SPEC CPU®2017 Integer Speed Result

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Dell Inc.

$SPECspeed^{®}2017\_int\_base = \quad 11.3$

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

$SPECspeed^{®}2017_int_peak = $ Not Run
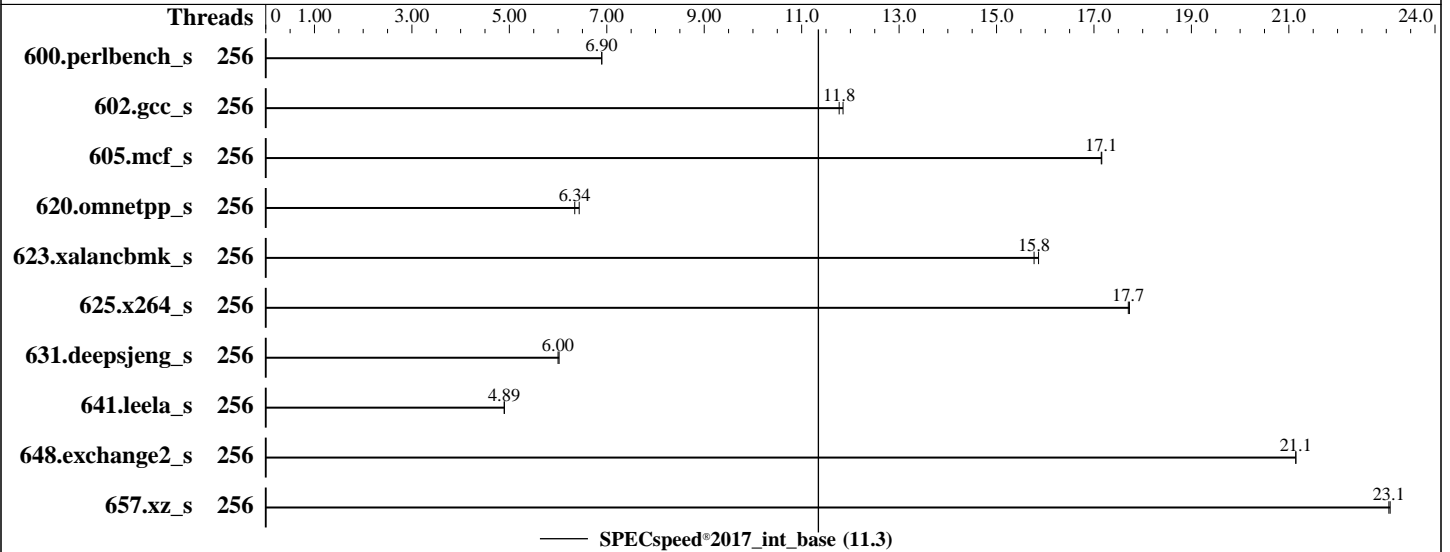
CPU2017 License: 6573		**Test Date:** May-2023
Test Sponsor:	Dell Inc.	**Hardware Availability:** Jun-2023
Tested by:	Dell Inc.	**Software Availability:** Nov-2022

Threads

Scale: 0, 1.00, 3.00, 5.00, 7.00, 9.00, 11.0, 13.0, 15.0, 17.0, 19.0, 21.0, 24.0

Benchmark	Threads	Value
600.perlbench_s	256	6.90
602.gcc_s	256	11.8
605.mcf_s	256	17.1
620.omnetpp_s	256	6.34
623.xalancbmk_s	256	15.8
625.x264_s	256	17.7
631.deepsjeng_s	256	6.00
641.leela_s	256	4.89
648.exchange2_s	256	21.1
657.xz_s	256	23.1

SPECspeed®2017_int_base (11.3)

Hardware

CPU Name: AMD EPYC 9754
Max MHz: 3100
Nominal: 2250
Enabled: 256 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 256 MB I+D on chip per chip, 16 MB shared / 8 cores
Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 130 GB on tmpfs
Other: None

Software

OS: Ubuntu 22.04.1 LTS
 5.15.0-46-generic
Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
Parallel: Yes
Firmware: Version 1.3.11 released Mar-2023
File System: tmpfs
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)
https://www.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	256	**257**	**6.90**	257	6.90									
602.gcc_s	256	336	11.8	**338**	**11.8**									
605.mcf_s	256	275	17.2	**275**	**17.1**									
620.omnetpp_s	256	254	6.43	**257**	**6.34**									
623.xalancbmk_s	256	**89.9**	**15.8**	89.3	15.9									
625.x264_s	256	99.5	17.7	**99.6**	**17.7**									
631.deepsjeng_s	256	238	6.02	**239**	**6.00**									
641.leela_s	256	348	4.90	**349**	**4.89**									
648.exchange2_s	256	**139**	**21.1**	139	21.1									
657.xz_s	256	268	23.1	**268**	**23.1**									

SPECspeed®2017_int_base = 11.3
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

```
The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/
```

Submit Notes

```
The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

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Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-255"
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e/amd_speed_aocc400_genoa_B_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "256"
```

General Notes

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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.


