SPEC CPU®2017 Integer Rate Result

Dell Inc.

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

$SPECrate^{®}2017\_int\_base = 133$

$SPECrate^{®}2017\_int\_peak = 137$
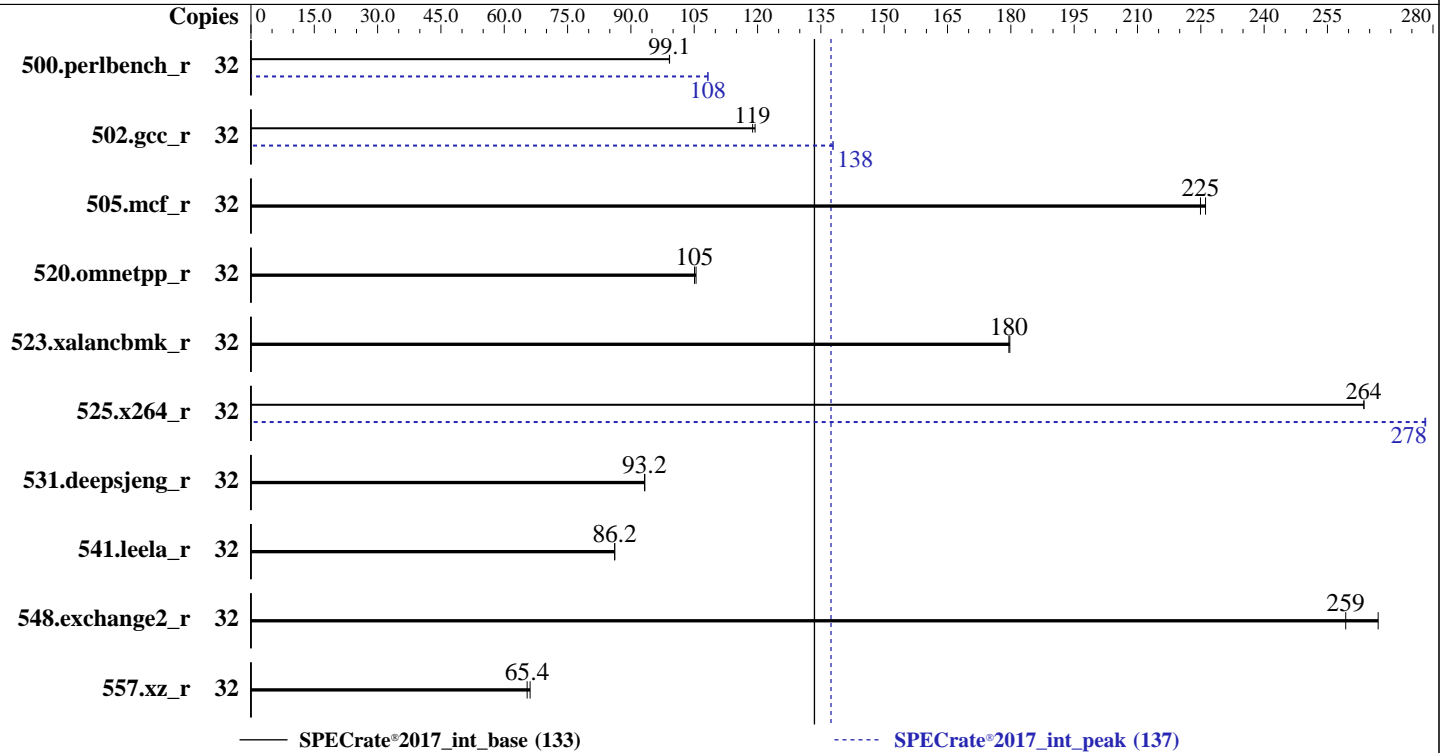
CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Mar-2024
Hardware Availability: Jun-2024
Software Availability: Dec-2023

Copies	Result
500.perlbench_r 32	99.1 / 108
502.gcc_r 32	119 / 138
505.mcf_r 32	225
520.omnetpp_r 32	105
523.xalancbmk_r 32	180
525.x264_r 32	264 / 278
531.deepsjeng_r 32	93.2
541.leela_r 32	86.2
548.exchange2_r 32	259
557.xz_r 32	65.4

SPECrate®2017_int_base (133)   SPECrate®2017_int_peak (137)

