



# SPEC CPU®2017 Floating Point Speed Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

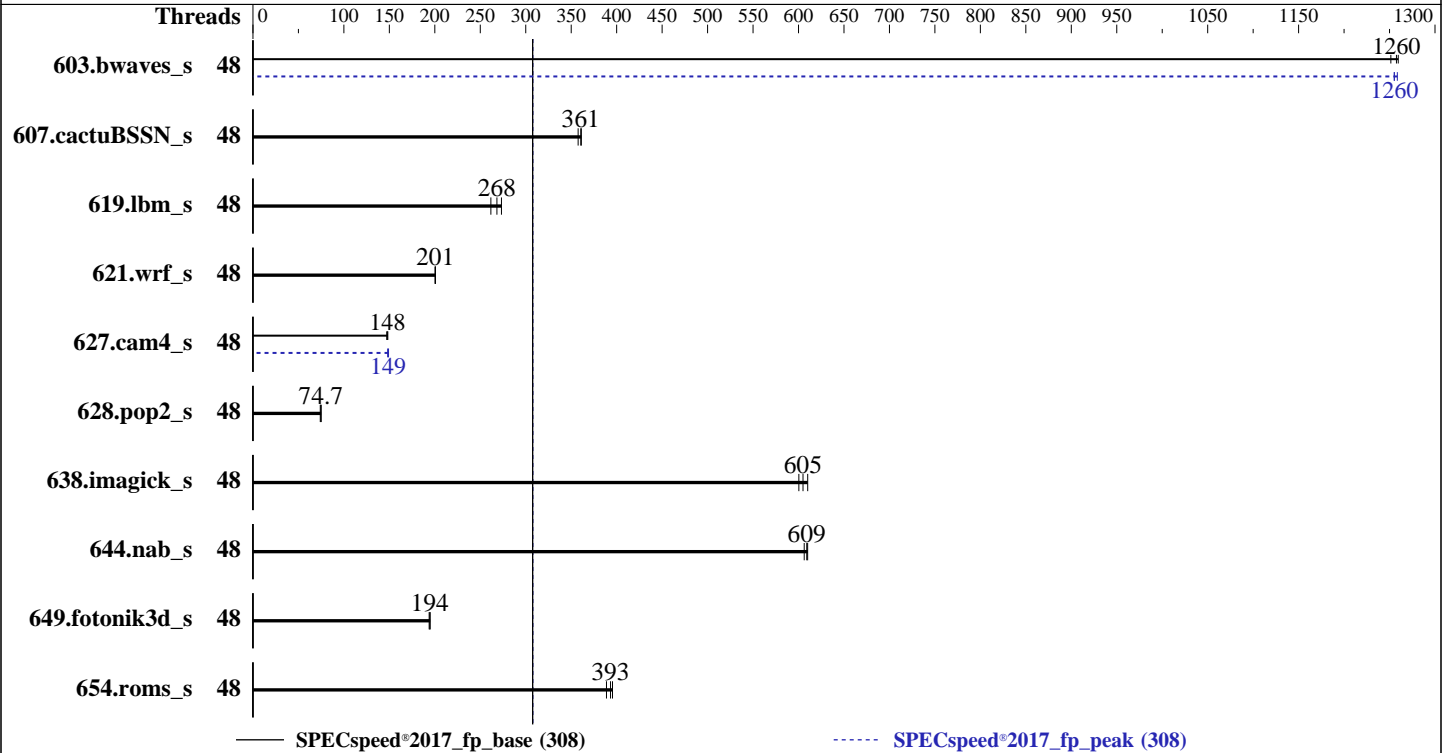
ProLiant Compute DL360 Gen12  
(3.00 GHz, Intel Xeon 6527P)

SPECspeed®2017\_fp\_base = 308

SPECspeed®2017\_fp\_peak = 308

CPU2017 License: 3  
Test Sponsor: HPE  
Tested by: HPE

Test Date: Mar-2025  
Hardware Availability: Mar-2025  
Software Availability: Jun-2024



### Hardware

CPU Name: Intel Xeon 6527P  
 Max MHz: 4200  
 Nominal: 3000  
 Enabled: 48 cores, 2 chips  
 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: 144 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-6400B-R)  
 Storage: 1 x 3.2 TB NVMe SSD  
 Other: CPU Cooling: Air

