# SPEC CPU®2017 Integer Speed Result

Supermicro  
A+ SuperWorkstation 5014A-TT  
(M12SWA-TF, AMD Ryzen Threadripper PRO 3945WX)

**SPECspeed®2017_int_base** = 10.9

**SPECspeed®2017_int_peak** = 11.3

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base (10.9)</th>
<th>SPECspeed®2017_int_peak (11.3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.56</td>
<td>17.5</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
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<tr>
<td>4</td>
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<td>5</td>
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<tr>
<td>11</td>
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<tr>
<td>12</td>
<td>6.07</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>6.57</td>
<td>12.4</td>
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<tr>
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<td>12.4</td>
<td>19.5</td>
</tr>
<tr>
<td></td>
<td>20.9</td>
<td></td>
</tr>
</tbody>
</table>

## Hardware

- **CPU Name:** AMD Ryzen Threadripper PRO 3945WX  
- **Max MHz:** 4300  
- **Nominal:** 4000  
- **Enabled:** 12 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:** 64 MB I+D on chip per chip, 16 MB shared / 3 cores  
- **Other:** None  
- **Memory:** 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)  
- **Storage:** 1 x 300 GB SATA III, 7200 RPM  
- **Other:** None

## Software

- **OS:** Ubuntu 20.04.1 LTS  
- **Kernel:** 5.4.0-60-generic  
- **Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** Version 5.17 released Feb-2021  
- **File System:** ext4  
- **System State:** Run level 5 (multi-user without GUI)  
- **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.
## 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>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
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<td>292</td>
<td>6.07</td>
<td>292</td>
<td>6.08</td>
<td>295</td>
<td>6.02</td>
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<td>266</td>
<td>6.67</td>
<td>265</td>
<td>6.69</td>
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<td>602.gcc_s</td>
<td>12</td>
<td>322</td>
<td>12.4</td>
<td>324</td>
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<td>605.mcf_s</td>
<td>12</td>
<td>241</td>
<td>19.6</td>
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<td>19.5</td>
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<td>620.omnetpp_s</td>
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<td>6.18</td>
<td>262</td>
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<td>6.18</td>
<td>264</td>
<td>6.18</td>
<td>263</td>
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<td>623.xalanchmk_s</td>
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<td>12.4</td>
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<tr>
<td>625.x264_s</td>
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<td>631.deepsjeng_s</td>
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<td>641.leela_s</td>
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<td>307</td>
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<td>306</td>
<td>5.57</td>
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<td>12</td>
<td>307</td>
<td>5.56</td>
<td>306</td>
<td>5.57</td>
<td>307</td>
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<tr>
<td>648.exchange2_s</td>
<td>12</td>
<td>140</td>
<td>21.0</td>
<td>140</td>
<td>21.0</td>
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<td>135</td>
<td>21.6</td>
<td>135</td>
<td>21.8</td>
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<tr>
<td>657.xz_s</td>
<td>12</td>
<td>354</td>
<td>17.5</td>
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<td>12</td>
<td>354</td>
<td>17.5</td>
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</tr>
</tbody>
</table>

**SPECspeed**2017_int_base = 10.9  
**SPECspeed**2017_int_peak = 11.3

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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## Compiler Notes

The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/

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## 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)
Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-23"
LD_LIBRARY_PATH = "/home/cpu2017/amd_speed_aocc200_rome_C_lib/64;/home/cpu2017/amd_speed_aocc200_rome_C_lib/32:"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "24"

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 = "0-11"

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.

