



# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017\_int\_base = 279

SPECrate®2017\_int\_peak = 293

CPU2017 License: 55

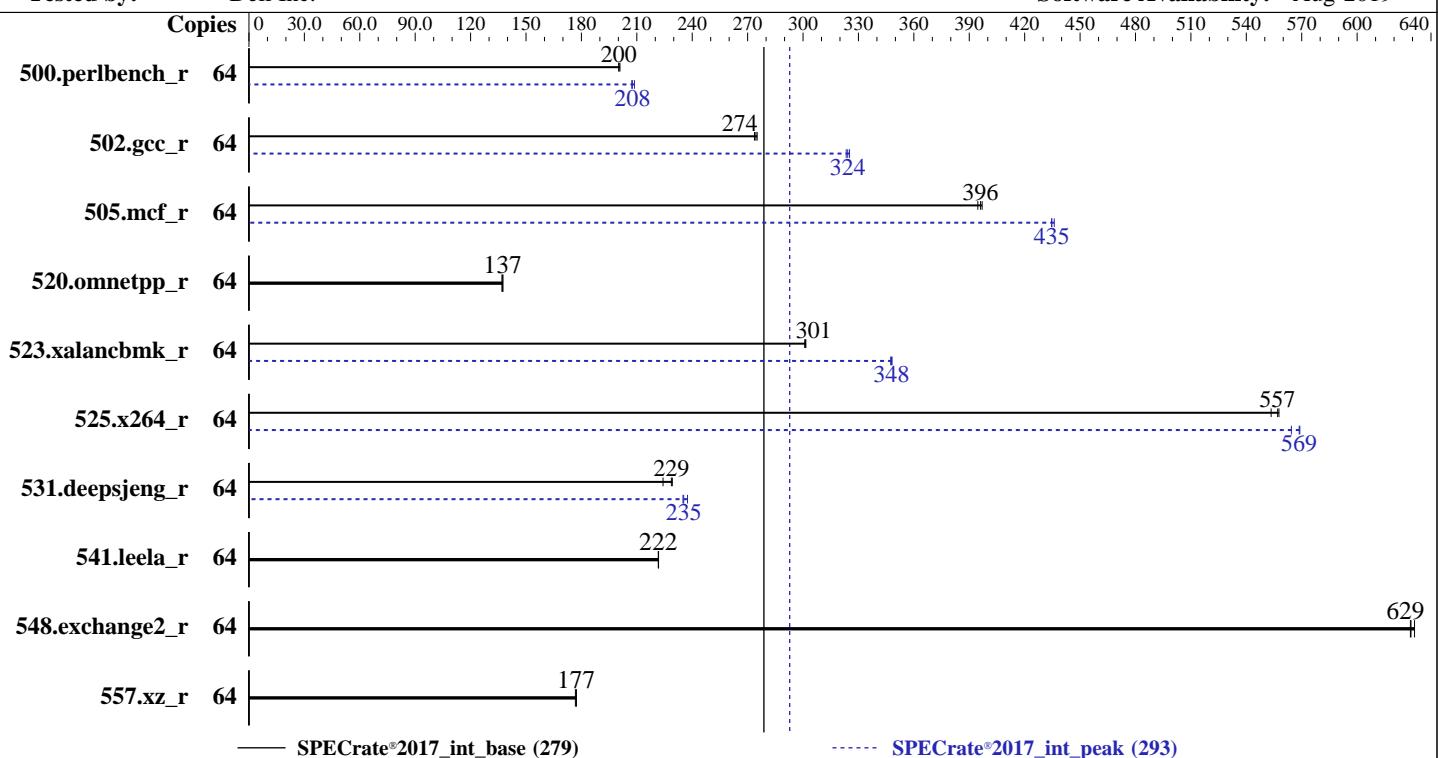
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2020

