



# SPEC CPU®2017 Integer Speed Result

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## Cisco Systems

SPECspeed®2017\_int\_base = 8.77

## Cisco UCS C225 M6 (AMD EPYC 7662)

SPECspeed®2017\_int\_peak = 8.87

CPU2017 License: 9019

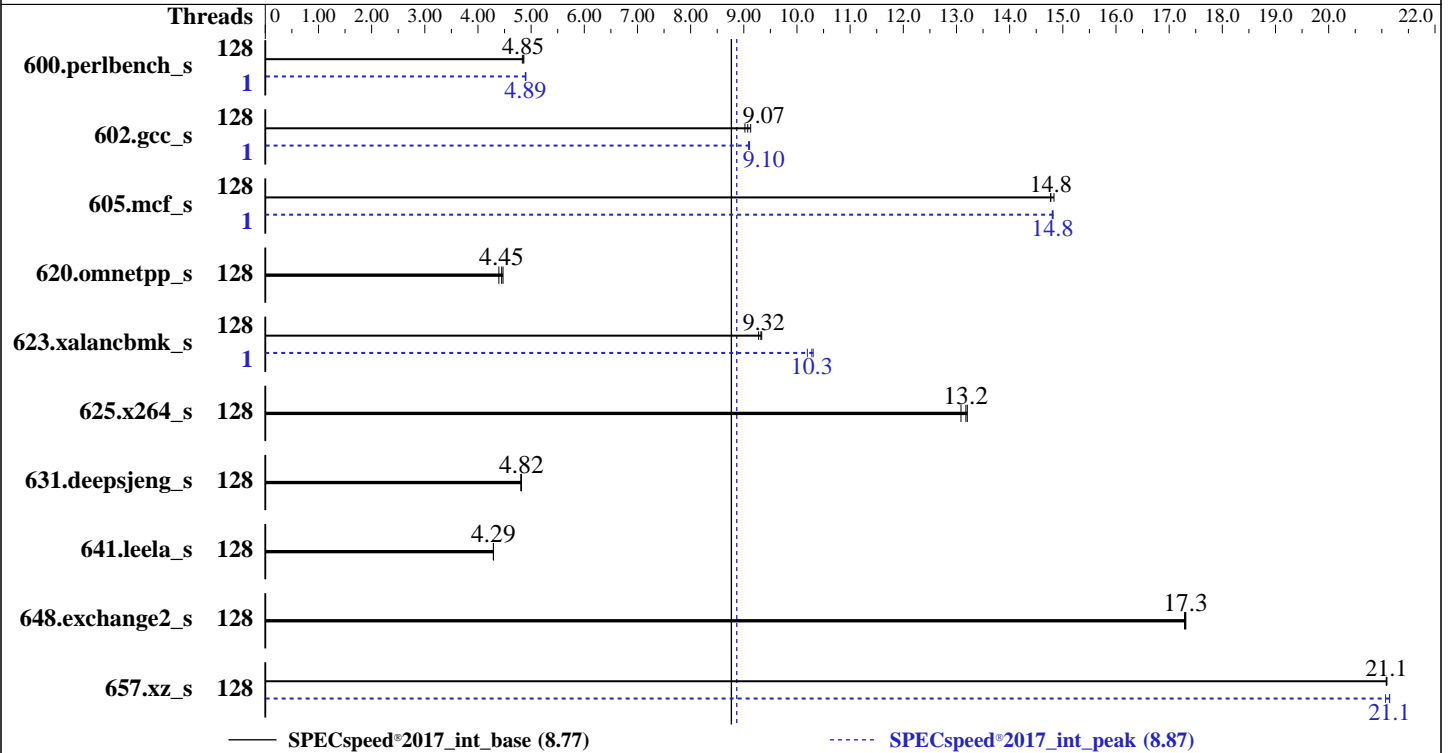
Test Date: Oct-2022

Test Sponsor: Cisco Systems

Hardware Availability: Aug-2021

Tested by: Cisco Systems

Software Availability: Dec-2021



### Hardware

CPU Name: AMD EPYC 7662  
 Max MHz: 3300  
 Nominal: 2000  
 Enabled: 128 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 shared / 4 cores  
 Other: None  
 Memory: 2 TB (16 x 128 GB 4Rx4 PC4-3200AA-L)  
 Storage: 1 x 960 GB M.2 SSD SATA  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP2 (x86\_64)  
 kernel version 5.3.18-22-default  
 Compiler: C/C++/Fortran: Version 3.2.0 of AOCC  
 Parallel: Yes  
 Firmware: Version 4.2.2b released May-2022  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc: jemalloc memory allocator library v5.1.0  
 Power Management: BIOS and OS 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	128	365	4.86	367	4.83	<b>366</b>	<b>4.85</b>	1	362	4.90	<b>363</b>	<b>4.89</b>	363	4.89
602.gcc_s	128	<b>439</b>	<b>9.07</b>	436	9.13	441	9.02	1	<b>438</b>	<b>9.10</b>	438	9.09	437	9.11
605.mcf_s	128	318	14.8	320	14.8	<b>320</b>	<b>14.8</b>	1	319	14.8	<b>319</b>	<b>14.8</b>	319	14.8
620.omnetpp_s	128	365	4.47	<b>367</b>	<b>4.45</b>	371	4.39	128	365	4.47	<b>367</b>	<b>4.45</b>	371	4.39
623.xalancbmk_s	128	153	9.28	152	9.34	<b>152</b>	<b>9.32</b>	1	138	10.3	139	10.2	<b>138</b>	<b>10.3</b>
625.x264_s	128	134	13.2	135	13.1	<b>134</b>	<b>13.2</b>	128	134	13.2	135	13.1	<b>134</b>	<b>13.2</b>
631.deepsjeng_s	128	297	4.82	<b>297</b>	<b>4.82</b>	298	4.81	128	297	4.82	<b>297</b>	<b>4.82</b>	298	4.81
