



# SPEC CPU®2017 Floating Point Rate Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant Compute DL340e Gen12

(2.40 GHz, Intel Xeon 6520P)

## SPECrate®2017\_fp\_base = 394

## SPECrate®2017\_fp\_peak = 399

CPU2017 License: 3

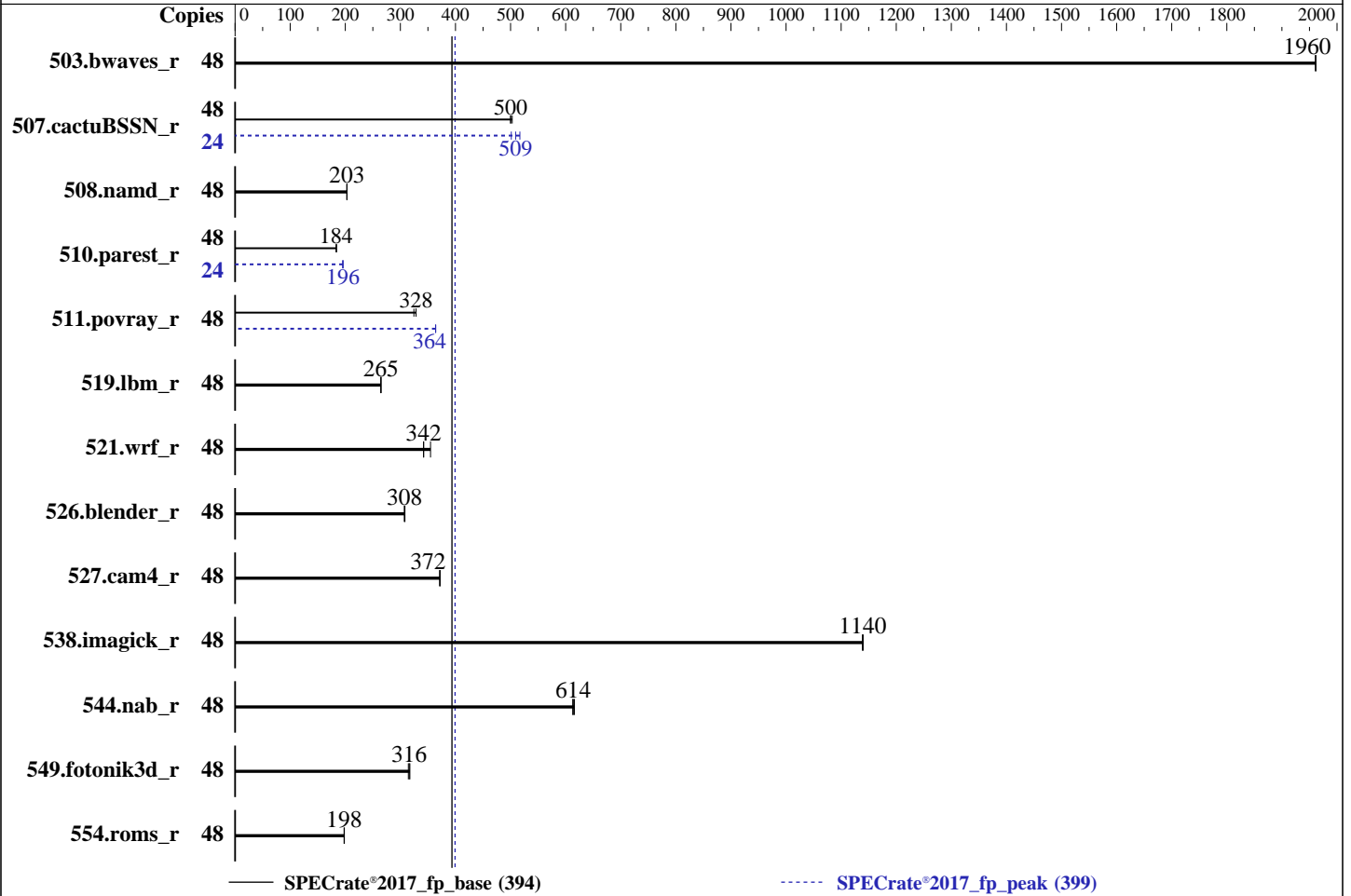
Test Sponsor: HPE

Tested by: HPE

Test Date: May-2026

Hardware Availability: May-2026

Software Availability: Jul-2025



### Hardware

CPU Name: Intel Xeon 6520P  
 Max MHz: 4000  
 Nominal: 2400  
 Enabled: 24 cores, 1 chip, 2 threads/core  
 Orderable: 1 Chip  
 Cache L1: 64 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 144 MB I+D on chip per chip  
 Other: None  
 Memory: 256 GB (8 x 32 GB 2Rx8 PC5-6400B-R)  
 Storage: 1 x 6.4 TB NVMe SSD  
 Other: CPU Cooling: Air

