



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

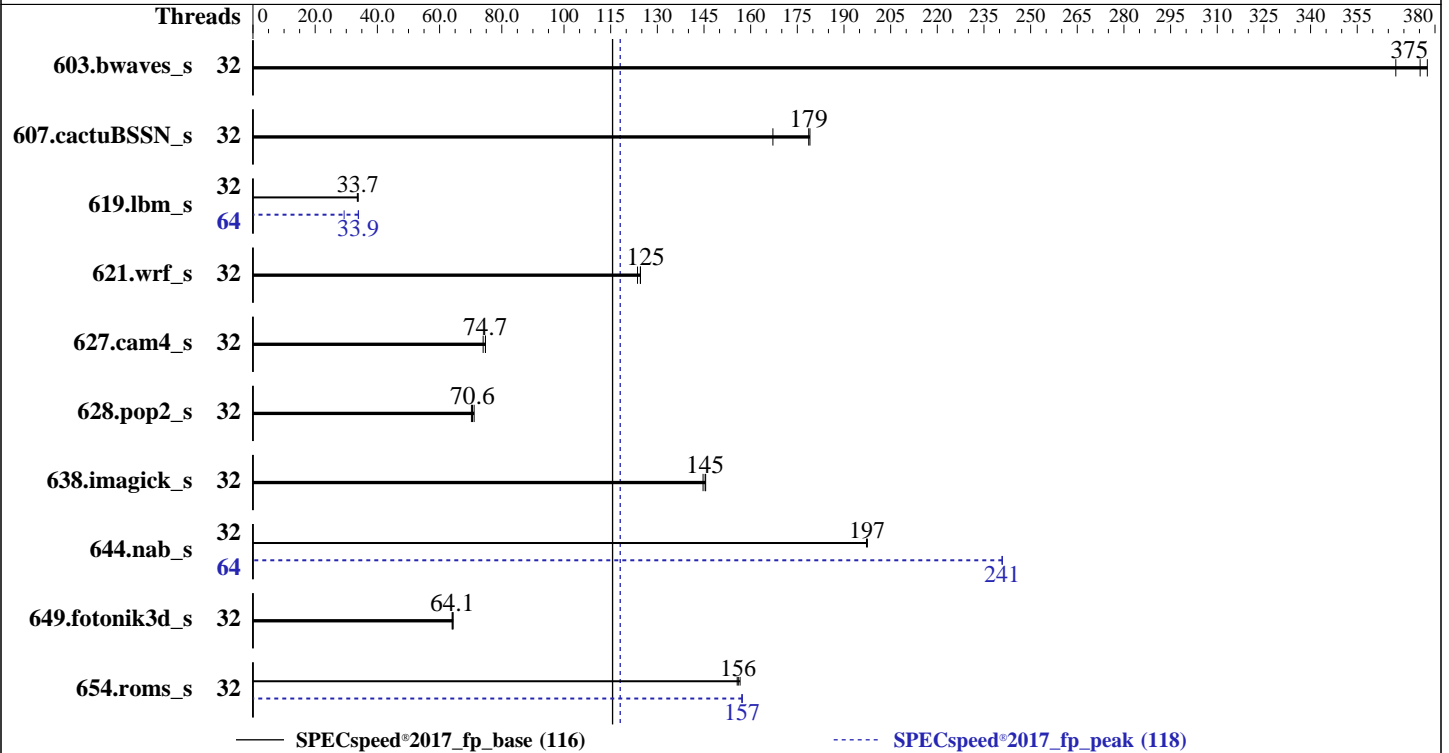
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019



Hardware

CPU Name: AMD EPYC 7532
 Max MHz: 3300
 Nominal: 2400
 Enabled: 32 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 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 shared / 2 cores
 Other: None
 Memory: 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)
 Storage: 1 x 240 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP1 (x86_64)
 Kernel 4.12.14-195-default
 Compiler: C/C++/Fortran: Version 2.0.0 of AOCC
 Parallel: Yes
 Firmware: Version 0501 released Nov-2019
 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 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECSpeed®2017_fp_base = 116

SPECSpeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	32	156	378	<u>157</u>	<u>375</u>	161	367	32	156	378	<u>157</u>	<u>375</u>	161	367
607.cactuBSSN_s	32	93.1	179	99.7	167	<u>93.3</u>	<u>179</u>	32	93.1	179	99.7	167	<u>93.3</u>	<u>179</u>
619.lbm_s	32	<u>155</u>	<u>33.7</u>	155	33.8	156	33.6	64	<u>155</u>	<u>33.9</u>	179	29.3	154	33.9
621.wrf_s	32	107	124	<u>106</u>	<u>125</u>	106	125	32	107	124	<u>106</u>	<u>125</u>	106	125
627.cam4_s	32	119	74.8	<u>119</u>	<u>74.7</u>	120	74.0	32	119	74.8	<u>119</u>	<u>74.7</u>	120	74.0
628.pop2_s	32	169	70.2	167	71.1	<u>168</u>	<u>70.6</u>	32	169	70.2	167	71.1	<u>168</u>	<u>70.6</u>
638.imagick_s	32	99.7	145	99.1	146	<u>99.2</u>	<u>145</u>	32	99.7	145	99.1	146	<u>99.2</u>	<u>145</u>
644.nab_s	32	<u>88.5</u>	<u>197</u>	88.6	197	88.5	198	64	72.5	241	72.5	241	<u>72.5</u>	<u>241</u>
649.fotonik3d_s	32	142	64.4	<u>142</u>	<u>64.1</u>	142	64.1	32	142	64.4	<u>142</u>	<u>64.1</u>	142	64.1
654.roms_s	32	101	157	101	156	<u>101</u>	<u>156</u>	32	<u>100</u>	<u>157</u>	100	157	100	157

SPECSpeed®2017_fp_base = **116**

SPECSpeed®2017_fp_peak = **118**

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)

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Operating System Notes (Continued)

OS set to performance mode via cpupower frequency-set -g performance.

