SPEC CPU®2017 Integer Speed Result

Dell Inc.

$SPECspeed^{®}2017\_int\_base = 18.8$

PowerEdge R6725 (AMD EPYC 9355 32-Core Processor)

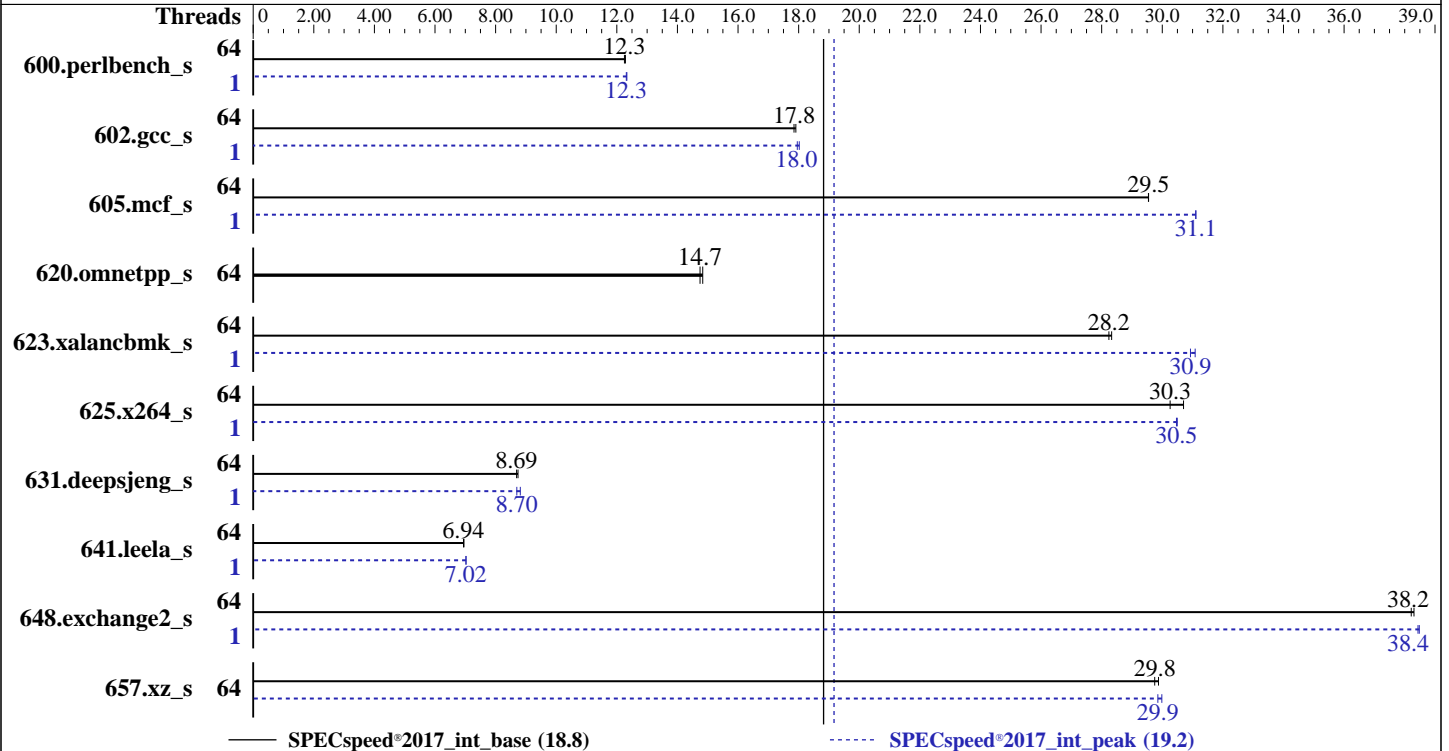$SPECspeed^{®}2017\_int\_peak = 19.2$

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

Test Date: Oct-2024
Hardware Availability: Nov-2024
Software Availability: Oct-2024

Benchmark	Threads	base	peak
600.perlbench_s	64 / 1	12.3	12.3
602.gcc_s	64 / 1	17.8	18.0
605.mcf_s	64 / 1	29.5	31.1
620.omnetpp_s	64	14.7	
623.xalancbmk_s	64 / 1	28.2	30.9
625.x264_s	64 / 1	30.3	30.5
631.deepsjeng_s	64 / 1	8.69	8.70
641.leela_s	64 / 1	6.94	7.02
648.exchange2_s	64 / 1	38.2	38.4
657.xz_s	64	29.8	29.9

SPECspeed®2017_int_base (18.8)   SPECspeed®2017_int_peak (19.2)

Hardware

CPU Name: AMD EPYC 9355
 Max MHz: 4400
 Nominal: 3550
Enabled: 64 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 / 4 cores
 Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R, running at 6000)
Storage: 60 GB on tmpfs
Other: CPU Cooling: Air

Software

OS: Ubuntu 24.04 LTS
 6.8.0-41-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 1.0.3 released Oct-2024
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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Dell Inc.

