



# SPEC CPU®2017 Floating Point Speed Result

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Dell Inc.

SPECspeed®2017\_fp\_base = 457

PowerEdge R770AP (Intel Xeon 6960P)

SPECspeed®2017\_fp\_peak = 457

CPU2017 License: 6573

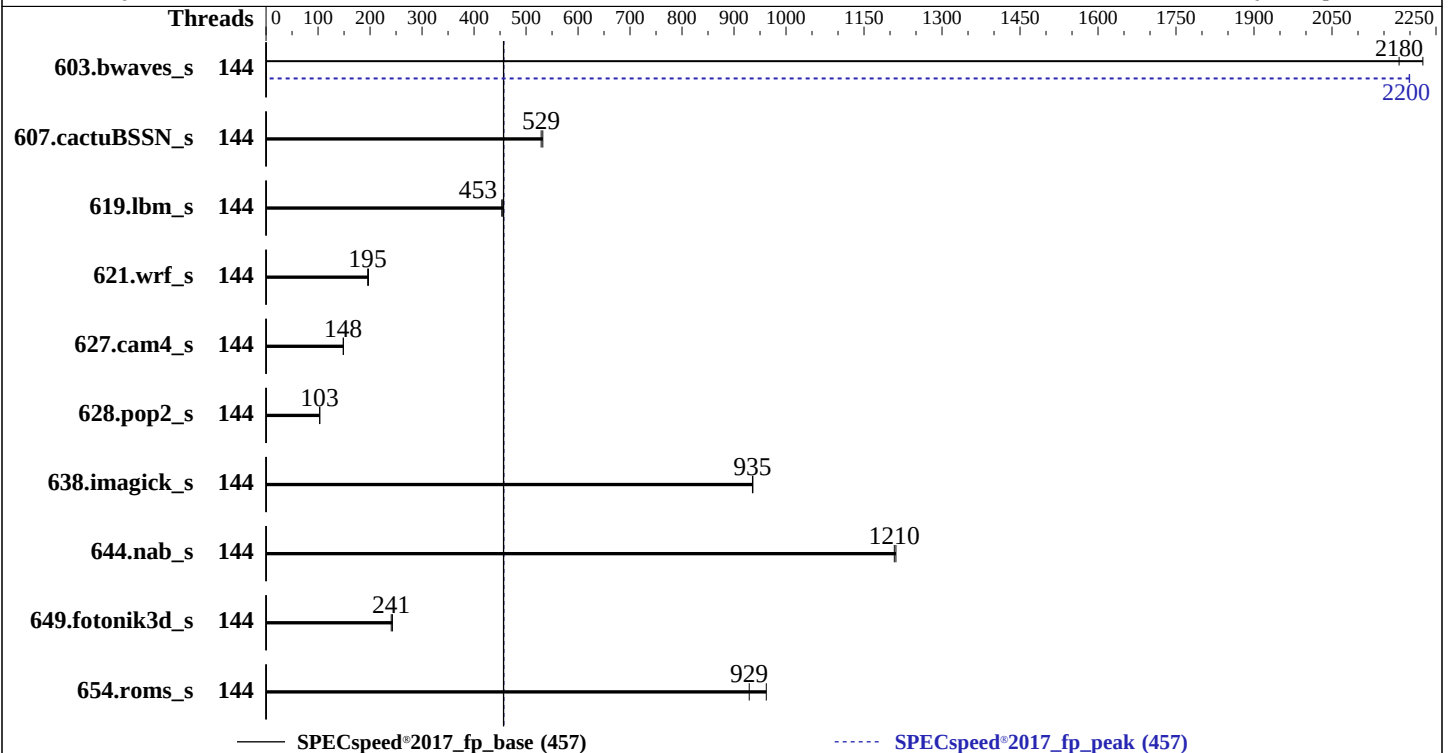
Test Sponsor: Dell Inc.

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     | <u>27.1</u> | <u>2180</u> | 26.5        | 2220        |         |       | 144     | 26.8        | 2200       | <u>26.8</u> | <u>2200</u> |         |       |
| 607.cactuBSSN_s | 144     | 31.3        | 532         | <u>31.5</u> | <u>529</u>  |         |       | 144     | 31.3        | 532        | <u>31.5</u> | <u>529</u>  |         |       |
| 619.lbm_s       | 144     | <u>11.6</u> | <u>453</u>  | 11.5        | 455         |         |       | 144     | <u>11.6</u> | <u>453</u> | 11.5        | 455         |         |       |
| 621.wrf_s       | 144     | <u>67.7</u> | <u>195</u>  | 67.1        | 197         |         |       | 144     | <u>67.7</u> | <u>195</u> | 67.1        | 197         |         |       |
| 627.cam4_s      | 144     | 59.6        | 149         | <u>59.7</u> | <u>148</u>  |         |       | 144     | 59.6        | 149        | <u>59.7</u> | <u>148</u>  |         |       |
| 628.pop2_s      | 144     | 115         | 103         | <u>115</u>  | <u>103</u>  |         |       | 144     | 115         | 103        | <u>115</u>  | <u>103</u>  |         |       |
| 638.imagick_s   | 144     | 15.4        | 936         | <u>15.4</u> | <u>935</u>  |         |       | 144     | 15.4        | 936        | <u>15.4</u> | <u>935</u>  |         |       |
| 644.nab_s       | 144     | 14.4        | 1210        | <u>14.5</u> | <u>1210</u> |         |       | 144     | 14.4        | 1210       | <u>14.5</u> | <u>1210</u> |         |       |
| 649.fotonik3d_s | 144     | <u>37.9</u> | <u>241</u>  | 37.5        | 243         |         |       | 144     | <u>37.9</u> | <u>241</u> | 37.5        | 243         |         |       |
| 654.roms_s      | 144     | <u>16.9</u> | <u>929</u>  | 16.4        | 962         |         |       | 144     | <u>16.9</u> | <u>929</u> | 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.

### 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 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 refspeak fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/temlogs/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)

NUMA node5 CPU(s): 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  
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, 259, 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/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; PBRSE-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, 246, 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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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, 247, 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 nvme-fc-boot-connections nvme-fc-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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Tested by: Dell Inc.

Test Date: Nov-2025

Hardware Availability: Oct-2025

Software Availability: Sep-2025

## 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+madvice [madvice] never   |
| enabled        | [always] madvice 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.

(Continued on next page)





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PowerEdge R770AP (Intel Xeon 6960P)

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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  
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=====

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

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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)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605  
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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

(Continued on next page)



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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)



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## 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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