### SPEC CPU®2017 Integer Speed Result

ASUStek Computer Inc.
ASUS RS700A-E9V2(KNPP-D32-R) Server System
3.00 GHz, AMD EPYC 7302

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base = 8.87</th>
<th>SPECspeed®2017_int_peak = 9.10</th>
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</thead>
<tbody>
<tr>
<td>32</td>
<td>600.perlbench_s 1</td>
<td>602.gcc_s 32</td>
</tr>
<tr>
<td>4.79</td>
<td>5.05</td>
<td>9.68</td>
</tr>
</tbody>
</table>

#### Hardware

- **CPU Name:** AMD EPYC 7302
- **Max MHz:** 3300
- **Nominal:** 3000
- **Enabled:** 32 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, 16 MB shared / 2 cores
- **Other:** None
- **Memory:** 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)
- **Storage:** 1 x 1 TB 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 0202 released Oct-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:** Prefer performance at the cost of additional power usage.
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3.00 GHz, AMD EPYC 7302

*Copyright 2017-2020 Standard Performance Evaluation Corporation*

**CPU2017 License:** 9016  
**Test Date:** Nov-2019  
**Test Sponsor:** ASUSTeK Computer Inc.  
**Tested by:** ASUSTeK Computer Inc.

**Hardware Availability:** Nov-2019  
**Software Availability:** Sep-2019

---

#### 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>
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<tr>
<td>600.perlbench_s</td>
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<td>620.omnetpp_s</td>
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<td>648.exchange2_s</td>
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<td>657.xz_s</td>
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<td>21.9</td>
<td>32</td>
<td>283</td>
<td>21.9</td>
<td>283</td>
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</tbody>
</table>

**SPECspeed®2017_int_base = 8.87**  
**SPECspeed®2017_int_peak = 9.10**

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)
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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 = "0-63"
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_SCHEDULER = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "64"

Environment variables set by runcpu during the 600.perlbench_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 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 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-31"

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.
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<th>9016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>ASUSTeK Computer Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>ASUSTeK Computer Inc.</td>
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<tr>
<td>Test Date:</td>
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<td>Nov-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Sep-2019</td>
</tr>
</tbody>
</table>

General Notes (Continued)

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

Sysinfo program /spec2017c1/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbble6e46a485a0011
running on linux-fkvs Thu Nov 21 21:18:06 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 7302 16-Core Processor
    2 "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 : 16
    siblings  : 32
    physical 0: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29
    physical 1: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29

From lscpu:
  Architecture:        x86_64
  CPU op-mode(s):      32-bit, 64-bit
  Byte Order:          Little Endian
  Address sizes:       43 bits physical, 48 bits virtual
  CPU(s):              64
  On-line CPU(s) list: 0-63
  Thread(s) per core:  2
  Core(s) per socket:  16
  Socket(s):          2
  NUMA node(s):        8
  Vendor ID:           AuthenticAMD

(Continued on next page)
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**Software Availability:** Sep-2019

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**Platform Notes (Continued)**

- **CPU family:** 23  
- **Model:** 49  
- **Model name:** AMD EPYC 7302 16-Core Processor  
- **Stepping:** 0  
- **CPU MHz:** 3000.000  
- **CPU max MHz:** 3000.0000  
- **CPU min MHz:** 1500.0000  
- **BogoMIPS:** 6060.26  
- **Virtualization:** AMD-V

- **L1d cache:** 32K  
- **L1i cache:** 32K  
- **L2 cache:** 512K  
- **L3 cache:** 16384K  

- **NUMA node0 CPU(s):** 0-3,32-35  
- **NUMA node1 CPU(s):** 4-7,36-39  
- **NUMA node2 CPU(s):** 8-11,40-43  
- **NUMA node3 CPU(s):** 12-15,44-47  

- **NUMA node4 CPU(s):** 16-19,48-51  
- **NUMA node5 CPU(s):** 20-23,52-55  
- **NUMA node6 CPU(s):** 24-27,56-59  
- **NUMA node7 CPU(s):** 28-31,60-63

**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 xtopology nonstop_tsc cpuid extd_apicid aperfmpref 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 ibs skinit wdt tce topoext perfctr_core perfctr_nb perfctr_l2 mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd sev ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 cmqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsavees cmq_l1c cmq_occup_l1c cmq_mbm_total cmq_mbm_local clzero irperf xsaveerptr arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold avic v_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:** 8 nodes (0-7)  
- **node 0 cpus:** 0 1 2 3 32 33 34 35  
- **node 0 size:** 128834 MB  
- **node 0 free:** 128621 MB  
- **node 1 cpus:** 4 5 6 7 36 37 38 39  
- **node 1 size:** 129017 MB  
- **node 1 free:** 128796 MB  
- **node 2 cpus:** 8 9 10 11 40 41 42 43  
- **node 2 size:** 129017 MB

(Continued on next page)
### Platform Notes (Continued)

