SPEC CPU®2017 Integer Speed Result

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Dell Inc.

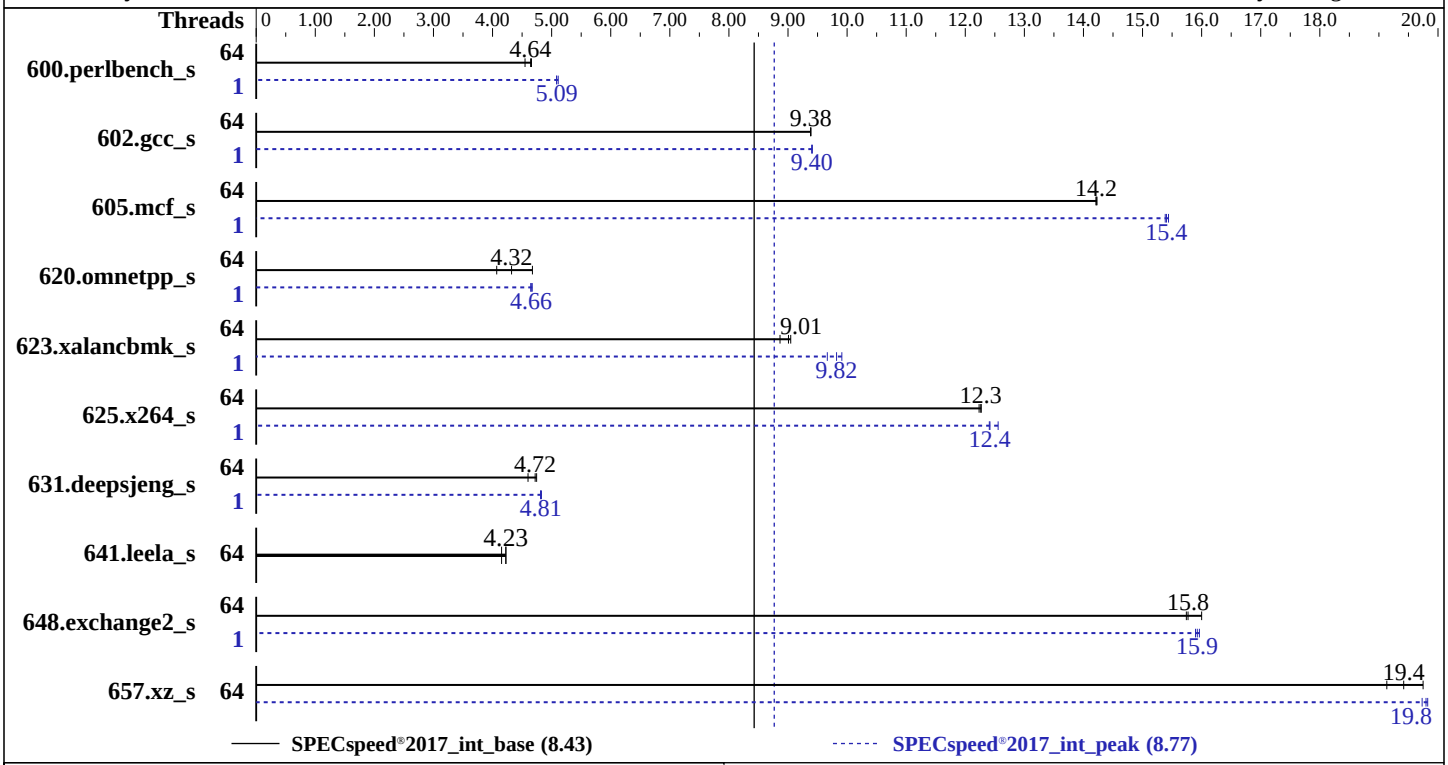
PowerEdge C6525 (AMD EPYC 7702P, 2.00GHz)

SPECspeed®2017_int_base = 8.43

SPECspeed®2017_int_peak = 8.77

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Aug-2019
Hardware Availability: Sep-2019
Software Availability: Aug-2019



Hardware

CPU Name:	AMD EPYC 7702P
Max MHz:	3350
Nominal:	2000
Enabled:	64 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:	256 MB I+D on chip per chip, 16 MB shared / 4 cores
Other:	None
Memory:	256 GB (8 x 32 GB 2Rx4 PC4-3200AA-R, running at 3200)
Storage:	1 x 480 GB SATA SSD
Other:	None

Software

OS:	SUSE Linux Enterprise Server 15 SP1 kernel 4.12.14-195-default
Compiler:	C/C++/Fortran: Version 2.0.0 of AOCC
Parallel:	Yes
Firmware:	Version 0.4.7 released Aug-2019
File System:	xfs
System State:	Run level 5 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other:	jemalloc: jemalloc memory allocator library v5.2.0
Power Management:	--