 Benchmark run from a 130 GB ramdisk created with the cmd: "mount -t tmpfs -o size=130G tmpfs /mnt/ramdisk"
```

Platform Notes

```
 BIOS settings:
             DRAM Refresh Delay : Performance
         DIMM Self Healing on
     Uncorrectable Memory Error : Disabled
              Logical Processor : Disabled
     Virtualization Technology : Disabled
            NUMA Nodes per Socket : 4
        L3 Cache as NUMA Domain : Enabled

                 System Profile : Custom
                       C-States : Disabled
            Memory Patrol Scrub : Disabled
           PCI ASPM L1 Link
             Power Management : Disabled
             Determinism Slider : Power Determinism
        Algorithm Performance
          Boost Disable (ApbDis) : Enabled

 Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on genoa-sut Mon May  1 17:46:46 2023

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

 -----------------------------------------------------------
 Table of contents
 -----------------------------------------------------------
   1. uname -a
   2. w
   3. Username
```

(Continued on next page)

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Platform Notes (Continued)

```
   4. ulimit -a
   5. sysinfo process ancestry
   6. /proc/cpuinfo
   7. lscpu
   8. numactl --hardware
   9. /proc/meminfo
  10. who -r
  11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.4)
  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 genoa-sut 5.15.0-46-generic #49-Ubuntu SMP Thu Aug 4 18:03:25 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux


    ----------------------------------------------------------
  2. w
     17:46:46 up 21 min,  1 user,  load average: 0.33, 0.17, 0.37
    USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
    root      tty1     -               17:45   38.00s  1.89s  0.39s /bin/bash ./amd_speed_aocc400_genoa_B1.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              6190229
    nofiles              1024
    vmemory(kbytes)      unlimited
    locks                unlimited
    rtprio               0


    ----------------------------------------------------------
  5. sysinfo process ancestry
  /sbin/init
  /bin/login -p --
  -bash
  /bin/bash ./DELL_speed.sh
  /bin/bash ./dell-run-main.sh speed
  /bin/bash ./dell-run-main.sh speed
  /bin/bash ./dell-run-specspeed.sh --output_format csv,html,pdf,txt -define
```

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Platform Notes (Continued)

```
    Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --define Dell-BIOS-LogProcD=1
  python3 ./run_amd_speed_aocc400_genoa_B1.py
  /bin/bash ./amd_speed_aocc400_genoa_B1.sh
  runcpu --config amd_speed_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
    csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --define Dell-BIOS-LogProcD=1 intspeed
  runcpu --configfile amd_speed_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
    csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --define Dell-BIOS-LogProcD=1 --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 = /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e


  --------------------------------------------------------------
  6. /proc/cpuinfo
      model name      : AMD EPYC 9754 128-Core Processor
      vendor_id       : AuthenticAMD
      cpu family      : 25
      model           : 160
      stepping        : 2
      microcode       : 0xaa00205
      bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
      TLB size        : 3584 4K pages
      cpu cores       : 128
      siblings        : 128
      2 physical ids (chips)
      256 processors (hardware threads)
      physical id 0: core ids
      0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
      240-247
      physical id 1: core ids
      0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
      240-247
      physical id 0: apicids
      0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
      240-247
      physical id 1: apicids
      256-263,272-279,288-295,304-311,320-327,336-343,352-359,368-375,384-391,400-407,416-423,432-439,448-455,4
      64-471,480-487,496-503
    Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
    virtualized systems.  Use the above data carefully.


