Dell Inc.
PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

SPECrate®2017_int_base = 605
SPECrate®2017_int_peak = 665

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

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

Hardware
CPU Name: AMD EPYC 7702
Max MHz: 3350
Nominal: 2000
Enabled: 128 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 / 4 cores
Other: None
Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R, running at 3200)
Storage: 1 x 960 GB 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 0.4.12 released Sep-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: --

Graph showing SPECrate results for various benchmarks.
**SPEC CPU®2017 Integer Rate Result**

**Dell Inc.**

**PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)**

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---

**SPECrate®2017_int_base = 605**

**SPECrate®2017_int_peak = 665**

---

**Results Table**

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<th>Seconds</th>
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<td>557.xz_r</td>
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<td><strong>412</strong></td>
<td>672</td>
<td>412</td>
<td>671</td>
<td>412</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).

(Continued on next page)
Dell Inc.

PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

| SPECrate®2017_int_base = 605 |
| SPECrate®2017_int_peak = 665 |
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Tested by: Dell Inc.

Operating System Notes (Continued)

Transparent huge pages set to 'always' for this run (OS default)

General Notes

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

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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto
jemalloc 5.2.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.2.0/jemalloc-5.2.0.tar.bz2

Platform Notes

BIOS settings:
NUMA Nodes Per Socket set to 4
CCX as NUMA Domain set to Enabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost Enabled
Cstates set to Enabled
Memory Patrol Scrub Disabled
Memory Refresh Rate set to 1x
PCI ASPM L1 Link Power Management Disabled
Determinism Slider set to Power Determinism
Efficiency Optimized Mode Disabled
Sysinfo program /root/cpu2017-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-g3ob Fri Sep 20 06:05:11 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

(Continued on next page)
Dell Inc.  

PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)  

SPECrate®2017_int_base = 605  
SPECrate®2017_int_peak = 665  

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<td>Hardware Availability</td>
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<tr>
<td>Tested by</td>
<td>Dell Inc.</td>
<td>Software Availability</td>
<td>Aug-2019</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

From `/proc/cpuinfo`

- model name: AMD EPYC 7702 64-Core Processor
- 2 "physical id"s (chips)
- 256 "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: 64
  - siblings: 128

- physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

- 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): 256
- On-line CPU(s) list: 0-255
- Thread(s) per core: 2
- Core(s) per socket: 64
- Socket(s): 2
- NUMA node(s): 32
- Vendor ID: AuthenticAMD
- CPU family: 23
- Model: 49
- Model name: AMD EPYC 7702 64-Core Processor
- Stepping: 0
- CPU MHz: 1996.439
- BogoMIPS: 3992.87
- Virtualization: AMD-V
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 512K
- L3 cache: 16384K
- NUMA node0 CPU(s): 0-3,128-131
- NUMA node1 CPU(s): 4-7,132-135
- NUMA node2 CPU(s): 8-11,136-139
- NUMA node3 CPU(s): 12-15,140-143
- NUMA node4 CPU(s): 16-19,144-147
- NUMA node5 CPU(s): 20-23,148-151
- NUMA node6 CPU(s): 24-27,152-155
- NUMA node7 CPU(s): 28-31,156-159
- NUMA node8 CPU(s): 32-35,160-163

(Continued on next page)
Dell Inc.

PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

SPEC CPU®2017 Integer Rate Result

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SPECrate®2017_int_base = 605
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CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

NUMA node9 CPU(s): 36-39,164-167
NUMA node10 CPU(s): 40-43,168-171
NUMA node11 CPU(s): 44-47,172-175
NUMA node12 CPU(s): 48-51,176-179
NUMA node13 CPU(s): 52-55,180-183
NUMA node14 CPU(s): 56-59,184-187
NUMA node15 CPU(s): 60-63,188-191
NUMA node16 CPU(s): 64-67,192-195
NUMA node17 CPU(s): 68-71,196-199
NUMA node18 CPU(s): 72-75,200-203
NUMA node19 CPU(s): 76-79,204-207
NUMA node20 CPU(s): 80-83,208-211
NUMA node21 CPU(s): 84-87,212-215
NUMA node22 CPU(s): 88-91,216-219
NUMA node23 CPU(s): 92-95,220-223
NUMA node24 CPU(s): 96-99,224-227
NUMA node25 CPU(s): 100-103,228-231
NUMA node26 CPU(s): 104-107,232-235
NUMA node27 CPU(s): 108-111,236-239
NUMA node28 CPU(s): 112-115,240-243
NUMA node29 CPU(s): 116-119,244-247
NUMA node30 CPU(s): 120-123,248-251
NUMA node31 CPU(s): 124-127,252-255