### Software

OS: SUSE Linux Enterprise Server 15 SP6  
 Kernel 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: Yes  
 Firmware: HPE BIOS Version v1.20 02/14/2025 released Feb-2025  
 File System: xfs  
 System State: Run level 5 (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	48	<b><u>46.9</u></b>	<b><u>1260</u></b>	46.8	1260	47.1	1250	48	46.9	1260	<b><u>47.0</u></b>	<b><u>1260</u></b>	47.0	1260
607.cactuBSSN_s	48	46.6	358	46.2	361	<b><u>46.2</u></b>	<b><u>361</u></b>	48	46.6	358	46.2	361	<b><u>46.2</u></b>	<b><u>361</u></b>
619.lbm_s	48	20.0	262	<b><u>19.5</u></b>	<b><u>268</u></b>	19.2	273	48	20.0	262	<b><u>19.5</u></b>	<b><u>268</u></b>	19.2	273
621.wrf_s	48	66.0	200	<b><u>65.9</u></b>	<b><u>201</u></b>	65.9	201	48	66.0	200	<b><u>65.9</u></b>	<b><u>201</u></b>	65.9	201
627.cam4_s	48	60.2	147	<b><u>60.0</u></b>	<b><u>148</u></b>	59.8	148	48	59.8	148	<b><u>59.7</u></b>	<b><u>149</u></b>	59.4	149
628.pop2_s	48	160	74.0	<b><u>159</u></b>	<b><u>74.7</u></b>	158	75.0	48	160	74.0	<b><u>159</u></b>	<b><u>74.7</u></b>	158	75.0
638.imagick_s	48	<b><u>23.8</u></b>	<b><u>605</u></b>	24.0	600	23.6	610	48	<b><u>23.8</u></b>	<b><u>605</u></b>	24.0	600	23.6	610
644.nab_s	48	28.6	610	<b><u>28.7</u></b>	<b><u>609</u></b>	28.8	606	48	28.6	610	<b><u>28.7</u></b>	<b><u>609</u></b>	28.8	606
649.fotonik3d_s	48	<b><u>46.9</u></b>	<b><u>194</u></b>	47.0	194	46.8	195	48	<b><u>46.9</u></b>	<b><u>194</u></b>	47.0	194	46.8	195
654.roms_s	48	<b><u>40.0</u></b>	<b><u>393</u></b>	39.8	395	40.5	389	48	<b><u>40.0</u></b>	<b><u>393</u></b>	39.8	395	40.5	389

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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"
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>
tuned-adm profile was set to balanced using "tuned-adm profile balanced"
```

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOCONF = "retain:true"
OMP_STACKSIZE = "192M"
```

## 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)
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
```



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## Platform Notes

BIOS Configuration:

Workload Profile set to General Peak Frequency Compute  
Enhanced Processor Performance Profile set to Aggressive  
Thermal Configuration set to Maximum Cooling  
Memory Patrol Scrubbing set to Disabled  
Last Level Cache (LLC) Prefetch set to Enabled  
Intel UPI Prefetch set to disabled  
Intel Hyper-Threading set to Disabled  
Workload Profile set to Custom  
Collaborative Power Control set to Enabled

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Sat Mar 15 01:46:14 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. 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 6.4.0-150600.21-default #1 SMP PREEMPT\_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)  
x86\_64 x86\_64 x86\_64 GNU/Linux  
-----

2. w  
01:46:14 up 20:02, 6 users, load average: 0.00, 0.00, 0.00  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root pts/0 172.17.1.96 01:45 46.00s 0.02s 0.02s -bash  
-----

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

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## Platform Notes (Continued)

```

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) 2062919
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) 2062919
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/fpspeed_avx512.sh
runcpu --nobuild --action validate --define default-platform-flags -c
  ic2024.1-lin-core-avx512-speed-20240308.cfg --define cores=48 --tune base,peak -o all --define drop_caches
  fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
  ic2024.1-lin-core-avx512-speed-20240308.cfg --define cores=48 --tune base,peak --output_format all
  --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv
  --note-preenv --logfile $SPEC/tmp/CPU2017.001/temlogs/preenv.fpspeed.001.0.log --lognum 001.0
  --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) 6527P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping      : 1
microcode     : 0x1000380
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores     : 24
siblings      : 24
2 physical ids (chips)
48 processors (hardware threads)
physical id 0: core ids 0-23
physical id 1: core ids 0-23
physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

7. lscpu

```

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## Platform Notes (Continued)

From lscpu from util-linux 2.39.3:

```

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
BIOS Vendor ID:              Intel(R) Corporation
Model name:                  Intel(R) Xeon(R) 6527P
BIOS Model name:             Intel(R) Xeon(R) 6527P  CPU @ 3.0GHz
BIOS CPU family:            179
CPU family:                  6
Model:                       173
Thread(s) per core:         1
Core(s) per socket:         24
Socket(s):                   2
Stepping:                    1
CPU(s) scaling MHz:         45%
CPU max MHz:                 4200.0000
CPU min MHz:                 800.0000
BogoMIPS:                   6000.00
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 bmil 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 hwp hwp_act_window hwp_epp hwp_pkg_req 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_l1d
                             arch_capabilities
Virtualization:              VT-x
L1d cache:                   2.3 MiB (48 instances)
L1i cache:                   3 MiB (48 instances)
L2 cache:                    96 MiB (48 instances)
L3 cache:                    288 MiB (2 instances)
NUMA node(s):                2
NUMA node0 CPU(s):          0-23
NUMA node1 CPU(s):          24-47
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

```

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## Platform Notes (Continued)

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	2.3M	12	Data	1	64	1	64
L1i	64K	3M	16	Instruction	1	64	1	64
L2	2M	96M	16	Unified	2	2048	1	64
L3	144M	288M	16	Unified	3	147456	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: 0-23
node 0 size: 257770 MB
node 0 free: 249204 MB
node 1 cpus: 24-47
node 1 size: 257989 MB
node 1 free: 255735 MB
node distances:
node  0  1
  0: 10 21
  1: 21 10

```

9. /proc/meminfo

MemTotal: 528138784 kB

10. who -r

run-level 5 Mar 14 05:44

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

```

Default Target Status
graphical      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 nvme-fc-boot-connections nvmmf-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 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 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 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-sysextd systemd-time-wait-sync systemd-timesyncd tuned udisks2 update-system-flatpaks upower vncserver@ wpa_supplicant@

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## Platform Notes (Continued)

indirect pcsd 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=6f38f8cb-6744-4bb2-980a-6e692ebdf8b4
splash=silent
resume=/dev/disk/by-uuid/3188516f-5c98-4497-afe7-d252ff459ba8
mitigations=auto
quiet
security=apparmor
```

```
-----
14. cpupower frequency-info
analyzing CPU 20:
  current policy: frequency should be within 800 MHz and 4.20 GHz.
                  The governor "powersave" may decide which speed to use
                  within this range.

  boost state support:
    Supported: yes
    Active: yes
```

```
-----
15. tuned-adm active
    Current active profile: balanced
```

```
-----
16. 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
```

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

```
-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs  60000
defrag                  1
max_ptes_none          511
```

(Continued on next page)



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## Platform Notes (Continued)

```
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 SP6

-----  
20. Disk information  
SPEC is set to: /home/cpu2017  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/nvme0n1p3 xfs 2.0T 437G 1.5T 23% /home

-----  
21. /sys/devices/virtual/dmi/id  
Vendor: HPE  
Product: HPE ProLiant Compute DL360 Gen12  
Product Family: ProLiant  
Serial: D249RP0053

-----  
22. 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:  
1x Hynix HMC88AHBRA472N 32 GB 2 rank 6400  
15x Micron MTC20F2085S1RC64BD2 QSFF 32 GB 2 rank 6400

-----  
23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: HPE  
BIOS Version: 1.20  
BIOS Date: 02/14/2025  
BIOS Revision: 1.20  
Firmware Revision: 1.10

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

-----  
C++, C, Fortran | 607.cactuBSSN\_s(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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# SPEC CPU®2017 Floating Point Speed Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant Compute DL360 Gen12**

(3.00 GHz, Intel Xeon 6527P)

SPECspeed®2017\_fp\_base = 308

SPECspeed®2017\_fp\_peak = 308

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Mar-2025

**Hardware Availability:** Mar-2025

**Software Availability:** Jun-2024

## Compiler Version Notes (Continued)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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=====  
Fortran | 603.bwaves\_s(base, peak) 649.fotonik3d\_s(base, peak) 654.roms\_s(base, peak)  
=====

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

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

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -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 -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -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 -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-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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**Hardware Availability:** Mar-2025

**Software Availability:** Jun-2024

## 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: -w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf\_s: basepeak = yes

```
627.cam4_s: -w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-Wno-implicit-int -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes



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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-rev1.1.html>

<http://www.spec.org/cpu2017/flags/Intel-ic2024-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-rev1.1.xml>

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

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