



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant Compute EL140 Gen12

(2.30 GHz, Intel Xeon 6776P-B)

SPECrate®2017_fp_base = 714

SPECrate®2017_fp_peak = 748

CPU2017 License: 3

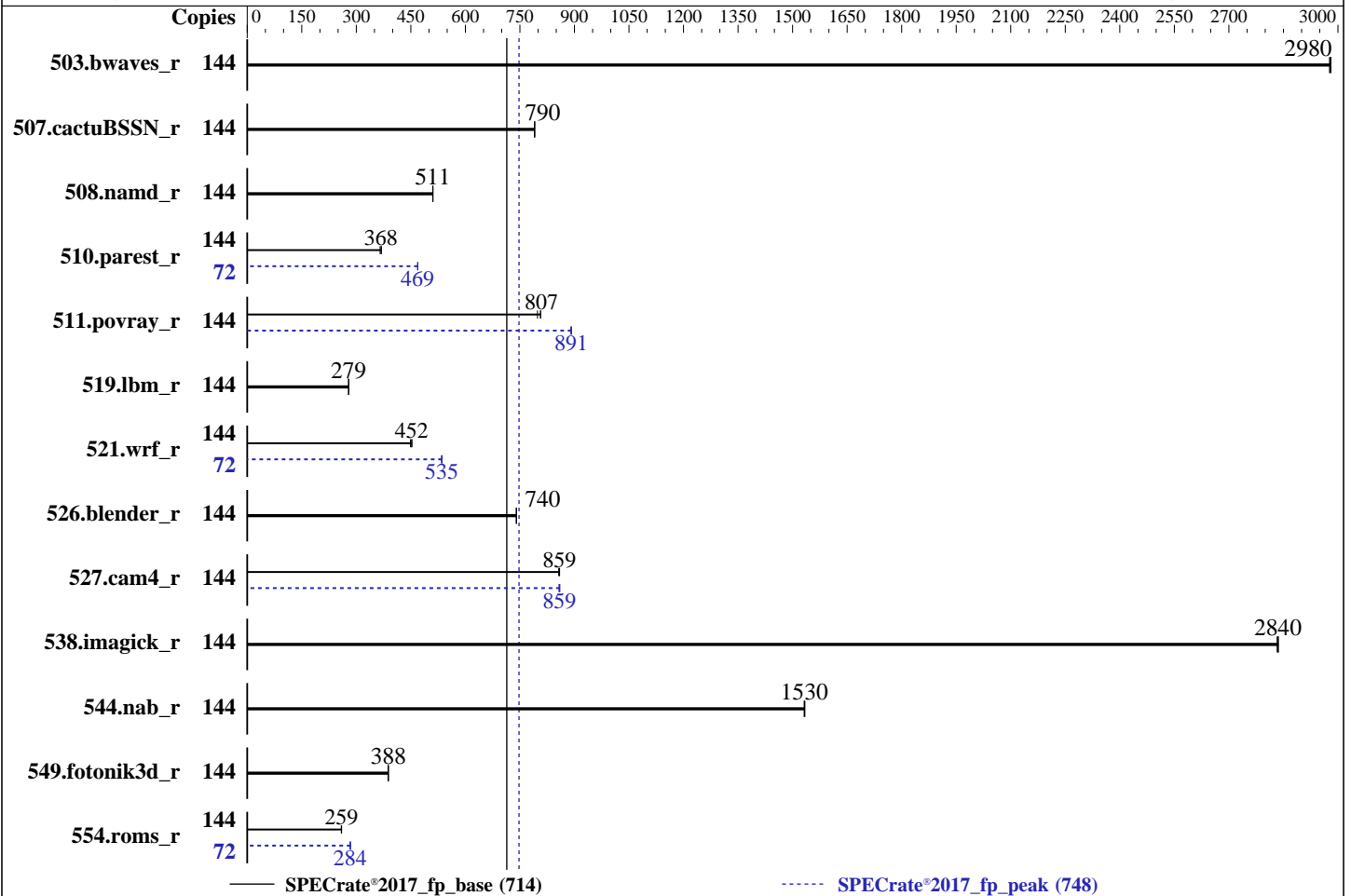
Test Sponsor: HPE

Tested by: HPE

Test Date: Apr-2026

Hardware Availability: May-2026

Software Availability: Jun-2025



Hardware

CPU Name: Intel Xeon 6776P-B
 Max MHz: 3500
 Nominal: 2300
 Enabled: 72 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: 288 MB I+D on chip per chip
 Other: None
 Memory: 256 GB (8 x 32 GB 2Rx8 PC5-6400B-R)
 Storage: 1 x 480 GB NVMe SSD
 Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.6 (Plow)
 Kernel 5.14.0-570.12.1.el9_6.x86_64
 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 v1.30 02/06/2026 released Feb-2026
 File System: xfs
 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 and OS 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	144	485	2980	485	2980	484	2980	144	485	2980	485	2980	484	2980
507.cactuBSSN_r	144	231	790	231	791	231	790	144	231	790	231	791	231	790
508.namd_r	144	268	511	268	511	268	511	144	268	511	268	511	268	511
510.parest_r	144	1023	368	1021	369	1031	365	72	402	469	402	469	401	469
511.povray_r	144	417	807	417	807	421	798	144	377	892	377	891	378	890
519.lbm_r	144	544	279	544	279	544	279	144	544	279	544	279	544	279
521.wrf_r	144	718	449	714	452	712	453	72	302	534	301	535	301	536
526.blender_r	144	296	741	296	740	296	740	144	296	741	296	740	296	740
527.cam4_r	144	293	859	293	859	294	857	144	294	858	293	859	293	860
538.imagick_r	144	126	2840	126	2840	126	2830	144	126	2840	126	2840	126	2830
544.nab_r	144	158	1530	158	1530	158	1530	144	158	1530	158	1530	158	1530
549.fotonik3d_r	144	1445	388	1446	388	1449	387	144	1445	388	1446	388	1449	387
554.roms_r	144	883	259	881	260	884	259	72	404	283	404	284	403	284

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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"
tuned-adm profile was set to virtual-host using 'tuned-adm profile virtual-host'

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
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>
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)

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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-2017-5753 (Spectre variant 1) 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 Configurations : Parameters are selected in the order shown below

Workload Profile set to General Throughput Compute

Thermal Configuration set to Maximum Cooling

Enhanced Processor Performance Profile set to Aggressive

Memory Patrol Scrubbing set to Disabled

Enhanced C-states set to Disabled

Workload Profile set to Custom

Sub-NUMA Clustering set to Enabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost.localdomain Thu Apr 2 07:25:21 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 252 (252-51.el9)
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.localdomain 5.14.0-570.12.1.el9_6.x86_64 #1 SMP PREEMPT_DYNAMIC Fri Apr 4 10:41:31 EDT 2025
x86_64 x86_64 x86_64 GNU/Linux

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Platform Notes (Continued)

```
-----
2. w
   07:25:21 up 4 min,  1 user,  load average: 0.08, 0.05, 0.02
USER      TTY      LOGIN@   IDLE   JCPU   PCPU   WHAT
root      pts/0    07:24    2.00s  0.86s  0.00s  -bash
```

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

```
-----
4. ulimit -a
   real-time non-blocking time (microseconds, -R) unlimited
   core file size              (blocks, -c) unlimited
   data seg size                (kbytes, -d) unlimited
   scheduling priority          (-e) 0
