



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Dell Inc.

SPECspeed®2017\_fp\_base = 296

### PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

CPU2017 License: 6573

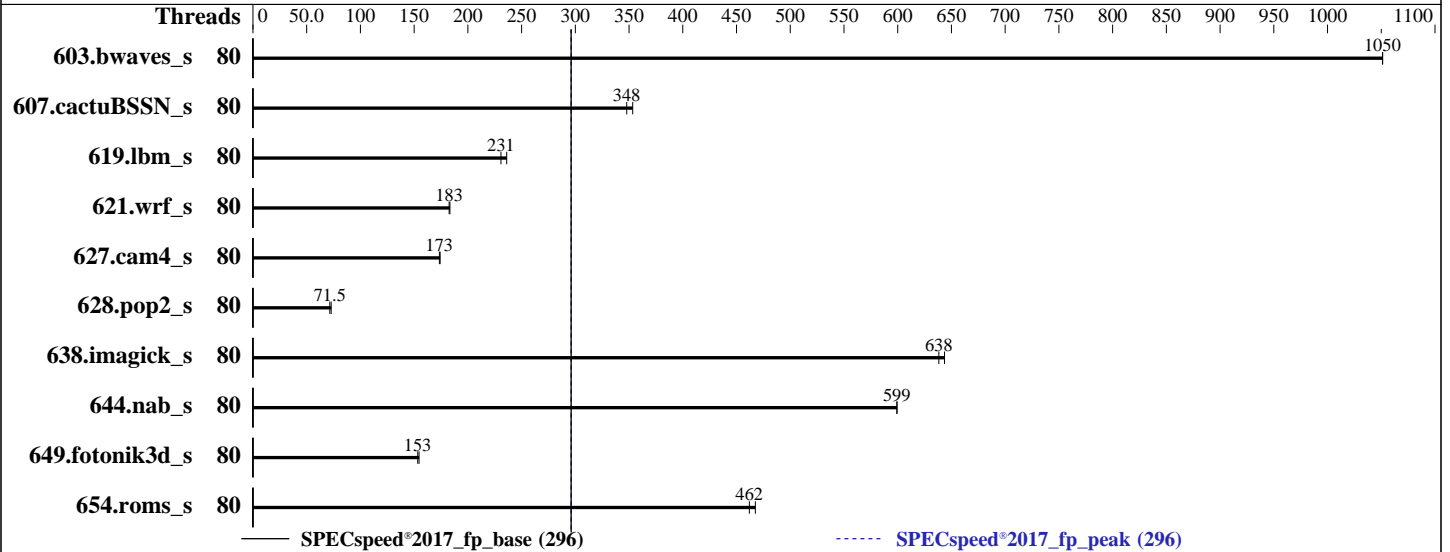
Test Date: Jan-2023

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2023

Tested by: Dell Inc.