Hardware Availability: Apr-2020

Software Availability: Aug-2019



Hardware		Software	
CPU Name:	AMD EPYC 7F52	OS:	SUSE Linux Enterprise Server 15 SP1
Max MHz:	3900	Compiler:	kernel 4.12.14-197.7-default
Nominal:	3500	Parallel:	C/C++/Fortran: Version 2.0.0 of AOCC
Enabled:	32 cores, 2 chips, 2 threads/core	Firmware:	No
Orderable:	1,2 chips	File System:	Version 1.4.5 released Mar-2020
Cache L1:	32 KB I + 32 KB D on chip per core	System State:	xfs
L2:	512 KB I+D on chip per core	Base Pointers:	Run level 3 (multi-user)
L3:	256 MB I+D on chip per chip, 16 MB per core	Peak Pointers:	64-bit
Other:	None	Other:	32/64-bit
Memory:	512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R, running at 3200)	Power Management:	jemalloc: jemalloc memory allocator library v5.2.0
Storage:	1 x 480 GB SATA SSD		BIOS set to prefer performance at the cost of additional power usage.
Other:	None		



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	64	507	201	509	200	<b>509</b>	<b>200</b>	64	488	209	492	207	<b>491</b>	<b>208</b>
502.gcc_r	64	329	275	331	274	<b>330</b>	<b>274</b>	64	280	323	<b>280</b>	<b>324</b>	279	325
505.mcf_r	64	261	397	262	395	<b>261</b>	<b>396</b>	64	<b>238</b>	<b>435</b>	238	435	237	436
520.omnetpp_r	64	613	137	611	137	<b>611</b>	<b>137</b>	64	613	137	611	137	<b>611</b>	<b>137</b>
523.xalancbmk_r	64	225	301	224	302	<b>224</b>	<b>301</b>	64	<b>194</b>	<b>348</b>	195	347	194	348
525.x264_r	64	201	558	<b>201</b>	<b>557</b>	202	553	64	197	569	199	564	<b>197</b>	<b>569</b>
531.deepsjeng_r	64	327	224	320	229	<b>321</b>	<b>229</b>	64	312	235	<b>312</b>	<b>235</b>	309	237
541.leela_r	64	478	222	478	222	<b>478</b>	<b>222</b>	64	478	222	478	222	<b>478</b>	<b>222</b>
548.exchange2_r	64	266	631	<b>267</b>	<b>629</b>	267	629	64	266	631	<b>267</b>	<b>629</b>	267	629
557.xz_r	64	<b>390</b>	<b>177</b>	390	177	391	177	64	<b>390</b>	<b>177</b>	390	177	391	177

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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).

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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 -fno-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

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## Platform Notes (Continued)

Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011  
running on suse15-spl Fri Apr 3 09:22:05 2020

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 7F52 16-Core Processor
        2 "physical id"s (chips)
        64 "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 : 16
    siblings   : 32
    physical 0: cores 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60
    physical 1: cores 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60
```

```
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):                 64
On-line CPU(s) list:   0-63
Thread(s) per core:    2
Core(s) per socket:    16
Socket(s):              2
NUMA node(s):           32
Vendor ID:              AuthenticAMD
CPU family:             23
Model:                  49
Model name:             AMD EPYC 7F52 16-Core Processor
Stepping:                0
CPU MHz:                 3493.345
BogoMIPS:                6986.69
Virtualization:          AMD-V
L1d cache:               32K
L1i cache:               32K
L2 cache:                 512K
L3 cache:                 16384K
NUMA node0 CPU(s):       0,32
NUMA node1 CPU(s):       1,33
NUMA node2 CPU(s):       2,34
NUMA node3 CPU(s):       3,35
NUMA node4 CPU(s):       4,36
NUMA node5 CPU(s):       5,37
```

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NUMA node6 CPU(s): 6,38  
NUMA node7 CPU(s): 7,39  
NUMA node8 CPU(s): 8,40  
NUMA node9 CPU(s): 9,41  
NUMA node10 CPU(s): 10,42  
NUMA node11 CPU(s): 11,43  
NUMA node12 CPU(s): 12,44  
NUMA node13 CPU(s): 13,45  
NUMA node14 CPU(s): 14,46  
NUMA node15 CPU(s): 15,47  
NUMA node16 CPU(s): 16,48  
NUMA node17 CPU(s): 17,49  
NUMA node18 CPU(s): 18,50  
NUMA node19 CPU(s): 19,51  
NUMA node20 CPU(s): 20,52  
NUMA node21 CPU(s): 21,53  
NUMA node22 CPU(s): 22,54  
NUMA node23 CPU(s): 23,55  
NUMA node24 CPU(s): 24,56  
NUMA node25 CPU(s): 25,57  
NUMA node26 CPU(s): 26,58  
NUMA node27 CPU(s): 27,59  
NUMA node28 CPU(s): 28,60  
NUMA node29 CPU(s): 29,61  
NUMA node30 CPU(s): 30,62  
NUMA node31 CPU(s): 31,63

Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr\_opt pdpe1gb rdtscp lm constant\_tsc rep\_good nopl nonstop\_tsc cpuid extd\_apicid aperfmpf perf 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\_12 mwaitx cpb cat\_13 cdp\_13 hw\_pstate sme ssbd sev ibrs ibpb stibp vmmcall fsgsbase bmil avx2 smep bmi2 cqmq rdt\_a rdseed adx smap clflushopt clwb sha\_ni xsaveopt xsavec xgetbv1 xsaves cqmq\_llc cqmq\_occup\_llc cqmq\_mbm\_total cqmq\_mbm\_local clzero irperf xsaveerptr arat npt lbrv svm\_lock nrrip\_save tsc\_scale vmcb\_clean flushbyasid decodeassists pausefilter pfthreshold avic v\_vmsave\_vmload vgif umip rdpid overflow\_recov succor smca

/proc/cpuinfo cache data  
cache size : 512 KB

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

available: 32 nodes (0-31)  
node 0 cpus: 0 32  
node 0 size: 15677 MB  
node 0 free: 15629 MB

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## Platform Notes (Continued)

