



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Dell Inc.

SPECspeed®2017\_int\_base = 8.48

PowerEdge R7525 (AMD EPYC 7552, 2.20 GHz)

SPECspeed®2017\_int\_peak = 8.70

CPU2017 License: 55

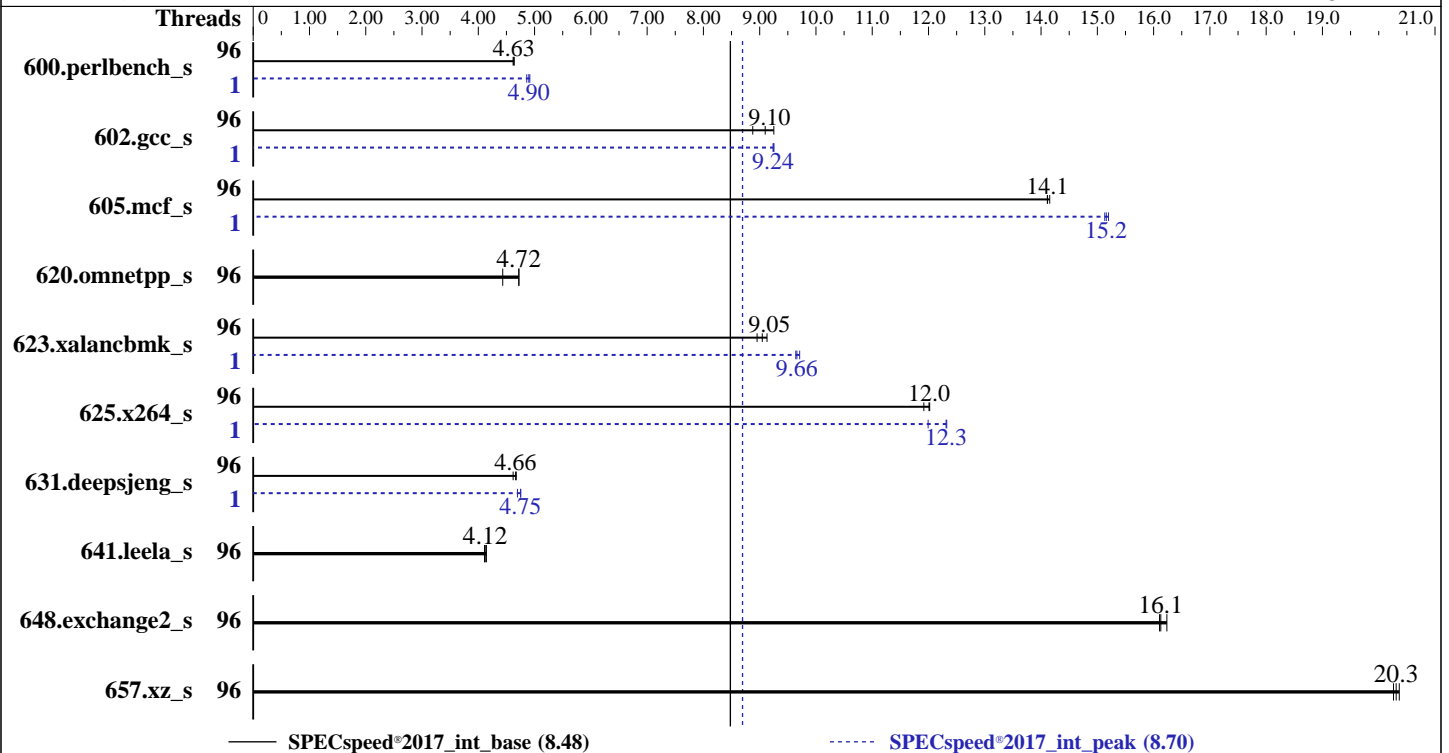
Test Date: Nov-2019

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2020

Tested by: Dell Inc.

