SPEC® CPU2017 Floating Point Rate Result

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ASUSTeK Computer Inc.

ASUS RS500A-E9(KNPA-U16) Server System
(2.20 GHz, AMD EPYC 7601 32-Core)

$SPECrate2017\_fp\_base = 135$

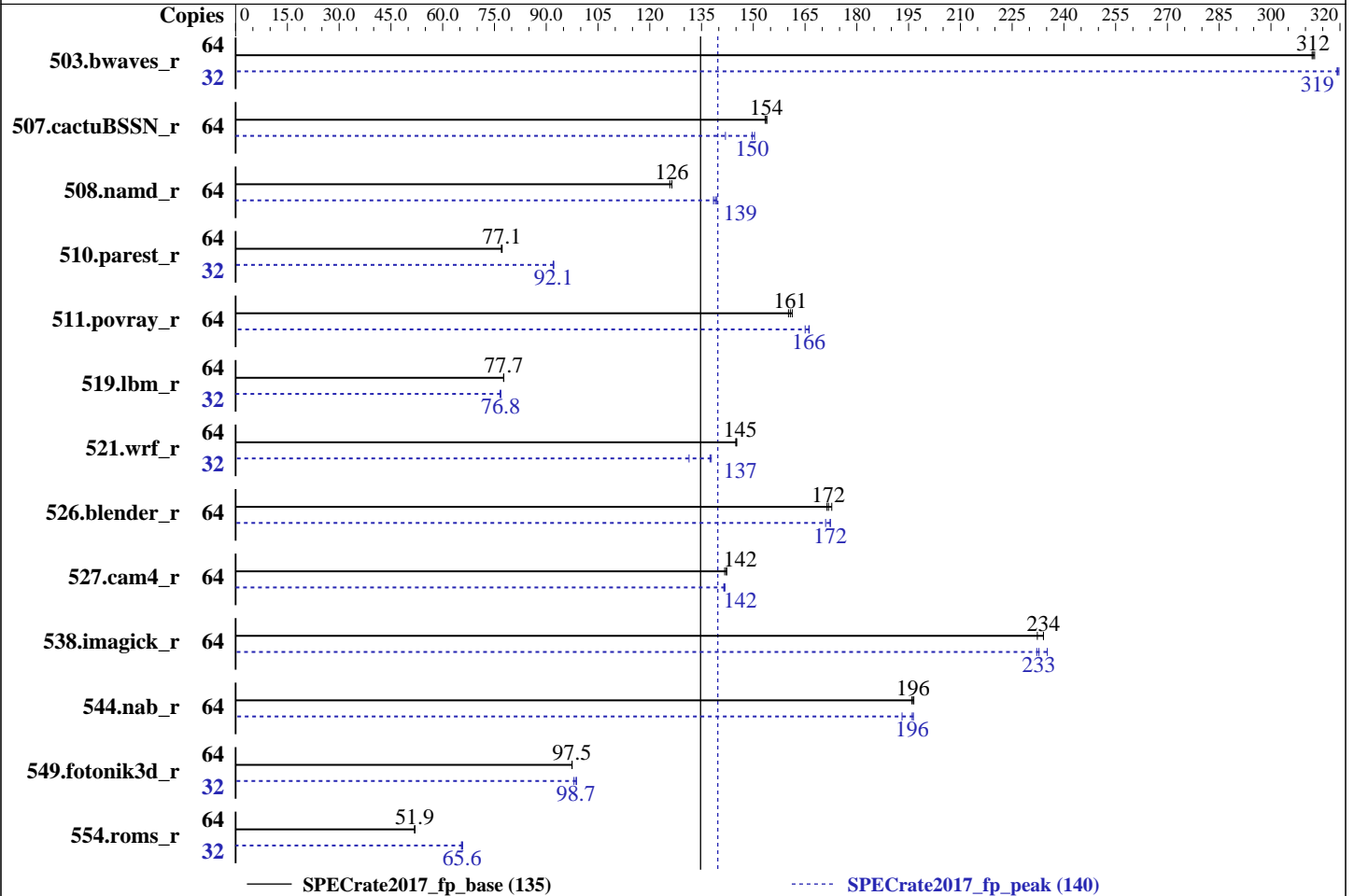$SPECrate2017\_fp\_peak = 140$

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

Test Date: Jan-2019
Hardware Availability: Mar-2019
Software Availability: Jun-2018

