SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

$SPECspeed^{®}2017\_int\_base = 14.0$

$SPECspeed^{®}2017\_int\_peak = 14.2$

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jun-2024

Hardware Availability: Jun-2024

Software Availability: Feb-2024

Threads	value
600.perlbench_s 128	8.68
602.gcc_s 128	14.5
605.mcf_s 128 / 1	20.2 / 21.0
620.omnetpp_s 128 / 1	10.4 / 10.5
623.xalancbmk_s 128 / 1	19.0 / 20.8
625.x264_s 128 / 1	21.2 / 21.3
631.deepsjeng_s 128	6.96
641.leela_s 128	5.84
648.exchange2_s 128	25.6
657.xz_s 128	26.3

SPECspeed®2017_int_base (14.0)

SPECspeed®2017_int_peak (14.2)

Hardware

CPU Name: AMD EPYC 9534
  Max MHz: 3700
  Nominal: 2450
Enabled: 128 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
  L2: 1 MB I+D on chip per core
  L3: 256 MB I+D on chip per chip, 32 MB shared / 8 cores
  Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-5600B-R, running at 4800)
Storage: 1 x 1.6 TB NVME SSD
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP5 kernel version 5.14.21-150500.53-default
Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
Parallel: Yes
Firmware: Version 4.3.4a released May-2024
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0
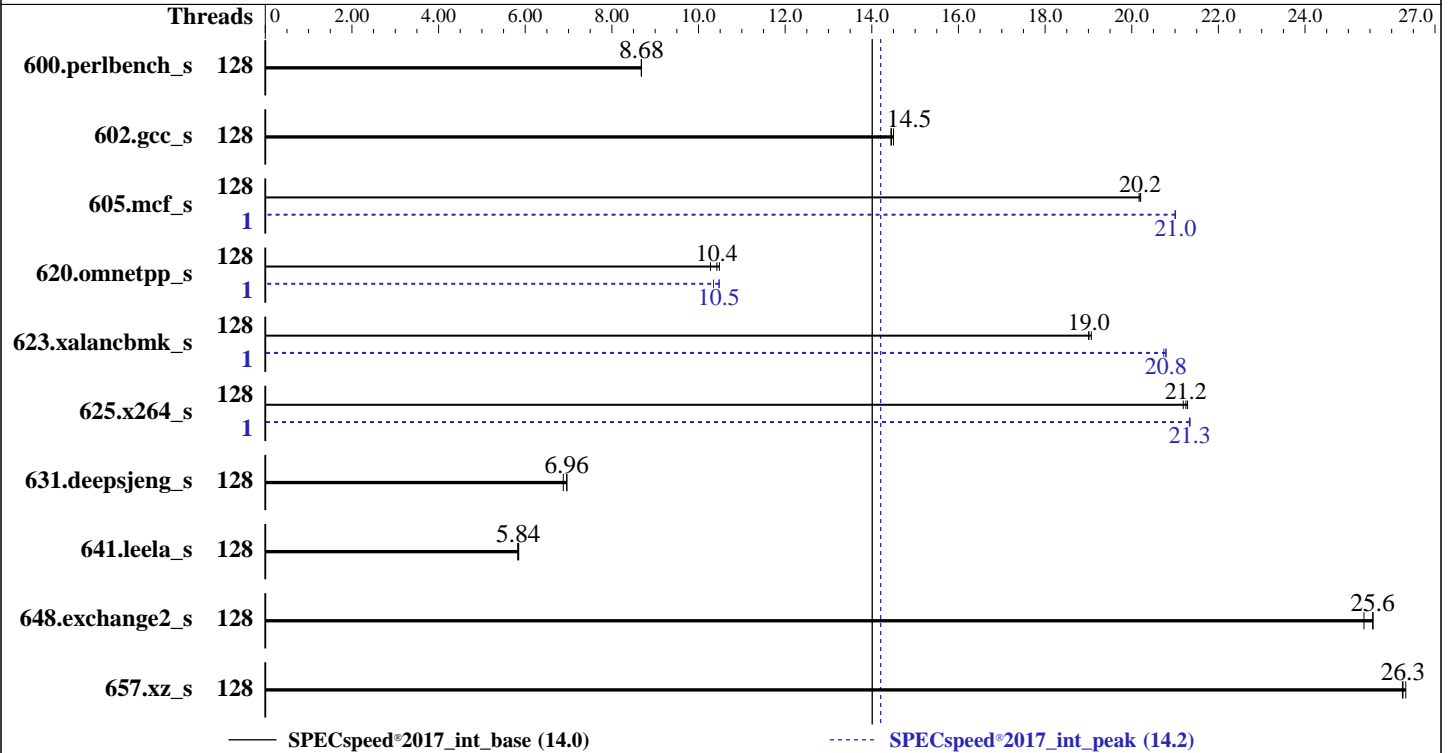
SPECspeed®2017_int_peak = 14.2