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

  From lscpu from util-linux 2.37.2:
    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):                        256
    On-line CPU(s) list:           0-255
    Vendor ID:                     AuthenticAMD
    Model name:                    AMD EPYC 9754 128-Core Processor
    CPU family:                    25
    Model:                         160
    Thread(s) per core:            1
    Core(s) per socket:            128
    Socket(s):                     2
    Stepping:                      2
    Frequency boost:               enabled
```

(Continued on next page)

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Platform Notes (Continued)

```
CPU max MHz:                     3101.0000
CPU min MHz:                     400.0000
BogoMIPS:                        4501.10
Flags:                           fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                                 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
                                 constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf 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
                                 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1
                                 avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                                 avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
                                 xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                                 avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin cppc arat npt
                                 lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
                                 pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
                                 umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                                 avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d
Virtualization:                  AMD-V
L1d cache:                       8 MiB (256 instances)
L1i cache:                       8 MiB (256 instances)
L2 cache:                        256 MiB (256 instances)
L3 cache:                        512 MiB (32 instances)
NUMA node(s):                    32
NUMA node0 CPU(s):               0-7
NUMA node1 CPU(s):               8-15
NUMA node2 CPU(s):               64-71
NUMA node3 CPU(s):               72-79
NUMA node4 CPU(s):               32-39
NUMA node5 CPU(s):               40-47
NUMA node6 CPU(s):               96-103
NUMA node7 CPU(s):               104-111
NUMA node8 CPU(s):               48-55
NUMA node9 CPU(s):               56-63
NUMA node10 CPU(s):              112-119
NUMA node11 CPU(s):              120-127
NUMA node12 CPU(s):              16-23
NUMA node13 CPU(s):              24-31
NUMA node14 CPU(s):              80-87
NUMA node15 CPU(s):              88-95
NUMA node16 CPU(s):              128-135
NUMA node17 CPU(s):              136-143
NUMA node18 CPU(s):              192-199
NUMA node19 CPU(s):              200-207
NUMA node20 CPU(s):              160-167
NUMA node21 CPU(s):              168-175
NUMA node22 CPU(s):              224-231
NUMA node23 CPU(s):              232-239
NUMA node24 CPU(s):              176-183
NUMA node25 CPU(s):              184-191
NUMA node26 CPU(s):              240-247
NUMA node27 CPU(s):              248-255
NUMA node28 CPU(s):              144-151
NUMA node29 CPU(s):              152-159
NUMA node30 CPU(s):              208-215
NUMA node31 CPU(s):              216-223
Vulnerability Itlb multihit:     Not affected
Vulnerability L1tf:              Not affected
Vulnerability Mds:               Not affected
```

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Platform Notes (Continued)

```
   Vulnerability Meltdown:          Not affected
   Vulnerability Mmio stale data:   Not affected
   Vulnerability Retbleed:          Not affected
   Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
   Vulnerability Spectre v1:        Mitigation; usercopy/swapgs barriers and __user pointer sanitization
   Vulnerability Spectre v2:        Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, RSB
                                    filling
   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       8M    8 Data             1    64        1             64
       L1i       32K       8M    8 Instruction      1    64        1             64
       L2         1M     256M    8 Unified          2  2048        1             64
       L3        16M     512M   16 Unified          3 16384        1             64

   -----------------------------------------------------------
   8. numactl --hardware
   NOTE: a numactl 'node' might or might not correspond to a physical chip.
     available: 32 nodes (0-31)
     node 0 cpus: 0-7
     node 0 size: 47928 MB
     node 0 free: 47653 MB
     node 1 cpus: 8-15
     node 1 size: 48381 MB
     node 1 free: 48183 MB
     node 2 cpus: 64-71
     node 2 size: 48381 MB
     node 2 free: 48200 MB
     node 3 cpus: 72-79
     node 3 size: 48379 MB
     node 3 free: 48200 MB
     node 4 cpus: 32-39
     node 4 size: 48381 MB
     node 4 free: 48231 MB
     node 5 cpus: 40-47
     node 5 size: 48381 MB
     node 5 free: 48263 MB
     node 6 cpus: 96-103
     node 6 size: 48381 MB
     node 6 free: 48227 MB
     node 7 cpus: 104-111
     node 7 size: 48379 MB
     node 7 free: 48258 MB
     node 8 cpus: 48-55
     node 8 size: 48381 MB
     node 8 free: 48250 MB
     node 9 cpus: 56-63
     node 9 size: 48381 MB
     node 9 free: 48237 MB
     node 10 cpus: 112-119
     node 10 size: 48381 MB
     node 10 free: 48236 MB
     node 11 cpus: 120-127
     node 11 size: 48379 MB
     node 11 free: 48241 MB
     node 12 cpus: 16-23
     node 12 size: 48381 MB
     node 12 free: 48254 MB
```

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Platform Notes (Continued)

