SPEC CPU®2017 Integer Speed Result

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Dell Inc.

SPECspeed®2017_int_base = 18.7

PowerEdge XE7745 (AMD EPYC 9555 64-Core Processor)
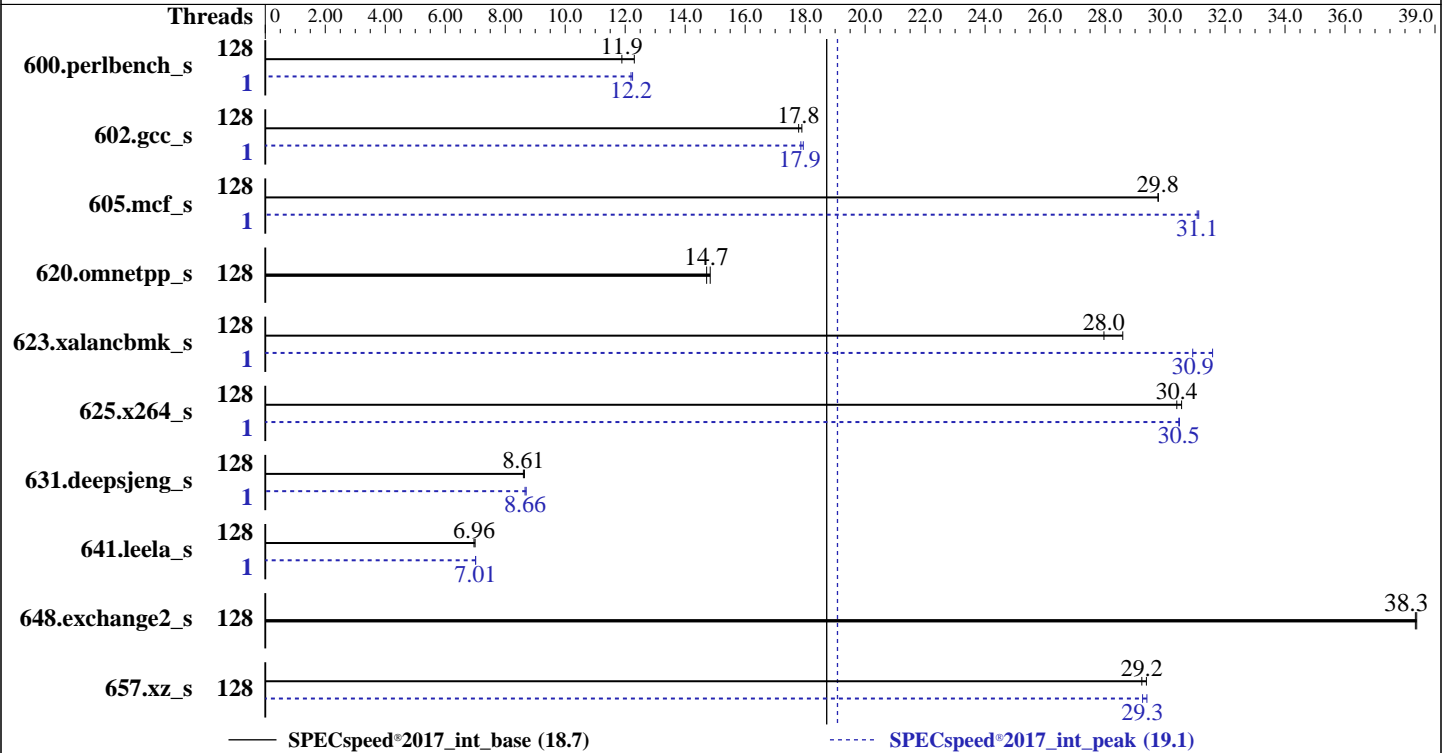
SPECspeed®2017_int_peak = 19.1

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Feb-2025
Hardware Availability: Feb-2025
Software Availability: Jan-2025

