



SPEC CPU®2017 Floating Point Rate Result

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Dell Inc.

SPECrate®2017_fp_base = 307

PowerEdge R670 (Intel Xeon 6507P)

SPECrate®2017_fp_peak = 312

CPU2017 License: 6573

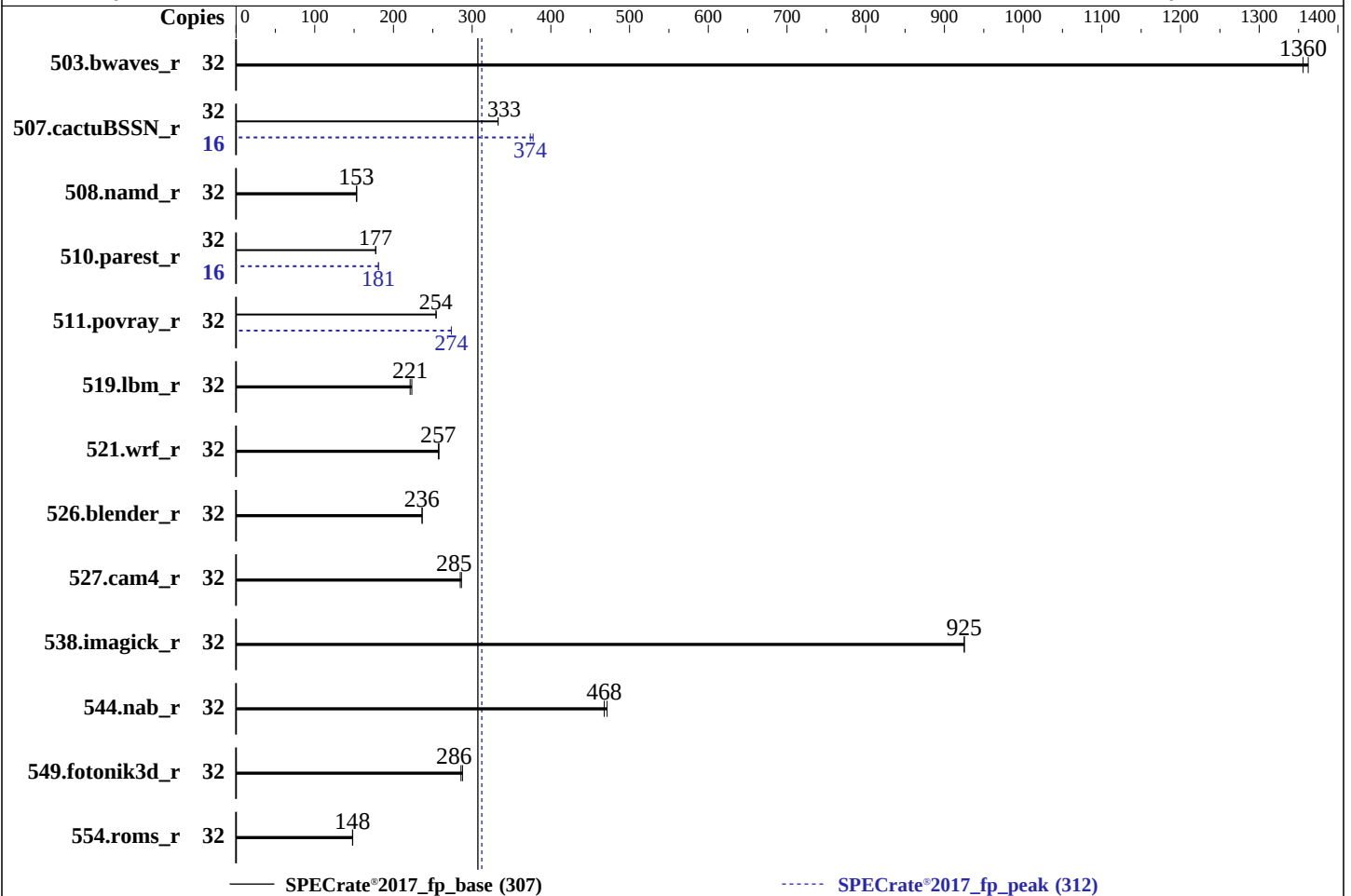
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024



