## SPEC CPU® 2017 Integer Speed Result

### Dell Inc.

**PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECspeed® 2017 int_base</th>
<th>SPECspeed® 2017 int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>8.34</td>
<td>8.43</td>
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<tr>
<td>gcc_s</td>
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<td>mcf_s</td>
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<td>omnetpp_s</td>
<td>13.6</td>
<td>14.4</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>8.74</td>
<td>11.6</td>
</tr>
<tr>
<td>x264_s</td>
<td>4.37</td>
<td>4.55</td>
</tr>
<tr>
<td>deepsjeng_s</td>
<td>4.62</td>
<td>5.13</td>
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<tr>
<td>leela_s</td>
<td>4.03</td>
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<tr>
<td>exchange2_s</td>
<td>15.8</td>
<td>18.6</td>
</tr>
<tr>
<td>xz_s</td>
<td>18.6</td>
<td>18.6</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 7272
- **Max MHz:** 3200
- **Nominal:** 2900
- **Enabled:** 24 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:** 64 MB I+D on chip per chip, 16 MB shared / 3 cores
- **Other:** None
- **Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)
- **Storage:** 1 x 480 GB SATA SSD
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 SP1
  - kernel 4.12.14-197.7-default
- **Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC
- **Parallel:** Yes
- **Firmware:** Version 1.2.1 released Oct-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 v5.2.0
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage.
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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<td>623.xalanchmk_s</td>
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<td>15.7</td>
<td><strong>186</strong></td>
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<td>332</td>
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<td>18.6</td>
<td>331</td>
<td>18.7</td>
</tr>
</tbody>
</table>

**SPECspeed®2017_int_base = 8.10**
**SPECspeed®2017_int_peak = 8.31**

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)
Dell Inc.

PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)

SPEC CPU®2017 Integer Speed Result

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Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-47"
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 = "48"

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 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 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-23"

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

(Continued on next page)
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<td>8.10</td>
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**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Test Date:** Nov-2019  
**Hardware Availability:** Feb-2020  
**Tested by:** Dell Inc.  
**Software Availability:** Aug-2019

General Notes (Continued)

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 1
- 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

Sysinfo program /root/cpu2017-1.1.0/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edbe6e46a485a0011  
running on suse15-sp1 Fri Nov 8 08:04:11 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 7272 12-Core Processor
- 2 "physical id"s (chips)
- 48 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  - cpu cores : 12
  - siblings : 24
  - physical 0: cores 0 1 2 4 5 6 8 9 10 12 13 14
  - physical 1: cores 0 1 2 4 5 6 8 9 10 12 13 14

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- Address sizes: 43 bits physical, 48 bits virtual
- CPU(s): 48

(Continued on next page)
spec

SPEC CPU®2017 Integer Speed Result

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Platform Notes (Continued)

On-line CPU(s) list: 0-47
Thread(s) per core: 2
Core(s) per socket: 12
Socket(s): 2
NUMA node(s): 8
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7272 12-Core Processor
Stepping: 0
CPU MHz: 2894.496
BogoMIPS: 5788.99
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0-2, 24-26
NUMA node1 CPU(s): 3-5, 27-29
NUMA node2 CPU(s): 6-8, 30-32
NUMA node3 CPU(s): 9-11, 33-35
NUMA node4 CPU(s): 12-14, 36-38
NUMA node5 CPU(s): 15-17, 39-41
NUMA node6 CPU(s): 18-20, 42-44
NUMA node7 CPU(s): 21-23, 45-47
Flags: fpu vme de pse tsc mtrr 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 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 xsavesopt xsaveopt xsavec xgetbv1 xsave cqm_llc cqm_occ_enc llc cqm_mbb_total cqm_mbb_local clzero irperf xsaver ptr arat npt lbv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter ptfthreshold avic v_vmsave_vmload vgif umip rdpid overflow_recov succor smca

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0-7)
node 0 cpus: 0 1 2 24 25 26
node 0 size: 64060 MB
node 0 free: 63939 MB
node 1 cpus: 3 4 5 27 28 29
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<tr>
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<td>Dell Inc.</td>
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<tr>
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<tr>
<td>Hardware Availability:</td>
<td>Feb-2020</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Aug-2019</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

```plaintext
node 1 size: 64510 MB
node 1 free: 64416 MB
node 2 cpus: 6 7 8 30 31 32
node 2 size: 64510 MB
node 2 free: 64412 MB
node 3 cpus: 9 10 11 33 34 35
node 3 size: 64497 MB
node 3 free: 64411 MB
node 4 cpus: 12 13 14 36 37 38
node 4 size: 64510 MB
node 4 free: 64431 MB
node 5 cpus: 15 16 17 39 40 41
node 5 size: 64510 MB
node 5 free: 64297 MB
node 6 cpus: 18 19 20 42 43 44
node 6 size: 64510 MB
node 6 free: 64433 MB
node 7 cpus: 21 22 23 45 46 47
node 7 size: 64479 MB
node 7 free: 64402 MB
node distances:
```

