SPEC® CPU2017 Integer Rate Result

ASUSTeK Computer Inc.

ASUS RS700A-E9(KNPP-D32) Server System
(2.20 GHz, AMD EPYC 7601)

SPECrate2017_int_base =   304

SPECrate2017_int_peak =   323

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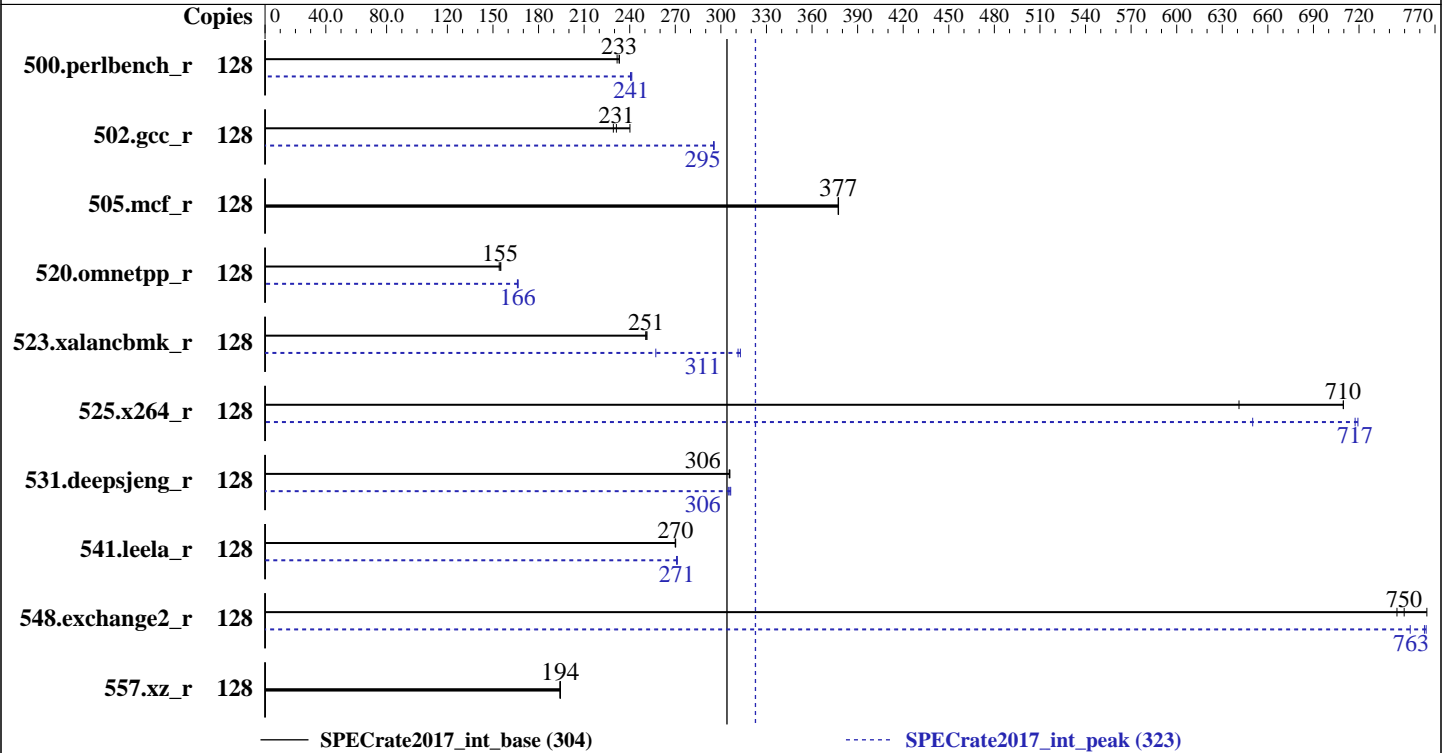**Test Sponsor:** ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Mar-2019
Hardware Availability: Dec-2018
Software Availability: Dec-2018