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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	64	381	4.66	390	4.55	**382**	**4.64**	1	349	5.08	**349**	**5.09**	347	5.11
602.gcc_s	64	**424**	**9.38**	424	9.38	424	9.39	1	**423**	**9.40**	423	9.41	423	9.40
605.mcf_s	64	332	14.2	332	14.2	**332**	**14.2**	1	**306**	**15.4**	306	15.4	307	15.4
620.omnetpp_s	64	349	4.67	401	4.07	**377**	**4.32**	1	349	4.67	351	4.65	**350**	**4.66**
623.xalancbmk_s	64	**157**	**9.01**	160	8.86	157	9.05	1	147	9.67	143	9.91	**144**	**9.82**
625.x264_s	64	**144**	**12.3**	144	12.3	144	12.2	1	**142**	**12.4**	140	12.6	142	12.4
631.deepsjeng_s	64	312	4.60	**304**	**4.72**	302	4.75	1	298	4.81	297	4.83	**298**	**4.81**
641.leela_s	64	411	4.15	404	4.23	**404**	**4.23**	64	411	4.15	404	4.23	**404**	**4.23**
648.exchange2_s	64	187	15.7	184	16.0	**186**	**15.8**	1	184	16.0	**185**	**15.9**	185	15.9
657.xz_s	64	**318**	**19.4**	323	19.1	313	19.7	64	313	19.7	312	19.8	**312**	**19.8**

SPECspeed®2017_int_base = 8.43

SPECspeed®2017_int_peak = 8.77

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)
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/root/cpu2017-1.0.5/amd_rate_aocc200_rome_B_lib/64
;/root/cpu2017-1.0.5/amd_rate_aocc200_rome_B_lib/32:"
MALLOC_CONF = "retain:true"

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 5.2.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.2.0/jemalloc-5.2.0.tar.bz2
```

Platform Notes

```
BIOS settings:
 NUMA Nodes Per Socket set to 4
 CCX as NUMA Domain set to Enabled
 System Profile set to Custom
 CPU Power Management set to Maximum Performance
 Memory Frequency set to Maximum Performance
 Turbo Boost Enabled
 Cstates set to Enabled
 Memory Patrol Scrub Disabled
 Memory Refresh Rate set to 1x
 PCI ASPM L1 Link Power Management Disabled
 Determinism Slider set to Power Determinism
 Efficiency Optimized Mode Disabled
 Sysinfo program /root/cpu2017-1.0.5/bin/sysinfo
 Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
 running on linux-g3ob Tue Sep 10 01:56:17 2019

 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 7702P 64-Core Processor
       1  "physical id"s (chips)
       128 "processors"
```

(Continued on next page)

Platform Notes (Continued)

```
    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 : 64
       siblings  : 128
       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 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
       53 54 55 56 57 58 59 60 61 62 63

 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):              128
      On-line CPU(s) list: 0-127
      Thread(s) per core:  2
      Core(s) per socket:  64
      Socket(s):           1
      NUMA node(s):        16
      Vendor ID:           AuthenticAMD
      CPU family:          23
      Model:               49
      Model name:          AMD EPYC 7702P 64-Core Processor
      Stepping:            0
      CPU MHz:             1996.341
      BogoMIPS:            3992.68
      Virtualization:      AMD-V
      L1d cache:           32K
      L1i cache:           32K
      L2 cache:            512K
      L3 cache:            16384K
      NUMA node0 CPU(s):   0-3,64-67
      NUMA node1 CPU(s):   4-7,68-71
      NUMA node2 CPU(s):   8-11,72-75
      NUMA node3 CPU(s):   12-15,76-79
      NUMA node4 CPU(s):   16-19,80-83
      NUMA node5 CPU(s):   20-23,84-87
      NUMA node6 CPU(s):   24-27,88-91
      NUMA node7 CPU(s):   28-31,92-95
      NUMA node8 CPU(s):   32-35,96-99
      NUMA node9 CPU(s):   36-39,100-103
      NUMA node10 CPU(s):  40-43,104-107
      NUMA node11 CPU(s):  44-47,108-111
      NUMA node12 CPU(s):  48-51,112-115
      NUMA node13 CPU(s):  52-55,116-119
      NUMA node14 CPU(s):  56-59,120-123
      NUMA node15 CPU(s):  60-63,124-127
```

(Continued on next page)

Platform Notes (Continued)