Benchmark	Copies	Base	Peak
503.bwaves_r	64	312	
503.bwaves_r	32		319
507.cactuBSSN_r	64	154	150
508.namd_r	64	126	139
510.parest_r	64	77.1	
510.parest_r	32		92.1
511.povray_r	64	161	166
519.lbm_r	64	77.7	
519.lbm_r	32		76.8
521.wrf_r	64	145	
521.wrf_r	32		137
526.blender_r	64	172	172
527.cam4_r	64	142	142
538.imagick_r	64	234	233
544.nab_r	64	196	196
549.fotonik3d_r	64	97.5	
549.fotonik3d_r	32		98.7
554.roms_r	64	51.9	
554.roms_r	32		65.6

SPECrate2017_fp_base (135)   SPECrate2017_fp_peak (140)

Hardware

CPU Name: AMD EPYC 7601
 Max MHz.: 3200
 Nominal: 2200
Enabled: 32 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 64 KB I + 32 KB D on chip per core
 L2: 512 KB I+D on chip per core
 L3: 64 MB I+D on chip per chip, 8 MB shared / 4 cores
 Other: None
Memory: 512 GB (8 x 64 GB 4Rx4 PC4-2667V-R)
Storage: 1 x 960 GB SATA SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 12 (x86_64) SP3
 Kernel 4.4.114-94.11-default
Compiler: C/C++: Version 1.0.0 of AOCC
 Fortran: Version 4.8.2 of GCC
Parallel: No
Firmware: Version 0601 released Jan-2019
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc general purpose malloc implementation
 V4.5.0

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

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Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	64	**2056**	**312**	2058	312	2053	313	32	1005	319	**1005**	**319**	1004	320
507.cactuBSSN_r	64	**527**	**154**	528	153	526	154	64	**541**	**150**	571	142	539	150
508.namd_r	64	**481**	**126**	481	126	483	126	64	439	138	**437**	**139**	436	139
510.parest_r	64	2168	77.2	**2171**	**77.1**	2174	77.0	32	908	92.2	**909**	**92.1**	910	92.0
511.povray_r	64	927	161	**930**	**161**	933	160	64	906	165	899	166	**900**	**166**
519.lbm_r	64	**868**	**77.7**	869	77.7	868	77.7	32	439	76.8	**439**	**76.8**	440	76.6
521.wrf_r	64	989	145	987	145	**988**	**145**	32	546	131	**521**	**137**	520	138
526.blender_r	64	569	171	564	173	**567**	**172**	64	570	171	566	172	**566**	**172**
527.cam4_r	64	790	142	**787**	**142**	787	142	64	**791**	**142**	789	142	791	141
538.imagick_r	64	680	234	**680**	**234**	685	232	64	**684**	**233**	677	235	686	232
544.nab_r	64	550	196	548	197	**549**	**196**	64	548	196	**549**	**196**	558	193
549.fotonik3d_r	64	2558	97.5	2560	97.4	**2559**	**97.5**	32	1263	98.8	1272	98.0	**1264**	**98.7**
554.roms_r	64	1960	51.9	**1959**	**51.9**	1958	51.9	32	773	65.8	777	65.4	**775**	**65.6**
SPECrate2017_fp_base =	**135**													
SPECrate2017_fp_peak =	**140**													

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.
'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

runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <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 were enabled for this run (OS default)

Huge pages were not configured for this run.
```

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General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/spec2017amd/amd1704-rate-libs-revC/64;/spec2017amd/amd1704-rate-libs-revC/32:"
MALLOC_CONF = "lg_chunk:28"

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

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using RHEL 7.4

jemalloc, a general purpose malloc implementation, was obtained at
https://github.com/jemalloc/jemalloc/releases/download/4.5.0/jemalloc-4.5.0.tar.bz2
jemalloc was built with GCC v4.8.5 in RHEL v7.2 under default conditions.
jemalloc uses environment variable MALLOC_CONF with values narenas and lg_chunk:
  narenas: sets the maximum number of arenas to use for automatic multiplexing
           of threads and arenas.
  lg_chunk: set the virtual memory chunk size (log base 2). For example,
            lg_chunk:21 sets the default chunk size to 2^21 = 2MiB.

The AOCC Gold Linker plugin was installed and used for the link stage.

The AOCC Fortran Plugin version 1.0 was used to leverage AOCC optimizers
with gfortran. It is available here:
http://developer.amd.com/amd-aocc/

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.
```

