



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 418

PowerEdge R770 (Intel Xeon 6767P)

SPECspeed®2017\_fp\_peak = 419

CPU2017 License: 6573

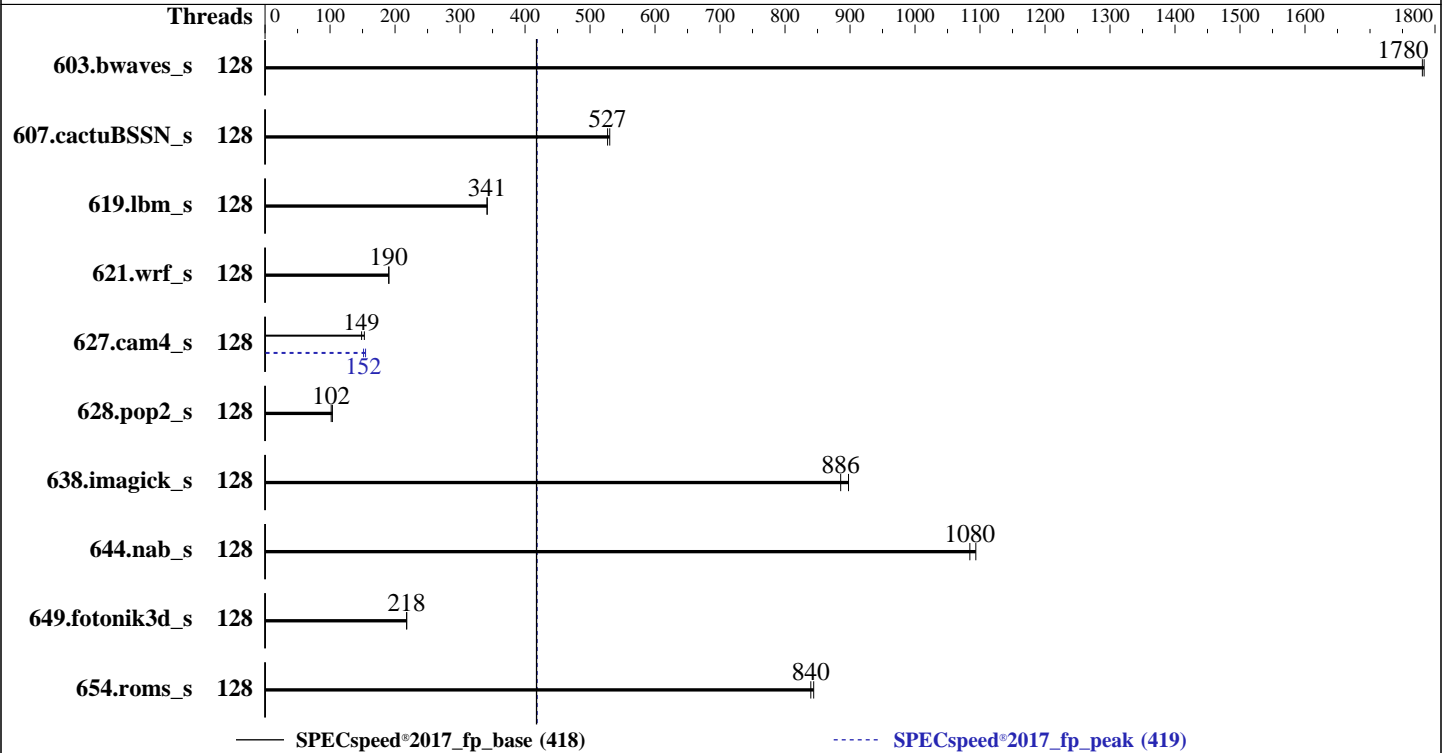
Test Date: Mar-2025

Test Sponsor: Dell Inc.

Hardware Availability: Mar-2025

Tested by: Dell Inc.

Software Availability: Jun-2024



## Hardware

CPU Name: Intel Xeon 6767P  
 Max MHz: 3900  
 Nominal: 2400  
 Enabled: 128 cores, 2 chips  
 Orderable: 1,2 chips  
 Cache L1: 64 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 336 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-6400B-R)  
 Storage: 80 GB on tmpfs  
 Other: CPU Cooling: DLC

