## SPEC CPU® 2017 Floating Point Speed Result

**ASUSTeK Computer Inc.**

ASUS RS500A-E10(KRPA-U16) Server System  
2.60 GHz, AMD EPYC 7H12

| SPECspeed®2017_fp_base = 139 | SPECspeed®2017_fp_peak = 144 |

**CPU2017 License:** 9016  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Tested by:** ASUSTeK Computer Inc.  
**Test Date:** Mar-2020  
**Hardware Availability:** Nov-2019  
**Software Availability:** Jun-2019

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_fp_base (139)</th>
<th>SPECspeed®2017_fp_peak (144)</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s 64</td>
<td></td>
<td></td>
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<tr>
<td>607.cactuBSSN_s 64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>619.lbm_s 128</td>
<td></td>
<td></td>
</tr>
<tr>
<td>621.wrf_s 64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>627.cam4_s 64</td>
<td></td>
<td></td>
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<tr>
<td>628.pop2_s 64</td>
<td></td>
<td></td>
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<tr>
<td>638.imagick_s 64</td>
<td></td>
<td></td>
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<tr>
<td>644.nab_s 128</td>
<td></td>
<td></td>
</tr>
<tr>
<td>649.fotonik3d_s 64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>654.roms_s 64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 7H12  
- **Max MHz:** 3300  
- **Nominal:** 2600  
- **Enabled:** 64 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 / 4 cores  
- **Other:** None  
- **Memory:** 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)  
- **Storage:** 1 x 480 GB SATA SSD  
- **Other:** None

### Software

- **OS:** Ubuntu 19.04 (x86_64)  
- **Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** Version 0501 released Nov-2019  
- **File System:** ext4  
- **System State:** Run level 5 (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>Base</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tr>
<td>607.cactuBSSN_s</td>
<td>64</td>
<td>83.7</td>
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<td>79.9</td>
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<td>64</td>
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<td>619.lbm_s</td>
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<td>32.5</td>
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<td>116</td>
<td>45.1</td>
<td>116</td>
<td>45.2</td>
</tr>
<tr>
<td>621.wrf_s</td>
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<td>85.6</td>
<td>155</td>
<td>85.8</td>
<td>154</td>
<td>85.8</td>
<td>154</td>
<td>64</td>
<td>85.6</td>
<td>155</td>
<td>85.8</td>
<td>154</td>
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<tr>
<td>627.cam4_s</td>
<td>64</td>
<td>95.1</td>
<td>93.2</td>
<td>94.6</td>
<td>93.7</td>
<td>94.8</td>
<td>93.5</td>
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<tr>
<td>628.pop2_s</td>
<td>64</td>
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<td>72.3</td>
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<td>64</td>
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<tr>
<td>638.imagick_s</td>
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<td>56.3</td>
<td>256</td>
<td>64</td>
<td>57.3</td>
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<tr>
<td>644.nab_s</td>
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<tr>
<td>649.fotonik3d_s</td>
<td>64</td>
<td>146</td>
<td>62.3</td>
<td>147</td>
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<td>147</td>
<td>62.2</td>
<td>64</td>
<td>146</td>
<td>62.3</td>
<td>146</td>
<td>62.3</td>
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<tr>
<td>654.roms_s</td>
<td>64</td>
<td>86.6</td>
<td>182</td>
<td>86.8</td>
<td>181</td>
<td>86.8</td>
<td>181</td>
<td>64</td>
<td>86.6</td>
<td>182</td>
<td>86.8</td>
<td>181</td>
</tr>
</tbody>
</table>

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### 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 numacl 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)
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SPECspeed®2017_fp_peak = 144

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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 = "0-127"
LD_LIBRARY_PATH = 
"/spec2017c1/amd_speed_aocc200_rome_C_lib/64;/spec2017c1/amd_speed_aocc2
00_rome_C_lib/32;" MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"

