SPEC CPU®2017 Integer Speed Result

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Dell Inc.

$SPECspeed^{®}2017\_int\_base = 14.6$

PowerEdge C6620 (Intel Xeon Platinum 8458P)

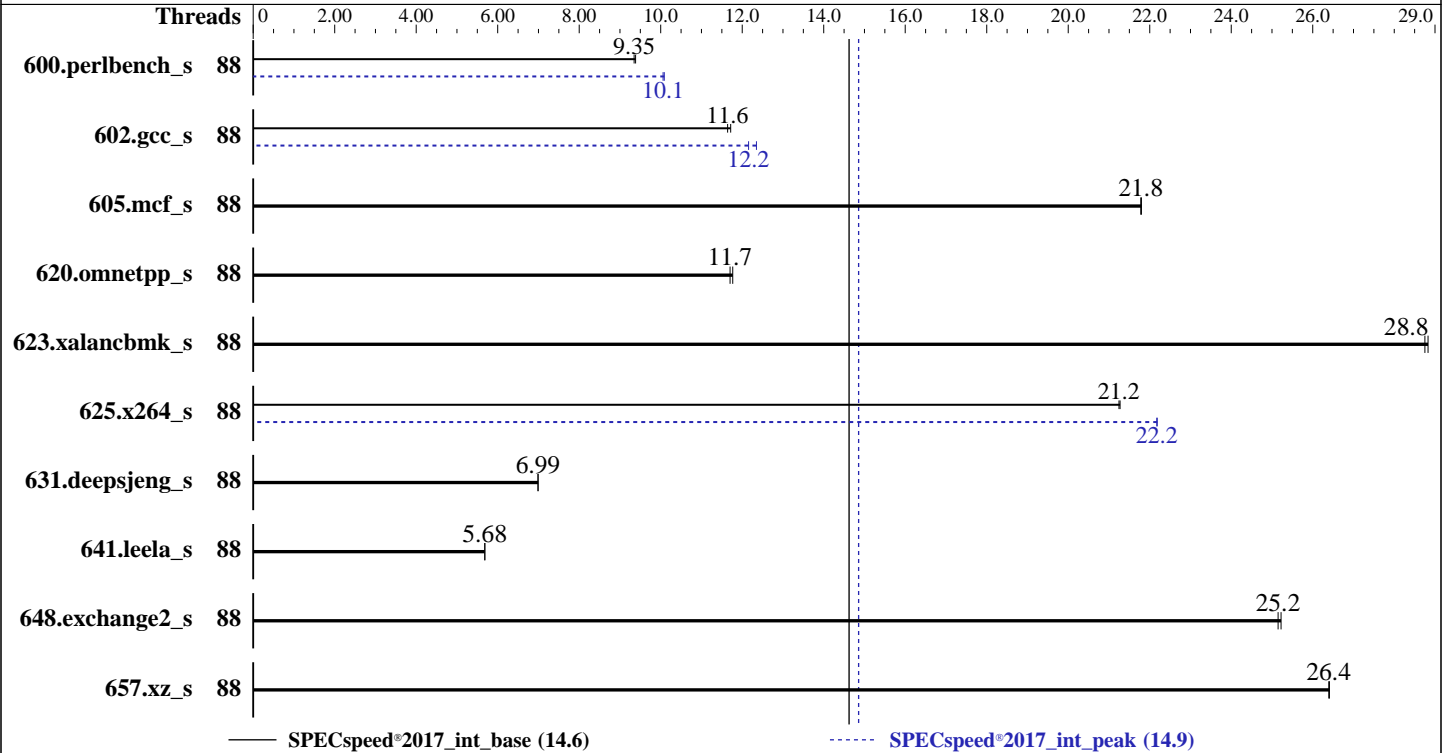$SPECspeed^{®}2017\_int\_peak = 14.9$

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

Test Date: Apr-2023
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Benchmark	Threads	base	peak
600.perlbench_s	88	9.35	10.1
602.gcc_s	88	11.6	12.2
605.mcf_s	88	21.8	
620.omnetpp_s	88	11.7	
623.xalancbmk_s	88	28.8	
625.x264_s	88	21.2	22.2
631.deepsjeng_s	88	6.99	
641.leela_s	88	5.68	
648.exchange2_s	88	25.2	
657.xz_s	88	26.4	

SPECspeed®2017_int_base (14.6) ----- SPECspeed®2017_int_peak (14.9)