(Continued on next page)
Supermicro
A+ SuperWorkstation 5014A-TT
(M12SWA-TF, AMD Ryzen Threadripper PRO 3945WX)

SPECspeed®2017_int_base = 10.9
SPECspeed®2017_int_peak = 11.3

General Notes (Continued)

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 Settings:
Determinism Control = Manual
Determinism Slider = Power
APBDIS = 1
NUMA Nodes Per Socket = NPS2

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on m12swa-01 Fri Feb 19 23:29:11 2021

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 Ryzen Threadripper PRO 3945WX 12-Cores
       1 "physical id"s (chips)
       24 "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 : 12
      siblings : 24
      physical 0: cores 0 1 2 4 5 6 8 9 10 12 13 14

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):                 24
   On-line CPU(s) list:    0-23
   Thread(s) per core:     2
   Core(s) per socket:     12
   Socket(s):              1

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

Supermicro
A+ SuperWorkstation 5014A-TT
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CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Platform Notes (Continued)

NUMA node(s): 2
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD Ryzen Threadripper PRO 3945WX 12-Cores
Stepping: 0
Frequency boost: enabled
CPU MHz: 3600.745
CPU max MHz: 4000.0000
CPU min MHz: 2200.0000
BogoMIPS: 7999.97
Virtualization: AMD-V
L1d cache: 384 KiB
L1i cache: 384 KiB
L2 cache: 6 MiB
L3 cache: 64 MiB
NUMA node0 CPU(s): 0-5,12-17
NUMA node1 CPU(s): 6-11,18-23
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Full AMD retpoline, IBPB conditional, STIBP conditional, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Txz async abort: Not affected
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 pdpec1b rdtscp lm constant_tsc rep_good nopl 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 skinit wdt tce topoext perfctr_core perfctr_nb bptxt perfctr_llc mwaitx cpb cat_13 cdp_l3 hw_pstate sme ssbd mba sev ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 cmqm rdt_a rdseed adx smap clflushopt clwb sha ni xsavdept xsaveopt xsavec xsavecc qcm_llc qcm_occup_llc qcm_mbm_total qcm_mbm_local czerotier xsaveerpt wbnoiwvd arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassistors 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
Supermicro
A+ SuperWorkstation 5014A-TT
(M12SWA-TF, AMD Ryzen Threadripper PRO 3945WX)

SPECspeed®2017_int_base = 10.9
SPECspeed®2017_int_peak = 11.3

CPU2017 License: 001176
Test Date: Feb-2021
Test Sponsor: Supermicro
Hardware Availability: Mar-2021
Tested by: Supermicro
Software Availability: Jan-2021

Platform Notes (Continued)

- physical chip.
  - available: 2 nodes (0-1)
  - node 0 cpus: 0 1 2 3 4 5 12 13 14 15 16 17
  - node 0 size: 257900 MB
  - node 0 free: 257300 MB
  - node 1 cpus: 6 7 8 9 10 11 18 19 20 21 22 23
  - node 1 size: 257996 MB
  - node 1 free: 257397 MB

- node distances:
  - node 0 1
  - 0: 10 12
  - 1: 12 10

From /proc/meminfo
- MemTotal: 528277988 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

/usr/bin/lsb_release -d
- Ubuntu 20.04.1 LTS

From /etc/*release* /etc/*version*
- debian_version: bullseye/sid
- os-release:
  - NAME="Ubuntu"
  - VERSION="20.04.1 LTS (Focal Fossa)"
  - ID=ubuntu
  - ID_LIKE=debian
  - PRETTY_NAME="Ubuntu 20.04.1 LTS"
  - VERSION_ID="20.04"
  - HOME_URL="https://www.ubuntu.com/"
  - SUPPORT_URL="https://help.ubuntu.com/"

uname -a:
- Linux m12swa-01 5.4.0-60-generic #67-Ubuntu SMP Tue Jan 5 18:31:36 UTC 2021 x86_64
  x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- CVE-2018-12207 (iTLB Multihit): Not affected
- 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

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

CVE-2017-5753 (Spectre variant 1):
Bypass disabled via prctl and seccomp
Mitigation: usercopy/swapsqgs barriers and __user pointer sanitization

CVE-2017-5715 (Spectre variant 2):
Mitigation: Full AMD retpoline, IBPB: conditional, STIBP: conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 5 Feb 19 15:57

