### SPEC CPU®2017 Integer Speed Result

**ASUSTeK Computer Inc.**

**ASUS RS700A-E9V2(KNPP-D32-R) Server System**

3.70 GHz, AMD EPYC 7F32

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**SPECspeed®2017_int_base** = 10.1

**SPECspeed®2017_int_peak** = 10.4

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**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

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### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base (10.1)</th>
<th>SPECspeed®2017_int_peak (10.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>16</td>
<td>5.33</td>
<td>10.4</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>16</td>
<td>11.0</td>
<td>10.1</td>
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<tr>
<td>605.mcf_s</td>
<td>16</td>
<td>11.0</td>
<td>10.1</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>16</td>
<td>5.48</td>
<td>18.5</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>16</td>
<td>11.0</td>
<td>17.3</td>
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<tr>
<td>625.x264_s</td>
<td>16</td>
<td>11.0</td>
<td>18.5</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>16</td>
<td>5.56</td>
<td>15.0</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>16</td>
<td>4.98</td>
<td>18.9</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>16</td>
<td>11.0</td>
<td>19.5</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>16</td>
<td>11.0</td>
<td>23.6</td>
</tr>
</tbody>
</table>

---

### Hardware

**CPU Name:** AMD EPYC 7F32  
**Max MHz:** 3900  
**Nominal:** 3700  
**Enabled:** 16 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 per core  
**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 0401 released Dec-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.
### 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>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
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<td>332</td>
<td>5.35</td>
<td>335</td>
<td>5.29</td>
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<td>299</td>
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<td>602.gcc_s</td>
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<td>11.0</td>
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<td>605.mcf_s</td>
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<td>5.48</td>
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<td>16</td>
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<td>5.48</td>
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<td>623.xalanchmk_s</td>
<td>16</td>
<td>129</td>
<td>10.9</td>
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<td>11.0</td>
<td>128</td>
<td>11.1</td>
<td>1</td>
<td>120</td>
<td>11.9</td>
<td>121</td>
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<td>120</td>
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<td>1</td>
<td>118</td>
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<td>117</td>
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<td>251</td>
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<td>641.leela_s</td>
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<tr>
<td>648.exchange2_s</td>
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<td>18.9</td>
<td>156</td>
<td>18.9</td>
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<td>151</td>
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<tr>
<td>657.xz_s</td>
<td>16</td>
<td>264</td>
<td>23.5</td>
<td>261</td>
<td>23.7</td>
<td>262</td>
<td>23.6</td>
<td>16</td>
<td>260</td>
<td>23.8</td>
<td>261</td>
</tr>
</tbody>
</table>

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 -l 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)
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SPECspeed®2017_int_peak = 10.4

CPU2017 License: 9016
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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 = "0-31"
LD_LIBRARY_PATH = 
"/spec2017c3/amd_speed_aocc200_rome_C_lib/64;/spec2017c3/amd_speed_aocc2
00_rome_C_lib/32:" 
MALLOCONF = "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 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"

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)
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Test Date: Mar-2020
Hardware Availability: Apr-2020
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

Sysinfo program /spec2017c3/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on linux-fkvs Thu Mar 12 09:19:57 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 7F32 8-Core Processor
  2 "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 : 8
siblings : 16
physical 0: cores 0 4 8 12 16 20 24 28
physical 1: cores 0 4 8 12 16 20 24 28

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

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

- **CPU(s):** 32
- **On-line CPU(s) list:** 0-31
- **Thread(s) per core:** 2
- **Core(s) per socket:** 8
- **Socket(s):** 2
- **NUMA node(s):** 8
- **Vendor ID:** AuthenticAMD
- **CPU family:** 23
- **Model:** 49
- **Model name:** AMD EPYC 7F32 8-Core Processor
- **Stepping:** 0
- **CPU MHz:** 3700.000
- **CPU max MHz:** 3700.0000
- **CPU min MHz:** 2500.0000
- **BogoMIPS:** 7474.05
- **Virtualization:** AMD-V
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 512K
- **L3 cache:** 16384K
- **NUMA node0 CPU(s):** 0,1,16,17
- **NUMA node1 CPU(s):** 2,3,18,19
- **NUMA node2 CPU(s):** 4,5,20,21
- **NUMA node3 CPU(s):** 6,7,22,23
- **NUMA node4 CPU(s):** 8,9,24,25
- **NUMA node5 CPU(s):** 10,11,26,27
- **NUMA node6 CPU(s):** 12,13,28,29
- **NUMA node7 CPU(s):** 14,15,30,31
- **Flags:** fpu vme de pse tsc msr pae mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtsscp lm constant_tsc rep_good nopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes 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 ssbd sev ibrs ibpb stibp vmmcall fgsgsbase bmi1 avx2 smep bmi2 cqm rdt_a rseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_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 rpdpid 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 16 17

(Continued on next page)
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Platform Notes (Continued)

node 0 size: 128825 MB
node 0 free: 128649 MB
node 1 cpus: 2 3 18 19
node 1 size: 129022 MB
node 1 free: 128882 MB
node 2 cpus: 4 5 20 21
node 2 size: 129022 MB
node 2 free: 128773 MB
node 3 cpus: 6 7 22 23
node 3 size: 129010 MB
node 3 free: 128884 MB
node 4 cpus: 8 9 24 25
node 4 size: 129022 MB
node 4 free: 128929 MB
node 5 cpus: 10 11 26 27
node 5 size: 128993 MB
node 5 free: 128886 MB
node 6 cpus: 12 13 28 29
node 6 size: 129022 MB
node 6 free: 128881 MB
node 7 cpus: 14 15 30 31
node 7 size: 129022 MB
node 7 free: 128929 MB
node distances:

From /proc/meminfo
MemTotal: 1056707676 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"