```
node 1 cpus: 1 33
node 1 size: 16127 MB
node 1 free: 16094 MB
node 2 cpus: 2 34
node 2 size: 16127 MB
node 2 free: 16095 MB
node 3 cpus: 3 35
node 3 size: 16126 MB
node 3 free: 16095 MB
node 4 cpus: 4 36
node 4 size: 16127 MB
node 4 free: 16057 MB
node 5 cpus: 5 37
node 5 size: 16127 MB
node 5 free: 16091 MB
node 6 cpus: 6 38
node 6 size: 16127 MB
node 6 free: 16062 MB
node 7 cpus: 7 39
node 7 size: 16126 MB
node 7 free: 16090 MB
node 8 cpus: 8 40
node 8 size: 16127 MB
node 8 free: 16093 MB
node 9 cpus: 9 41
node 9 size: 16127 MB
node 9 free: 16090 MB
node 10 cpus: 10 42
node 10 size: 16127 MB
node 10 free: 16089 MB
node 11 cpus: 11 43
node 11 size: 16126 MB
node 11 free: 16096 MB
node 12 cpus: 12 44
node 12 size: 16127 MB
node 12 free: 16091 MB
node 13 cpus: 13 45
node 13 size: 16127 MB
node 13 free: 16094 MB
node 14 cpus: 14 46
node 14 size: 16127 MB
node 14 free: 16095 MB
node 15 cpus: 15 47
node 15 size: 16114 MB
node 15 free: 16085 MB
node 16 cpus: 16 48
node 16 size: 16127 MB
```

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## Platform Notes (Continued)

