ASUSTeK Computer Inc.
ASUS RS500A-E10(KRPA-U16) Server System
3.50 GHz, AMD EPYC 7F52

SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.5

ASUSTeK Computer Inc.

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

Test Date: Mar-2020
Hardware Availability: Apr-2020
Software Availability: Jun-2019

Threads

<table>
<thead>
<tr>
<th>600.perlbench_s</th>
<th>602.gcc_s</th>
<th>605.mcf_s</th>
<th>620.omnetpp_s</th>
<th>623.xalancbmk_s</th>
<th>625.x264_s</th>
<th>631.deepsjeng_s</th>
<th>641.leela_s</th>
<th>648.exchange2_s</th>
<th>657.xz_s</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.34</td>
<td>11.0</td>
<td>5.45</td>
<td>11.0</td>
<td>11.0</td>
<td>14.7</td>
<td>5.71</td>
<td>4.98</td>
<td>19.5</td>
<td>23.7</td>
</tr>
</tbody>
</table>

---

**SPECspeed®2017_int_base (10.1)**

**SPECspeed®2017_int_peak (10.5)**

**Hardware**

CPU Name: AMD EPYC 7F52
Max MHz: 3900
Nominal: 3500
Enabled: 16 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 per core
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: 32/64-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 Integer Speed Result

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**Test Date:** Mar-2020  
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### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>16</td>
<td>333</td>
<td>5.34</td>
<td>332</td>
<td>5.34</td>
<td>332</td>
<td>5.35</td>
<td>1</td>
<td>300</td>
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<tr>
<td>602.gcc_s</td>
<td>16</td>
<td>364</td>
<td>10.9</td>
<td>363</td>
<td>11.0</td>
<td>363</td>
<td>11.0</td>
<td>1</td>
<td>361</td>
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<tr>
<td>605.mcf_s</td>
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<td>273</td>
<td>17.3</td>
<td>273</td>
<td>17.3</td>
<td>274</td>
<td>17.2</td>
<td>1</td>
<td>255</td>
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<tr>
<td>620.omnetpp_s</td>
<td>16</td>
<td>298</td>
<td>5.48</td>
<td>299</td>
<td>5.45</td>
<td>300</td>
<td>5.44</td>
<td>1</td>
<td>297</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>16</td>
<td>130</td>
<td>10.9</td>
<td>129</td>
<td>11.0</td>
<td>129</td>
<td>11.0</td>
<td>1</td>
<td>119</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>16</td>
<td>119</td>
<td>14.8</td>
<td>120</td>
<td>14.7</td>
<td>120</td>
<td>14.7</td>
<td>1</td>
<td>117</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>16</td>
<td>256</td>
<td>5.59</td>
<td>257</td>
<td>5.59</td>
<td>256</td>
<td>5.59</td>
<td>1</td>
<td>254</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>16</td>
<td>343</td>
<td>4.98</td>
<td>343</td>
<td>4.98</td>
<td>343</td>
<td>4.98</td>
<td>16</td>
<td>343</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>16</td>
<td>156</td>
<td>18.8</td>
<td>156</td>
<td>18.9</td>
<td>156</td>
<td>18.9</td>
<td>1</td>
<td>151</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>16</td>
<td>261</td>
<td>23.7</td>
<td>260</td>
<td>23.8</td>
<td>261</td>
<td>23.7</td>
<td>16</td>
<td>261</td>
</tr>
</tbody>
</table>

**SPECspeed®2017_int_base = 10.1**  
**SPECspeed®2017_int_peak = 10.5**

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 -1 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)
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 = "0-31"
LD_LIBRARY_PATH =
"/spec2017c3/amd_speed_aocc200_rome_C_lib/64;/spec2017c3/amd_speed_aocc200_rome_C_lib/32;"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "32"

