



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_int_base = 284

PowerEdge R6525 (AMD EPYC 7F52, 3.50 GHz)

SPECrate®2017_int_peak = 300

CPU2017 License: 55

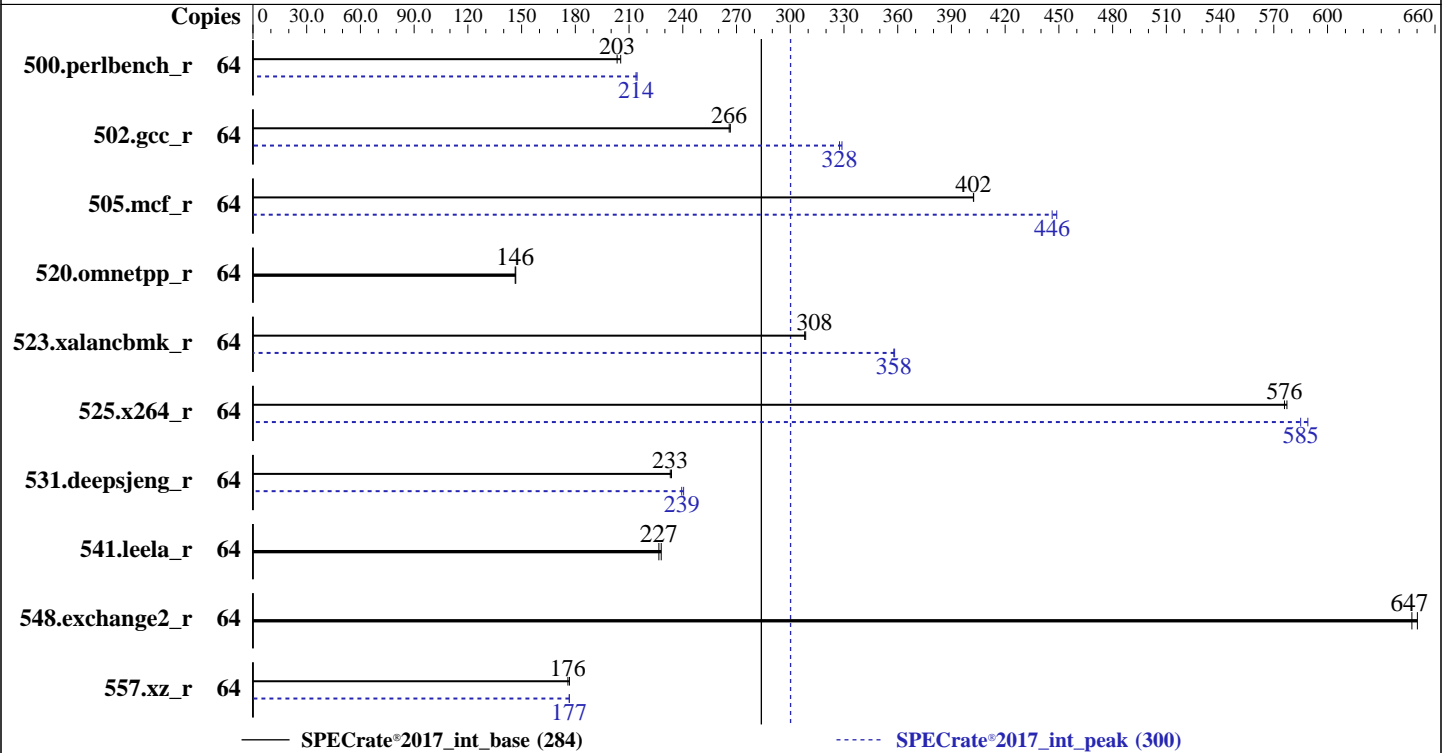
Test Date: Jan-2020

Test Sponsor: Dell Inc.

Hardware Availability: Apr-2020

Tested by: Dell Inc.

Software Availability: Aug-2019



Hardware

CPU Name: AMD EPYC 7F52
 Max MHz: 3900
 Nominal: 3500
 Enabled: 32 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 per core
 Other: None
 Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R, running at 3200)
 Storage: 1 x 960 GB SATA 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 1.2.9 released Dec-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.



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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	496	205	<u>501</u>	<u>203</u>			64	<u>476</u>	<u>214</u>	475	214		
502.gcc_r	64	340	267	<u>341</u>	<u>266</u>			64	276	329	<u>277</u>	<u>328</u>		
505.mcf_r	64	257	402	<u>257</u>	<u>402</u>			64	<u>232</u>	<u>446</u>	230	449		
520.omnetpp_r	64	572	147	<u>573</u>	<u>146</u>			64	572	147	<u>573</u>	<u>146</u>		
523.xalancbmk_r	64	219	309	<u>219</u>	<u>308</u>			64	189	358	<u>189</u>	<u>358</u>		
525.x264_r	64	194	577	<u>195</u>	<u>576</u>			64	190	589	<u>192</u>	<u>585</u>		
531.deepsjeng_r	64	<u>315</u>	<u>233</u>	314	234			64	<u>306</u>	<u>239</u>	305	240		
541.leela_r	64	<u>468</u>	<u>227</u>	465	228			64	<u>468</u>	<u>227</u>	465	228		
548.exchange2_r	64	258	650	<u>259</u>	<u>647</u>			64	258	650	<u>259</u>	<u>647</u>		
557.xz_r	64	391	177	<u>393</u>	<u>176</u>			64	391	177	<u>391</u>	<u>177</u>		

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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:"  
MALLOCONF = "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 -fltto
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 295195f888a3d7edble6e46a485a0011
running on linux-g3ob Tue Jan 14 03:21:57 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: 3493.424
BogoMIPS: 6986.84
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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Platform Notes (Continued)