```
node 16 free: 16096 MB
node 17 cpus: 17 49
node 17 size: 16127 MB
node 17 free: 16095 MB
node 18 cpus: 18 50
node 18 size: 16098 MB
node 18 free: 16064 MB
node 19 cpus: 19 51
node 19 size: 16126 MB
node 19 free: 16092 MB
node 20 cpus: 20 52
node 20 size: 16127 MB
node 20 free: 16094 MB
node 21 cpus: 21 53
node 21 size: 16127 MB
node 21 free: 16095 MB
node 22 cpus: 22 54
node 22 size: 16127 MB
node 22 free: 16095 MB
node 23 cpus: 23 55
node 23 size: 16126 MB
node 23 free: 16094 MB
node 24 cpus: 24 56
node 24 size: 16127 MB
node 24 free: 16094 MB
node 25 cpus: 25 57
node 25 size: 16127 MB
node 25 free: 16096 MB
node 26 cpus: 26 58
node 26 size: 16127 MB
node 26 free: 16097 MB
node 27 cpus: 27 59
node 27 size: 16126 MB
node 27 free: 16093 MB
node 28 cpus: 28 60
node 28 size: 16127 MB
node 28 free: 16098 MB
node 29 cpus: 29 61
node 29 size: 16127 MB
node 29 free: 16095 MB
node 30 cpus: 30 62
node 30 size: 16127 MB
node 30 free: 16095 MB
node 31 cpus: 31 63
node 31 size: 16125 MB
node 31 free: 16092 MB
node distances:
```

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## Platform Notes (Continued)

node	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29	30	31									
0:	10	11	11	11	12	12	12	12	12	12	12	12	12	12	12	32	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
1:	11	10	11	11	12	12	12	12	12	12	12	12	12	12	12	32	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
2:	11	11	10	11	12	12	12	12	12	12	12	12	12	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
3:	11	11	11	10	12	12	12	12	12	12	12	12	12	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
4:	12	12	12	12	10	11	11	11	12	12	12	12	12	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
5:	12	12	12	12	11	10	11	11	12	12	12	12	12	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
6:	12	12	12	12	11	11	10	11	12	12	12	12	12	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
7:	12	12	12	12	11	11	11	10	12	12	12	12	12	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
8:	12	12	12	12	12	12	12	12	12	10	11	11	11	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
9:	12	12	12	12	12	12	12	12	12	11	10	11	11	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
10:	12	12	12	12	12	12	12	12	12	11	11	10	11	12	12	12	32	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
11:	12	12	12	12	12	12	12	12	12	11	11	11	11	10	12	12	12	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
12:	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
13:	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	10	32	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
14:	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	10	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
15:	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	10	32	
32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
16:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	10	11	11	
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	
17:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	11	10	11	
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
18:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	11	11	10	
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
19:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	11	11	10	
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
20:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	
10	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
21:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	
11	10	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
22:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	12	12	12	

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11	11	10	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
23:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
11	11	11	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
24:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	10	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
25:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	11	10	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
26:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	11	11	10	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
27:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	11	11	11	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
28:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	12	12	12	12	12	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11
29:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	12	12	12	12	12	11	10	11	12	12	12	12	12	12	12	12	12	12	12	12
30:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	12	12	12	12	12	12	11	11	10	10	11	11	11	11	11	11	11	11	11	11
31:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
12	12	12	12	12	12	12	12	12	12	11	11	11	10	10	10	10	10	10	10	10	10	10	10

From /proc/meminfo

```
MemTotal:      527952040 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 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

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Dell Inc.

SPECCrate®2017\_int\_base = 279

PowerEdge C6525 (AMD EPYC 7F52, 3.50 GHz)

SPECCrate®2017\_int\_peak = 293

CPU2017 License: 55

Test Date: Apr-2020

Test Sponsor: Dell Inc.

Hardware Availability: Apr-2020

Tested by: Dell Inc.

Software Availability: Aug-2019

## Platform Notes (Continued)

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 Apr 2 12:10

SPEC is set to: /root/cpu2017-1.1.0

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfs	444G	14G	431G	3%	/

From /sys/devices/virtual/dmi/id  
BIOS: Dell Inc. 1.4.5 03/25/2020  
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:

3x	802C80B3802C	36ASF4G72PZ-3G2E2	32 GB	2 rank	3200
9x	802C869D802C	36ASF4G72PZ-3G2E2	32 GB	2 rank	3200
4x	80AD863280AD	HMA84GR7CJR4N-XN	32 GB	2 rank	3200

(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)
```

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Test Date: Apr-2020

Test Sponsor: Dell Inc.

Hardware Availability: Apr-2020

Tested by: Dell Inc.

Software Availability: Aug-2019

## Compiler Version Notes (Continued)

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

=====

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++ | 523.xalancbmk\_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++ | 520.omnetpp\_r(base, peak) 523.xalancbmk\_r(base)  
| 531.deepsjeng\_r(base, peak) 541.leela\_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

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# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge C6525 (AMD EPYC 7F52, 3.50 GHz)

SPECrate®2017\_int\_base = 279

SPECrate®2017\_int\_peak = 293

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2020

Hardware Availability: Apr-2020

Software Availability: Aug-2019

## Compiler Version Notes (Continued)

```
=====
C++      | 523.xalancbmk_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++      | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)
        | 531.deepsjeng_r(base, peak) 541.leela_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
-----


=====
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



# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017\_int\_base = 279

PowerEdge C6525 (AMD EPYC 7F52, 3.50 GHz)

SPECrate®2017\_int\_peak = 293

CPU2017 License: 55

Test Date: Apr-2020

Test Sponsor: Dell Inc.