### Software

OS: SUSE Linux Enterprise Server 15 SP7  
 Kernel 6.4.0-150700.53.6-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: HPE BIOS Version v1.62 02/06/2026 released Feb-2026  
 File System: btrfs  
 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 is 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	48	245	1960	245	1960	<u>245</u>	<u>1960</u>	48	245	1960	245	1960	<u>245</u>	<u>1960</u>
507.cactuBSSN_r	48	<u>121</u>	<u>500</u>	121	503	122	500	24	58.8	517	<u>59.7</u>	<u>509</u>	60.6	501
508.namd_r	48	225	203	<u>225</u>	<u>203</u>	225	203	48	225	203	<u>225</u>	<u>203</u>	225	203
510.parest_r	48	<u>683</u>	<u>184</u>	684	184	683	184	24	<u>321</u>	<u>196</u>	321	196	321	196
511.povray_r	48	345	325	341	328	<u>341</u>	<u>328</u>	48	308	364	308	364	<u>308</u>	<u>364</u>
519.lbm_r	48	<u>191</u>	<u>265</u>	191	265	191	264	48	<u>191</u>	<u>265</u>	191	265	191	264
521.wrf_r	48	<u>314</u>	<u>342</u>	303	355	314	342	48	<u>314</u>	<u>342</u>	303	355	314	342
526.blender_r	48	238	307	237	308	<u>238</u>	<u>308</u>	48	238	307	237	308	<u>238</u>	<u>308</u>
527.cam4_r	48	226	372	226	371	<u>226</u>	<u>372</u>	48	226	372	226	371	<u>226</u>	<u>372</u>
538.imagick_r	48	105	1140	105	1140	<u>105</u>	<u>1140</u>	48	105	1140	105	1140	<u>105</u>	<u>1140</u>
544.nab_r	48	131	616	132	613	<u>132</u>	<u>614</u>	48	131	616	132	613	<u>132</u>	<u>614</u>
549.fotonik3d_r	48	595	314	<u>592</u>	<u>316</u>	590	317	48	595	314	<u>592</u>	<u>316</u>	590	317
554.roms_r	48	<u>385</u>	<u>198</u>	385	198	385	198	48	<u>385</u>	<u>198</u>	385	198	385	198

SPECrate®2017\_fp\_base = **394**

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

## Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"
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
tuned-adm profile was stopped using 'systemctl stop tuned'
```

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"  
MALLOCONF = "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  
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.  
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)

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## General Notes (Continued)

is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)

is mitigated in the system as tested and documented.

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>

## Platform Notes

BIOS Configuration: Parameters are selected in the order shown below

Workload Profile set to General Throughput Compute

Enhanced Processor Performance Profile set to Aggressive

Thermal Configuration set to Maximum Cooling

Memory Patrol Scrubbing set to Disabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Mon May 4 17:29:17 2026

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 (254.27+suse.167.g130293e510)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent\_hugepage
18. /sys/kernel/mm/transparent\_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

-----

1. uname -a  
Linux localhost 6.4.0-150700.53.6-default #1 SMP PREEMPT\_DYNAMIC Tue Jul 1 14:54:47 UTC 2025 (8ab7501)  
x86\_64 x86\_64 x86\_64 GNU/Linux

-----

2. w  
17:29:17 up 4:59, 4 users, load average: 33.43, 44.36, 46.43  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root pts/0 172.16.0.100 13:02 4:26m 0.03s 0.03s -bash

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## Platform Notes (Continued)

-----  
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) 1029887
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) 1029887
virtual memory         (kbytes, -v) unlimited
file locks             (-x) unlimited
```

-----  
5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@notty
bash -c cd $SPEC/ && $SPEC/reportable-ic2025.2-lin-graniterapids-rate-smt-on-20250605.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 -c
ic2025.2-lin-graniterapids-rate-20250605.cfg --define smt-on --define cores=24 --define physicalfirst
--define no-numa --tune base,peak -o all --define drop_caches fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 --configfile
ic2025.2-lin-graniterapids-rate-20250605.cfg --define smt-on --define cores=24 --define physicalfirst
--define no-numa --tune base,peak --output_format all --define drop_caches --nopower --runmode rate --tune
base:peak --size refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

-----  
6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6520P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping       : 1
microcode     : 0x1000411
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores      : 24
siblings       : 48
1 physical ids (chips)
48 processors (hardware threads)
physical id 0: core ids 0-23
physical id 0: apicids 0-47
```

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

(Continued on next page)



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## Platform Notes (Continued)

7. lscpu

From lscpu from util-linux 2.40.4:

