# SPEC CPU®2017 Integer Speed Result

## Supermicro

A+ Server 1023US-TR4  
(H11DSU-iN, AMD EPYC 7F52)

| Specspeed®2017_int_base = 10.2 | Specspeed®2017_int_peak = 10.5 |

### CPU2017 License: 001176  
Test Sponsor: Supermicro  
Tested by: Supermicro  
Test Date: Mar-2020  
Hardware Availability: Apr-2020  
Software Availability: Aug-2019

### Hardware

- **CPU Name:** AMD EPYC 7F52  
- **Max MHz:** 3900  
- **Nominal:** 3500  
- **Enabled:** 32 cores, 2 chips, 2 threads/core  
- **Orderable:** 1.2 chips  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **Cache L2:** 512 KB I+D on chip per core  
- **Cache L3:** 256 MB I+D on chip per chip, 16 MB per core  
- **Other:** None  
- **Memory:** 512 GB (32 x 16 GB 2Rx8 PC4-3200AA-R, running at 2933)  
- **Storage:** 1 x 200 GB SATA III SSD  
- **Other:** None

### Software

- **OS:** Ubuntu 19.04  
- **Kernel:** 5.0.0-25-generic  
- **Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** Version 2.1 released Feb-2020  
- **File System:** ext4  
- **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 set to prefer performance at the cost of additional power usage.

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
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</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>1</td>
<td>5.32</td>
<td>5.91</td>
</tr>
<tr>
<td>gcc</td>
<td>1</td>
<td>7.11</td>
<td>7.37</td>
</tr>
<tr>
<td>mcf</td>
<td>1</td>
<td>17.3</td>
<td>17.3</td>
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<tr>
<td>omnetpp</td>
<td>1</td>
<td>18.6</td>
<td>18.6</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>1</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td>x264</td>
<td>1</td>
<td>11.1</td>
<td>11.7</td>
</tr>
<tr>
<td>deepsjeng</td>
<td>1</td>
<td>14.6</td>
<td>14.9</td>
</tr>
<tr>
<td>leela</td>
<td>1</td>
<td>18.6</td>
<td>19.3</td>
</tr>
<tr>
<td>exchange2</td>
<td>1</td>
<td>26.2</td>
<td>26.2</td>
</tr>
</tbody>
</table>

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Standard Performance Evaluation Corporation (info@spec.org)  
https://www.spec.org/
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### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
<td>32</td>
<td>334_5.32</td>
<td>332</td>
<td>5.35</td>
<td>338</td>
<td>5.25</td>
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<td>300 5.91</td>
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<tr>
<td>602.gcc_s</td>
<td>32</td>
<td>359_11.1</td>
<td>358</td>
<td>11.1</td>
<td>359</td>
<td>11.1</td>
<td>1</td>
<td>358 11.1</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>273_17.3</td>
<td>273</td>
<td>17.3</td>
<td>273</td>
<td>17.3</td>
<td>1</td>
<td>255 18.5</td>
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<td>620.omnetpp_s</td>
<td>32</td>
<td>289_5.64</td>
<td>522</td>
<td>3.12</td>
<td>295_5.53</td>
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<td>623.xalanchmk_s</td>
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<td>131_10.8</td>
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<td>625.x264_s</td>
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<td>120_14.7</td>
<td>121</td>
<td>14.6</td>
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<td>118 14.9</td>
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<td>631.deepsjeng_s</td>
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<td>256_5.59</td>
<td>256</td>
<td>5.59</td>
<td>286</td>
<td>5.00</td>
<td>1</td>
<td>250 5.73</td>
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<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>158_18.6</td>
<td>158</td>
<td>18.6</td>
<td>157</td>
<td>18.7</td>
<td>1</td>
<td>152 19.3</td>
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<td>657.xz_s</td>
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<td>26.2</td>
<td>236_26.2</td>
<td></td>
<td>32</td>
<td>236 26.2</td>
</tr>
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**SPECspeed®2017_int_base = 10.2**  
**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 -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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Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-63"
LD_LIBRARY_PATH =
   "/home/cpu2017/amd_speed_aocc200_rome_C_lib/64;/home/cpu2017/amd_speed_aocc200_rome_C_lib/32;"
MALLOCS_CONF = "retain: true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "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 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"

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)
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General Notes (Continued)

is mitigated in the system as tested and documented.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -03 -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 Settings:
Determinism Control = Manual
Determinism Slider = Power
cTDP Control = Manual
cTDP = 240
Package Power Limit Control = Manual
Package Power Limit = 240
APBDIS = 1
NUMA Nodes Per Socket = NPS4

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbl1e6e46a485a0011
running on h11dsu-02 Thu Mar 12 20:27:24 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
  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 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60
  physical 1: 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
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

(Continued on next page)
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<tbody>
<tr>
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<td>10.5</td>
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#### Platform Notes (Continued)

