SPEC CPU®2017 Floating Point Speed Result

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Dell Inc.

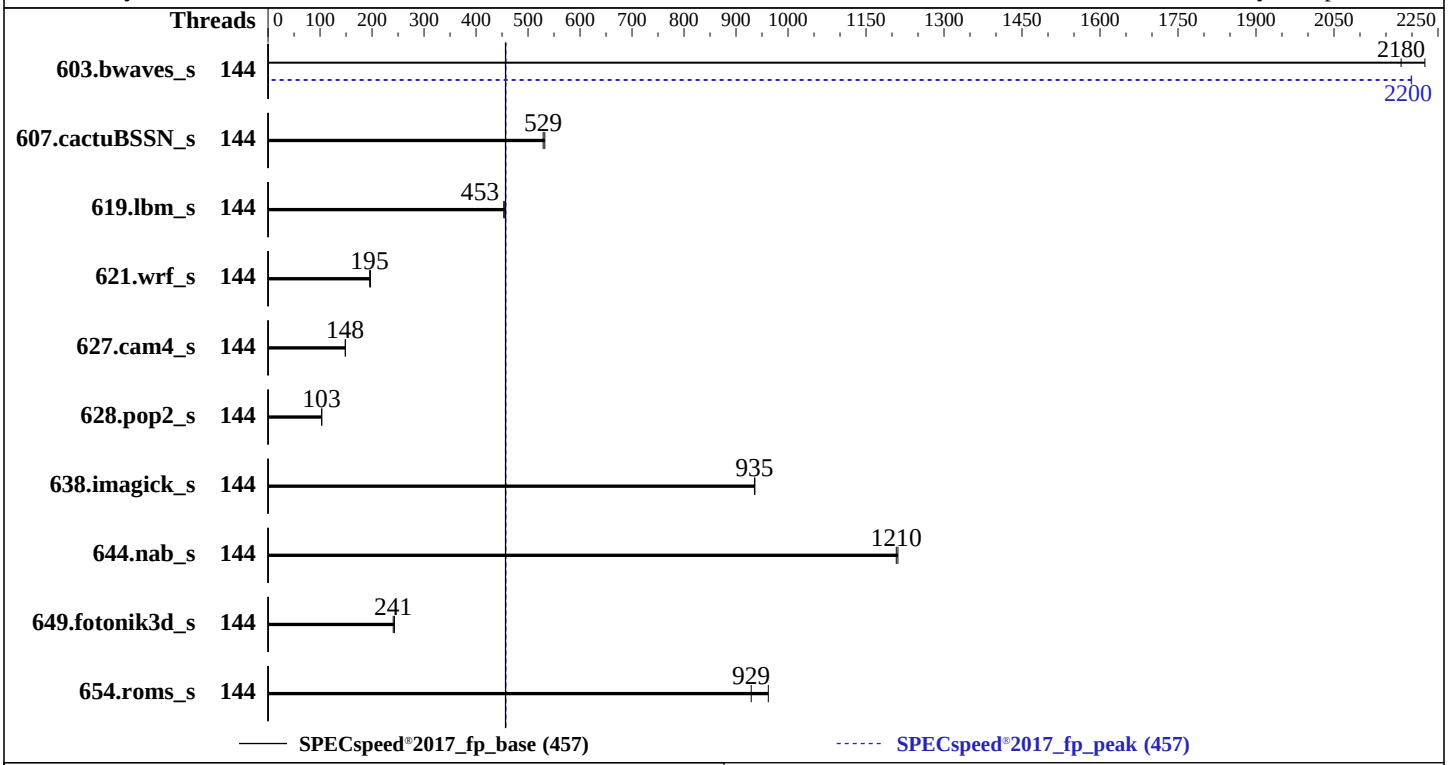
PowerEdge R770AP (Intel Xeon 6960P)

SPECspeed®2017_fp_base = 457

SPECspeed®2017_fp_peak = 457

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

Test Date: Nov-2025
Hardware Availability: Oct-2025
Software Availability: Sep-2025