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 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 osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext
 perfctr_l2 mwaitx cpb cat_l3 cdp_l3 hw_pstate sme ssbd sev ibrs ibpb stibp vmmcall
 fsgsbase bmi1 avx2 smep bmi2 cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
 xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
 clzero irperf xsaveerptr arat npt lbrv svm_lock nrip_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: 15549 MB

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Platform Notes (Continued)

```
node 0 free: 15503 MB
node 1 cpus: 1 33
node 1 size: 16127 MB
node 1 free: 16091 MB
node 2 cpus: 2 34
node 2 size: 16127 MB
node 2 free: 16099 MB
node 3 cpus: 3 35
node 3 size: 16126 MB
node 3 free: 16100 MB
node 4 cpus: 4 36
node 4 size: 16127 MB
node 4 free: 16099 MB
node 5 cpus: 5 37
node 5 size: 16127 MB
node 5 free: 16101 MB
node 6 cpus: 6 38
node 6 size: 16127 MB
node 6 free: 16099 MB
node 7 cpus: 7 39
node 7 size: 16126 MB
node 7 free: 16100 MB
node 8 cpus: 8 40
node 8 size: 16127 MB
node 8 free: 16078 MB
node 9 cpus: 9 41
node 9 size: 16127 MB
node 9 free: 16088 MB
node 10 cpus: 10 42
node 10 size: 16127 MB
node 10 free: 16090 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: 16071 MB
node 13 cpus: 13 45
node 13 size: 16127 MB
node 13 free: 16089 MB
node 14 cpus: 14 46
node 14 size: 16127 MB
node 14 free: 16090 MB
node 15 cpus: 15 47
node 15 size: 16085 MB
node 15 free: 16028 MB
node 16 cpus: 16 48
```

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```
node 16 size: 16127 MB
node 16 free: 16099 MB
node 17 cpus: 17 49
node 17 size: 16127 MB
node 17 free: 16101 MB
node 18 cpus: 18 50
node 18 size: 16127 MB
node 18 free: 16100 MB
node 19 cpus: 19 51
node 19 size: 16126 MB
node 19 free: 16100 MB
node 20 cpus: 20 52
node 20 size: 16127 MB
node 20 free: 16101 MB
node 21 cpus: 21 53
node 21 size: 16127 MB
node 21 free: 16101 MB
node 22 cpus: 22 54
node 22 size: 16127 MB
node 22 free: 16101 MB
node 23 cpus: 23 55
node 23 size: 16126 MB
node 23 free: 16101 MB
node 24 cpus: 24 56
node 24 size: 16127 MB
node 24 free: 16102 MB
node 25 cpus: 25 57
node 25 size: 16127 MB
node 25 free: 16100 MB
node 26 cpus: 26 58
node 26 size: 16127 MB
node 26 free: 16100 MB
node 27 cpus: 27 59
node 27 size: 16126 MB
node 27 free: 16101 MB
node 28 cpus: 28 60
node 28 size: 16127 MB
node 28 free: 16099 MB
node 29 cpus: 29 61
node 29 size: 16127 MB
node 29 free: 16102 MB
node 30 cpus: 30 62
node 30 size: 16127 MB
node 30 free: 16100 MB
node 31 cpus: 31 63
node 31 size: 16125 MB
node 31 free: 16096 MB
```

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Platform Notes (Continued)

node distances:

node	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
0:	10	11	11	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	32	32
1:	11	10	11	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	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	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	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	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	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	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	32	32
8:	12	12	12	12	12	12	12	12	10	11	11	11	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	32
9:	12	12	12	12	12	12	12	12	11	10	11	11	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	32
10:	12	12	12	12	12	12	12	12	11	11	10	11	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	32
11:	12	12	12	12	12	12	12	12	11	11	11	10	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	32
12:	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	11	32	32	32
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	11	10	11	11	32	32	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	11	10	11	11	32	32
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	11	11	11	10	32	32
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	11
12:	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
17:	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	11	10	11	11
12:	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	11
12:	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	11	10
12:	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	12
10:	11	11	11	12	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	12
11:	10	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12

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```

22:  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
23:  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
24:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
12  12  12  12  10  11  11  11  12  12  12  12
25:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
12  12  12  12  11  10  11  11  12  12  12  12
26:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
12  12  12  12  11  11  10  11  12  12  12  12
27:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12
12  12  12  12  11  11  11  10  12  12  12  12
28:  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  10  11  11  11
29:  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  11  10  11  11
30:  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  11  11  10  11
31:  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  11  11  11  10

```

From /proc/meminfo

MemTotal: 527820848 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

CVE-2017-5754 (Meltdown): Not affected

CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

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Dell Inc.

SPECrate®2017_int_base = 284

PowerEdge R6525 (AMD EPYC 7F52, 3.50 GHz)

SPECrate®2017_int_peak = 300

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2020

Hardware Availability: Apr-2020

Software Availability: Aug-2019

Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1): via prctl and seccomp
 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 Jan 14 03:07

SPEC is set to: /root/cpu2017-1.1.0

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfst	440G	28G	413G	7%	/

From /sys/devices/virtual/dmi/id

BIOS: Dell Inc. 1.2.9 12/14/2019

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:

16x 802C869D802C 36ASF4G72PZ-3G2E7 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

(Continued on next page)



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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

=====
 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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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



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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:

```

-flto -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:

```

-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 -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

```



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Software Availability: Aug-2019

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
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -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
```

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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: 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
```

(Continued on next page)



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Peak Optimization Flags (Continued)

```
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
```

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-C3.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-C3.xml>

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

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

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