   file size                    (blocks, -f) unlimited
   pending signals              (-i) 1030472
   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) 1030472
   virtual memory               (kbytes, -v) unlimited
   file locks                   (-x) unlimited
```

```
-----
5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 31
sshhd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshhd: root [priv]
sshhd: root@pts/0
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=144 -c
ic2025.2-linux64-graniterapids-rate-20250605.cfg --reportable --iterations=3 --define smt-on --define
cores=72 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune base,peak -o
all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=144 --configfile
ic2025.2-linux64-graniterapids-rate-20250605.cfg --reportable --iterations 3 --define smt-on --define
cores=72 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune base,peak
--output_format all --nopower --runmode rate --tune base:peak --size refrate fprate --nopreenv
--note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.fprate.001.0.log --lognum 001.0
--from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

```
-----
6. /proc/cpuinfo
   model name      : INTEL(R) XEON(R) 6776P-B
   vendor_id      : GenuineIntel
   cpu family     : 6
   model          : 174
   stepping       : 1
   microcode      : 0x1000303
   bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
```

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Platform Notes (Continued)

```
cpu cores      : 72
siblings       : 144
1 physical ids (chips)
144 processors (hardware threads)
physical id 0: core ids 0-35,64-99
physical id 0: apicids 0-71,128-199
```

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 2.37.4:

```

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):                144
On-line CPU(s) list:   0-143
Vendor ID:             GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:            INTEL(R) XEON(R) 6776P-B
BIOS Model name:       INTEL(R) XEON(R) 6776P-B
CPU family:            6
Model:                 174
Thread(s) per core:    2
Core(s) per socket:    72
Socket(s):              1
Stepping:              1
BogoMIPS:              4600.00
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 bml1 avx2 smep bmi2 erms invpcid cqm
rdt_a avx512f avx512dq rdseed adx smap avx512ifma cflushopt clwb
intel_pt avx512cd sha_ni avx512bw avx512v1 xsaveopt xsavec xgetbv1
xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln
pts vnmi avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes
vpclmulqdq avx512_vnni avx512_bitalg 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
VT-x
L1d cache:            3.4 MiB (72 instances)
L1i cache:            4.5 MiB (72 instances)
L2 cache:              144 MiB (72 instances)
L3 cache:              288 MiB (1 instance)
NUMA node(s):         2
NUMA node0 CPU(s):    0-35,72-107
NUMA node1 CPU(s):    36-71,108-143
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:      Not affected
Vulnerability L1tf:                Not affected

```

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Platform Notes (Continued)

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; 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	3.4M	12	Data	1	64	1	64
L1i	64K	4.5M	16	Instruction	1	64	1	64
L2	2M	144M	16	Unified	2	2048	1	64
L3	288M	288M	16	Unified	3	294912	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: 0-35,72-107
node 0 size: 128718 MB
node 0 free: 127311 MB
node 1 cpus: 36-71,108-143
node 1 size: 128945 MB
node 1 free: 128034 MB
node distances:
node    0    1
 0:   10   12
 1:   12   10