Environment variables set by runcpu during the 607.cactuBSSN_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 619.lbm_s peak run:
GOMP_CPU_AFFINITY = "0 64 1 65 2 66 3 67 4 68 5 69 6 70 7 71 8 72 9 73 10 74
11 75 12 76 13 77 14 78 15 79 16 80 17 81 18 82 19 83 20 84 21 85 22 86
23 87 24 88 25 89 26 90 27 91 28 92 29 93 30 94 31 95 32 96 33 97 34 98
35 99 36 100 37 101 38 102 39 103 40 104 41 105 42 106 43 107 44 108 45
109 46 110 47 111 48 112 49 113 50 114 51 115 52 116 53 117 54 118 55
119 56 120 57 121 58 122 59 123 60 124 61 125 62 126 63 127"

Environment variables set by runcpu during the 627.cam4_s peak run:
GOMP_CPU_AFFINITY = "0-63"

Environment variables set by runcpu during the 644.nab_s peak run:
GOMP_CPU_AFFINITY = "0 64 1 65 2 66 3 67 4 68 5 69 6 70 7 71 8 72 9 73 10 74
11 75 12 76 13 77 14 78 15 79 16 80 17 81 18 82 19 83 20 84 21 85 22 86
23 87 24 88 25 89 26 90 27 91 28 92 29 93 30 94 31 95 32 96 33 97 34 98
35 99 36 100 37 101 38 102 39 103 40 104 41 105 42 106 43 107 44 108 45
109 46 110 47 111 48 112 49 113 50 114 51 115 52 116 53 117 54 118 55
119 56 120 57 121 58 122 59 123 60 124 61 125 62 126 63 127"

Environment variables set by runcpu during the 649.fotonik3d_s peak run:
GOMP_CPU_AFFINITY = "0-63"

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)
(Continued on next page)
SPEC CPU®2017 Floating Point Speed Result
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Software Availability: Jun-2019

General Notes (Continued)

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 -flto
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:
Power phase shedding = Disabled
SVM Mode = Disabled
SR-IOV support = Disabled
DRAM Scrub time = Disabled
NUMA nodes per socket = NPS4
Determinism Slider = Power
APBDIS = 1
cTDP = 280
cTDP control = manual

Sysinfo program /spec2017c1/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbe6e46a485a0011
running on daytona-135 Fri Mar 13 08:32:48 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 7H12 64-Core Processor
   1 "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 : 64
siblings : 128
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 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
   53 54 55 56 57 58 59 60 61 62 63

From lscpu:
Architecture: x86_64

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CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 43 bits physical, 48 bits virtual
CPU(s): 128
On-line CPU(s) list: 0-127
Thread(s) per core: 2
Core(s) per socket: 64
Socket(s): 1
NUMA node(s): 4
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7H12 64-Core Processor
Stepping: 0
CPU MHz: 3332.638
CPU max MHz: 2600.0000
CPU min MHz: 1500.0000
BogoMIPS: 5252.29
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0-15,64-79
NUMA node1 CPU(s): 16-31,80-95
NUMA node2 CPU(s): 32-47,96-111
NUMA node3 CPU(s): 48-63,112-127

Flags: fpu vme de pmxs mce pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtsdp
lm constant_tsc rep_good nopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf
pci pca1mulqdq 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 ibr skinit wdt tce topext perfctr_core perfctr_nb bpext perfctr_llc
mwaitx cpi cat_l3 cdp_l3 hw_pstate sme ssbd mba serv ibps ibpb stibp vmmcall
fsmsbase bni avx2 smep bmi2 cqm rdt_a rdseed adx smap cldflushopt clwb sha
ni xsaveopt xsavc xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total
cl_mbb_local clzero irperfn xsaveerptr wbnoinvd arat npt lbrv svm_lock nrip
save tsc_scale vmcb_clean flushbyasid decodeassist pausefilter pfthreshold avic
v_vmsave_vmsload vgif umpid rdpid
overflow_recover success smca

/proc/cpuinfo cache data

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.

