SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

$SPECspeed®2017\_int\_base = 8.41$

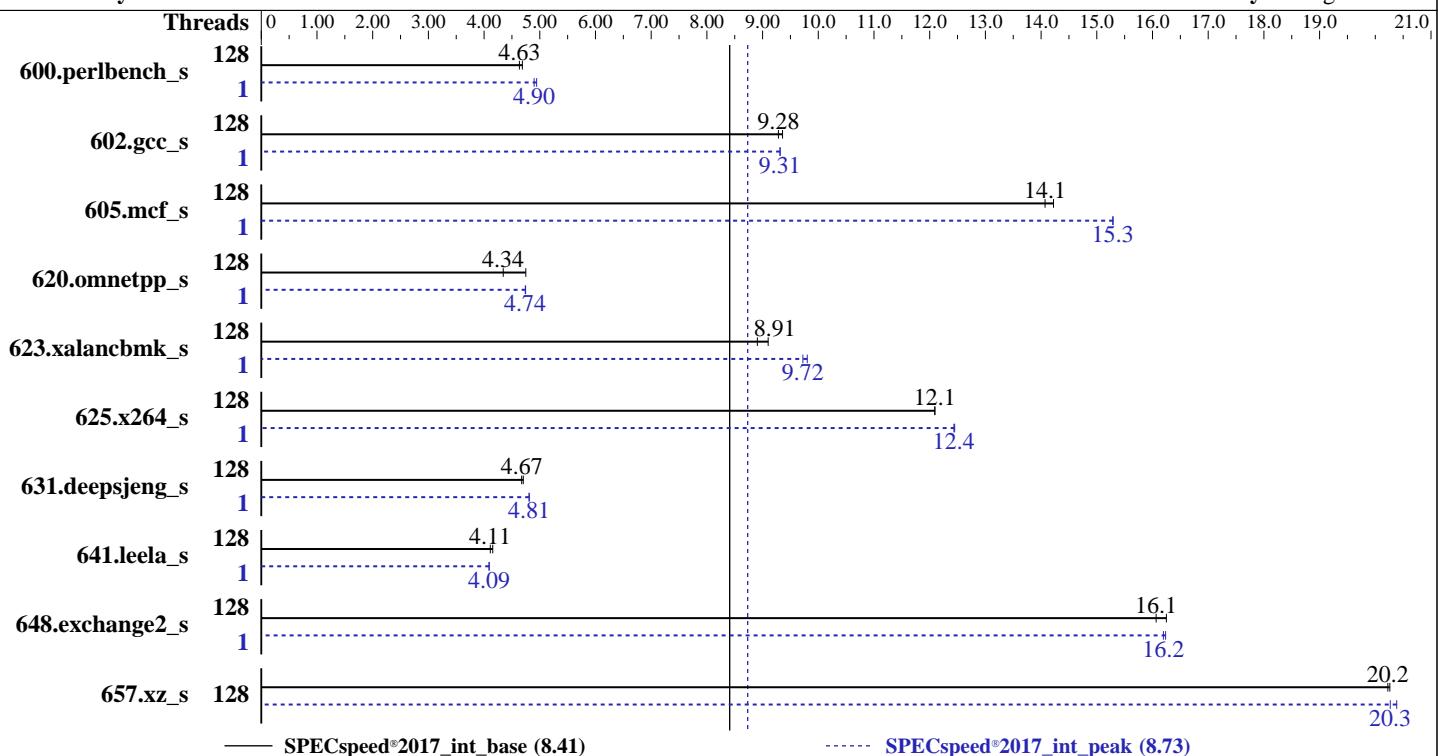$SPECspeed®2017\_int\_peak = 8.73$

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Dec-2019

Hardware Availability: Feb-2019

Software Availability: Aug-2019

Threads

Benchmark	128	1
600.perlbench_s	4.63	4.90
602.gcc_s	9.28	9.31
605.mcf_s	14.1	15.3
620.omnetpp_s	4.34	4.74
623.xalancbmk_s	8.91	9.72
625.x264_s	12.1	12.4
631.deepsjeng_s	4.67	4.81
641.leela_s	4.11	4.09
648.exchange2_s	16.1	16.2
657.xz_s	20.2	20.3

———— SPECspeed®2017_int_base (8.41)   ------- SPECspeed®2017_int_peak (8.73)

Hardware

CPU Name: AMD EPYC 7662

Max MHz: 3300

Nominal: 2000

Enabled: 128 cores, 2 chips

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: 256 MB I+D on chip per chip, 16 MB shared / 4 cores

Other: None

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

Storage: 1 x 960 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 1.2.4 released Nov-2019

File System: xfs

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.

