SPEC CPU®2017 Integer Speed Result

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Dell Inc.

$SPECspeed^{®}2017\_int\_base = 13.2$

PowerEdge HS5620 (Intel Xeon Gold 5512U)

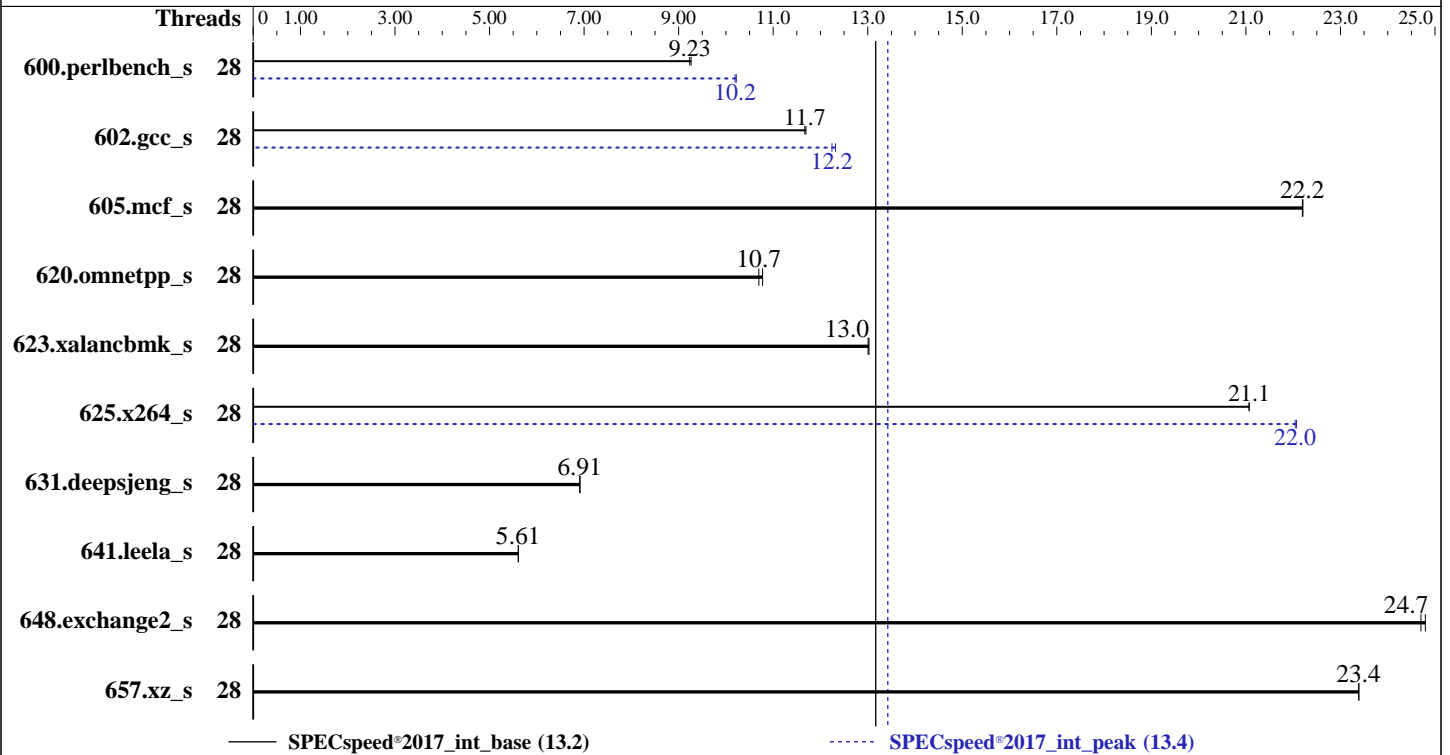$SPECspeed^{®}2017\_int\_peak = 13.4$

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

Threads

Benchmark	Threads	Value (base)	Value (peak)
600.perlbench_s	28	9.23	10.2
602.gcc_s	28	11.7	12.2
605.mcf_s	28	22.2	
620.omnetpp_s	28	10.7	
623.xalancbmk_s	28	13.0	
625.x264_s	28	21.1	22.0
631.deepsjeng_s	28	6.91	
641.leela_s	28	5.61	
648.exchange2_s	28	24.7	
657.xz_s	28	23.4	

SPECspeed®2017_int_base (13.2)　　　　SPECspeed®2017_int_peak (13.4)