Copies		
500.perlbench_r	128	233 / 241
502.gcc_r	128	231 / 295
505.mcf_r	128	377
520.omnetpp_r	128	155 / 166
523.xalancbmk_r	128	251 / 311
525.x264_r	128	710 / 717
531.deepsjeng_r	128	306 / 306
541.leela_r	128	270 / 271
548.exchange2_r	128	750 / 763
557.xz_r	128	194

——— **SPECrate2017_int_base (304)**   - - - - **SPECrate2017_int_peak (323)**

Hardware

CPU Name: AMD EPYC 7601
 Max MHz.:   3200
 Nominal: 2200
Enabled: 64 cores, 2 chips, 2 threads/core
Orderable: 1, 2 chip(s)
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: 1 TB (16 x 64 GB 4Rx4 PC4-2667V-L)
Storage: 1 x 960 GB SATA SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 15
   kernel 4.12.14-23-default
Compiler: C/C++: Version 1.3.0 of AOCC
   Fortran: Version 4.8.2 of GCC
Parallel: No
Firmware: Version 1102 released Mar-2019
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc: jemalloc memory allocator library
   V5.1.0

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

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Results Table

Benchmark	Base						Peak					
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	128	874	233	**874**	**233**	879	232	128	844	241	**846**	**241**	847	241
502.gcc_r	128	755	240	**784**	**231**	791	229	128	613	296	**614**	**295**	614	295
505.mcf_r	128	548	377	548	377	**548**	**377**	128	548	377	548	377	**548**	**377**
520.omnetpp_r	128	1090	154	1082	155	**1085**	**155**	128	1011	166	**1010**	**166**	1008	167
523.xalancbmk_r	128	**539**	**251**	540	251	538	251	128	526	257	432	313	**434**	**311**
525.x264_r	128	316	710	**316**	**710**	350	641	128	345	650	**312**	**717**	312	719
531.deepsjeng_r	128	479	306	480	305	**480**	**306**	128	481	305	**480**	**306**	479	306
541.leela_r	128	**785**	**270**	784	270	785	270	128	781	271	783	271	**782**	**271**
548.exchange2_r	128	**447**	**750**	450	745	439	765	128	**440**	**763**	445	754	439	764
557.xz_r	128	**711**	**194**	711	194	713	194	128	**711**	**194**	711	194	713	194

SPECrate2017_int_base = **304**

SPECrate2017_int_peak = **323**

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)
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/spec2017amd/amd1812na_rate_revA_lib/64;/spec2017amd/amd1812na_rate_revA_lib/32:"
```

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General Notes (Continued)

The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/
Binaries were compiled on a system with 2p AMD EPYC 7601 CPU + 512GB Memory using RHEL 7.6
jemalloc: configured and built with GCC v4.8.5 in RHEL v7.2 under default conditions.
jemalloc: sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
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 1.3.0 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: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
 running on linux-b4ur Fri Mar 29 06:18:59 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
   model name : AMD EPYC 7601 32-Core Processor
     2 "physical id"s (chips)
     128 "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

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Platform Notes (Continued)

```
     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
     physical 1: 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):              128
     On-line CPU(s) list: 0-127
     Thread(s) per core:  2
     Core(s) per socket:  32
     Socket(s):           2
     NUMA node(s):        8
     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:            4400.22
     Virtualization:      AMD-V
     L1d cache:           32K
     L1i cache:           64K
     L2 cache:            512K
     L3 cache:            8192K
     NUMA node0 CPU(s):   0-7,64-71
     NUMA node1 CPU(s):   8-15,72-79
     NUMA node2 CPU(s):   16-23,80-87
     NUMA node3 CPU(s):   24-31,88-95
     NUMA node4 CPU(s):   32-39,96-103
     NUMA node5 CPU(s):   40-47,104-111
     NUMA node6 CPU(s):   48-55,112-119
     NUMA node7 CPU(s):   56-63,120-127
     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 amd_dcm 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 skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_l2 mwaitx cpb
     hw_pstate vmmcall fsgsbase bmi1 avx2 smep bmi2 rdseed adx smap clflushopt sha_ni
     xsaveopt xsavec xgetbv1 xsaves clzero irperf xsaveerptr ibpb arat npt lbrv svm_lock
     nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold
```

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Platform Notes (Continued)