Hardware Availability: Apr-2020

Tested by: Dell Inc.

Software Availability: Aug-2019

## 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
```

## Base Optimization Flags

C benchmarks:

```
-flicht -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-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 -lmvec -lamdlibm -ljemalloc
-lflang
```

C++ benchmarks:

```
-flicht -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:

```
-flicht -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 -lmvec -lamdlibm -ljemalloc -lflang
```



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Dell Inc.	SPECrate®2017_int_base = 279
PowerEdge C6525 (AMD EPYC 7F52, 3.50 GHz)	SPECrate®2017_int_peak = 293
CPU2017 License: 55	Test Date: Apr-2020
Test Sponsor: Dell Inc.	Hardware Availability: Apr-2020
Tested by: Dell Inc.	Software Availability: Aug-2019

## Peak Compiler Invocation

### C benchmarks:

clang

## C++ benchmarks:

| clang++

## Fortran benchmarks:

lang

## 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: -fno-omit-frame-pointer -fno-strict-aliasing  
-fno-common -fno-align-functions -fno-align-loops -fno-align-labels  
-fno-align-jumps -fno-align-calls -fno-align-return -fno-align-data  
-fno-align-tail -fno-align-intrinsics -fno-align-vectors  
-fno-align-vectors=4 -fno-align-vectors=8 -fno-align-vectors=16  
-fno-align-vectors=32 -fno-align-vectors=64 -fno-align-vectors=128  
-fno-align-vectors=256 -fno-align-vectors=512 -fno-align-vectors=1024  
-fno-align-vectors=2048 -fno-align-vectors=4096 -fno-align-vectors=8192  
-fno-align-vectors=16384 -fno-align-vectors=32768 -fno-align-vectors=65536  
-fno-align-vectors=131072 -fno-align-vectors=262144 -fno-align-vectors=524288  
-fno-align-vectors=1048576 -fno-align-vectors=2097152 -fno-align-vectors=4194304  
-fno-align-vectors=8388608 -fno-align-vectors=16777216 -fno-align-vectors=33554432  
-fno-align-vectors=67108864 -fno-align-vectors=134217728 -fno-align-vectors=268435456  
-fno-align-vectors=536870912 -fno-align-vectors=1073741824 -fno-align-vectors=2147483648  
-fno-align-vectors=4294967296 -fno-align-vectors=8589934592 -fno-align-vectors=17179869184  
-fno-align-vectors=34359738368 -fno-align-vectors=68719476736 -fno-align-vectors=137438953472  
-fno-align-vectors=274877906944 -fno-align-vectors=549755813888 -fno-align-vectors=1099511627776  
-fno-align-vectors=2199023255552 -fno-align-vectors=4398046511104 -fno-align-vectors=8796093022208  
-fno-align-vectors=17592186044416 -fno-align-vectors=35184372088832 -fno-align-vectors=70368744177664  
-fno-align-vectors=140737488355328 -fno-align-vectors=281474976710656 -fno-align-vectors=562949953421312  
-fno-align-vectors=112589990684264 -fno-align-vectors=225179981368528 -fno-align-vectors=450359962737056  
-fno-align-vectors=900719925474112 -fno-align-vectors=180143985094824 -fno-align-vectors=360287970189648  
-fno-align-vectors=720575940379296 -fno-align-vectors=1441151880758592 -fno-align-vectors=2882303761517184  
-fno-align-vectors=5764607523034368 -fno-align-vectors=11529215046068736 -fno-align-vectors=23058430092137472  
-fno-align-vectors=46116860184274944 -fno-align-vectors=92233720368549888 -fno-align-vectors=184467440737099776  
-fno-align-vectors=36893488147419952 -fno-align-vectors=73786976294839904 -fno-align-vectors=147573952589679808  
-fno-align-vectors=295147905179359616 -fno-align-vectors=590295810358719232 -fno-align-vectors=1180591620717438464  
-fno-align-vectors=2361183241434876928 -fno-align-vectors=4722366482869753856 -fno-align-vectors=9444732965739507712  
-fno-align-vectors=18889465931479015424 -fno-align-vectors=37778931862958030848 -fno-align-vectors=75557863725916061696  
-fno-align-vectors=151115727451832123392 -fno-align-vectors=302231454903664246784 -fno-align-vectors=604462909807328493568  
-fno-align-vectors=1208925819614656987136 -fno-align-vectors=2417851639229313974272 -fno-align-vectors=4835703278458627948544  
