SPEC CPU®2017 Integer Rate Result

Dell Inc.

SPECrate®2017_int_base = 170

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_peak = 176

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

Copies — scale: 0 15.0 35.0 55.0 75.0 95.0 110 125 140 155 170 185 200 215 230 245 260 275 290 305 320 335 365

- **500.perlbench_r** 32 — 125 / 138
- **502.gcc_r** 32 — 147 / 173
- **505.mcf_r** 32 — 283
- **520.omnetpp_r** 32 — 119
- **523.xalancbmk_r** 32 — 243
- **525.x264_r** 32 — 332 / 353
- **531.deepsjeng_r** 32 — 124
- **541.leela_r** 32 — 117
- **548.exchange2_r** 32 — 361
- **557.xz_r** 32 — 78.1

— SPECrate®2017_int_base (170)   ----- SPECrate®2017_int_peak (176)

Hardware

CPU Name: Intel Xeon Silver 4509Y
 Max MHz: 4100
 Nominal: 2600
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 22.5 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 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/

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

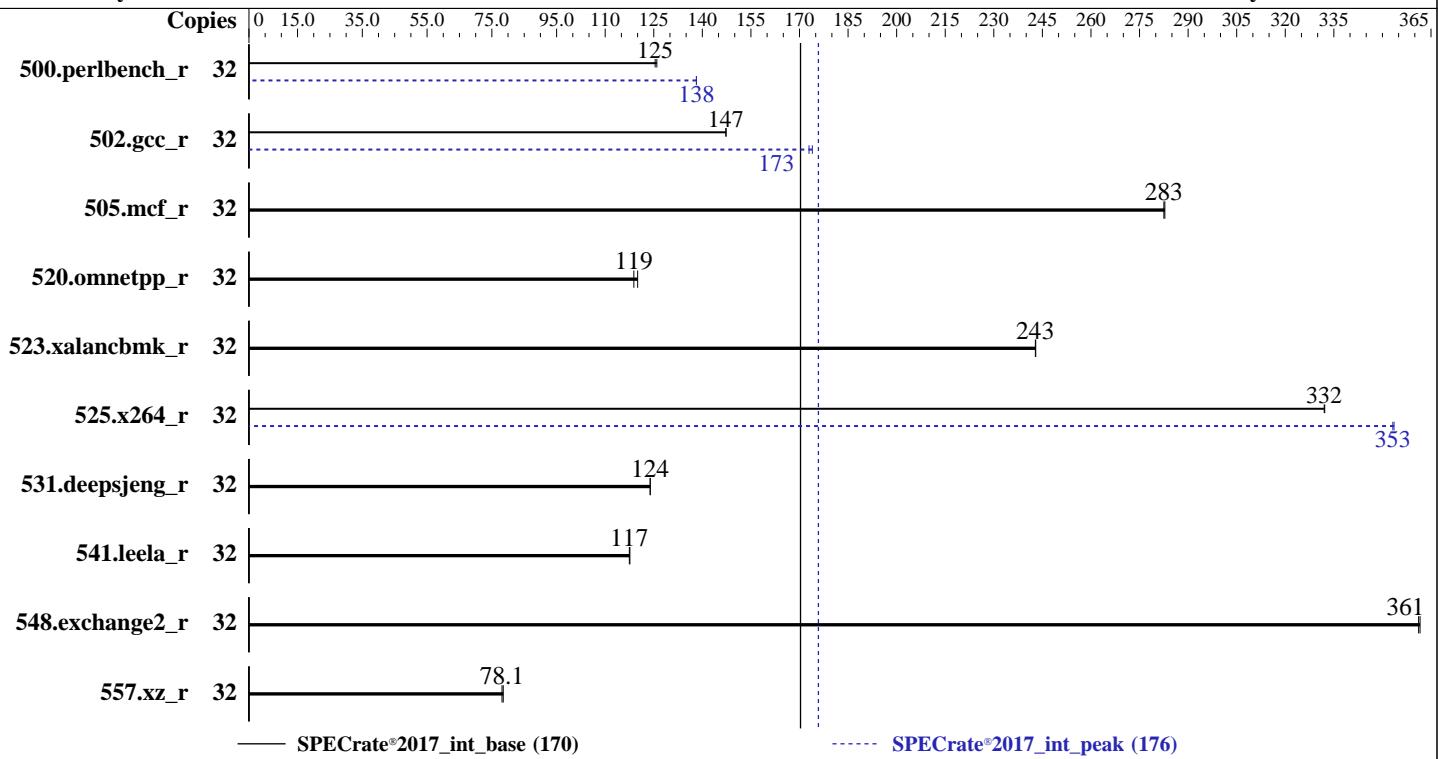SPECrate®2017_int_peak = 176

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	32	**406**	**125**	404	126			32	369	138	**369**	**138**		
502.gcc_r	32	**308**	**147**	308	147			32	**262**	**173**	260	174		
505.mcf_r	32	**183**	**283**	183	283			32	**183**	**283**	183	283		
520.omnetpp_r	32	**353**	**119**	350	120			32	**353**	**119**	350	120		
523.xalancbmk_r	32	**139**	**243**	139	243			32	**139**	**243**	139	243		
525.x264_r	32	169	332	**169**	**332**			32	**159**	**353**	158	354		
531.deepsjeng_r	32	**296**	**124**	296	124			32	**296**	**124**	296	124		
541.leela_r	32	451	118	**451**	**117**			32	451	118	**451**	**117**		
548.exchange2_r	32	**232**	**361**	232	362			32	**232**	**361**	232	362		
557.xz_r	32	**442**	**78.1**	440	78.5			32	**442**	**78.1**	440	78.5		
SPECrate®2017_int_base =	**170**													
SPECrate®2017_int_peak =	**176**													