641.leela_s	128	397	4.29	398	4.29	<b>398</b>	<b>4.29</b>	128	397	4.29	398	4.29	<b>398</b>	<b>4.29</b>
648.exchange2_s	128	<b>170</b>	<b>17.3</b>	170	17.3	170	17.3	128	<b>170</b>	<b>17.3</b>	170	17.3	170	17.3
657.xz_s	128	293	21.1	293	21.1	<b>293</b>	<b>21.1</b>	128	293	21.1	292	21.1	<b>292</b>	<b>21.1</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 limit  
'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>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty\_ratio=8' run as root.  
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.  
To free node-local memory and avoid remote memory usage,  
'sysctl -w vm.zone\_reclaim\_mode=1' run as root.  
To clear filesystem caches, 'sync; sysctl -w vm.drop\_caches=3' run as root.  
To disable address space layout randomization (ASLR) to reduce run-to-run variability, 'sysctl -w kernel.randomize\_va\_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,

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## Operating System Notes (Continued)

```
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:  
GOMP_CPU_AFFINITY = "0-127"  
LD_LIBRARY_PATH =  
    "/home/cpu2017/amd_speed_aocc320_milanx_A_lib/lib;/home/cpu2017/amd_spee  
    d_aocc320_milanx_A_lib/lib32:"  
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"  
MALLOC_CONF = "retain:true"  
OMP_DYNAMIC = "false"  
OMP_SCHEDULE = "static"  
OMP_STACKSIZE = "128M"  
OMP_THREAD_LIMIT = "128"
```

```
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"
```

```
Environment variables set by runcpu during the 657.xz_s peak run:  
GOMP_CPU_AFFINITY = "0-127"  
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
```

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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.