Benchmark	Threads	Base	Peak
600.perlbench_s	128	11.9	
	1		12.2
602.gcc_s	128	17.8	
	1		17.9
605.mcf_s	128	29.8	
	1		31.1
620.omnetpp_s	128	14.7	
623.xalancbmk_s	128	28.0	
	1		30.9
625.x264_s	128	30.4	
	1		30.5
631.deepsjeng_s	128	8.61	
	1		8.66
641.leela_s	128	6.96	
	1		7.01
648.exchange2_s	128	38.3	
657.xz_s	128	29.2	
	1		29.3

SPECspeed®2017_int_base (18.7)   SPECspeed®2017_int_peak (19.1)

Hardware

CPU Name: AMD EPYC 9555
  Max MHz: 4400
  Nominal: 3200
Enabled: 128 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 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 PC5-6400B-R, running at 6000)
Storage: 80 GB on tmpfs
Other: CPU Cooling: Air

Software

OS: Ubuntu 24.04 LTS
  6.8.0-52-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 1.0.3 released Jan-2025
File System: tmpfs
System State: Run level 5 (graphical 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.

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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	128	144	12.3	**149**	**11.9**			1	145	12.2	**146**	**12.2**		
602.gcc_s	128	223	17.9	**224**	**17.8**			1	222	17.9	**223**	**17.9**		
605.mcf_s	128	**159**	**29.8**	159	29.8			1	**152**	**31.1**	152	31.1		
620.omnetpp_s	128	**111**	**14.7**	110	14.8			128	**111**	**14.7**	110	14.8		
623.xalancbmk_s	128	**50.7**	**28.0**	49.6	28.6			1	**45.8**	**30.9**	44.9	31.6		
625.x264_s	128	57.7	30.6	**58.0**	**30.4**			1	57.9	30.5	**57.9**	**30.5**		
631.deepsjeng_s	128	**167**	**8.61**	166	8.64			1	**165**	**8.66**	165	8.70		
641.leela_s	128	**245**	**6.96**	244	7.00			1	**243**	**7.01**	243	7.01		
648.exchange2_s	128	**76.7**	**38.3**	76.6	38.4			128	**76.7**	**38.3**	76.6	38.4		
657.xz_s	128	210	29.4	**212**	**29.2**			128	**211**	**29.3**	210	29.4		

SPECspeed®2017_int_base =	**18.7**
SPECspeed®2017_int_peak =	**19.1**

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.
```

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

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Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-127"
LD_LIBRARY_PATH =
    "/mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1/amd_speed_aocc500_znver5_A_lib/lib:/mnt/ramdisk/cpu2017-
    1.1.9-aocc500-znerv5_A1/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 = "128"

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 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 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-127"
```

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.


 Benchmark run from a 80 GB ramdisk created with the cmd: "mount -t tmpfs -o size=80G tmpfs /mnt/ramdisk"
```

Platform Notes

```
 BIOS Settings:
               Logical Processor : Disabled
        Virtualization Technology : Disabled
            NUMA Nodes Per Socket : 4
```

(Continued on next page)

Dell Inc.

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Platform Notes (Continued)

```
                     System Profile : Custom
                           C-States : Disabled
                Memory Patrol Scrub : Disabled
  PCI ASPM L1 Link Power Management : Disabled
     Periodic Directory Rinse Tuning : Blended
                Determinism Control : Manual
                 Determinism Slider : Power Determinism
  Algorithm Performance Boost Disable : Enabled
                Adaptive Allocation : Enabled
                  Dram Refresh Delay : Performance
                  DIMM Self Healing -
       on Uncorrectable Memory Error : Disabled


Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on 1234567-XE7745 Thu Feb 13 02:11:22 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 255 (255.4-1ubuntu8)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. BIOS
-----------------------------------------------------------


-----------------------------------------------------------
1. uname -a
  Linux 1234567-XE7745 6.8.0-52-generic #53-Ubuntu SMP PREEMPT_DYNAMIC Sat Jan 11 00:06:25 UTC 2025 x86_64
  x86_64 x86_64 GNU/Linux


