Dell Inc.
PowerEdge R6525 (AMD EPYC 7532, 2.40 GHz)

SPECrate®2017_int_base = 437
SPECrate®2017_int_peak = 465

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

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>437</td>
<td>465</td>
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</tbody>
</table>

**Hardware**

CPU Name: AMD EPYC 7532
Max MHz: 3300
Nominal: 2400
Enabled: 64 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: 256 MB I+D on chip per chip, 16 MB shared / 2 cores
Other: None
Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)
Storage: 1 x 1.6TB SAS 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: No
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 v5.2.0
Power Management: BIOS set to prefer performance at the cost of additional power usage.
Results Table

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</table>

SPECrates®2017_int_base = 437
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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).

(Continued on next page)
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Operating System Notes (Continued)
Transparent huge pages set to 'always' for this run (OS default)

Environment Variables Notes
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
"/root/cpu2017-1.1.0/amd_rate_aocc200_rome_C_lib/64;/root/cpu2017-1.1.0/
amd_rate_aocc200_rome_C_lib/32:"
MALLOC_CONF = "retain:true"

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 5.2.0 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 /root/cpu2017-1.1.0/bin/sysinfo

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

Rev: r6365 of 2019-08-21 295195f888a3d7ed1e6e46a485a0011
running on linux-g3ob Wed Dec 4 10:17:35 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 7532 32-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.)
cpu cores : 32
siblings : 64
  physical 0: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29 32 33 36 37 40 41 44 45
  48 49 52 53 56 57 60 61
  physical 1: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29 32 33 36 37 40 41 44 45
  48 49 52 53 56 57 60 61
```

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: 32
Socket(s): 2
NUMA node(s): 32
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7532 32-Core Processor
Stepping: 0
CPU MHz: 2395.513
BogoMIPS: 4791.02
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0,1,64,65
NUMA node1 CPU(s): 2,3,66,67
NUMA node2 CPU(s): 4,5,68,69
NUMA node3 CPU(s): 6,7,70,71
```
SPEC CPU®2017 Integer Rate Result

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Platform Notes (Continued)

NUMA node4 CPU(s): 8, 9, 72, 73
NUMA node5 CPU(s): 10, 11, 74, 75
NUMA node6 CPU(s): 12, 13, 76, 77
NUMA node7 CPU(s): 14, 15, 78, 79
NUMA node8 CPU(s): 16, 17, 80, 81
NUMA node9 CPU(s): 18, 19, 82, 83
NUMA node10 CPU(s): 20, 21, 84, 85
NUMA node11 CPU(s): 22, 23, 86, 87
NUMA node12 CPU(s): 24, 25, 88, 89
NUMA node13 CPU(s): 26, 27, 90, 91
NUMA node14 CPU(s): 28, 29, 92, 93
NUMA node15 CPU(s): 30, 31, 94, 95
NUMA node16 CPU(s): 32, 33, 96, 97
NUMA node17 CPU(s): 34, 35, 98, 99
NUMA node18 CPU(s): 36, 37, 100, 101
NUMA node19 CPU(s): 38, 39, 102, 103
NUMA node20 CPU(s): 40, 41, 104, 105
NUMA node21 CPU(s): 42, 43, 106, 107
NUMA node22 CPU(s): 44, 45, 108, 109
NUMA node23 CPU(s): 46, 47, 110, 111
NUMA node24 CPU(s): 48, 49, 112, 113
NUMA node25 CPU(s): 50, 51, 114, 115
NUMA node26 CPU(s): 52, 53, 116, 117
NUMA node27 CPU(s): 54, 55, 118, 119
NUMA node28 CPU(s): 56, 57, 120, 121
NUMA node29 CPU(s): 58, 59, 122, 123
NUMA node30 CPU(s): 60, 61, 124, 125
NUMA node31 CPU(s): 62, 63, 126, 127

Flags:

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

available: 32 nodes (0-31)

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

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</tbody>
</table>

**SPECrate®2017_int_base = 437**

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Platform Notes (Continued)

