SPEC CPU®2017 Floating Point Rate Result

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Dell Inc.

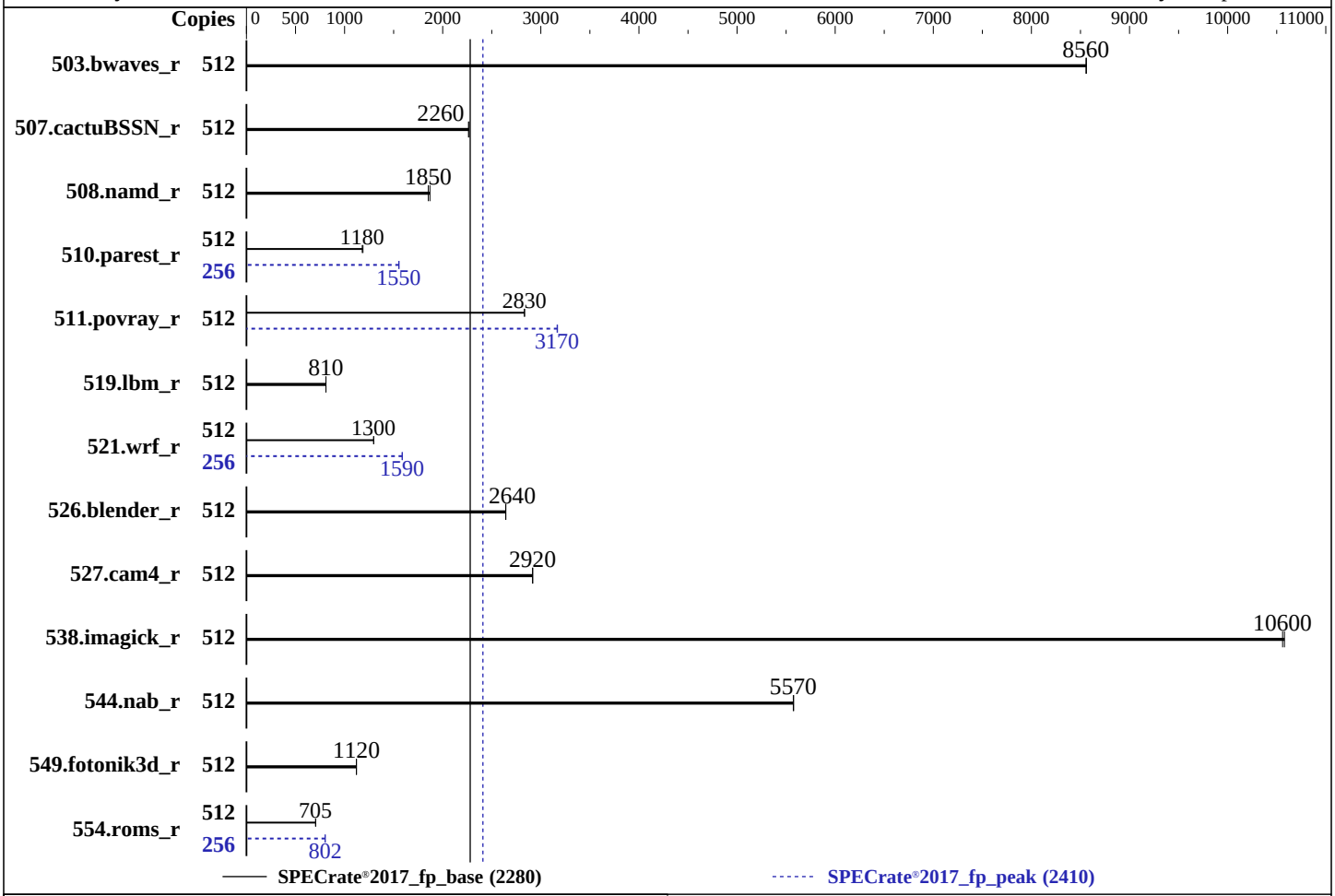
PowerEdge R770AP (Intel Xeon 6980P)