Hardware

CPU Name: Intel Xeon Gold 5512U
 Max MHz: 3700
 Nominal: 2100
Enabled: 28 cores, 1 chip
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: 52.5 MB I+D on chip per chip
 Other: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-5600B-R, running at 4800)
Storage: 125 GB on tmpfs
Other: Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP5
 5.14.21-150500.53-default
Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux;
 Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;
Parallel: Yes
Firmware: Version 2.0.0 released Nov-2023
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 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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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	28	192	9.26	**192**	**9.23**			28	**174**	**10.2**	174	10.2		
602.gcc_s	28	341	11.7	**341**	**11.7**			28	323	12.3	**325**	**12.2**		
605.mcf_s	28	213	22.2	**213**	**22.2**			28	213	22.2	**213**	**22.2**		
620.omnetpp_s	28	151	10.8	**152**	**10.7**			28	151	10.8	**152**	**10.7**		
623.xalancbmk_s	28	109	13.0	**109**	**13.0**			28	109	13.0	**109**	**13.0**		
625.x264_s	28	83.7	21.1	**83.7**	**21.1**			28	79.9	22.1	**80.0**	**22.0**		
631.deepsjeng_s	28	207	6.91	**207**	**6.91**			28	207	6.91	**207**	**6.91**		
641.leela_s	28	**304**	**5.61**	304	5.61			28	**304**	**5.61**	304	5.61		
648.exchange2_s	28	**119**	**24.7**	119	24.8			28	**119**	**24.7**	119	24.8		
657.xz_s	28	**264**	**23.4**	264	23.4			28	**264**	**23.4**	264	23.4		
SPECspeed®2017_int_base =			**13.2**											
SPECspeed®2017_int_peak =			**13.4**											

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

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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH =
    "/mnt/ramdisk/cpu2017-1.1.9-ic2023.2.3/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2023.2.3/lib/ia32:/mnt
    /ramdisk/cpu2017-1.1.9-ic2023.2.3/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
```

General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Redhat Enterprise Linux 8.0
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
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"
```

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Platform Notes

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

              Logical Processor : Disabled
     Virtualization Technology : Disabled
       DCU Streamer Prefetcher : Disabled
               Sub NUMA Cluster : 2-way Clustering

                 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-ic2023.2.3/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Tue Jan  2 11:41:34 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
 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
```

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PowerEdge HS5620 (Intel Xeon Gold 5512U)

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SPECspeed®2017_int_peak = 13.4

CPU2017 License: 6573

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Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Nov-2023

Software Availability: Dec-2023

Platform Notes (Continued)

```
   11:41:34 up 57 min,  1 user,  load average: 11.12, 22.99, 25.62
   USER     TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -               10:43   57:53   0.89s  0.00s /bin/bash ./dell-run-speccpu.sh speed
   --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-adddcD=1 --define DL-VERS=v4.8.6 --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) 2060108
     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) 2060108
     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_speed.sh
    /bin/bash ./dell-run-main.sh speed
    /bin/bash ./dell-run-main.sh speed
    /bin/bash ./dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-adddcD=1
      --define DL-VERS=v4.8.6 --output_format html,pdf,txt
    /bin/bash ./dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-adddcD=1
      --define DL-VERS=v4.8.6 --output_format html,pdf,txt
    runcpu --nobuild --action validate --define default-platform-flags -c
      ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=28 --tune base,peak -o all --define
      intspeedaffinity --define drop_caches --define DL-BIOS-SNC=2 --iterations 2 --define
      DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-adddcD=1 --define DL-VERS=v4.8.6 --output_format
      html,pdf,txt intspeed
    runcpu --nobuild --action validate --define default-platform-flags --configfile
      ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=28 --tune base,peak --output_format all
      --define intspeedaffinity --define drop_caches --define DL-BIOS-SNC=2 --iterations 2 --define
      DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-BIOS-adddcD=1 --define DL-VERS=v4.8.6 --output_format
      html,pdf,txt --nopower --runmode speed --tune base:peak --size refspeed intspeed --nopreenv --note-preenv
      --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.intspeed.001.0.log --lognum 001.0 --from_runcpu 2
    specperl $SPEC/bin/sysinfo
    $SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2023.2.3

   --------------------------------------------------------------
   6. /proc/cpuinfo
      model name      : INTEL(R) XEON(R) GOLD 5512U
      vendor_id       : GenuineIntel
      cpu family      : 6
```

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

Platform Notes (Continued)

