



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

Supermicro

A+ SuperWorkstation 5014A-TT
(M12SWA-TF , AMD Ryzen Threadripper PRO 3975WX)

SPECspeed®2017_int_base = 11.0

SPECspeed®2017_int_peak = 11.5

CPU2017 License: 001176

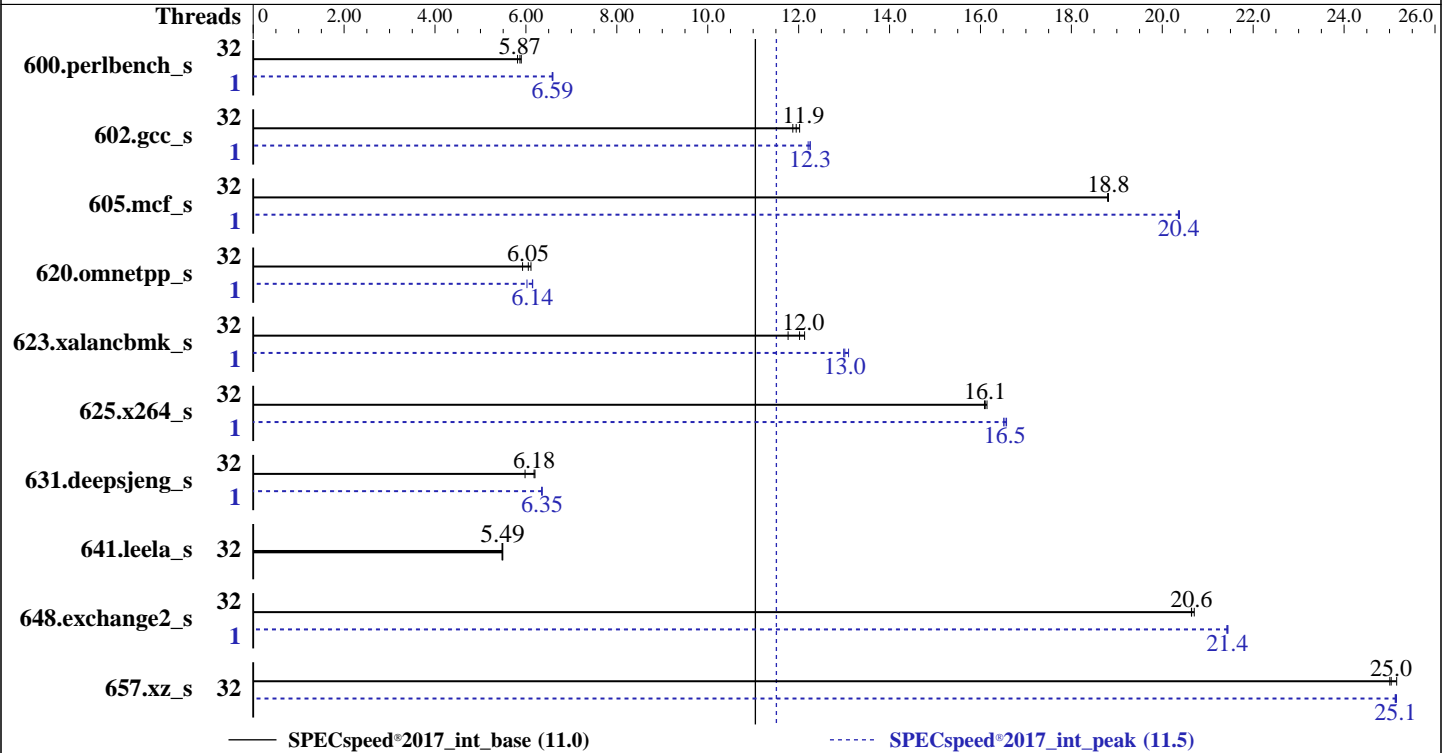
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jan-2021

Hardware Availability: Mar-2021

Software Availability: Jan-2021



Hardware

CPU Name: AMD Ryzen Threadripper PRO 3975WX
 Max MHz: 4200
 Nominal: 3500
 Enabled: 32 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: 128 MB I+D on chip per chip, 16 MB shared / 4 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 Jan-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.