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jun-2024

Hardware Availability: Jun-2024

Software Availability: Feb-2024

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	128	204	8.68	205	8.68	**204**	**8.68**	128	204	8.68	205	8.68	**204**	**8.68**
602.gcc_s	128	**275**	**14.5**	275	14.5	276	14.4	128	**275**	**14.5**	275	14.5	276	14.4
605.mcf_s	128	**234**	**20.2**	234	20.2	234	20.2	1	225	21.0	225	21.0	**225**	**21.0**
620.omnetpp_s	128	**156**	**10.4**	156	10.5	159	10.3	1	158	10.3	**156**	**10.5**	156	10.5
623.xalancbmk_s	128	**74.5**	**19.0**	74.3	19.1	74.6	19.0	1	68.2	20.8	68.3	20.7	**68.2**	**20.8**
625.x264_s	128	82.9	21.3	83.3	21.2	**83.0**	**21.2**	1	82.7	21.3	**82.7**	**21.3**	82.6	21.3
631.deepsjeng_s	128	206	6.96	208	6.88	**206**	**6.96**	128	206	6.96	208	6.88	**206**	**6.96**
641.leela_s	128	293	5.83	**292**	**5.84**	292	5.85	128	293	5.83	**292**	**5.84**	292	5.85
648.exchange2_s	128	115	25.6	**115**	**25.6**	116	25.4	128	115	25.6	**115**	**25.6**	116	25.4
657.xz_s	128	**235**	**26.3**	236	26.2	235	26.3	128	**235**	**26.3**	236	26.2	235	26.3
SPECspeed®2017_int_base =		**14.0**												
SPECspeed®2017_int_peak =		**14.2**												

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

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0

SPECspeed®2017_int_peak = 14.2

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jun-2024

Hardware Availability: Jun-2024

Software Availability: Feb-2024

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_aocc400_znver4_A_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"


Environment variables set by runcpu during the 605.mcf_s peak run:
GOMP_CPU_AFFINITY = "15"


Environment variables set by runcpu during the 620.omnetpp_s peak run:
GOMP_CPU_AFFINITY = "15"


Environment variables set by runcpu during the 623.xalancbmk_s peak run:
GOMP_CPU_AFFINITY = "15"


Environment variables set by runcpu during the 625.x264_s peak run:
GOMP_CPU_AFFINITY = "15"
```

General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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.
```

Platform Notes

```
BIOS settings:
SMT Mode set to Disabled
NUMA nodes per socket set to NPS1
Determinism Slider set to Power
DF C-States set to Disabled
TDP set to 400
PPT set to 400
ACPI SRAT L3 Cache as NUMA Domain set to Enabled


 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Sun Jun 30 13:47:11 2024

 SUT (System Under Test) info as seen by some common utilities.

 ----------------------------------------------------------
 Table of contents
 ----------------------------------------------------------
  1. uname -a
```

(Continued on next page)

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

$SPECspeed^{®}2017\_int\_base = 14.0$

$SPECspeed^{®}2017\_int\_peak = 14.2$

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

Test Date: Jun-2024
Hardware Availability: Jun-2024
Software Availability: Feb-2024

Platform Notes (Continued)

```
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. BIOS
-----------------------------------------------------------


-----------------------------------------------------------
 1. uname -a
   Linux localhost 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
   x86_64 x86_64 x86_64 GNU/Linux


-----------------------------------------------------------
 2. w
    13:47:11 up 5 min,  1 user,  load average: 0.00, 0.01, 0.00
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                13:43   23.00s  1.68s  0.11s /bin/bash ./amd_speed_aocc400_znver4_A1.sh

-----------------------------------------------------------
 3. Username
   From environment variable $USER:  root


-----------------------------------------------------------
 4. ulimit -a
   core file size          (blocks, -c) unlimited
   data seg size           (kbytes, -d) unlimited
   scheduling priority             (-e) 0
   file size               (blocks, -f) unlimited
   pending signals                 (-i) 6191222
   max locked memory       (kbytes, -l) 2097152
   max memory size         (kbytes, -m) unlimited
   open files                      (-n) 1024
   pipe size            (512 bytes, -p) 8
   POSIX message queues     (bytes, -q) 819200
   real-time priority              (-r) 0
   stack size              (kbytes, -s) unlimited
   cpu time               (seconds, -t) unlimited
   max user processes              (-u) 6191222
   virtual memory          (kbytes, -v) unlimited
   file locks                      (-x) unlimited


-----------------------------------------------------------
 5. sysinfo process ancestry
  /usr/lib/systemd/systemd --switched-root --system --deserialize 30
```