**Compiler Version Notes**

```plaintext
==============================================================================
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)
```
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**CPU2017 License:** 001176

**Test Sponsor:** Supermicro

**Tested by:** Supermicro

**Test Date:** Feb-2021

**Hardware Availability:** Mar-2021

**Software Availability:** Jan-2021

**Compiler Version Notes (Continued)**

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

---

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
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)

631.deepsjeng_s(base, peak) 641.leela_s(base, 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
AOCCLLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

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C++ | 623.xalancbmk_s(peak)

---

AOCCLLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
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C++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base)

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(Continued on next page)
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SPEC®2017 int_base = 10.9
SPEC®2017 int_peak = 11.3

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

---

Compiler Version Notes (Continued)

Fortran | 648.exchange2_s(base, peak)

A0CC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
A0CC_2_0_0-Build#191) (based on LLVM A0CC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
Installed Dir: /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:
-ffast-math
-march=znver2
-struct-layout=3

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Test Sponsor: Supermicro
Test Date: Feb-2021
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Hardware Availability: Mar-2021
Software Availability: Jan-2021

Base Optimization Flags (Continued)

C benchmarks (continued):
- 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 -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
- 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
SPEC CPU®2017 Integer Speed Result

Supermicro
A+ SuperWorkstation 5014A-TT  
(M12SWA-TF, AMD Ryzen Threadripper PRO 3945WX)

SPECspeed®2017_int_base = 10.9
SPECspeed®2017_int_peak = 11.3

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,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -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
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang

(Continued on next page)
Supermicro
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| SPECspeed®2017_int_base = 10.9 |
| SPECspeed®2017_int_peak = 11.3 |

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

Peak Optimization Flags (Continued)

602.gcc_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 -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 -z muldefs -DSPEC_OPENMP
-fopenmp -fgnu89-inline -fopenmp=libomp -lomp -lpthread
-ldl -ljemalloc

605.mcf_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 -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 -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: -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 -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

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

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

C++ benchmarks:

620.omnetpp_s: -flto -W1,-mlllvm -W1,-function-specialize
-mlllvm -W1,-region-vectorize
-mlllvm -W1,-vector-library=LIBMVEC
-march=znver2 -flv-function-specialization
-mlllvm -unroll-threshold=100
-mlllvm -enable-partial-unswitch
-mlllvm -loop-unswitch-threshold=200000
-mlllvm -vector-library=LIBMVEC
-mlllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-ffopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang

623.xalancbmk_s: -m32 -flto -W1,-mlllvm -W1,-function-specialize
-mlllvm -W1,-region-vectorize
-mlllvm -W1,-vector-library=LIBMVEC
-march=znver2 -flv-function-specialization
-mlllvm -unroll-threshold=100
-mlllvm -enable-partial-unswitch
-mlllvm -loop-unswitch-threshold=200000
-mlllvm -vector-library=LIBMVEC
-mlllvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-ffopenmp=libomp -lomp -lpthread -ldl -ljemalloc

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: basepeak = yes

Fortran benchmarks:
-fflto -W1,-mlllvm -W1,-function-specialize
-mlllvm -W1,-region-vectorize -mlllvm -W1,-vector-library=LIBMVEC
-mlllvm -W1,-reduce-array-computations=3 -ffast-math
-mlllvm -W1,-inline-recursion=4 -W1,-mlllvm -W1,-lsr-in-nested-loop
-mlllvm -W1,-enable-iv-split -O3 -march=znver2 -funroll-loops
-Mrecursive -mlllvm -vector-library=LIBMVEC
-mlllvm -disable-indvar-simplify -mlllvm -unroll-aggressive
-mlllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang
Supermicro
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(M12SWA-TF, AMD Ryzen Threadripper PRO 3945WX)

SPEC®2017_int_base = 10.9
SPEC®2017_int_peak = 11.3

C benchmarks:
-Wno-return-type

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

623.xalanchmk_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:
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revC.xml

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