```
      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_l2 mwaitx cpb
      cat_l3 cdp_l3 hw_pstate sme ssbd 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 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: 16 nodes (0-15)
    node 0 cpus: 0 1 2 3 64 65 66 67
    node 0 size: 15692 MB
    node 0 free: 15415 MB
    node 1 cpus: 4 5 6 7 68 69 70 71
    node 1 size: 16126 MB
    node 1 free: 15998 MB
    node 2 cpus: 8 9 10 11 72 73 74 75
    node 2 size: 16126 MB
    node 2 free: 15823 MB
    node 3 cpus: 12 13 14 15 76 77 78 79
    node 3 size: 16125 MB
    node 3 free: 16053 MB
    node 4 cpus: 16 17 18 19 80 81 82 83
    node 4 size: 16126 MB
    node 4 free: 16042 MB
    node 5 cpus: 20 21 22 23 84 85 86 87
    node 5 size: 16126 MB
    node 5 free: 16059 MB
    node 6 cpus: 24 25 26 27 88 89 90 91
    node 6 size: 16126 MB
    node 6 free: 16071 MB
    node 7 cpus: 28 29 30 31 92 93 94 95
    node 7 size: 16125 MB
    node 7 free: 16013 MB
    node 8 cpus: 32 33 34 35 96 97 98 99
    node 8 size: 16126 MB
    node 8 free: 15878 MB
    node 9 cpus: 36 37 38 39 100 101 102 103
    node 9 size: 16126 MB
```

(Continued on next page)

Platform Notes (Continued)

```
   node 9 free: 16021 MB
   node 10 cpus: 40 41 42 43 104 105 106 107
   node 10 size: 16126 MB
   node 10 free: 16072 MB
   node 11 cpus: 44 45 46 47 108 109 110 111
   node 11 size: 16125 MB
   node 11 free: 16022 MB
   node 12 cpus: 48 49 50 51 112 113 114 115
   node 12 size: 16096 MB
   node 12 free: 15973 MB
   node 13 cpus: 52 53 54 55 116 117 118 119
   node 13 size: 16126 MB
   node 13 free: 16065 MB
   node 14 cpus: 56 57 58 59 120 121 122 123
   node 14 size: 16126 MB
   node 14 free: 16067 MB
   node 15 cpus: 60 61 62 63 124 125 126 127
   node 15 size: 16111 MB
   node 15 free: 16043 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  11  11  11  12  12  12  12  12  12  12  12  12  12  12  12
     1:  11  10  11  11  12  12  12  12  12  12  12  12  12  12  12  12
     2:  11  11  10  11  12  12  12  12  12  12  12  12  12  12  12  12
     3:  11  11  11  10  12  12  12  12  12  12  12  12  12  12  12  12
     4:  12  12  12  12  10  11  11  11  12  12  12  12  12  12  12  12
     5:  12  12  12  12  11  10  11  11  12  12  12  12  12  12  12  12
     6:  12  12  12  12  11  11  10  11  12  12  12  12  12  12  12  12
     7:  12  12  12  12  11  11  11  10  12  12  12  12  12  12  12  12
     8:  12  12  12  12  12  12  12  12  10  11  11  11  12  12  12  12
     9:  12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12
    10:  12  12  12  12  12  12  12  12  11  11  10  11  12  12  12  12
    11:  12  12  12  12  12  12  12  12  11  11  11  10  12  12  12  12
    12:  12  12  12  12  12  12  12  12  12  12  12  12  10  11  11  11
    13:  12  12  12  12  12  12  12  12  12  12  12  12  11  10  11  11
    14:  12  12  12  12  12  12  12  12  12  12  12  12  11  11  10  11
    15:  12  12  12  12  12  12  12  12  12  12  12  12  11  11  11  10

  From /proc/meminfo
     MemTotal:       263721756 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="SLES"
        VERSION="15-SP1"
```

(Continued on next page)

Platform Notes (Continued)

```
       VERSION_ID="15.1"
       PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
       ID="sles"
       ID_LIKE="suse"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:15:sp1"

 uname -a:
    Linux linux-g3ob 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-2017-5754 (Meltdown):          Not affected
 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 5 Sep 8 20:45

 SPEC is set to: /root/cpu2017-1.0.5
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda2      xfs   440G   15G  426G   4% /

 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.
   BIOS Dell Inc. 0.4.7 08/19/2019
   Memory:
    8x 80AD863280AD HMA84GR7CJR4N-XN 32 GB 2 rank 3200
    8x Not Specified Not Specified

 (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)
------------------------------------------------------------------------------
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
```


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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------

==============================================================================
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
  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)
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
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

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

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Base Optimization Flags (Continued)

C benchmarks (continued):
-flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -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
-DUSE_OPENMP -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 -DUSE_OPENMP
-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

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

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

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`

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Peak Optimization Flags (Continued)

657.xz_s (continued):
-DUSE_OPENMP -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
-DUSE_OPENMP -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
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: basepeak = yes

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 -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc

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Peak Optimization Flags (Continued)

Fortran benchmarks (continued):
-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/sppo/dev/cpu2017/amd_speed_aocc200_rome/amd_speed_aocc200_rome_B_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-B1-speed-Dell.html
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE6.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc200-flags-B1-speed-Dell.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE6.xml

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

Tested with SPEC CPU®2017 v1.0.5 on 2019-09-10 01:56:16-0400.
Report generated on 2019-11-26 12:52:37 by CPU2017 PS formatter v6255.
Originally published on 2019-11-26.