SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

$SPECrate®2017\_int\_base = 1820$

$SPECrate®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

Copies

Benchmark	Copies	Result
500.perlbench_r	512	1520
502.gcc_r	512	1140
505.mcf_r	512	2440
520.omnetpp_r	512	837
523.xalancbmk_r	512	1550
525.x264_r	512	4900
531.deepsjeng_r	512	1780
541.leela_r	512	1760
548.exchange2_r	512	4910
557.xz_r	512	978

SPECrate®2017_int_base (1820)

Hardware

CPU Name: AMD EPYC 9754
 Max MHz: 3100
 Nominal: 2250
Enabled: 256 cores, 2 chips, 2 threads/core
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: 240 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: No
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.

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base =   1820

SPECrate®2017_int_peak = Not Run
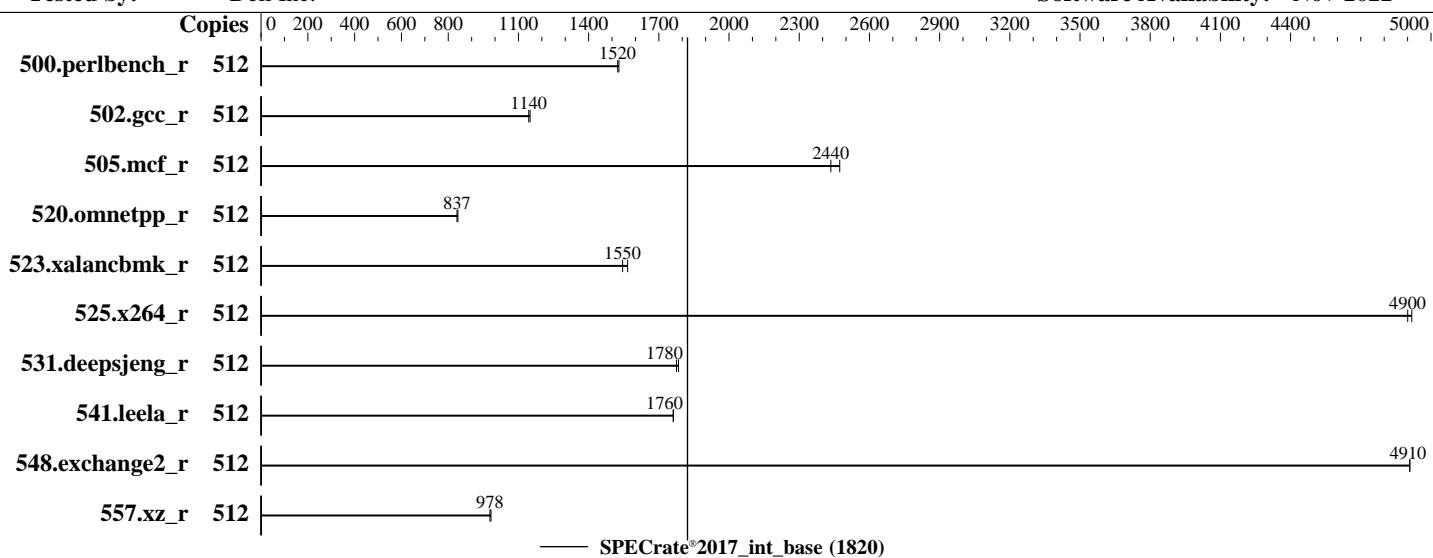
CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	512	533	1530	**535**	**1520**									
502.gcc_r	512	**634**	**1140**	631	1150									
505.mcf_r	512	**340**	**2440**	335	2470									
520.omnetpp_r	512	798	841	**802**	**837**									
523.xalancbmk_r	512	**350**	**1550**	345	1570									
525.x264_r	512	**183**	**4900**	182	4920									
531.deepsjeng_r	512	**330**	**1780**	329	1780									
541.leela_r	512	**481**	**1760**	481	1760									
548.exchange2_r	512	**273**	**4910**	273	4910									
557.xz_r	512	563	983	**565**	**978**									
SPECrate®2017_int_base =		**1820**												
SPECrate®2017_int_peak =		**Not Run**												

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

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

Submit Notes

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

Operating System Notes

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

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

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

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

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

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base =   1820

SPECrate®2017_int_peak = Not Run

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
     "/mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e/amd_rate_aocc400_genoa_B_lib/lib:/mnt/ramdisk/cpu2017-1.1.9-ao
     cc400-B1e/amd_rate_aocc400_genoa_B_lib/lib32:"
MALLOC_CONF = "retain:true"
```

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 240 GB ramdisk created with the cmd: "mount -t tmpfs -o size=240G tmpfs /mnt/ramdisk"
```

Platform Notes

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

               System Profile : Custom
          Memory Patrol Scrub : Disabled
          PCI ASPM L1 Link
              Power Management : Disabled
           Determinism Slider : Power Determinism

 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 14:27:25 2023

 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 249 (249.11-0ubuntu3.4)
```

(Continued on next page)

Dell Inc.

SPECrate®2017_int_base =   1820

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®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)

