benchmarks:  
flang

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Dec-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Base Compiler Invocation (Continued)

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.lbm\_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:

-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-region-vectorize  
 -Wl,-mllvm -Wl,-function-specialize  
 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
 -Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3  
 -fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5  
 -mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000  
 -fremap-arrays -mllvm -function-specialize -flv-function-specialization  
 -mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true  
 -mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs  
 -DSPEC\_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc  
 -lflang -lflangrti

Fortran benchmarks:

-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-enable-X86-prefetching  
 -Wl,-mllvm -Wl,-enable-licm-vrp -Wl,-mllvm -Wl,-region-vectorize  
 -Wl,-mllvm -Wl,-function-specialize  
 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
 -Wl,-mllvm -Wl,-reduce-array-computations=3 -Hz,1,0x1 -O3  
 -march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive  
 -mllvm -fuse-tile-inner-loop -funroll-loops

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Dec-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-mllvm -extra-vectorizer-passes -mllvm -lsr-in-nested-loop
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti
```

Benchmarks using both Fortran and C:

```
-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-enable-X86-prefetching
-Wl,-mllvm -Wl,-enable-licm-vrp -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -Hz,1,0x1
-Mrecursive -mllvm -fuse-tile-inner-loop -funroll-loops
-mllvm -extra-vectorizer-passes -mllvm -lsr-in-nested-loop -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang -lflangrti
```

Benchmarks using Fortran, C, and C++:

```
-m64 -mno-adx -mno-sse4a -std=c++98
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100
-finline-aggressive -mllvm -loop-unswitch-threshold=200000
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -extra-vectorizer-passes -mllvm -convert-pow-exp-to-int=false
-Hz,1,0x1 -Mrecursive -mllvm -fuse-tile-inner-loop -funroll-loops
-mllvm -lsr-in-nested-loop -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti
```



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021

## Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument -Wno-return-type

Fortran benchmarks:

-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using Fortran, C, and C++:

-Wno-unused-command-line-argument -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: basepeak = yes

644.nab\_s: basepeak = yes

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Dec-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021

## Peak Optimization Flags (Continued)

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: basepeak = yes

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-unused-command-line-argument -Wno-return-type

Fortran benchmarks:

-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using Fortran, C, and C++:

-Wno-unused-command-line-argument -Wno-return-type

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

<http://www.spec.org/cpu2017/flags/aocc300-flags-B2.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v2-revC.html>

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

<http://www.spec.org/cpu2017/flags/aocc300-flags-B2.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v2-revC.xml>



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

SPECspeed®2017\_fp\_base = 90.1

Cisco UCS C225 M6 (AMD EPYC 72F3 8-Core)

SPECspeed®2017\_fp\_peak = 90.1

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Dec-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

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 v1.1.8 on 2021-12-07 14:04:17-0500.  
Report generated on 2022-01-05 13:33:32 by CPU2017 PDF formatter v6442.  
Originally published on 2022-01-04.