Environment Variables Notes

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

GOMP_CPU_AFFINITY = "0-63"

LD_LIBRARY_PATH =

"/spec2017c1/amd_speed_aocc200_rome_C_lib/64;/spec2017c1/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 619.lbm_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 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"

Environment variables set by runcpu during the 654.roms_s peak run:

GOMP_CPU_AFFINITY = "0-31"

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 -flt0
jemalloc 5.1.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Platform Notes

BIOS Configuration:
Power phase shedding = Disabled
SVM Mode = Disabled
SR-IOV support = Disabled
DRAM Scrub time = Disabled
Determinism Slider = Power
APBDIS = 1
Engine Boost = Enabled
NUMA nodes per socket = NPS4

Sysinfo program /spec2017c1/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on linux-wv9n Wed Aug 5 13:33:30 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 7532 32-Core Processor
 1 "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 : 32
siblings : 64
physical 0: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29 32 33 36 37 40 41 44 45
48 49 52 53 56 57 60 61
```

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: 32
Socket(s): 1
NUMA node(s): 4
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7532 32-Core Processor
Stepping: 0
CPU MHz: 2400.000
CPU max MHz: 2400.0000
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Platform Notes (Continued)

```

CPU min MHz:          1500.0000
BogoMIPS:             4790.87
Virtualization:      AMD-V
L1d cache:           32K
L1i cache:           32K
L2 cache:            512K
L3 cache:            16384K
NUMA node0 CPU(s):   0-7,32-39
NUMA node1 CPU(s):   8-15,40-47
NUMA node2 CPU(s):   16-23,48-55
NUMA node3 CPU(s):   24-31,56-63
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 nopl 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_l2 mwaitx cpb
cat_l3 cdp_l3 hw_pstate sme ssbd 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 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: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 32 33 34 35 36 37 38 39
node 0 size: 128798 MB
node 0 free: 128597 MB
node 1 cpus: 8 9 10 11 12 13 14 15 40 41 42 43 44 45 46 47
node 1 size: 129011 MB
node 1 free: 128761 MB
node 2 cpus: 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55
node 2 size: 129011 MB
node 2 free: 128790 MB
node 3 cpus: 24 25 26 27 28 29 30 31 56 57 58 59 60 61 62 63
node 3 size: 128996 MB
node 3 free: 128789 MB
node distances:
node   0   1   2   3
 0:  10  12  12  12
 1:  12  10  12  12
 2:  12  12  10  12
 3:  12  12  12  10

```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020
Hardware Availability: Feb-2020
Software Availability: Jun-2019

Platform Notes (Continued)

```

From /proc/meminfo
MemTotal:          528197060 kB
HugePages_Total:   0
Hugepagesize:      2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"

uname -a:
Linux linux-wv9n 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
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
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: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):         Mitigation: Full AMD retpoline, IBPB:
                                              conditional, IBRS_FW, STIBP: conditional, RSB
                                              filling

run-level 3 Aug 5 08:24

SPEC is set to: /spec2017c1
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdd4       xfs   199G   23G  177G  12% /

From /sys/devices/virtual/dmi/id
BIOS:          American Megatrends Inc. 0501 11/07/2019
Vendor:        ASUSTeK COMPUTER INC.
Product:       KRPA-U16 Series
Product Family: Server
Serial:        System Serial Number

Additional information from dmidecode follows.  WARNING: Use caution when you interpret

```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Platform Notes (Continued)

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 Samsung M393A8G40AB2-CWE 64 kB 2 rank 3200

8x Unknown Unknown

(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)  
-----
```

```
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)  
-----
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-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
```

```
-----
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
-----
```

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.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Base Portability Flags (Continued)

```
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
-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 -z muldefs -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -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
-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 -DUSE_OPENMP
-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 -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-lflang
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Base Optimization Flags (Continued)

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 -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 -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 -DUSE_OPENMP -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
```

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
```



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECSpeed®2017_fp_base = 116

SPECSpeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
619.lbm_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
-DUSE_OPENMP -lmvec -lamdlibm -fopenmp=libomp -lomp
-lpthread -ldl -ljemalloc -lflang
```

638.imagick_s: basepeak = yes

644.nab_s: Same as 619.lbm_s

Fortran benchmarks:

603.bwaves_s: basepeak = yes

649.fotonik3d_s: basepeak = yes

```
654.roms_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
-Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver2
-funroll-loops -Mrecursive -mllvm -vector-library=LIBMVEC
-Kieee -fno-finite-math-only -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-lmvec -lamdlibm -ljemalloc -lflang
```

Benchmarks using both Fortran and C:

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS500A-E10(KRPA-U16) Server System
2.40 GHz, AMD EPYC 7532

SPECspeed®2017_fp_base = 116

SPECspeed®2017_fp_peak = 118

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Aug-2020

Hardware Availability: Feb-2020

Software Availability: Jun-2019

Peak Optimization Flags (Continued)

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-return-type

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/ASUSTekPlatform-Settings-AMD-Rome-V1.0-revI.html>

<http://www.spec.org/cpu2017/flags/aocc200-flags-A1.2019-09-17.html>

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-Rome-V1.0-revI.xml>

<http://www.spec.org/cpu2017/flags/aocc200-flags-A1.2019-09-17.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.

Tested with SPEC CPU®2017 v1.1.0 on 2020-08-05 01:33:30-0400.

Report generated on 2020-09-15 14:34:18 by CPU2017 PDF formatter v6255.

Originally published on 2020-09-15.