```
    node 13 cpus: 24-31
    node 13 size: 48381 MB
    node 13 free: 48263 MB
    node 14 cpus: 80-87
    node 14 size: 48381 MB
    node 14 free: 48246 MB
    node 15 cpus: 88-95
    node 15 size: 48363 MB
    node 15 free: 48242 MB
    node 16 cpus: 128-135
    node 16 size: 48381 MB
    node 16 free: 48250 MB
    node 17 cpus: 136-143
    node 17 size: 48381 MB
    node 17 free: 48248 MB
    node 18 cpus: 192-199
    node 18 size: 48381 MB
    node 18 free: 48264 MB
    node 19 cpus: 200-207
    node 19 size: 48379 MB
    node 19 free: 48248 MB
    node 20 cpus: 160-167
    node 20 size: 48381 MB
    node 20 free: 48257 MB
    node 21 cpus: 168-175
    node 21 size: 48381 MB
    node 21 free: 48252 MB
    node 22 cpus: 224-231
    node 22 size: 48381 MB
    node 22 free: 48248 MB
    node 23 cpus: 232-239
    node 23 size: 48344 MB
    node 23 free: 48195 MB
    node 24 cpus: 176-183
    node 24 size: 48381 MB
    node 24 free: 48254 MB
    node 25 cpus: 184-191
    node 25 size: 48381 MB
    node 25 free: 48262 MB
    node 26 cpus: 240-247
    node 26 size: 48381 MB
    node 26 free: 48254 MB
    node 27 cpus: 248-255
    node 27 size: 48379 MB
    node 27 free: 48253 MB
    node 28 cpus: 144-151
    node 28 size: 48381 MB
    node 28 free: 44544 MB
    node 29 cpus: 152-159
    node 29 size: 48381 MB
    node 29 free: 48196 MB
    node 30 cpus: 208-215
    node 30 size: 48381 MB
    node 30 free: 48144 MB
    node 31 cpus: 216-223
    node 31 size: 48347 MB
    node 31 free: 48094 MB
    node distances:
    node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24
      25  26  27  28  29  30  31
```

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Platform Notes (Continued)

```
  0:  10  11  11  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32  32
  1:  11  10  11  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
  2:  11  11  10  11  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32  32
  3:  11  11  11  10  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32  32
  4:  12  12  12  12  10  11  11  11  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32  32
  5:  12  12  12  12  11  10  11  11  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
  6:  12  12  12  12  11  11  10  11  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
  7:  12  12  12  12  11  11  11  10  12  12  12  12  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
  8:  12  12  12  12  12  12  12  12  10  11  11  11  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
  9:  12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
 10:  12  12  12  12  12  12  12  12  11  11  10  11  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32  32
 11:  12  12  12  12  12  12  12  12  11  11  11  10  12  12  12  12  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32  32
 12:  12  12  12  12  12  12  12  12  12  12  12  12  10  11  11  11  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32  32
 13:  12  12  12  12  12  12  12  12  12  12  12  12  11  10  11  11  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
 14:  12  12  12  12  12  12  12  12  12  12  12  12  11  11  10  11  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
 15:  12  12  12  12  12  12  12  12  12  12  12  12  11  11  11  10  32  32  32  32  32  32  32  32  32
     32  32  32  32  32  32
 16:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  10  11  11  11  12  12  12  12  12
     12  12  12  12  12  12  12
 17:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  10  11  11  12  12  12  12  12
     12  12  12  12  12  12  12
 18:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  10  11  12  12  12  12  12
     12  12  12  12  12  12  12
 19:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  11  11  11  10  12  12  12  12  12
     12  12  12  12  12  12  12
 20:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  10  11  11  11  12
     12  12  12  12  12  12  12
 21:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  11  10  11  11  12
     12  12  12  12  12  12  12
 22:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  11  11  10  11  12
     12  12  12  12  12  12  12
 23:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  11  11  11  10  12
     12  12  12  12  12  12  12
 24:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  10
     11  11  11  12  12  12  12
 25:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  11
     10  11  11  12  12  12  12
 26:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  11
     11  10  11  12  12  12  12
 27:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  11
     11  11  10  12  12  12  12
 28:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  12
     12  12  12  10  11  11  11
 29:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  12
     12  12  12  11  10  11  11
```

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Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECspeed®2017_int_base =   11.3

SPECspeed®2017_int_peak = Not Run

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

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Nov-2022

Platform Notes (Continued)