Platform Notes

```
BIOS Configuration:
Determinism Slider = Power
cTDP Control = Manual
cTDP = 200
 Sysinfo program /spec2017amd/bin/sysinfo
 Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
 running on linux-pmm5 Thu Jan 31 10:29:40 2019

 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
```

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Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

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Platform Notes (Continued)

```
     model name : AMD EPYC 7601 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 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
        25 26 27 28 29 30 31

  From lscpu:
       Architecture:          x86_64
       CPU op-mode(s):        32-bit, 64-bit
       Byte Order:            Little Endian
       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:                 1
       Model name:            AMD EPYC 7601 32-Core Processor
       Stepping:              2
       CPU MHz:               2200.000
       CPU max MHz:           2200.0000
       CPU min MHz:           1200.0000
       BogoMIPS:              4400.13
       Virtualization:        AMD-V
       L1d cache:             32K
       L1i cache:             64K
       L2 cache:              512K
       L3 cache:              8192K
       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 nonstop_tsc extd_apicid amd_dcm aperfmperf eagerfpu 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 skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_l2 mwaitx arat cpb
       hw_pstate retpoline retpoline_amd npt lbrv svm_lock nrip_save tsc_scale vmcb_clean
       flushbyasid decodeassists pausefilter pfthreshold vmmcall avic fsgsbase bmi1 avx2
       smep bmi2 rdseed adx smap clflushopt sha_ni xsaveopt xsavec xgetbv1 clzero irperf
```

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Platform Notes (Continued)

```
     ibpb 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: 128894 MB
  node 0 free: 128685 MB
  node 1 cpus: 8 9 10 11 12 13 14 15 40 41 42 43 44 45 46 47
  node 1 size: 129021 MB
  node 1 free: 128830 MB
  node 2 cpus: 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55
  node 2 size: 129021 MB
  node 2 free: 128839 MB
  node 3 cpus: 24 25 26 27 28 29 30 31 56 57 58 59 60 61 62 63
  node 3 size: 129020 MB
  node 3 free: 128823 MB
  node distances:
  node   0   1   2   3
    0:  10  16  16  16
    1:  16  10  16  16
    2:  16  16  10  16
    3:  16  16  16  10

From /proc/meminfo
   MemTotal:       528340928 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 12 (x86_64)
      VERSION = 12
      PATCHLEVEL = 3
      # This file is deprecated and will be removed in a future service pack or release.
      # Please check /etc/os-release for details about this release.
   os-release:
      NAME="SLES"
      VERSION="12-SP3"
      VERSION_ID="12.3"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

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Platform Notes (Continued)

```
   uname -a:
      Linux linux-pmm5 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)
      x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Jan 31 09:58

   SPEC is set to: /spec2017amd
      Filesystem      Type    Size   Used Avail Use% Mounted on
      /dev/sda2       btrfs  873G   17G   857G   2% /

   Additional information from dmidecode follows.  WARNING: Use caution when you interpret
   this section. The 'dmidecode' program reads system data which is "intended to allow
   hardware to be accurately determined", but the intent may not be met, as there are
   frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.
     BIOS American Megatrends Inc. 0601 01/28/2019
     Memory:
      8x Micron Technology 72ASS8G72LZ-2G6B2 64 GB 4 rank 2666
      24x Unknown Unknown

   (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
  CC  519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
  CXXC 508.namd_r(base, peak) 510.parest_r(base, peak)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
  CC  511.povray_r(base, peak) 526.blender_r(base, peak)
```

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Compiler Version Notes (Continued)

```
--------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
--------------------------------------------------------------------------------


================================================================================
  FC  507.cactuBSSN_r(base, peak)
--------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
GNU Fortran (GCC) 4.8.2
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GNU Fortran comes with NO WARRANTY, to the extent permitted by law.
You may redistribute copies of GNU Fortran
under the terms of the GNU General Public License.
For more information about these matters, see the file named COPYING
--------------------------------------------------------------------------------


