## SPEC CPU®2017 Integer Speed Result

**Cisco Systems**

Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td><strong>SPECspeed®2017_int_base</strong></td>
<td><strong>13.6</strong></td>
</tr>
<tr>
<td><strong>SPECspeed®2017_int_peak</strong></td>
<td><strong>13.6</strong></td>
</tr>
</tbody>
</table>

| Test Date:       | Sep-2021 |
| Hardware Availability: | Jun-2021 |
| Software Availability: | Jun-2021 |

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>64</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>64</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>64</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>64</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>64</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base (13.6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak (13.6)</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 75F3
- **Max MHz:** 4000
- **Nominal:** 2950
- **Enabled:** 64 cores, 2 chips
- **Orderable:** 1.2 chips
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **Cache L2:** 512 KB I+D on chip per core
- **Cache L3:** 256 MB I+D on chip per chip, 32 MB shared / 4 cores
- **Other:** None
- **Memory:** 2 TB (16 x 128 GB 4Rx4 PC4-3200V-L)
- **Storage:** 1 x 1.6 TB NVMe SSD
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 SP3 (x86_64) kernel version 5.3.18-57-default
- **Compiler:** C/C++/Fortran: Version 3.0.0 of AOCC
- **Parallel:** Yes
- **Firmware:** Version C225M6.4.2.1c released Sep-2021
- **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
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

Test Date: Sep-2021
Hardware Availability: Jun-2021
Software Availability: Jun-2021

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>64</td>
<td>221</td>
<td>8.02</td>
<td>222</td>
<td>8.00</td>
<td>224</td>
<td>7.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>273</td>
<td>14.6</td>
<td>274</td>
<td>14.5</td>
<td>274</td>
<td>14.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>210</td>
<td>22.4</td>
<td>212</td>
<td>22.3</td>
<td>211</td>
<td>22.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>183</td>
<td>8.91</td>
<td>182</td>
<td>8.97</td>
<td>181</td>
<td>8.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>64</td>
<td>90.9</td>
<td>15.6</td>
<td>94.1</td>
<td>15.1</td>
<td>90.6</td>
<td>15.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
<td>94.0</td>
<td>18.8</td>
<td>94.3</td>
<td>18.7</td>
<td>94.2</td>
<td>18.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td>209</td>
<td>6.85</td>
<td>208</td>
<td>6.89</td>
<td>209</td>
<td>6.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>64</td>
<td>268</td>
<td>6.37</td>
<td>271</td>
<td>6.30</td>
<td>268</td>
<td>6.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td>115</td>
<td>25.7</td>
<td>115</td>
<td>25.6</td>
<td>115</td>
<td>25.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>64</td>
<td>221</td>
<td>27.9</td>
<td>221</td>
<td>28.0</td>
<td>221</td>
<td>27.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 numacll i.e.:
numactl --interleave=all runcpu <etc>
'echo 8 > /proc/sys/vm/dirty_ratio' run as root to limit dirty cache to 8% of memory.
'echo 1 > /proc/sys/vm/swappiness' run as root to limit swap usage to minimum necessary.
'echo 1 > /proc/sys/vm/zone_reclaim_mode' run as root to free node-local memory and avoid remote memory usage.
'sync; echo 3 > /proc/sys/vm/drop_caches' run as root to reset filesystem caches.
'sysctl -w kernel.randomize_va_space=0' run as root to disable address space layout randomization (ASLR) to reduce run-to-run variability.
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root for peak

(Continued on next page)
 SPEC CPU®2017 Integer Speed Result

Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>9019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>Tested by</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>SPECspeed®2017_int_base</td>
<td>13.6</td>
</tr>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>13.6</td>
</tr>
</tbody>
</table>

Test Date: Sep-2021
Hardware Availability: Jun-2021
Software Availability: Jun-2021

Operating System Notes (Continued)

integer runs and all FP runs to enable Transparent Hugepages (THP).

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_aocc300_milan_B_lib/lib;/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib32:" 
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"

Environment variables set by runcpu during the 602.gcc_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 625.x264_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 641.leela_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-63"

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.

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
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

SPEC®2017_int_base = 13.6
SPECspeed®2017_int_peak = 13.6

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

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 Thu Sep 23 11:31:58 2021

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 75F3 32-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 : 32
siblings : 32
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
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

From lscpu from util-linux 2.36.2:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 48 bits physical, 48 bits virtual
CPU(s): 64
On-line CPU(s) list: 0-63
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s): 2
NUMA node(s): 16
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 75F3 32-Core Processor
Stepping: 1

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

Test Date: Sep-2021
Hardware Availability: Jun-2021
Software Availability: Jun-2021

spec

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 13.6
SPECspeed®2017_int_peak = 13.6

Platform Notes (Continued)