<table>
<thead>
<tr>
<th>Node</th>
<th>CPUs</th>
<th>Size</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>0:</td>
<td>10</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>1:</td>
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<td>12</td>
<td>10</td>
</tr>
<tr>
<td>3:</td>
<td>12</td>
<td>12</td>
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<td>5:</td>
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<tr>
<td>7:</td>
<td>32</td>
<td>32</td>
<td>32</td>
</tr>
</tbody>
</table>

From `/proc/meminfo`
- MemTotal: 1056677956 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From `/etc/*release*` /etc/*version*
```
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-fkvs 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux
```
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Platform Notes (Continued)

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

run-level 3 Nov 21 16:09

SPEC is set to: /spec2017c1
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda4      xfs   929G   34G  896G   4% /

From /sys/devices/virtual/dmi/id
BIOS: American Megatrends Inc. 0202 10/30/2019
Vendor: ASUSTeK COMPUTER INC.
Product: KNPP-D32-R 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:
16x Samsung M393A8G40AB2-CWE 64 kB 2 rank 3200
16x 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
(Continued on next page)
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Compiler Version Notes (Continued)

------------------------------------------------------------------------------
| C++ | 623.xalancbmk_s (peak) |
------------------------------------------------------------------------------
AOCCLLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCCLLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
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) |
------------------------------------------------------------------------------
AOCCLLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
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Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
------------------------------------------------------------------------------
| C++ | 623.xalancbmk_s (peak) |
------------------------------------------------------------------------------
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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) |
------------------------------------------------------------------------------
(Continued on next page)
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Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

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,-mllvum -Wl,-function-specialize  
-Wl,-mllvum -Wl,-region-vectorize -Wl,-mllvum -Wl,-vector-library=LIBMVEC  
-Wl,-mllvum -Wl,-reduce-array-computations=3 -O3 -ffast-math  
-march=znver2 -fstruct-layout=3 -mllvum -unroll-threshold=50  
-freimap-arrays -mllvum -function-specialize -mllvum -enable-gvn-hoist  
-mllvum -reduce-array-computations=3 -mllvum -global-vectorize-slp  
-mllvum -vector-library=LIBMVEC -mllvum -inline-threshold=1000

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

C benchmarks (continued):
- flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp
- DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
- ljemalloc -lflang

C++ 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
- Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
- mllvm -loop-unswitch-threshold=200000 -mllvm -vector-library=LIBMVEC
- mllvm -unroll-threshold=100 -flv-function-specialization
- mllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
- DUSE_OPENMP -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 -DUSE_OPENMP
- 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
ASUSTeK Computer Inc.
ASUS RS700A-E9V2(KNPP-D32-R) Server System
3.00 GHz, AMD EPYC 7302

SPECspeed®2017_int_base = 8.87
SPECspeed®2017_int_peak = 9.10

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

Test Date: Nov-2019
Hardware Availability: Nov-2019
Software Availability: Sep-2019

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

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-array-computations=3
-ffunction-instr-generate(pass 1)
-ffunction-instr-use(pass 2) -Ofast -march=zvner2
-mp-sse4a -mstruct-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
-ffunction-specialization -DUSE_OPENMP -fopenmp
-DUSE_OPENMP -lmvec -lamdlibm -fopenmp=libomp -lomp
-lpthread -ldl -ljemalloc -flang

(Continued on next page)
ASUSTeK Computer Inc.

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SPECspeed®2017_int_base = 8.87
SPECspeed®2017_int_peak = 9.10

Peak Optimization Flags (Continued)

602.gcc_s: basepeak = yes

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 -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 -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -lmvec -ldl -ljemalloc

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 -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 -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp

C++ benchmarks:

620.omnetpp_s: basepeak = yes

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 -fopenmp -flv-function-specialization
-mllvm -unroll-threshold=100

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

623.xalancbmk_s (continued):
-mlir -enable-partial-unswitch
-mlir -loop-unswitch-threshold=200000
-mlir -vector-library=LIBMVEC
-mlir -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc

631.deepsjeng_s: -flto -Wl,-mlir -Wl,-function-specialize
-Wl,-mlir -Wl,-region-vectorize
-Wl,-mlir -Wl,-vector-library=LIBMVEC
-Wl,-mlir -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -flv-function-specialization
-mlir -unroll-threshold=100
-mlir -enable-partial-unswitch
-mlir -loop-unswitch-threshold=200000
-mlir -vector-library=LIBMVEC
-mlir -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-lmvec -lamdlibm -ljemalloc -llflang

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

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

Fortran benchmarks:
-Wno-return-type
## SPEC CPU®2017 Integer Speed Result

**ASUSTeK Computer Inc.**  
ASUS RS700A-E9V2(KNPP-D32-R) Server System  
3.00 GHz, AMD EPYC 7302  

<table>
<thead>
<tr>
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**Test Date:** Nov-2019  
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**Software Availability:** Sep-2019

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

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