================================================================================
  FC  503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base,
      peak)
--------------------------------------------------------------------------------
GNU Fortran (GCC) 4.8.2
Copyright (C) 2013 Free Software Foundation, Inc.
GNU Fortran comes with NO WARRANTY, to the extent permitted by law.
You may redistribute copies of GNU Fortran
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--------------------------------------------------------------------------------


================================================================================
```

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Compiler Version Notes (Continued)

```
  CC  521.wrf_r(base, peak) 527.cam4_r(base, peak)
------------------------------------------------------------------------
GNU Fortran (GCC) 4.8.2
Copyright (C) 2013 Free Software Foundation, Inc.
GNU Fortran comes with NO WARRANTY, to the extent permitted by law.
You may redistribute copies of GNU Fortran
under the terms of the GNU General Public License.
For more information about these matters, see the file named COPYING
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`clang`

C++ benchmarks:
`clang++`

Fortran benchmarks:
`clang gfortran`

Benchmarks using both Fortran and C:
`clang gfortran`

Benchmarks using both C and C++:
`clang++ clang`

Benchmarks using Fortran, C, and C++:
`clang++ clang gfortran`

Base Portability Flags

503.bwaves_r: `-DSPEC_LP64`
507.cactuBSSN_r: `-DSPEC_LP64`
508.namd_r: `-DSPEC_LP64`
510.parest_r: `-DSPEC_LP64`
511.povray_r: `-DSPEC_LP64`
519.lbm_r: `-DSPEC_LP64`

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Base Portability Flags (Continued)

521.wrf_r: `-DSPEC_CASE_FLAG -fconvert=big-endian -DSPEC_LP64`
526.blender_r: `-funsigned-char -D__BOOL_DEFINED -DSPEC_LP64`
527.cam4_r: `-DSPEC_CASE_FLAG -DSPEC_LP64`
538.imagick_r: `-DSPEC_LP64`
544.nab_r: `-DSPEC_LP64`
549.fotonik3d_r: `-DSPEC_LP64`
554.roms_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop`
`-disable-vect-cmp -O3 -ffast-math -march=znver1 -fstruct-layout=2`
`-mllvm -unroll-threshold=100 -fremap-arrays -mno-avx2`
`-inline-threshold=1000 -z muldefs -ljemalloc`

C++ benchmarks:
`-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop`
`-disable-vect-cmp -O3 -march=znver1 -mllvm -unroll-threshold=100`
`-finline-aggressive -fremap-arrays -inline-threshold=1000 -z muldefs`
`-ljemalloc`

Fortran benchmarks:
`-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop`
`-disable-vect-cmp -O3 -mavx -madx -funroll-loops -ffast-math`
`-z muldefs -fplugin=dragonegg.so -fplugin-arg-dragonegg-llvm-option="`
`-disable-vect-cmp" -ljemalloc -lgfortran  -lamdlibm`

Benchmarks using both Fortran and C:
`-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop`
`-disable-vect-cmp -O3 -ffast-math -march=znver1 -fstruct-layout=2`
`-mllvm -unroll-threshold=100 -fremap-arrays -mno-avx2`
`-inline-threshold=1000 -mavx -madx -funroll-loops -z muldefs`
`-fplugin=dragonegg.so -fplugin-arg-dragonegg-llvm-option="`
`-disable-vect-cmp" -ljemalloc -lgfortran  -lamdlibm`

Benchmarks using both C and C++:
`-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop`
`-disable-vect-cmp -O3 -ffast-math -march=znver1 -fstruct-layout=2`
`-mllvm -unroll-threshold=100 -fremap-arrays -mno-avx2`
`-inline-threshold=1000 -finline-aggressive -z muldefs -ljemalloc`

Benchmarks using Fortran, C, and C++:
`-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop`

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Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-disable-vect-cmp -O3 -ffast-math -march=znver1 -fstruct-layout=2
-mllvm -unroll-threshold=100 -fremap-arrays -mno-avx2
-inline-threshold=1000 -finline-aggressive -mavx -madx -funroll-loops
-z muldefs -fplugin=dragonegg.so -fplugin-arg-dragonegg-llvm-option="
-disable-vect-cmp" -ljemalloc
```

Peak Compiler Invocation

C benchmarks:
```
clang
```

C++ benchmarks:
```
clang++
```

Fortran benchmarks:
```
clang gfortran
```

Benchmarks using both Fortran and C:
```
clang gfortran
```

Benchmarks using both C and C++:
```
clang++ clang
```

Benchmarks using Fortran, C, and C++:
```
clang++ clang gfortran
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:
```
-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop -Ofast
-march=znver1 -fstruct-layout=3 -mllvm -vectorize-memory-aggressively
-mno-avx2 -unroll-threshold=100 -fremap-arrays -inline-threshold=1000
-ljemalloc
```

(Continued on next page)

ASUSTeK Computer Inc.