Flags: fpu vme de pse tsc msr pae mca cmov
pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
constant_tsc rep_good noplap 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 osuw lbs kinit wdt tce topoext perfctr_core perfctr_nb bpext
perfcfr_l2_mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd sev ibrs ibpb stibp vmmcall
fsqsbases bni avx2 smep bmi2 cqm rdt_a rdslog adx smap clflushopt clwb sha ni
xsaveopt xsaves xgetbv1 xsavec cqm_occupllu cqm_mbb_total cqm_mbb_local
clzero irperf xsaveerptr arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean
flushbyasid decodeassist pausefilter pfthreshold avic v_vmsave_vmload vgif umip
rdpid overflow_recover 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 3 128 129 130 131
  node 0 size: 15548 MB
  node 0 free: 15484 MB
  node 1 cpus: 4 5 6 7 132 133 134 135
  node 1 size: 16126 MB

(Continued on next page)
Dell Inc. PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

CPU2017 License: 55
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Tested by: Dell Inc.

SPECrate®2017_int_base = 605
SPECrate®2017_int_peak = 665

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

Platform Notes (Continued)

node 1 free: 16083 MB
node 2 cpus: 8 9 10 11 136 137 138 139
node 2 size: 16126 MB
node 2 free: 16063 MB
node 3 cpus: 12 13 14 15 140 141 142 143
node 3 size: 16126 MB
node 3 free: 16015 MB
node 4 cpus: 16 17 18 19 144 145 146 147
node 4 size: 16126 MB
node 4 free: 16086 MB
node 5 cpus: 20 21 22 23 148 149 150 151
node 5 size: 16126 MB
node 5 free: 16080 MB
node 6 cpus: 24 25 26 27 152 153 154 155
node 6 size: 16126 MB
node 6 free: 16079 MB
node 7 cpus: 28 29 30 31 156 157 158 159
node 7 size: 16126 MB
node 7 free: 16083 MB
node 8 cpus: 32 33 34 35 160 161 162 163
node 8 size: 16096 MB
node 8 free: 16058 MB
node 9 cpus: 36 37 38 39 164 165 166 167
node 9 size: 16126 MB
node 9 free: 16087 MB
node 10 cpus: 40 41 42 43 168 169 170 171
node 10 size: 16126 MB
node 10 free: 16089 MB
node 11 cpus: 44 45 46 47 172 173 174 175
node 11 size: 16126 MB
node 11 free: 16087 MB
node 12 cpus: 48 49 50 51 176 177 178 179
node 12 size: 16126 MB
node 12 free: 16042 MB
node 13 cpus: 52 53 54 55 180 181 182 183
node 13 size: 16126 MB
node 13 free: 16089 MB
node 14 cpus: 56 57 58 59 184 185 186 187
node 14 size: 16126 MB
node 14 free: 16082 MB
node 15 cpus: 60 61 62 63 188 189 190 191
node 15 size: 16110 MB
node 15 free: 16059 MB
node 16 cpus: 64 65 66 67 192 193 194 195
node 16 size: 16126 MB
node 16 free: 16084 MB
node 17 cpus: 68 69 70 71 196 197 198 199
Dell Inc.
PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

SPECrates®2017_int_peak = 665
SPECrates®2017_int_base = 605

CPU2017 License: 55
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Test Date: Sep-2019
Hardware Availability: Oct-2019
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Platform Notes (Continued)

