



SPEC CPU®2017 Integer Speed Result

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Dell Inc.

SPECspeed®2017_int_base = 9.98

PowerEdge R7525 (AMD EPYC 7F52, 3.50 GHz)

SPECspeed®2017_int_peak = 10.4

CPU2017 License: 55

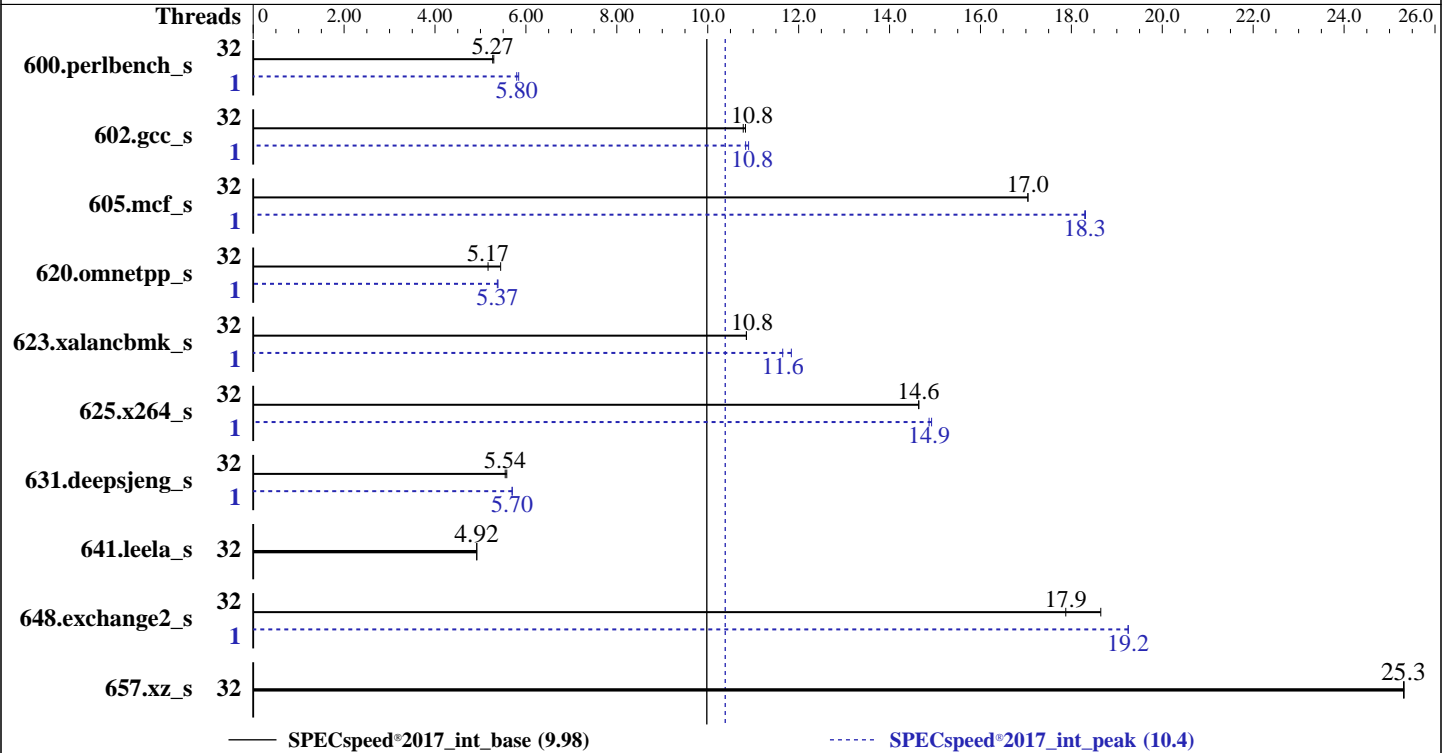
Test Date: Apr-2020

Test Sponsor: Dell Inc.

Hardware Availability: Jul-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
 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: Yes
 Firmware: Version 1.4.6 released Apr-2020
 File System: tmpfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other: jemalloc: jemalloc memory allocator library v5.1.0
 Power Management: BIOS set to prefer performance at the cost of additional power usage.