Hardware

CPU Name: Intel Xeon 6507P
Max MHz: 4300
Nominal: 3500
Enabled: 16 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: 48 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 50 GB on tmpfs
Other: CPU Cooling: DLC

Software

OS: SUSE Linux Enterprise Server 15 SP6
6.4.0-150600.21-default
Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++
Compiler for Linux;
Fortran: Version 2024.1 of Intel Fortran Compiler
for Linux;
Parallel: No
Firmware: Version 1.3.2 released May-2025
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer performance at the cost of
additional power usage.



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	32	236	1360	<u>237</u>	<u>1360</u>			32	236	1360	<u>237</u>	<u>1360</u>		
507.cactuBSSN_r	32	<u>122</u>	<u>333</u>	122	333			16	53.7	377	<u>54.2</u>	<u>374</u>		
508.namd_r	32	<u>199</u>	<u>153</u>	198	153			32	<u>199</u>	<u>153</u>	198	153		
510.parest_r	32	471	178	<u>472</u>	<u>177</u>			16	231	181	<u>231</u>	<u>181</u>		
511.povray_r	32	294	254	<u>294</u>	<u>254</u>			32	273	274	<u>273</u>	<u>274</u>		
519.lbm_r	32	151	223	<u>152</u>	<u>221</u>			32	151	223	<u>152</u>	<u>221</u>		
521.wrf_r	32	<u>279</u>	<u>257</u>	278	258			32	<u>279</u>	<u>257</u>	278	258		
526.blender_r	32	<u>206</u>	<u>236</u>	206	237			32	<u>206</u>	<u>236</u>	206	237		
527.cam4_r	32	195	286	<u>196</u>	<u>285</u>			32	195	286	<u>196</u>	<u>285</u>		
538.imagick_r	32	86.0	925	<u>86.0</u>	<u>925</u>			32	86.0	925	<u>86.0</u>	<u>925</u>		
544.nab_r	32	114	471	<u>115</u>	<u>468</u>			32	114	471	<u>115</u>	<u>468</u>		
549.fotonik3d_r	32	433	288	<u>436</u>	<u>286</u>			32	433	288	<u>436</u>	<u>286</u>		
554.roms_r	32	343	148	<u>344</u>	<u>148</u>			32	343	148	<u>344</u>	<u>148</u>		

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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-ic2024.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2024.1/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

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General Notes (Continued)

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 50 GB ramdisk created with the cmd: "mount -t tmpfs -o size=50G tmpfs /mnt/ramdisk"

Platform Notes

BIOS Settings:

DCU Streamer Prefetcher : Disabled
Sub NUMA Cluster : Enabled
Dead Line LLC Alloc : Disabled
Optimizer Mode : Enabled

System Profile : Custom
CPU Power Management : Maximum Performance
C1E : Disabled
C-States : Autonomous
Latency Optimized Mode : Enabled
Energy Efficient Policy : Performance

CPU Interconnect Bus -
Link Power Management : Disabled
PCI ASPM L1 Link Power Management : Disabled
DIMM Self Healing -
on Uncorrectable Memory Error : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2024.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on 1234567-R670 Wed Jul 23 20:39:21 2025