SPECrate®2017_fp_base = 2280

SPECrate®2017_fp_peak = 2410

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

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



Hardware

CPU Name:	Intel Xeon 6980P
Max MHz:	3900
Nominal:	2000
Enabled:	256 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:	504 MB I+D on chip per chip
Other:	None
Memory:	768 GB (24 x 32 GB 2Rx8 PC5-6400B-R)
Storage:	240 GB on tmpfs
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 16.0 6.12.0-160000.5-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:	No
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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	512	600	8560	**600**	**8560**			512	600	8560	**600**	**8560**		
507.cactuBSSN_r	512	286	2270	**286**	**2260**			512	286	2270	**286**	**2260**		
508.namd_r	512	260	1870	**262**	**1850**			512	260	1870	**262**	**1850**		
510.parest_r	512	**1135**	**1180**	1128	1190			256	431	1550	**431**	**1550**		
511.povray_r	512	422	2830	**422**	**2830**			512	**378**	**3170**	377	3170		
519.lbm_r	512	666	810	**666**	**810**			512	666	810	**666**	**810**		
521.wrf_r	512	**885**	**1300**	884	1300			256	**361**	**1590**	361	1590		
526.blender_r	512	295	2640	**295**	**2640**			512	295	2640	**295**	**2640**		
527.cam4_r	512	307	2920	**307**	**2920**			512	307	2920	**307**	**2920**		
538.imagick_r	512	**121**	**10600**	120	10600			512	**121**	**10600**	120	10600		
544.nab_r	512	**155**	**5570**	155	5580			512	**155**	**5570**	155	5580		
549.fotonik3d_r	512	1780	1120	**1780**	**1120**			512	1780	1120	**1780**	**1120**		
554.roms_r	512	1153	705	**1155**	**705**			256	**507**	**802**	507	803		

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SPECrate®2017_fp_peak = 2410

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

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:
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"
```

General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
```

(Continued on next page)

General Notes (Continued)

```
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases

Benchmark run from a 240 GB ramdisk created with the cmd: "mount -t tmpfs -o size=240G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS Settings:
          Sub NUMA Cluster : Enabled

            System Profile : Custom
      CPU Power Management : Maximum Performance
                  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 NDN2205-R770AP Thu Oct 30 22:14:32 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. Systemd service manager version: systemd 257 (257.7+suse.19.ga0dfd5de4c)
11. Services, from systemctl list-unit-files
12. Linux kernel boot-time arguments, from /proc/cmdline
13. cpupower frequency-info
14. sysctl
15. /sys/kernel/mm/transparent_hugepage
16. /sys/kernel/mm/transparent_hugepage/khugepaged
17. OS release
18. Disk information
19. /sys/devices/virtual/dmi/id
20. dmidecode
21. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -a
  Linux NDN2205-R770AP 6.12.0-160000.5-default #1 SMP PREEMPT_DYNAMIC Wed Sep 10 15:26:25 UTC 2025 (3545bbd)
  x86_64 x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
   22:14:32 up  2:17,  3 users,  load average: 1.77, 146.59, 329.63
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT
```

(Continued on next page)

Platform Notes (Continued)

```
  root     tty1     -                20:11   24.00s  1.07s   ?    /bin/bash
  /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.4_T17 --output_format html,pdf,txt
  root     tty2     -                20:11    5:59   0.06s  0.06s -bash
  root             10.137.52.181    22:12           0.00s  0.02s sshd-session: root [priv]

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

------------------------------------------------------------
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) 3092418
  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) 3092418
  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_rate.sh
 /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
 /bin/bash /home/DellFiles/bin/dell-run-main.sh rate
 /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.4_T17 --output_format
   html,pdf,txt
 /bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.4_T17 --output_format
   html,pdf,txt
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 -c
   ic2025.2-linux64-graniterapids-rate-20250605.cfg --define smt-on --define cores=256 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak -o all --iterations 2 --define
   DL-VERS=6.4_T17 --output_format html,pdf,txt fprate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 --configfile
   ic2025.2-linux64-graniterapids-rate-20250605.cfg --define smt-on --define cores=256 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --iterations 2
   --define DL-VERS=6.4_T17 --output_format html,pdf,txt --nopower --runmode rate --tune base:peak --size
   refrate fprate --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.fprate.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) 6980P
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 173
```

(Continued on next page)

Platform Notes (Continued)

```
     stepping        : 1
     microcode       : 0x10003f3
     bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi spectre_v2_user
     cpu cores       : 128
     siblings        : 256
     2 physical ids (chips)
     512 processors (hardware threads)
     physical id 0: core ids 0-42,64-106,128-169
     physical id 1: core ids 0-42,64-106,128-169
     physical id 0: apicids 0-85,128-213,256-339
     physical id 1: apicids 512-597,640-725,768-851
   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 2.41.1:
   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):                                  512
   On-line CPU(s) list:                     0-511
   Vendor ID:                               GenuineIntel
   Model name:                              Intel(R) Xeon(R) 6980P
   CPU family:                              6
   Model:                                   173
   Thread(s) per core:                      2
   Core(s) per socket:                      128
   Socket(s):                               2
   Stepping:                                1
   BogoMIPS:                                4000.00
   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 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:                               12 MiB (256 instances)
   L1i cache:                               16 MiB (256 instances)
   L2 cache:                                512 MiB (256 instances)
   L3 cache:                                1008 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
```