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Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	335	5.29	337	5.27			1	306	5.80	304	5.84		
602.gcc_s	32	369	10.8	368	10.8			1	368	10.8	365	10.9		
605.mcf_s	32	277	17.0	277	17.0			1	258	18.3	258	18.3		
620.omnetpp_s	32	316	5.17	300	5.44			1	304	5.37	303	5.39		
623.xalancbmk_s	32	131	10.9	131	10.8			1	120	11.8	122	11.6		
625.x264_s	32	120	14.6	120	14.6			1	118	14.9	119	14.9		
631.deepsjeng_s	32	258	5.54	257	5.58			1	252	5.70	251	5.70		
641.leela_s	32	347	4.92	347	4.92			32	347	4.92	347	4.92		
648.exchange2_s	32	164	17.9	158	18.6			1	153	19.3	153	19.2		
657.xz_s	32	244	25.3	244	25.3			32	244	25.3	244	25.3		

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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).

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



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Environment Variables Notes

Environment variables set by runcpu before the start of the run:

GOMP_CPU_AFFINITY = "0-31"

LD_LIBRARY_PATH =

"/mnt/ramdisk/cpu2017-1.1.0/amd_speed_aocc200_rome_C_lib/64;/mnt/ramdisk
/cpu2017-1.1.0/amd_speed_aocc200_rome_C_lib/32:"

MALLOC_CONF = "retain:true"

OMP_DYNAMIC = "false"

OMP_SCHEDULE = "static"

OMP_STACKSIZE = "128M"

OMP_THREAD_LIMIT = "32"

Environment variables set by runcpu during the 600.perlbench_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 602.gcc_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 605.mcf_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 620.omnetpp_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_s peak run:

GOMP_CPU_AFFINITY = "0"

OMP_STACKSIZE = "128M"

Environment variables set by runcpu during the 625.x264_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 631.deepsjeng_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2_s peak run:

GOMP_CPU_AFFINITY = "0"

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)

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General Notes (Continued)

is mitigated in the system as tested and documented.

Benchmark run from a 225 GB ramdisk created with the cmd; "mount -t tmpfs -o size=225G tmpfs /mnt/ramdisk".

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto

jemalloc 5.1.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.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 Auto
 ApbDis set to Disabled
 DLWM set to Unforced
 Logical Processor Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.0/bin/sysinfo
 Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
 running on linux-g3ob Fri Apr 24 11:53:56 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)
 32 "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 : 16
 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

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Platform Notes (Continued)

From lscpu:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
Address sizes:         43 bits physical, 48 bits virtual
CPU(s):                32
On-line CPU(s) list:   0-31
Thread(s) per core:    1
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:                3493.596
BogoMIPS:               6987.19
Virtualization:        AMD-V
L1d cache:              32K
L1i cache:              32K
L2 cache:               512K
L3 cache:               16384K
NUMA node0 CPU(s):     0
NUMA node1 CPU(s):     1
NUMA node2 CPU(s):     2
NUMA node3 CPU(s):     3
NUMA node4 CPU(s):     4
NUMA node5 CPU(s):     5
NUMA node6 CPU(s):     6
NUMA node7 CPU(s):     7
NUMA node8 CPU(s):     8
NUMA node9 CPU(s):     9
NUMA node10 CPU(s):    10
NUMA node11 CPU(s):    11
NUMA node12 CPU(s):    12
NUMA node13 CPU(s):    13
NUMA node14 CPU(s):    14
NUMA node15 CPU(s):    15
NUMA node16 CPU(s):    16
NUMA node17 CPU(s):    17
NUMA node18 CPU(s):    18
NUMA node19 CPU(s):    19
NUMA node20 CPU(s):    20
NUMA node21 CPU(s):    21
NUMA node22 CPU(s):    22
NUMA node23 CPU(s):    23

```

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Platform Notes (Continued)

```

NUMA node24 CPU(s): 24
NUMA node25 CPU(s): 25
NUMA node26 CPU(s): 26
NUMA node27 CPU(s): 27
NUMA node28 CPU(s): 28
NUMA node29 CPU(s): 29
NUMA node30 CPU(s): 30
NUMA node31 CPU(s): 31

```