Software Availability: Aug-2019



### Hardware

CPU Name: AMD EPYC 7552  
 Max MHz: 3300  
 Nominal: 2200  
 Enabled: 96 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: 192 MB I+D on chip per chip, 16 MB shared / 4 cores  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)  
 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 1.2.4 released Nov-2019  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other: jemalloc: jemalloc memory allocator library v5.1.0  
 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	96	<b>383</b>	<b>4.63</b>	383	4.64	384	4.62	1	365	4.86	361	4.92	<b>362</b>	<b>4.90</b>
602.gcc_s	96	430	9.25	449	8.88	<b>438</b>	<b>9.10</b>	1	<b>431</b>	<b>9.24</b>	431	9.24	430	9.25
605.mcf_s	96	<b>334</b>	<b>14.1</b>	334	14.2	335	14.1	1	312	15.1	<b>311</b>	<b>15.2</b>	311	15.2
620.omnetpp_s	96	368	4.43	<b>346</b>	<b>4.72</b>	345	4.72	96	368	4.43	<b>346</b>	<b>4.72</b>	345	4.72
623.xalancbmk_s	96	155	9.13	158	8.95	<b>157</b>	<b>9.05</b>	1	147	9.64	<b>147</b>	<b>9.66</b>	146	9.71
625.x264_s	96	147	12.0	<b>147</b>	<b>12.0</b>	148	11.9	1	147	12.0	<b>143</b>	<b>12.3</b>	143	12.3
631.deepsjeng_s	96	<b>307</b>	<b>4.66</b>	310	4.62	307	4.67	1	<b>302</b>	<b>4.75</b>	305	4.70	301	4.75
641.leela_s	96	412	4.14	415	4.11	<b>414</b>	<b>4.12</b>	96	412	4.14	415	4.11	<b>414</b>	<b>4.12</b>
648.exchange2_s	96	181	16.2	<b>182</b>	<b>16.1</b>	183	16.1	96	181	16.2	<b>182</b>	<b>16.1</b>	183	16.1
657.xz_s	96	305	20.3	304	20.4	<b>304</b>	<b>20.3</b>	96	305	20.3	304	20.4	<b>304</b>	<b>20.3</b>

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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 = "0-191"

LD\_LIBRARY\_PATH =

"/root/cpu2017-1.1.0/amd\_speed\_aocc200\_rome\_C\_lib/64;/root/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 = "192"

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 623.xalanbmk\_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"

## General Notes

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

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

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

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

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto  
jemalloc 5.1.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>



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## Platform Notes

BIOS settings:

NUMA Nodes Per Socket set to 2  
 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  
 Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
 running on linux-g3ob Tue Nov 19 18:57:44 2019

SUT (System Under Test) info as seen by some common utilities.  
 For more information on this section, see  
<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo  
 model name : AMD EPYC 7552 48-Core Processor  
 2 "physical id"s (chips)  
 192 "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 : 48  
 siblings : 96  
 physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24  
 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47  
 physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24  
 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47

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): 192  
 On-line CPU(s) list: 0-191  
 Thread(s) per core: 2  
 Core(s) per socket: 48  
 Socket(s): 2  
 NUMA node(s): 24

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## Platform Notes (Continued)

Vendor ID: AuthenticAMD  
 CPU family: 23  
 Model: 49  
 Model name: AMD EPYC 7552 48-Core Processor  
 Stepping: 0  
 CPU MHz: 2195.836  
 BogoMIPS: 4391.67  
 Virtualization: AMD-V  
 L1d cache: 32K  
 L1i cache: 32K  
 L2 cache: 512K  
 L3 cache: 16384K  
 NUMA node0 CPU(s): 0-3,96-99  
 NUMA node1 CPU(s): 4-7,100-103  
 NUMA node2 CPU(s): 8-11,104-107  
 NUMA node3 CPU(s): 12-15,108-111  
 NUMA node4 CPU(s): 16-19,112-115  
 NUMA node5 CPU(s): 20-23,116-119  
 NUMA node6 CPU(s): 24-27,120-123  
 NUMA node7 CPU(s): 28-31,124-127  
 NUMA node8 CPU(s): 32-35,128-131  
 NUMA node9 CPU(s): 36-39,132-135  
 NUMA node10 CPU(s): 40-43,136-139  
 NUMA node11 CPU(s): 44-47,140-143  
 NUMA node12 CPU(s): 48-51,144-147  
 NUMA node13 CPU(s): 52-55,148-151  
 NUMA node14 CPU(s): 56-59,152-155  
 NUMA node15 CPU(s): 60-63,156-159  
 NUMA node16 CPU(s): 64-67,160-163  
 NUMA node17 CPU(s): 68-71,164-167  
 NUMA node18 CPU(s): 72-75,168-171  
 NUMA node19 CPU(s): 76-79,172-175  
 NUMA node20 CPU(s): 80-83,176-179  
 NUMA node21 CPU(s): 84-87,180-183  
 NUMA node22 CPU(s): 88-91,184-187  
 NUMA node23 CPU(s): 92-95,188-191

