## SPEC CPU®2017 Integer Speed Result

**Cisco Systems**
Cisco UCS C225 M6 (AMD EPYC 7713 64-Core, Processor)

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

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

### Hardware
- **CPU Name:** AMD EPYC 7713  
  - **Max MHz:** 3675  
  - **Nominal:** 2000  
  - **Enabled:** 128 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:** 256 MB I+D on chip per chip, 32 MB shared / 8 cores  
  - **Other:** None  
- **Memory:** 2 TB (16 x 128 GB 4Rx4 PC4-3200V-L)  
- **Storage:** 1 x 1.6 TB 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 4.2.0.271 released Jul-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 set to prefer performance at the cost of additional power usage

### Performance Results

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### Test Setup
| Software |  
|-----------|-------------------------|-------------------------|
| OS:       | SUSE Linux Enterprise Server 15 SP3 (x86_64)  
  - kernel version 5.3.18-57-default  
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| Peak Pointers: | 64-bit  
| Other: | jemalloc: jemalloc memory allocator library v5.1.0  
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<td>605.mcf_s</td>
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<td>648.exchange2_s</td>
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<td>657.xz_s</td>
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Standard Performance Evaluation Corporation (info@spec.org)  
https://www.spec.org/
## Results Table

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## Compiler Notes


## 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 = "0-255"
LD_LIBRARY_PATH = 
"/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib;/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib32:"
MALLOCC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "256"

Environment variables set by runcpu during the 600.perlbench_s peak run:
GOMP_CPU_AFFINITY = "0"

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

Environment variables set by runcpu during the 605.mcf_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 620.omnetpp_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_s peak run:
GOMP_CPU_AFFINITY = "0"

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

Environment variables set by runcpu during the 631.deepsjeng_s peak run:
GOMP_CPU_AFFINITY = "0"

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

Environment variables set by runcpu during the 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

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

Platform Notes
BIOS Configuration
SMT Mode set to Auto
NUMA nodes per socket set to NPS4
ACPI SRAT L3 Cache As NUMA Domain set to Enabled
DRAM Scrub Time set to Disabled
Determinism Slider set to Power
cTDP Control set to Manual
cTDP set to 280
EDC Control set to Manual
EDC set to 300
L2 Stream HW Prefetcher set to Disabled
Memory Interleaving set to Disabled
APBDIS set to 1
xGMI Link config set to 4

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acacfc64d
running on localhost Sun Aug 15 18:54:53 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 7713 64-Core Processor
- 2  "physical id"s (chips)
- 256 "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 : 128

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### Platform Notes (Continued)

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):** 256
- **On-line CPU(s) list:** 0-255
- **Thread(s) per core:** 2
- **Core(s) per socket:** 64
- **Socket(s):** 2
- **NUMA node(s):** 16
- **Vendor ID:** AuthenticAMD
- **CPU family:** 25
- **Model:** 1
- **Model name:** AMD EPYC 7713 64-Core Processor
- **Stepping:** 1
- **Frequency boost:** enabled
- **CPU MHz:** 1792.327
- **CPU max MHz:** 2000.0000
- **CPU min MHz:** 1500.0000
- **BogoMIPS:** 3992.40
- **Virtualization:** AMD-V
- **L1d cache:** 4 MiB
- **L1i cache:** 4 MiB
- **L2 cache:** 64 MiB
- **L3 cache:** 512 MiB
- **NUMA node0 CPU(s):** 0-7,128-135
- **NUMA node1 CPU(s):** 8-15,136-143
- **NUMA node2 CPU(s):** 16-23,144-151
- **NUMA node3 CPU(s):** 24-31,152-159
- **NUMA node4 CPU(s):** 32-39,160-167
- **NUMA node5 CPU(s):** 40-47,168-175
- **NUMA node6 CPU(s):** 48-55,176-183
- **NUMA node7 CPU(s):** 56-63,184-191
- **NUMA node8 CPU(s):** 64-71,192-199
- **NUMA node9 CPU(s):** 72-79,200-207
- **NUMA node10 CPU(s):** 80-87,208-215
- **NUMA node11 CPU(s):** 88-95,216-223
- **NUMA node12 CPU(s):** 96-103,224-231
- **NUMA node13 CPU(s):** 104-111,232-239
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Platform Notes (Continued)

NUMA node14 CPU(s): 112-119,240-247
NUMA node15 CPU(s): 120-127,248-255
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 retpol ine, IBP conditional, IBRS_FW, STIBP always-on, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected
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 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpxe perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbse bml1 avx2 smep bmi2 erms invpcid cq rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsavees cqm llvm shim cr3_const hwcap32_clean flushbyasid decodeaessitize pfthreshold v_vmsave_vmload vgif umip pku ospke vaes vpcmtd dq rdpid overflow_reco