- Core(s) per socket: 16
- Socket(s): 2
- NUMA node(s): 8
- Vendor ID: AuthenticAMD
- CPU family: 23
- Model: 49
- Model name: AMD EPYC 7F52 16-Core Processor
- Stepping: 0
- CPU MHz: 1799.831
- CPU max MHz: 3500.0000
- CPU min MHz: 2500.0000
- BogoMIPS: 7000.56
- 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 aperfmperf 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 kinit wdt tce topoext perfctr_core perfctr_nb bpeext perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibrs ibpb stibp vmcall fsgsbase bmi1 avx2 smep bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha ni xsaveopt xsave mmcx rdtscp jpegref numaltdev cqm_llc cqm_occup_llc cqm_mbb_asid
- /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: 64384 MB
  - node 0 free: 64092 MB
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Platform Notes (Continued)

node 1 cpus: 4 5 6 7 36 37 38 39
node 1 size: 64508 MB
node 1 free: 64151 MB
node 2 cpus: 8 9 10 11 40 41 42 43
node 2 size: 64508 MB
node 2 free: 64258 MB
node 3 cpus: 12 13 14 15 44 45 46 47
node 3 size: 64496 MB
node 3 free: 64271 MB
node 4 cpus: 16 17 18 19 48 49 50 51
node 4 size: 64508 MB
node 4 free: 64313 MB
node 5 cpus: 20 21 22 23 52 53 54 55
node 5 size: 64508 MB
node 5 free: 64309 MB
node 6 cpus: 24 25 26 27 56 57 58 59
node 6 size: 64508 MB
node 6 free: 64299 MB
node 7 cpus: 28 29 30 31 60 61 62 63
node 7 size: 64484 MB
node 7 free: 64257 MB
node distances:
node 0 1 2 3 4 5 6 7
0: 10 12 12 12 32 32 32 32
1: 12 12 12 12 32 32 32 32
2: 12 12 10 12 32 32 32 32
3: 12 12 12 10 32 32 32 32
4: 32 32 32 32 10 12 12 12
5: 32 32 32 32 12 10 12 12
6: 32 32 32 32 12 12 10 12
7: 32 32 32 32 12 12 12 12

From /proc/meminfo
MemTotal: 528287816 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
Ubuntu 19.04

From /etc/*release* /etc/*version*
debian_version: buster/sid
os-release:
NAME="Ubuntu"
VERSION="19.04 (Disco Dingo)"
ID=ubuntu
ID_LIKE=debian

(Continued on next page)
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Platform Notes (Continued)

PRETTY_NAME="Ubuntu 19.04"
VERSION_ID="19.04"
HOME_URL="https://www.ubuntu.com/
SUPPORT_URL="https://help.ubuntu.com/

uname -a:
    Linux h11dsu-02 5.0.0-25-generic #26-Ubuntu SMP Thu Aug 1 12:04:58 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
CVE-2017-5755 (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/swapgs barriers and __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 05:46
SPEC is set to: /home/cpu2017
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/sda2 ext4 183G 23G 151G 14% /

From /sys/devices/virtual/dmi/id
    BIOS: American Megatrends Inc. 2.1 02/21/2020
    Vendor: Supermicro
    Product: Super Server
    Serial: 0123456789

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:
    32x SK Hynix HMA82GR7DJR8N-XN 16 kB 2 rank 3200

(End of data from sysinfo program)
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Compiler Version Notes

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<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>
<td></td>
</tr>
<tr>
<td>InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin</td>
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<table>
<thead>
<tr>
<th>C++</th>
<th>623.xalancbmk_s(peak)</th>
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<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>
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<tr>
<td>Target: i386-unknown-linux-gnu</td>
<td></td>
</tr>
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**Compiler Version Notes (Continued)**

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 | 648.exchange2_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

---

**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
Supermicro
A+ Server 1023US-TR4 (H11DSU-iN, AMD EPYC 7F52)

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

SPEC speed®2017_int_base = 10.2
SPEC speed®2017_int_peak = 10.5

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

Base Optimization Flags

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  -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
- -fopenmp=libomp -lomp -lpthread -ldl -lmvec -ldlmdlibm -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
- -fopenmp=libomp -lomp -lpthread -ldl -lmvec -ldlmdlibm -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, -isr-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 -ldlmdlibm -ljemalloc -lflang

Base Other Flags

C benchmarks:
- -Wno-return-type

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

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

Supermicro
A+ Server 1023US-TR4
(H11DSU-iN, AMD EPYC 7F52)

SPECspeed®2017_int_base = 10.2
SPECspeed®2017_int_peak = 10.5

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

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=znver2
-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

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SPEC CPU®2017 Integer Speed Result

Supermicro
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SPECspeed®2017_int_base = 10.2
SPECspeed®2017_int_peak = 10.5

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 -z muldefs -DSPEC_OPENMP -fopenmp
- lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
- ljemalloc -lflang

625.x264_s: Same as 600.perlbench_s

657.xz_s: basepeak = yes

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

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**Peak Optimization Flags (Continued)**

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

623.xalancbk_s: -m32 -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
-fopenmp=libomp -lomp -lpthread -ldl -ljemalloc

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: basepeak = yes

**Peak Other Flags**

C benchmarks:
-Wno-return-type

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

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

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Supermicro
A+ Server 1023US-TR4
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SPECspeed®2017_int_base = 10.2
SPECspeed®2017_int_peak = 10.5

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Mar-2020
Hardware Availability: Apr-2020
Software Availability: Aug-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:
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revB.xml