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## General Notes (Continued)

jemalloc: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)  
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 Configuration

SMT Mode set to Disabled  
NUMA nodes per socket set to NPS1  
ACPI SRAT L3 Cache As NUMA Domain set to Enabled  
DRAM Scrub Time set to Disabled  
Determinism Slider set to Power  
L1 Stream HW Prefetcher set to Enabled  
APBDIS set to 1

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on localhost Fri Oct 7 08:40:19 2022

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 7662 64-Core Processor
 2 "physical id"s (chips)
128 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following
excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 64
siblings  : 64
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63
```

### From lscpu from util-linux 2.33.1:

```
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): 128
On-line CPU(s) list: 0-127
```

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### Platform Notes (Continued)

```

Thread(s) per core: 1
Core(s) per socket: 64
Socket(s): 2
NUMA node(s): 32
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7662 64-Core Processor
Stepping: 0
CPU MHz: 1664.615
CPU max MHz: 2000.0000
CPU min MHz: 1500.0000
BogoMIPS: 3992.42
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0-3
NUMA node1 CPU(s): 4-7
NUMA node2 CPU(s): 8-11
NUMA node3 CPU(s): 12-15
NUMA node4 CPU(s): 16-19
NUMA node5 CPU(s): 20-23
NUMA node6 CPU(s): 24-27
NUMA node7 CPU(s): 28-31
NUMA node8 CPU(s): 32-35
NUMA node9 CPU(s): 36-39
NUMA node10 CPU(s): 40-43
NUMA node11 CPU(s): 44-47
NUMA node12 CPU(s): 48-51
NUMA node13 CPU(s): 52-55
NUMA node14 CPU(s): 56-59
NUMA node15 CPU(s): 60-63
NUMA node16 CPU(s): 64-67
NUMA node17 CPU(s): 68-71
NUMA node18 CPU(s): 72-75
NUMA node19 CPU(s): 76-79
NUMA node20 CPU(s): 80-83
NUMA node21 CPU(s): 84-87
NUMA node22 CPU(s): 88-91
NUMA node23 CPU(s): 92-95
NUMA node24 CPU(s): 96-99
NUMA node25 CPU(s): 100-103
NUMA node26 CPU(s): 104-107
NUMA node27 CPU(s): 108-111
NUMA node28 CPU(s): 112-115

```

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### Platform Notes (Continued)

NUMA node29 CPU(s): 116-119

NUMA node30 CPU(s): 120-123

NUMA node31 CPU(s): 124-127

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 aperfmperf pni pclmulqdq monitor ssse3 fma cx16 sse4\_1 sse4\_2 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\_llc mwaitx cpb cat\_l3 cdp\_l3 hw\_pstate sme ssbd mba sev ibrs ibpb stibp vmmcall fsgsbase bml 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 wbnoinvd 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 1 2 3
node 0 size: 64325 MB
node 0 free: 64243 MB
node 1 cpus: 4 5 6 7
node 1 size: 64510 MB
node 1 free: 64389 MB
node 2 cpus: 8 9 10 11
node 2 size: 64510 MB
node 2 free: 64431 MB
node 3 cpus: 12 13 14 15
node 3 size: 64510 MB
node 3 free: 64449 MB
node 4 cpus: 16 17 18 19
node 4 size: 64477 MB
node 4 free: 64376 MB
node 5 cpus: 20 21 22 23
node 5 size: 64510 MB
node 5 free: 64449 MB
node 6 cpus: 24 25 26 27
node 6 size: 64510 MB
node 6 free: 64365 MB
node 7 cpus: 28 29 30 31
node 7 size: 64510 MB
node 7 free: 64457 MB
node 8 cpus: 32 33 34 35
```

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### Platform Notes (Continued)

```

node 8 size: 64510 MB
node 8 free: 64456 MB
node 9 cpus: 36 37 38 39
node 9 size: 64510 MB
node 9 free: 64465 MB
node 10 cpus: 40 41 42 43
node 10 size: 64510 MB
node 10 free: 64463 MB
node 11 cpus: 44 45 46 47
node 11 size: 64510 MB
node 11 free: 64464 MB
node 12 cpus: 48 49 50 51
node 12 size: 64510 MB
node 12 free: 64466 MB
node 13 cpus: 52 53 54 55
node 13 size: 64510 MB
node 13 free: 64465 MB
node 14 cpus: 56 57 58 59
node 14 size: 64510 MB
node 14 free: 64465 MB
node 15 cpus: 60 61 62 63
node 15 size: 52398 MB
node 15 free: 52353 MB
node 16 cpus: 64 65 66 67
node 16 size: 64510 MB
node 16 free: 64462 MB
node 17 cpus: 68 69 70 71
node 17 size: 64510 MB
node 17 free: 64462 MB
node 18 cpus: 72 73 74 75
node 18 size: 64510 MB
node 18 free: 64459 MB
node 19 cpus: 76 77 78 79
node 19 size: 64510 MB
node 19 free: 64465 MB
node 20 cpus: 80 81 82 83
node 20 size: 64510 MB
node 20 free: 64465 MB
node 21 cpus: 84 85 86 87
node 21 size: 64510 MB
node 21 free: 64465 MB
node 22 cpus: 88 89 90 91
node 22 size: 64510 MB
node 22 free: 64466 MB
node 23 cpus: 92 93 94 95
node 23 size: 64510 MB
node 23 free: 64465 MB