(Continued on next page)
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Platform Notes (Continued)

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

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 Mar 12 09:19

SPEC is set to: /spec2017c3

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 929G 53G 877G 6% /

From /sys/devices/virtual/dmi/id
BIOS: American Megatrends Inc. 0401 12/27/2019
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,
(Continued on next page)
### Compiler Version Notes

<table>
<thead>
<tr>
<th>peak)  625.x264_s(base, peak)  657.xz_s(base, peak)</th>
</tr>
</thead>
</table>

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

| C++      | 620.omnetpp_s(base, peak)  623.xalancbmk_s(base) |
|-----------------|

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) |
|-----------------|

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Thread model: posix
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| C++      | 620.omnetpp_s(base, peak)  623.xalancbmk_s(base) |
|-----------------|

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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) |
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AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu

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

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  
AOCC_LLMV_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

---

## 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
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Base Optimization Flags

C benchmarks:
-flags -W1,-mlllvm -W1,-function-specialize
-flags -W1,-mlllvm -W1,-region-vectorize -W1,-mlllvm -W1,-vector-library=LIBMVEC
-flags -W1,-mlllvm -W1,-reduce-array-computations=3 -O3 -ffast-math
-flags -W1,-mlllvm -W1,-vector-library=LIBMVEC -unroll-threshold=50
-flags -fremap-arrays -mlllvm -function-specialize -mlllvm -enable-gvn-hoist
-flags -mlllvm -reduce-array-computations=3 -mlllvm -global-vectorize-slp
-flags -mlllvm -vector-library=LIBMVEC -mlllvm -inline-threshold=1000
-flags -flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp
-flags -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

C++ benchmarks:
-flags -W1,-mlllvm -W1,-function-specialize
-flags -W1,-mlllvm -W1,-region-vectorize -W1,-mlllvm -W1,-vector-library=LIBMVEC
-flags -W1,-mlllvm -W1,-reduce-array-computations=3
-flags -W1,-mlllvm -W1,-suppress-fmas -O3 -ffast-math -march=znver2
-flags -mlllvm -loop-unswitch-threshold=200000 -mlllvm -vector-library=LIBMVEC
-flags -mlllvm -unroll-threshold=100 -flv-function-specialization
-flags -mlllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
-flags -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

Fortran benchmarks:
-flags -W1,-mlllvm -W1,-function-specialize
-flags -W1,-mlllvm -W1,-region-vectorize -W1,-mlllvm -W1,-vector-library=LIBMVEC
-flags -W1,-mlllvm -W1,-reduce-array-computations=3 -ffast-math
-flags -W1,-mlllvm -W1,-inline-recursion=4 -W1,-mlllvm -W1,-lsr-in-nested-loop
-flags -W1,-mlllvm -W1,-enable-iv-split -O3 -march=znver2 -funroll-loops
-flags -Mrecursive -mlllvm -vector-library=LIBMVEC -z muldefs
-flags -mlllvm -disable-indvar-simplify -mlllvm -unroll-aggressive
-flags -mlllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-flags -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

Base Other Flags

C benchmarks:
-flags -Wno-return-type

C++ benchmarks:
-flags -Wno-return-type

Fortran benchmarks:
-flags -Wno-return-type
ASUSTeK Computer Inc.
ASUS RS700A-E9V2(KNPP-D32-R) Server System
3.70 GHz, AMD EPYC 7F32

SPEC CPU®2017 Integer Speed Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.4

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Test Date: Mar-2020
Tested by: ASUSTeK Computer Inc.
Hardware Availability: Apr-2020
Software Availability: Jun-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,-mlllvm -Wl,-function-specialize
-Wl,-mlllvm -Wl,-region-vectorize
-Wl,-mlllvm -Wl,-vector-library=LIBMVEC
-Wl,-mlllvm -Wl,-reduce-array-computations=3
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -Ofast -march=xzver2
-mno-sse4a -fstruct-layout=5
-mlllvm -vectorize-memory-aggressively
-mlllvm -function-specialize -mlllvm -enable-gvn-hoist
-mlllvm -unroll-threshold=50 -fremap-arrays
-mlllvm -vector-library=LIBMVEC
-mlllvm -reduce-array-computations=3
-mlllvm -global-vectorize-slp -mlllvm -inline-threshold=1000
-flv-function-specialization -DSPEC_OPENMP -fopenmp
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS700A-E9V2(KNPP-D32-R) Server System
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SPECspeed®2017_int_base = 10.1
SPECspeed®2017_int_peak = 10.4

CPU2017 License: 9016
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Software Availability: Jun-2019

Peak Optimization Flags (Continued)

602.gcc_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 -z muldefs -DSPEC_OPENMP
-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 -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
-imvec -iamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -llflang

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

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

657.xz_s (continued):
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: -m32 -flto -Wl,-mlllvm -Wl,-function-specialize
-Wl,-mlllvm -Wl,-region-vectorize
-Wl,-mlllvm -Wl,-vector-library=LIBMVEC
-Wl,-mlllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -flv-function-specialization
-mlvm -unroll-threshold=100
-mlvm -enable-partial-unswitch
-mlvm -loop-unswitch-threshold=200000
-mlvm -vector-library=LIBMVEC
-mlvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -ljemalloc

Fortran benchmarks:

641.leela_s: basepeak = yes
## SPEC CPU®2017 Integer Speed Result

**ASUSTeK Computer Inc.**
ASUS RS700A-E9V2(KNPP-D32-R) Server System
3.70 GHz, AMD EPYC 7F32

<table>
<thead>
<tr>
<th>CPU2017 License: 9016</th>
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</tr>
</tbody>
</table>

### SPECspeed®2017_int_base = 10.1

### SPECspeed®2017_int_peak = 10.4

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### 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`

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

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