- node 0 cpus: 0 1 64 65
- node 0 size: 15548 MB
- node 0 free: 15421 MB
- node 1 cpus: 2 3 66 67
- node 1 size: 16127 MB
- node 1 free: 16049 MB
- node 2 cpus: 4 5 68 69
- node 2 size: 16127 MB
- node 2 free: 16019 MB
- node 3 cpus: 6 7 70 71
- node 3 size: 16126 MB
- node 3 free: 16049 MB
- node 4 cpus: 8 9 72 73
- node 4 size: 16127 MB
- node 4 free: 16061 MB
- node 5 cpus: 10 11 74 75
- node 5 size: 16127 MB
- node 5 free: 16060 MB
- node 6 cpus: 12 13 76 77
- node 6 size: 16127 MB
- node 6 free: 16058 MB
- node 7 cpus: 14 15 78 79
- node 7 size: 16126 MB
- node 7 free: 16053 MB
- node 8 cpus: 16 17 80 81
- node 8 size: 16127 MB
- node 8 free: 16042 MB
- node 9 cpus: 18 19 82 83
- node 9 size: 16127 MB
- node 9 free: 16049 MB
- node 10 cpus: 20 21 84 85
- node 10 size: 16127 MB
- node 10 free: 15956 MB
- node 11 cpus: 22 23 86 87
- node 11 size: 16126 MB
- node 11 free: 16047 MB
- node 12 cpus: 24 25 88 89
- node 12 size: 16127 MB
- node 12 free: 16041 MB
- node 13 cpus: 26 27 90 91
- node 13 size: 16127 MB
- node 13 free: 16051 MB
- node 14 cpus: 28 29 92 93
- node 14 size: 16127 MB
- node 14 free: 16059 MB
- node 15 cpus: 30 31 94 95
- node 15 size: 16084 MB

(Continued on next page)
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Platform Notes (Continued)

node 15 free: 16018 MB
node 16 cpus: 32 33 96 97
node 16 size: 16127 MB
node 16 free: 16061 MB
node 17 cpus: 34 35 98 99
node 17 size: 16127 MB
node 17 free: 16075 MB
node 18 cpus: 36 37 100 101
node 18 size: 16127 MB
node 18 free: 16079 MB
node 19 cpus: 38 39 102 103
node 19 size: 16126 MB
node 19 free: 16076 MB
node 20 cpus: 40 41 104 105
node 20 size: 16127 MB
node 20 free: 16080 MB
node 21 cpus: 42 43 106 107
node 21 size: 16127 MB
node 21 free: 16081 MB
node 22 cpus: 44 45 108 109
node 22 size: 16127 MB
node 22 free: 16082 MB
node 23 cpus: 46 47 110 111
node 23 size: 16126 MB
node 23 free: 16081 MB
node 24 cpus: 48 49 112 113
node 24 size: 16127 MB
node 24 free: 15966 MB
node 25 cpus: 50 51 114 115
node 25 size: 16127 MB
node 25 free: 16076 MB
node 26 cpus: 52 53 116 117
node 26 size: 16127 MB
node 26 free: 16025 MB
node 27 cpus: 54 55 118 119
node 27 size: 16126 MB
node 27 free: 16064 MB
node 28 cpus: 56 57 120 121
node 28 size: 16127 MB
node 28 free: 16071 MB
node 29 cpus: 58 59 122 123
node 29 size: 16127 MB
node 29 free: 16075 MB
node 30 cpus: 60 61 124 125
node 30 size: 16127 MB
node 30 free: 16082 MB
node 31 cpus: 62 63 126 127
SPEC CPU®2017 Integer Rate Result

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Platform Notes (Continued)

node 31 size: 16124 MB
node 31 free: 16075 MB
node distances:

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</table>

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

Dell Inc.
PowerEdge R6525 (AMD EPYC 7532, 2.40 GHz)

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

SPECrater®2017_int_base = 437
SPECrater®2017_int_peak = 465

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

Platform Notes (Continued)

21:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
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From /proc/meminfo
MemTotal:       527808280 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

(Continued on next page)
Dell Inc.
PowerEdge R6525 (AMD EPYC 7532, 2.40 GHz)