-----------------------------------------------------------
2. w
   02:11:22 up 10 min,  1 user,  load average: 0.12, 0.03, 0.01
  USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1      -                02:02   36.00s  1.13s  0.33s /bin/bash ./amd_speed_aocc500_znver5_A1.sh
```

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Platform Notes (Continued)

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


     ------------------------------------------------------------
     4. ulimit -a
       time(seconds)          unlimited
       file(blocks)           unlimited
       data(kbytes)           unlimited
       stack(kbytes)          unlimited
       coredump(blocks)       0
       memory(kbytes)         unlimited
       locked memory(kbytes) 2097152
       process                6189327
       nofiles                1024
       vmemory(kbytes)        unlimited
       locks                  unlimited
       rtprio                 0


     ------------------------------------------------------------
     5. sysinfo process ancestry
      /sbin/init
      /bin/login -f --
      -bash
      /bin/bash /home/DellFiles/bin/DELL_speed.sh
      /bin/bash /home/DellFiles/bin/dell-run-main.sh speed
      /bin/bash /home/DellFiles/bin/dell-run-main.sh speed
      /bin/bash /home/DellFiles/bin/AMD/dell-run-speccpu.sh speed --define DL-VERS=6.1a --output_format
        html,pdf,txt
      python3 ./run_amd_speed_aocc500_znver5_A1.py
      /bin/bash ./amd_speed_aocc500_znver5_A1.sh
      runcpu --config amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 2 --define
        DL-BIOS-NPS=4 --define DL-VERS=6.1a --output_format html,pdf,txt intspeed
      runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 2 --define
        DL-BIOS-NPS=4 --define DL-VERS=6.1a --output_format html,pdf,txt --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 = /mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1


     ------------------------------------------------------------
     6. /proc/cpuinfo
        model name      : AMD EPYC 9555 64-Core Processor
        vendor_id       : AuthenticAMD
        cpu family      : 26
        model           : 2
        stepping        : 1
        microcode       : 0xb00211a
        bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
        TLB size        : 192 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.
```

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Platform Notes (Continued)

```
         ------------------------------------------------------------
         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):                                128
           On-line CPU(s) list:                   0-127
           Vendor ID:                             AuthenticAMD
           BIOS Vendor ID:                        AMD
           Model name:                            AMD EPYC 9555 64-Core Processor
           BIOS Model name:                       AMD EPYC 9555 64-Core Processor           CPU @ 3.2GHz
           BIOS CPU family:                       107
           CPU family:                            26
           Model:                                 2
           Thread(s) per core:                    1
           Core(s) per socket:                    64
           Socket(s):                             2
           Stepping:                              1
           Frequency boost:                       enabled
           CPU(s) scaling MHz:                    73%
           CPU max MHz:                           4409.3750
           CPU min MHz:                           1500.0000
           BogoMIPS:                              6391.49
           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 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 tsc_adjust bmi1 avx2
                                                  smep bmi2 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 avx_vnni 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 x2avic v_spec_ctrl vnmi
                                                  avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq
                                                  avx512_vnni avx512_bitalg avx512_vpopcntdq la57 rdpid bus_lock_detect
                                                  movdiri movdir64b overflow_recov succor smca avx512_vp2intersect
                                                  flush_l1d debug_swap
           L1d cache:                             6 MiB (128 instances)
           L1i cache:                             4 MiB (128 instances)
           L2 cache:                              128 MiB (128 instances)
           L3 cache:                              512 MiB (16 instances)
           NUMA node(s):                          8
           NUMA node0 CPU(s):                     0-15
           NUMA node1 CPU(s):                     16-31
           NUMA node2 CPU(s):                     32-47
           NUMA node3 CPU(s):                     48-63
           NUMA node4 CPU(s):                     64-79
           NUMA node5 CPU(s):                     80-95
           NUMA node6 CPU(s):                     96-111
           NUMA node7 CPU(s):                     112-127
```