(Continued on next page)

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0

SPECspeed®2017_int_peak = 14.2

CPU2017 License: 9019　　　　　　　　　　　　　　　　　　　**Test Date:** Jun-2024
Test Sponsor: Cisco Systems　　　　　　　　　　　　　　**Hardware Availability:** Jun-2024
Tested by: Cisco Systems　　　　　　　　　　　　　　　**Software Availability:** Feb-2024

Platform Notes (Continued)

```
  login -- root
  -bash
  python3 ./run_amd_speed_aocc400_znver4_A1.py -b intspeed
  /bin/bash ./amd_speed_aocc400_znver4_A1.sh
  runcpu --config amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 intspeed
  runcpu --configfile amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 --nopower
    --runmode speed --tune base:peak --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
    $SPEC/tmp/CPU2017.001/templogs/preenv.intspeed.001.0.log --lognum 001.0 --from_runcpu 2
  specperl $SPEC/bin/sysinfo
 $SPEC = /home/cpu2017

    ------------------------------------------------------------
 6. /proc/cpuinfo
     model name       : AMD EPYC 9534 64-Core Processor
     vendor_id        : AuthenticAMD
     cpu family       : 25
     model            : 17
     stepping         : 1
     microcode        : 0xa101148
     bugs             : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
     TLB size         : 3584 4K pages
     cpu cores        : 64
     siblings         : 64
     2 physical ids (chips)
     128 processors (hardware threads)
     physical id 0: core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
     physical id 1: core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
     physical id 0: apicids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
     physical id 1: apicids 128-135,144-151,160-167,176-183,192-199,208-215,224-231,240-247
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
  virtualized systems.  Use the above data carefully.


    ------------------------------------------------------------
 7. lscpu

 From lscpu from util-linux 2.37.4:
  Architecture:            x86_64
  CPU op-mode(s):          32-bit, 64-bit
  Address sizes:           52 bits physical, 57 bits virtual
  Byte Order:              Little Endian
  CPU(s):                  128
  On-line CPU(s) list:     0-127
  Vendor ID:               AuthenticAMD
  Model name:              AMD EPYC 9534 64-Core Processor
  CPU family:              25
  Model:                   17
  Thread(s) per core:      1
  Core(s) per socket:      64
  Socket(s):               2
  Stepping:                1
  Frequency boost:         enabled
  CPU max MHz:             3718.0659
  CPU min MHz:             1500.0000
  BogoMIPS:                4892.78
  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 amd_lbr_v2 nopl nonstop_tsc cpuid extd_apicid
                           aperfmperf rapl 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
```

(Continued on next page)

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0

SPECspeed®2017_int_peak = 14.2

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

Test Date: Jun-2024
Hardware Availability: Jun-2024
Software Availability: Feb-2024

Platform Notes (Continued)

```
                            tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3
                            cdp_l3 invpcid_single hw_pstate ssbd mba perfmon_v2 ibrs ibpb stibp
                            vmmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a avx512f
                            avx512dq rdseed adx smap avx512ifma clflushopt clwb avx512cd sha_ni
                            avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc
                            cqm_mbm_total cqm_mbm_local avx512_bf16 clzero irperf xsaveerptr rdpru
                            wbnoinvd amd_ppin cppc arat npt lbrv svm_lock nrip_save tsc_scale
                            vmcb_clean flushbyasid decodeassists pausefilter pfthreshold avic
                            v_vmsave_vmload vgif v_spec_ctrl avx512vbmi umip pku ospke avx512_vbmi2
                            gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq la57 rdpid
                            overflow_recov succor smca fsrm flush_l1d
    Virtualization:         AMD-V
    L1d cache:              4 MiB (128 instances)
    L1i cache:              4 MiB (128 instances)
    L2 cache:               128 MiB (128 instances)
    L3 cache:               512 MiB (16 instances)
    NUMA node(s):           4
    NUMA node0 CPU(s):      0-31
    NUMA node1 CPU(s):      32-63
    NUMA node2 CPU(s):      64-95
    NUMA node3 CPU(s):      96-127
    Vulnerability Itlb multihit:    Not affected
    Vulnerability L1tf:             Not affected
    Vulnerability Mds:              Not affected
    Vulnerability Meltdown:         Not affected
    Vulnerability Mmio stale data:  Not affected
    Vulnerability Retbleed:         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; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, RSB
                                    filling, PBRSB-eIBRS Not affected
    Vulnerability Srbds:            Not affected
    Vulnerability Tsx async abort:  Not affected

  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         1M    128M   8 Unified          2  2048      1               64
      L3        32M    512M  16 Unified          3 32768      1               64

    ------------------------------------------------------------
  8. numactl --hardware
  NOTE: a numactl 'node' might or might not correspond to a physical chip.
    available: 4 nodes (0-3)
    node 0 cpus: 0-31
    node 0 size: 386726 MB
    node 0 free: 385565 MB
    node 1 cpus: 32-63
    node 1 size: 387063 MB
    node 1 free: 386202 MB
    node 2 cpus: 64-95
    node 2 size: 387063 MB
    node 2 free: 386334 MB
    node 3 cpus: 96-127
    node 3 size: 386981 MB
    node 3 free: 386151 MB
    node distances:
    node   0   1   2   3
      0:  10  12  32  32
```