Hardware

CPU Name: Intel Xeon Platinum 8458P
Max MHz: 3800
Nominal: 2700
Enabled: 88 cores, 2 chips
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: 82.5 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 70 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: Yes
Firmware: Version 1.3.2 released Mar-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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SPECspeed®2017_int_peak = 14.9

CPU2017 License: 6573	**Test Date:**	Apr-2023
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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	88	**190**	**9.35**	189	9.38			88	176	10.1	**176**	**10.1**		
602.gcc_s	88	**342**	**11.6**	340	11.7			88	322	12.3	**328**	**12.2**		
605.mcf_s	88	217	21.8	**217**	**21.8**			88	217	21.8	**217**	**21.8**		
620.omnetpp_s	88	139	11.8	**139**	**11.7**			88	139	11.8	**139**	**11.7**		
623.xalancbmk_s	88	**49.3**	**28.8**	49.2	28.8			88	**49.3**	**28.8**	49.2	28.8		
625.x264_s	88	**83.0**	**21.2**	82.9	21.3			88	79.5	22.2	**79.6**	**22.2**		
631.deepsjeng_s	88	**205**	**6.99**	205	6.99			88	**205**	**6.99**	205	6.99		
641.leela_s	88	300	5.68	**300**	**5.68**			88	300	5.68	**300**	**5.68**		
648.exchange2_s	88	117	25.2	**117**	**25.2**			88	117	25.2	**117**	**25.2**		
657.xz_s	88	234	26.4	**234**	**26.4**			88	234	26.4	**234**	**26.4**		

SPECspeed®2017_int_base =	**14.6**
SPECspeed®2017_int_peak =	**14.9**

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.
```

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-ic2023.0/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/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
```

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General Notes (Continued)

```
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 70 GB ramdisk created with the cmd: "mount -t tmpfs -o size=70G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS settings:
                ADDDC Setting : Disabled
        DIMM Self Healing on
   Uncorrectable Memory Error : Disabled
            Logical Processor : Disabled
   Virtualization Technology : Disabled
             Sub NUMA Cluster : 2-way Clustering
               Optimizer Mode : Enabled

               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 Tue Apr 25 05:37:31 2023

SUT (System Under Test) info as seen by some common utilities.

-----------------------------------------------------------
Table of contents
-----------------------------------------------------------
 1. uname -a
 2. w
 3. Username
 4. ulimit -a
 5. sysinfo process ancestry
 6. /proc/cpuinfo
 7. lscpu
 8. numactl --hardware
 9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
```

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Platform Notes (Continued)

```
   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)
    x86_64 x86_64 x86_64 GNU/Linux

  ------------------------------------------------------------
  2. w
     05:37:31 up 6 min,  1 user,  load average: 0.35, 0.70, 0.48
    USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
    root     tty1     -                05:34   27.00s  0.92s  0.00s /bin/bash ./dell-run-speccpu.sh speed
    --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProcD=1 --define DL-BIOS-adddcD=1 --define
    DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2 --output_format csv,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) 4124615
    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) 4124615
    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_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-4.inc --define DL-BIOS-LogProcD=1
     --define DL-BIOS-adddcD=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2 --output_format csv,html,pdf,txt
   /bin/bash ./dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define DL-BIOS-LogProcD=1
     --define DL-BIOS-adddcD=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2 --output_format csv,html,pdf,txt
   runcpu --nobuild --action validate --define default-platform-flags -c
```

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Dell Inc.

PowerEdge C6620 (Intel Xeon Platinum 8458P)

SPECspeed®2017_int_base = 14.6

SPECspeed®2017_int_peak = 14.9

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

Platform Notes (Continued)

```
    ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=88 --tune base,peak -o all --define
    intspeedaffinity --define drop_caches --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc --define
    DL-BIOS-LogProcD=1 --define DL-BIOS-adddcD=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2
    --output_format csv,html,pdf,txt intspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
    ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=88 --tune base,peak --output_format all
    --define intspeedaffinity --define drop_caches --iterations 2 --define DL-BIOSinc=Dell-BIOS_Xeon-4.inc
    --define DL-BIOS-LogProcD=1 --define DL-BIOS-adddcD=1 --define DL-BIOS-VirtD=1 --define DL-BIOS-SNC=2
    --output_format csv,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-ic2023.0


    --------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Platinum 8458P
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
    microcode       : 0x2b0001b0
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores       : 44
    siblings        : 44
    2 physical ids (chips)
    88 processors (hardware threads)
    physical id 0: core ids 0-43
    physical id 1: core ids 0-43
    physical id 0: apicids
    0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
    ,74,76,78,80,82,84,86
    physical id 1: apicids
    128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
    80,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214
  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):                       88
  On-line CPU(s) list:          0-87
  Vendor ID:                    GenuineIntel
  Model name:                   Intel(R) Xeon(R) Platinum 8458P
  CPU family:                   6
  Model:                        143
  Thread(s) per core:           1
  Core(s) per socket:           44
  Socket(s):                    2
  Stepping:                     8
  BogoMIPS:                     5400.00
  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
```