Frequency boost: enabled
CPU MHz: 1445.058
CPU max MHz: 2950.0000
CPU min MHz: 1500.0000
BogoMIPS: 5889.45
Virtualization: AMD-V
L1d cache: 2 MiB
L1i cache: 2 MiB
L2 cache: 32 MiB
L3 cache: 512 MiB
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
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitation
Vulnerability Spectre v2: Mitigation; Full AMD retpoline, IBFB conditional, IBRS_FW, STIBP disabled, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected
Flags: fpu vm 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 rdscop lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid
aperfmperf pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes
xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a
misalignsse 3dnopprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb
bptext perfctr llc mwaitx cpb cat_13 cdp_13 invpcid_single hw_pstate ssbd mba ibrs
ibpb stibp vmcall fsqsnbase bm11 avx2 smep bmi2 erms invpcid cqm rdt_a rdsseed adx
smash clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

<table>
<thead>
<tr>
<th>CPU2017 License: 9019</th>
<th>CPU2017 License: 9019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Date: Sep-2021</td>
<td>Test Date: Sep-2021</td>
</tr>
<tr>
<td>Hardware Availability: Jun-2021</td>
<td>Hardware Availability: Jun-2021</td>
</tr>
<tr>
<td>Test Sponsor: Cisco Systems</td>
<td>Test Sponsor: Cisco Systems</td>
</tr>
<tr>
<td>Tested by: Cisco Systems</td>
<td>Tested by: Cisco Systems</td>
</tr>
<tr>
<td>Software Availability: Jun-2021</td>
<td>Software Availability: Jun-2021</td>
</tr>
</tbody>
</table>

Platform Notes (Continued)
cqm_mbm_total cqm_mbm_local clzero irperf xsavererptr wbnoinvd amd_ppin arat npt lbrv
svm_lock nrip_save tsc_scale vmcb_clean flushyasid decodeassists pausefilter
pfthreshold v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_recov
succor smca fsrm

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d  32K  2M    8 Data 1   64   1    64
L1i  32K  2M    8 Instruction 1  64    1    64
L2  512K 32M    8 Unified 2 1024    1    64
L3  32M  512M   16 Unified 3 32768    1    64

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 16 nodes (0-15)
node 0 cpus: 0 1 2 3
node 0 size: 128838 MB
node 0 free: 128669 MB
node 1 cpus: 4 5 6 7
node 1 size: 129022 MB
node 1 free: 128931 MB
node 2 cpus: 8 9 10 11
node 2 size: 129022 MB
node 2 free: 128799 MB
node 3 cpus: 12 13 14 15
node 3 size: 129018 MB
node 3 free: 128937 MB
node 4 cpus: 16 17 18 19
node 4 size: 129022 MB
node 4 free: 128944 MB
node 5 cpus: 20 21 22 23
node 5 size: 129022 MB
node 5 free: 128939 MB
node 6 cpus: 24 25 26 27
node 6 size: 129022 MB
node 6 free: 128947 MB
node 7 cpus: 28 29 30 31
node 7 size: 129008 MB
node 7 free: 128940 MB
node 8 cpus: 32 33 34 35
node 8 size: 129022 MB
node 8 free: 128878 MB
node 9 cpus: 36 37 38 39
node 9 size: 128988 MB

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

SPEC CPU®2017 Integer Speed Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 13.6
SPECspeed®2017_int_peak = 13.6

Platform Notes (Continued)

node 9 free: 128913 MB
node 10 cpus: 40 41 42 43
node 10 size: 129022 MB
node 10 free: 128954 MB
node 11 cpus: 44 45 46 47
node 11 size: 129020 MB
node 11 free: 128951 MB
node 12 cpus: 48 49 50 51
node 12 size: 129022 MB
node 12 free: 128739 MB
node 13 cpus: 52 53 54 55
node 13 size: 129022 MB
node 13 free: 128939 MB
node 14 cpus: 56 57 58 59
node 14 size: 129022 MB
node 14 free: 128940 MB
node 15 cpus: 60 61 62 63
node 15 size: 129019 MB
node 15 free: 128947 MB

node distances:
node 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
0: 10 11 11 11 12 12 12 12 32 32 32 32 32 32 32 32
1: 11 10 11 11 12 12 12 12 32 32 32 32 32 32 32 32
2: 11 11 10 11 12 12 12 12 32 32 32 32 32 32 32 32
3: 11 11 11 10 12 12 12 12 32 32 32 32 32 32 32 32
4: 12 12 12 12 10 11 11 11 32 32 32 32 32 32 32 32
5: 12 12 12 12 11 10 11 11 32 32 32 32 32 32 32 32
6: 12 12 12 12 11 11 10 11 32 32 32 32 32 32 32 32
7: 12 12 12 12 11 11 11 10 32 32 32 32 32 32 32 32
8: 32 32 32 32 32 32 32 32 10 11 11 11 11 12 12 12
9: 32 32 32 32 32 32 32 32 11 10 11 11 12 12 12 12
10: 32 32 32 32 32 32 32 32 11 10 11 11 12 12 12 12
11: 32 32 32 32 32 32 32 32 11 11 11 10 12 12 12 12
12: 32 32 32 32 32 32 32 32 12 12 12 12 10 11 11 11
13: 32 32 32 32 32 32 32 32 12 12 12 12 11 10 11 11
14: 32 32 32 32 32 32 32 32 12 12 12 12 11 11 10 11
15: 32 32 32 32 32 32 32 32 12 12 12 12 11 11 11 10