(Continued on next page)

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0

SPECspeed®2017_int_peak = 14.2

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jun-2024

Hardware Availability: Jun-2024

Software Availability: Feb-2024

Platform Notes (Continued)

```
      1:  12  10  32  32
      2:  32  32  10  12
      3:  32  32  12  10


    ---------------------------------------------------------
    9. /proc/meminfo
       MemTotal:       1584983576 kB


    ---------------------------------------------------------
    10. who -r
      run-level 3 Jun 30 13:42


    ---------------------------------------------------------
    11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
      Default Target  Status
      multi-user      running


    ---------------------------------------------------------
    12. Services, from systemctl list-unit-files
      STATE            UNIT FILES
      enabled          YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron getty@ irqbalance issue-generator
                       kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd
                       systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
      enabled-runtime  systemd-remount-fs
      disabled         autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                       chronyd console-getty cups cups-browsed debug-shell ebtables exchange-bmc-os-info
                       firewalld gpm grub2-once haveged haveged-switch-root hwloc-dump-hwdata ipmi ipmievd
                       issue-add-ssh-keys kexec-load ksm kvm_stat lunmask man-db-create multipathd nfs nfs-blkmap
                       rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd svnserve
                       systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                       systemd-time-wait-sync systemd-timesyncd udisks2
      indirect         wickedd


    ---------------------------------------------------------
    13. Linux kernel boot-time arguments, from /proc/cmdline
      BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
      root=UUID=185bd913-afd4-4bd7-b92d-ac5ed4a95cce
      splash=silent
      mitigations=auto
      quiet
      security=apparmor


    ---------------------------------------------------------
    14. cpupower frequency-info
      analyzing CPU 0:
        current policy: frequency should be within 1.50 GHz and 2.45 GHz.
                        The governor "performance" may decide which speed to use
                        within this range.
      boost state support:
        Supported: yes
        Active: yes


    ---------------------------------------------------------
    15. sysctl
      kernel.numa_balancing            1
      kernel.randomize_va_space        0
      vm.compaction_proactiveness      20
      vm.dirty_background_bytes        0
      vm.dirty_background_ratio        10
      vm.dirty_bytes                   0
```

(Continued on next page)

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0

SPECspeed®2017_int_peak = 14.2

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

Test Date: Jun-2024
Hardware Availability: Jun-2024
Software Availability: Feb-2024

Platform Notes (Continued)

```
  vm.dirty_expire_centisecs        3000
  vm.dirty_ratio                      8
  vm.dirty_writeback_centisecs      500
  vm.dirtytime_expire_seconds     43200
  vm.extfrag_threshold              500
  vm.min_unmapped_ratio               1
  vm.nr_hugepages                     0
  vm.nr_hugepages_mempolicy           0
  vm.nr_overcommit_hugepages          0
  vm.swappiness                       1
  vm.watermark_boost_factor       15000
  vm.watermark_scale_factor          10
  vm.zone_reclaim_mode                1


 ----------------------------------------------------------
16. /sys/kernel/mm/transparent_hugepage
  defrag         [always] defer defer+madvise madvise never
  enabled        [always] madvise never
  hpage_pmd_size 2097152
  shmem_enabled  always within_size advise [never] deny force


 ----------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000


 ----------------------------------------------------------
18. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP5


 ----------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017
  Filesystem    Type  Size  Used Avail Use% Mounted on
  /dev/sdc2     xfs   892G  8.1G  884G   1% /


 ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
  Vendor:      Cisco Systems Inc
  Product:     UCSC-C245-M8SX
  Serial:      WZP2750Z162


 ----------------------------------------------------------
21. dmidecode
  Additional information from dmidecode 3.4 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:
    12x 0xCE00 M321R8GA0PB0-CWMCH 64 GB 2 rank 5600, configured at 4800
    3x 0xCE00 M321R8GA0PB0-CWMJH 64 GB 2 rank 5600, configured at 4800
    9x 0xCE00 M321R8GA0PB0-CWMKJ 64 GB 2 rank 5600, configured at 4800
```

