SPEC CPU®2017 Integer Rate Result

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Dell Inc.

PowerEdge HS5620 (Intel Xeon Gold 6426Y)

$SPECrate^{®}2017\_int\_base = 325$

$SPECrate^{®}2017\_int\_peak = 335$

CPU2017 License: 6573	**Test Date:** Mar-2023
Test Sponsor: Dell Inc.	**Hardware Availability:** Mar-2023
Tested by: Dell Inc.	**Software Availability:** Dec-2022

Copies scale: 0 30.0 60.0 90.0 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 670

Benchmark	Copies	base	peak
500.perlbench_r	64	231	250
502.gcc_r	64	274	319
505.mcf_r	64	516	
520.omnetpp_r	64	224	
523.xalancbmk_r	64	614	
525.x264_r	64	617	651
531.deepsjeng_r	64	226	
541.leela_r	64	215	
548.exchange2_r	64	666	
557.xz_r	64	148	

SPECrate®2017_int_base (325)   SPECrate®2017_int_peak (335)

Hardware

CPU Name: Intel Xeon Gold 6426Y
 Max MHz: 4100
 Nominal: 2500
Enabled: 32 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: 37.5 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 125 GB on tmpfs
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
5.14.21-150400.22-default
Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 1.0.1 released Feb-2023
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.

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https://www.spec.org/

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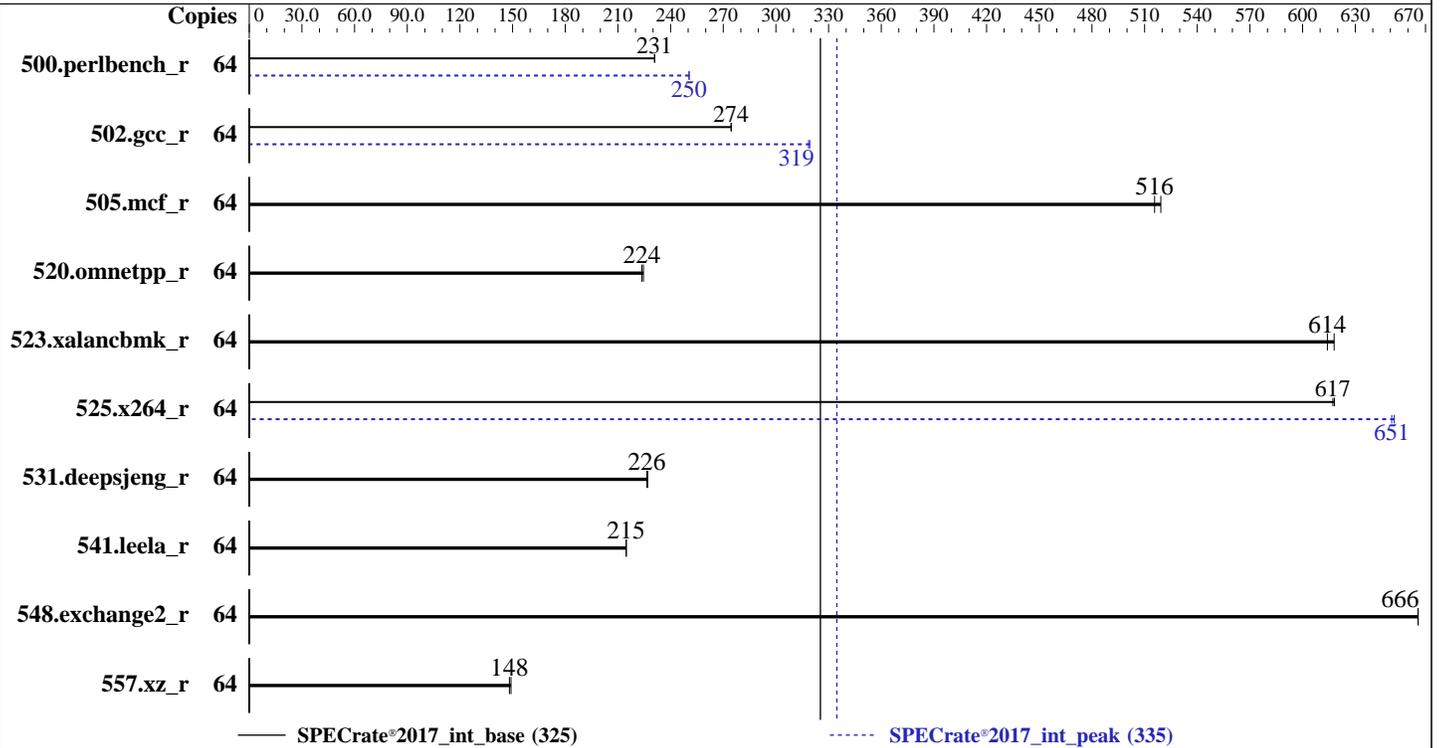$SPECrate^{®}2017\_int\_peak = 335$