```
   30:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  12
        12  12  12  11  11  10  11
   31:  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  12  12  12  12
        12  12  12  11  11  11  10

   --------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1584812528 kB


   --------------------------------------------------------------
10. who -r
    run-level 3 May 1 17:25


   --------------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.4)
    Default Target  Status
    multi-user      running


   --------------------------------------------------------------
12. Services, from systemctl list-unit-files
    STATE            UNIT FILES
    enabled          ModemManager blk-availability cloud-config cloud-final cloud-init cloud-init-local
                     console-setup cron dmesg e2scrub_reap finalrd getty@ grub-common grub-initrd-fallback
                     irqbalance keyboard-setup lm-sensors lvm2-monitor lxd-agent networkd-dispatcher open-iscsi
                     open-vm-tools pollinate rsync rsyslog secureboot-db setvtrgb ssh systemd-networkd
                     systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald
                     tuned ua-reboot-cmds ubuntu-advantage udisks2 vgauth
    enabled-runtime  netplan-ovs-cleanup rc-local systemd-remount-fs
    disabled         apparmor console-getty debug-shell iscsid multipathd nftables powertop serial-getty@
                     smartmontools sysstat systemd-boot-check-no-failures systemd-network-generator
                     systemd-sysext systemd-time-wait-sync ufw upower
    generated        apport
    indirect         uuidd
    masked           accounts-daemon alsa-utils atd cryptdisks cryptdisks-early gpu-manager hwclock lvm2
                     multipath-tools-boot rc rcS screen-cleanup sudo x11-common

   --------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/vmlinuz-5.15.0-46-generic
    root=/dev/mapper/ubuntu--vg-ubuntu--lv
    ro

   --------------------------------------------------------------
14. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 400 MHz and 3.10 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:  2250MHz


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


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

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Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

$SPECspeed®2017\_int\_base =$ 11.3

$SPECspeed®2017_int_peak = $ Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
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Test Date: May-2023
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Platform Notes (Continued)

```
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 22.04.1 LTS


  ----------------------------------------------------------
20. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e
  Filesystem      Type   Size  Used Avail Use% Mounted on
  tmpfs           tmpfs  130G  3.5G  127G   3% /mnt/ramdisk


  ----------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge R6625
    Product Family: PowerEdge
    Serial:         BGP4016


  ----------------------------------------------------------
22. dmidecode
  Additional information from dmidecode 3.3 follows.  WARNING: Use caution when you interpret this section.
  The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
```

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Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

$SPECspeed^{®}2017\_int\_base = 11.3$

$SPECspeed^{®}2017_int_peak = $ Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
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Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Nov-2022

Platform Notes (Continued)

```
   determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
   "DMTF SMBIOS" standard.
   Memory:
     24x 802C0000802C MTC40F2046S1RC48BA1 64 GB 2 rank 4800


   ------------------------------------------------------------
   23. BIOS
   (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:        Dell Inc.
     BIOS Version:       1.3.11
     BIOS Date:          03/31/2023
     BIOS Revision:      1.3
```

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 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
--------------------------------------------------------------------------------------------------------------


==============================================================================================================
C++      | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)
--------------------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
--------------------------------------------------------------------------------------------------------------


==============================================================================================================
Fortran | 648.exchange2_s(base)
--------------------------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
--------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
clang
```

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

Fortran benchmarks:
```
flang
```

SPEC CPU®2017 Integer Speed Result

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Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECspeed®2017_int_base =   11.3

SPECspeed®2017_int_peak = Not Run

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

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Nov-2022

Base Portability Flags

600.perlbench_s: `-DSPEC_LINUX_X64 -DSPEC_LP64`
602.gcc_s: `-DSPEC_LP64`
605.mcf_s: `-DSPEC_LP64`
620.omnetpp_s: `-DSPEC_LP64`
623.xalancbmk_s: `-DSPEC_LINUX -DSPEC_LP64`
625.x264_s: `-DSPEC_LP64`
631.deepsjeng_s: `-DSPEC_LP64`
641.leela_s: `-DSPEC_LP64`
648.exchange2_s: `-DSPEC_LP64`
657.xz_s: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lflang
-lamdalloc
```

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

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

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

SPEC CPU®2017 Integer Speed Result

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Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECspeed®2017_int_base = 11.3

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CPU2017 License: 6573
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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/aocc400-flags.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.1.html`

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

`http://www.spec.org/cpu2017/flags/aocc400-flags.xml`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.1.xml`

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

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