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Platform Notes (Continued)

```
   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:   Not affected
   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       48K       6M  12 Data            1    64       1              64
     L1i       32K       4M   8 Instruction     1    64       1              64
     L2         1M     128M  16 Unified         2  1024       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: 8 nodes (0-7)
   node 0 cpus: 0-15
   node 0 size: 192754 MB
   node 0 free: 187479 MB
   node 1 cpus: 16-31
   node 1 size: 193528 MB
   node 1 free: 193200 MB
   node 2 cpus: 32-47
   node 2 size: 193528 MB
   node 2 free: 193001 MB
   node 3 cpus: 48-63
   node 3 size: 193512 MB
   node 3 free: 193203 MB
   node 4 cpus: 64-79
   node 4 size: 193528 MB
   node 4 free: 193238 MB
   node 5 cpus: 80-95
   node 5 size: 193528 MB
   node 5 free: 193254 MB
   node 6 cpus: 96-111
   node 6 size: 193528 MB
   node 6 free: 193243 MB
   node 7 cpus: 112-127
   node 7 size: 193493 MB
   node 7 free: 193111 MB
   node distances:
   node   0   1   2   3   4   5   6   7
     0:  10  12  12  12  32  32  32  32
     1:  12  10  12  12  32  32  32  32
     2:  12  12  10  12  32  32  32  32
     3:  12  12  12  10  32  32  32  32
     4:  32  32  32  32  10  12  12  12
     5:  32  32  32  32  12  10  12  12
     6:  32  32  32  32  12  12  10  12
```

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Platform Notes (Continued)

```
     7:  32  32  32  32  12  12  12  10


  ---------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1584540316 kB


  ---------------------------------------------------------------
10. who -r
   run-level 5 Feb 13 02:02


  ---------------------------------------------------------------
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8)
   Default Target  Status
   graphical       degraded


  ---------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
     UNIT                               LOAD   ACTIVE SUB    DESCRIPTION
   * systemd-networkd-wait-online.service loaded failed failed Wait for Network to be Configured
   Legend: LOAD   -> Reflects whether the unit definition was properly loaded.
           ACTIVE -> The high-level unit activation state, i.e. generalization of SUB.
           SUB    -> The low-level unit activation state, values depend on unit type.
   1 loaded units listed.


  ---------------------------------------------------------------
13. Services, from systemctl list-unit-files
   STATE           UNIT FILES
   enabled         ModemManager apparmor apport blk-availability cloud-config cloud-final cloud-init
                   cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager
                   grub-common grub-initrd-fallback keyboard-setup lm-sensors lvm2-monitor multipathd
                   networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb
                   sysstat systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved
                   systemd-timesyncd thermald tuned ua-reboot-cmds ubuntu-advantage udisks2 ufw vgauth
   enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
   disabled        console-getty debug-shell iscsid nftables rsync serial-getty@ ssh
                   systemd-boot-check-no-failures systemd-confext systemd-network-generator
                   systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code
                   systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy
                   systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysext
                   systemd-time-wait-sync upower
   indirect        systemd-sysupdate systemd-sysupdate-reboot uuidd
   masked          cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common


  ---------------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-6.8.0-52-generic
   root=UUID=c11d653b-67c8-4409-a768-d0c38050c741
   ro


  ---------------------------------------------------------------
15. cpupower frequency-info
   analyzing CPU 72:
     current policy: frequency should be within 1.50 GHz and 3.20 GHz.
                     The governor "performance" may decide which speed to use
                     within this range.
     boost state support:
       Supported: yes
       Active: yes
       Boost States: 0
       Total States: 3
```

(Continued on next page)

Dell Inc.

PowerEdge XE7745 (AMD EPYC 9555 64-Core Processor)

SPECspeed®2017_int_base = 18.7

SPECspeed®2017_int_peak = 19.1

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Feb-2025
Hardware Availability: Feb-2025
Software Availability: Jan-2025

Platform Notes (Continued)

```
       Pstate-P0:   3200MHz


   --------------------------------------------------------------
16. tuned-adm active
   Current active profile: latency-performance


   --------------------------------------------------------------
17. sysctl
   kernel.numa_balancing            1
   kernel.randomize_va_space        0
   vm.compaction_proactiveness      20
   vm.dirty_background_bytes        0
   vm.dirty_background_ratio        3
   vm.dirty_bytes                   0
   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


   --------------------------------------------------------------
18. /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


   --------------------------------------------------------------
19. /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


   --------------------------------------------------------------
20. OS release
   From /etc/*-release /etc/*-version
   os-release Ubuntu 24.04 LTS


   --------------------------------------------------------------
21. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1
   Filesystem      Type   Size  Used Avail Use% Mounted on
   tmpfs           tmpfs  80G   3.3G  77G   5% /mnt/ramdisk


   --------------------------------------------------------------
22. /sys/devices/virtual/dmi/id
     Vendor:         Dell Inc.
     Product:        PowerEdge XE7745
```

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Dell Inc.