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

$SPECspeed®2017\_int\_base = 8.41$

$SPECspeed®2017\_int\_peak = 8.73$

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

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

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	128	**383**	**4.63**	379	4.69			1	359	4.94	**362**	**4.90**		
602.gcc_s	128	**429**	**9.28**	425	9.36			1	**428**	**9.31**	428	9.31		
605.mcf_s	128	**336**	**14.1**	332	14.2			1	**309**	**15.3**	309	15.3		
620.omnetpp_s	128	343	4.75	**375**	**4.34**			1	**344**	**4.74**	344	4.75		
623.xalancbmk_s	128	156	9.10	**159**	**8.91**			1	145	9.80	**146**	**9.72**		
625.x264_s	128	**146**	**12.1**	146	12.1			1	**142**	**12.4**	142	12.4		
631.deepsjeng_s	128	**307**	**4.67**	305	4.70			1	298	4.81	**298**	**4.81**		
641.leela_s	128	**415**	**4.11**	411	4.16			1	417	4.09	**417**	**4.09**		
648.exchange2_s	128	**183**	**16.1**	181	16.2			1	181	16.2	**182**	**16.2**		
657.xz_s	128	305	20.3	**306**	**20.2**			128	303	20.4	**305**	**20.3**		

SPECspeed®2017_int_base = **8.41**

SPECspeed®2017_int_peak = **8.73**

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)
```

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

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-127"
LD_LIBRARY_PATH =
      "/root/cpu2017-1.1.0/amd_speed_aocc200_rome_C_lib/64;/root/cpu2017-1.1.0
      /amd_speed_aocc200_rome_C_lib/32:"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"

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 641.leela_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 = "0-127"
```

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

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

$SPECspeed®2017\_int\_base = 8.41$

$SPECspeed®2017\_int\_peak = 8.73$

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

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

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

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
  Memory Interleaving set to Disabled
  Logical Processor disabled

 Sysinfo program /root/cpu2017-1.1.0/bin/sysinfo
 Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
 running on linux-g3ob Fri Dec 6 14:44:58 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 7662 64-Core Processor
       2 "physical id"s (chips)
       128 "processors"
    cores, siblings (Caution: counting these is hw and system dependent. The following
    excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

(Continued on next page)

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

SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

CPU2017 License: 55   **Test Date:** Dec-2019
Test Sponsor: Dell Inc.   **Hardware Availability:** Feb-2019
Tested by: Dell Inc.   **Software Availability:** Aug-2019

Platform Notes (Continued)

```
     cpu cores : 64
     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 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
     physical 1: 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:    1
     Core(s) per socket:    64
     Socket(s):             2
     NUMA node(s):          32
     Vendor ID:             AuthenticAMD
     CPU family:            23
     Model:                 49
     Model name:            AMD EPYC 7662 64-Core Processor
     Stepping:              0
     CPU MHz:               1996.307
     BogoMIPS:              3992.61
     Virtualization:        AMD-V
     L1d cache:             32K
     L1i cache:             32K
     L2 cache:              512K
     L3 cache:              16384K
     NUMA node0 CPU(s):     0-3
     NUMA node1 CPU(s):     4-7
     NUMA node2 CPU(s):     8-11
     NUMA node3 CPU(s):     12-15
     NUMA node4 CPU(s):     16-19
     NUMA node5 CPU(s):     20-23
     NUMA node6 CPU(s):     24-27
     NUMA node7 CPU(s):     28-31
     NUMA node8 CPU(s):     32-35
     NUMA node9 CPU(s):     36-39
     NUMA node10 CPU(s):    40-43
     NUMA node11 CPU(s):    44-47
     NUMA node12 CPU(s):    48-51
     NUMA node13 CPU(s):    52-55
     NUMA node14 CPU(s):    56-59
```

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Dec-2019

Hardware Availability: Feb-2019

Software Availability: Aug-2019

Platform Notes (Continued)

```
      NUMA node15 CPU(s):    60-63
      NUMA node16 CPU(s):    64-67
      NUMA node17 CPU(s):    68-71
      NUMA node18 CPU(s):    72-75
      NUMA node19 CPU(s):    76-79
      NUMA node20 CPU(s):    80-83
      NUMA node21 CPU(s):    84-87
      NUMA node22 CPU(s):    88-91
      NUMA node23 CPU(s):    92-95
      NUMA node24 CPU(s):    96-99
      NUMA node25 CPU(s):    100-103
      NUMA node26 CPU(s):    104-107
      NUMA node27 CPU(s):    108-111
      NUMA node28 CPU(s):    112-115
      NUMA node29 CPU(s):    116-119
      NUMA node30 CPU(s):    120-123
      NUMA node31 CPU(s):    124-127
      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 x2apic 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: 32 nodes (0-31)
    node 0 cpus: 0 1 2 3
    node 0 size: 15548 MB
    node 0 free: 15330 MB
    node 1 cpus: 4 5 6 7
    node 1 size: 16127 MB
    node 1 free: 16036 MB
    node 2 cpus: 8 9 10 11
    node 2 size: 16097 MB
    node 2 free: 15981 MB
    node 3 cpus: 12 13 14 15
    node 3 size: 16126 MB
```