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 32K 4M 8 Data 1 64 1 64
L1i 32K 4M 8 Instruction 1 64 1 64
L2 512K 64M 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 4 5 6 7 128 129 130 131 132 133 134 135
node 0 size: 128832 MB
node 0 free: 128587 MB
node 1 cpus: 8 9 10 11 12 13 14 15 136 137 138 139 140 141 142 143
node 1 size: 129020 MB
node 1 free: 128577 MB

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Platform Notes (Continued)

node 2 cpus: 16 17 18 19 20 21 22 23 144 145 146 147 148 149 150 151
node 2 size: 129020 MB
node 2 free: 128844 MB
node 3 cpus: 24 25 26 27 28 29 30 31 152 153 154 155 156 157 158 159
node 3 size: 129020 MB
node 3 free: 128762 MB
node 4 cpus: 32 33 34 35 36 37 38 39 160 161 162 163 164 165 166 167
node 4 size: 129020 MB
node 4 free: 128748 MB
node 5 cpus: 40 41 42 43 44 45 46 47 168 169 170 171 172 173 174 175
node 5 size: 129020 MB
node 5 free: 128828 MB
node 6 cpus: 48 49 50 51 52 53 54 55 176 177 178 179 180 181 182 183
node 6 size: 129020 MB
node 6 free: 128897 MB
node 7 cpus: 56 57 58 59 60 61 62 63 184 185 186 187 188 189 190 191
node 7 size: 116907 MB
node 7 free: 116715 MB
node 8 cpus: 64 65 66 67 68 69 70 71 192 193 194 195 196 197 198 199
node 8 size: 129020 MB
node 8 free: 128875 MB
node 9 cpus: 72 73 74 75 76 77 78 79 200 201 202 203 204 205 206 207
node 9 size: 129020 MB
node 9 free: 128847 MB
node 10 cpus: 80 81 82 83 84 85 86 87 208 209 210 211 212 213 214 215
node 10 size: 129020 MB
node 10 free: 128861 MB
node 11 cpus: 88 89 90 91 92 93 94 95 216 217 218 219 220 221 222 223
node 11 size: 129020 MB
node 11 free: 128847 MB
node 12 cpus: 96 97 98 99 100 101 102 103 224 225 226 227 228 229 230 231
node 12 size: 128986 MB
node 12 free: 128827 MB
node 13 cpus: 104 105 106 107 108 109 110 111 232 233 234 235 236 237 238 239
node 13 size: 129020 MB
node 13 free: 128777 MB
node 14 cpus: 112 113 114 115 116 117 118 119 240 241 242 243 244 245 246 247
node 14 size: 129020 MB
node 14 free: 128859 MB
node 15 cpus: 120 121 122 123 124 125 126 127 248 249 250 251 252 253 254 255
node 15 size: 129013 MB
node 15 free: 128835 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 11 11 11 11 11 32 32 32 32 32 32 32 32

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CPU2017 License: 9019
Test Sponsor: Cisco Systems
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Platform Notes (Continued)

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
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11: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
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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:       2101227176 kB
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-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): 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

(Continued on next page)
Cisco UCS C225 M6 (AMD EPYC 7713 64-Core, Processor) | SPEC CPU®2017 Integer Speed Result

CPU2017 License: 9019 | Test Date: Aug-2021
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Platform Notes (Continued)

barriers and __user pointer sanitization
Mitigation: Full AMD retropoline,
IBPB: conditional, IBRS_FW, STIBP: always-on, RSB filling

CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Aug 15 04:28

SPEC is set to: /home/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p3 xfs 1.5T 11G 1.5T 1% /

From /sys/devices/virtual/dmi/id
Vendor: Cisco Systems Inc
Product: UCSC-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.