(Continued on next page)

Platform Notes (Continued)

```
                                        ,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,256,258,
                                        260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,29
                                        2,294,296,298,300,302,304,306,308,310,312,314,316,318,320,322,324,
                                        326,328,330,332,334,336,338,340
   NUMA node1 CPU(s):                   86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,1
                                        22,124,126,128,130,132,134,136,138,140,142,144,146,148,150,152,154
                                        ,156,158,160,162,164,166,168,170,342,344,346,348,350,352,354,356,3
                                        58,360,362,364,366,368,370,372,374,376,378,380,382,384,386,388,390
                                        ,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,4
                                        24,426
   NUMA node2 CPU(s):                   172,174,176,178,180,182,184,186,188,190,192,194,196,198,200,202,20
                                        4,206,208,210,212,214,216,218,220,222,224,226,228,230,232,234,236,
                                        238,240,242,244,246,248,250,252,254,428,430,432,434,436,438,440,44
                                        2,444,446,448,450,452,454,456,458,460,462,464,466,468,470,472,474,
                                        476,478,480,482,484,486,488,490,492,494,496,498,500,502,504,506,50
                                        8,510
   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
                                        ,49,51,53,55,57,59,61,63,65,67,69,71,73,75,77,79,81,83,85,257,259,
                                        261,263,265,267,269,271,273,275,277,279,281,283,285,287,289,291,29
                                        3,295,297,299,301,303,305,307,309,311,313,315,317,319,321,323,325,
                                        327,329,331,333,335,337,339,341
   NUMA node4 CPU(s):                   87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,1
                                        23,125,127,129,131,133,135,137,139,141,143,145,147,149,151,153,155
                                        ,157,159,161,163,165,167,169,171,343,345,347,349,351,353,355,357,3
                                        59,361,363,365,367,369,371,373,375,377,379,381,383,385,387,389,391
                                        ,393,395,397,399,401,403,405,407,409,411,413,415,417,419,421,423,4
                                        25,427
   NUMA node5 CPU(s):                   173,175,177,179,181,183,185,187,189,191,193,195,197,199,201,203,20
                                        5,207,209,211,213,215,217,219,221,223,225,227,229,231,233,235,237,
                                        239,241,243,245,247,249,251,253,255,429,431,433,435,437,439,441,44
                                        3,445,447,449,451,453,455,457,459,461,463,465,467,469,471,473,475,
                                        477,479,481,483,485,487,489,491,493,495,497,499,501,503,505,507,50
                                        9,511
   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      12M   12 Data            1     64        1             64
      L1i       64K      16M   16 Instruction     1     64        1             64
      L2         2M     512M   16 Unified         2   2048        1             64
      L3       504M    1008M   16 Unified         3 516096        1             64

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


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Platform Notes (Continued)

```
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 6 nodes (0-5)
  node 0 cpus:
  0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,7
  4,76,78,80,82,84,256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,30
  0,302,304,306,308,310,312,314,316,318,320,322,324,326,328,330,332,334,336,338,340
  node 0 size: 128560 MB
  node 0 free: 114783 MB
  node 1 cpus:
  86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,132,134,136,138,140,14
  2,144,146,148,150,152,154,156,158,160,162,164,166,168,170,342,344,346,348,350,352,354,356,358,360,362,364,3
  66,368,370,372,374,376,378,380,382,384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,
  420,422,424,426
  node 1 size: 128992 MB
  node 1 free: 128590 MB
  node 2 cpus:
  172,174,176,178,180,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224
  ,226,228,230,232,234,236,238,240,242,244,246,248,250,252,254,428,430,432,434,436,438,440,442,444,446,448,45
  0,452,454,456,458,460,462,464,466,468,470,472,474,476,478,480,482,484,486,488,490,492,494,496,498,500,502,5
  04,506,508,510
  node 2 size: 128993 MB
  node 2 free: 128614 MB
  node 3 cpus:
  1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,61,63,65,67,69,71,73,7
  5,77,79,81,83,85,257,259,261,263,265,267,269,271,273,275,277,279,281,283,285,287,289,291,293,295,297,299,30
  1,303,305,307,309,311,313,315,317,319,321,323,325,327,329,331,333,335,337,339,341
  node 3 size: 128992 MB
  node 3 free: 128612 MB
  node 4 cpus:
  87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,131,133,135,137,139,141,14
  3,145,147,149,151,153,155,157,159,161,163,165,167,169,171,343,345,347,349,351,353,355,357,359,361,363,365,3
  67,369,371,373,375,377,379,381,383,385,387,389,391,393,395,397,399,401,403,405,407,409,411,413,415,417,419,
  421,423,425,427
  node 4 size: 128992 MB
  node 4 free: 128600 MB
  node 5 cpus:
  173,175,177,179,181,183,185,187,189,191,193,195,197,199,201,203,205,207,209,211,213,215,217,219,221,223,225
  ,227,229,231,233,235,237,239,241,243,245,247,249,251,253,255,429,431,433,435,437,439,441,443,445,447,449,45
  1,453,455,457,459,461,463,465,467,469,471,473,475,477,479,481,483,485,487,489,491,493,495,497,499,501,503,5
  05,507,509,511
  node 5 size: 128800 MB
  node 5 free: 128454 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:       791892100 kB

