



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 198

PowerEdge R470 (Intel Xeon 6511P)

SPECspeed®2017\_fp\_peak = 198

CPU2017 License: 6573

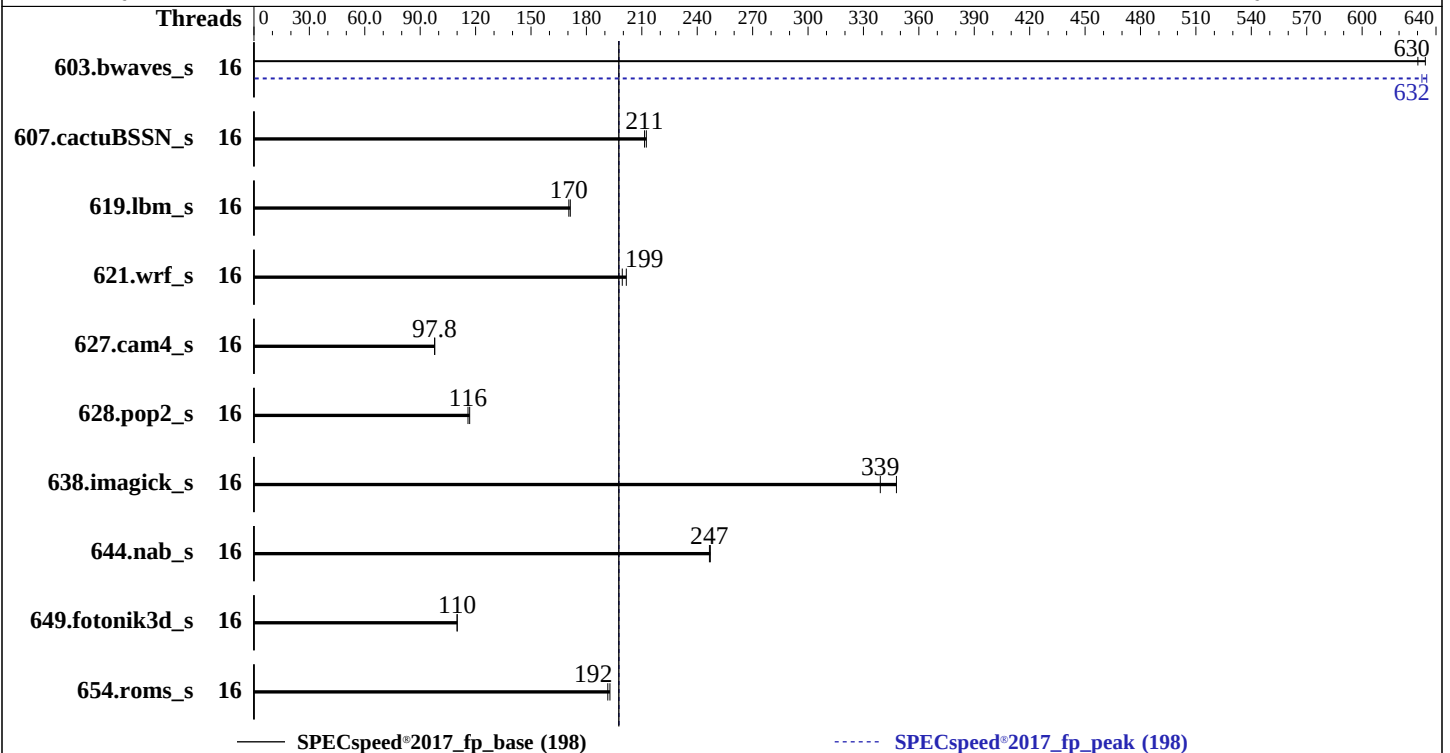
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jun-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024



## Hardware

CPU Name: Intel Xeon 6511P  
Max MHz: 4200  
Nominal: 2300  
Enabled: 16 cores, 1 chip  
Orderable: 1 chip  
Cache L1: 64 KB I + 48 KB D on chip per core  
L2: 2 MB I+D on chip per core  
L3: 72 MB I+D on chip per chip  
Other: None  
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-6400B-R)  
Storage: 40 GB on tmpfs  
Other: CPU Cooling: Air