```

Architecture:                x86_64
CPU op-mode(s):              32-bit, 64-bit
Address sizes:               46 bits physical, 57 bits virtual
Byte Order:                  Little Endian
CPU(s):                      48
On-line CPU(s) list:        0-47
Vendor ID:                   GenuineIntel
Model name:                  Intel(R) Xeon(R) 6520P
CPU family:                  6
Model:                       173
Thread(s) per core:         2
Core(s) per socket:         24
Socket(s):                   1
Stepping:                    1
BogoMIPS:                    4800.00
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 vmmi 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 amx_int8 flush_lld arch_capabilities

Virtualization:              VT-x
L1d cache:                   1.1 MiB (24 instances)
L1i cache:                   1.5 MiB (24 instances)
L2 cache:                    48 MiB (24 instances)
L3 cache:                    144 MiB (1 instance)
NUMA node(s):                1
NUMA node0 CPU(s):          0-47
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;

```

(Continued on next page)



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## Platform Notes (Continued)

Vulnerability Srbds: PBRBS-eIBRS Not affected; BHI BHI\_DIS\_S 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	1.1M	12	Data	1	64	1	64
L1i	64K	1.5M	16	Instruction	1	64	1	64
L2	2M	48M	16	Unified	2	2048	1	64
L3	144M	144M	16	Unified	3	147456	1	64

8. numactl --hardware

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

```
available: 1 nodes (0)
node 0 cpus: 0-47
node 0 size: 257504 MB
node 0 free: 232511 MB
node distances:
node 0
0: 10
```

9. /proc/meminfo

```
MemTotal: 263685024 kB
```

10. who -r

```
run-level 3 May 4 12:30
```

11. Systemd service manager version: systemd 254 (254.27+suse.167.g130293e510)

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

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd bluetooth cron display-manager getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny wpa_supplicant systemd-remount-fs
enabled-runtime	NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon autofs
disabled	autoyast-initscripts blk-availability bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell dnsmasq ebttables exchange-bmc-os-info firewalld fsidd gnome-remote-desktop gpm grub2-once haveged hwloc-dump-hwdata ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nmb openvpn@ ostree-remount ostree-state-overlay@ rpcbind rpmconfigcheck rsyncd rtkit-daemon samba-bgqdd serial-getty@ smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysextd systemd-time-wait-sync systemd-timesyncd tuned 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-6.4.0-150700.53.6-default
root=UUID=282b0587-97e1-413a-84ab-5f19f75f0318
splash=silent
```

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## Platform Notes (Continued)

```
mitigations=auto
quiet
security=apparmor
```

```
-----
14. cpupower frequency-info
analyzing CPU 31:
  Unable to determine current policy
  boost state support:
    Supported: yes
    Active: yes
```

```
-----
15. tuned-adm active
  It seems that tuned daemon is not running, preset profile is not activated.
  Preset profile: throughput-performance
```

```
-----
16. sysctl
kernel.numa_balancing          0
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
```

```
-----
17. /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
```

```
-----
18. /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
```

```
-----
19. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP7
```

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## Platform Notes (Continued)

### 20. Disk information

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	btrfs	5.9T	62G	5.8T	2%	/home

### 21. /sys/devices/virtual/dmi/id

```
Vendor:      HPE
Product:    HPE ProLiant Compute DL340e Gen12
Product Family: ProLiant
Serial:     VPR069-P02-04U-H
```

### 22. 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:

```
7x Hynix HMC888AHBRA471N 32 GB 2 rank 6400
1x Micron MTC20F2085S1RC64BD2 QSFF 32 GB 2 rank 6400
```

### 23. BIOS

(This section combines info from /sys/devices and dmidecode.)

```
BIOS Vendor:      HPE
BIOS Version:     1.62
BIOS Date:        02/06/2026
BIOS Revision:    1.62
Firmware Revision: 1.22
```

## 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)
====
```

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2025.2.0 Build 20250605 Copyright (C) 1985-2025 Intel Corporation. All rights reserved.

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

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.

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## Compiler Version Notes (Continued)

-----  
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  
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.  
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 | 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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## Base Compiler Invocation

C benchmarks:

icx

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



# SPEC CPU®2017 Floating Point Rate Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant Compute DL340e Gen12**

(2.40 GHz, Intel Xeon 6520P)

**SPECrate®2017\_fp\_base = 394**

**SPECrate®2017\_fp\_peak = 399**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** May-2026

**Hardware Availability:** May-2026

**Software Availability:** Jul-2025

## 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
-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

```

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**Test Date:** May-2026

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**Software Availability:** Jul-2025

## Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):

`-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`

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`

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**Test Date:** May-2026  
**Hardware Availability:** May-2026  
**Software Availability:** Jul-2025

## Peak Optimization Flags (Continued)

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: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf\_r: basepeak = yes

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 -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



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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/HPE-Platform-Flags-Intel-GNR-rev1.6.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/HPE-Platform-Flags-Intel-GNR-rev1.6.xml>

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