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

**SPECrate®2017_int_base = 437**
**SPECrate®2017_int_peak = 465**

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

---

**Platform Notes (Continued)**

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 Dec 4 10:08

SPEC is set to: /root/cpu2017-1.1.0

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       | 502.gcc_r(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)
## Compiler Version Notes (Continued)

<table>
<thead>
<tr>
<th>Language</th>
<th>Benchmark Names</th>
<th>Benchmark Results</th>
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<tbody>
<tr>
<td>C</td>
<td>perlbench_r(base, peak)</td>
<td>500.00</td>
</tr>
<tr>
<td></td>
<td>gcc_r(base)</td>
<td>502.00</td>
</tr>
<tr>
<td></td>
<td>mcf_r(base, peak)</td>
<td>505.00</td>
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<tr>
<td></td>
<td>x264_r(base, peak)</td>
<td>525.00</td>
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<tr>
<td></td>
<td>xz_r(base, peak)</td>
<td>557.00</td>
</tr>
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<td>AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins)</td>
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<tr>
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<td>Target: x86_64-unknown-linux-gnu</td>
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<td>Thread model: posix</td>
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<td>InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin</td>
<td></td>
</tr>
</tbody>
</table>

| C++      | xalancbmk_r(peak) | 523.00 |
| AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins) |
| 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 7532, 2.40 GHz)

<table>
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<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Dec-2019</th>
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<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Oct-2019</td>
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<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Aug-2019</td>
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**SPEC CPU**

**2017 Integer Rate Result**

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 437</th>
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</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = 465</td>
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</tbody>
</table>

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**Compiler Version Notes (Continued)**

AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

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<table>
<thead>
<tr>
<th>C++</th>
<th>523.xalancbmk_r(peak)</th>
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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

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<table>
<thead>
<tr>
<th>C++</th>
<th>520.omnetpp_r(base, peak) 523.xalancbmk_r(base)</th>
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<tr>
<td></td>
<td>531.deepsjeng_r(base, peak) 541.leela_r(base, peak)</td>
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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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<table>
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<th>Fortran</th>
<th>548.exchange2_r(base, peak)</th>
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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++

---

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

Dell Inc.
PowerEdge R6525 (AMD EPYC 7532, 2.40 GHz)

Dell Inc.

SPECrate®2017_int_base = 437
SPECrate®2017_int_peak = 465

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

Base Compiler Invocation (Continued)

Fortran benchmarks:
flang

Base Portability Flags

500.pernbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -DSPEC_LP64
505.mc_r: -DSPEC_LP64
520.ommtp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-ffto -W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-region-vectorize -W1,-mllvm -W1,-vector-library=LIBMVEC
-W1,-mllvm -W1,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-vectorize=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
-ffv-function-specialization -z muldefs -lmvec -lamdlibm -ljemalloc
-lflang

C++ benchmarks:
-ffto -W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-region-vectorize -W1,-mllvm -W1,-vector-library=LIBMVEC
-W1,-mllvm -W1,-reduce-array-computations=3
-W1,-mllvm -W1,-suppress-fmas -O3 -ffast-math -march=znver2
-mllvm -unroll-threshold=200000 -mllvm -vector-library=LIBMVEC
-mllvm -unroll-threshold=100 -ffv-function-specialization
-mllvm -enable-partial-unswitch -z muldefs -lmvec -lamdlibm
-ljemalloc -lflang

Fortran benchmarks:
-ffto -W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-region-vectorize -W1,-mllvm -W1,-vector-library=LIBMVEC

(Continued on next page)
Dell Inc.  
PowerEdge R6525 (AMD EPYC 7532, 2.40 GHz)  

SPECraten®2017_int_base = 437  
SPECraten®2017_int_peak = 465

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

**Base Optimization Flags (Continued)**

Fortran benchmarks (continued):
- -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 -Wl,-vector-library=LIBMVEC -z muldefs
- -mllvm -disable-indvar-simplify -mllvm -unroll-aggressive
- -mllvm -unroll-threshold=150 -lmvec -lamdlibm -ljemalloc -lflang

