SPEC CPU®2017 Integer Speed Result

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Supermicro
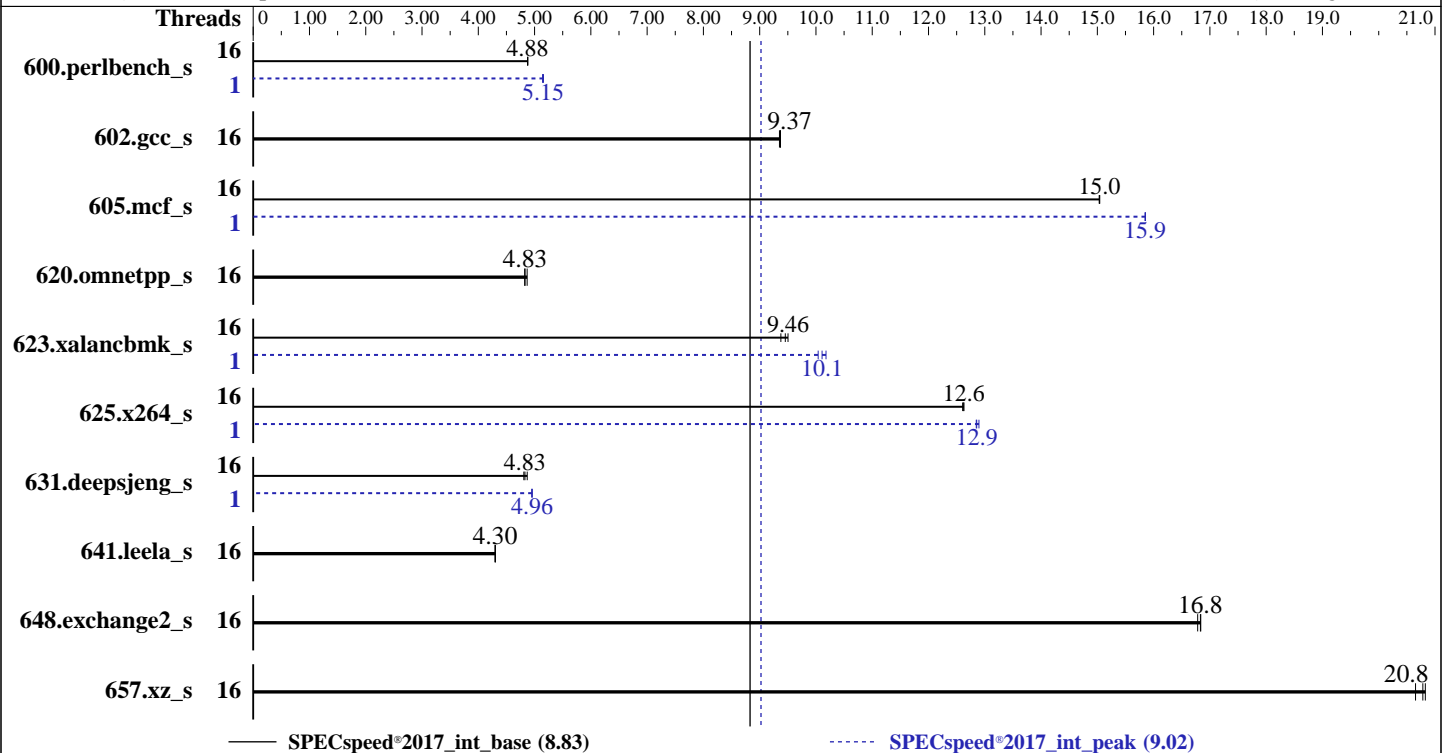
A+ Server 2124BT-HTR
(H12DST-B , AMD EPYC 7262)

$SPECspeed^{®}2017\_int\_base = 8.83$

$SPECspeed^{®}2017\_int\_peak = 9.02$

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Feb-2020

Hardware Availability: Aug-2019

Software Availability: Aug-2019

Threads

Benchmark	Threads	Value
600.perlbench_s	16	4.88
	1	5.15
602.gcc_s	16	9.37
605.mcf_s	16	15.0
	1	15.9
620.omnetpp_s	16	4.83
623.xalancbmk_s	16	9.46
	1	10.1
625.x264_s	16	12.6
	1	12.9
631.deepsjeng_s	16	4.83
	1	4.96
641.leela_s	16	4.30
648.exchange2_s	16	16.8
657.xz_s	16	20.8

—— SPECspeed®2017_int_base (8.83)   ------ SPECspeed®2017_int_peak (9.02)

Hardware

CPU Name: AMD EPYC 7262

 Max MHz: 3400

 Nominal: 3200

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: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)

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 1.1 released Jan-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.

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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	16	**364**	**4.88**	364	4.88	364	4.88	1	344	5.16	**345**	**5.15**	345	5.14
602.gcc_s	16	426	9.35	425	9.37	**425**	**9.37**	16	426	9.35	425	9.37	**425**	**9.37**
605.mcf_s	16	314	15.0	**314**	**15.0**	314	15.0	1	**298**	**15.9**	298	15.9	298	15.8
620.omnetpp_s	16	335	4.87	338	4.82	**338**	**4.83**	16	335	4.87	338	4.82	**338**	**4.83**
623.xalancbmk_s	16	**150**	**9.46**	151	9.38	149	9.50	1	141	10.0	**140**	**10.1**	139	10.2
625.x264_s	16	**140**	**12.6**	140	12.6	140	12.6	1	**137**	**12.9**	137	12.8	137	12.9
631.deepsjeng_s	16	**297**	**4.83**	298	4.81	294	4.87	1	289	4.95	**289**	**4.96**	289	4.96
641.leela_s	16	**397**	**4.30**	397	4.30	396	4.30	16	**397**	**4.30**	397	4.30	396	4.30
648.exchange2_s	16	175	16.8	**175**	**16.8**	175	16.8	16	175	16.8	**175**	**16.8**	175	16.8
657.xz_s	16	299	20.7	297	20.8	**297**	**20.8**	16	299	20.7	297	20.8	**297**	**20.8**
SPECspeed®2017_int_base =						**8.83**								
SPECspeed®2017_int_peak =						**9.02**								