From /proc/meminfo
MemTotal: 2113660312 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has ondemand

From /etc/*release*/etc/*version*

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

SPECspeed®2017_int_base = 13.6
SPECspeed®2017_int_peak = 13.6

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Test Date: Sep-2021
Tested by: Cisco Systems
Hardware Availability: Jun-2021
Software Availability: Jun-2021

Platform Notes (Continued)

os-release:
NAME="SLES"
VERSION="15-SP3"
VERSION_ID="15.3"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp3"

uname -a:
Linux localhost 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021 (ba3c2e9) 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):
Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass):
Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5753 (Spectre variant 1):
Mitigation: Full AMD retropoline, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling
CVE-2017-5715 (Spectre variant 2):
Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling):
Not affected
CVE-2019-11135 (TSX Asynchronous Abort):
Not affected

run-level 3 Sep 23 11:17

SPEC is set to: /home/cpu2017

From /sys/devices/virtual/dmi/id
Vendor: Cisco Systems Inc
Product: UCS-C225-M6N
Serial: WZP25230TMY

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.

(Continued on next page)
## SPEC CPU®2017 Integer Speed Result

**Cisco Systems**  
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.6</td>
<td>13.6</td>
</tr>
</tbody>
</table>

- **CPU2017 License:** 9019  
- **Test Sponsor:** Cisco Systems  
- **Tested by:** Cisco Systems  
- **Test Date:** Sep-2021  
- **Hardware Availability:** Jun-2021  
- **Software Availability:** Jun-2021

### Platform Notes (Continued)

Memory:  
16x 0xCE00 M386AAG40AM3-CWE 128 GB 4 rank 3200

BIOS:  
- **BIOS Vendor:** Cisco Systems, Inc.  
- **BIOS Version:** C225M6.4.2.1c.0.0806211349  
- **BIOS Date:** 08/06/2021  
- **BIOS Revision:** 5.22

(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 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/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 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
```

```
==============================================================================
Fortran | 648.exchange2_s(base, peak)
==============================================================================
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
```
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

SPECspeed®2017_int_base = 13.6
SPECspeed®2017_int_peak = 13.6

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 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-lcvm-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 -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-lcvm-vrp -mllvm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-llflang -llflangrti

C++ benchmarks:
-m64 -std=c++98 -mno-adx -mno-sse4a
-Wl,-mllvm -Wl,-do-block-reorder=aggressive
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

| SPECspeed®2017_int_base = 13.6 |
| SPECspeed®2017_int_peak = 13.6 |

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Test Date: Sep-2021
Hardware Availability: Jun-2021
Tested by: Cisco Systems
Software Availability: Jun-2021

### Base Optimization Flags (Continued)

C++ benchmarks (continued):
- `-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3`
- `-fveclib=AMDLIBM -ffast-math -flto -mllvm -enable-partial-unswitch`
- `-mllvm -unroll-threshold=100 -finline-aggressive`
- `-mllvm -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 -mllvm -do-block-reorder=aggressive`
- `-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP`
- `-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang`
- `-lflangrti`

Fortran benchmarks:
- `-m64 -mno-adx -mno-sse4a -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 -flto -z muldefs`
- `-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP`
- `-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang`
- `-lflangrti`

### 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`

### Peak Compiler Invocation

C benchmarks:
- `clang`

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)

SPEC CPU®2017 Integer Speed Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

| SPECspeed®2017_int_base = 13.6 |
| SPECspeed®2017_int_peak = 13.6 |

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

Test Date: Sep-2021
Hardware Availability: Jun-2021
Software Availability: Jun-2021

Peak Compiler Invocation (Continued)

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

600.perlbench_s: basepeak = yes

602.gcc_s: -m64 -mno-adx -mno-sse4a -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 -flto
-fstruct-layout=5 -mllvm -unroll-threshold=50
-fremap-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
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

605.mcf_s: basepeak = yes

625.x264_s: Same as 602.gcc_s

657.xz_s: Same as 602.gcc_s

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalanckmk_s: basepeak = yes

(Continued on next page)
PetarOptimization Flags (Continued)

631.deepsjeng_s: basepeak = yes

641.leela_s: -m64 -std=c++98 -mno-adx -mno-sse4a
-WI,-mllvm -Wl,-do-block-reorder=aggressive
-WI,-mllvm -Wl,-function-specialize
-WI,-mllvm -Wl,-align-all-nofallback-blocks=6
-WI,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-finline-aggressive -mllvm -unroll-threshold=100
-fly-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 -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak 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

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


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

## SPEC CPU®2017 Integer Speed Result

Cisco Systems  
Cisco UCS C225 M6 (AMD EPYC 75F3 32-Core Processor)  

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>13.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>13.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>9019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>Tested by</td>
<td>Cisco Systems</td>
</tr>
<tr>
<td>Test Date</td>
<td>Sep-2021</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Jun-2021</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Jun-2021</td>
</tr>
</tbody>
</table>

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.8 on 2021-09-23 14:31:58-0400.
Report generated on 2021-10-25 17:06:56 by CPU2017 PDF formatter v6442.
Originally published on 2021-10-25.