## SPEC CPU®2017 Integer Speed Result

**Cisco Systems**

Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>112</td>
<td>2.01</td>
<td>7.03</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>112</td>
<td>12.9</td>
<td>20.0</td>
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<tr>
<td>605.mcf_s</td>
<td>112</td>
<td>12.9</td>
<td>20.0</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>112</td>
<td>8.27</td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>112</td>
<td>13.6</td>
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<tr>
<td>625.x264_s</td>
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<td>6.21</td>
<td>16.5</td>
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<tr>
<td>631.deepsjeng_s</td>
<td>112</td>
<td>5.57</td>
<td>22.5</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>112</td>
<td></td>
<td>22.5</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>657.xz_s</td>
<td>112</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- CPU Name: AMD EPYC 7663
- Max MHz: 3500
- Nominal: 2000
- Enabled: 112 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, 32 MB shared / 7 cores
- Other: None
- Memory: 2 TB (16 x 128 GB 4Rx4 PC4-3200V-L)
- Storage: 1 x 960 GB M.2 SSD SATA
- 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 memory allocator library v5.1.0
- Power Management: BIOS and OS set to prefer performance at the cost of additional power usage
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>131</td>
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<td>1</td>
<td>131</td>
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<td>24.9</td>
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<td>25.0</td>
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</table>

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### Compiler Notes

The AMD64 AOCC Compiler Suite is available at http://developer.amd.com/amd-aocc/

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### 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 numaclt i.e.: numaclt --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

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Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor)

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 = "0-111"
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 = "16G"
OMP_THREAD_LIMIT = "112"

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 625.x264_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 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
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| SPECspeed®2017_int_base | 12.1 |
| SPECspeed®2017_int_peak | 12.1 |

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 982a61ec0915b55891ef0e16aaca64d
running on localhost Mon Sep 27 06:53:51 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 7663 56-Core Processor
  2 "physical id"s (chips)
  112 "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 : 56
siblings : 56
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30 32 33 34 35 36 37 38 40 41 42 43 44 45 46 48 49 50 51 52 53 54 56 57 58 59 60 61 62
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30 32 33 34 35 36 37 38 40 41 42 43 44 45 46 48 49 50 51 52 53 54 56 57 58 59 60 61 62

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): 112
On-line CPU(s) list: 0-111
Thread(s) per core: 1
Core(s) per socket: 56
Socket(s): 2
NUMA node(s): 16
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1

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Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor)

SPECspeed®2017_int_base = 12.1
SPECspeed®2017_int_peak = 12.1

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)

Model name: AMD EPYC 7663 56-Core Processor
Stepping: 1
Frequency boost: enabled
CPU MHz: 1448.634
CPU max MHz: 2000.0000
CPU min MHz: 1500.0000
BogoMIPS: 3992.57
Virtualization: AMD-V
L1d cache: 3.5 MiB
L1i cache: 3.5 MiB
L2 cache: 56 MiB
L3 cache: 512 MiB
NUMA node0 CPU(s): 0-6
NUMA node1 CPU(s): 7-13
NUMA node2 CPU(s): 14-20
NUMA node3 CPU(s): 21-27
NUMA node4 CPU(s): 28-34
NUMA node5 CPU(s): 35-41
NUMA node6 CPU(s): 42-48
NUMA node7 CPU(s): 49-55
NUMA node8 CPU(s): 56-62
NUMA node9 CPU(s): 63-69
NUMA node10 CPU(s): 70-76
NUMA node11 CPU(s): 77-83
NUMA node12 CPU(s): 84-90
NUMA node13 CPU(s): 91-97
NUMA node14 CPU(s): 98-104
NUMA node15 CPU(s): 105-111
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 sanitization
Vulnerability Spectre v2: Mitigation; Full AMD retpoline, IBFB conditional, IBRS_FW, STIBP disabled, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Txsv sync abort: Not affected
Flags: fpu vmx 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 pdelpub rdscnp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmpref perf mcmulqdgq monitor ssse3 fma cx16 pcmic sse4_1 sse4_2 movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8 Legacy abm sse4a misalignsse 3dnowprefetch oswv ubs skinit wdt tce topoext perfctr_core perfctr_nb bexit perfctr_lcc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor)

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

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**Platform Notes (Continued)**

```
ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a rdseed adx
smap clflushopt clwb sha ni xsaveopt xsave xgetbv1 xsaves cqmllc cqmoocup llc

cqm_mbb_total cqm_mbb_local clzero irperf xsaverptr wbrnoinvd amd_ppin arat npt
lbv

smv_lock nrip_save tsc_scale vmbc_clean flushbyasid decodeassists pausefilter
pfthreshold v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overlap_recov
succor smca fsm
```