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 pdpelgb rdtscp lm  
 constant\_tsc rep\_good nopl xtopology nonstop\_tsc cpuid extd\_apicid aperfmperf pni  
 pclmulqdq monitor ssse3 fma cxl6 sse4\_1 sse4\_2 movbe popcnt aes xsave avx fl6c  
 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\_omsave\_vmload vgif umip rdpid overflow\_recov succor smca

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## Platform Notes (Continued)

```
/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: 24 nodes (0-23)
node 0 cpus: 0 1 2 3 96 97 98 99
node 0 size: 21051 MB
node 0 free: 20725 MB
node 1 cpus: 4 5 6 7 100 101 102 103
node 1 size: 21501 MB
node 1 free: 21304 MB
node 2 cpus: 8 9 10 11 104 105 106 107
node 2 size: 21502 MB
node 2 free: 21258 MB
node 3 cpus: 12 13 14 15 108 109 110 111
node 3 size: 21501 MB
node 3 free: 21334 MB
node 4 cpus: 16 17 18 19 112 113 114 115
node 4 size: 21501 MB
node 4 free: 21330 MB
node 5 cpus: 20 21 22 23 116 117 118 119
node 5 size: 21503 MB
node 5 free: 21343 MB
node 6 cpus: 24 25 26 27 120 121 122 123
node 6 size: 21501 MB
node 6 free: 21352 MB
node 7 cpus: 28 29 30 31 124 125 126 127
node 7 size: 21501 MB
node 7 free: 21355 MB
node 8 cpus: 32 33 34 35 128 129 130 131
node 8 size: 21503 MB
node 8 free: 21358 MB
node 9 cpus: 36 37 38 39 132 133 134 135
node 9 size: 21501 MB
node 9 free: 21296 MB
node 10 cpus: 40 41 42 43 136 137 138 139
node 10 size: 21501 MB
node 10 free: 21354 MB
node 11 cpus: 44 45 46 47 140 141 142 143
node 11 size: 21490 MB
node 11 free: 21340 MB
node 12 cpus: 48 49 50 51 144 145 146 147
node 12 size: 21501 MB
node 12 free: 21357 MB
node 13 cpus: 52 53 54 55 148 149 150 151
```

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## Platform Notes (Continued)

```

node 13 size: 21501 MB
node 13 free: 21362 MB
node 14 cpus: 56 57 58 59 152 153 154 155
node 14 size: 21502 MB
node 14 free: 21364 MB
node 15 cpus: 60 61 62 63 156 157 158 159
node 15 size: 21501 MB
node 15 free: 21364 MB
node 16 cpus: 64 65 66 67 160 161 162 163
node 16 size: 21501 MB
node 16 free: 21365 MB
node 17 cpus: 68 69 70 71 164 165 166 167
node 17 size: 21503 MB
node 17 free: 21365 MB
node 18 cpus: 72 73 74 75 168 169 170 171
node 18 size: 21501 MB
node 18 free: 21365 MB
node 19 cpus: 76 77 78 79 172 173 174 175
node 19 size: 21501 MB
node 19 free: 21365 MB
node 20 cpus: 80 81 82 83 176 177 178 179
node 20 size: 21503 MB
node 20 free: 21366 MB
node 21 cpus: 84 85 86 87 180 181 182 183
node 21 size: 21472 MB
node 21 free: 21334 MB
node 22 cpus: 88 89 90 91 184 185 186 187
node 22 size: 21501 MB
node 22 free: 21366 MB
node 23 cpus: 92 93 94 95 188 189 190 191
node 23 size: 21501 MB
node 23 free: 21364 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
0: 10 11 11 11 11 11 12 12 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32
1: 11 10 11 11 11 11 12 12 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32
2: 11 11 10 11 11 11 12 12 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32
3: 11 11 11 10 11 11 12 12 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32
4: 11 11 11 11 10 11 12 12 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32
5: 11 11 11 11 11 10 12 12 12 12 12 12 32 32 32 32 32 32 32
32 32 32 32