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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	64	441	231	**441**	**231**			64	407	251	**407**	**250**		
502.gcc_r	64	**330**	**274**	330	275			64	**284**	**319**	284	319		
505.mcf_r	64	199	519	**201**	**516**			64	199	519	**201**	**516**		
520.omnetpp_r	64	**375**	**224**	374	225			64	**375**	**224**	374	225		
523.xalancbmk_r	64	109	618	**110**	**614**			64	109	618	**110**	**614**		
525.x264_r	64	**182**	**617**	181	618			64	**172**	**651**	172	652		
531.deepsjeng_r	64	**324**	**226**	323	227			64	**324**	**226**	323	227		
541.leela_r	64	**494**	**215**	494	215			64	**494**	**215**	494	215		
548.exchange2_r	64	252	666	**252**	**666**			64	252	666	**252**	**666**		
557.xz_r	64	**466**	**148**	464	149			64	**466**	**148**	464	149		
SPECrate®2017_int_base =			325											
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

```
SPEC has ruled that the compiler used for this result was performing a compilation
that specifically improves the performance of the 523.xalancbmk_r / 623.xalancbmk_s
benchmarks using a priori knowledge of the SPEC code and dataset to perform a
transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4
https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer
publish results using this optimization.

This result is left in the SPEC results database for historical reference.
```

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-ic2023.0/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/lib/ia32:/mnt/ram
    disk/cpu2017-1.1.9-ic2023.0/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

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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)
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 125 GB ramdisk created with the cmd: "mount -t tmpfs -o size=125G 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
                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-ic2023.0/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Thu Mar  9 23:49:04 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
```

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Platform Notes (Continued)

```
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
 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
 21. dmidecode
 22. BIOS
    ------------------------------------------------------------

    ------------------------------------------------------------
 1. uname -a
    Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222/lp)
    x86_64 x86_64 x86_64 GNU/Linux

    ------------------------------------------------------------
 2. w
     23:49:04 up 4 min,  1 user,  load average: 13.52, 15.60, 6.98
    USER      TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
    root      tty1     -                23:44    4:40   0.99s  0.00s /bin/bash ./dell-run-specrate.sh
    --iterations 2 --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc

    ------------------------------------------------------------
 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) 4124610
    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) 4124610
    virtual memory          (kbytes, -v) unlimited
    file locks                      (-x) unlimited

    ------------------------------------------------------------
 5. sysinfo process ancestry
    /usr/lib/systemd/systemd --switched-root --system --deserialize 34
    login -- root
    -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 --iterations 2 --output_format csv,html,pdf,txt -define
```

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Platform Notes (Continued)

```
    Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc
 /bin/bash ./dell-run-specrate.sh --iterations 2 --output_format csv,html,pdf,txt -define
    Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 -c
    ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=32 --define physicalfirst
    --define invoke_with_interleave --define drop_caches --tune base,peak -o all --iterations 2
    --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc intrate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 --configfile
    ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=32 --define physicalfirst
    --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --iterations 2
    --output_format csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --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-ic2023.0

 --------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Gold 6426Y
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
    microcode       : 0x2b000190
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores       : 16
    siblings        : 32
    2 physical ids (chips)
    64 processors (hardware threads)
    physical id 0: core ids 0-15
    physical id 1: core ids 0-15
    physical id 0: apicids 0-31
    physical id 1: apicids 128-159
  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:           46 bits physical, 57 bits virtual
  Byte Order:              Little Endian
  CPU(s):                  64
  On-line CPU(s) list:     0-63
  Vendor ID:               GenuineIntel
  Model name:              Intel(R) Xeon(R) Gold 6426Y
  CPU family:              6
  Model:                   143
  Thread(s) per core:      2
  Core(s) per socket:      16
  Socket(s):               2
  Stepping:                8
  BogoMIPS:                5000.00
  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
```

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Platform Notes (Continued)

```
                           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 split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                           arat pln pts 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:               1.5 MiB (32 instances)
  L1i cache:               1 MiB (32 instances)
  L2 cache:                64 MiB (32 instances)
  L3 cache:                75 MiB (2 instances)
  NUMA node(s):            2
  NUMA node0 CPU(s):       0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,5
                           2,54,56,58,60,62
  NUMA node1 CPU(s):       1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,5
                           3,55,57,59,61,63
  Vulnerability Itlb multihit:     Not affected
  Vulnerability L1tf:              Not affected
  Vulnerability Mds:               Not affected
  Vulnerability Meltdown:          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
  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     1.5M   12 Data             1    64        1             64
     L1i       32K       1M    8 Instruction      1    64        1             64
     L2         2M      64M   16 Unified          2  2048        1             64
     L3      37.5M      75M   15 Unified          3 40960        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: 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62
  node 0 size: 515433 MB
  node 0 free: 505175 MB
  node 1 cpus: 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63
  node 1 size: 515743 MB
  node 1 free: 515131 MB
  node distances:
  node   0   1
    0:  10  21
    1:  21  10

