



SPEC CPU®2017 Floating Point Speed Result

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Dell Inc.

SPECspeed®2017_fp_base = 465

PowerEdge R770AP (Intel Xeon 6978P)

SPECspeed®2017_fp_peak = 465

CPU2017 License: 6573

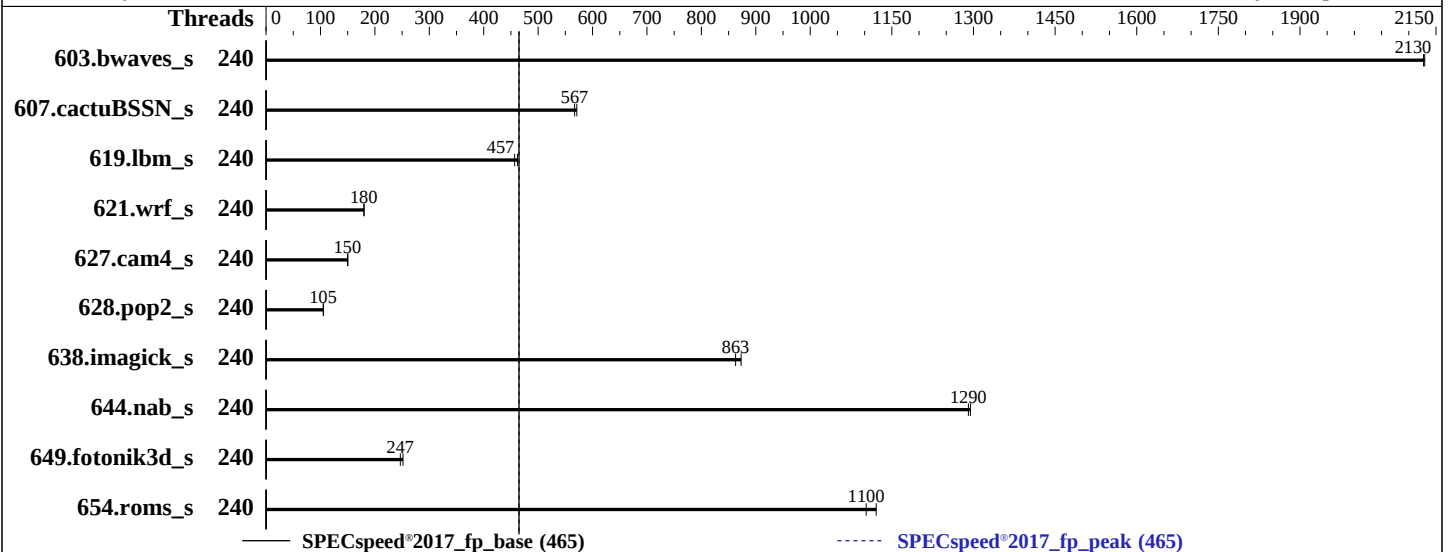
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2025

Hardware Availability: Dec-2025

Software Availability: Sep-2025



Hardware

CPU Name: Intel Xeon 6978P
Max MHz: 3900
Nominal: 2100
Enabled: 240 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: 230 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: 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	240	<u>27.7</u>	<u>2130</u>	27.7	2130			240	<u>27.7</u>	<u>2130</u>	27.7	2130		
607.cactuBSSN_s	240	29.2	571	<u>29.4</u>	<u>567</u>			240	29.2	571	<u>29.4</u>	<u>567</u>		
619.lbm_s	240	11.3	462	<u>11.5</u>	<u>457</u>			240	11.3	462	<u>11.5</u>	<u>457</u>		
621.wrf_s	240	73.4	180	<u>73.6</u>	<u>180</u>			240	73.4	180	<u>73.6</u>	<u>180</u>		
627.cam4_s	240	<u>59.2</u>	<u>150</u>	58.9	151			240	<u>59.2</u>	<u>150</u>	58.9	151		
628.pop2_s	240	112	106	<u>113</u>	<u>105</u>			240	112	106	<u>113</u>	<u>105</u>		
638.imagick_s	240	16.5	873	<u>16.7</u>	<u>863</u>			240	16.5	873	<u>16.7</u>	<u>863</u>		
644.nab_s	240	13.5	1290	<u>13.5</u>	<u>1290</u>			240	13.5	1290	<u>13.5</u>	<u>1290</u>		
649.fotonik3d_s	240	<u>36.9</u>	<u>247</u>	36.2	252			240	<u>36.9</u>	<u>247</u>	36.2	252		
654.roms_s	240	<u>14.3</u>	<u>1100</u>	14.0	1120			240	<u>14.3</u>	<u>1100</u>	14.0	1120		

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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 230 GB ramdisk created with the cmd: "mount -t tmpfs -o size=230G 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 R7703AP-R770AP Fri Nov 14 10:12:32 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 R7703AP-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
10:12:32 up 20 min, 1 user, load average: 0.66, 0.44, 1.47
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 10:10 24.00s 0.89s ? /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

4. ulimit -a

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Platform Notes (Continued)

