



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant Compute DL320 Gen12

(2.50 GHz, Intel Xeon 6741P)

SPECspeed®2017\_fp\_base = 295

SPECspeed®2017\_fp\_peak = 295

CPU2017 License: 3

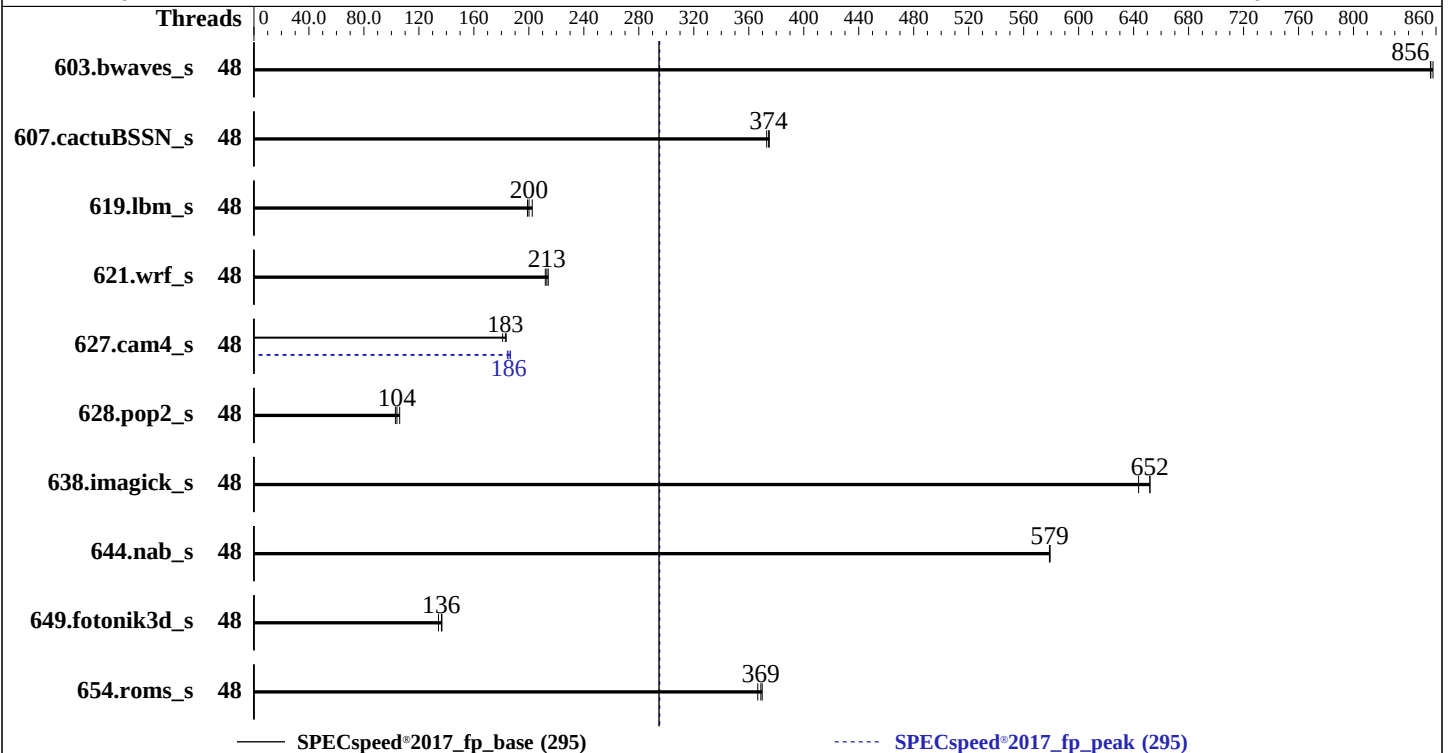
Test Sponsor: HPE

Tested by: HPE

Test Date: Mar-2025

Hardware Availability: Mar-2025

Software Availability: Jun-2024



## Hardware

CPU Name: Intel Xeon 6741P  
Max MHz: 3800  
Nominal: 2500  
Enabled: 48 cores, 1 chip  
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 1.2 TB NVMe SSD  
Other: CPU Cooling: CLC

## 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 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 64-bit  
Other: jemalloc memory allocator V5.0.1  
Power Management: BIOS set to prefer performance at the cost of additional power usage