```

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 pri
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 rdt_a rdseed adx smap clflushopt clwb sha_ni
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
node 0 size: 15547 MB
node 0 free: 15484 MB
node 1 cpus: 1
node 1 size: 16127 MB
node 1 free: 16102 MB
node 2 cpus: 2
node 2 size: 16127 MB
node 2 free: 16088 MB
node 3 cpus: 3
node 3 size: 16126 MB
node 3 free: 16096 MB
node 4 cpus: 4
node 4 size: 16098 MB
node 4 free: 16053 MB
node 5 cpus: 5
node 5 size: 16127 MB
node 5 free: 16085 MB
node 6 cpus: 6
node 6 size: 16127 MB

```

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Platform Notes (Continued)

```
node 6 free: 16105 MB
node 7 cpus: 7
node 7 size: 16126 MB
node 7 free: 16088 MB
node 8 cpus: 8
node 8 size: 16127 MB
node 8 free: 16099 MB
node 9 cpus: 9
node 9 size: 16127 MB
node 9 free: 16093 MB
node 10 cpus: 10
node 10 size: 16127 MB
node 10 free: 16100 MB
node 11 cpus: 11
node 11 size: 16126 MB
node 11 free: 16103 MB
node 12 cpus: 12
node 12 size: 16127 MB
node 12 free: 16102 MB
node 13 cpus: 13
node 13 size: 16127 MB
node 13 free: 16105 MB
node 14 cpus: 14
node 14 size: 16127 MB
node 14 free: 16107 MB
node 15 cpus: 15
node 15 size: 16114 MB
node 15 free: 16086 MB
node 16 cpus: 16
node 16 size: 16127 MB
node 16 free: 16108 MB
node 17 cpus: 17
node 17 size: 16127 MB
node 17 free: 16107 MB
node 18 cpus: 18
node 18 size: 16127 MB
node 18 free: 16109 MB
node 19 cpus: 19
node 19 size: 16126 MB
node 19 free: 16101 MB
node 20 cpus: 20
node 20 size: 16127 MB
node 20 free: 16079 MB
node 21 cpus: 21
node 21 size: 16127 MB
node 21 free: 16110 MB
node 22 cpus: 22
```

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Platform Notes (Continued)

```

node 22 size: 16127 MB
node 22 free: 16111 MB
node 23 cpus: 23
node 23 size: 16126 MB
node 23 free: 16107 MB
node 24 cpus: 24
node 24 size: 16127 MB
node 24 free: 14249 MB
node 25 cpus: 25
node 25 size: 16127 MB
node 25 free: 16089 MB
node 26 cpus: 26
node 26 size: 16127 MB
node 26 free: 11552 MB
node 27 cpus: 27
node 27 size: 16126 MB
node 27 free: 16035 MB
node 28 cpus: 28
node 28 size: 16127 MB
node 28 free: 16110 MB
node 29 cpus: 29
node 29 size: 16127 MB
node 29 free: 16111 MB
node 30 cpus: 30
node 30 size: 16127 MB
node 30 free: 16111 MB
node 31 cpus: 31
node 31 size: 16126 MB
node 31 free: 16110 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
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
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
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
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
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
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
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
7: 12 12 12 12 11 11 11 10 12 12 12 12 12 12 12 12 32 32 32 32

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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	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	32		
9:	12	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	32		
10:	12	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	32		
11:	12	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	32		
12:	12	12	12	12	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		
13:	12	12	12	12	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		
14:	12	12	12	12	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	32		
15:	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	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		
16:	32	32	32	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	12	12	
17:	32	32	32	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	12	12	
18:	32	32	32	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	12	12	
19:	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	12	12	12	
20:	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	12	12	12	
21:	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	12	12	12	
22:	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	12	12	12	
23:	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	12	12	12	
24:	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	10	11	11	11	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	12	12	12	12
12	12	12	12	11	10	11	11	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	12	12	12	12
12	12	12	12	11	11	10	11	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	12	12	12	12
12	12	12	12	11	11	11	10	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	12	12	12	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	12	12	12	12
12	12	12	12	12	12	12	12	11	10	11	11	11	11	11	11	11	11	11	11	11	11	11	
30:	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	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11	

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Dell Inc.

