



# SPEC CPU®2017 Floating Point Rate Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### MicroServer Gen10 Plus v2

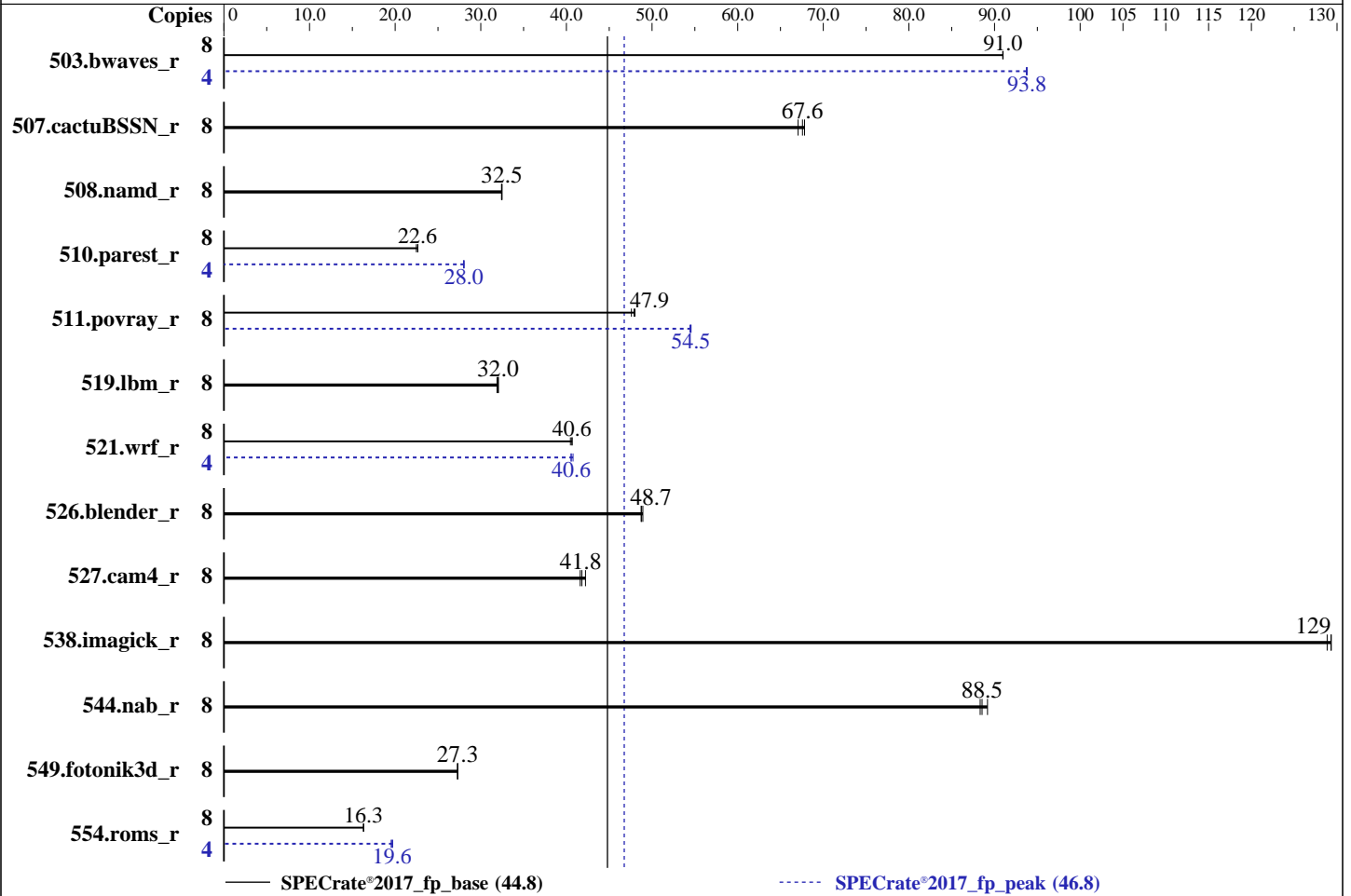
(3.40 GHz, Intel Xeon E-2334)

SPECrate®2017\_fp\_base = 44.8

SPECrate®2017\_fp\_peak = 46.8

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

Test Date: Aug-2022  
Hardware Availability: Sep-2022  
Software Availability: Nov-2021



### Hardware

CPU Name: Intel Xeon E-2334  
Max MHz: 4800  
Nominal: 3400  
Enabled: 4 cores, 1 chip, 2 threads/core  
Orderable: 1 chip  
Cache L1: 32 KB I + 48 KB D on chip per core  
L2: 512 KB I+D on chip per core  
L3: 8 MB I+D on chip per chip  
Other: None  
Memory: 64 GB (2 x 32 GB 2Rx8 PC4-3200AA-E)  
Storage: 2 x 400 GB SATA SSD  
Other: None

### Software

OS: Red Hat Enterprise Linux release 8.5 (Ootpa)  
Kernel 4.18.0-348.el8.x86\_64  
Compiler: C/C++: Version 2021.4.0 of Intel oneAPI DPC++/C++  
Compiler Build 20210924 for Linux;  
Fortran: Version 2021.4.0 of Intel Fortran Compiler  
Classic Build 20210910 for Linux;  
C/C++: Version 2021.4.0 of Intel C/C++ Compiler Classic Build 20210910 for Linux;  
Parallel: No  
Firmware: HPE BIOS Version U64 v1.60 (06/30/2022) released Jun-2022  
File System: xfs  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 64-bit  
(Continued on next page)