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## Results Table

| Benchmark       | Base    |             |            |             |            |             |            | Peak    |             |            |             |            |             |            |
|-----------------|---------|-------------|------------|-------------|------------|-------------|------------|---------|-------------|------------|-------------|------------|-------------|------------|
|                 | Threads | Seconds     | Ratio      | Seconds     | Ratio      | Seconds     | Ratio      | Threads | Seconds     | Ratio      | Seconds     | Ratio      | Seconds     | Ratio      |
| 603.bwaves_s    | 48      | <b>68.9</b> | <b>856</b> | 68.8        | 858        | 68.9        | 856        | 48      | <b>68.9</b> | <b>856</b> | 68.8        | 858        | 68.9        | 856        |
| 607.cactuBSSN_s | 48      | 44.7        | 373        | <b>44.5</b> | <b>374</b> | 44.5        | 375        | 48      | 44.7        | 373        | <b>44.5</b> | <b>374</b> | 44.5        | 375        |
| 619.lbm_s       | 48      | <b>26.2</b> | <b>200</b> | 26.3        | 199        | 25.9        | 202        | 48      | <b>26.2</b> | <b>200</b> | 26.3        | 199        | 25.9        | 202        |
| 621.wrf_s       | 48      | 62.4        | 212        | <b>62.1</b> | <b>213</b> | 61.8        | 214        | 48      | 62.4        | 212        | <b>62.1</b> | <b>213</b> | 61.8        | 214        |
| 627.cam4_s      | 48      | <b>48.5</b> | <b>183</b> | 48.3        | 184        | 49.0        | 181        | 48      | 47.5        | 187        | 48.1        | 184        | <b>47.8</b> | <b>186</b> |
| 628.pop2_s      | 48      | <b>114</b>  | <b>104</b> | 115         | 103        | 112         | 106        | 48      | <b>114</b>  | <b>104</b> | 115         | 103        | 112         | 106        |
| 638.imagick_s   | 48      | 22.1        | 652        | 22.4        | 644        | <b>22.1</b> | <b>652</b> | 48      | 22.1        | 652        | 22.4        | 644        | <b>22.1</b> | <b>652</b> |
| 644.nab_s       | 48      | <b>30.2</b> | <b>579</b> | 30.2        | 579        | 30.2        | 579        | 48      | <b>30.2</b> | <b>579</b> | 30.2        | 579        | 30.2        | 579        |
| 649.fotonik3d_s | 48      | <b>66.8</b> | <b>136</b> | 67.9        | 134        | 66.7        | 137        | 48      | <b>66.8</b> | <b>136</b> | 67.9        | 134        | 66.7        | 137        |
| 654.roms_s      | 48      | 43.0        | 367        | 42.6        | 370        | <b>42.7</b> | <b>369</b> | 48      | 43.0        | 367        | 42.6        | 370        | <b>42.7</b> | <b>369</b> |

SPECspeed®2017\_fp\_base = 295

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

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact"

LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"

MALLOC\_CONF = "retain:true"

OMP\_STACKSIZE = "192M"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM

memory using Redhat Enterprise Linux 8.0

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>

## Platform Notes

BIOS Configuration:

Workload Profile set to General Peak Frequency Compute

Memory Patrol Scrubbing set to Disabled

Thermal Configuration set to Maximum Cooling

Enhanced Processor Performance Profile set to Aggressive

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## Platform Notes (Continued)

Sub-NUMA Clustering (SNC) set to Enabled  
Last Level Cache (LLC) Prefetch set to Enabled  
Intel Hyper-Threading set to Disabled  
Minimum Processor Idle Power Core C-State set to C6 as ACPI C3 State  
Workload Profile set to Custom  
Minimum Processor Idle Power Package C-State set to No Package State

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Thu Mar 20 02:15:21 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
22. 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  
02:15:21 up 13 min, 5 users, load average: 0.03, 0.01, 0.00  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root pts/0 172.17.1.114 02:13 1:27 0.01s 0.01s -bash

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

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## Platform Notes (Continued)

```
file size                (blocks, -f) unlimited
pending signals          (-i) 1030745
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) 1030745
virtual memory           (kbytes, -v) unlimited
file locks               (-x) unlimited
```

### 5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=31
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@notty
bash -c cd $SPEC/ && $SPEC/fpspeedsproff.sh
runcpu --nobuild --action validate --define default-platform-flags -c
ic2024.1-lin-sapphirerapids-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-sapphirerapids-speed-20240308.cfg --define cores=48 --tune base,peak --output_format all
--define drop_caches --nopower --runmode speed --tune base:peak --size refspeak fpspeed --nopreenv
--note-preenv --logfile $SPEC/tmp/CPU2017.029/templogs/preenv.fpspeed.029.0.log --lognum 029.0
--from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

### 6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6741P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping       : 1
microcode      : 0xa0000c0
bugs           : spectre_v1 spectre_v2 spec_store_bypass swaps bhi
cpu cores      : 48
siblings       : 48
1 physical ids (chips)
48 processors (hardware threads)
physical id 0: core ids 0-23,64-87
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,128,130,132,134,136,138,140,142,144,14
6,148,150,152,154,156,158,160,162,164,166,168,170,172,174
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.
```

### 7. lscpu

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
```