```
 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
    14:27:25 up 13 min,  1 user,  load average: 0.43, 1.29, 2.41
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                14:14   37.00s  2.41s  0.42s /bin/bash ./amd_rate_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              6189952
   nofiles              1024
   vmemory(kbytes)      unlimited
   locks                unlimited
   rtprio               0

-------------------------------------------------------------
 5. sysinfo process ancestry
  /sbin/init
  /bin/login -p --
  -bash
  /bin/bash ./DELL_rate.sh
  /bin/bash ./dell-run-main.sh rate
  /bin/bash ./dell-run-main.sh rate
  /bin/bash ./dell-run-specrate.sh --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc
  python3 ./run_amd_rate_aocc400_genoa_B1.py
  /bin/bash ./amd_rate_aocc400_genoa_B1.sh
  runcpu --config amd_rate_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
    csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc intrate
  runcpu --configfile amd_rate_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
    csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --nopower --runmode rate --tune base --size
    test:train:refrate intrate --nopreenv --note-preenv --logfile
    $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
```

(Continued on next page)

Dell Inc.

SPECrate®2017_int_base =   1820

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®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)

```
 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         : 256
    2 physical ids (chips)
    512 processors (hardware threads)
    physical id 0: core ids 0-127
    physical id 1: core ids 0-127
    physical id 0: apicids 0-255
    physical id 1: apicids 256-511
 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):                512
  On-line CPU(s) list:   0-511
  Vendor ID:             AuthenticAMD
  Model name:            AMD EPYC 9754 128-Core Processor
  CPU family:            25
  Model:                 160
  Thread(s) per core:    2
  Core(s) per socket:    128
  Socket(s):             2
  Stepping:              2
  Frequency boost:       enabled
  CPU max MHz:           3101.0000
  CPU min MHz:           400.0000
  BogoMIPS:              4501.50
  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
```

(Continued on next page)

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base = 1820

SPECrate®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)

```
                               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):        0-7,256-263
     NUMA node1 CPU(s):        8-15,264-271
     NUMA node2 CPU(s):        64-71,320-327
     NUMA node3 CPU(s):        72-79,328-335
     NUMA node4 CPU(s):        32-39,288-295
     NUMA node5 CPU(s):        40-47,296-303
     NUMA node6 CPU(s):        96-103,352-359
     NUMA node7 CPU(s):        104-111,360-367
     NUMA node8 CPU(s):        48-55,304-311
     NUMA node9 CPU(s):        56-63,312-319
     NUMA node10 CPU(s):       112-119,368-375
     NUMA node11 CPU(s):       120-127,376-383
     NUMA node12 CPU(s):       16-23,272-279
     NUMA node13 CPU(s):       24-31,280-287
     NUMA node14 CPU(s):       80-87,336-343
     NUMA node15 CPU(s):       88-95,344-351
     NUMA node16 CPU(s):       128-135,384-391
     NUMA node17 CPU(s):       136-143,392-399
     NUMA node18 CPU(s):       192-199,448-455
     NUMA node19 CPU(s):       200-207,456-463
     NUMA node20 CPU(s):       160-167,416-423
     NUMA node21 CPU(s):       168-175,424-431
     NUMA node22 CPU(s):       224-231,480-487
     NUMA node23 CPU(s):       232-239,488-495
     NUMA node24 CPU(s):       176-183,432-439
     NUMA node25 CPU(s):       184-191,440-447
     NUMA node26 CPU(s):       240-247,496-503
     NUMA node27 CPU(s):       248-255,504-511
     NUMA node28 CPU(s):       144-151,400-407
     NUMA node29 CPU(s):       152-159,408-415
     NUMA node30 CPU(s):       208-215,464-471
     NUMA node31 CPU(s):       216-223,472-479
     Vulnerability Itlb multihit:    Not affected
     Vulnerability L1tf:             Not affected
     Vulnerability Mds:              Not affected
     Vulnerability Meltdown:         Not affected
     Vulnerability Mmio stale data:  Not affected
     Vulnerability Retbleed:         Not affected
     Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
     Vulnerability Spectre v1:       Mitigation; usercopy/swapgs barriers and __user pointer sanitization
     Vulnerability Spectre v2:       Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP always-on, 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
```

(Continued on next page)

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base =   1820

SPECrate®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)