Hardware

CPU Name: Intel Xeon Silver 4514Y
 Max MHz: 3400
 Nominal: 2000
Enabled: 16 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 30 MB I+D on chip per chip
 Other: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-5600B-R, running at 4400)
Storage: 50 GB on tmpfs
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP5
5.14.21-150500.53-default
Compiler: C/C++: Version 2024.0.2 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2024.0.2 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 1.9.3 released Mar-2024
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
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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CPU2017 License: 6573		**Test Date:** Mar-2024	
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	32	**514**	**99.1**	514	99.2			32	**471**	**108**	471	108		
502.gcc_r	32	**381**	**119**	379	119			32	**329**	**138**	329	138		
505.mcf_r	32	**230**	**225**	229	226			32	**230**	**225**	229	226		
520.omnetpp_r	32	398	105	**400**	**105**			32	398	105	**400**	**105**		
523.xalancbmk_r	32	188	180	**188**	**180**			32	188	180	**188**	**180**		
525.x264_r	32	**213**	**264**	213	264			32	**201**	**278**	201	278		
531.deepsjeng_r	32	393	93.3	**393**	**93.2**			32	393	93.3	**393**	**93.2**		
541.leela_r	32	615	86.2	**615**	**86.2**			32	615	86.2	**615**	**86.2**		
548.exchange2_r	32	**323**	**259**	314	267			32	**323**	**259**	314	267		
557.xz_r	32	523	66.1	**528**	**65.4**			32	523	66.1	**528**	**65.4**		

SPECrate®2017_int_base =	**133**
SPECrate®2017_int_peak =	**137**

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
    "/mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2/lib/ia32:/mnt
    /ramdisk/cpu2017-1.1.9-ic2024.0.2/je5.0.1-32"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>   /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)

(Continued on next page)

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General Notes (Continued)

```
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 50 GB ramdisk created with the cmd: "mount -t tmpfs -o size=50G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS settings:
        DIMM Self Healing on
    Uncorrectable Memory Error : Disabled

    Virtualization Technology : Disabled
      DCU Streamer Prefetcher : Disabled
             Sub NUMA Cluster : 2-way Clustering
                 LLC Prefetch : Disabled
         Dead Line LLC Alloc : Disabled

               System Profile : Custom
        CPU Power Management : Maximum Performance
                          C1E : Disabled
                     C States : Autonomous
          Memory Patrol Scrub : Disabled
      Energy Efficiency Policy : Performance
            PCI ASPM L1 Link
             Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Wed Mar 27 12:36:58 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 249 (249.16+suse.171.gdad0071f15)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
```

(Continued on next page)

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Platform Notes (Continued)

```
   21. dmidecode
   22. BIOS
   ------------------------------------------------------------


   ------------------------------------------------------------
   1. uname -a
     Linux localhost 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
     x86_64 x86_64 x86_64 GNU/Linux


   ------------------------------------------------------------
   2. w
      12:36:58 up 11 min,  1 user,  load average: 0.33, 4.89, 4.95
      USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
      root     tty1      -                12:25   32.00s  1.04s  0.00s /bin/bash
     /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define
     DL-BIOS-LogProc=1 --define DL-VERS=5.0 --output_format html,pdf,txt


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


   ------------------------------------------------------------
   4. ulimit -a
     core file size          (blocks, -c) unlimited
     data seg size           (kbytes, -d) unlimited
     scheduling priority             (-e) 0
     file size               (blocks, -f) unlimited
     pending signals                 (-i) 2061849
     max locked memory       (kbytes, -l) 64
     max memory size         (kbytes, -m) unlimited
     open files                      (-n) 1024
     pipe size            (512 bytes, -p) 8
     POSIX message queues     (bytes, -q) 819200
     real-time priority              (-r) 0
     stack size              (kbytes, -s) unlimited
     cpu time               (seconds, -t) unlimited
     max user processes              (-u) 2061849
     virtual memory          (kbytes, -v) unlimited
     file locks                      (-x) unlimited


   ------------------------------------------------------------
   5. sysinfo process ancestry
    /usr/lib/systemd/systemd --switched-root --system --deserialize 30
    login -- root
    -bash
    /bin/bash ./DELL_rate.sh
    /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
    /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
    /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc
      --define DL-BIOS-LogProc=1 --define DL-VERS=5.0 --output_format html,pdf,txt
    /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc
      --define DL-BIOS-LogProc=1 --define DL-VERS=5.0 --output_format html,pdf,txt
    runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
      ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=16 --define physicalfirst
      --define invoke_with_interleave --define drop_caches --tune base,peak -o all --define DL-BIOS-SNC=2
      --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define DL-VERS=5.0
      --output_format html,pdf,txt intrate
    runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 --configfile
      ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=16 --define physicalfirst
      --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --define
```