```
     avic v_vmsave_vmload vgif overflow_recov succor smca ssbd

  /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 4 5 6 7 64 65 66 67 68 69 70 71
    node 0 size: 128905 MB
    node 0 free: 128713 MB
    node 1 cpus: 8 9 10 11 12 13 14 15 72 73 74 75 76 77 78 79
    node 1 size: 129020 MB
    node 1 free: 128830 MB
    node 2 cpus: 16 17 18 19 20 21 22 23 80 81 82 83 84 85 86 87
    node 2 size: 129020 MB
    node 2 free: 128844 MB
    node 3 cpus: 24 25 26 27 28 29 30 31 88 89 90 91 92 93 94 95
    node 3 size: 128991 MB
    node 3 free: 128782 MB
    node 4 cpus: 32 33 34 35 36 37 38 39 96 97 98 99 100 101 102 103
    node 4 size: 129020 MB
    node 4 free: 128822 MB
    node 5 cpus: 40 41 42 43 44 45 46 47 104 105 106 107 108 109 110 111
    node 5 size: 129020 MB
    node 5 free: 128845 MB
    node 6 cpus: 48 49 50 51 52 53 54 55 112 113 114 115 116 117 118 119
    node 6 size: 129020 MB
    node 6 free: 128828 MB
    node 7 cpus: 56 57 58 59 60 61 62 63 120 121 122 123 124 125 126 127
    node 7 size: 125016 MB
    node 7 free: 124842 MB
    node distances:
    node   0   1   2   3   4   5   6   7
      0:  10  16  16  16  32  32  32  32
      1:  16  10  16  16  32  32  32  32
      2:  16  16  10  16  32  32  32  32
      3:  16  16  16  10  32  32  32  32
      4:  32  32  32  32  10  16  16  16
      5:  32  32  32  32  16  10  16  16
      6:  32  32  32  32  16  16  10  16
      7:  32  32  32  32  16  16  16  10

  From /proc/meminfo
    MemTotal:       1052687524 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB
```

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Platform Notes (Continued)

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

uname -a:
   Linux linux-b4ur 4.12.14-23-default #1 SMP Tue May 29 21:04:44 UTC 2018 (cd0437b)
   x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown):          Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBPB

run-level 3 Mar 29 06:06

SPEC is set to: /spec2017amd
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda4       xfs   870G  8.6G  861G   1% /

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. 1102 12/26/2018
  Memory:
   16x Micron Technology 72ASS8G72LZ-2G6B2 64 GB 4 rank 2666
   16x Unknown Unknown

(End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
 CC  502.gcc_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.1.3.0.B34.2018_10_22 clang version 7.0.0 (CLANG: Jenkins
  AOCC_1_3_0_Release-Build#34) (based on LLVM AOCC.LLVM.1.3.0.B34.2018_10_22)
```