```
     -------------------------------------------------------------
     8. numactl --hardware
     NOTE: a numactl 'node' might or might not correspond to a physical chip.
       available: 32 nodes (0-31)
       node 0 cpus: 0-7,256-263
       node 0 size: 47926 MB
       node 0 free: 47395 MB
       node 1 cpus: 8-15,264-271
       node 1 size: 48380 MB
       node 1 free: 47958 MB
       node 2 cpus: 64-71,320-327
       node 2 size: 48380 MB
       node 2 free: 47863 MB
       node 3 cpus: 72-79,328-335
       node 3 size: 48378 MB
       node 3 free: 47993 MB
       node 4 cpus: 32-39,288-295
       node 4 size: 48380 MB
       node 4 free: 48140 MB
       node 5 cpus: 40-47,296-303
       node 5 size: 48380 MB
       node 5 free: 48146 MB
       node 6 cpus: 96-103,352-359
       node 6 size: 48380 MB
       node 6 free: 48131 MB
       node 7 cpus: 104-111,360-367
       node 7 size: 48378 MB
       node 7 free: 48108 MB
       node 8 cpus: 48-55,304-311
       node 8 size: 48380 MB
       node 8 free: 48148 MB
       node 9 cpus: 56-63,312-319
       node 9 size: 48344 MB
       node 9 free: 48105 MB
       node 10 cpus: 112-119,368-375
       node 10 size: 48380 MB
       node 10 free: 48120 MB
       node 11 cpus: 120-127,376-383
       node 11 size: 48378 MB
       node 11 free: 48143 MB
       node 12 cpus: 16-23,272-279
       node 12 size: 48380 MB
       node 12 free: 48122 MB
       node 13 cpus: 24-31,280-287
       node 13 size: 48380 MB
       node 13 free: 48065 MB
       node 14 cpus: 80-87,336-343
       node 14 size: 48380 MB
       node 14 free: 48130 MB
       node 15 cpus: 88-95,344-351
       node 15 size: 48362 MB
       node 15 free: 44557 MB
       node 16 cpus: 128-135,384-391
       node 16 size: 48380 MB
       node 16 free: 48146 MB
       node 17 cpus: 136-143,392-399
       node 17 size: 48380 MB
       node 17 free: 48188 MB
       node 18 cpus: 192-199,448-455
       node 18 size: 48380 MB
```

(Continued on next page)

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base = 1820

SPECrate®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)

```
   node 18 free: 48192 MB
   node 19 cpus: 200-207,456-463
   node 19 size: 48378 MB
   node 19 free: 48190 MB
   node 20 cpus: 160-167,416-423
   node 20 size: 48380 MB
   node 20 free: 48198 MB
   node 21 cpus: 168-175,424-431
   node 21 size: 48380 MB
   node 21 free: 48196 MB
   node 22 cpus: 224-231,480-487
   node 22 size: 48380 MB
   node 22 free: 48187 MB
   node 23 cpus: 232-239,488-495
   node 23 size: 48378 MB
   node 23 free: 48181 MB
   node 24 cpus: 176-183,432-439
   node 24 size: 48380 MB
   node 24 free: 48196 MB
   node 25 cpus: 184-191,440-447
   node 25 size: 48380 MB
   node 25 free: 48197 MB
   node 26 cpus: 240-247,496-503
   node 26 size: 48380 MB
   node 26 free: 48203 MB
   node 27 cpus: 248-255,504-511
   node 27 size: 48378 MB
   node 27 free: 48184 MB
   node 28 cpus: 144-151,400-407
   node 28 size: 48380 MB
   node 28 free: 48201 MB
   node 29 cpus: 152-159,408-415
   node 29 size: 48380 MB
   node 29 free: 48198 MB
   node 30 cpus: 208-215,464-471
   node 30 size: 48380 MB
   node 30 free: 48189 MB
   node 31 cpus: 216-223,472-479
   node 31 size: 48336 MB
   node 31 free: 48151 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
     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  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  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  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  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
```

(Continued on next page)

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base =   1820

SPECrate®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)

```
   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  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  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  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  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
 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
 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
 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
 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:       1584741756 kB


    -----------------------------------------------------------
    10. who -r
      run-level 3 May 1 14:14


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

(Continued on next page)

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base =   1820

SPECrate®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)

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

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

(Continued on next page)

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

$SPECrate^{®}2017\_int\_base =$ 1820

$SPECrate^{®}2017\_int\_peak =$ 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)

```
  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  240G  3.5G  237G   2% /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
  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
```

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base =   1820

SPECrate®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

Compiler Version Notes

```
==============================================================================
C        | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(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++      | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(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 | 548.exchange2_r(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
```

Base Portability Flags

500.perlbench_r: `-DSPEC_LINUX_X64 -DSPEC_LP64`
502.gcc_r: `-DSPEC_LP64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LINUX -DSPEC_LP64`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`

(Continued on next page)

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base =   1820

SPECrate®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 (Continued)

548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-z muldefs -O3 -march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lflang
-lamdalloc
```

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

Fortran benchmarks:
```
-m64 -flto -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 -z muldefs -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fepilog-vectorization-of-inductions
-mllvm -optimize-strided-mem-cost -floop-transform
-mllvm -unroll-aggressive -mllvm -unroll-threshold=500 -lamdlibm
-lflang -lamdalloc
```

Base Other Flags

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

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

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R6625 (AMD EPYC 9754 128-Core Processor)

SPECrate®2017_int_base = 1820

SPECrate®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 Other Flags (Continued)

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

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

Tested with SPEC CPU®2017 v1.1.9 on 2023-05-01 10:27:24-0400.
Report generated on 2023-06-13 15:15:07 by CPU2017 PDF formatter v6716.
Originally published on 2023-06-13.