(Continued on next page)

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Platform Notes (Continued)

```
    DL-BIOS-SNC=2 --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define
    DL-VERS=5.0 --output_format html,pdf,txt --nopower --runmode rate --tune base:peak --size refrate intrate
    --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0
    --from_runcpu 2
  specperl $SPEC/bin/sysinfo
 $SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2


    -------------------------------------------------------------
6. /proc/cpuinfo
    model name      : INTEL(R) XEON(R) SILVER 4514Y
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 207
    stepping        : 2
    microcode       : 0x21000230
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
    cpu cores       : 16
    siblings        : 32
    1 physical ids (chips)
    32 processors (hardware threads)
    physical id 0: core ids 0-15
    physical id 0: apicids 0-31
  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 2.37.4:
    Architecture:           x86_64
    CPU op-mode(s):         32-bit, 64-bit
    Address sizes:          46 bits physical, 57 bits virtual
    Byte Order:             Little Endian
    CPU(s):                 32
    On-line CPU(s) list:    0-31
    Vendor ID:              GenuineIntel
    Model name:             INTEL(R) XEON(R) SILVER 4514Y
    CPU family:             6
    Model:                  207
    Thread(s) per core:     2
    Core(s) per socket:     16
    Socket(s):              1
    Stepping:               2
    BogoMIPS:               4000.00
    Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                            clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
                            lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
                            nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
                            ds_cpl smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2
                            x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm
                            abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 invpcid_single
                            cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 hle
                            avx2 smep bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                            avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                            xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                            cqm_mbm_local avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hfi
                            avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq
                            avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid bus_lock_detect
                            cldemote movdiri movdir64b enqcmd fsrm md_clear serialize tsxldtrk pconfig
                            arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities
```

(Continued on next page)

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Platform Notes (Continued)

```
  L1d cache:                          768 KiB (16 instances)
  L1i cache:                          512 KiB (16 instances)
  L2 cache:                           32 MiB (16 instances)
  L3 cache:                           30 MiB (1 instance)
  NUMA node(s):                       2
  NUMA node0 CPU(s):                  0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
  NUMA node1 CPU(s):                  1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
  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; Enhanced IBRS, IBPB conditional, RSB filling, PBRSB-eIBRS SW
                                      sequence
  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      768K  12 Data            1    64        1             64
    L1i      32K      512K   8 Instruction     1    64        1             64
    L2        2M       32M  16 Unified         2  2048        1             64
    L3       30M       30M  15 Unified         3 32768        1             64

--------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 2 nodes (0-1)
  node 0 cpus: 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
  node 0 size: 257495 MB
  node 0 free: 256899 MB
  node 1 cpus: 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
  node 1 size: 257997 MB
  node 1 free: 245878 MB
  node distances:
  node   0   1
    0:  10  12
    1:  12  10

--------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       527865200 kB

--------------------------------------------------------------
10. who -r
  run-level 3 Mar 27 12:25

--------------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
   Default Target  Status
   multi-user      running

--------------------------------------------------------------
12. Services, from systemctl list-unit-files
   STATE           UNIT FILES
   enabled         YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager firewalld getty@
                   irqbalance issue-generator kbdsettings klog lvm2-monitor nscd postfix purge-kernels
```

(Continued on next page)