Environment variables set by runcpu during the 600.perlbench_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 602.gcc_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 605.mcf_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 620.omnetpp_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_s peak run:
GOMP_CPU_AFFINITY = "0"
OMP_STACKSIZE = "128M"

Environment variables set by runcpu during the 625.x264_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 631.deepsjeng_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-15"
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SPEC CPU®2017 Integer Speed Result
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CPU2017 License: 9016
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SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.5

Test Date: Mar-2020
Hardware Availability: Apr-2020
Software Availability: Jun-2019

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 -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

Sysinfo program /spec2017c3/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbl6e6e46a485a001
running on linux-wv9n Tue Mar 10 05:41:05 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 7F52 16-Core Processor
  1  "physical id"s (chips)
  32 "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 : 16
siblings : 32
physical 0: cores 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60

From lscpu:
Architecture:     x86_64
CPU op-mode(s):  32-bit, 64-bit

(Continued on next page)
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| Tested by: | ASUSTeK Computer Inc. |
| Test Date: | Mar-2020 |
| Hardware Availability: | Apr-2020 |
| Software Availability: | Jun-2019 |

### Platform Notes (Continued)

```
Byte Order: Little Endian  
Address sizes: 43 bits physical, 48 bits virtual  
CPU(s): 32  
On-line CPU(s) list: 0-31  
Thread(s) per core: 2  
Core(s) per socket: 16  
Socket(s): 1  
NUMA node(s): 4  
Vendor ID: AuthenticAMD  
CPU family: 23  
Model: 49  
Model name: AMD EPYC 7F52 16-Core Processor  
Stepping: 0  
CPU MHz: 3500.000  
CPU max MHz: 3500.0000  
CPU min MHz: 2500.0000  
BogoMIPS: 7069.54  
Virtualization: AMD-V  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 512K  
L3 cache: 16384K  
NUMA node0 CPU(s): 0-3,16-19  
NUMA node1 CPU(s): 4-7,20-23  
NUMA node2 CPU(s): 8-11,24-27  
NUMA node3 CPU(s): 12-15,28-31  
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 nopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf pci 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 sxbd sev ibrs ibp bts vmmcall fsgsbase bmi1 avx2 smep bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsaves cmx_l1l cqm_occup llvm cqm_mbb_local clzero irperf xsaverptr arat npt lbv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassist pausefilter pfthreshold avic 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 16 17 18 19  
node 0 size: 128795 MB  
node 0 free: 128567 MB
```

(Continued on next page)
spec

SPEC CPU®2017 Integer Speed Result
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Platform Notes (Continued)

node 1 cpus: 4 5 6 7 20 21 22 23
node 1 size: 129011 MB
node 1 free: 128784 MB
node 2 cpus: 8 9 10 11 24 25 26 27
node 2 size: 129011 MB
node 2 free: 128866 MB
node 3 cpus: 12 13 14 15 28 29 30 31
node 3 size: 128996 MB
node 3 free: 128780 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: 528194032 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

(Continued on next page)
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Platform Notes (Continued)

run-level 3 Mar 9 08:35
SPECSpeed®2017_int_base = 10.1
SPECSpeed®2017_int_peak = 10.5

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 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       600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_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++     623.xalancbmk_s(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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

(Continued on next page)
Compiler Version Notes (Continued)

C++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base)
    | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
    A OCC_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++ | 623.xalancbmk_s(peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
    A OCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

C++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base)
    | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
    A OCC_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 | 648.exchange2_s(base, peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
    A OCC_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
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Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Base Portability Flags

600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-ff1to -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
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-lflang

C++ benchmarks:
-ff1to -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
-mllvm -loop-unswitch-threshold=200000 -mllvm -vector-library=LIBMVEC

(Continued on next page)
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C++ benchmarks (continued):
-mlir -unroll-threshold=100 -flv-function-specialization
-mlir -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
-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 -ffast-math
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops
-Mrecursive -mllvm -vector-library=LIBMVEC -z muldefs
-mllvm -disable-indvar-simplify -mllvm -unroll-aggressive
-mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

