# SPEC CPU®2017 Floating Point Speed Result

**ASUSTeK Computer Inc.**

ASUS RS720A-E11(KMPP-D32) Server System
2.85 GHz, AMD EPYC 7443

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**SPECspeed®2017_fp_base = 208**

**SPECspeed®2017_fp_peak = 217**

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<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_fp_base (208)</th>
<th>SPECspeed®2017_fp_peak (217)</th>
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<tbody>
<tr>
<td>603.bwaves_s 48</td>
<td>338</td>
<td>272</td>
</tr>
<tr>
<td>607.cactuBSSN_s 48</td>
<td>125</td>
<td>74.3</td>
</tr>
<tr>
<td>619.lbm_s 48</td>
<td>127</td>
<td>179</td>
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<tr>
<td>621.wrf_s 48</td>
<td>157</td>
<td>219</td>
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<tr>
<td>627.cam4_s 48</td>
<td>650</td>
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<tr>
<td>628.pop2_s 48</td>
<td>650</td>
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<tr>
<td>638.imagick_s 48</td>
<td>650</td>
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</tr>
<tr>
<td>644.nab_s 48</td>
<td>380</td>
<td>451</td>
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<tr>
<td>649.fotonik3d_s 48</td>
<td>117</td>
<td>280</td>
</tr>
<tr>
<td>654.roms_s 48</td>
<td>650</td>
<td>650</td>
</tr>
</tbody>
</table>

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### Hardware

- **CPU Name:** AMD EPYC 7443
- **Max MHz:** 4000
- **Nominal:** 2850
- **Enabled:** 48 cores, 2 chips, 2 threads/core
- **Orderable:** 1,2 chips
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 512 KB I+D on chip per core
- **L3:** 128 MB I+D on chip per chip, 32 MB shared / 6 cores
- **Other:** None
- **Memory:** 1 TB (16 x 64 GB 4Rx4 PC4-3200AA-L)
- **Storage:** 1 x 240 GB SATA SSD
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 SP2 (x86_64)
- **Kernel:** 5.3.18-22-default
- **Compiler:** C/C++/Fortran: Version 3.0.0 of AOCC
- **Parallel:** Yes
- **Firmware:** Version 0404 released Feb-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.
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td></td>
<td>222</td>
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<td>70.9</td>
<td></td>
</tr>
</tbody>
</table>

### 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

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

runcpu command invoked through numactl i.e.:

numactl --interleave=all runcpu <etc>

'echo 8 > /proc/sys/vm/dirty_ratio' run as root to limit dirty cache to 8% of memory.

'echo 1 > /proc/sys/vm/swappiness' run as root to limit swap usage to minimum necessary.

'echo 1 > /proc/sys/vm/zone_reclaim_mode' run as root to free node-local memory and avoid remote memory usage.

'sync; echo 3 > /proc/sys/vm/drop_caches' run as root to reset filesystem caches.

'sysctl -w kernel.randomize_va_space=0' run as root to disable address space layout randomization (ASLR) to reduce run-to-run variability.

To enable Transparent Hugepages (THP) for all allocations,
ASUSTeK Computer Inc.  
ASUS RS720A-E11(KMPP-D32) Server System  
2.85 GHz, AMD EPYC 7443  

**SPECspeed®2017_fp_base = 208**  
**SPECspeed®2017_fp_peak = 217**

**CPU2017 License:** 9016  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Tested by:** ASUSTeK Computer Inc.  
**Test Date:** Aug-2021  
**Hardware Availability:** Mar-2021  
**Software Availability:** Mar-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 = "0-95"`
- `LD_LIBRARY_PATH = 
"/cpu118/amd_speed_aocc300_milan_B_lib/64;/cpu118/amd_speed_aocc300_milan_B_lib/32:"`
- `MALLOC_CONF = "retain:true"
- `OMP_DYNAMIC = "false"
- `OMP_SCHEDULE = "static"
- `OMP_STACKSIZE = "128M"
- `OMP_THREAD_LIMIT = "96"

Environment variables set by runcpu during the 619.lbm_s peak run:

- `GOMP_CPU_AFFINITY = "0-47"

Environment variables set by runcpu during the 644.nab_s peak run:

- `GOMP_CPU_AFFINITY = "0 48 1 49 2 50 3 51 4 52 5 53 6 54 7 55 8 56 9 57 10 58 11 59 12 60 13 61 14 62 15 63 16 64 17 65 18 66 19 67 20 68 21 69 22 70 23 71 24 72 25 73 26 74 27 75 28 76 29 77 30 78 31 79 32 80 33 81 34 82 35 83 36 84 37 85 38 86 39 87 40 88 41 89 42 90 43 91 44 92 45 93 46 94 47 95"