node 17 size: 16126 MB
node 17 free: 16088 MB
node 18 cpus: 72 73 74 75 200 201 202 203
node 18 size: 16126 MB
node 18 free: 16089 MB
node 19 cpus: 76 77 78 79 204 205 206 207
node 19 size: 16126 MB
node 19 free: 16091 MB
node 20 cpus: 80 81 82 83 208 209 210 211
node 20 size: 16126 MB
node 20 free: 16092 MB
node 21 cpus: 84 85 86 87 212 213 214 215
node 21 size: 16126 MB
node 21 free: 16090 MB
node 22 cpus: 88 89 90 91 216 217 218 219
node 22 size: 16126 MB
node 22 free: 16093 MB
node 23 cpus: 92 93 94 95 220 221 222 223
node 23 size: 16126 MB
node 23 free: 16091 MB
node 24 cpus: 96 97 98 99 224 225 226 227
node 24 size: 16126 MB
node 24 free: 16090 MB
node 25 cpus: 100 101 102 103 228 229 230 231
node 25 size: 16126 MB
node 25 free: 16092 MB
node 26 cpus: 104 105 106 107 232 233 234 235
node 26 size: 16126 MB
node 26 free: 16091 MB
node 27 cpus: 108 109 110 111 236 237 238 239
node 27 size: 16126 MB
node 27 free: 16091 MB
node 28 cpus: 112 113 114 115 240 241 242 243
node 28 size: 16126 MB
node 28 free: 16092 MB
node 29 cpus: 116 117 118 119 244 245 246 247
node 29 size: 16126 MB
node 29 free: 16090 MB
node 30 cpus: 120 121 122 123 248 249 250 251
node 30 size: 16126 MB
node 30 free: 16088 MB
node 31 cpus: 124 125 126 127 252 253 254 255
node 31 size: 16119 MB
node 31 free: 16085 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

(Continued on next page)
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Platform Notes (Continued)

From /proc/meminfo
MemTotal:       527783204 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

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

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-2017-5754 (Meltdown): Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: conditional, RSB filling

run-level 3 Sep 19 09:49

(Continued on next page)
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Platform Notes (Continued)

SPEC is set to: /root/cpu2017-1.0.5

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2      xfs   440G   20G  421G   5% /

Additional information from dmidecode follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Dell Inc. 0.4.12 09/11/2019
Memory:
16x 802C80B3802C 36ASF4G72FZ-3G2E2 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

=================================================================================
C       | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak)
          | 525.x264_r(base, peak) 557.xz_r(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       | 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)**

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<td>C</td>
<td>500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak)</td>
<td>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</td>
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<td>C++</td>
<td>523.xalancbmk_r(peak)</td>
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<td>C++</td>
<td>520.omnetpp_r(base, peak) 523.xalancbmk_r(base) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)</td>
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Compiler Version Notes (Continued)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
    AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

Fortran | 548.exchange2_r (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

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_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
**SPEC CPU®2017 Integer Rate Result**

**Dell Inc.**

PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

**SPECrate®2017_int_base = 605**

**SPECrate®2017_int_peak = 665**

<table>
<thead>
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<td>Software Availability:</td>
<td>Aug-2019</td>
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</tbody>
</table>

**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` `-ffast-math`
- `-Wl,-mllvm -Wl,-reduce-array-computations=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 -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 -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 -03 -march=znver2 -funroll-loops`
- `-Mrecursive -mllvm -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`
Dell Inc.

PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

SPEC CPU®2017 Integer Rate Result

SPECrate®2017_int_base = 605
SPECrate®2017_int_peak = 665

Dell Inc.

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

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

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
-ffunction-instr-generate(pass 1)
-ffunction-instr-use(pass 2) -Ofast -march=xnver2
-mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mlllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mlllvm -inline-threshold=1000
-flv-function-specialization -lmvec -lamdlibm -ljemalloc
-1flang

502.gcc_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=xnver2 -mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mlllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mlllvm -inline-threshold=1000
-flv-function-specialization -fgnu89-inline -ljemalloc

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Dell Inc.

PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

SPEC CPU®2017 Integer Rate Result

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SPECrate®2017_int_base = 605
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CPU2017 License: 55
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Tested by: Dell Inc.

Test Date: Sep-2019
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Peak Optimization Flags (Continued)

505.mcf_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 -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 -lmvec -lamdlibm -ljemalloc
-lflang

525.x264_r: Same as 500.perlbench_r

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: basepeak = yes

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: -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
-lflang

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**SPEC CPU®2017 Integer Rate Result**

**Dell Inc.**

PowerEdge R6525 (AMD EPYC 7702, 2.00 GHz)

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**SPECrate®2017_int_base = 605**

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### Peak Optimization Flags (Continued)

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

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### Peak Other Flags

**C benchmarks:**

502.gcc_r: -L/sppo/dev/cpu2017/amd_rate_aocc200_rome/amd_rate_aocc200_rome_B_lib/32

**C++ benchmarks:**

523.xalancbmk_r: -L/sppo/dev/cpu2017/amd_rate_aocc200_rome/amd_rate_aocc200_rome_B_lib/32

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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 v1.0.5 on 2019-09-20 06:05:10-0400.
