SPEC CPU®2017 Integer Speed Result

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Cisco Systems

Cisco UCS X215c M8 (AMD EPYC 9634 2.25 GHz Processor)

$SPECspeed®2017\_int\_base =$ 14.7
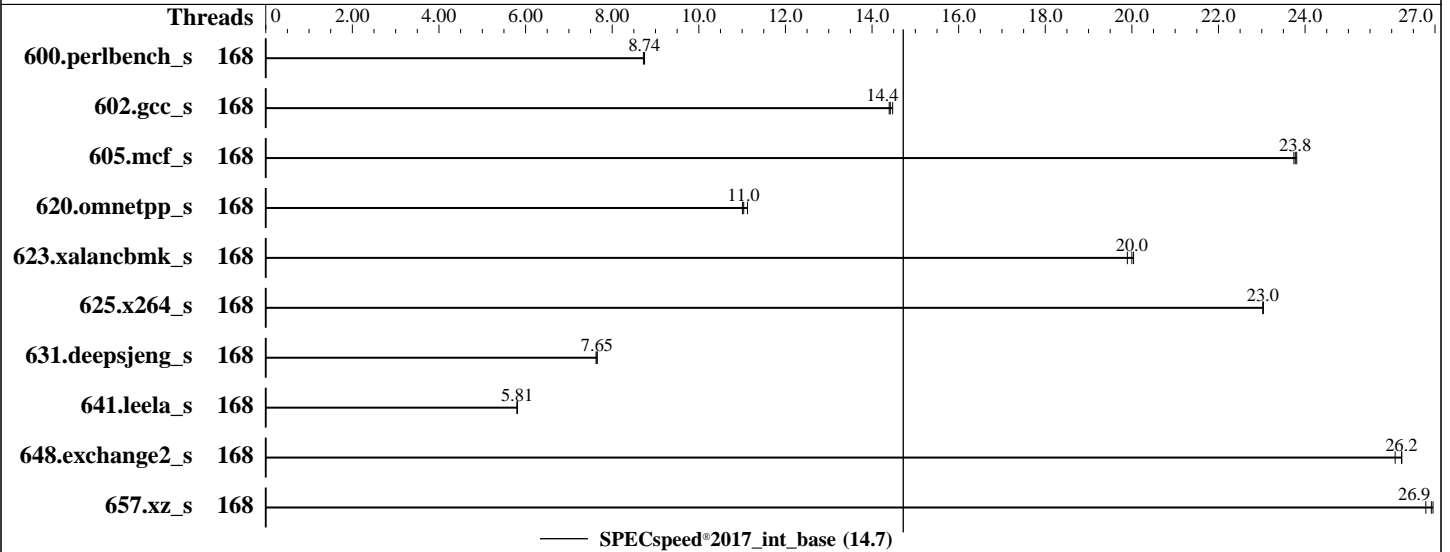
$SPECspeed®2017\_int\_peak =$ Not Run

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

Test Date: Jan-2025
Hardware Availability: Oct-2024
Software Availability: Sep-2024

Threads		Value
600.perlbench_s	168	8.74
602.gcc_s	168	14.4
605.mcf_s	168	23.8
620.omnetpp_s	168	11.0
623.xalancbmk_s	168	20.0
625.x264_s	168	23.0
631.deepsjeng_s	168	7.65
641.leela_s	168	5.81
648.exchange2_s	168	26.2
657.xz_s	168	26.9

SPECspeed®2017_int_base (14.7)

Hardware

CPU Name: AMD EPYC 9634
 Max MHz: 3700
 Nominal: 2250
Enabled: 168 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: 384 MB I+D on chip per chip, 32 MB shared / 7 cores
 Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-5600B-R, running at 4800)
Storage: 1 x 960 GB NVMe SSD
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6 kernel version 6.4.0-150600.21-default
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 4.3.55 released Nov-2024
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.

Standard Performance Evaluation Corporation (info@spec.org)

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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	168	**203**	**8.74**	204	8.72	203	8.75							
602.gcc_s	168	275	14.5	277	14.4	**276**	**14.4**							
605.mcf_s	168	**199**	**23.8**	198	23.8	199	23.7							
620.omnetpp_s	168	148	11.0	**148**	**11.0**	147	11.1							
623.xalancbmk_s	168	71.2	19.9	70.7	20.0	**70.8**	**20.0**							
625.x264_s	168	76.6	23.0	**76.6**	**23.0**	76.6	23.0							
631.deepsjeng_s	168	187	7.65	188	7.63	**187**	**7.65**							
641.leela_s	168	294	5.80	**294**	**5.81**	294	5.81							
648.exchange2_s	168	**112**	**26.2**	112	26.2	113	26.1							
657.xz_s	168	**230**	**26.9**	229	27.0	231	26.8							
SPECspeed®2017_int_base =			**14.7**											
SPECspeed®2017_int_peak =			**Not Run**											