ASUS RS500A-E9(KNPA-U16) Server System
(2.20 GHz, AMD EPYC 7601 32-Core)

SPECrate2017_fp_base =   135

SPECrate2017_fp_peak =   140

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

Test Date: Jan-2019
Hardware Availability: Mar-2019
Software Availability: Jun-2018

Peak Optimization Flags (Continued)

C++ benchmarks:
```
-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop -Ofast
-march=znver1 -finline-aggressive -mllvm -unroll-threshold=100
-fremap-arrays -inline-threshold=1000 -ljemalloc
```

Fortran benchmarks:
```
-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop -O3
-mavx2 -madx -funroll-loops -ffast-math -fplugin=dragonegg.so
-fplugin-arg-dragonegg-llvm-option=" -inline-threshold:1000" -ljemalloc
-lgfortran  -lamdlibm
```

Benchmarks using both Fortran and C:

```
 521.wrf_r: -flto -Wl, -plugin-opt= -merge-constant
-lsr-in-nested-loop -O3 -mavx -ffast-math -funroll-loops
-fplugin=dragonegg.so -fplugin-arg-dragonegg-llvm-option="
-inline-threshold:1000" -ljemalloc -lgfortran  -lamdlibm
```

```
 527.cam4_r: -flto -Wl, -plugin-opt= -merge-constant
-lsr-in-nested-loop -Ofast -march=znver1
-fstruct-layout=3 -mllvm -vectorize-memory-aggressively
-mno-avx2 -unroll-threshold=100 -fremap-arrays
-inline-threshold=1000 -O3 -mavx2 -madx -funroll-loops
-ffast-math -fplugin=dragonegg.so
-fplugin-arg-dragonegg-llvm-option="
-inline-threshold:1000" -ljemalloc -lgfortran  -lamdlibm
```

Benchmarks using both C and C++:
```
-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop -Ofast
-march=znver1 -fstruct-layout=3 -mllvm -vectorize-memory-aggressively
-mno-avx2 -unroll-threshold=100 -fremap-arrays -inline-threshold=1000
-finline-aggressive -ljemalloc
```

Benchmarks using Fortran, C, and C++:
```
-flto -Wl, -plugin-opt= -merge-constant -lsr-in-nested-loop -Ofast
-march=znver1 -fstruct-layout=3 -mllvm -vectorize-memory-aggressively
-mno-avx2 -unroll-threshold=100 -fremap-arrays -inline-threshold=1000
-finline-aggressive -O3 -mavx2 -madx -funroll-loops -ffast-math
-fplugin=dragonegg.so -fplugin-arg-dragonegg-llvm-option="
-inline-threshold:1000" -ljemalloc
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-z11-V2.0-revA.html
http://www.spec.org/cpu2017/flags/aocc100-flags-revC-I.2018-02-16.html
http://www.spec.org/cpu2017/flags/gcc.2018-02-16.html

SPEC CPU2017 Floating Point Rate Result

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ASUSTeK Computer Inc.

ASUS RS500A-E9(KNPA-U16) Server System
(2.20 GHz, AMD EPYC 7601 32-Core)

SPECrate2017_fp_base =   135

SPECrate2017_fp_peak =   140

CPU2017 License: 9016		**Test Date:**	Jan-2019
Test Sponsor:	ASUSTeK Computer Inc.	**Hardware Availability:**	Mar-2019
Tested by:	ASUSTeK Computer Inc.	**Software Availability:**	Jun-2018

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-z11-V2.0-revA.xml
http://www.spec.org/cpu2017/flags/aocc100-flags-revC-I.2018-02-16.xml
http://www.spec.org/cpu2017/flags/gcc.2018-02-16.xml

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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