Hardware

CPU Name:	Intel Xeon 6960P
Max MHz:	3900
Nominal:	2700
Enabled:	144 cores, 2 chips, 2 threads/core
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:	432 MB I+D on chip per chip
Other:	None
Memory:	768 GB (24 x 32 GB 2Rx8 PC5-6400B-R)
Storage:	150 GB on tmpfs
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 16.0 6.12.0-160000.4-default
Compiler:	C/C++: Version 2025.2 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2025.2 of Intel Fortran Compiler for Linux;
Parallel:	Yes
Firmware:	Version 1.1.5 released Oct-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	144	**27.1**	**2180**	26.5	2220			144	26.8	2200	**26.8**	**2200**		
607.cactuBSSN_s	144	31.3	532	**31.5**	**529**			144	31.3	532	**31.5**	**529**		
619.lbm_s	144	**11.6**	**453**	11.5	455			144	**11.6**	**453**	11.5	455		
621.wrf_s	144	**67.7**	**195**	67.1	197			144	**67.7**	**195**	67.1	197		
627.cam4_s	144	59.6	149	**59.7**	**148**			144	59.6	149	**59.7**	**148**		
628.pop2_s	144	115	103	**115**	**103**			144	115	103	**115**	**103**		
638.imagick_s	144	15.4	936	**15.4**	**935**			144	15.4	936	**15.4**	**935**		
644.nab_s	144	14.4	1210	**14.5**	**1210**			144	14.4	1210	**14.5**	**1210**		
649.fotonik3d_s	144	**37.9**	**241**	37.5	243			144	**37.9**	**241**	37.5	243		
654.roms_s	144	**16.9**	**929**	16.4	962			144	**16.9**	**929**	16.4	962		

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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,1,0"
LD_LIBRARY_PATH =
     "/mnt/ramdisk/cpu2017-1.1.9-ic2025.2/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2025.2/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

Benchmark run from a 150 GB ramdisk created with the cmd: "mount -t tmpfs -o size=150G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS Settings:
          Sub NUMA Cluster : Enabled
              LLC Prefetch : Enabled
```

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Platform Notes (Continued)

```
           System Profile : Custom
      CPU Power Management : Maximum Performance
                     C1E : Disabled
                 C-States : Autonomous
    Latency Optimized Mode : Enabled
   Energy Efficient Policy : Performance
       DIMM Self Healing -
on Uncorrectable Memory Error : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2025.2/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on S123456-R770AP Fri Nov  7 11:03:27 2025

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

------------------------------------------------------------
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------------------------------------------------------------

------------------------------------------------------------
1. uname -a
  Linux S123456-R770AP 6.12.0-160000.4-default #1 SMP PREEMPT_DYNAMIC Wed Aug 20 16:45:35 UTC 2025 (1147121)
  x86_64 x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
   11:03:27 up 24 min,  2 users,  load average: 0.20, 0.10, 0.39
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT
  root     tty1     -                10:39    5:35   0.25s  0.25s -bash
  root     tty2     -                10:58   23.00s  0.87s   ?    /bin/bash
  /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.4_T17 --output_format html,pdf,txt

------------------------------------------------------------
3. Username
  From environment variable $USER:  root

------------------------------------------------------------
```

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Platform Notes (Continued)

```
4. ulimit -a
  real-time non-blocking time  (microseconds, -R) unlimited
  core file size              (blocks, -c) unlimited
  data seg size               (kbytes, -d) unlimited
  scheduling priority                 (-e) 0
  file size                   (blocks, -f) unlimited
  pending signals                     (-i) 3093045
  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) 3093045
  virtual memory              (kbytes, -v) unlimited
  file locks                          (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=47
 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=6.4_T17 --output_format
   html,pdf,txt
 /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh speed --define DL-VERS=6.4_T17 --output_format
   html,pdf,txt
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2025.2-linux64-graniterapids-speed-20250605.cfg --define cores=144 --tune base,peak -o all --define
   smt-on --define drop_caches --iterations 2 --define DL-VERS=6.4_T17 --output_format html,pdf,txt fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2025.2-linux64-graniterapids-speed-20250605.cfg --define cores=144 --tune base,peak --output_format all
   --define smt-on --define drop_caches --iterations 2 --define DL-VERS=6.4_T17 --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-ic2025.2