PowerEdge R6725 (AMD EPYC 9355 32-Core Processor)

SPECspeed®2017_int_base = 18.8

SPECspeed®2017_int_peak = 19.2

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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	64	**145**	**12.3**	145	12.3			1	144	12.3	**144**	**12.3**		
602.gcc_s	64	**223**	**17.8**	222	17.9			1	221	18.0	**222**	**18.0**		
605.mcf_s	64	160	29.5	**160**	**29.5**			1	152	31.1	**152**	**31.1**		
620.omnetpp_s	64	110	14.8	**111**	**14.7**			64	110	14.8	**111**	**14.7**		
623.xalancbmk_s	64	**50.2**	**28.2**	50.0	28.3			1	45.6	31.1	**45.8**	**30.9**		
625.x264_s	64	57.5	30.7	**58.3**	**30.3**			1	57.8	30.5	**57.9**	**30.5**		
631.deepsjeng_s	64	**165**	**8.69**	164	8.74			1	**165**	**8.70**	163	8.82		
641.leela_s	64	**246**	**6.94**	245	6.96			1	**243**	**7.02**	243	7.03		
648.exchange2_s	64	**76.9**	**38.2**	76.7	38.3			1	**76.5**	**38.4**	76.4	38.5		
657.xz_s	64	207	29.9	**208**	**29.8**			64	**207**	**29.9**	206	30.0		
SPECspeed®2017_int_base =		**18.8**												
SPECspeed®2017_int_peak =		**19.2**												

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) 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 = "0-63"
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 = "64"

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 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-63"
```

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 60 GB ramdisk created with the cmd: "mount -t tmpfs -o size=60G tmpfs /mnt/ramdisk"
```

Platform Notes

```
 BIOS Settings:
```

(Continued on next page)

Dell Inc.

PowerEdge R6725 (AMD EPYC 9355 32-Core Processor)

$SPECspeed^{®}2017\_int\_base = 18.8$

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

Test Date: Oct-2024
Hardware Availability: Nov-2024
Software Availability: Oct-2024

Platform Notes (Continued)

```
                    Logical Processor : Disabled
           Virtualization Technology : Disabled
              NUMA Nodes Per Socket : 4
                     Customized cTDP : 300
                      Customized PPT : 300

                      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
                      Optimizer Mode : Enabled
    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 SLR6728-R6725 Thu Oct 31 14:54:36 2024

  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. Services, from systemctl list-unit-files
  13. Linux kernel boot-time arguments, from /proc/cmdline
  14. cpupower frequency-info
  15. tuned-adm active
  16. sysctl
  17. /sys/kernel/mm/transparent_hugepage
  18. /sys/kernel/mm/transparent_hugepage/khugepaged
  19. OS release
  20. Disk information
  21. /sys/devices/virtual/dmi/id
  22. dmidecode
  23. BIOS
  ------------------------------------------------------------

  ------------------------------------------------------------
  1. uname -a
    Linux SLR6728-R6725 6.8.0-41-generic #41-Ubuntu SMP PREEMPT_DYNAMIC Fri Aug  2 20:41:06 UTC 2024 x86_64
    x86_64 x86_64 GNU/Linux

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

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Dell Inc.

PowerEdge R6725 (AMD EPYC 9355 32-Core Processor)

$SPECspeed^{®}2017\_int\_base = 18.8$

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CPU2017 License:	6573	**Test Date:**	Oct-2024
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Nov-2024
Tested by:	Dell Inc.	**Software Availability:**	Oct-2024

Platform Notes (Continued)

```
 2. w
   14:54:36 up 9 min,  1 user,  load average: 0.04, 0.01, 0.00
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                14:45   43.00s  1.09s  0.34s /bin/bash ./amd_speed_aocc500_znver5_A1.sh

   ------------------------------------------------------------
 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                6189468
   nofiles                1024
   vmemory(kbytes)        unlimited
   locks                  unlimited
   rtprio                 0

   ------------------------------------------------------------
 5. sysinfo process ancestry
  /sbin/init
  /bin/login -p --
  -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=6.0.5 --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=6.0.5 --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=6.0.5 --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 9355 32-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       : 32
     siblings        : 32
     2 physical ids (chips)
     64 processors (hardware threads)
     physical id 0: core ids 0-3,16-19,32-35,48-51,64-67,80-83,96-99,112-115
```

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Platform Notes (Continued)