**Peak Compiler Invocation**

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

**Peak Portability Flags**

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -D_FILE_OFFSET_BITS=64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

**Peak Optimization Flags**

C benchmarks:

500.perlbench_r: -flto -Wl,-mllvm -Wl,-function-specialize
- -Wl,-mllvm -Wl,-region-vectorize
- -Wl,-mllvm -Wl,-vector-library=LIBMVEC
- -Wl,-mllvm -Wl,-reduce-array-computations=3

(Continued on next page)
Dell Inc.
PowerEdge R6525 (AMD EPYC 7532, 2.40 GHz)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

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

SPECrate®2017_int_base = 437
SPECrate®2017_int_peak = 465

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

Peak Optimization Flags (Continued)

500.perlbench_r (continued):
-ffprofile-instr-generate(pass 1)
-ffprofile-instr-use(pass 2) -Ofast -march=znver2
-mno-ss64a -fstruct-layout=5
-mlirm -vectorize-memory-aggressively
-mlirm -function-specialize -mlirm -enable-gvn-hoist
-mlirm -unroll-threshold=50 -fremap-arrays
-mlirm -vector-library=LIBMVEC
-mlirm -reduce-array-computations=3
-mlirm -global-vectorize-slp -mlirm -inline-threshold=1000
-flv-function-specialization -lmvec -lamdlibm -ljemalloc
-1flang

502.gcc_r: -m32 -flto -Wl,-mlirm -Wl,-function-specialize
-Wl,-mlirm -Wl,-region-vectorize
-Wl,-mlirm -Wl,-vector-library=LIBMVEC
-Wl,-mlirm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -mno-ss64a -fstruct-layout=5
-mlirm -vectorize-memory-aggressively
-mlirm -function-specialize -mlirm -enable-gvn-hoist
-mlirm -unroll-threshold=50 -fremap-arrays
-mlirm -vector-library=LIBMVEC
-mlirm -reduce-array-computations=3
-mlirm -global-vectorize-slp -mlirm -inline-threshold=1000
-flv-function-specialization -fgnu89-inline -ljemalloc

505.mcf_r: -flto -Wl,-mlirm -Wl,-function-specialize
-Wl,-mlirm -Wl,-region-vectorize
-Wl,-mlirm -Wl,-vector-library=LIBMVEC
-Wl,-mlirm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -mno-ss64a -fstruct-layout=5
-mlirm -vectorize-memory-aggressively
-mlirm -function-specialize -mlirm -enable-gvn-hoist
-mlirm -unroll-threshold=50 -fremap-arrays
-mlirm -vector-library=LIBMVEC
-mlirm -reduce-array-computations=3
-mlirm -global-vectorize-slp -mlirm -inline-threshold=1000
-flv-function-specialization -lmvec -lamdlibm -ljemalloc
-1flang

525.x264_r: Same as 500.perlbench_r

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

(Continued on next page)
Peak Optimization Flags (Continued)

520.omnetpp_r: -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 -lmvec -lamdlibm -ljemalloc
-llflang

523.xalancbmk_r: -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 -ljemalloc

531.deepsjeng_r: Same as 520.omnetpp_r

541.leela_r: Same as 520.omnetpp_r

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-lv-split -O3 -march=znver2 -funroll-loops
-Mrecursive -mllvm -vector-library=LIBMVEC
-mllvm -disable-indvar-simplify -mllvm -unroll-aggressive
-mllvm -unroll-threshold=150 -lmvec -lamdlibm -ljemalloc -llflang

Peak Other Flags

C benchmarks:
502.gcc_r: -L/sppo/dev/cpu2017/v110/amd_rate_aocc200_rome_C_lib/32

(Continued on next page)
Dell Inc.
PowerEdge R6525 (AMD EPYC 7532, 2.40 GHz)

SPECrate®2017_int_base = 437
SPECrate®2017_int_peak = 465

C++ benchmarks:
523.xalancbmk_r: -L/sppo/dev/cpu2017/v110/amd_rate_aocc200_rome_C_lib/32

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:

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