PowerEdge XE7745 (AMD EPYC 9555 64-Core Processor)

SPECspeed®2017_int_base = 18.7

SPECspeed®2017_int_peak = 19.1

CPU2017 License: 6573		**Test Date:**	Feb-2025
Test Sponsor: Dell Inc.		**Hardware Availability:**	Feb-2025
Tested by: Dell Inc.		**Software Availability:**	Jan-2025

Platform Notes (Continued)

```
      Product Family: PowerEdge
      Serial:         1234567


  ------------------------------------------------------------
 23. dmidecode
   Additional information from dmidecode 3.5 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:
     1x 80AD000080AD HMCG94AHBRA277N 64 GB 2 rank 6400, configured at 6000
     19x 80AD000080AD HMCG94AHBRA480N 64 GB 2 rank 6400, configured at 6000
     4x 80CE000080CE M321R8GA0PB2-CCPEC 64 GB 2 rank 6400, configured at 6000


  ------------------------------------------------------------
 24. BIOS
 (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       Dell Inc.
   BIOS Version:      1.0.3
   BIOS Date:         01/14/2025
   BIOS Revision:     1.0
```

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 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, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
         | 641.leela_s(base, peak)
--------------------------------------------------------------------------------------------------------------
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, peak)
--------------------------------------------------------------------------------------------------------------
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
--------------------------------------------------------------------------------------------------------------
```

SPEC CPU®2017 Integer Speed Result

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Dell Inc.

PowerEdge XE7745 (AMD EPYC 9555 64-Core Processor)

$SPECspeed®2017\_int\_base = 18.7$

$SPECspeed®2017\_int\_peak = 19.1$

CPU2017 License:	6573	**Test Date:**	Feb-2025
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Feb-2025
Tested by:	Dell Inc.	**Software Availability:**	Jan-2025

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 -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`

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Dell Inc.

PowerEdge XE7745 (AMD EPYC 9555 64-Core Processor)

$SPECspeed®2017\_int\_base = 18.7$

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CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Feb-2025
Hardware Availability: Feb-2025
Software Availability: Jan-2025

Base Optimization Flags (Continued)

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
```

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
```

SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge XE7745 (AMD EPYC 9555 64-Core Processor)

SPECspeed®2017_int_base = 18.7

SPECspeed®2017_int_peak = 19.1

CPU2017 License: 6573		**Test Date:**	Feb-2025
Test Sponsor: Dell Inc.		**Hardware Availability:**	Feb-2025
Tested by: Dell Inc.		**Software Availability:**	Jan-2025

Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -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 -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang
```

```
602.gcc_s: Same as 600.perlbench_s
```

```
605.mcf_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-extra-inliner -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang
```

```
625.x264_s: Same as 600.perlbench_s
```

```
657.xz_s: Same as 600.perlbench_s
```

C++ benchmarks:

```
620.omnetpp_s: basepeak = yes
```

```
623.xalancbmk_s: -m64 -std=c++14
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=advanced -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -DSPEC_OPENMP -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=100 -zopt
-fvirtual-function-elimination -fvisibility=hidden
-mllvm -do-block-reorder=advanced -fopenmp=libomp -lomp
-lamdlibm -lamdalloc-ext -lflang
```

```
631.deepsjeng_s: -m64 -std=c++14
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
```

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

SPEC CPU®2017 Integer Speed Result

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$SPECspeed®2017\_int\_base = 18.7$

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CPU2017 License: 6573
Test Sponsor: Dell Inc.
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Test Date: Feb-2025
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Software Availability: Jan-2025

Peak Optimization Flags (Continued)

631.deepsjeng_s (continued):
```
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -DSPEC_OPENMP -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=100 -zopt
-fvirtual-function-elimination -fvisibility=hidden
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

641.leela_s: Same as 631.deepsjeng_s

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
```

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/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.4.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/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.4.xml

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