



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECspeed®2017\_int\_base = 13.6

## PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

CPU2017 License: 6573

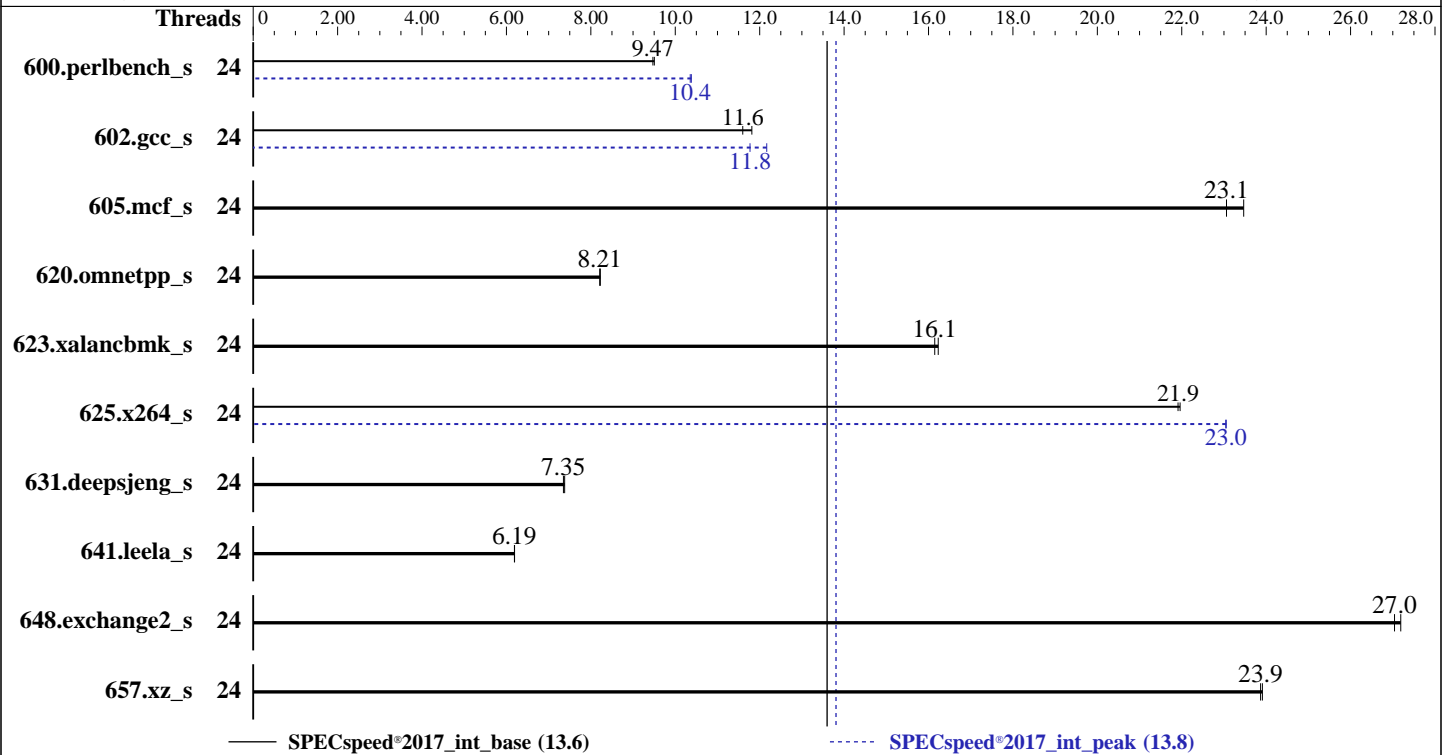
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Jan-2024

Software Availability: Dec-2023



### Hardware

CPU Name: Intel Xeon Silver 4510  
 Max MHz: 4100  
 Nominal: 2400  
 Enabled: 24 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: 30 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R, running at 4400)  
 Storage: 40 GB on tmpfs  
 Other: Cooling: DLC

### Software

OS: SUSE Linux Enterprise Server 15 SP4  
 5.14.21-150400.22-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.