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) only on request for base runs,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To enable THP for all allocations for peak runs,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

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Test Sponsor:	Cisco Systems	**Hardware Availability:**	Oct-2024
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Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-335"
LD_LIBRARY_PATH =
     "/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib:/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib32:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "336"
```

General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 9D64 CPU + 500GiB Memory using Ubuntu 22.04

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


 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Tue Jan 14 21:34:01 2025

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

 -----------------------------------------------------------
 Table of contents
 -----------------------------------------------------------
  1. uname -a
  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 254 (254.10+suse.84.ge8d77af424)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. sysctl
```

(Continued on next page)

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Platform Notes (Continued)

```
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 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
   x86_64 x86_64 x86_64 GNU/Linux

    ------------------------------------------------------------
2. w
    21:34:01 up 18 min,  3 users,  load average: 0.00, 0.10, 0.07
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                21:17   16.00s  1.25s  0.17s /bin/bash ./amd_speed_aocc500_znver5_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) 6191150
   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) 6191150
   virtual memory          (kbytes, -v) unlimited
   file locks                      (-x) unlimited

    ------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=42
 login -- root
 -bash
 python3 ./run_amd_speed_aocc500_znver5_A1.py -b intspeed
 /bin/bash ./amd_speed_aocc500_znver5_A1.sh
 runcpu --config amd_speed_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 intspeed
 runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 --nopower
   --runmode speed --tune base --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 9634 84-Core Processor
```

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Platform Notes (Continued)

```
      vendor_id       : AuthenticAMD
      cpu family      : 25
      model           : 17
      stepping        : 1
      microcode       : 0xa101148
      bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
      TLB size        : 3584 4K pages
      cpu cores       : 84
      siblings        : 84
      2 physical ids (chips)
      168 processors (hardware threads)
      physical id 0: core ids 0-6,16-22,32-38,48-54,64-70,80-86,96-102,112-118,128-134,144-150,160-166,176-182
      physical id 1: core ids 0-6,16-22,32-38,48-54,64-70,80-86,96-102,112-118,128-134,144-150,160-166,176-182
      physical id 0: apicids 0-6,16-22,32-38,48-54,64-70,80-86,96-102,112-118,128-134,144-150,160-166,176-182
      physical id 1: apicids
      256-262,272-278,288-294,304-310,320-326,336-342,352-358,368-374,384-390,400-406,416-422,432-438
  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 2.39.3:
    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):                          168
    On-line CPU(s) list:             0-167
    Vendor ID:                       AuthenticAMD
    BIOS Vendor ID:                  Advanced Micro Devices, Inc.
    Model name:                      AMD EPYC 9634 84-Core Processor
    BIOS Model name:                 AMD EPYC 9634 84-Core Processor          Unknown CPU @ 2.2GHz
    BIOS CPU family:                 107
    CPU family:                      25
    Model:                           17
    Thread(s) per core:              1
    Core(s) per socket:              84
    Socket(s):                       2
    Stepping:                        1
    Frequency boost:                 enabled
    CPU(s) scaling MHz:              64%
    CPU max MHz:                     3700.1951
    CPU min MHz:                     1500.0000
    BogoMIPS:                        4493.30
    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 tce topoext perfctr_core perfctr_nb bpext
                                     perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate ssbd mba perfmon_v2
                                     ibrs ibpb stibp ibrs_enhanced 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
                                     user_shstk 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
```

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Platform Notes (Continued)

```
                         v_vmsave_vmload vgif x2avic v_spec_ctrl vnmi avx512vbmi umip pku
                         ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                         avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d
                         debug_swap
  Virtualization:        AMD-V
  L1d cache:             5.3 MiB (168 instances)
  L1i cache:             5.3 MiB (168 instances)
  L2 cache:              168 MiB (168 instances)
  L3 cache:              768 MiB (24 instances)
  NUMA node(s):          4
  NUMA node0 CPU(s):     0-41
  NUMA node1 CPU(s):     42-83
  NUMA node2 CPU(s):     84-125
  NUMA node3 CPU(s):     126-167
  Vulnerability Gather data sampling:  Not affected
  Vulnerability Itlb multihit:         Not affected
  Vulnerability L1tf:                  Not affected
  Vulnerability Mds:                   Not affected
  Vulnerability Meltdown:              Not affected
  Vulnerability Mmio stale data:       Not affected
  Vulnerability Reg file data sampling: Not affected
  Vulnerability Retbleed:              Not affected
  Vulnerability Spec rstack overflow:  Mitigation; Safe RET
  Vulnerability Spec store bypass:     Mitigation; Speculative Store Bypass disabled via prctl
  Vulnerability Spectre v1:            Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:            Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
                                       disabled; RSB filling; PBRSB-eIBRS Not affected; BHI 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     5.3M    8 Data            1    64        1             64
      L1i      32K     5.3M    8 Instruction     1    64        1             64
      L2        1M     168M    8 Unified         2  2048        1             64
      L3       32M     768M   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: 0-41
    node 0 size: 386758 MB
    node 0 free: 385801 MB
    node 1 cpus: 42-83
    node 1 size: 387060 MB
    node 1 free: 386217 MB
    node 2 cpus: 84-125
    node 2 size: 387022 MB
    node 2 free: 386265 MB
    node 3 cpus: 126-167
    node 3 size: 386973 MB
    node 3 free: 386135 MB
    node distances:
    node   0   1   2   3
      0:  10  12  32  32
      1:  12  10  32  32
      2:  32  32  10  12
      3:  32  32  12  10
```