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Compiler Version Notes (Continued)

```
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/aocc1.3.0/AOCC-1.3.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
 CXXC 523.xalancbmk_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.1.3.0.B34.2018_10_22 clang version 7.0.0 (CLANG: Jenkins
  AOCC_1_3_0_Release-Build#34) (based on LLVM AOCC.LLVM.1.3.0.B34.2018_10_22)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/aocc1.3.0/AOCC-1.3.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
 CC   500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
      525.x264_r(base) 557.xz_r(base, peak)
------------------------------------------------------------------------------
AOCC.LLVM.1.3.0.B34.2018_10_22 clang version 7.0.0 (CLANG: Jenkins
  AOCC_1_3_0_Release-Build#34) (based on LLVM AOCC.LLVM.1.3.0.B34.2018_10_22)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/aocc1.3.0/AOCC-1.3.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
 CXXC 520.omnetpp_r(base, peak) 523.xalancbmk_r(base) 531.deepsjeng_r(base,
      peak) 541.leela_r(base)
------------------------------------------------------------------------------
AOCC.LLVM.1.3.0.B34.2018_10_22 clang version 7.0.0 (CLANG: Jenkins
  AOCC_1_3_0_Release-Build#34) (based on LLVM AOCC.LLVM.1.3.0.B34.2018_10_22)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/aocc1.3.0/AOCC-1.3.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
CC    500.perlbench_r(peak) 525.x264_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.1.3.0.B34.2018_10_22 clang version 7.0.0 (CLANG: Jenkins
  AOCC_1_3_0_Release-Build#34) (based on LLVM AOCC.LLVM.1.3.0.B34.2018_10_22)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/aocc1.3.0/AOCC-1.3.0-Compiler/bin
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
CXXC 541.leela_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.1.3.0.B34.2018_10_22 clang version 7.0.0 (CLANG: Jenkins
  AOCC_1_3_0_Release-Build#34) (based on LLVM AOCC.LLVM.1.3.0.B34.2018_10_22)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/aocc1.3.0/AOCC-1.3.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
 FC  548.exchange2_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
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
clang gfortran

Base Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64

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Base Portability Flags (Continued)

557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

500.perlbench_r: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-enable-vectorize-compares -O3 -ffast-math
-march=znver1 -mno-avx2 -fstruct-layout=3
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -inline-threshold=1000 -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -function-specialize
-z muldefs -lamdlibm -lpthread -ldl -ljemalloc

502.gcc_r: Same as 500.perlbench_r

505.mcf_r: Same as 500.perlbench_r

525.x264_r: Same as 500.perlbench_r

557.xz_r: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-enable-vectorize-compares -O3 -ffast-math
-march=znver1 -mno-avx2 -fstruct-layout=3
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -inline-threshold=1000 -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -function-specialize
-z muldefs -lpthread -ldl -ljemalloc

C++ benchmarks:
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-enable-vectorize-compares -O3 -march=znver1
-mllvm -unroll-threshold=100 -finline-aggressive -fremap-arrays
-mllvm -inline-threshold=1000 -mllvm -enable-vectorize-compares=false
-z muldefs -lpthread -ldl -ljemalloc

Fortran benchmarks:
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-merge-constant
-Wl,-mllvm -Wl,-unroll-aggressive -Wl,-mllvm -Wl,-unroll-threshold=150
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-enable-vectorize-compares -O3 -mavx -madx
-funroll-loops -ffast-math -frepack-arrays -z muldefs
-fplugin=dragonegg.so -specs=integrated-as.specs
-fplugin-arg-dragonegg-llvm-option=-disable-indvar-simplify

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Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-fplugin-arg-dragonegg-llvm-option=-unroll-aggressive
-fplugin-arg-dragonegg-llvm-option=-unroll-threshold:150 -lpthread -ldl
-ljemalloc -lgfortran -lamdlibm
```

Peak Compiler Invocation

C benchmarks:
```
clang
```

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

Fortran benchmarks:
```
clang gfortran
```

Peak Portability Flags

500.perlbench_r: `-DSPEC_LINUX_X64 -DSPEC_LP64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LINUX -D_FILE_OFFSET_BITS=64`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Peak Optimization Flags

C benchmarks:

500.perlbench_r: `-flto -Wl,-mllvm -Wl,-function-specialize`
`-Wl,-mllvm -Wl,-enable-vectorize-compares`
`-fprofile-instr-generate`(pass 1)
`-fprofile-instr-use`(pass 2) `-Ofast -march=znver1`
`-fstruct-layout=3 -mllvm -vectorize-memory-aggressively`
`-mno-avx2 -mllvm -unroll-threshold=100 -fremap-arrays`
`-mllvm -inline-threshold=1000 -lpthread -ldl -ljemalloc`

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CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Mar-2019

Hardware Availability: Dec-2018

Software Availability: Dec-2018

Peak Optimization Flags (Continued)