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

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

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

## Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	24	<b>187</b>	<b>9.47</b>	187	9.50			24	171	10.4	<b>171</b>	<b>10.4</b>		
602.gcc_s	24	337	11.8	<b>343</b>	<b>11.6</b>			24	327	12.2	<b>338</b>	<b>11.8</b>		
605.mcf_s	24	<b>205</b>	<b>23.1</b>	201	23.5			24	<b>205</b>	<b>23.1</b>	201	23.5		
620.omnetpp_s	24	198	8.22	<b>199</b>	<b>8.21</b>			24	198	8.22	<b>199</b>	<b>8.21</b>		
623.xalancbmk_s	24	87.3	16.2	<b>87.8</b>	<b>16.1</b>			24	87.3	16.2	<b>87.8</b>	<b>16.1</b>		
625.x264_s	24	<b>80.5</b>	<b>21.9</b>	80.3	22.0			24	<b>76.6</b>	<b>23.0</b>	76.5	23.1		
631.deepsjeng_s	24	194	7.38	<b>195</b>	<b>7.35</b>			24	194	7.38	<b>195</b>	<b>7.35</b>		
641.leela_s	24	275	6.19	<b>276</b>	<b>6.19</b>			24	275	6.19	<b>276</b>	<b>6.19</b>		
648.exchange2_s	24	<b>109</b>	<b>27.0</b>	108	27.2			24	<b>109</b>	<b>27.0</b>	108	27.2		
657.xz_s	24	259	23.9	<b>259</b>	<b>23.9</b>			24	259	23.9	<b>259</b>	<b>23.9</b>		

SPECspeed®2017\_int\_base = **13.6**

SPECspeed®2017\_int\_peak = **13.8**

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"
MALLOCONF = "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 40 GB ramdisk created with the cmd: "mount -t tmpfs -o size=40G tmpfs /mnt/ramdisk"



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Jan-2024

Software Availability: Dec-2023

## Platform Notes

### BIOS settings:

```

    DIMM Self Healing on
    Uncorrectable Memory Error : Disabled

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

    System Profile : Custom
    CPU Power Management : Maximum Performance
    CLE : 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 Thu Jan  4 10:08:42 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 (249.11+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)
x86_64 x86_64 x86_64 GNU/Linux

```

2. w

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

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

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

## Platform Notes (Continued)

```
10:08:42 up 2 min, 1 user, load average: 0.79, 0.82, 0.35
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root     tty1      -             10:06   33.00s 0.91s  0.00s /bin/bash ./dell-run-speccpu.sh speed
--define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-VERS=v4.8.5.1 --output_format html, pdf, txt --define DL-LQC=1
```

### 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) 2059791
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) 2059791
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-VERS=v4.8.5.1
--output_format html, pdf, txt --define DL-LQC=1
/bin/bash ./dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-VERS=v4.8.5.1
--output_format html, pdf, txt --define DL-LQC=1
runcpu --nobuild --action validate --define default-platform-flags -c
ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=24 --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-VERS=v4.8.5.1 --output_format html, pdf, txt --define DL-LQC=1
intspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=24 --tune base, peak --output_format all
--define intspeeraffinity --define drop_caches --define DL-BIOS-SNC=2 --iterations 2 --define
DL-BIOSinc=Dell-BIOS_Xeon-5.inc --define DL-VERS=v4.8.5.1 --output_format html, pdf, txt --define DL-LQC=1
--nopower --runmode speed --tune base:peak --size refspeer intspeer --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) SILVER 4510
vendor_id       : GenuineIntel
cpu family      : 6
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECspeed®2017\_int\_base = 13.6

## PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

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

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

### Platform Notes (Continued)

```
model          : 143
stepping       : 8
microcode      : 0x2b000571
bugs           : spectre_v1 spectre_v2 spec_store_bypass swappg
cpu cores      : 12
siblings       : 12
2 physical ids (chips)
24 processors (hardware threads)
physical id 0: core ids 0-11
physical id 1: core ids 0-11
physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22
physical id 1: apicids 64,66,68,70,72,74,76,78,80,82,84,86
```