```

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```

node 24 cpus: 96 97 98 99
node 24 size: 64510 MB
node 24 free: 64443 MB
node 25 cpus: 100 101 102 103
node 25 size: 64510 MB
node 25 free: 64461 MB
node 26 cpus: 104 105 106 107
node 26 size: 64510 MB
node 26 free: 64362 MB
node 27 cpus: 108 109 110 111
node 27 size: 64510 MB
node 27 free: 64457 MB
node 28 cpus: 112 113 114 115
node 28 size: 64510 MB
node 28 free: 64460 MB
node 29 cpus: 116 117 118 119
node 29 size: 64510 MB
node 29 free: 64412 MB
node 30 cpus: 120 121 122 123
node 30 size: 64510 MB
node 30 free: 64464 MB
node 31 cpus: 124 125 126 127
node 31 size: 64505 MB
node 31 free: 64458 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 11 11 11 11 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
1: 11 10 11 11 11 11 11 11 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
2: 11 11 10 11 11 11 11 11 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
3: 11 11 11 10 11 11 11 11 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
4: 11 11 11 11 10 11 11 11 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
5: 11 11 11 11 11 10 11 11 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
6: 11 11 11 11 11 11 10 11 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
7: 11 11 11 11 11 11 11 10 11 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
8: 11 11 11 11 11 11 11 11 10 11 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32 32
9: 11 11 11 11 11 11 11 11 11 10 11 11 11 11 11 11 32 32 32 32
32 32 32 32 32 32 32 32 32 32 32 32

```

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### Platform Notes (Continued)

```

10:  11  11  11  11  11  11  11  11  11  11  11  10  11  11  11  11  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32  32
11:  11  11  11  11  11  11  11  11  11  11  11  11  10  11  11  11  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32  32
12:  11  11  11  11  11  11  11  11  11  11  11  11  11  10  11  11  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32  32
13:  11  11  11  11  11  11  11  11  11  11  11  11  11  11  10  11  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32  32
14:  11  11  11  11  11  11  11  11  11  11  11  11  11  11  11  10  11  32  32  32  32
32  32  32  32  32  32  32  32  32  32  32  32  32
15:  11  11  11  11  11  11  11  11  11  11  11  11  11  11  11  10  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
11  11  11  11  11  11  11  11  11  11  11  11  11
17:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  10  11  11
11  11  11  11  11  11  11  11  11  11  11  11  11
18:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  10  11
11  11  11  11  11  11  11  11  11  11  11  11  11
19:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  10
11  11  11  11  11  11  11  11  11  11  11  11  11
20:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
10  11  11  11  11  11  11  11  11  11  11  11  11
21:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  10  11  11  11  11  11  11  11  11  11  11  11
22:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  10  11  11  11  11  11  11  11  11  11  11
23:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  10  11  11  11  11  11  11  11  11  11
24:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  10  11  11  11  11  11  11  11  11
25:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  11  10  11  11  11  11  11  11  11
26:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  11  11  10  11  11  11  11  11  11
27:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  11  11  11  10  11  11  11  11  11
28:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  11  11  11  11  10  11  11  11  11
29:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  11  11  11  11  11  10  11  11  11
30:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  11  11  11  11  11  11  10  11  11
31:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  11
11  11  11  11  11  11  11  11  11  11  11  10  11

```

From /proc/meminfo  
MemTotal: 2101254440 kB

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# SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017\_int\_base = 8.77

## Cisco UCS C225 M6 (AMD EPYC 7662)

SPECspeed®2017\_int\_peak = 8.87

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2022

Hardware Availability: Aug-2021

Software Availability: Dec-2021

### Platform Notes (Continued)

HugePages\_Total: 0  
Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu\*/cpufreq/scaling\_governor has performance

From /etc/\*release\* /etc/\*version\*  
os-release:

```
NAME="SLES"
VERSION="15-SP2"
VERSION_ID="15.2"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp2"
```

uname -a:

```
Linux localhost 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba) x86_64
x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):	Not affected
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: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):	Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

run-level 3 Apr 17 06:12

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfs	223G	11G	213G	5%	/

From /sys/devices/virtual/dmi/id  
Vendor: Cisco Systems Inc

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**Tested by:** Cisco Systems

**Test Date:** Oct-2022

**Hardware Availability:** Aug-2021

**Software Availability:** Dec-2021

### Platform Notes (Continued)

Product: UCSC-C225-M6S  
Serial: WZP252408JE

Additional information from dmidecode 3.2 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 0xCE00 M386AAG40AM3-CWE 128 GB 4 rank 3200  
16x Unknown Unknown

BIOS:  
BIOS Vendor: Cisco Systems, Inc.  
BIOS Version: C225M6.4.2.2b.0.0509222122  
BIOS Date: 05/09/2022  
BIOS Revision: 5.14

(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)  
=====

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin  
=====

=====  
C++ | 620.omnetpp\_s(base, peak) 623.xalancbmk\_s(base, peak)  
| 631.deepsjeng\_s(base, peak) 641.leela\_s(base, peak)  
=====

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin  
=====

=====  
Fortran | 648.exchange2\_s(base, peak)  
=====

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SPECspeed®2017\_int\_peak = 8.87

CPU2017 License: 9019

Test Date: Oct-2022

Test Sponsor: Cisco Systems

Hardware Availability: Aug-2021

Tested by: Cisco Systems

Software Availability: Dec-2021

## Compiler Version Notes (Continued)

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc-compiler-3.2.0/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

657.xz\_s: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-m64 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp

-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize

-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3

-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=5

-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000

-fremap-arrays -mllvm -function-specialize -flv-function-specialization

(Continued on next page)



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CPU2017 License: 9019

Test Date: Oct-2022

Test Sponsor: Cisco Systems

Hardware Availability: Aug-2021

Tested by: Cisco Systems

Software Availability: Dec-2021

## Base Optimization Flags (Continued)

C benchmarks (continued):

```
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

C++ benchmarks:

```
-m64 -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100
-inline-aggressive -flv-function-specialization
-mllvm -loop-unswitch-threshold=200000 -mllvm -reroll-loops
-mllvm -aggressive-loop-unswitch -mllvm -extra-vectorizer-passes
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp=true
-mllvm -convert-pow-exp-to-int=false -z muldefs
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -z muldefs
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

## Base Other Flags

C benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

C++ benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

Fortran benchmarks:

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



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CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2022

Hardware Availability: Aug-2021

Software Availability: Dec-2021

## Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=5 -mllvm -unroll-threshold=50
-freemap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

602.gcc\_s: Same as 600.perlbench\_s

605.mcf\_s: Same as 600.perlbench\_s

625.x264\_s: basepeak = yes

```
657.xz_s: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-do-block-reorder=aggressive
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
```

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CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2022

Hardware Availability: Aug-2021

Software Availability: Dec-2021

## Peak Optimization Flags (Continued)

657.xz\_s (continued):

```
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=5 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays
-mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -do-block-reorder=aggressive -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

```
623.xalancbmk_s: -m64 -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang
```

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes

## Peak Other Flags

C benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

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Test Date: Oct-2022

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## Peak Other Flags (Continued)

C++ benchmarks:

-Wno-unused-command-line-argument -Wno-return-type

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/aocc320-flags-A1.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v2-revD.html>

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

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v2-revD.xml>

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