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Platform Notes (Continued)

```
      node 3 free: 16042 MB
      node 4 cpus: 16 17 18 19
      node 4 size: 16127 MB
      node 4 free: 16093 MB
      node 5 cpus: 20 21 22 23
      node 5 size: 16127 MB
      node 5 free: 16086 MB
      node 6 cpus: 24 25 26 27
      node 6 size: 16127 MB
      node 6 free: 16082 MB
      node 7 cpus: 28 29 30 31
      node 7 size: 16126 MB
      node 7 free: 16080 MB
      node 8 cpus: 32 33 34 35
      node 8 size: 16127 MB
      node 8 free: 16039 MB
      node 9 cpus: 36 37 38 39
      node 9 size: 16127 MB
      node 9 free: 16059 MB
      node 10 cpus: 40 41 42 43
      node 10 size: 16127 MB
      node 10 free: 16081 MB
      node 11 cpus: 44 45 46 47
      node 11 size: 16126 MB
      node 11 free: 16073 MB
      node 12 cpus: 48 49 50 51
      node 12 size: 16127 MB
      node 12 free: 16071 MB
      node 13 cpus: 52 53 54 55
      node 13 size: 16127 MB
      node 13 free: 16095 MB
      node 14 cpus: 56 57 58 59
      node 14 size: 16127 MB
      node 14 free: 16084 MB
      node 15 cpus: 60 61 62 63
      node 15 size: 16114 MB
      node 15 free: 16072 MB
      node 16 cpus: 64 65 66 67
      node 16 size: 16127 MB
      node 16 free: 15978 MB
      node 17 cpus: 68 69 70 71
      node 17 size: 16127 MB
      node 17 free: 16037 MB
      node 18 cpus: 72 73 74 75
      node 18 size: 16127 MB
      node 18 free: 16036 MB
      node 19 cpus: 76 77 78 79
```

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Platform Notes (Continued)

```
      node 19 size: 16126 MB
      node 19 free: 16058 MB
      node 20 cpus: 80 81 82 83
      node 20 size: 16127 MB
      node 20 free: 16060 MB
      node 21 cpus: 84 85 86 87
      node 21 size: 16127 MB
      node 21 free: 16055 MB
      node 22 cpus: 88 89 90 91
      node 22 size: 16127 MB
      node 22 free: 16053 MB
      node 23 cpus: 92 93 94 95
      node 23 size: 16126 MB
      node 23 free: 15964 MB
      node 24 cpus: 96 97 98 99
      node 24 size: 16127 MB
      node 24 free: 16064 MB
      node 25 cpus: 100 101 102 103
      node 25 size: 16127 MB
      node 25 free: 16073 MB
      node 26 cpus: 104 105 106 107
      node 26 size: 16127 MB
      node 26 free: 16070 MB
      node 27 cpus: 108 109 110 111
      node 27 size: 16126 MB
      node 27 free: 16060 MB
      node 28 cpus: 112 113 114 115
      node 28 size: 16127 MB
      node 28 free: 15967 MB
      node 29 cpus: 116 117 118 119
      node 29 size: 16127 MB
      node 29 free: 16038 MB
      node 30 cpus: 120 121 122 123
      node 30 size: 16127 MB
      node 30 free: 16019 MB
      node 31 cpus: 124 125 126 127
      node 31 size: 16124 MB
      node 31 free: 16031 MB
      node distances:
      node   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
        0:  10  11  11  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
        32  32  32  32  32  32  32  32  32  32  32  32
        1:  11  10  11  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
        32  32  32  32  32  32  32  32  32  32  32  32
        2:  11  11  10  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
        32  32  32  32  32  32  32  32  32  32  32  32
```