-fno-align-vectors=9671406556917255897088 -fno-align-vectors=19342813113834511794176 -fno-align-vectors=38685626227669023588352  
-fno-align-vectors=77371252455338047176704 -fno-align-vectors=154742504910676094353408 -fno-align-vectors=309485009821352188706816  
-fno-align-vectors=618970019642704377413632 -fno-align-vectors=1237940039285408754827264 -fno-align-vectors=2475880078570817509654528  
-fno-align-vectors=4951760157141635019309056 -fno-align-vectors=9903520314283270038618112 -fno-align-vectors=1980704062856654007723624  
-fno-align-vectors=3961408125713308015447248 -fno-align-vectors=7922816251426616030894496 -fno-align-vectors=15845632502853232061788992  
-fno-align-vectors=31691265005706464123577984 -fno-align-vectors=63382530011412928247155968 -fno-align-vectors=126765060022825856494311936  
-fno-align-vectors=253530120045651712988623872 -fno-align-vectors=507060240091303425977247744 -fno-align-vectors=1014120480182606851954495488  
-fno-align-vectors=2028240960365213703908990976 -fno-align-vectors=4056481920730427407817981952 -fno-align-vectors=8112963841460854815635963904  
-fno-align-vectors=16225927682921709631271927808 -fno-align-vectors=32451855365843419262543855616 -fno-align-vectors=64903710731686838525087711232  
-fno-align-vectors=129807421463373677050175422464 -fno-align-vectors=259614842926747354100350844928 -fno-align-vectors=519229685853494708200701689856  
-fno-align-vectors=1038459371706989416401403379712 -fno-align-vectors=2076918743413978832802806759424 -fno-align-vectors=4153837486827957665605613518848  
-fno-align-vectors=8307674973655915331211227037696 -fno-align-vectors=16615349947311830662424454075392 -fno-align-vectors=33230699894623661324848908150784  
-fno-align-vectors=66461399789247322649697816301568 -fno-align-vectors=132922799578494645299395632603136 -fno-align-vectors=265845599156989290598791265206272  
-fno-align-vectors=531691198313978581197582530412544 -fno-align-vectors=106338239662795716239516506082588 -fno-align-vectors=212676479325591432479033012165176  
-fno-align-vectors=425352958651182864958066024320352 -fno-align-vectors=850705917302365729916132048640704 -fno-align-vectors=1701411834604731459832264097281448  
-fno-align-vectors=340282366920946291966452819456288 -fno-align-vectors=680564733841892583932905638912576 -fno-align-vectors=1361129467683785167865811277825528  
-fno-align-vectors=2722258935367570335731622555651056 -fno-align-vectors=5444517870735140671463245111302112 -fno-align-vectors=1088903574147028134292649022260424  
-fno-align-vectors=2177807148294056268585298044520848 -fno-align-vectors=4355614296588112537170596089041696 -fno-align-vectors=8711228593176225074341192178083392  
-fno-align-vectors=1742245718635245014868238435616672 -fno-align-vectors=3484491437270490029736476871233344 -fno-align-vectors=696898287454098005947295374246688  
-fno-align-vectors=1393796574908196011894590748493376 -fno-align-vectors=2787593149816392023789181496986752 -fno-align-vectors=5575186299632784047578362993973504  
-fno-align-vectors=11150372599265568095156755987947008 -fno-align-vectors=22300745198531136190313511975894016 -fno-align-vectors=44601490397062272380627023951788032  
-fno-align-vectors=89202980794124544761254047903576064 -fno-align-vectors=178405961588249089522588095807152128 -fno-align-vectors=356811923176498179045176191614304256  
-fno-align-vectors=713623846352996358090352383228608512 -fno-align-vectors=1427247692705992716180704766457216024 -fno-align-vectors=2854495385411985432361409532914432048  
-fno-align-vectors=570899077082397086472281906582886096 -fno-align-vectors=1141798154164794172944563813165772192 -fno-align-vectors=2283596308329588345889127626331544384  
-fno-align-vectors=4567192616659176691778255252663088768 -fno-align-vectors=9134385233318353383556510505326177536 -fno-align-vectors=18268770466636706767113021010653555112  