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

- `GOMP_CPU_AFFINITY = "0-47"

---

**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)

(Continued on next page)
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Software Availability: Mar-2021

General Notes (Continued)
jemalloc 5.1.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2

Platform Notes

BIOS Configuration:
DLWM Support = Disabled
SVM Mode = Disabled
NUMA nodes per socket = NPS1
APBDIS = 1
Fix SOC P-state = P0
Engine Boost = Enabled

Sysinfo program /cpul18/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaf64d
running on localhost Fri Aug 20 17:43:06 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 7443 24-Core Processor
  2 "physical id"s (chips)
  96 "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: 24
siblings: 48
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

From lscpu from util-linux 2.33.1:
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): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 2
Vendor ID: AuthenticAMD
CPU family: 25

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Software Availability: Mar-2021

Platform Notes (Continued)

Model: 1
Model name: AMD EPYC 7443 24-Core Processor
Stepping: 1
CPU MHz: 2259.351
CPU max MHz: 2850.0000
CPU min MHz: 1500.0000
BogoMIPS: 5689.17
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 32768K
NUMA node0 CPU(s): 0-23,48-71
NUMA node1 CPU(s): 24-47,72-95

Flags: fpu vme de pse tsc msr pae mce cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_good nop1 nonstop_tsc cpuid extapic aperfmperf pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3nowprefetch osw ibs skinit wdt tce topoext perfctr_core perfctr_nb bextent perfctr_llc mwaitx cpb cat_l3 cdpl_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 erts invpcid cmq rdt_a rdseed adx smap clflushopt clwb sha ni xsaveopt xsave xaxevb xsavecap cmq_llc cmq_occum_llc cmq_mbm_total cmq_mbm_local czer0 irqper xsavepr wmbnoinvd arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold v_vmsave_vmload vgif umip pku ospre vaes vpclmulqdq 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: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
node 0 size: 515827 MB
node 0 free: 515052 MB
node 1 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
node 1 size: 516081 MB
node 1 free: 515702 MB
node distances:
  node   0   1
  0:  10  32
  1:  32  10

From /proc/meminfo

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Platform Notes (Continued)

MemTotal: 1056674068 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

From /etc/*release* /etc/*version*

os-release:
NAME="SLES"  
VERSION="15-SP2"  
VERSION_ID="15.2"  
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"  
ID="sles"  
ID_LIKE="suse"  
ANSI_COLOR="0;32"  
CPE_NAME="cpe:/o:suse:sles:15:sp2"

uname -a:  
Linux localhost 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba) 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/swaps barriers and __user pointer sanitation

CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBFB: 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 Aug 20 15:04

SPEC is set to: /cpu118

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 199G 46G 154G 23% /

From /sys/devices/virtual/dmi/id

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Platform Notes (Continued)

Vendor: ASUSTeK COMPUTER INC.
Product: RS720A-E11-RS12E
Product Family: Server
Serial: 123456789012

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:
16x Samsung M386A8K40DM2-CWE 64 GB 4 rank 3200
16x Unknown Unknown

BIOS:
BIOS Vendor: American Megatrends Inc.
BIOS Version: 0404
BIOS Date: 02/02/2021
BIOS Revision: 4.4

(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 LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix

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<td>649.649</td>
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<tr>
<td>fotonik3d_s</td>
<td>654.654</td>
<td>726.726</td>
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Compiler Version Notes (Continued)

InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
AMD clang version 12.0.0 (CLANG: AOCCL_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

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

(Continued on next page)
Base Compiler Invocation (Continued)

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 -W1,-mllvm -W1,-region-vectorize
-W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-align-all-nofallthru-blocks=6
-W1,-mllvm -W1,-reduce-array-computations=3 -03 -march=znver3
-fveclib=AMDLIBM -ffast-math -futo -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 -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamlid -ljemalloc
-llflang -llflangrti

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -W1,-mllvm -W1,-enable-X86-prefetching
-W1,-mllvm -W1,-enable-licm-vrp -W1,-mllvm -W1,-region-vectorize
-W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-align-all-nofallthru-blocks=6
-W1,-mllvm -W1,-reduce-array-computations=3 -Hz,1,0x1 -03
-march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive
-mllvm -fuse-tile-inner-loop -funroll-loops
-mllvm -extra-vectorizer-passes -mllvm -lslr-in-nested-loop
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true -z muldefs -DSPEC_OPENMP -fopenmp

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Base Optimization Flags (Continued)

Fortran benchmarks (continued):
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti

Benchmarks using both Fortran and C:
-m64 -mno-adx -mno-sse4a -W1,-mllvm -W1,-enable-X86-prefetching
-W1,-mllvm -W1,-enable-licm-vrp -W1,-mlvm -W1,-region-vectorize
-W1,-mlvm -W1,-function-specialize
-W1,-mllvm -W1,-align-all-nofallthru-blocks=6
-W1,-mlvm -W1,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mlvm -unroll-threshold=50 -mlvm -inline-threshold=1000
-fremap-arrays -mlvm -function-specialize -flv-function-specialization
-mlvm -enable-gvn-hoist -mlvm -global-vectorize-slp=true
-mlvm -enable-licm-vrp -mlvm -reduce-array-computations=3 -Hz,1,0x1
-Mrecursive -mlvm -funroll-loops -funroll-loops
-mlvm -extra-vectorizer-passes -mlvm -lsr-in-nested-loop -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-llflang -llflangrti

Benchmarks using Fortran, C, and C++:
-m64 -mno-adx -mno-sse4a -std=c++98
-W1,-mlvm -W1,-x86-use-vzeroupper=false
-W1,-mlvm -W1,-region-vectorize -W1,-mlvm -W1,-function-specialize
-W1,-mlvm -W1,-align-all-nofallthru-blocks=6
-W1,-mlvm -W1,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mlvm -unroll-threshold=50 -mlvm -inline-threshold=1000
-fremap-arrays -mlvm -function-specialize -flv-function-specialization
-mlvm -enable-gvn-hoist -mlvm -global-vectorize-slp=true
-mlvm -enable-licm-vrp -mlvm -reduce-array-computations=3
-mlvm -enable-partial-unswitch -mlvm -unroll-threshold=100
-finline-aggressive -mlvm -loop-unswitch-threshold=200000
-mlvm -reroll-loops -mlvm -aggressive-loop-unswitch
-mlvm -extra-vectorizer-passes -mlvm -convert-pow-exp-to-int=false
-Hz,1,0x1 -Mrecursive -mlvm -funroll-loops
-mlvm -lsr-in-nested-loop -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti

Base Other Flags

C benchmarks:
-Wno-unused-command-line-argument -Wno-return-type

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SPEC CPU®2017 Floating Point Speed Result
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ASUSTeK Computer Inc.
ASUS RS720A-E11(KMPP-D32) Server System
2.85 GHz, AMD EPYC 7443

SPECspeed®2017_fp_base = 208
SPECspeed®2017_fp_peak = 217

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Test Date: Aug-2021
Tested by: ASUSTeK Computer Inc.
Hardware Availability: Mar-2021
Software Availability: Mar-2021

Base Other Flags (Continued)

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: -m64 -mno-adx -mno-sse4a
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=5 -mllvm -unroll-threshold=50
-freemap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true

(Continued on next page)
Peak Optimization Flags (Continued)

619.lbm_s (continued):
-mlir -function-specialize -mlir -enable-licm-vrp
-mlir -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

638.imagick_s: basepeak = yes

644.nab_s: -m64 -mno-adx -mno-sse4a -Wl,-mlir -Wl,-region-vectorize
-Wl,-mlir -Wl,-function-specialize -Ofast -march=znver3
-fveclib=AMDLIBM -ffast-math -fllto -fstruct-layout=5
-mlir -unroll-threshold=50 -freemap-arrays
-flv-function-specialization -mlir -inline-threshold=1000
-mlir -enable-gvn-hoist -mlir -global-vectorize-slp=true
-mlir -function-specialize -mlir -enable-licm-vrp
-mlir -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

Fortran benchmarks:

603.bwaves_s: basepeak = yes

649.fotonik3d_s: basepeak = yes

654.roms_s: -m64 -mno-adx -mno-sse4a
-Wl,-mlir -Wl,-enable-X86-prefetching
-Wl,-mlir -Wl,-enable-licm-vrp
-Wl,-mlir -Wl,-function-specialize
-Wl,-mlir -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlir -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive
-mlir -reduce-array-computations=3
-mlir -global-vectorize-slp=true -mlir -enable-licm-vrp
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang

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++:

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS720A-E11(KMPP-D32) Server System
2.85 GHz, AMD EPYC 7443

SPECspeed\textsuperscript{2017}\textsubscript{fp\_base} = 208
SPECspeed\textsuperscript{2017}\textsubscript{fp\_peak} = 217

Peak Optimization Flags (Continued)

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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-Milan-V1.3.2021-07-06.xml

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Tested with SPEC CPU\textsuperscript{2017} v1.1.8 on 2021-08-20 05:43:05-0400.
Originally published on 2021-09-28.