```

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## Platform Notes (Continued)

```

6:  12  12  12  12  12  12  12  10  11  11  11  11  11  32  32  32  32  32  32  32  32
32  32  32  32
7:  12  12  12  12  12  12  12  11  10  11  11  11  11  32  32  32  32  32  32  32  32
32  32  32  32
8:  12  12  12  12  12  12  12  11  11  10  11  11  11  32  32  32  32  32  32  32  32
32  32  32  32
9:  12  12  12  12  12  12  12  11  11  11  10  11  11  32  32  32  32  32  32  32  32
32  32  32  32
10: 12  12  12  12  12  12  12  11  11  11  11  10  11  32  32  32  32  32  32  32  32
32  32  32  32
11: 12  12  12  12  12  12  12  11  11  11  11  11  10  32  32  32  32  32  32  32  32
32  32  32  32
12: 32  32  32  32  32  32  32  32  32  32  32  32  32  10  11  11  11  11  11  12  12
12  12  12  12
13: 32  32  32  32  32  32  32  32  32  32  32  32  32  11  10  11  11  11  11  12  12
12  12  12  12
14: 32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  10  11  11  11  12  12
12  12  12  12
15: 32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  10  11  11  12  12
12  12  12  12
16: 32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11  10  11  12  12
12  12  12  12
17: 32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11  11  10  12  12
12  12  12  12
18: 32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  10  11
11  11  11  11
19: 32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  11  10
11  11  11  11
20: 32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  11  11
10  11  11  11
21: 32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  11  11
11  10  11  11
22: 32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  11  11
11  11  10  11
23: 32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  11  11
11  11  11  10

```

```

From /proc/meminfo
MemTotal:      527930668 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"

```

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## Platform Notes (Continued)

```
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: conditional, RSB
filling
```

```
run-level 3 Nov 19 03:57 last=5
```

```
SPEC is set to: /root/cpu2017-1.1.0
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        xfs   440G  41G  400G  10% /
```

```
From /sys/devices/virtual/dmi/id
BIOS:      Dell Inc. 1.2.4 11/05/2019
Vendor:    Dell Inc.
Product:   PowerEdge R7525
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:
3x 802C80B3802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200
1x 802C80B3802C 36ASF4G72PZ-3G2E7 32 GB 2 rank 3200
2x 802C8632802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200
1x 802C869D802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200
9x 80AD863280AD HMA84GR7CJR4N-XN 32 GB 2 rank 3200
16x Not Specified Not Specified
```

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## Platform Notes (Continued)

(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  
-----
```

```
=====  
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  
-----
```

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# SPEC CPU®2017 Integer Speed Result

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Dell Inc.

SPECspeed®2017\_int\_base = 8.48

PowerEdge R7525 (AMD EPYC 7552, 2.20 GHz)

SPECspeed®2017\_int\_peak = 8.70

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Compiler Version Notes (Continued)

```

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

```

```

AOCCLLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCCLLVM.2.0.0.B191.2019_07_19) (based on LLVM AOCCLLVM.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)
=====

```

```

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

```

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

## Base Portability Flags

```

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

```

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## Base Portability Flags (Continued)

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



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## 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

```

## 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

```

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## Peak Optimization Flags (Continued)

600.perlbench\_s (continued):

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

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## Peak Optimization Flags (Continued)

625.x264\_s: Same as 600.perlbench\_s

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

```
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
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc
```

```
631.deepsjeng_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
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-lmvec -lamdlibm -ljemalloc -lflang
```

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes

## Peak Other Flags

C benchmarks:

-Wno-return-type

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## Peak Other Flags (Continued)

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-B1-speed-Dell.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE7.html>

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-B1-speed-Dell.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE7.xml>

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