Software Availability: May-2022



### Hardware

CPU Name: Intel Xeon Platinum 8460Y+  
 Max MHz: 3700  
 Nominal: 2000  
 Enabled: 80 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: 105 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: Red Hat Enterprise Linux 8.6 (Ootpa)  
 4.18.0-372.9.1.el8.x86\_64  
 Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2022.1 of Intel Fortran Compiler  
 for Linux;  
 Parallel: Yes  
 Firmware: Version 1.0.1 released Dec-2022  
 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 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECSpeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECSpeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	80	<b><u>56.1</u></b>	<b><u>1050</u></b>	56.1	1050			80	<b><u>56.1</u></b>	<b><u>1050</u></b>	56.1	1050		
607.cactuBSSN_s	80	<b><u>47.9</u></b>	<b><u>348</u></b>	47.2	353			80	<b><u>47.9</u></b>	<b><u>348</u></b>	47.2	353		
619.lbm_s	80	<b><u>22.7</u></b>	<b><u>231</u></b>	22.2	236			80	<b><u>22.7</u></b>	<b><u>231</u></b>	22.2	236		
621.wrf_s	80	<b><u>72.4</u></b>	<b><u>183</u></b>	72.2	183			80	<b><u>72.4</u></b>	<b><u>183</u></b>	72.2	183		
627.cam4_s	80	<b><u>51.1</u></b>	<b><u>173</u></b>	50.9	174			80	<b><u>51.1</u></b>	<b><u>173</u></b>	50.9	174		
628.pop2_s	80	<b><u>166</u></b>	<b><u>71.5</u></b>	163	72.8			80	<b><u>166</u></b>	<b><u>71.5</u></b>	163	72.8		
638.imagick_s	80	<b><u>22.6</u></b>	<b><u>638</u></b>	22.4	644			80	<b><u>22.6</u></b>	<b><u>638</u></b>	22.4	644		
644.nab_s	80	29.2	599	<b><u>29.2</u></b>	<b><u>599</u></b>			80	29.2	599	<b><u>29.2</u></b>	<b><u>599</u></b>		
649.fotonik3d_s	80	<b><u>59.5</u></b>	<b><u>153</u></b>	59.0	155			80	<b><u>59.5</u></b>	<b><u>153</u></b>	59.0	155		
654.roms_s	80	33.7	468	<b><u>34.1</u></b>	<b><u>462</u></b>			80	33.7	468	<b><u>34.1</u></b>	<b><u>462</u></b>		

SPECSpeed®2017\_fp\_base = **296**

SPECSpeed®2017\_fp\_peak = **296**

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,compact"
LD_LIBRARY_PATH =
  "/mnt/ramdisk/cpu2017-1.1.9-ic2022.1/lib/intel64:/mnt/ramdisk/cpu2017-1.
  1.9-ic2022.1/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.

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## General Notes (Continued)

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
      Logical Processor : 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-ic2022.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Sat Jan 14 06:01:06 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

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2023

Hardware Availability: Feb-2023

Software Availability: May-2022

## Platform Notes (Continued)

- 10. who -r
- 11. Systemd service manager version: systemd 239 (239-58.e18)
- 12. Services, from systemctl list-unit-files
- 13. Linux kernel boot-time arguments, from /proc/cmdline
- 14. cpupower frequency-info
- 15. tuned-adm active
- 16. sysctl
- 17. /sys/kernel/mm/transparent\_hugepage
- 18. /sys/kernel/mm/transparent\_hugepage/khugepaged
- 19. OS release
- 20. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
- 21. Disk information
- 22. /sys/devices/virtual/dmi/id
- 23. dmidecode
- 24. BIOS

```
-----
1. uname -a
Linux localhost.localdomain 4.18.0-372.9.1.el8.x86_64 #1 SMP Fri Apr 15 22:12:19 EDT 2022 x86_64 x86_64
x86_64 GNU/Linux
```

```
-----
2. w
06:01:06 up 2:23, 1 user, load average: 6.01, 5.30, 3.16
USER      TTY      FROM          LOGIN@      IDLE        JCPU      PCPU  WHAT
root     tty1      -              03:39       2:20m  1.25s   0.00s  /bin/bash ./dell-norun-specspeed.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) 0
data seg size           (kbytes, -d) unlimited
scheduling priority     (-e) 0
file size                (blocks, -f) unlimited
pending signals         (-i) 4126169
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
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECSpeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECSpeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## Platform Notes (Continued)

cpu time (seconds, -t) unlimited  
max user processes (-u) 4126169  
virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

```

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 18
login -- root
-bash
/bin/bash ./DELL_speed.sh
/bin/bash ./dell-norun-main.sh speed
/bin/bash ./dell-norun-main.sh speed
/bin/bash ./dell-norun-specspeed.sh --iterations 2 --output_format csv,html,pdf,txt --define
Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc
/bin/bash ./dell-norun-specspeed.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 -c
ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=80 --tune base,peak -o all --define drop_caches
--iterations 2 --output_format csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=80 --tune base,peak --output_format all
--define drop_caches --iterations 2 --output_format csv,html,pdf,txt --define
Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --nopower --runmode speed --tune base:peak --size refspeed fpspeed
--nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0
--from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2022.1

```