```
      model           : 207
      stepping        : 2
      microcode       : 0x21000200
      bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
      cpu cores       : 28
      siblings        : 28
      1 physical ids (chips)
      28 processors (hardware threads)
      physical id 0: core ids 0-27
      physical id 0: apicids 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
   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):                       28
     On-line CPU(s) list:          0-27
     Vendor ID:                    GenuineIntel
     Model name:                   INTEL(R) XEON(R) GOLD 5512U
     CPU family:                   6
     Model:                        207
     Thread(s) per core:           1
     Core(s) per socket:           28
     Socket(s):                    1
     Stepping:                     2
     BogoMIPS:                     4200.00
     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
                                   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:                    1.3 MiB (28 instances)
     L1i cache:                    896 KiB (28 instances)
     L2 cache:                     56 MiB (28 instances)
     L3 cache:                     52.5 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
     NUMA node1 CPU(s):            1,3,5,7,9,11,13,15,17,19,21,23,25,27
     Vulnerability Itlb multihit:  Not affected
     Vulnerability L1tf:           Not affected
     Vulnerability Mds:            Not affected
     Vulnerability Meltdown:       Not affected
     Vulnerability Mmio stale data: Not affected
```

(Continued on next page)

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Platform Notes (Continued)

```
  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     1.3M   12 Data            1    64       1              64
    L1i      32K     896K    8 Instruction     1    64       1              64
    L2        2M      56M   16 Unified         2  2048       1              64
    L3     52.5M    52.5M   15 Unified         3 57344       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
  node 0 size: 257424 MB
  node 0 free: 248368 MB
  node 1 cpus: 1,3,5,7,9,11,13,15,17,19,21,23,25,27
  node 1 size: 257632 MB
  node 1 free: 257023 MB
  node distances:
  node   0   1
    0:  10  12
    1:  12  10


--------------------------------------------------------------
9. /proc/meminfo
  MemTotal:       527418204 kB


--------------------------------------------------------------
10. who -r
  run-level 3 Jan 2 10:43


--------------------------------------------------------------
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 kdump kdump-early 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 instsvcdrv 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 vncserver@
  indirect        wickedd
```

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Platform Notes (Continued)

```
      -------------------------------------------------------------
      13. Linux kernel boot-time arguments, from /proc/cmdline
        BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
        root=UUID=a2071361-7500-4d59-ac2e-a3222a0598a9
        splash=silent
        mitigations=auto
        quiet
        security=apparmor
        crashkernel=366M,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
        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
        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
```

(Continued on next page)

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Platform Notes (Continued)

```
  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-ic2023.2.3
    Filesystem      Type   Size  Used Avail Use% Mounted on
    tmpfs           tmpfs  125G  4.1G  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 3.4 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:
      8x 00AD069D00AD HMCG94AGBRA182N 64 GB 2 rank 5600, configured at 4800


  -----------------------------------------------------------
  22. BIOS
  (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:      Dell Inc.
     BIOS Version:     2.0.0
     BIOS Date:        11/23/2023
     BIOS Revision:    2.0
```

Compiler Version Notes

```
==============================================================================================
C        | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
         | 657.xz_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
C++      | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
         | 641.leela_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran | 648.exchange2_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------
```

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PowerEdge HS5620 (Intel Xeon Gold 5512U)

$SPECspeed^{®}2017\_int\_base = 13.2$

$SPECspeed^{®}2017\_int\_peak = 13.4$

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

Test Date: Jan-2024
Hardware Availability: Nov-2023
Software Availability: Dec-2023

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Base Portability Flags

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

Base Optimization Flags

C benchmarks:
`-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp`
`-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

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/jemalloc64-5.0.1/lib -ljemalloc`

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`
`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

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

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Peak Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

600.perlbench_s: `-w -m64 -std=c11 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast`(pass 1) `-xCORE-AVX512 -O3 -ffast-math`
`-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-fiopenmp -DSPEC_OPENMP -fno-strict-overflow`
`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

602.gcc_s: `-w -m64 -std=c11 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast`(pass 1) `-xCORE-AVX512 -O3 -ffast-math`
`-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-fiopenmp -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib`
`-ljemalloc`

605.mcf_s: basepeak = yes

625.x264_s: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP`
`-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

657.xz_s: basepeak = yes

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Peak Optimization Flags (Continued)

C++ benchmarks:

620.omnetpp_s: `basepeak = yes`

623.xalancbmk_s: `basepeak = yes`

631.deepsjeng_s: `basepeak = yes`

641.leela_s: `basepeak = yes`

Fortran benchmarks:

648.exchange2_s: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Intel-ic2023p2-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-ic2023p2-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.

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