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Platform Notes (Continued)

```
 3:   11  11  11  10  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
 4:   12  12  12  12  10  11  11  11  12  12  12  12  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
 5:   12  12  12  12  11  10  11  11  12  12  12  12  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
 6:   12  12  12  12  11  11  10  11  12  12  12  12  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
 7:   12  12  12  12  11  11  11  10  12  12  12  12  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
 8:   12  12  12  12  12  12  12  12  10  11  11  11  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
 9:   12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
10:   12  12  12  12  12  12  12  12  11  11  10  11  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
11:   12  12  12  12  12  12  12  12  11  11  11  10  12  12  12  12  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
12:   12  12  12  12  12  12  12  12  12  12  12  12  10  11  11  11  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
13:   12  12  12  12  12  12  12  12  12  12  12  12  11  10  11  11  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
14:   12  12  12  12  12  12  12  12  12  12  12  12  11  11  10  11  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
15:   12  12  12  12  12  12  12  12  12  12  12  12  11  11  11  10  32  32  32  32
      32  32  32  32  32  32  32  32  32  32  32  32
16:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  10  11  11  11
      12  12  12  12  12  12  12  12  12  12  12  12
17:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  10  11  11
      12  12  12  12  12  12  12  12  12  12  12  12
18:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  10  11
      12  12  12  12  12  12  12  12  12  12  12  12
19:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  10
      12  12  12  12  12  12  12  12  12  12  12  12
20:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
      10  11  11  11  12  12  12  12  12  12  12  12
21:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
      11  10  11  11  12  12  12  12  12  12  12  12
22:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
      11  11  10  11  12  12  12  12  12  12  12  12
23:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
      11  11  11  10  12  12  12  12  12  12  12  12
24:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
      12  12  12  12  10  11  11  11  12  12  12  12
25:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
      12  12  12  12  11  10  11  11  12  12  12  12
26:   32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
```

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

CPU2017 License: 55   **Test Date:**   Dec-2019
Test Sponsor: Dell Inc.   **Hardware Availability:** Feb-2019
Tested by: Dell Inc.   **Software Availability:** Aug-2019

Platform Notes (Continued)

```
     12  12  12  12  11  11  10  11  12  12  12  12
  27:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
     12  12  12  12  11  11  11  10  12  12  12  12
  28:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
     12  12  12  12  12  12  12  12  10  11  11  11
  29:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
     12  12  12  12  12  12  12  12  11  10  11  11
  30:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
     12  12  12  12  12  12  12  12  11  11  10  11
  31:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
     12  12  12  12  12  12  12  12  11  11  11  10

 From /proc/meminfo
    MemTotal:         527808276 kB
    HugePages_Total:          0
    Hugepagesize:          2048 kB

 From /etc/*release* /etc/*version*
    os-release:
       NAME="SLES"
       VERSION="15-SP1"
       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-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: __user pointer sanitization
 CVE-2017-5715 (Spectre variant 2):        Mitigation: Full AMD retpoline, IBPB:
                                           conditional, IBRS_FW, STIBP: disabled, RSB
                                           filling


 run-level 3 Dec 6 14:41

 SPEC is set to: /root/cpu2017-1.1.0
```

(Continued on next page)

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

$SPECspeed®2017\_int\_base = 8.41$

$SPECspeed®2017\_int\_peak = 8.73$

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

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

Platform Notes (Continued)

```
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       xfs   440G   41G  400G  10% /

 From /sys/devices/virtual/dmi/id
    BIOS:    Dell Inc. 1.2.4 11/05/2019
    Vendor:  Dell Inc.
    Product: PowerEdge R6525
    Product Family: PowerEdge
    Serial:  1234567

 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:
      5x 802C80B3802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200
      2x 802C8632802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200
      1x 802C869D802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200
      8x 80AD863280AD HMA84GR7CJR4N-XN 32 GB 2 rank 3200
      16x 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
------------------------------------------------------------------------------


==============================================================================
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
------------------------------------------------------------------------------
```

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

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
------------------------------------------------------------------------------


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

(Continued on next page)

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Base Compiler Invocation (Continued)

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
-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
```

(Continued on next page)

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

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

$SPECspeed^®2017\_int\_base = 8.41$

$SPECspeed^®2017\_int\_peak = 8.73$

CPU2017 License: 55		**Test Date:**	Dec-2019
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Feb-2019
Tested by:	Dell Inc.	**Software Availability:**	Aug-2019

Base Optimization Flags (Continued)

C++ benchmarks (continued):
```
-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
```

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

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

$SPECspeed®2017\_int\_base = 8.41$

$SPECspeed®2017\_int\_peak = 8.73$

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

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

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`

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`

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Peak Optimization Flags (Continued)

602.gcc_s (continued):
```
-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
-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
```

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Peak Optimization Flags (Continued)

620.omnetpp_s (continued):
```
-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: `Same as 620.omnetpp_s`

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
-lflang
```

Peak Other Flags

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

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

(Continued on next page)

Dell Inc.

PowerEdge R6525 (AMD EPYC 7662, 2.00 GHz)

SPECspeed®2017_int_base = 8.41

SPECspeed®2017_int_peak = 8.73

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

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

Peak Other Flags (Continued)

623.xalancbmk_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
`http://www.spec.org/cpu2017/flags/aocc200-flags-B1-speed-Dell.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE7.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-revE7.xml`

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

Tested with SPEC CPU®2017 v1.1.0 on 2019-12-06 15:44:58-0500.
Report generated on 2019-12-26 11:37:35 by CPU2017 PDF formatter v6255.
Originally published on 2019-12-24.