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

Table of contents

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
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Platform Notes (Continued)

```
-----
1. uname -a
Linux 1234567-R670 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09/lp)
x86_64 x86_64 x86_64 GNU/Linux

-----
2. w
20:39:21 up 2:55, 1 user, load average: 23.89, 30.14, 31.24
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root      tty1      -             17:45   2:53m  0.93s  0.00s  /bin/bash
/home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.3 --output_format html,pdf,txt

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

-----
4. ulimit -a
core file size          (blocks, -c) unlimited
data seg size           (kbytes, -d) unlimited
scheduling priority     (-e) 0
file size               (blocks, -f) unlimited
pending signals         (-i) 412697
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) 412697
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
login -- root
-bash
/bin/bash /home/DellFiles/bin/DELL_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=6.3 --output_format
html,pdf,txt
/bin/bash /home/DellFiles/bin/Intel/dell-run-speccpu.sh rate --define DL-VERS=6.3 --output_format
html,pdf,txt
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=16 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all --iterations 2 --define
DL-VERS=6.3 --output_format html,pdf,txt fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 --configfile
ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=16 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --iterations 2
--define DL-VERS=6.3 --output_format html,pdf,txt --nopower --runmode rate --tune base:peak --size refrate
fprate --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.002/temlogs/preenv.fprate.002.0.log --lognum
002.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
```

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Platform Notes (Continued)

6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6507P
vendor_id       : GenuineIntel
cpu family      : 6
model           : 173
stepping        : 1
microcode       : 0x10003c2
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores       : 8
siblings        : 16
2 physical ids (chips)
32 processors (hardware threads)
physical id 0: core ids 0-7
physical id 1: core ids 0-7
physical id 0: apicids 0-15
physical id 1: apicids 128-143
```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.39.3:

```
Architecture:      x86_64
CPU op-mode(s):    32-bit, 64-bit
Address sizes:      52 bits physical, 57 bits virtual
Byte Order:        Little Endian
CPU(s):            32
On-line CPU(s) list: 0-31
Vendor ID:         GenuineIntel
BIOS Vendor ID:    Intel
Model name:        Intel(R) Xeon(R) 6507P
BIOS Model name:   Intel(R) Xeon(R) 6507P   CPU @ 3.5GHz
BIOS CPU family:   179
CPU family:        6
Model:            173
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s):         2
Stepping:          1
BogoMIPS:          7000.00
Flags:             fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                  pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx
                  pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good
                  nopl xtopology nonstop_tsc cpuid aperfmperf tsc_known_freq pni
                  pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
                  xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt
                  tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm
                  3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 intel_ppin cdp_l2
                  ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept
                  vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid
                  rtm cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt
                  clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec
                  xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                  split_lock_detect user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida
                  arat pln pts vnni avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni
                  vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57
                  rdpid bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear
                  serialize tsxldtrk pconfig arch_lbr ibt amx_bf16 avx512_fp16 amx_tile
```

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Platform Notes (Continued)

```
Virtualization: amx_int8 flush_l1d arch_capabilities
L1d cache: VT-x
L1i cache: 768 KiB (16 instances)
L2 cache: 1 MiB (16 instances)
L3 cache: 32 MiB (16 instances)
          96 MiB (2 instances)
NUMA node(s): 2
NUMA node0 CPU(s): 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
NUMA node1 CPU(s): 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
Vulnerability Gather data sampling: 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; RSB filling;
                          PBRSE-eIBRS Not affected; BHI BHI_DIS_S
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected
```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	768K	12	Data	1	64	1	64
L1i	64K	1M	16	Instruction	1	64	1	64
L2	2M	32M	16	Unified	2	2048	1	64
L3	48M	96M	16	Unified	3	49152	1	64

8. numactl --hardware

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

```
available: 2 nodes (0-1)
node 0 cpus: 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
node 0 size: 515665 MB
node 0 free: 503816 MB
node 1 cpus: 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31
node 1 size: 516079 MB
node 1 free: 514676 MB
node distances:
node  0  1
 0:  10  21
 1:  21  10
```

9. /proc/meminfo

MemTotal: 1056506436 kB

10. who -r

run-level 3 Jul 23 17:44

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