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):                24
On-line CPU(s) list:   0-23
Vendor ID:             GenuineIntel
Model name:            INTEL(R) XEON(R) SILVER 4510
CPU family:            6
Model:                 143
Thread(s) per core:    1
Core(s) per socket:    12
Socket(s):             2
Stepping:              8
BogoMIPS:              4800.00
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 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:            1.1 MiB (24 instances)
L1i cache:            768 KiB (24 instances)
L2 cache:             48 MiB (24 instances)
L3 cache:             60 MiB (2 instances)
NUMA node(s):         4
NUMA node0 CPU(s):    0,4,8,12,16,20
NUMA node1 CPU(s):    2,6,10,14,18,22
NUMA node2 CPU(s):    1,5,9,13,17,21
NUMA node3 CPU(s):    3,7,11,15,19,23
Vulnerability Itlb multihit: Not affected
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECspeed®2017\_int\_base = 13.6

## PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

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

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

### Platform Notes (Continued)

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/swaps 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	1.1M	12	Data	1	64	1	64
L1i	32K	768K	8	Instruction	1	64	1	64
L2	2M	48M	16	Unified	2	2048	1	64
L3	30M	60M	15	Unified	3	32768	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
node 0 size: 128239 MB
node 0 free: 127612 MB
node 1 cpus: 2,6,10,14,18,22
node 1 size: 129022 MB
node 1 free: 128648 MB
node 2 cpus: 1,5,9,13,17,21
node 2 size: 129022 MB
node 2 free: 120340 MB
node 3 cpus: 3,7,11,15,19,23
node 3 size: 128687 MB
node 3 free: 128203 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: 527331148 kB

10. who -r

run-level 3 Jan 4 10:06

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 getty@ haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime	systemd-remount-fs

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

CPU2017 License: 6573

Test Date: Jan-2024

Test Sponsor: Dell Inc.

Hardware Availability: Jan-2024

Tested by: Dell Inc.

Software Availability: Dec-2023

## Platform Notes (Continued)

```

disabled      accounts-daemon appstream-sync-cache autofs autoyast-initscripts blk-availability
              bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
              cups-browsed debug-shell ebttables exchange-bmc-os-info firewalld gpm grub2-once
              haveged-switch-root hwloc-dump-hwdata ipmi ipmievd iscsi-init iscsid iscsiuiio
              issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nmb
              ostree-remount rdisc rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@
              smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd systemd-boot-check-no-failures
              systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
              upower
indirect      wickedd

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=825c10fd-7ec5-4674-a94f-b7ae4890083d
splash=silent
mitigations=auto
quiet
security=apparmor
crashkernel=319M,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+madvice [madvice] never
enabled     [always] madvice never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Jan-2024

Software Availability: Dec-2023

## Platform Notes (Continued)

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-ic2023.2.3
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 40G 4.1G 36G 11% /mnt/ramdisk

```

20. /sys/devices/virtual/dmi/id

```

Vendor: Dell Inc.
Product: PowerEdge R760xa
Product Family: PowerEdge
Serial: 1234567

```

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 00CE00B300CE M321R4GA3BB6-CQKEG 32 GB 2 rank 4800, configured at 4400

```

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)
=====

```

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Jan-2024

Software Availability: Dec-2023

## Compiler Version Notes (Continued)

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.  
-----

## 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

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Jan-2024

Software Availability: Dec-2023

## Base Optimization Flags (Continued)

C++ benchmarks (continued):

```
-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
```

## 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.profddata(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.profddata(pass 2) -xCORE-AVX2(pass 1)
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_int\_base = 13.6

PowerEdge R760xa (Intel Xeon Silver 4510)

SPECspeed®2017\_int\_peak = 13.8

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2024

Hardware Availability: Jan-2024

Software Availability: Dec-2023

## Peak Optimization Flags (Continued)

602.gcc\_s (continued):

```
-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

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>

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2024-01-03 21:08:42-0500.

Report generated on 2024-02-28 19:16:24 by CPU2017 PDF formatter v6716.

Originally published on 2024-02-27.