```

6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Platinum 8460Y+
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2b000161
bugs           : spectre_v1 spectre_v2 spec_store_bypass swappgs
cpu cores      : 40
siblings       : 40
2 physical ids (chips)
80 processors (hardware threads)
physical id 0: core ids 0-39
physical id 1: core ids 0-39
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

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## Platform Notes (Continued)

physical id 1: apicids

128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,184,186,188,190,192,194,196,198,200,202,204,206

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 2.32.1:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                80
On-line CPU(s) list:   0-79
Thread(s) per core:    1
Core(s) per socket:    40
Socket(s):             2
NUMA node(s):          4
Vendor ID:             GenuineIntel
BIOS Vendor ID:        Intel
CPU family:            6
Model:                 143
Model name:            Intel(R) Xeon(R) Platinum 8460Y+
BIOS Model name:       Intel(R) Xeon(R) Platinum 8460Y+
Stepping:              8
CPU MHz:               2000.000
BogoMIPS:              4000.00
L1d cache:             48K
L1i cache:            32K
L2 cache:              2048K
L3 cache:              107520K
NUMA node0 CPU(s):    0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76
NUMA node1 CPU(s):    2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78
NUMA node2 CPU(s):    1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77
NUMA node3 CPU(s):    3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79

```

```

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
                    fl6c 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
                    avx2 smep bmi2 erms invpcid 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

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## Platform Notes (Continued)

```
avx512_vbmi2 gfni vaes vpcmulqdq 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_lld arch_capabilities
```

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

node 0 size: 257496 MB

node 0 free: 254384 MB

node 1 cpus: 2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78

node 1 size: 258043 MB

node 1 free: 254469 MB

node 2 cpus: 1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77

node 2 size: 258043 MB

node 2 free: 250454 MB

node 3 cpus: 3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79

node 3 size: 257998 MB

node 3 free: 257270 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: 1056339704 kB

10. who -r

run-level 3 Jan 14 03:38

11. Systemd service manager version: systemd 239 (239-58.el8)

```
Default Target Status
multi-user      running
```

12. Services, from systemctl list-unit-files

```
STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd autovt@ crond
firewalld getty@ import-state insights-client-boot irqbalance iscsi iscsi-onboot kdump
loadmodules lvm2-monitor mdmonitor microcode multipathd nis-domainname rhsmcertd rsyslog
selinux-autorelabel-mark sshd sssd syslog timedatex tuned udisks2
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2023

Hardware Availability: Feb-2023

Software Availability: May-2022

## Platform Notes (Continued)

```

disabled blk-availability chrony-wait chronyd cni-dhcp console-getty cpupower debug-shell ebttables
          hwloc-dump-hwdata iprdump iprinit iprupdate ipsec iscsid iscsiuiio kvm_stat
          man-db-restart-cache-update nftables podman podman-auto-update podman-restart rdisc rhcd rhsm
          rhsm-facts serial-getty@ sshd-keygen@ systemd-resolved tcsd
indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
masked   systemd-timedated

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd2,gpt4)/vmlinuz-4.18.0-372.9.1.el8.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
rhgb
quiet

```

```

-----
14. cpupower frequency-info
analyzing CPU 0:
  Unable to determine current policy
  boost state support:
    Supported: yes
    Active: yes

```

```

-----
15. tuned-adm active
  Current active profile: throughput-performance

```

```

-----
16. sysctl
kernel.numa_balancing          1
kernel.randomize_va_space      2
vm.compaction_proactiveness     0
vm.dirty_background_bytes      0
vm.dirty_background_ratio      10
vm.dirty_bytes                  0
vm.dirty_expire_centisecs      3000
vm.dirty_ratio                  40
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

```

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## Platform Notes (Continued)

vm.swappiness	10
vm.watermark_boost_factor	15000
vm.watermark_scale_factor	10
vm.zone_reclaim_mode	0