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 = "0-31"
LD_LIBRARY_PATH =
      "/home/cpu2017/amd_speed_aocc200_rome_C_lib/64;/home/cpu2017/amd_speed_a
      occ200_rome_C_lib/32:"
MALLOC_CONF = "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 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"
```

General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.

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
```

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CPU2017 License: 001176　　　　　　　　　　　　　　　　　　**Test Date:** Feb-2020
Test Sponsor: Supermicro　　　　　　　　　　　　　　　　**Hardware Availability:** Aug-2019
Tested by: Supermicro　　　　　　　　　　　　　　　　　　**Software Availability:** Aug-2019

Platform Notes

```
BIOS Settings:
Determinism Control = Manual
Determinism Slider = Power
cTDP Control = Manual
cTDP = 180
Package Power Limit Control = Manual
Package Power Limit = 180
APBDIS = 1

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
 running on h12dst-01 Sat Feb 22 01:25:09 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 7262 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
    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):        2
    Vendor ID:           AuthenticAMD
    CPU family:          23
    Model:               49
    Model name:          AMD EPYC 7262 8-Core Processor
    Stepping:            0
    CPU MHz:             3400.128
    CPU max MHz:         3200.0000
    CPU min MHz:         1500.0000
```

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CPU2017 License: 001176   **Test Date:**   Feb-2020
Test Sponsor: Supermicro   **Hardware Availability:** Aug-2019
Tested by: Supermicro   **Software Availability:** Aug-2019

Platform Notes (Continued)

```
        BogoMIPS:              6400.40
        Virtualization:        AMD-V
        L1d cache:             32K
        L1i cache:             32K
        L2 cache:              512K
        L3 cache:              16384K
        NUMA node0 CPU(s):     0-7,16-23
        NUMA node1 CPU(s):     8-15,24-31
        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 skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb
      cat_l3 cdp_l3 hw_pstate sme ssbd mba sev ibrs 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
    cache size : 512 KB

 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 2 nodes (0-1)
   node 0 cpus: 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23
   node 0 size: 257888 MB
   node 0 free: 257151 MB
   node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
   node 1 size: 258042 MB
   node 1 free: 257669 MB
   node distances:
   node   0   1
     0:  10  32
     1:  32  10

 From /proc/meminfo
    MemTotal:       528313024 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 From /etc/*release* /etc/*version*
    debian_version: buster/sid
    os-release:
       NAME="Ubuntu"
```

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Platform Notes (Continued)

```
     VERSION="19.04 (Disco Dingo)"
     ID=ubuntu
     ID_LIKE=debian
     PRETTY_NAME="Ubuntu 19.04"
     VERSION_ID="19.04"
     HOME_URL="https://www.ubuntu.com/"
     SUPPORT_URL="https://help.ubuntu.com/"

 uname -a:
    Linux h12dst-01 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-2017-5754 (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/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 Feb 21 11:03

 SPEC is set to: /home/cpu2017
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda2      ext4  183G   29G  145G  17% /

 From /sys/devices/virtual/dmi/id
     BIOS:    American Megatrends Inc. 1.1 01/10/2020
     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:
     16x SK Hynix HMA84GR7CJR4N-XN 32 kB 2 rank 3200


 (End of data from sysinfo program)
```

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Compiler Version Notes

```
==============================================================================
C        | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base,
         | peak) 625.x264_s(base, peak) 657.xz_s(base, peak)
------------------------------------------------------------------------------
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
------------------------------------------------------------------------------


==============================================================================
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)
         | 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
------------------------------------------------------------------------------


==============================================================================
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)
         | 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
```

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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`

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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 -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 -DUSE_OPENMP
```

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

Fortran benchmarks:
```
-DUSE_OPENMP -Wno-return-type
```

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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`
`-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`

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

Supermicro

A+ Server 2124BT-HTR
(H12DST-B , AMD EPYC 7262)

SPECspeed®2017_int_base = 8.83

SPECspeed®2017_int_peak = 9.02

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

Test Date: Feb-2020
Hardware Availability: Aug-2019
Software Availability: Aug-2019

Peak Optimization Flags (Continued)

602.gcc_s: basepeak = yes

605.mcf_s: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
-flv-function-specialization -DSPEC_OPENMP -fopenmp
-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: basepeak = yes

623.xalancbmk_s: -m32 -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -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: -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

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Peak Optimization Flags (Continued)

631.deepsjeng_s (continued):
```
-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
```

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak Other Flags

C benchmarks:
```
-Wno-return-type -DUSE_OPENMP
```

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

623.xalancbmk_s: `-Wno-return-type -DUSE_OPENMP`
`-L/sppo/dev/cpu2017/v110/amd_speed_aocc200_rome_C_lib/32`

Fortran benchmarks:
```
-DUSE_OPENMP -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-B1.html
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc200-flags-B1.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Rome-revB.xml

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

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