From `lscpu --cache`:
```
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 32K 3.5M 8 Data 1 64 1 64
L1i 32K 3.5M 8 Instruction 1 64 1 64
L2 512K 56M 8 Unified 2 1024 1 64
L3 32M 512M 16 Unified 3 32768 1 64
```

```
/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: 16 nodes (0-15)

node 0 cpus: 0 1 2 3 4 5 6
node 0 size: 128836 MB
node 0 free: 128643 MB
node 1 cpus: 7 8 9 10 11 12 13
node 1 size: 129021 MB
node 1 free: 128885 MB
node 2 cpus: 14 15 16 17 18 19 20
node 2 size: 129021 MB
node 2 free: 128885 MB
node 3 cpus: 21 22 23 24 25 26 27
node 3 size: 129021 MB
node 3 free: 128923 MB
node 4 cpus: 28 29 30 31 32 33 34
node 4 size: 129021 MB
node 4 free: 128869 MB
node 5 cpus: 35 36 37 38 39 40 41
node 5 size: 129021 MB
node 5 free: 128922 MB
node 6 cpus: 43 44 45 46 47 48
node 6 size: 129021 MB
node 6 free: 128914 MB
node 7 cpus: 49 50 51 52 53 54 55
node 7 size: 116909 MB
node 7 free: 116822 MB
node 8 cpus: 56 57 58 59 60 61 62
node 8 size: 129021 MB
node 8 free: 128918 MB
```

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Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor)

SPECspeed®2017_int_base = 12.1
SPECspeed®2017_int_peak = 12.1

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

Platform Notes (Continued)

node 9 cpus: 63 64 65 66 67 68 69
node 9 size: 129021 MB
node 9 free: 128894 MB
node 10 cpus: 70 71 72 73 74 75 76
node 10 size: 129021 MB
node 10 free: 128541 MB
node 11 cpus: 77 78 79 80 81 82 83
node 11 size: 129021 MB
node 11 free: 128922 MB
node 12 cpus: 84 85 86 87 88 89 90
node 12 size: 129021 MB
node 12 free: 128835 MB
node 13 cpus: 91 92 93 94 95 96 97
node 13 size: 129021 MB
node 13 free: 128840 MB
node 14 cpus: 98 99 100 101 102 103 104
node 14 size: 128988 MB
node 14 free: 128892 MB
node 15 cpus: 105 106 107 108 109 110 111
node 15 size: 129016 MB
node 15 free: 128858 MB

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

From /proc/meminfo
MemTotal: 2101262068 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

(Continued on next page)
Platform Notes (Continued)

From /etc/*release* /etc/*version*
  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
CVE-2018-3639 (Speculative Store Bypass): Bypass disabled via prctl and
  seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swapgs
  barriers and __user pointer
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline,
  IBFP: 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 Sep 27 06:27

SPEC is set to: /home/cpu2017
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda3 xfs 557G 18G 539G 4% /

From /sys/devices/virtual/dmi/id
  Vendor: Cisco Systems Inc
  Product: UCSC-C225-M6S
  Serial: WZP252309U3

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

SPECspeed®2017_int_base = 12.1
SPECspeed®2017_int_peak = 12.1

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)

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

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
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## SPEC CPU®2017 Integer Speed Result

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Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor)

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

### 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,-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
  - -mllvm -fremap-arrays -mllvm -function-specialize -flv-function-specialization
  - -mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
  - -mllvm -enable-lcim-vrp -mllvm -reduce-array-computations=3 -z muldefs
  - -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
  - -lflang -lflangrti

- **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)
SPEC CPU®2017 Integer Speed Result

Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor) 

SPECspeed®2017_int_base = 12.1
SPECspeed®2017_int_peak = 12.1

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

Test Date: Sep-2021
Hardware Availability: Jun-2021
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`
- `-fllvm-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 -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 -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 7663 56-Core Processor)  

<table>
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<tr>
<td>SPECspeed®2017_int_peak = 12.1</td>
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</tr>
</tbody>
</table>

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

Test Date: Sep-2021
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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:


- 602.gcc_s: Same as 600.perlbench_s
- 605.mcf_s: Same as 600.perlbench_s
- 625.x264_s: Same as 600.perlbench_s
- 657.xz_s: basepeak = yes

C++ benchmarks:

- 620.omnetpp_s: basepeak = yes
- 623.xalancbmk_s: basepeak = yes

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7663 56-Core Processor)

| SPECspeed®2017_int_base = 12.1 |
| SPECspeed®2017_int_peak = 12.1 |

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

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

Peak Optimization Flags (Continued)

631.deepsjeng_s: basepeak = yes
641.leela_s: basepeak = yes

Fortran benchmarks:
- -m64 -mno-adx -mno-sse4a -W1, -mllvm -W1, -inline-recursion=4
- -W1, -mllvm -W1, -isr-in-nested-loop -W1, -mllvm -W1, -enable-iv-split
- -W1, -mllvm -W1, -function-specialize
- -W1, -mllvm -W1, -align-all-nofallthru-blocks=6
- -W1, -mllvm -W1, -reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -mllvm -unroll-aggressive
- -mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
- -lomp -lamdlibm -ljemalloc -lflang

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:

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Tested with SPEC CPU®2017 v1.1.8 on 2021-09-27 09:53:51-0400.
Report generated on 2021-10-25 17:06:56 by CPU2017 PDF formatter v6442.
Originally published on 2021-10-25.