502.gcc_r: `-m32 -flto -Wl,-mllvm -Wl,-function-specialize`
`-Wl,-mllvm -Wl,-enable-vectorize-compares -Ofast`
`-march=znver1 -fstruct-layout=3`
`-mllvm -vectorize-memory-aggressively -mno-avx2`
`-mllvm -unroll-threshold=100 -fremap-arrays`
`-mllvm -inline-threshold=1000 -fgnu89-inline -lpthread`
`-ldl -ljemalloc`

505.mcf_r: `basepeak = yes`

525.x264_r: `-flto -Wl,-mllvm -Wl,-function-specialize`
`-Wl,-mllvm -Wl,-enable-vectorize-compares`
`-fprofile-instr-generate`(pass 1)
`-fprofile-instr-use`(pass 2) `-Ofast -march=znver1`
`-mno-avx2 -fstruct-layout=5`
`-mllvm -vectorize-memory-aggressively`
`-mllvm -unroll-threshold=50 -fremap-arrays`
`-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist`
`-flv-function-specialization -lamdlibm -ljemalloc`
`-lpthread -ldl`

557.xz_r: `basepeak = yes`

C++ benchmarks:

520.omnetpp_r: `-flto -Wl,-mllvm -Wl,-function-specialize`
`-Wl,-mllvm -Wl,-enable-vectorize-compares -Ofast`
`-march=znver1 -finline-aggressive`
`-mllvm -unroll-threshold=100 -fremap-arrays`
`-mllvm -inline-threshold=1000 -lpthread -ldl -ljemalloc`

523.xalancbmk_r: `-m32 -flto -Wl,-mllvm -Wl,-function-specialize`
`-Wl,-mllvm -Wl,-enable-vectorize-compares -Ofast`
`-march=znver1 -finline-aggressive`
`-mllvm -unroll-threshold=100 -fremap-arrays`
`-mllvm -inline-threshold=1000 -lpthread -ldl -ljemalloc`

531.deepsjeng_r: `Same as 520.omnetpp_r`

541.leela_r: `-flto -Wl,-mllvm -Wl,-function-specialize`
`-Wl,-mllvm -Wl,-enable-vectorize-compares`
`-fprofile-instr-generate`(pass 1)
`-fprofile-instr-use`(pass 2) `-Ofast -march=znver1`
`-mllvm -unroll-count=8 -mllvm -unroll-threshold=100`

(Continued on next page)

SPEC CPU2017 Integer Rate Result
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ASUSTeK Computer Inc.

ASUS RS700A-E9(KNPP-D32) Server System
(2.20 GHz, AMD EPYC 7601)

SPECrate2017_int_base = 304

SPECrate2017_int_peak = 323

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Peak Optimization Flags (Continued)

541.leela_r (continued):
```
-lpthread -ldl -ljemalloc
```

Fortran benchmarks:
```
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-merge-constant
-Wl,-mllvm -Wl,-unroll-aggressive -Wl,-mllvm -Wl,-unroll-threshold=150
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-enable-vectorize-compares -O3 -mavx -madx
-funroll-loops -ffast-math -frepack-arrays -fplugin=dragonegg.so
-specs=integrated-as.specs
-fplugin-arg-dragonegg-llvm-option=-disable-indvar-simplify
-fplugin-arg-dragonegg-llvm-option=-unroll-aggressive
-fplugin-arg-dragonegg-llvm-option=-unroll-threshold:150 -lpthread -ldl
-ljemalloc -lgfortran -lamdlibm
```

Peak Other Flags

C benchmarks:

502.gcc_r: `-L/root/work/lib/jemalloc510/lib32`

C++ benchmarks:

523.xalancbmk_r: `-L/root/work/lib/jemalloc510/lib32`

The flags files that were used to format this result can be browsed at
```
http://www.spec.org/cpu2017/flags/aocc130-flags-revA2.html
http://www.spec.org/cpu2017/flags/gcc.2018-02-16.html
http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-z11-V2.0-revA.html
```

You can also download the XML flags sources by saving the following links:
```
http://www.spec.org/cpu2017/flags/aocc130-flags-revA2.xml
http://www.spec.org/cpu2017/flags/gcc.2018-02-16.xml
http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-z11-V2.0-revA.xml
```

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

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