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) 3092753
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) 3092753
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=240 --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=240 --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) 6978P
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      : 120
siblings       : 240
2 physical ids (chips)
480 processors (hardware threads)
physical id 0: core ids 0-39,64-103,128-167
physical id 1: core ids 0-39,64-103,128-167
physical id 0: apicids 0-79,128-207,256-335
physical id 1: apicids 512-591,640-719,768-847
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.
```

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Platform Notes (Continued)

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):                480
On-line CPU(s) list:    0-479
Vendor ID:              GenuineIntel
Model name:             Intel(R) Xeon(R) 6978P
CPU family:             6
Model:                 173
Thread(s) per core:     2
Core(s) per socket:     120
Socket(s):              2
Stepping:               1
BogoMIPS:               4200.00
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 xtology 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 vnni 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:              11.3 MiB (240 instances)
L1i cache:              15 MiB (240 instances)
L2 cache:               480 MiB (240 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,
                        48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 240, 242, 244, 246, 2
                        48, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280
                        , 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 3
                        14, 316, 318
NUMA node1 CPU(s):      80, 82, 84, 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, 142, 144, 146, 148, 15
                        0, 152, 154, 156, 158, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342,
                        344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 37
                        6, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398
NUMA node2 CPU(s):      160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 19
                        2, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224,
                        226, 228, 230, 232, 234, 236, 238, 400, 402, 404, 406, 408, 410, 412, 414, 416, 41
                        8, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450,
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Platform Notes (Continued)

NUMA node3 CPU(s): 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478
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, 241, 243, 245, 247, 2
49, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281
, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 3
15, 317, 319

NUMA node4 CPU(s): 81, 83, 85, 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, 143, 145, 147, 149, 15
1, 153, 155, 157, 159, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343,
345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 37
7, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399

NUMA node5 CPU(s): 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 19
3, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225,
227, 229, 231, 233, 235, 237, 239, 401, 403, 405, 407, 409, 411, 413, 415, 417, 41
9, 421, 423, 425, 427, 429, 431, 433, 435, 437, 439, 441, 443, 445, 447, 449, 451,
453, 455, 457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479

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	11.3M	12	Data	1	64	1	64
L1i	64K	15M	16	Instruction	1	64	1	64
L2	2M	480M	16	Unified	2	2048	1	64
L3	504M	1008M	16	Unified	3	516096	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, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 7
4, 76, 78, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288
, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318

node 0 size: 128562 MB

node 0 free: 114837 MB

node 1 cpus:

80, 82, 84, 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, 1
38, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350,
352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398

node 1 size: 128994 MB

node 1 free: 128664 MB

node 2 cpus:

160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212

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node 2 size: 128994 MB
node 2 free: 128655 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, 75, 77, 79, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319
node 3 size: 128994 MB
node 3 free: 128687 MB
node 4 cpus:
81, 83, 85, 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, 143, 145, 147, 149, 151, 153, 155, 157, 159, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399
node 4 size: 128953 MB
node 4 free: 128623 MB
node 5 cpus:
161, 163, 165, 167, 169, 171, 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, 401, 403, 405, 407, 409, 411, 413, 415, 417, 419, 421, 423, 425, 427, 429, 431, 433, 435, 437, 439, 441, 443, 445, 447, 449, 451, 453, 455, 457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479
node 5 size: 128915 MB
node 5 free: 128607 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: 791977980 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 bluetooth chronyd dbus-broker firewalld gdm getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nvme-fc-boot-connections nvme-fc-autoconnect rollback rsyslog smartd soft-reboot-cleanups 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-sysextd systemd-time-wait-sync systemd-timesyncd systemd-udev-load-credentials udisks2 upower wpa_supplicant@

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Software Availability: Sep-2025

Platform Notes (Continued)

indirect pcsd systemd-userdbd

12. Linux kernel boot-time arguments, from /proc/cmdline

```
BOOT_IMAGE=/boot/vmlinuz-6.12.0-160000.5-default
root=UUID=0b344ecf-2e5a-4bf3-b6c0-aecf8a6f67c0
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
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

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Platform Notes (Continued)

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	230G	5.8G	225G	3%	/mnt/ramdisk

19. /sys/devices/virtual/dmi/id

Vendor: Dell Inc.
Product: PowerEdge R770AP
Product Family: PowerEdge
Serial: R7703AP

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:

1x 00AD042300AD HMC888AHBRA471N 32 GB 2 rank 6400
18x 00AD063200AD HMC888AHBRA286N 32 GB 2 rank 6400
1x 00AD063200AD HMC888AHBRA477N 32 GB 2 rank 6400
4x 00AD063200AD HMC888AHBRA478N 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)
=====

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
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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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Tested by: Dell Inc.

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Hardware Availability: Dec-2025

Software Availability: Sep-2025

Compiler Version Notes (Continued)

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=====

Fortran, C | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)

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

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

Base Portability Flags

603.bwaves_s: -DSPEC_LP64

607.cactuBSSN_s: -DSPEC_LP64

619.lbm_s: -DSPEC_LP64

621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian

627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG

628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian

-assume byterecl

638.imagick_s: -DSPEC_LP64

644.nab_s: -DSPEC_LP64

649.fotonik3d_s: -DSPEC_LP64

654.roms_s: -DSPEC_LP64



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Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -Wl,-z,muldefs -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  
-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



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Software Availability: Sep-2025

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:

603.bwaves_s: basepeak = yes

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

627.cam4_s: 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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