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

BIOS:
BIOS Vendor: Cisco Systems, Inc.
BIOS Version: C225M6.4.2.0.271.0716210621
BIOS Date: 07/16/2021
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
(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7713 64-Core, Processor)

SPEC®2017_int_base = 12.6
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Compiler Version Notes (Continued)

==============================================================================
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
------------------------------------------------------------------------------

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

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Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7713 64-Core, Processor)

SPEC CPU®2017 Integer Speed Result

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Base Portability Flags (Continued)

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,-ml1vm -Wl,-enable-licm-vrp -Wl,-ml1vm -Wl,-region-vectorize
- -Wl,-ml1vm -Wl,-function-specialize
- -Wl,-ml1vm -Wl,-align-all-nofallback-blocks=6
- -Wl,-ml1vm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
- -ml1vm -unroll-threshold=50 -ml1vm -inline-threshold=1000
- -fremap-arrays -ml1vm -function-specialize -flv-function-specialization
- -ml1vm -enable-gvn-hoist -ml1vm -global-vectorize-slp=true
- -ml1vm -enable-licm-vrp -ml1vm -reduce-array-computations=3 -z muldefs
- -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -flang -flangrti

C++ benchmarks:
- -m64 -std=c++98 -mno-adx -mno-sse4a
- -Wl,-ml1vm -Wl,-do-block-reorder-aggressive
- -Wl,-ml1vm -Wl,-region-vectorize -Wl,-ml1vm -Wl,-function-specialize
- -Wl,-ml1vm -Wl,-align-all-nofallback-blocks=6
- -Wl,-ml1vm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -ml1vm -enable-partial-unswitch
- -ml1vm -unroll-threshold=100 -finline-aggressive
- -flv-function-specialization -ml1vm -loop-unswitch-threshold=200000
- -ml1vm -reroll-loops -ml1vm -aggressive-loop-unswitch
- -ml1vm -extra-vectorizer-passes -ml1vm -reduce-array-computations=3
- -ml1vm -global-vectorize-slp=true -ml1vm -convert-pow-exp-to-int=false
- -z muldefs -ml1vm -do-block-reorder-aggressive
- -fvirtual-function-elimination -fvisibility=hidden
- -DSPEC_OPENMP
- -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -flang -flangrti

Fortran benchmarks:
- -m64 -mno-adx -mno-sse4a -Wl,-ml1vm -Wl,-inline-recursion=4
- -Wl,-ml1vm -Wl,-lsr-in-nested-loop -Wl,-ml1vm -Wl,-enable-iv-split
- -Wl,-ml1vm -Wl,-region-vectorize -Wl,-ml1vm -Wl,-function-specialize
- -Wl,-ml1vm -Wl,-align-all-nofallback-blocks=6
- -Wl,-ml1vm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -z muldefs
- -ml1vm -unroll-aggressive -ml1vm -unroll-threshold=150

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Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7713 64-Core, Processor)

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**Base Optimization Flags (Continued)**

Fortran benchmarks (continued):
- -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

C++ benchmarks:
- clang++

Fortran benchmarks:
- flang

**Peak Portability Flags**

Same as Base Portability Flags

**Peak Optimization Flags**

C benchmarks:
- -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

(Continued on next page)
Cisco Systems
Cisco UCS C225 M6 (AMD EPYC 7713 64-Core, Processor)

Peak Optimization Flags (Continued)

C benchmarks (continued):
-fvecclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mlsvm -unroll-threshold=50 -fremap-arrays -flv-function-specialization
-mlsvm -inline-threshold=1000 -mlsvm -enable-gvn-hoist
-mlsvm -global-vectorize-slp=false -mlsvm -function-specialize
-mlsvm -enable-licm-vrp -mlsvm -reduce-array-computations=3
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang

C++ benchmarks:
-m64 -std=c++98 -mno-adx -mno-sse4a
-W1,-mlsvm -Wl,-do-block-reorder-aggressive
-W1,-mlsvm -Wl,-function-specialize
-W1,-mlsvm -Wl,-align-all-nofallthru-blocks=6
-W1,-mlsvm -Wl,-reduce-array-computations=3 -Ofast -march=znver3
-fvecclib=AMDLIBM -ffast-math -flto -finline-aggressive
-mlsvm -unroll-threshold=100 -flv-function-specialization
-mlsvm -enable-licm-vrp -mlsvm -reroll-loops
-mlsvm -aggressive-loop-unswitch -mlsvm -reduce-array-computations=3
-mlsvm -global-vectorize-slp=false -mlsvm -do-block-reorder-aggressive
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-mlsvm -Wl,-inline-recursion=4
-Wl,-mlsvm -Wl,-lsr-in-nested-loop -Wl,-mlsvm -Wl,-enable-iv-split
-Wl,-mlsvm -Wl,-function-specialize
-Wl,-mlsvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlsvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fvecclib=AMDLIBM -ffast-math -flto -mlsvm -unroll-aggressive
-mlsvm -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
**SPEC CPU®2017 Integer Speed Result**

**Cisco Systems**
Cisco UCS C225 M6 (AMD EPYC 7713 64-Core, Processor)

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

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