-------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1055925464 kB


-------------------------------------------------------------
10. who -r
   run-level 3 Mar 9 23:44
```

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Platform Notes (Continued)

```
--------------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
  Default Target  Status
  multi-user      running


--------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE           UNIT FILES
  enabled         YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager
                  firewalld getty@ haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early
                  klog libvirtd lvm2-monitor nscd nvmefc-boot-connections oracle postfix purge-kernels
                  rollback rsyslog smartd sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
                  wickedd-nanny xencommons
  enabled-runtime systemd-remount-fs
  disabled        accounts-daemon amavis apache2 apache2@ appstream-sync-cache autofs autoyast-initscripts
                  bgpd blk-availability bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd
                  clamav-milter clamd console-getty cups cups-browsed ddclient debug-shell dhcpd dhcpd6
                  dhcrelay dhcrelay6 dirsrv@ dnsmasq ebtables exchange-bmc-os-info fetchmail freshclam gpm
                  grub2-once haveged-switch-root hwloc-dump-hwdata instsvcdrv ipmi ipmievd iscsi-init iscsid
                  iscsiuio isisd issue-add-ssh-keys kexec-load ksm kvm_stat libvirt-guests lunmask
                  man-db-create mariadb mariadb@ multipathd named nfs nfs-blkmap nfs-server nfsserver nmb
                  nvmf-autoconnect ospf6d ospfd ostree-remount racoon racoon-setkey radvd rarpd@ rdisc ripd
                  ripngd rpcbind rpmconfigcheck rsyncd rtkit-daemon sapconf serial-getty@
                  smartd_generate_opts smb snmpd snmptrapd spamd spampd speech-dispatcherd squid srp_daemon
                  srp_daemon_port@ strongswan strongswan-starter svnserve sysstat
                  systemd-boot-check-no-failures systemd-network-generator systemd-nspawn@ systemd-sysext
                  systemd-time-wait-sync systemd-timesyncd tcsd udisks2 upower virtinterfaced virtnetworkd
                  virtnodedevd virtnwfilterd virtproxyd virtqemud virtsecretd virtstoraged virtxend vsftpd
                  winbind xen-dom0-modules xen-init-dom0 xen-qemu-dom0-disk-backend xen-watchdog xenconsoled
                  xendomains xenstored zebra
  indirect        pcscd uuidd virtlockd virtlogd wickedd


--------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
  root=UUID=1f8b0e1e-a49d-4ef6-8692-b2f5cea5eb27
  splash=silent
  mitigations=auto
  quiet
  security=apparmor
  crashkernel=315M,high
  crashkernel=72M,low


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

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Platform Notes (Continued)

```
  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                     20
  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 SP4


  ----------------------------------------------------------
19. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2023.0
  Filesystem      Type   Size  Used Avail Use% Mounted on
  tmpfs           tmpfs  125G  4.3G  121G   4% /mnt/ramdisk


  ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge HS5620
    Product Family: PowerEdge
    Serial:         DULAC01


  ----------------------------------------------------------
21. dmidecode
  Additional information from dmidecode 3.2 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 00CE00B300CE M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
    11x 00CE00B300CE M321R8GA0BB0-CQKEG 64 GB 2 rank 4800
    2x 00CE063200CE M321R8GA0BB0-CQKMG 64 GB 2 rank 4800
    2x 00CE069D00CE M321R8GA0BB0-CQKVE 64 GB 2 rank 4800
```

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SPECrate®2017_int_base = 325

SPECrate®2017_int_peak = 335

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

```
      --------------------------------------------------------------
   22. BIOS
   (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:        Dell Inc.
      BIOS Version:       1.0.1
      BIOS Date:          02/13/2023
      BIOS Revision:      1.0
```

Compiler Version Notes

```
==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
Fortran  | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge HS5620 (Intel Xeon Gold 6426Y)

SPECrate®2017_int_base = 325

SPECrate®2017_int_peak = 335

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

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`
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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

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

Dell Inc.

PowerEdge HS5620 (Intel Xeon Gold 6426Y)

$SPECrate^{®}2017\_int\_base = 325$

$SPECrate^{®}2017\_int\_peak = 335$

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

    502.gcc_r: `-m32`
`-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin`
`-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`

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Dell Inc.

PowerEdge HS5620 (Intel Xeon Gold 6426Y)

SPECrate®2017_int_base = 325

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CPU2017 License: 6573		**Test Date:**	Mar-2023
Test Sponsor: Dell Inc.		**Hardware Availability:** Mar-2023
Tested by: Dell Inc.		**Software Availability:** Dec-2022

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin -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-ic2023-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.3.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.3.xml`

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

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