**Dell Inc.**

**PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)**

<table>
<thead>
<tr>
<th>SPECcpu2017 Int Base</th>
<th>SPECcpu2017 Int Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.40</td>
<td>8.63</td>
</tr>
</tbody>
</table>

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

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Cores</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>48</td>
<td>4.54</td>
</tr>
<tr>
<td>gcc</td>
<td>48</td>
<td>4.83</td>
</tr>
<tr>
<td>mcf</td>
<td>48</td>
<td>4.75</td>
</tr>
<tr>
<td>omnetpp</td>
<td>48</td>
<td>4.76</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>48</td>
<td>8.89</td>
</tr>
<tr>
<td>x264</td>
<td>48</td>
<td>9.83</td>
</tr>
<tr>
<td>deepsjeng</td>
<td>48</td>
<td>4.74</td>
</tr>
<tr>
<td>leela</td>
<td>48</td>
<td>4.03</td>
</tr>
<tr>
<td>exchange2</td>
<td>48</td>
<td>15.8</td>
</tr>
<tr>
<td>xz</td>
<td>48</td>
<td>20.2</td>
</tr>
</tbody>
</table>

**SPECcpu2017 Int Base (8.40)**  
**SPECcpu2017 Int Peak (8.63)**

## Hardware

**CPU Name:** AMD EPYC 7352  
**Max MHz:** 3200  
**Nominal:** 2300  
**Enabled:** 48 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 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  
**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.
Dell Inc.

PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

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

SPECspeed®2017_int_base = 8.40
SPECspeed®2017_int_peak = 8.63

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

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>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>48</td>
<td>390</td>
<td>4.55</td>
<td>399</td>
<td>4.45</td>
<td>391</td>
<td>4.54</td>
<td>1</td>
<td>368</td>
<td>4.83</td>
<td>368</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>48</td>
<td>331</td>
<td>14.2</td>
<td>332</td>
<td>14.2</td>
<td>331</td>
<td>14.2</td>
<td>1</td>
<td>310</td>
<td>15.2</td>
<td>310</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>48</td>
<td>344</td>
<td>4.74</td>
<td>343</td>
<td>4.75</td>
<td>343</td>
<td>4.76</td>
<td>1</td>
<td>343</td>
<td>4.76</td>
<td>342</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>48</td>
<td>159</td>
<td>8.89</td>
<td>157</td>
<td>9.00</td>
<td>160</td>
<td>8.85</td>
<td>1</td>
<td>148</td>
<td>9.57</td>
<td>147</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>48</td>
<td>150</td>
<td>11.8</td>
<td>149</td>
<td>11.8</td>
<td>149</td>
<td>11.8</td>
<td>1</td>
<td>145</td>
<td>12.2</td>
<td>145</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>48</td>
<td>309</td>
<td>4.63</td>
<td>309</td>
<td>4.63</td>
<td>309</td>
<td>4.64</td>
<td>1</td>
<td>302</td>
<td>4.74</td>
<td>302</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>48</td>
<td>423</td>
<td>4.03</td>
<td>423</td>
<td>4.03</td>
<td>424</td>
<td>4.02</td>
<td>48</td>
<td>423</td>
<td>4.03</td>
<td>423</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>48</td>
<td>187</td>
<td>15.7</td>
<td>186</td>
<td>15.8</td>
<td>187</td>
<td>15.8</td>
<td>1</td>
<td>186</td>
<td>15.8</td>
<td>186</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>48</td>
<td>304</td>
<td>20.3</td>
<td>306</td>
<td>20.2</td>
<td>306</td>
<td>20.2</td>
<td>48</td>
<td>304</td>
<td>20.3</td>
<td>304</td>
</tr>
</tbody>
</table>

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 7352, 2.30 GHz)

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
- GOMP_CPU_AFFINITY = "0-95"
- LD_LIBRARY_PATH = "/root/cpu2017-1.0.5/cpu2017-1.1.0/amd_speed_aocc200_rome_C_lib/64;/root/cpu2017-1.0.5/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 = "96"

Environment variables set by runcpu during the 600.perlbench_s peak run:
- GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 602.gcc_s peak run:
- GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 605.mcf_s peak run:
- GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 620.omnetpp_s peak run:
- GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_s peak run:
- GOMP_CPU_AFFINITY = "0"
- OMP_STACKSIZE = "128M"

Environment variables set by runcpu during the 625.x264_s peak run:
- GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 631.deepsjeng_s peak run:
- GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2_s peak run:
- GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
- GOMP_CPU_AFFINITY = "0-47"

General Notes

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

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

(Continued on next page)
## Dell Inc.

### PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 8.40</th>
<th>SPECspeed®2017_int_peak = 8.63</th>
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<tr>
<td>Test Date: Nov-2019</td>
<td>Hardware Availability: Feb-2020</td>
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<tr>
<td>Software Availability: Aug-2019</td>
<td></td>
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<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Tested by: Dell Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Software Availability: Aug-2019</td>
</tr>
</tbody>
</table>

### General Notes (Continued)

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

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

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto
jemalloc 5.2.0 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
- Memory Interleaving set to Disabled

**Sysinfo program**
```
r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
running on linux-g3ob Fri Nov  8 08:20:09 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 7352 24-Core Processor
   2 "physical id"s (chips)
96 "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 : 24
siblings : 48
physical 0: cores 0 1 2 4 5 6 8 9 10 12 13 14 16 17 18 20 21 22 24 25 26 28 29 30
physical 1: cores 0 1 2 4 5 6 8 9 10 12 13 14 16 17 18 20 21 22 24 25 26 28 29 30
```

(Continued on next page)
Dell Inc.

PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

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

SPECspeed®2017_int_base = 8.40
SPECspeed®2017_int_peak = 8.63

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

Platform Notes (Continued)

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): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 16
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7352 24-Core Processor
Stepping: 0
CPU MHz: 2295.846
BogoMIPS: 4591.69
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0-2,48-50
NUMA node1 CPU(s): 3-5,51-53
NUMA node2 CPU(s): 6-8,54-56
NUMA node3 CPU(s): 9-11,57-59
NUMA node4 CPU(s): 12-14,60-62
NUMA node5 CPU(s): 15-17,63-65
NUMA node6 CPU(s): 18-20,66-68
NUMA node7 CPU(s): 21-23,69-71
NUMA node8 CPU(s): 24-26,72-74
NUMA node9 CPU(s): 27-29,75-77
NUMA node10 CPU(s): 30-32,78-80
NUMA node11 CPU(s): 33-35,81-83
NUMA node12 CPU(s): 36-38,84-86
NUMA node13 CPU(s): 39-41,87-89
NUMA node14 CPU(s): 42-44,90-92
NUMA node15 CPU(s): 45-47,93-95

Flags:
  fpu vme de pse tsc msr pae mce cmov 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 sse3 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 sinit wdt tce topoext perfctr_core perfctr_nb bpxext
  perfctr_l2 mwaitx cpub cat_l3 cdp_l3 hw_pstate sme sldig sev ibrs ibpb stibp vmmcall
  fsgsbase bmi1 avx2 smep bmi2 cmov rdt_a rdsseed adx smap clflushopt clwb sha_ni

(Continued on next page)
### Platform Notes (Continued)

xsavopt xsavc xgetbv1 xsaves cqm_llc cqm_occ_up_llc cqm_mbm_total cqm_mbm_local
clzero irperf xsaveerptr arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean
flushbyasid decodeassists pausefilter pfthreshhold 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 48 49 50
node 0 size: 31804 MB
node 0 free: 31709 MB
node 1 cpus: 3 4 5 51 52 53
node 1 size: 32254 MB
node 1 free: 32158 MB
node 2 cpus: 6 7 8 54 55 56
node 2 size: 32254 MB
node 2 free: 32178 MB
node 3 cpus: 9 10 11 57 58 59
node 3 size: 32254 MB
node 3 free: 32177 MB
node 4 cpus: 12 13 14 60 61 62
node 4 size: 32254 MB
node 4 free: 32147 MB
node 5 cpus: 15 16 17 63 64 65
node 5 size: 32254 MB
node 5 free: 32171 MB
node 6 cpus: 18 19 20 66 67 68
node 6 size: 32254 MB
node 6 free: 32177 MB
node 7 cpus: 21 22 23 69 70 71
node 7 size: 32242 MB
node 7 free: 32169 MB
node 8 cpus: 24 25 26 72 73 74
node 8 size: 32254 MB
node 8 free: 32170 MB
node 9 cpus: 27 28 29 75 76 77
node 9 size: 32254 MB
node 9 free: 32164 MB
node 10 cpus: 30 31 32 78 79 80
node 10 size: 32254 MB
node 10 free: 32164 MB
node 11 cpus: 33 34 35 81 82 83
node 11 size: 32254 MB
node 11 free: 32181 MB

(Continued on next page)
Dell Inc. PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 8.40
SPECspeed®2017_int_peak = 8.63