```
Default Target Status
multi-user      running
```

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Platform Notes (Continued)

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd cron display-manager firewalld getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nsd nvme-fc-boot-connections nvme-f-autoconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny wpa_supplicant
enabled-runtime	systemd-remount-fs
disabled	NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon autofs autovast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell dmraid-activation dnsmasq ebttables exchange-bmc-os-info fsidd gpm grub2-once haveged hwloc-dump-hwdata ipmi ipmiev issue-add-ssh-keys kexec-load ksm kvm_stat lunmask man-db-create multipathd nfs nfs-blkmap nmb openvpn@ ostree-remount rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2 update-system-flatpaks upower vncserver@ wpa_supplicant@
indirect	pcscd saned@ systemd-userdbd wickedd

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

BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=f6b7b82f-7376-4741-aad6-a16a8014b2fb
splash=silent
resume=/dev/disk/by-uuid/3bfae0e2-56ee-4845-bdbe-561ecf485c49
mitigations=auto
quiet
security=apparmor

14. cpupower frequency-info

analyzing CPU 4:
Unable to determine current policy
boost state support:
Supported: yes
Active: yes

15. 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

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Platform Notes (Continued)

```
-----
16. /sys/kernel/mm/transparent_hugepage
    defrag          always defer+madvice [madvice] never
    enabled          [always] madvice never
    hpage_pmd_size   2097152
    shmem_enabled    always within_size advise [never] deny force
-----
```

```
-----
17. /sys/kernel/mm/transparent_hugepage/khugepaged
    alloc_sleep_millisecs  60000
    defrag                 1
    max_ptes_none          511
    max_ptes_shared        256
    max_ptes_swap          64
    pages_to_scan          4096
    scan_sleep_millisecs   10000
-----
```

```
-----
18. OS release
    From /etc/*-release /etc/*-version
    os-release SUSE Linux Enterprise Server 15 SP6
-----
```

```
-----
19. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2024.1
  Filesystem      Type      Size  Used Avail Use% Mounted on
  tmpfs           tmpfs     50G   5.0G   46G  10% /mnt/ramdisk
-----
```

```
-----
20. /sys/devices/virtual/dmi/id
    Vendor:      Dell Inc.
    Product:     PowerEdge R670
    Product Family: PowerEdge
    Serial:      1234567
-----
```

```
-----
21. dmidecode
Additional information from dmidecode 3.4 follows.  WARNING: Use caution when you interpret this section.
The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
"DMTF SMBIOS" standard.
Memory:
  2x 002C069D002C MTC40F2046S1RC64BD1 USFF 64 GB 2 rank 6400
  1x 00AD063200AD HMC94AHBRA283N 64 GB 2 rank 6400
  11x 00CE042300CE M321R8GA0PB2-CCPEC 64 GB 2 rank 6400
  2x 00CE063200CE M321R8GA0PB1-CCPQC 64 GB 2 rank 6400
-----
```

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



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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 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
=====

=====
C++ | 508.namd_r(base, peak) 510.parest_r(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
=====

=====
C++, C | 511.povray_r(base, peak) 526.blender_r(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
=====

=====
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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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 2024.1.0 Build 20240308
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=====

=====
Fortran, C | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
=====

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=====

Base Compiler Invocation

C benchmarks:
icx

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SPEC CPU®2017 Floating Point Rate Result

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Dell Inc.

SPECrate®2017_fp_base = 307

PowerEdge R670 (Intel Xeon 6507P)

SPECrate®2017_fp_peak = 312

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2025

Hardware Availability: Apr-2025

Software Availability: Jun-2024

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 -xsapphirerapids -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 -xsapphirerapids -Ofast

-ffast-math -flto -mfpmath=sse -funroll-loops

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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 -xsapphirerapids -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 -xsapphirerapids -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 -xsapphirerapids -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 -xsapphirerapids -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

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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 -xsapphirerapids
-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: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

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Peak Optimization Flags (Continued)

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.profddata(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++:

```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapfirerapids -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
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.13.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.13.xml>

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

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