SPECspeed®2017_int_base = 9.98

PowerEdge R7525 (AMD EPYC 7F52, 3.50 GHz)

SPECspeed®2017_int_peak = 10.4

CPU2017 License: 55

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Platform Notes (Continued)

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: 527825808 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 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: disabled, RSB filling

run-level 3 Apr 24 11:51 last=5

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.0

Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 225G 4.3G 221G 2% /mnt/ramdisk

From /sys/devices/virtual/dmi/id

BIOS: Dell Inc. 1.4.6 04/10/2020

Vendor: Dell Inc.

Product: PowerEdge R7525

Product Family: PowerEdge

Serial: 48LN333

(Continued on next page)



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Platform Notes (Continued)

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 802C80B3802C 36ASF4G72PZ-3G2E7 32 GB 2 rank 3200
16x Not Specified Not Specified

(End of data from sysinfo program)

Compiler Version Notes

```
=====  
C          | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base,  
          | peak) 625.x264_s(base, peak) 657.xz_s(base, peak)  
=====
```

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

```
=====  
C++       | 623.xalanbmk_s(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++       | 620.omnetpp_s(base, peak) 623.xalanbmk_s(base)  
          | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)  
=====
```

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

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Compiler Version Notes (Continued)

C++ | 623.xalancbmk_s(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++ | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base)
631.deepsjeng_s(base, peak) 641.leela_s(base, peak)

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

=====
Fortran | 648.exchange2_s(base, peak)

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

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang



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Base Portability Flags

```

600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

```

Base Optimization Flags

C benchmarks:

```

-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 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-lflang

```

C++ benchmarks:

```

-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-mllvm -loop-unswitch-threshold=200000 -mllvm -vector-library=LIBMVEC
-mllvm -unroll-threshold=100 -flv-function-specialization
-mllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-lflang

```

Fortran benchmarks:

```

-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -ffast-math
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops
-Mrecursive -mllvm -vector-library=LIBMVEC -z muldefs
-mllvm -disable-indvar-simplify -mllvm -unroll-aggressive

```

(Continued on next page)



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Software Availability: Aug-2019

Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp  
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang
```

Base Other Flags

C benchmarks:

```
-Wno-return-type
```

C++ benchmarks:

```
-Wno-return-type
```

Fortran benchmarks:

```
-Wno-return-type
```

Peak Compiler Invocation

C benchmarks:

```
clang
```

C++ benchmarks:

```
clang++
```

Fortran benchmarks:

```
flang
```

Peak Portability Flags

```
600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64  
602.gcc_s: -DSPEC_LP64  
605.mcf_s: -DSPEC_LP64  
620.omnetpp_s: -DSPEC_LP64  
623.xalancbmk_s: -DSPEC_LINUX -D_FILE_OFFSET_BITS=64  
625.x264_s: -DSPEC_LP64  
631.deepsjeng_s: -DSPEC_LP64  
641.leela_s: -DSPEC_LP64  
648.exchange2_s: -DSPEC_LP64  
657.xz_s: -DSPEC_LP64
```



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Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -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 -DSPEC_OPENMP -fopenmp
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang
```

```
602.gcc_s: -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 -z muldefs -DSPEC_OPENMP
-fopenmp -fgnu89-inline -fopenmp=libomp -lomp -lpthread
-ldl -ljemalloc
```

```
605.mcf_s: -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 -DSPEC_OPENMP -fopenmp
```

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Peak Optimization Flags (Continued)

605.mcf_s (continued):

```
-lmvec -lamdlibm -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc -lflang
```

625.x264_s: Same as 600.perlbench_s

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: -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 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang
```

623.xalancbmk_s: -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 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lpthread -ldl -ljemalloc
```

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: basepeak = yes

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
```

(Continued on next page)



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Peak Optimization Flags (Continued)

Fortran benchmarks (continued):

-mllvm -disable-indvar-simplify -mllvm -unroll-aggressive
-mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc -lflang

Peak Other Flags

C benchmarks:

-Wno-return-type

C++ benchmarks (except as noted below):

-Wno-return-type

623.xalancbmk_s: -Wno-return-type

-L/sppo/dev/cpu2017/v110/amd_speed_aocc200_rome_C_lib/32

Fortran benchmarks:

-Wno-return-type

The flags files that were used to format this result can be browsed at

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

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