'who -r' did not return a run level

------------------------------------------------------------
10. Systemd service manager version: systemd 257 (257.7+suse.19.ga0dfd5de4c)
```

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Platform Notes (Continued)

```
  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
                   bluetooth chronyd dbus-broker firewalld gdm 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         accounts-daemon blk-availability bluetooth-mesh boot-sysctl ca-certificates
                   ca-certificates-setup chrony-wait console-getty cups debug-shell dnsmasq
                   gnome-remote-desktop gnome-remote-desktop-configuration gpm grub2-once hwloc-dump-hwdata
                   issue-add-ssh-keys kea-ctrl-agent kea-dhcp-ddns kea-dhcp4 kea-dhcp6 kernel-sysctl
                   kexec-load lastlog2-import lunmask lvm-devices-import man-db-create multipathd named
                   nftables nis-domainname pkcs11_eventmgr rpmconfigcheck rsyncd rtkit-daemon serial-getty@
                   setup-systemd-proxy-env smartd_generate_opts snmpd snmptrapd speech-dispatcherd
                   systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysext
                   systemd-time-wait-sync systemd-timesyncd systemd-udev-load-credentials udisks2 upower
                   wpa_supplicant@
  indirect         pcscd systemd-userdbd

------------------------------------------------------------
12. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.12.0-160000.5-default
  root=UUID=f2bd7382-ee5f-4dd2-9ecb-93af259c5d0d
  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

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

(Continued on next page)

Platform Notes (Continued)

```
  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  240G  5.8G  235G   3% /mnt/ramdisk

------------------------------------------------------------
19. /sys/devices/virtual/dmi/id
    Vendor:         Dell Inc.
    Product:        PowerEdge R770AP
    Product Family: PowerEdge
    Serial:         NDN2205

------------------------------------------------------------
20. dmidecode
  Additional information from dmidecode 3.6 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:
    14x 00AD042300AD HMCG88AHBRA471N 32 GB 2 rank 6400
    9x 00AD063200AD HMCG88AHBRA286N 32 GB 2 rank 6400
    1x 00AD063200AD HMCG88AHBRA477N 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               | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(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++             | 508.namd_r(base, peak) 510.parest_r(base, peak)
--------------------------------------------------------------------------------------------------------------
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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C          | 511.povray_r(base, peak) 526.blender_r(base, peak)
--------------------------------------------------------------------------------------------------------------
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Copyright (C) 1985-2025 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C, Fortran | 507.cactuBSSN_r(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) 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.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran         | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran, C      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605
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--------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using both C and C++:
icpx icx

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

Base Portability Flags

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -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
-Wno-implicit-int -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:
-w -std=c++14 -m64 -Wl,-z,muldefs -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops

(Continued on next page)

Base Optimization Flags (Continued)

C++ benchmarks (continued):
-qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xgraniterapids -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

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
-Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both 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 -Wno-implicit-int -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

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

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

(Continued on next page)

Peak Compiler Invocation (Continued)

Benchmarks using both C and C++:
icpx icx

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

519.lbm_r: basepeak = yes

538.imagick_r: basepeak = yes

544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xgraniterapids
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves_r: basepeak = yes

549.fotonik3d_r: basepeak = yes

554.roms_r: -w -m64 -Wl,-z,muldefs -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

(Continued on next page)

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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

527.cam4_r: `basepeak = yes`

Benchmarks using both C and C++:

511.povray_r: `-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate`(pass 1) `-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1) `-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512 -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

526.blender_r: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: `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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