(Continued on next page)

SPEC CPU®2017 Integer Speed Result

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

$SPECspeed^{®}2017\_int\_base = 14.0$

$SPECspeed^{®}2017\_int\_peak = 14.2$

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

Test Date: Jun-2024
Hardware Availability: Jun-2024
Software Availability: Feb-2024

Platform Notes (Continued)

```
    ----------------------------------------------------------
    22. BIOS
   (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:       Cisco Systems, Inc.
      BIOS Version:      C245M8.4.3.4a.0.0520240849
      BIOS Date:         05/20/2024
      BIOS Revision:     5.27
```

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 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/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 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran | 648.exchange2_s(base, peak)
----------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
----------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
clang
```

C++ benchmarks:
```
clang++
```

Fortran benchmarks:
```
flang
```

Standard Performance Evaluation Corporation (info@spec.org)
https://www.spec.org/

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0

SPECspeed®2017_int_peak = 14.2

CPU2017 License: 9019　　　　　　　　　　　　　　　**Test Date:**　　　　Jun-2024
Test Sponsor:　Cisco Systems　　　　　　　　　　　**Hardware Availability:** Jun-2024
Tested by:　　　Cisco Systems　　　　　　　　　　　**Software Availability:**　Feb-2024

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,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lflang
-lamdalloc
```

C++ benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fvirtual-function-elimination -fvisibility=hidden -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc-ext
```

Fortran benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```

Standard Performance Evaluation Corporation (info@spec.org)　　　　https://www.spec.org/

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

$\text{SPECspeed}^{®}\text{2017\_int\_base} = 14.0$

$\text{SPECspeed}^{®}\text{2017\_int\_peak} = 14.2$

Base Other Flags

C benchmarks:
```
-Wno-return-type -Wno-unused-command-line-argument
```

C++ benchmarks:
```
-Wno-unused-command-line-argument
```

Fortran benchmarks:
```
-Wno-unused-command-line-argument
```

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: `basepeak = yes`

602.gcc_s: `basepeak = yes`

605.mcf_s: `-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3`
`-Wl,-allow-multiple-definition -Ofast -march=znver4`
`-fveclib=AMDLIBM -ffast-math -fopenmp -flto`
`-fstruct-layout=9 -mllvm -unroll-threshold=50`
`-fremap-arrays -fstrip-mining`
`-mllvm -inline-threshold=1000`
`-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt`

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

SPECspeed®2017_int_base = 14.0

SPECspeed®2017_int_peak = 14.2

CPU2017 License: 9019　　　　　　　　　　　　　　　　　　**Test Date:** Jun-2024
Test Sponsor: Cisco Systems　　　　　　　　　　　　　　**Hardware Availability:** Jun-2024
Tested by: Cisco Systems　　　　　　　　　　　　　　　**Software Availability:** Feb-2024

Peak Optimization Flags (Continued)

605.mcf_s (continued):
```
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

625.x264_s: `Same as 605.mcf_s`

657.xz_s: `basepeak = yes`

C++ benchmarks:

620.omnetpp_s: `-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
```
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fvirtual-function-elimination -fvisibility=hidden
-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang
```

623.xalancbmk_s: `-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
```
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang
```

631.deepsjeng_s: `basepeak = yes`

641.leela_s: `basepeak = yes`

Fortran benchmarks:

648.exchange2_s: `basepeak = yes`

Peak Other Flags

C benchmarks:
```
-Wno-return-type -Wno-unused-command-line-argument
```

C++ benchmarks:
```
-Wno-unused-command-line-argument
```

(Continued on next page)

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C245 M8 (AMD EPYC 9534 64-Core Processor)

$SPECspeed^{®}2017\_int\_base = 14.0$

$SPECspeed^{®}2017\_int\_peak = 14.2$

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

Test Date: Jun-2024
Hardware Availability: Jun-2024
Software Availability: Feb-2024

Peak Other Flags (Continued)

Fortran benchmarks:

`-Wno-unused-command-line-argument`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/aocc400-flags.html`
`http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v3-revA.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/aocc400-flags.xml`
`http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v3-revA.xml`

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 v1.1.9 on 2024-06-30 13:47:11-0400.
Report generated on 2024-07-17 11:50:25 by CPU2017 PDF formatter v6716.
Originally published on 2024-07-16.

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/