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)

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

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:
                  ADDDC Setting : Disabled
        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 Sun Mar 24 05:17:03 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
```

(Continued on next page)

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

Platform Notes (Continued)

```
   20. /sys/devices/virtual/dmi/id
   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
      05:17:03 up 45 min,  1 user,  load average: 0.14, 0.21, 1.01
     USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
     root     tty1     -                04:32   15.00s  1.15s  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-BIOS-adddcD=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) 4126233
     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) 4126233
     virtual memory          (kbytes, -v) unlimited
     file locks                      (-x) unlimited

   -----------------------------------------------------------
   5. sysinfo process ancestry
    /usr/lib/systemd/systemd linux --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-BIOS-adddcD=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-BIOS-adddcD=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-BIOS-adddcD=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
```

(Continued on next page)

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

Platform Notes (Continued)

```
    --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --define
   DL-BIOS-SNC=2 --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-LogProc=1 --define
   DL-BIOS-adddcD=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 4509Y
    vendor_id         : GenuineIntel
    cpu family        : 6
    model             : 143
    stepping          : 8
    microcode         : 0x2b0005c0
    bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
    cpu cores         : 8
    siblings          : 16
    2 physical ids (chips)
    32 processors (hardware threads)
    physical id 0: core ids 0-7
    physical id 1: core ids 0-7
    physical id 0: apicids 0-15
    physical id 1: apicids 64-79
  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 4509Y
  CPU family:             6
  Model:                  143
  Thread(s) per core:     2
  Core(s) per socket:     8
  Socket(s):              2
  Stepping:               8
  CPU max MHz:            4100.0000
  CPU min MHz:            800.0000
  BogoMIPS:               5200.00
  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
```

(Continued on next page)

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

Platform Notes (Continued)

```
                              cqm_mbm_local split_lock_detect 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
  L1d cache:                  768 KiB (16 instances)
  L1i cache:                  512 KiB (16 instances)
  L2 cache:                   32 MiB (16 instances)
  L3 cache:                   45 MiB (2 instances)
  NUMA node(s):               4
  NUMA node0 CPU(s):          0,4,8,12,16,20,24,28
  NUMA node1 CPU(s):          2,6,10,14,18,22,26,30
  NUMA node2 CPU(s):          1,5,9,15,17,21,25,31
  NUMA node3 CPU(s):          3,7,11,13,19,23,27,29
  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     22.5M       45M   15 Unified         3 24576        1              64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0,4,8,12,16,20,24,28
  node 0 size: 257498 MB
  node 0 free: 250734 MB
  node 1 cpus: 2,6,10,14,18,22,26,30
  node 1 size: 258045 MB
  node 1 free: 257421 MB
  node 2 cpus: 1,5,9,15,17,21,25,31
  node 2 size: 258045 MB
  node 2 free: 251009 MB
  node 3 cpus: 3,7,11,13,19,23,27,29
  node 3 size: 257999 MB
  node 3 free: 257507 MB
  node distances:
  node   0   1   2   3
    0:  10  12  21  21
    1:  12  10  21  21
    2:  21  21  10  12
    3:  21  21  12  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056347344 kB
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

Platform Notes (Continued)

```
              ----------------------------------------------------------
              10. who -r
                run-level 3 Mar 24 04:32


              ----------------------------------------------------------
              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 nvmefc-boot-connections
                                 postfix purge-kernels 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 nvmf-autoconnect 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=176e8034-8790-43fc-9b0e-729c67404a06
                linux
                splash=silent
                mitigations=auto
                quiet
                security=apparmor


              ----------------------------------------------------------
              14. cpupower frequency-info
                analyzing CPU 0:
                  current policy: frequency should be within 800 MHz and 4.10 GHz.
                                  The governor "performance" may decide which speed to use
                                  within this range.
                  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
```

(Continued on next page)

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

Platform Notes (Continued)

```
  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
  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 XR7620
  Product Family:  PowerEdge
  Serial:          SXR7602


----------------------------------------------------------
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:
    1x 00AD063200AD HMCG94AGBRA181N 64 GB 2 rank 5600, configured at 4400
    15x 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
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

Platform Notes (Continued)

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


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


==============================================================================================
Fortran | 548.exchange2_r(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
icx
```

(Continued on next page)

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

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

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

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

Base Compiler Invocation (Continued)

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`
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`

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

SPEC CPU®2017 Integer Rate Result

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

$SPECrate^{®}2017\_int\_base = 170$

$SPECrate^{®}2017\_int\_peak = 176$

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

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

Peak Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

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`

(Continued on next page)

Dell Inc.

PowerEdge XR7620 (Intel Xeon Silver 4509Y)

SPECrate®2017_int_base = 170

SPECrate®2017_int_peak = 176

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2024

Hardware Availability: Jun-2024

Software Availability: Dec-2023

Peak Optimization Flags (Continued)

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`

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 2024-03-24 05:17:03-0400.
Report generated on 2024-07-01 10:32:48 by CPU2017 PDF formatter v6716.
Originally published on 2024-06-29.