```

9. /proc/meminfo

MemTotal: 263847852 kB

10. who -r

run-level 3 Apr 2 07:20

11. Systemd service manager version: systemd 252 (252-51.e19)

```

Default Target Status
multi-user      running

```

12. Services, from systemctl list-unit-files

```

STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd crond
dbus-broker firewalld getty@ insights-client-boot irqbalance kdump low-memory-monitor
lvm2-monitor mdmonitor microcode nis-domainname nvme-fc-boot-connections rhsmcertd rsyslog
rtkit-daemon selinux-autorelabel-mark sshd sssd systemd-boot-update
systemd-network-generator systemd-pstore tuned udisks2 upower
enabled-runtime systemd-remount-fs
disabled blk-availability canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait chronyd chronyd-restricted console-getty
cpupower debug-shell dnf-system-upgrade hwloc-dump-hwdata kvm_stat lvm-devices-import

```

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Platform Notes (Continued)

```

indirect
man-db-restart-cache-update nftables nvme-autoconnect pesign rdisc rhcd rhsm rhsm-facts
rpmdb-rebuild selinux-check-proper-disable serial-getty@ sshd-keygen@
systemd-boot-check-no-failures systemd-sysext
sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate
systemd-sysupdate-reboot

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-570.12.1.el9_6.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap

```

```

-----
14. cpupower frequency-info
analyzing CPU 93:
  Unable to determine current policy
  boost state support:
    Supported: yes
    Active: yes

```

```

-----
15. tuned-adm active
Current active profile: virtual-host

```

```

-----
16. sysctl
kernel.numa_balancing          1
kernel.randomize_va_space     2
vm.compaction_proactiveness    20
vm.dirty_background_bytes      0
vm.dirty_background_ratio     5
vm.dirty_bytes                 0
vm.dirty_expire_centisecs     3000
vm.dirty_ratio                 40
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                   10
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+madvice [madvice] never
enabled         [always] madvice 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

```

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Platform Notes (Continued)

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 Red Hat Enterprise Linux 9.6 (Plow)
redhat-release Red Hat Enterprise Linux release 9.6 (Plow)
system-release Red Hat Enterprise Linux release 9.6 (Plow)

```

20. Disk information

```

SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   360G  147G  214G  41% /home

```

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

```

Vendor:      HPE
Product:     HPE ProLiant Compute EL140 Gen12
Product Family: ProLiant
Serial:      PZEDFAXLMLN024

```

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:
  8x Micron MTC20F2085S1RC64BD2 QSFF 32 GB 2 rank 6400

```

23. BIOS

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

```

BIOS Vendor:      HPE
BIOS Version:     1.30
BIOS Date:        02/06/2026
BIOS Revision:    1.30
Firmware Revision: 1.18

```

Compiler Version Notes

```

=====
C | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
=====

```

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

```

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

```

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Compiler Version Notes (Continued)

=====
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.

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

=====
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
Copyright (C) 1985-2025 Intel Corporation. All rights reserved.

=====
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
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.

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

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant Compute EL140 Gen12

(2.30 GHz, Intel Xeon 6776P-B)

SPECrate®2017_fp_base = 714

SPECrate®2017_fp_peak = 748

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Apr-2026

Hardware Availability: May-2026

Software Availability: Jun-2025

Base Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:

icpx icx ifx

Base Portability Flags

```

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

```

Base Optimization Flags

C benchmarks:

```

-w -std=c11 -m64 -Wl,-z,muldefs -xgraniterapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

```

C++ benchmarks:

```

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

```

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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

Benchmarks using both C and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xgraniterapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:

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

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx



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Software Availability: Jun-2025

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

519.lbm_r: basepeak = yes

538.imagick_r: basepeak = yes

544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes

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

Fortran benchmarks:

503.bwaves_r: basepeak = yes

549.fotonik3d_r: basepeak = yes

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

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++:

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)

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Peak Optimization Flags (Continued)

511.povray_r (continued):

```
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int
-mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-GNR-rev1.6.html>

<http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.html>

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-GNR-rev1.6.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic2025-official-linux64.xml>

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