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<th>2</th>
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<td>32</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

From /proc/meminfo

- MemTotal: 527965088 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

```plaintext
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"
```

(Continued on next page)
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CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Platform Notes (Continued)

uname -a:

```
Linux suse15-sp1 4.12.14-197.7-default #1 SMP Mon Jun 24 08:33:54 UTC 2019 (650fd32)
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: conditional, RSB filling

run-level 3 Nov 7 12:04

SPEC is set to: /root/cpu2017-1.1.0

```
<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>xfs</td>
<td>444G</td>
<td>13G</td>
<td>432G</td>
<td>3%</td>
<td>/</td>
</tr>
</tbody>
</table>
```

From /sys/devices/virtual/dmi/id

- BIOS: Dell Inc. 1.2.1 10/30/2019
- Vendor: Dell Inc.
- Product: PowerEdge C6525
- Product Family: PowerEdge

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 802C869D802C 36ASF4G72P2-3G2E2 32 GB 2 rank 3200
```

(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

(Continued on next page)
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---

### Compiler Version Notes (Continued)

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  
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++**  | 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

---

**SPECSpeed®2017_int_base = 8.10**  
**SPECSpeed®2017_int_peak = 8.31**

---

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.  
Test Date: Nov-2019  
Hardware Availability: Feb-2020  
Software Availability: Aug-2019

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

Dell Inc.

PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)

SPECspeed®2017_int_base = 8.10
SPECspeed®2017_int_peak = 8.31

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

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

Compiler Version Notes (Continued)

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

Base Optimization Flags

C benchmarks:
-ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-freemap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist

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

Dell Inc.

PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)

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Base Optimization Flags (Continued)

C benchmarks (continued):
-mlhvm -reduce-array-computations=3 -mlhvm -global-vectorize-slp
-mlhvm -vector-library=LIBMVEC -mlhvm -inline-threshold=1000
-flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -lffast -lmvec -lamdlibm
-ljemalloc -lflang

C++ benchmarks:
-flto -Wl,-mlhvm -Wl,-function-specialize
-Wl,-mlhvm -Wl,-region-vectorize -Wl,-mlhvm -Wl,-vector-library=LIBMVEC
-Wl,-mlhvm -Wl,-reduce-array-computations=3
-Wl,-mlhvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-mlhvm -loop-unswitch-threshold=200000 -mlhvm -vector-library=LIBMVEC
-mlhvm -unroll-threshold=100 -flv-function-specialization
-mlhvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -lffast -lmvec -lamdlibm
-ljemalloc -lflang

Fortran benchmarks:
-flto -Wl,-mlhvm -Wl,-function-specialize
-Wl,-mlhvm -Wl,-region-vectorize -Wl,-mlhvm -Wl,-vector-library=LIBMVEC
-Wl,-mlhvm -Wl,-reduce-array-computations=3 -ffast-math
-Wl,-mlhvm -Wl,-inline-recursion=4 -Wl,-mlhvm -Wl,-lsr-in-nested-loop
-Wl,-mlhvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops
-Mrecursive -mlhvm -vector-library=LIBMVEC -z muldefs
-mlhvm -disable-indvar-simplify -mlhvm -unroll-aggressive
-mlhvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -lffast -lmvec -lamdlibm -ljemalloc
-lflang

Base Other Flags

C benchmarks:
-Wno-return-type

C++ benchmarks:
-Wno-return-type

Fortran benchmarks:
-Wno-return-type
Dell Inc.

PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)

SPECspeed®2017_int_base = 8.10
SPECspeed®2017_int_peak = 8.31

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

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

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:


(Continued on next page)
Dell Inc. PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)

SPECspeed®2017_int_base = 8.10
SPECspeed®2017_int_peak = 8.31

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Nov-2019
Hardware Availability: Feb-2020
Tested by: Dell Inc.
Software Availability: Aug-2019

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

(Continued on next page)
### Dell Inc. PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)

**SPEC CPU®2017 Integer Speed Result**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_base</td>
<td>8.10</td>
</tr>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>8.31</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
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**Test Date:** Nov-2019  
**Hardware Availability:** Feb-2020  
**Software Availability:** Aug-2019

### Peak Optimization Flags (Continued)

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

C++ benchmarks:

620.omnetpp_s: `basepeak = yes`


641.leela_s: `basepeak = yes`

Fortran benchmarks:

648.exchange2_s: `basepeak = yes`

### Peak Other Flags

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

(Continued on next page)
Dell Inc.

PowerEdge C6525 (AMD EPYC 7272, 2.90 GHz)

SPECspeed®2017_int_base = 8.10
SPECspeed®2017_int_peak = 8.31

Peak Other Flags (Continued)

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

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

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Tested with SPEC CPU®2017 v1.1.0 on 2019-11-08 09:04:11-0500.
Originally published on 2019-12-24.