## 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 1.3.2 released May-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    | 16      | <b><u>93.6</u></b> | <b><u>630</u></b>  | 93.0               | 634               |         |       | 16      | <b><u>93.3</u></b> | <b><u>632</u></b>  | 92.9               | 635               |         |       |
| 607.cactuBSSN_s | 16      | 78.5               | 212                | <b><u>78.8</u></b> | <b><u>211</u></b> |         |       | 16      | 78.5               | 212                | <b><u>78.8</u></b> | <b><u>211</u></b> |         |       |
| 619.lbm_s       | 16      | 30.6               | 171                | <b><u>30.7</u></b> | <b><u>170</u></b> |         |       | 16      | 30.6               | 171                | <b><u>30.7</u></b> | <b><u>170</u></b> |         |       |
| 621.wrf_s       | 16      | 65.6               | 202                | <b><u>66.3</u></b> | <b><u>199</u></b> |         |       | 16      | 65.6               | 202                | <b><u>66.3</u></b> | <b><u>199</u></b> |         |       |
| 627.cam4_s      | 16      | <b><u>90.6</u></b> | <b><u>97.8</u></b> | 90.5               | 97.9              |         |       | 16      | <b><u>90.6</u></b> | <b><u>97.8</u></b> | 90.5               | 97.9              |         |       |
| 628.pop2_s      | 16      | <b><u>102</u></b>  | <b><u>116</u></b>  | 102                | 117               |         |       | 16      | <b><u>102</u></b>  | <b><u>116</u></b>  | 102                | 117               |         |       |
| 638.imagick_s   | 16      | 41.5               | 348                | <b><u>42.5</u></b> | <b><u>339</u></b> |         |       | 16      | 41.5               | 348                | <b><u>42.5</u></b> | <b><u>339</u></b> |         |       |
| 644.nab_s       | 16      | 70.7               | 247                | <b><u>70.9</u></b> | <b><u>247</u></b> |         |       | 16      | 70.7               | 247                | <b><u>70.9</u></b> | <b><u>247</u></b> |         |       |
| 649.fotonik3d_s | 16      | 82.9               | 110                | <b><u>82.9</u></b> | <b><u>110</u></b> |         |       | 16      | 82.9               | 110                | <b><u>82.9</u></b> | <b><u>110</u></b> |         |       |
| 654.roms_s      | 16      | <b><u>82.2</u></b> | <b><u>192</u></b>  | 81.7               | 193               |         |       | 16      | <b><u>82.2</u></b> | <b><u>192</u></b>  | 81.7               | 193               |         |       |

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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"  
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"



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## Platform Notes

### BIOS Settings:

Logical Processor : Disabled  
Sub NUMA Cluster : Enabled  
MADT Core Enumeration : Linear  
LLC Prefetch : Enabled  
Optimizer Mode : Enabled

System Profile : Custom  
Energy Efficient Turbo : Disabled  
C1E : 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  
Correctable Memory ECC SMI : 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-R470 Wed Jun 11 05:16:43 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-R470 6.4.0-150600.21-default #1 SMP PREEMPT\_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)  
x86\_64 x86\_64 x86\_64 GNU/Linux

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## Platform Notes (Continued)

```
2. w
   05:16:43 up 2:10, 1 user, load average: 6.36, 5.45, 3.25
USER  TTY      FROM          LOGIN@  IDLE   JCPU   PCPU WHAT
root  tty1      -             03:05   2:08m  1.47s  0.00s /bin/bash
/home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.2a --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) 2061745
   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) 2061745
   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=6.2a --output_format
   html,pdf,txt
   /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.2a --output_format
   html,pdf,txt
   runcpu --nobuild --action validate --define default-platform-flags -c
   ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=16 --tune base,peak -o all --define
   drop_caches --iterations 2 --define DL-VERS=6.2a --output_format html,pdf,txt fpspeed
   runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=16 --tune base,peak --output_format all
   --define drop_caches --iterations 2 --define DL-VERS=6.2a --output_format html,pdf,txt --nopower --runmode
   speed --tune base:peak --size refspeak fpspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.002/temlogs/preenv.fpspeed.002.0.log --lognum 002.0 --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) 6511P
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 173
   stepping        : 1
   microcode       : 0xa0000f2
```

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## Platform Notes (Continued)

bugs : spectre\_v1 spectre\_v2 spec\_store\_bypass swaps bhi

cpu cores : 16

siblings : 16

1 physical ids (chips)

16 processors (hardware threads)