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Platform Notes (Continued)

```
    ----------------------------------------------------------
 9. /proc/meminfo
    MemTotal:       1584962328 kB


    ----------------------------------------------------------
10. who -r
    run-level 3 Jan 14 21:16


    ----------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
    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 iscsi
                     issue-generator kbdsettings klog lvm2-monitor nscd nvmefc-boot-connections
                     nvmf-autoconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore
                     virtqemud 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 dnsmasq ebtables exchange-bmc-os-info
                     firewalld fsidd gpm grub2-once haveged hv_fcopy_daemon hv_kvp_daemon hv_vss_daemon
                     hwloc-dump-hwdata ipmi ipmievd iscsi-init iscsid issue-add-ssh-keys kexec-load ksm
                     kvm_stat libvirt-guests lunmask man-db-create multipathd munge nfs nfs-blkmap nfs-server
                     nfsserver rpcbind rpmconfigcheck rsyncd rtkit-daemon salt-minion serial-getty@ slurmd
                     smartd_generate_opts snmpd snmptrapd strongswan strongswan-starter svnserve
                     systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-nspawn@
                     systemd-sysext systemd-time-wait-sync systemd-timesyncd tcsd udisks2 virtinterfaced
                     virtlockd virtlogd virtnetworkd virtnodedevd virtnwfilterd virtsecretd virtstoraged ypbind
    indirect         pcscd systemd-userdbd tftp wickedd


    ----------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
    root=UUID=46707549-98f2-46fd-888c-f84afd8b63bd
    splash=silent
    mitigations=auto
    quiet
    security=apparmor


    ----------------------------------------------------------
14. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 1.50 GHz and 2.25 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
```

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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 SP6


  ----------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017
  Filesystem      Type   Size  Used Avail Use% Mounted on
  /dev/nvme1n1p2 btrfs  894G   17G  876G   2% /home


  ----------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Cisco Systems Inc
    Product:        UCSX-215C-M8
    Product Family: Cisco UCS Rack Server
    Serial:         FCH282172G8


  ----------------------------------------------------------------
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:
    24x 0xAD00 HMCG94AGBRA181N 64 GB 2 rank 5600, configured at 4800


  ----------------------------------------------------------------
```

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Platform Notes (Continued)

```
   22. BIOS
  (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:        Cisco Systems, Inc.
     BIOS Version:       X215M8.4.3.55.4.1103242059
     BIOS Date:          11/03/2024
     BIOS Revision:      5.27
```

Compiler Version Notes

```
==============================================================================
C        | 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin
------------------------------------------------------------------------------


==============================================================================
C++      | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin
------------------------------------------------------------------------------


==============================================================================
Fortran | 648.exchange2_s(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
clang
```

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

Fortran benchmarks:
```
flang
```

SPEC CPU®2017 Integer Speed Result

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Cisco Systems

Cisco UCS X215c M8 (AMD EPYC 9634
2.25 GHz Processor)

$SPECspeed®2017\_int\_base =$ 14.7

$SPECspeed®2017_int_peak = $ Not Run

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

Test Date: Jan-2025
Hardware Availability: Oct-2024
Software Availability: Sep-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 -Wl,-mllvm -Wl,-extra-inliner -O3`
`-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP`
`-flto -fremap-arrays -fstrip-mining -fstruct-layout=7`
`-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3`
`-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp -lamdlibm`
`-lflang -lamdalloc`

C++ benchmarks:
`-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver5`
`-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP -flto`
`-mllvm -loop-unswitch-threshold=200000`
`-mllvm -reduce-array-computations=3 -mllvm -unroll-threshold=100 -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,-enable-iv-split -Wl,-mllvm -Wl,-inline-recursion=4`
`-Wl,-mllvm -Wl,-lsr-in-nested-loop -O3 -march=znver5 -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

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Cisco Systems

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$SPECspeed®2017\_int\_base =$ 14.7

$SPECspeed®2017\_int\_peak = Not\ Run$

CPU2017 License:	9019		**Test Date:**	Jan-2025
Test Sponsor:	Cisco Systems		**Hardware Availability:**	Oct-2024
Tested by:	Cisco Systems		**Software Availability:**	Sep-2024

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
```

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

http://www.spec.org/cpu2017/flags/aocc500-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/aocc500-flags.xml
http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v3-revA.xml

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

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