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)

node 12 cpus: 36 37 38 84 85 86
node 12 size: 32254 MB
node 12 free: 32181 MB
node 13 cpus: 39 40 41 87 88 89
node 13 size: 32254 MB
node 13 free: 32178 MB
node 14 cpus: 42 43 44 90 91 92
node 14 size: 32254 MB
node 14 free: 31787 MB
node 15 cpus: 45 46 47 93 94 95
node 15 size: 32223 MB
node 15 free: 32013 MB

node distances:
node 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
0: 10 11 12 12 12 12 12 32 32 32 32 32 32 32 32
1: 11 10 12 12 12 12 12 32 32 32 32 32 32 32 32
2: 12 12 10 11 12 12 12 32 32 32 32 32 32 32 32
3: 12 12 11 10 12 12 12 32 32 32 32 32 32 32 32
4: 12 12 12 12 10 11 12 32 32 32 32 32 32 32 32
5: 12 12 12 12 11 10 12 32 32 32 32 32 32 32 32
6: 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
7: 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32
8: 32 32 32 32 32 32 32 10 11 12 12 12 12 12 12
9: 32 32 32 32 32 32 32 11 10 12 12 12 12 12 12
10: 32 32 32 32 32 32 32 11 10 12 12 12 12 12 12
11: 32 32 32 32 32 32 32 12 12 10 11 12 12 12 12
12: 32 32 32 32 32 32 32 12 12 10 11 12 12 12 12
13: 32 32 32 32 32 32 32 12 12 12 10 11 12 12 12
14: 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12
15: 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12

From /proc/meminfo
MemTotal: 527951864 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"

(Continued on next page)
Dell Inc.

PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

| SPECspeed®2017_int_base = 8.40 |
| SPECspeed®2017_int_peak = 8.63 |

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 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: conditional, RSB filling

run-level 3 Nov 7 09:40

SPEC is set to: /root/cpu2017-1.0.5/cpu2017-1.1.0
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 440G 23G 418G 6% /

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:
  4x 802C80B3802C 36ASF4G72FZ-3G2E2 32 GB 2 rank 3200
  4x 802C869D802C 36ASF4G72FZ-3G2E2 32 GB 2 rank 3200
  8x 80AD863280AD HMA84GR7CJR4N-XN 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)

(Continued on next page)
Dell Inc.

PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

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

+=-------------------------------------------------------------------+
++ C++       | 623.xalancbmk_s (peak) +
+=-------------------------------------------------------------------+
++ AOCCLLVM.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) +
+=-------------------------------------------------------------------+
++ AOCCLLVM.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) +
+=-------------------------------------------------------------------+
++ AOCCLLVM.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) +
+=-------------------------------------------------------------------+
++ AOCCLLVM.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

(Continued on next page)
Dell Inc.

PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

**SPEC CPU®2017 Integer Speed Result**

<table>
<thead>
<tr>
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**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.

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**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

---

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

### Base Optimization Flags (Continued)

C benchmarks (continued):
- `-march=znver2`  
- `-fstruct-layout=3`  
- `-mllvm -unroll-threshold=50`  
- `-freemap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist`  
- `-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp`  
- `-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000`  
- `-flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp`  
- `-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`
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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:**


(Continued on next page)
Dell Inc.  PowerEdge C6525 (AMD EPYC 7352, 2.30 GHz)

SPEC®2017_int_base = 8.40  SPEC®2017_int_peak = 8.63

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

Peak Optimization Flags (Continued)


625.x264_s: Same as 600.perlbench_s


(Continued on next page)
Dell Inc.

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SPECspeed®2017_int_base = 8.40
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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 -W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-region-vectorize
-W1,-mllvm -W1,-vector-library=LIBMVEC
-W1,-mllvm -W1,-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 -W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-region-vectorize
-W1,-mllvm -W1,-vector-library=LIBMVEC
-W1,-mllvm -W1,-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

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: basepeak = yes

Fortran benchmarks:

-flto -W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-region-vectorize -W1,-mllvm -W1,-vector-library=LIBMVEC
-W1,-mllvm -W1,-reduce-array-computations=3 -ffast-math
-W1,-mllvm -W1,-inline-recursion=4 -W1,-mllvm -W1,-lsr-in-nested-loop
-W1,-mllvm -W1,-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):
-1flang

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/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 08:20:08-0500.
Report generated on 2020-01-08 12:06:19 by CPU2017 PDF formatter v6255.
Originally published on 2020-01-07.