Base Other Flags

C benchmarks:
- Wno-return-type

C++ benchmarks:
- Wno-return-type

Fortran benchmarks:
- Wno-return-type

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang
ASUSTeK Computer Inc.
ASUS RS500A-E10(KRPA-U16) Server System
3.50 GHz, AMD EPYC 7F52

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

Peak Portability Flags

600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -D_FILE_OFFSET_BITS=64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-arraycomputations=3
-Ofast -march=znver2
-mmln -fstruct-layout=5
-mlnm -vectorize-memory-aggressively
-mlnm -function-specialize -mlnm -enable-gvn-hoist
-mlnm -unroll-threshold=50 -fremap-arrays
-mlnm -vector-library=LIBMVEC
-mlnm -reduce-arraycomputations=3
-mlnm -global-vectorize-slp -mlnm -inline-threshold=1000
-flv-function-specialization -DSPEC_OPENMP -fopenmp
-1mvec -landlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang

602.gcc_s: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-arraycomputations=3 -Ofast
-march=znver2 -mmlnm -fstruct-layout=5
-mlnm -vectorize-memory-aggressively
-mlnm -function-specialize -mlnm -enable-gvn-hoist
-mlnm -unroll-threshold=50 -fremap-arrays
-mlnm -vector-library=LIBMVEC
-mlnm -reduce-arraycomputations=3
-mlnm -global-vectorize-slp -mlnm -inline-threshold=1000
-flv-function-specialization -z muldefs -DSPEC_OPENMP

(Continued on next page)
SPEC CPU®2017 Integer Speed Result

ASUSTeK Computer Inc.
ASUS RS500A-E10(KRPA-U16) Server System
3.50 GHz, AMD EPYC 7F52

SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.5

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

Peak Optimization Flags (Continued)

602.gcc_s (continued):
-fopenmp -fgnu89-inline -fopenmp=libomp -lomp -lpthread
-ldl -ljemalloc

605.mcf_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 -mmno-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
-Imvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang

625.x264_s: Same as 600.perlbench_s

657.xz_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 -mmno-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
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang

C++ benchmarks:

620.omnetpp_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 -flv-function-specialization
-mllvm -unroll-threshold=100
-mllvm -enable-partial-unswitch
-mllvm -loop-unswitch-threshold=200000

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

620.omnetpp_s (continued):
-`-mllvm -vector-library=LIBMVEC`
-`-mllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp`
-`-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang`

623.xalancbmk_s: `-m32 -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 -flv-function-specialization`
-`-mllvm -unroll-threshold=100`
-`-mllvm -enable-partial-unswitch`
-`-mllvm -loop-unswitch-threshold=200000`
-`-mllvm -vector-library=LIBMVEC`
-`-mllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp`
-`-fopenmp=libomp -lomp -lpthread -ldl -ljemalloc`

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: `basepeak = yes`

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 -ffast-math`
-`-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop`
-`-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops`
-`-Rrecursive -mllvm -vector-library=LIBMVEC`
-`-mllvm -disable-indvar-simplify -mllvm -unroll-aggressive`
-`-mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp`
-`-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang`

**Peak Other Flags**

C benchmarks:
-`-Wno-return-type`

C++ benchmarks (except as noted below):
-`-Wno-return-type`

623.xalancbmk_s: `-Wno-return-type`
-`-L/sppo/dev/cpu2017/v110/amd_speed_aocc200_rome_C_lib/32`

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ASUSTeK Computer Inc.  
ASUS RS500A-E10(KRPA-U16) Server System  
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SPECspeed®2017_int_base = 10.1  
SPECspeed®2017_int_peak = 10.5 

CPU2017 License: 9016  
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Test Date: Mar-2020  
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Software Availability: Jun-2019

Peak Other Flags (Continued)

Fortran benchmarks: 
-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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