(Continued on next page)
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Platform Notes (Continued)

76 77 78 79
node 0 size: 128888 MB
node 0 free: 128278 MB
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 80 81 82 83 84 85 86 87 88
89 90 91 92 93 94 95
node 1 size: 129010 MB
node 1 free: 128463 MB
node 2 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 96 97 98 99 100 101 102
103 104 105 106 107 108 109 110 111
node 2 size: 129010 MB
node 2 free: 128541 MB
node 3 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 112 113 114 115 116 117
118 119 120 121 122 123 124 125 126 127
node 3 size: 128973 MB
node 3 free: 128198 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

From /proc/meminfo
MemTotal: 528263628 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
debian_version: buster/sid
os-release:
  NAME="Ubuntu"
  VERSION="19.04 (Disco Dingo)"
  ID=ubuntu
  ID_LIKE=debian
  PRETTY_NAME="Ubuntu 19.04"
  VERSION_ID="19.04"
  HOME_URL="https://www.ubuntu.com/"
  SUPPORT_URL="https://help.ubuntu.com/"

uname -a:
  Linux daytona-135 5.0.0-20-generic #21-Ubuntu SMP Mon Jun 24 09:32:09 UTC 2019 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

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<td>SPECspeed®2017_fp_peak</td>
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**Platform Notes (Continued)**

<table>
<thead>
<tr>
<th>CVE-2017-5754</th>
<th>(Meltdown): Not affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVE-2018-3639</td>
<td>(Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp</td>
</tr>
<tr>
<td>CVE-2017-5753</td>
<td>(Spectre variant 1): Mitigation: __user pointer sanitization</td>
</tr>
<tr>
<td>CVE-2017-5715</td>
<td>(Spectre variant 2): Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: conditional, RSB filling</td>
</tr>
</tbody>
</table>

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**Compiler Version Notes**

<table>
<thead>
<tr>
<th>C</th>
<th>619.libm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)</th>
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</thead>
<tbody>
<tr>
<td>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)</td>
<td></td>
</tr>
<tr>
<td>Target: x86_64-unknown-linux-gnu</td>
<td></td>
</tr>
<tr>
<td>Thread model: posix</td>
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</tr>
<tr>
<td>InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin</td>
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Fortran  | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
         | 654.roms_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

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

**SPECspeed®2017_fp_base = 139**  
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---

**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  
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:  
-ffto -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  
-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 -z muldefs -DSPEC_OPENMP -fopenmp  
-USE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm  
-ljemalloc -lflang

Fortran benchmarks:  
-ffto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS500A-E10(KRPA-U16) Server System
2.60 GHz, AMD EPYC 7H12

SPECspeed®2017_fp_base = 139
SPECspeed®2017_fp_peak = 144

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
- 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:
- fflto -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
- 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 -funroll-loops -Mrecursive -z muldefs
- Kieee -fno-finite-math-only -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
- fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
- lflang

Benchmarks using Fortran, C, and C++:
- std=c++98 -fflto -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

(Continued on next page)
ASUStek Computer Inc.  

ASUS RS500A-E10(KRPA-U16) Server System  

2.60 GHz, AMD EPYC 7H12

| SPECspeed®2017_fp_peak = 144 |
| SPECspeed®2017_fp_base = 139 |

CPU2017 License: 9016  
Test Sponsor: ASUStek Computer Inc.  
Test Date: Mar-2020  
Hardware Availability: Nov-2019

Tested by: ASUStek Computer Inc.  
Software Availability: Jun-2019  

Base Other Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:


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

619.lbm_s (continued):
-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: -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 -Kieee
-flto -fno-finite-math-only -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

627.cam4_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 -O3 -funroll-loops
-Mrecursive -Kieee -fno-finite-math-only -DSPEC_OPENMP
-fopenmp -DUSE_OPENMP -fopenmp=libomp -lomp -lpthread
-ldl -lmvec -lamdlibm -ljemalloc -lflang

628.pop2_s: basepeak = yes
### Peak 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`  `-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`
- `-fllvm-function-specialization -mllvm -unroll-threshold=100`
- `-mllvm -enable-partial-unswitch -mllvm -loop-unswitch-threshold=200000`
- `-O3`  `-funroll-loops -Mrsrecusive -Kieee -fno-finite-math-only`
- `-DSPEC_OPENMP -fopenmp -DUSE_OPENMP -fopenmp=libomp -lomp -lpthread`
- `-ldl -lm -lmlib -lm -ljemalloc -lflang`

### 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


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


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