## Software

OS: SUSE Linux Enterprise Server 15 SP6  
 6.4.0-150600.21-default  
 Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2024.1 of Intel Fortran Compiler  
 for Linux;  
 Parallel: Yes  
 Firmware: Version 1.2.6 released Feb-2025  
 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 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
603.bwaves_s	128	33.1	1780	<u>33.1</u>	<u>1780</u>			128	33.1	1780	<u>33.1</u>	<u>1780</u>		
607.cactuBSSN_s	128	<u>31.6</u>	<u>527</u>	31.4	530			128	<u>31.6</u>	<u>527</u>	31.4	530		
619.lbm_s	128	15.3	342	<u>15.3</u>	<u>341</u>			128	15.3	342	<u>15.3</u>	<u>341</u>		
621.wrf_s	128	<u>69.6</u>	<u>190</u>	69.4	191			128	<u>69.6</u>	<u>190</u>	69.4	191		
627.cam4_s	128	<u>59.7</u>	<u>149</u>	58.0	153			128	57.3	155	<u>58.5</u>	<u>152</u>		
628.pop2_s	128	115	104	<u>117</u>	<u>102</u>			128	115	104	<u>117</u>	<u>102</u>		
638.imagick_s	128	16.1	898	<u>16.3</u>	<u>886</u>			128	16.1	898	<u>16.3</u>	<u>886</u>		
644.nab_s	128	<u>16.1</u>	<u>1080</u>	16.0	1090			128	<u>16.1</u>	<u>1080</u>	16.0	1090		
649.fotonik3d_s	128	<u>41.9</u>	<u>218</u>	41.8	218			128	<u>41.9</u>	<u>218</u>	41.8	218		
654.roms_s	128	<u>18.8</u>	<u>840</u>	18.7	844			128	<u>18.8</u>	<u>840</u>	18.7	844		

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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-ic2024.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/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.

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 80 GB ramdisk created with the cmd: "mount -t tmpfs -o size=80G tmpfs /mnt/ramdisk"



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## Platform Notes

### BIOS Settings:

Logical Processor : Disabled  
LLC Prefetch : Enabled  
Optimizer Mode : Enabled

System Profile : Custom  
CPU Power Management : Maximum Performance  
CIE : Disabled  
C-States : Autonomous  
Latency Optimized Mode : Enabled  
Energy Efficient Policy : Performance  
CPU Interconnect Bus -  
Link Power Management : Disabled  
PCI ASPM L1 Link Power Management : Disabled  
DIMM Self Healing -  
on Uncorrectable Memory Error : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2024.1/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on 1234567-R770 Thu Mar 6 13:42:46 2025

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 254 (254.10+suse.84.ge8d77af424)
  - 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 1234567-R770 6.4.0-150600.21-default #1 SMP PREEMPT\_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09/lp)  
x86\_64 x86\_64 x86\_64 GNU/Linux
- 
- 2. w  
13:42:46 up 4 min, 1 user, load average: 0.15, 0.17, 0.09  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT

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## Platform Notes (Continued)

```
root      tty1      -                13:40   30.00s  0.84s  0.00s /bin/bash
/home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.1a --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) 2062222
max locked memory       (kbytes, -l) 8192
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) 2062222
virtual memory          (kbytes, -v) unlimited
file locks               (-x) unlimited
```

### 5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
login -- root
-bash
/bin/bash /home/DellFiles/bin/DELL_speed.sh
/bin/bash /home/DellFiles/bin/dell-run-main.sh speed
/bin/bash /home/DellFiles/bin/dell-run-main.sh speed
/bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.1a --output_format
html,pdf,txt
/bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.1a --output_format
html,pdf,txt
runcpu --nobuild --action validate --define default-platform-flags -c
ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=128 --tune base,peak -o all --define
drop_caches --iterations 2 --define DL-VERS=6.1a --output_format html,pdf,txt fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=128 --tune base,peak --output_format all
--define drop_caches --iterations 2 --define DL-VERS=6.1a --output_format html,pdf,txt --nopower --runmode
speed --tune base:peak --size refspeed fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/templogs/preenv.fpspeed.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
```

### 6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6767P
vendor_id       : GenuineIntel
cpu family      : 6
model           : 173
stepping        : 1
microcode       : 0x1000380
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores       : 64
siblings        : 64
```

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## Platform Notes (Continued)

2 physical ids (chips)  
128 processors (hardware threads)  
physical id 0: core ids 0-31,64-95  
physical id 1: core ids 0-31,64-95  
physical id 0: apicids  
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,184,186,188,190  
physical id 1: apicids  
256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,308,310,312,314,316,318,384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,436,438,440,442,444,446

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 2.39.3:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 52 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 128
On-line CPU(s) list: 0-127
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel
Model name: Intel(R) Xeon(R) 6767P
BIOS Model name: Intel(R) Xeon(R) 6767P CPU @ 2.4GHz
BIOS CPU family: 179
CPU family: 6
Model: 173
Thread(s) per core: 1
Core(s) per socket: 64
Socket(s): 2
Stepping: 1
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 vmx 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 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept vpid ept_ad 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 user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hfi vnni 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 ibt amx_bf16 avx512_fp16 amx_tile amx_int8 flush_lld arch_capabilities