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Platform Notes (Continued)

```
                  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 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:      4.1 MiB (88 instances)
  L1i cache:      2.8 MiB (88 instances)
  L2 cache:       176 MiB (88 instances)
  L3 cache:       165 MiB (2 instances)
  NUMA node(s):   4
  NUMA node0 CPU(s):  0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76,80,84
  NUMA node1 CPU(s):  2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78,82,86
  NUMA node2 CPU(s):  1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77,81,85
  NUMA node3 CPU(s):  3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79,83,87
  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     4.1M   12 Data           1    64      1            64
    L1i      32K     2.8M    8 Instruction    1    64      1            64
    L2        2M     176M   16 Unified        2  2048      1            64
    L3     82.5M     165M   15 Unified        3 90112      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: 0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76,80,84
    node 0 size: 257422 MB
    node 0 free: 255600 MB
    node 1 cpus: 2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78,82,86
    node 1 size: 258007 MB
    node 1 free: 248862 MB
    node 2 cpus: 1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77,81,85
    node 2 size: 258042 MB
    node 2 free: 257843 MB
    node 3 cpus: 3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79,83,87
    node 3 size: 257704 MB
    node 3 free: 257536 MB
    node distances:
    node   0   1   2   3
      0:  10  12  21  21
      1:  12  10  21  21
      2:  21  21  10  12
```

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Platform Notes (Continued)

```
     3:  21  21  12  10


  -----------------------------------------------------------
  9. /proc/meminfo
     MemTotal:      1055925792 kB


  -----------------------------------------------------------
  10. who -r
    run-level 3 Apr 25 05:32


  -----------------------------------------------------------
  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 cron display-manager firewalld getty@
                      haveged irqbalance issue-generator kbdsettings kdump kdump-early klog lvm2-monitor nscd
                      nvmefc-boot-connections postfix purge-kernels rollback rsyslog smartd sshd 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-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load lunmask
                      man-db-create multipathd nfs nfs-blkmap nvmf-autoconnect rdisc 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
    indirect          wickedd


  -----------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
    root=UUID=16362246-1892-42a0-9119-ef57f22891af
    linux
    splash=silent
    resume=/dev/disk/by-uuid/c0830e3c-adf5-4663-81bb-2d24c777d423
    mitigations=auto
    quiet
    security=apparmor
    crashkernel=309M,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
```

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Platform Notes (Continued)

```
  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
  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   70G  4.2G   66G   6% /mnt/ramdisk


  ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge C6620
    Product Family: PowerEdge


  ----------------------------------------------------------
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:
    16x 00AD063200AD HMCG94MEBRA109N 64 GB 2 rank 4800



  ----------------------------------------------------------
22. BIOS
```

(Continued on next page)

SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge C6620 (Intel Xeon Platinum 8458P)

SPECspeed®2017_int_base = 14.6

SPECspeed®2017_int_peak = 14.9

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

Test Date: Apr-2023
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Platform Notes (Continued)

```
   (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:       Dell Inc.
     BIOS Version:      1.3.2
     BIOS Date:         03/28/2023
     BIOS Revision:     1.3
```

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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran | 648.exchange2_s(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.
----------------------------------------------------------------------------------------------
```

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`

(Continued on next page)

SPEC CPU®2017 Integer Speed Result

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Base Portability Flags (Continued)

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:

```
-m64 -std=c11 -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:

```
-m64 -std=c++14 -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:

```
-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
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

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

Fortran benchmarks:
```
ifx
```

Peak Portability Flags

```
Same as Base Portability Flags
```

SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017_int_peak = 14.9

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

Test Date: Apr-2023
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -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: -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: -m64 -std=c11 -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
```

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-ic2023-official-linux64.html
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.5.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-v1.5.xml

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

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

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