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) 6960P
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 173
    stepping        : 1
    microcode       : 0x10003f3
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi spectre_v2_user
    cpu cores       : 72
    siblings        : 144
    2 physical ids (chips)
    288 processors (hardware threads)
    physical id 0: core ids 0-23,64-87,128-151
    physical id 1: core ids 0-23,64-87,128-151
    physical id 0: apicids 0-47,128-175,256-303
    physical id 1: apicids 512-559,640-687,768-815
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
```

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Platform Notes (Continued)

```
  virtualized systems.  Use the above data carefully.

------------------------------------------------------------
7. lscpu

From lscpu from util-linux 2.41.1:
  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):                               288
  On-line CPU(s) list:                  0-287
  Vendor ID:                            GenuineIntel
  Model name:                           Intel(R) Xeon(R) 6960P
  CPU family:                           6
  Model:                                173
  Thread(s) per core:                   2
  Core(s) per socket:                   72
  Socket(s):                            2
  Stepping:                             1
  BogoMIPS:                             5400.00
  Flags:                                fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                                        pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx
                                        pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good
                                        nopl xtopology 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 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 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 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_l1d arch_capabilities
  Virtualization:                       VT-x
  L1d cache:                            6.8 MiB (144 instances)
  L1i cache:                            9 MiB (144 instances)
  L2 cache:                             288 MiB (144 instances)
  L3 cache:                             864 MiB (2 instances)
  NUMA node(s):                         6
  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
                                        ,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,1
                                        76,178,180,182,184,186,188,190
  NUMA node1 CPU(s):                    48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,
                                        92,94,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,
                                        222,224,226,228,230,232,234,236,238
  NUMA node2 CPU(s):                    96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,
                                        130,132,134,136,138,140,142,240,242,244,246,248,250,252,254,256,25
                                        8,260,262,264,266,268,270,272,274,276,278,280,282,284,286
  NUMA node3 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
                                        ,145,147,149,151,153,155,157,159,161,163,165,167,169,171,173,175,1
                                        77,179,181,183,185,187,189,191
  NUMA node4 CPU(s):                    49,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,
```

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Platform Notes (Continued)

```
                                       93,95,193,195,197,199,201,203,205,207,209,211,213,215,217,219,221,
                                       223,225,227,229,231,233,235,237,239
  NUMA node5 CPU(s):                   97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,
                                       131,133,135,137,139,141,143,241,243,245,247,249,251,253,255,257,25
                                       9,261,263,265,267,269,271,273,275,277,279,281,283,285,287
  Vulnerability Gather data sampling:  Not affected
  Vulnerability Indirect target selection: Not affected
  Vulnerability Itlb multihit:         Not affected
  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;
                                       PBRSB-eIBRS Not affected; BHI BHI_DIS_S
  Vulnerability Srbds:                 Not affected
  Vulnerability Tsa:                   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     6.8M   12 Data            1     64        1             64
     L1i       64K       9M   16 Instruction     1     64        1             64
     L2         2M     288M   16 Unified         2   2048        1             64
     L3       432M     864M   16 Unified         3 442368        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 6 nodes (0-5)
  node 0 cpus:
  0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,144,146,148,150,152,154,156,158,160,162,
  164,166,168,170,172,174,176,178,180,182,184,186,188,190
  node 0 size: 128575 MB
  node 0 free: 115686 MB
  node 1 cpus:
  48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94,192,194,196,198,200,202,204,206,208
  ,210,212,214,216,218,220,222,224,226,228,230,232,234,236,238
  node 1 size: 129006 MB
  node 1 free: 128780 MB
  node 2 cpus:
  96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,132,134,136,138,140,142,240,242,244,2
  46,248,250,252,254,256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286
  node 2 size: 129006 MB
  node 2 free: 128800 MB
  node 3 cpus:
  1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,145,147,149,151,153,155,157,159,161,163,
  165,167,169,171,173,175,177,179,181,183,185,187,189,191
  node 3 size: 128964 MB
  node 3 free: 128746 MB
  node 4 cpus:
  49,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,93,95,193,195,197,199,201,203,205,207,209
  ,211,213,215,217,219,221,223,225,227,229,231,233,235,237,239
  node 4 size: 129006 MB
  node 4 free: 128785 MB
```

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Platform Notes (Continued)