Virtualization: VT-x
L1d cache: 6 MiB (128 instances)
L1i cache: 8 MiB (128 instances)
L2 cache: 256 MiB (128 instances)
```

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## Platform Notes (Continued)

```

L3 cache: 672 MiB (2 instances)
NUMA node(s): 2
NUMA node0 CPU(s): 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126
NUMA node1 CPU(s): 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
Vulnerability Lltf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Reg file data sampling: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec rstack overflow: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling; PBRSE-eIBRS Not affected; BHI BHI_DIS_S
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 6M 12 Data 1 64 1 64
L1i 64K 8M 16 Instruction 1 64 1 64
L2 2M 256M 16 Unified 2 2048 1 64
L3 336M 672M 16 Unified 3 344064 1 64

```

```

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 2 nodes (0-1)
node 0 cpus:
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126
node 0 size: 257595 MB
node 0 free: 255838 MB
node 1 cpus:
1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127
node 1 size: 257991 MB
node 1 free: 247008 MB
node distances:
node 0 1
0: 10 21
1: 21 10

```

```

9. /proc/meminfo
MemTotal: 527960600 kB

```

```

10. who -r
run-level 3 Mar 6 13:39

```

```

11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)

```

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## Platform Notes (Continued)

Default Target	Status
multi-user	running

```

12. Services, from systemctl list-unit-files
STATE                               UNIT FILES
enabled                             ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd
                                     bluetooth cron display-manager firewalld getty@ irqbalance issue-generator kbdsettings
                                     klog lvm2-monitor nscd nvme-fc-boot-connections nvme-autoconnect postfix purge-kernels
                                     rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4
                                     wickedd-dhcp6 wickedd-nanny wpa_supplicant
enabled-runtime                     systemd-remount-fs
disabled                             NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon autofo
                                     autoyast-initscripts blk-availability bluetooth-mesh boot-sysctl ca-certificates
                                     chrony-wait chronyd console-getty cups cups-browsed debug-shell dmraid-activation dnsmasq
                                     ebttables exchange-bmc-os-info fsidd gpm grub2-once haveged hwloc-dump-hwdata ipmi ipmievd
                                     issue-add-ssh-keys kexec-load ksm kvm_stat lunmask man-db-create multipathd nfs nfs-blkmap
                                     nmb openvpn@ ostree-remount rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@
                                     smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd systemd-boot-check-no-failures
                                     systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
                                     systemd-timesyncd udisks2 update-system-flatpaks upower vncserver@ wpa_supplicant@
indirect                             pcsd saned@ systemd-userdbd wickedd

```

```

13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=1d10f0af-4b17-4d18-ba8a-bacfaf841f6e
splash=silent
resume=/dev/disk/by-uuid/f8ac12e2-ca56-4f3b-a824-95169c852a50
mitigations=auto
quiet
security=apparmor

```

```

14. cpupower frequency-info
analyzing CPU 14:
  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

```

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## Platform Notes (Continued)

```
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 SP6
-----
```

```
-----
19. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
Filesystem  Type  Size  Used Avail Use% Mounted on
tmpfs       tmpfs 80G   5.0G   76G   7% /mnt/ramdisk
-----
```

```
-----
20. /sys/devices/virtual/dmi/id
Vendor:      Dell Inc.
Product:     PowerEdge R770
Product Family: PowerEdge
Serial:      1234567
-----
```

```
-----
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:
16x 00CE063200CE M321R4GA3PB1-CCPPC 32 GB 2 rank 6400
-----
```

```
-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Dell Inc.
BIOS Version:     1.2.6
BIOS Date:        02/26/2025
BIOS Revision:    1.2
-----
```





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 418

PowerEdge R770 (Intel Xeon 6767P)

SPECspeed®2017\_fp\_peak = 419

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

Test Date: Mar-2025  
Hardware Availability: Mar-2025  
Software Availability: Jun-2024

## 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 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 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 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 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 2024.1.0 Build 20240308  
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-----

-----  
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 2024.1.0 Build 20240308  
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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-----

## 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



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## Base Portability Flags

```
603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
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:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsaphirerapids -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:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```



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SPECspeed®2017\_fp\_peak = 419

CPU2017 License: 6573  
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Tested by: Dell Inc.

Test Date: Mar-2025  
Hardware Availability: Mar-2025  
Software Availability: Jun-2024

## Peak 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

## 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: -w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC\_OPENMP  
-Wno-implicit-int -mprefer-vector-width=512

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Tested by: Dell Inc.

Test Date: Mar-2025

Hardware Availability: Mar-2025

Software Availability: Jun-2024

## Peak Optimization Flags (Continued)

627.cam4\_s (continued):

```
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.13.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.13.xml>

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

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