```

-----
17. /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
-----

```

```

-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs 60000
defrag                1
max_ptes_none         511
max_ptes_swap         64
pages_to_scan         4096
scan_sleep_millisecs 10000
-----

```

```

-----
19. OS release
From /etc/*-release /etc/*-version
os-release      Red Hat Enterprise Linux 8.6 (Ootpa)
redhat-release  Red Hat Enterprise Linux release 8.6 (Ootpa)
system-release  Red Hat Enterprise Linux release 8.6 (Ootpa)
-----

```

```

-----
20. Kernel self-reported vulnerability status, from /sys/devices/system/cpu/vulnerabilities
itlb_multihit      Not affected
lltf               Not affected
mds                Not affected
meltdown           Not affected
spec_store_bypass  Mitigation: Speculative Store Bypass disabled via prctl and seccomp
spectre_v1         Mitigation: usercopy/swapgs barriers and __user pointer sanitization
spectre_v2         Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
srbds              Not affected
tsx_async_abort    Not affected
-----

```

For more information, see the Linux documentation on hardware vulnerabilities, for example <https://www.kernel.org/doc/html/latest/admin-guide/hw-vuln/index.html>

```

-----
21. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2022.1
Filesystem      Type  Size  Used Avail Use% Mounted on
tmpfs           tmpfs 125G  9.6G 116G   8% /mnt/ramdisk
-----

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## Platform Notes (Continued)

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

-----  
23. dmidecode  
Additional information from dmidecode 3.3 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 HMC94MEBRA109N 64 GB 2 rank 4800

-----  
24. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: Dell Inc.  
BIOS Version: 1.0.1  
BIOS Date: 12/27/2022  
BIOS Revision: 1.0

## Compiler Version Notes

=====  
C | 619.lbm\_s(base, peak) 638.imagick\_s(base, peak)  
| 644.nab\_s(base, peak)

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

=====  
C++, C, Fortran | 607.cactuBSSN\_s(base, peak)

-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

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

Test Date: Jan-2023  
Hardware Availability: Feb-2023  
Software Availability: May-2022

## Compiler Version Notes (Continued)

2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

=====  
Fortran | 603.bwaves\_s(base, peak) 649.fotonik3d\_s(base, peak)  
| 654.roms\_s(base, peak)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version  
2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

=====  
Fortran, C | 621.wrf\_s(base, peak) 627.cam4\_s(base, peak)  
| 628.pop2\_s(base, peak)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version  
2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

## Base Compiler Invocation

C benchmarks:  
icx

Fortran benchmarks:  
ifx

Benchmarks using both Fortran and C:  
ifx icx

Benchmarks using Fortran, C, and C++:  
icpx icx ifx

## Base Portability Flags

603.bwaves\_s: -DSPEC\_LP64  
607.cactuBSSN\_s: -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2023

Hardware Availability: Feb-2023

Software Availability: May-2022

## Base Portability Flags (Continued)

```
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
```

## Base Optimization Flags

C benchmarks:

```
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using both Fortran and C:

```
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:

```
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

## Peak Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jan-2023

Hardware Availability: Feb-2023

Software Availability: May-2022

## Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

619.lbm\_s: basepeak = yes

638.imagick\_s: basepeak = yes

644.nab\_s: basepeak = yes

Fortran benchmarks:

603.bwaves\_s: basepeak = yes

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf\_s: basepeak = yes

627.cam4\_s: basepeak = yes

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 296

PowerEdge C6620 (Intel Xeon Platinum 8460Y+)

SPECspeed®2017\_fp\_peak = 296

**CPU2017 License:** 6573

**Test Sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test Date:** Jan-2023

**Hardware Availability:** Feb-2023

**Software Availability:** May-2022

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64-revB.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-ic2022-official-linux64-revB.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.3.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 2023-01-14 07:01:05-0500.

Report generated on 2023-02-15 10:37:34 by CPU2017 PDF formatter v6442.

Originally published on 2023-02-14.