```
    physical id 1: core ids 0-3,16-19,32-35,48-51,64-67,80-83,96-99,112-115
    physical id 0: apicids 0-3,16-19,32-35,48-51,64-67,80-83,96-99,112-115
    physical id 1: apicids 128-131,144-147,160-163,176-179,192-195,208-211,224-227,240-243
  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):                            64
   On-line CPU(s) list:               0-63
   Vendor ID:                         AuthenticAMD
   BIOS Vendor ID:                    AMD
   Model name:                        AMD EPYC 9355 32-Core Processor
   BIOS Model name:                   AMD EPYC 9355 32-Core Processor              CPU @ 3.5GHz
   BIOS CPU family:                   107
   CPU family:                        26
   Model:                             2
   Thread(s) per core:                1
   Core(s) per socket:                32
   Socket(s):                         2
   Stepping:                          1
   Frequency boost:                   enabled
   CPU(s) scaling MHz:                81%
   CPU max MHz:                       4413.2319
   CPU min MHz:                       1500.0000
   BogoMIPS:                          7090.52
   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 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 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 fsrm avx512_vp2intersect
                                      flush_l1d debug_swap
   L1d cache:                         3 MiB (64 instances)
   L1i cache:                         2 MiB (64 instances)
   L2 cache:                          64 MiB (64 instances)
   L3 cache:                          512 MiB (16 instances)
   NUMA node(s):                      8
   NUMA node0 CPU(s):                 0-7
   NUMA node1 CPU(s):                 8-15
   NUMA node2 CPU(s):                 16-23
```

(Continued on next page)

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Platform Notes (Continued)

```
  NUMA node3 CPU(s):               24-31
  NUMA node4 CPU(s):               32-39
  NUMA node5 CPU(s):               40-47
  NUMA node6 CPU(s):               48-55
  NUMA node7 CPU(s):               56-63
  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       3M   12 Data           1    64      1            64
     L1i      32K       2M    8 Instruction    1    64      1            64
     L2        1M      64M   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: 0-7
  node 0 size: 192811 MB
  node 0 free: 192542 MB
  node 1 cpus: 8-15
  node 1 size: 193531 MB
  node 1 free: 193167 MB
  node 2 cpus: 16-23
  node 2 size: 193531 MB
  node 2 free: 193262 MB
  node 3 cpus: 24-31
  node 3 size: 193515 MB
  node 3 free: 193345 MB
  node 4 cpus: 32-39
  node 4 size: 193531 MB
  node 4 free: 193316 MB
  node 5 cpus: 40-47
  node 5 size: 193487 MB
  node 5 free: 193244 MB
  node 6 cpus: 48-55
  node 6 size: 193531 MB
  node 6 free: 187750 MB
  node 7 cpus: 56-63
  node 7 size: 193499 MB
  node 7 free: 193245 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
```

(Continued on next page)

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Platform Notes (Continued)

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


  ------------------------------------------------------------
  9. /proc/meminfo
     MemTotal:       1584576552 kB


  ------------------------------------------------------------
  10. who -r
     run-level 5 Oct 31 14:45


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


  ------------------------------------------------------------
  12. 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


  ------------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
     BOOT_IMAGE=/boot/vmlinuz-6.8.0-41-generic
     root=UUID=646610b2-1524-4713-b470-eb06f7216655
     ro


  ------------------------------------------------------------
  14. cpupower frequency-info
     analyzing CPU 4:
       current policy: frequency should be within 1.50 GHz and 3.55 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
       Pstate-P0:  19800MHz


  ------------------------------------------------------------
  15. tuned-adm active
```

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CPU2017 License: 6573
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Tested by: Dell Inc.

Test Date: Oct-2024
Hardware Availability: Nov-2024
Software Availability: Oct-2024

Platform Notes (Continued)

```
   Current active profile: latency-performance

   ----------------------------------------------------------
16. 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

   ----------------------------------------------------------
17. /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

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

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

   ----------------------------------------------------------
20. 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   60G   3.3G    57G   6% /mnt/ramdisk

   ----------------------------------------------------------
21. /sys/devices/virtual/dmi/id
     Vendor:         Dell Inc.
     Product:        PowerEdge R6725
     Product Family: PowerEdge
     Serial:         SLR6728

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

SPEC CPU®2017 Integer Speed Result

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Dell Inc.

PowerEdge R6725 (AMD EPYC 9355 32-Core Processor)

SPECspeed®2017_int_base = 18.8

SPECspeed®2017_int_peak = 19.2

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Platform Notes (Continued)

```
  22. 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:
      24x 80CE000080CE M321R8GA0PB2-CCPPC 64 GB 2 rank 6400, configured at 6000


    -----------------------------------------------------------
  23. BIOS
  (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       Dell Inc.
    BIOS Version:      1.0.3
    BIOS Date:         10/28/2024
    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
----------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
clang
```

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

(Continued on next page)

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Base Compiler Invocation (Continued)

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
```

Fortran benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
```

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SPEC CPU®2017 Integer Speed Result

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Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-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
```

Peak Optimization Flags

C benchmarks:

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

Dell Inc.

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Peak Optimization Flags (Continued)

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`
`-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast`
`-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp`

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Peak Optimization Flags (Continued)

631.deepsjeng_s (continued):
```
-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:
```
-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 -lamdalloc -lflang
```

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
```

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

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