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## Platform Notes (Continued)

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) 6741P  
BIOS Model name: Intel(R) Xeon(R) 6741P CPU @ 2.5GHz  
BIOS CPU family: 179  
CPU family: 6  
Model: 173  
Thread(s) per core: 1  
Core(s) per socket: 48  
Socket(s): 1  
Stepping: 1  
BogoMIPS: 5000.00  
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 hfi 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 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 (1 instance)  
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  
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      | 2.3M     | 12   | Data | 1     | 64   | 1        | 64             |

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## Platform Notes (Continued)

|     |      |      |                |   |        |   |    |
|-----|------|------|----------------|---|--------|---|----|
| L1i | 64K  | 3M   | 16 Instruction | 1 | 64     | 1 | 64 |
| L2  | 2M   | 96M  | 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: 0-23

node 0 size: 128744 MB

node 0 free: 124966 MB

node 1 cpus: 24-47

node 1 size: 128966 MB

node 1 free: 128305 MB

node distances:

node 0 1

0: 10 12

1: 12 10

9. /proc/meminfo

MemTotal: 263896072 kB

10. who -r

run-level 3 Mar 20 02:02

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

Default Target Status

multi-user running

12. Services, from systemctl list-unit-files

STATE UNIT FILES

enabled apparmor auditd cron getty@ irqbalance issue-generator kbdsettings nvme-fc-boot-connections  
nvme-fc-autoconnect postfix purge-kernels rollback sshd systemd-pstore wicked wickedd-auto4  
wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny

enabled-runtime systemd-remount-fs

disabled boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell grub2-once  
haveged hwloc-dump-hwdata issue-add-ssh-keys kexec-load rpmconfigcheck serial-getty@  
systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysext

systemd-time-wait-sync systemd-timesyncd

indirect systemd-userdbd wickedd

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

BOOT\_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default

root=UUID=84964d71-b738-4181-8365-490a27ae412d

splash=silent

resume=/dev/disk/by-uuid/d32c8d7d-0388-4dc2-a4d2-6ac3b24bfd85

mitigations=auto

quiet

security=apparmor

14. cpupower frequency-info

analyzing CPU 15:

Unable to determine current policy

boost state support:

(Continued on next page)



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## Platform Notes (Continued)

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     |

### 16. /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 |

### 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: /home/cpu2017

| Filesystem     | Type | Size | Used | Avail | Use% | Mounted on |
|----------------|------|------|------|-------|------|------------|
| /dev/nvme0n1p4 | xfs  | 1.2T | 251G | 947G  | 21%  | /home      |

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

|                 |                                  |
|-----------------|----------------------------------|
| Vendor:         | HPE                              |
| Product:        | HPE ProLiant Compute DL320 Gen12 |
| Product Family: | ProLiant                         |
| Serial:         | S84PQDRU0T                       |

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## Platform Notes (Continued)

### 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:

8x Micron MTC20F2085S1RC64BD2 QSFF 32 GB 2 rank 6400

### 22. 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: 1.11

## 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  
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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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 | 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  
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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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# SPEC CPU®2017 Floating Point Speed Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant Compute DL320 Gen12  
(2.50 GHz, Intel Xeon 6741P)

SPECspeed®2017\_fp\_base = 295

SPECspeed®2017\_fp\_peak = 295

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Mar-2025

Hardware Availability: Mar-2025

Software Availability: Jun-2024

## 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

## 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 -fiopenmp  
-DSPEC\_OPENMP -Wno-implicit-int -mprefer-vector-width=512  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:

-w -m64 -Wl,-z,muldefs -DSPEC\_OPENMP -xsapphirerapids -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 -xsapphirerapids -Ofast -ffast-math

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp  
-DSPEC\_OPENMP -Wno-implicit-int -mprefer-vector-width=512  
-nostandard-realloc-lhs -align array32byte -auto  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using Fortran, C, and C++:

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

## Peak Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

619.lbm\_s: basepeak = yes

638.imagick\_s: basepeak = yes

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CPU2017 License: 3

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Tested by: HPE

Test Date: Mar-2025

Hardware Availability: Mar-2025

Software Availability: Jun-2024

## Peak Optimization Flags (Continued)

644.nab\_s: basepeak = yes

Fortran benchmarks:

603.bwaves\_s: basepeak = yes

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf\_s: basepeak = yes

627.cam4\_s: -w -m64 -std=c11 -WL,-z,muldefs -xsapphirerapids -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC\_OPENMP  
-Wno-implicit-int -mprefer-vector-width=512  
-nostandard-realloc-lhs -align array32byte -auto  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/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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