physical id 0: core ids 0-15

physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30

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):                      16
On-line CPU(s) list:         0-15
Vendor ID:                   GenuineIntel
BIOS Vendor ID:              Intel
Model name:                  Intel(R) Xeon(R) 6511P
BIOS Model name:             Intel(R) Xeon(R) 6511P  CPU @ 2.3GHz
BIOS CPU family:             179
CPU family:                  6
Model:                       173
Thread(s) per core:          1
Core(s) per socket:          16
Socket(s):                   1
Stepping:                    1
BogoMIPS:                    4600.00
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 vnmi 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_lid arch_capabilities
Virtualization:              VT-x
L1d cache:                   768 KiB (16 instances)
L1i cache:                   1 MiB (16 instances)
L2 cache:                    32 MiB (16 instances)
L3 cache:                    72 MiB (1 instance)
NUMA node(s):                1
NUMA node0 CPU(s):           0-15
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
```

(Continued on next page)



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## Platform Notes (Continued)

Vulnerability L1tf: 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/swapgs 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      | 768K     | 12   | Data        | 1     | 64    | 1        | 64             |
| L1i  | 64K      | 1M       | 16   | Instruction | 1     | 64    | 1        | 64             |
| L2   | 2M       | 32M      | 16   | Unified     | 2     | 2048  | 1        | 64             |
| L3   | 72M      | 72M      | 16   | Unified     | 3     | 73728 | 1        | 64             |

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 1 nodes (0)  
node 0 cpus: 0-15  
node 0 size: 515465 MB  
node 0 free: 497814 MB  
node distances:  
node 0  
0: 10

9. /proc/meminfo

MemTotal: 527836828 kB

10. who -r

run-level 3 Jun 11 03:06

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

Default Target Status  
multi-user running

12. Services, from systemctl list-unit-files

| STATE           | UNIT FILES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enabled         | ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online<br>YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd bluetooth cron<br>display-manager getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd<br>nvme-fc-boot-connections nvme-autoconnect postfix purge-kernels rollback rsyslog smartd<br>sshd systemd-pstore wpa_supplicant                                                                                                                                                |
| enabled-runtime | systemd-remount-fs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| disabled        | accounts-daemon autofs autovast-initscripts blk-availability bluetooth-mesh boot-sysctl<br>ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell dnsmasq<br>ebtables exchange-bmc-os-info firewalld fsidd gpm grub2-once haveged hwloc-dump-hwdata<br>ipmi ipmievdev issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap<br>nm-cloud-setup nmb openvpn@ ostree-remount pppoe pppoe-server rpcbind rpmconfigcheck<br>rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd |

(Continued on next page)



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## Platform Notes (Continued)

indirect  
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@ wickedd wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6  
wickedd-nanny wpa\_supplicant@  
pcscd systemd-userdbd wickedd

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default  
root=UUID=1c12c33d-b75a-4b70-bf85-f673b4f99355  
splash=silent  
resume=/dev/disk/by-uuid/8694d044-c578-4891-879e-7f98dfefe412  
mitigations=auto  
quiet  
security=apparmor

-----  
14. cpupower frequency-info  
analyzing CPU 13:  
Unable to determine current policy  
boost state support:  
Supported: yes  
Active: yes

-----  
15. sysctl  
kernel.numa\_balancing 0  
kernel.randomize\_va\_space 2  
vm.compaction\_proactiveness 20  
vm.dirty\_background\_bytes 0  
vm.dirty\_background\_ratio 10  
vm.dirty\_bytes 0  
vm.dirty\_expire\_centisecs 3000  
vm.dirty\_ratio 20  
vm.dirty\_writeback\_centisecs 500  
vm.dirtytime\_expire\_seconds 43200  
vm.extfrag\_threshold 500  
vm.min\_unmapped\_ratio 1  
vm.nr\_hugepages 0  
vm.nr\_hugepages\_mempolicy 0  
vm.nr\_overcommit\_hugepages 0  
vm.swappiness 60  
vm.watermark\_boost\_factor 15000  
vm.watermark\_scale\_factor 10  
vm.zone\_reclaim\_mode 0

-----  
16. /sys/kernel/mm/transparent\_hugepage  
defrag always defer defer+madvise [madvise] never  
enabled [always] madvise never  
hpage\_pmd\_size 2097152  
shmem\_enabled always within\_size advise [never] deny force

-----  
17. /sys/kernel/mm/transparent\_hugepage/khugepaged  
alloc\_sleep\_millisecs 60000  
defrag 1  
max\_ptes\_none 511  
max\_ptes\_shared 256  
max\_ptes\_swap 64

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## Platform Notes (Continued)

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 40G 11G 30G 28% /mnt/ramdisk  
-----

-----  
20. /sys/devices/virtual/dmi/id  
Vendor: Dell Inc.  
Product: PowerEdge R470  
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:  
8x 00CE042300CE M321R8GA0PB2-CCPEC 64 GB 2 rank 6400  
-----

-----  
22. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: Dell Inc.  
BIOS Version: 1.3.2  
BIOS Date: 05/15/2025  
BIOS Revision: 1.3  
-----

## 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)

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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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# SPEC CPU®2017 Floating Point Speed Result

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Dell Inc.

SPECspeed®2017\_fp\_base = 198

PowerEdge R470 (Intel Xeon 6511P)

SPECspeed®2017\_fp\_peak = 198

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jun-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024

## Compiler Version Notes (Continued)

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

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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)

-----

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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

## 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



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## Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -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  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-w -m64 -WL,-z,muldefs -DSPEC_OPENMP -xsapphirerapids -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 -xsapphirerapids -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 -xsapphirerapids -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
```

## 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



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Software Availability: Jun-2024

## 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: -w -m64 -wl, -z, muldefs -DSPEC\_OPENMP -xsapphirerapids  
-Ofast -ffast-math -flt0 -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

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

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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