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	302	5.87	305	5.82	301	5.90	1	270	6.58	269	6.59	269	6.59
602.gcc_s	32	333	11.9	335	11.9	331	12.0	1	325	12.3	326	12.2	325	12.3
605.mcf_s	32	251	18.8	251	18.8	251	18.8	1	232	20.4	232	20.4	232	20.4
620.omnetpp_s	32	269	6.05	275	5.93	267	6.11	1	266	6.14	271	6.02	265	6.15
623.xalancbmk_s	32	118	12.0	120	11.8	117	12.1	1	108	13.1	109	13.0	109	13.0
625.x264_s	32	110	16.1	109	16.1	110	16.1	1	106	16.6	107	16.5	107	16.5
631.deepsjeng_s	32	240	5.98	231	6.20	232	6.18	1	225	6.36	226	6.35	225	6.35
641.leela_s	32	312	5.47	311	5.49	311	5.49	32	312	5.47	311	5.49	311	5.49
648.exchange2_s	32	142	20.7	142	20.6	142	20.6	1	137	21.4	137	21.4	137	21.4
657.xz_s	32	246	25.2	247	25.0	247	25.0	32	246	25.1	246	25.2	246	25.1

SPECspeed®2017_int_base = **11.0**

SPECspeed®2017_int_peak = **11.5**

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:"
MALLOC_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"

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.

(Continued on next page)



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Tested by: Supermicro

Test Date: Jan-2021
Hardware Availability: Mar-2021
Software Availability: Jan-2021

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 = NPS4

sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on ubuntu-01 Sat Jan 30 05:48:46 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 3975WX 32-Cores
1 "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 : 32
siblings : 64
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31

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: 32

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Platform Notes (Continued)

```

Socket(s): 1
NUMA node(s): 4
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD Ryzen Threadripper PRO 3975WX 32-Cores
Stepping: 0
Frequency boost: enabled
CPU MHz: 3777.581
CPU max MHz: 3500.0000
CPU min MHz: 2200.0000
BogoMIPS: 6999.76
Virtualization: AMD-V
L1d cache: 1 MiB
L1i cache: 1 MiB
L2 cache: 16 MiB
L3 cache: 128 MiB
NUMA node0 CPU(s): 0-7,32-39
NUMA node1 CPU(s): 8-15,40-47
NUMA node2 CPU(s): 16-23,48-55
NUMA node3 CPU(s): 24-31,56-63
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 Tsx 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
pdpe1gb rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid
aperfmpperf 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 bpxct
perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibpb stibp vmmcall
fsgsbase bmi1 avx2 smep bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni
xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
clzero irperf xsaveerptr wbnoinvd 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

(Continued on next page)



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Platform Notes (Continued)

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 4 5 6 7 32 33 34 35 36 37 38 39
node 0 size: 128883 MB
node 0 free: 128373 MB
node 1 cpus: 8 9 10 11 12 13 14 15 40 41 42 43 44 45 46 47
node 1 size: 128992 MB
node 1 free: 128564 MB
node 2 cpus: 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55
node 2 size: 129016 MB
node 2 free: 128519 MB
node 3 cpus: 24 25 26 27 28 29 30 31 56 57 58 59 60 61 62 63
node 3 size: 129003 MB
node 3 free: 128602 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:      528277112 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/"

```

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Platform Notes (Continued)

```
uname -a:
Linux ubuntu-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 Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1):	Mitigation: usercopy/swaggs 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 Jan 29 17:01
```

```
SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       ext4  272G   24G  234G  10% /
```

```
From /sys/devices/virtual/dmi/id
Vendor:          Supermicro
Product:         M12SWA-TF
Product Family: SMC M12
Serial:         123456789
```

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 SK Hynix HMAA8GR7AJR4N-XN 64 GB 2 rank 3200

BIOS:
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 5.17
BIOS Date: 01/25/2021
BIOS Revision: 5.17

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Platform Notes (Continued)

(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)
-----

```

```

AOCCLLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCCLLVM.2.0.0.B191.2019_07_19) (based on LLVM AOCCLLVM.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.xalanbmk_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) (based on LLVM AOCCLLVM.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.xalanbmk_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) (based on LLVM AOCCLLVM.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.xalanbmk_s(peak)
-----

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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
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

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Base Portability Flags (Continued)

657.xz_s: -DSPEC_LP64

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
-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:

```
-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
```

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Base Other Flags (Continued)

C++ benchmarks:
-Wno-return-type

Fortran benchmarks:
-Wno-return-type

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
```

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SPEC CPU®2017 Integer Speed Result

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A+ SuperWorkstation 5014A-TT
(M12SWA-TF , AMD Ryzen Threadripper PRO 3975WX)

SPECspeed®2017_int_base = 11.0

SPECspeed®2017_int_peak = 11.5

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

Test Date: Jan-2021
Hardware Availability: Mar-2021
Software Availability: Jan-2021

Peak Optimization Flags (Continued)

600.perlbench_s (continued):

```
-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
```

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
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang
```

625.x264_s: Same as 600.perlbench_s

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SPECspeed®2017_int_base = 11.0

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SPECspeed®2017_int_peak = 11.5

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Peak Optimization Flags (Continued)

```
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
-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
-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

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CPU2017 License: 001176
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Test Date: Jan-2021
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Peak Optimization Flags (Continued)

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  
-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/spo/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

<http://www.spec.org/cpu2017/flags/aocc200-flags-C4.html>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revC.html>

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-C4.xml>

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

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