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Platform Notes (Continued)

```
                     rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4
                     wickedd-dhcp6 wickedd-nanny
  enabled-runtime    systemd-remount-fs
  disabled           autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                     chronyd console-getty cups cups-browsed debug-shell ebtables exchange-bmc-os-info gpm
                     grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load lunmask
                     man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@
                     smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures
                     systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
                     vncserver@
  indirect           wickedd


  -------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
  root=UUID=957e7823-cd7c-4814-81a6-88b6fa3ad500
  splash=silent
  mitigations=auto
  quiet
  security=apparmor


  -------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 0:
    Unable to determine current policy
    boost state support:
      Supported: yes
      Active: yes


  -------------------------------------------------------------
15. sysctl
  kernel.numa_balancing            1
  kernel.randomize_va_space        2
  vm.compaction_proactiveness     20
  vm.dirty_background_bytes        0
  vm.dirty_background_ratio       10
  vm.dirty_bytes                   0
  vm.dirty_expire_centisecs     3000
  vm.dirty_ratio                  20
  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                   60
  vm.watermark_boost_factor    15000
  vm.watermark_scale_factor       10
  vm.zone_reclaim_mode             0


  -------------------------------------------------------------
16. /sys/kernel/mm/transparent_hugepage
  defrag         always defer defer+madvise [madvise] never
  enabled        [always] madvise never
  hpage_pmd_size 2097152
  shmem_enabled  always within_size advise [never] deny force


  -------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage/khugepaged
```

(Continued on next page)

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Platform Notes (Continued)

```
    alloc_sleep_millisecs    60000
    defrag                       1
    max_ptes_none              511
    max_ptes_shared            256
    max_ptes_swap               64
    pages_to_scan             4096
    scan_sleep_millisecs     10000


    -----------------------------------------------------------
    18. OS release
      From /etc/*-release /etc/*-version
      os-release SUSE Linux Enterprise Server 15 SP5


    -----------------------------------------------------------
    19. Disk information
    SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2024.0.2
      Filesystem      Type   Size  Used Avail Use% Mounted on
      tmpfs           tmpfs   50G  5.7G   45G  12% /mnt/ramdisk


    -----------------------------------------------------------
    20. /sys/devices/virtual/dmi/id
      Vendor:          Dell Inc.
      Product:         PowerEdge XR5610
      Product Family:  PowerEdge
      Serial:          1234567


    -----------------------------------------------------------
    21. dmidecode
      Additional information from dmidecode 3.4 follows.  WARNING: Use caution when you interpret this section.
      The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
      determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
      "DMTF SMBIOS" standard.
      Memory:
        7x 002C0632002C MTC40F2046S1RC56BG1 64 GB 2 rank 5600, configured at 4400
        1x 00CE063200CE M321R8GA0PB0-CWMKH 64 GB 2 rank 5600, configured at 4400


    -----------------------------------------------------------
    22. BIOS
    (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:       Dell Inc.
      BIOS Version:      1.9.3
      BIOS Date:         03/20/2024
      BIOS Revision:     1.9
```

Compiler Version Notes

```
==============================================================================================
C        | 502.gcc_r(peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
         | 557.xz_r(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
```

(Continued on next page)

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Compiler Version Notes (Continued)

```
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
         | 557.xz_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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------------------------------------------------------------------------------

==============================================================================
C++      | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
         | 541.leela_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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------------------------------------------------------------------------------

==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Base Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-DSPEC_LP64`
505.mcf_r: `-DSPEC_LP64`

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_int_base = 133

SPECrate®2017_int_peak = 137

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

Test Date: Mar-2024
Hardware Availability: Jun-2024
Software Availability: Dec-2023

Base Portability Flags (Continued)

520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
```
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc
```

C++ benchmarks:
```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc
```

Fortran benchmarks:
```
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

C++ benchmarks:
```
icpx
```

Fortran benchmarks:
```
ifx
```

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SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

SPECrate®2017_int_base = 133

SPECrate®2017_int_peak = 137

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

Test Date: Mar-2024
Hardware Availability: Jun-2024
Software Availability: Dec-2023

Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Peak Optimization Flags

C benchmarks:

500.perlbench_r: `-w -std=c11 -m64 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-fno-strict-overflow`
`-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc`

502.gcc_r: `-m32 -L/opt/intel/oneapi/compiler/2024.0/lib32 -std=gnu89`
`-Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

505.mcf_r: `basepeak = yes`

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc`

557.xz_r: `basepeak = yes`

C++ benchmarks:

520.omnetpp_r: `basepeak = yes`

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Dell Inc.

PowerEdge XR5610 (Intel Xeon Silver 4514Y)

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CPU2017 License: 6573		**Test Date:**	Mar-2024
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Jun-2024
Tested by:	Dell Inc.	**Software Availability:**	Dec-2023

Peak Optimization Flags (Continued)

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.6.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.6.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 2024-03-27 12:36:58-0400.
Report generated on 2024-07-01 10:32:48 by CPU2017 PDF formatter v6716.
Originally published on 2024-06-29.