```
  node 5 cpus:
  97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,131,133,135,137,139,141,143,241,243,245,2
  47,249,251,253,255,257,259,261,263,265,267,269,271,273,275,277,279,281,283,285,287
  node 5 size: 128928 MB
  node 5 free: 128716 MB
  node distances:
  node     0    1    2    3    4    5
     0:   10   15   17   21   28   26
     1:   15   10   15   23   26   23
     2:   17   15   10   26   23   21
     3:   21   28   26   10   15   17
     4:   23   26   23   15   10   15
     5:   26   23   21   17   15   10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       792051584 kB

'who -r' did not return a run level

------------------------------------------------------------
10. Systemd service manager version: systemd 257 (257.7+suse.19.ga0dfd5de4c)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
11. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          NetworkManager NetworkManager-dispatcher NetworkManager-wait-online audit-rules auditd
                   chronyd dbus-broker getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor
                   nvmefc-boot-connections nvmf-autoconnect rollback rsyslog smartd soft-reboot-cleanup sshd
                   systemd-pstore wpa_supplicant wtmpdb-update-boot
  enabled-runtime  systemd-remount-fs
  disabled         blk-availability boot-sysctl ca-certificates ca-certificates-setup chrony-wait
                   console-getty debug-shell dnsmasq firewalld gpm grub2-once hwloc-dump-hwdata
                   issue-add-ssh-keys kernel-sysctl kexec-load lastlog2-import lunmask lvm-devices-import
                   man-db-create multipathd nftables nis-domainname rpmconfigcheck rsyncd serial-getty@
                   setup-systemd-proxy-env smartd_generate_opts snmpd snmptrapd
                   systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysext
                   systemd-time-wait-sync systemd-timesyncd systemd-udev-load-credentials udisks2
                   wpa_supplicant@
  indirect         systemd-userdbd

------------------------------------------------------------
12. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.12.0-160000.4-default
  root=UUID=e4f947ce-14ce-42f7-b3ba-64120f83c4e6
  mitigations=auto
  quiet
  security=selinux
  selinux=1

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

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Platform Notes (Continued)

```
------------------------------------------------------------
14. 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

------------------------------------------------------------
15. /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

------------------------------------------------------------
16. /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

------------------------------------------------------------
17. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 16.0

------------------------------------------------------------
18. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2025.2
  Filesystem     Type   Size  Used Avail Use% Mounted on
  tmpfs          tmpfs  150G  5.8G  145G   4% /mnt/ramdisk

------------------------------------------------------------
19. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge R770AP
    Product Family: PowerEdge
    Serial:         S123456

------------------------------------------------------------
20. dmidecode
  Additional information from dmidecode 3.6 follows.  WARNING: Use caution when you interpret this section.
```

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Platform Notes (Continued)

```
  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:
    24x 002C069D002C MTC20F2085S1RC64BD2 USFF 32 GB 2 rank 6400


 ------------------------------------------------------------
 21. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       Dell Inc.
    BIOS Version:      1.1.5
    BIOS Date:         10/22/2025
    BIOS Revision:     1.1
```

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 2025.2.0 Build 20250605
Copyright (C) 1985-2025 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 2025.2.0 Build 20250605
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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==============================================================================================================
Fortran         | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
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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

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Base Compiler Invocation (Continued)

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

Base Optimization Flags

C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xgraniterapids -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 -xgraniterapids -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 -xgraniterapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
-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 -xgraniterapids -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

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

(Continued on next page)

Peak Optimization Flags (Continued)

Fortran benchmarks:

603.bwaves_s: `-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xgraniterapids -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`

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-ic2025-official-linux64.html
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.18.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.18.xml

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

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