-fno-align-vectors=3653754093327341353422604202130710224 -fno-align-vectors=7307508186654682706845208404261420448 -fno-align-vectors=1461501637330936541369041680852280896  
-fno-align-vectors=2923003274661873082738083361704561792 -fno-align-vectors=5846006549323746165476166723409123584 -fno-align-vectors=11692013098647492330952333446818247168  
-fno-align-vectors=23384026197294984661904666893636494336 -fno-align-vectors=46768052394589969323809333787272988672 -fno-align-vectors=93536104789179938647618667574545977344  
-fno-align-vectors=187072209578359877295237335149085954688 -fno-align-vectors=374144419156719754590474670298171909376 -fno-align-vectors=748288838313439509180949340596343808752  
-fno-align-vectors=149657767662687901836189868119268761704 -fno-align-vectors=299315535325375803672379736238535323408 -fno-align-vectors=598631070650751607344759472477070646816  
-fno-align-vectors=119726214130150321468959864495414012320 -fno-align-vectors=239452428260300642937919728985828024640 -fno-align-vectors=478904856520601285875839457971656049280  
-fno-align-vectors=957809713041202571751678915943312098560 -fno-align-vectors=1915619426082405143503357831886620977120 -fno-align-vectors=3831238852164810287006715663773241944240  
-fno-align-vectors=766247770432962057401343132754648388480 -fno-align-vectors=1532495540865924114802686265509296776960 -fno-align-vectors=3064991081731848229605372531018593553920  
-fno-align-vectors=6129982163463696459210745062037187107840 -fno-align-vectors=12259964326927392918421490124074374215680 -fno-align-vectors=24519928653854785836842980248148748431360  
-fno-align-vectors=49039857307709571673685960496297496882720 -fno-align-vectors=98079714615419143347371920992594993655440 -fno-align-vectors=19615942923083828669474384198518998730880  
-fno-align-vectors=39231885846167657338948768397037997461760 -fno-align-vectors=78463771692335314677895536794075994923520 -fno-align-vectors=15692754338467062935579107358815998847040  
-fno-align-vectors=31385508676934125871158214717631997780800 -fno-align-vectors=62771017353868251742316429435263995561600 -fno-align-vectors=125542034707736503484632858870527991123200  
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```

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# SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017\_int\_base = 279

PowerEdge C6525 (AMD EPYC 7F52, 3.50 GHz)

SPECrate®2017\_int\_peak = 293

CPU2017 License: 55

Test Date: Apr-2020

Test Sponsor: Dell Inc.

Hardware Availability: Apr-2020

Tested by: Dell Inc.

Software Availability: Aug-2019

## Peak Optimization Flags (Continued)

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=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 -fgnu89-inline -ljemalloc

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: basepeak = yes

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

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# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge C6525 (AMD EPYC 7F52, 3.50 GHz)

SPECrate®2017\_int\_base = 279

SPECrate®2017\_int\_peak = 293

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2020

Hardware Availability: Apr-2020

Software Availability: Aug-2019

## Peak Optimization Flags (Continued)

```
531.deepsjeng_r: -floop -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
```

541.leela\_r: basepeak = yes

Fortran benchmarks:

548.exchange2\_r: basepeak = yes

## Peak Other Flags

C benchmarks:

502.gcc\_r: -L/sppo/dev/cpu2017/v110/amd\_rate\_aocc200\_rome\_C\_lib/32

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-C4.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE9.html>

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-C4.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE9.xml>

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