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## Software (Continued)

Other: jemalloc memory allocator V5.0.1  
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage

## Results Table

| Benchmark       | Base   |             |             |            |             |            |             |        | Peak        |             |            |             |            |             |  |  |
|-----------------|--------|-------------|-------------|------------|-------------|------------|-------------|--------|-------------|-------------|------------|-------------|------------|-------------|--|--|
|                 | Copies | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Copies | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       |  |  |
| 503.bwaves_r    | 8      | <b>882</b>  | <b>91.0</b> | 882        | 91.0        | 882        | 91.0        | 4      | 428         | 93.7        | 428        | 93.8        | <b>428</b> | <b>93.8</b> |  |  |
| 507.cactuBSSN_r | 8      | 151         | 67.1        | 149        | 67.8        | <b>150</b> | <b>67.6</b> | 8      | 151         | 67.1        | 149        | 67.8        | <b>150</b> | <b>67.6</b> |  |  |
| 508.namd_r      | 8      | 234         | 32.4        | <b>234</b> | <b>32.5</b> | 234        | 32.5        | 8      | 234         | 32.4        | <b>234</b> | <b>32.5</b> | 234        | 32.5        |  |  |
| 510.parest_r    | 8      | 924         | 22.7        | 931        | 22.5        | <b>925</b> | <b>22.6</b> | 4      | 373         | 28.1        | 374        | 28.0        | <b>373</b> | <b>28.0</b> |  |  |
| 511.povray_r    | 8      | 392         | 47.6        | 389        | 48.0        | <b>390</b> | <b>47.9</b> | 8      | 343         | 54.4        | 342        | 54.6        | <b>343</b> | <b>54.5</b> |  |  |
| 519.lbm_r       | 8      | 264         | 31.9        | 263        | 32.1        | <b>263</b> | <b>32.0</b> | 8      | 264         | 31.9        | 263        | 32.1        | <b>263</b> | <b>32.0</b> |  |  |
| 521.wrf_r       | 8      | 441         | 40.7        | <b>441</b> | <b>40.6</b> | 443        | 40.5        | 4      | <b>221</b>  | <b>40.6</b> | 221        | 40.5        | 220        | 40.8        |  |  |
| 526.blender_r   | 8      | 249         | 48.9        | 250        | 48.7        | <b>250</b> | <b>48.7</b> | 8      | 249         | 48.9        | 250        | 48.7        | <b>250</b> | <b>48.7</b> |  |  |
| 527.cam4_r      | 8      | <b>335</b>  | <b>41.8</b> | 336        | 41.6        | 331        | 42.2        | 8      | <b>335</b>  | <b>41.8</b> | 336        | 41.6        | 331        | 42.2        |  |  |
| 538.imagick_r   | 8      | <b>154</b>  | <b>129</b>  | 154        | 129         | 154        | 129         | 8      | <b>154</b>  | <b>129</b>  | 154        | 129         | 154        | 129         |  |  |
| 544.nab_r       | 8      | 152         | 88.3        | <b>152</b> | <b>88.5</b> | 151        | 89.2        | 8      | 152         | 88.3        | <b>152</b> | <b>88.5</b> | 151        | 89.2        |  |  |
| 549.fotonik3d_r | 8      | <b>1142</b> | <b>27.3</b> | 1142       | 27.3        | 1143       | 27.3        | 8      | <b>1142</b> | <b>27.3</b> | 1142       | 27.3        | 1143       | 27.3        |  |  |
| 554.roms_r      | 8      | 779         | 16.3        | <b>779</b> | <b>16.3</b> | 780        | 16.3        | 4      | 322         | 19.7        | <b>324</b> | <b>19.6</b> | 325        | 19.5        |  |  |

SPECrate®2017\_fp\_base = 44.8

SPECrate®2017\_fp\_peak = 46.8

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

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH =  
"/home/cpu2017\_newbinaries/lib/intel64:/home/cpu2017\_newbinaries/je5.0.1-64"

(Continued on next page)



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## Environment Variables Notes (Continued)

MALLOC\_CONF = "retain:true"

## General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1

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 Throughput Compute  
Thermal Configuration set to Maximum Cooling  
Enhanced Processor Performance set to Enabled  
Minimum Processor Idle Power Package C-State set to No Package State

Sysinfo program /home/cpu2017\_newbinaries/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on localhost.localdomain Thu Aug 11 14:02:44 2022

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

For more information on this section, see <https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) E-2334 CPU @ 3.40GHz
 1 "physical id"s (chips)
 8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following
excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 4
siblings : 8
physical 0: cores 0 1 2 3
```

From lscpu from util-linux 2.32.1:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
```

(Continued on next page)



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## Platform Notes (Continued)

```

Byte Order:           Little Endian
CPU(s):               8
On-line CPU(s) list: 0-7
Thread(s) per core:  2
Core(s) per socket:  4
Socket(s):            1
NUMA node(s):        1
Vendor ID:            GenuineIntel
BIOS Vendor ID:       Intel(R) Corporation
CPU family:           6
Model:                167
Model name:           Intel(R) Xeon(R) E-2334 CPU @ 3.40GHz
BIOS Model name:      Intel(R) Xeon(R) E-2334 CPU @ 3.40GHz
Stepping:             1
CPU MHz:              3400.000
BogoMIPS:             6816.00
Virtualization:       VT-x
L1d cache:            48K
L1i cache:            32K
L2 cache:             512K
L3 cache:             8192K
NUMA node0 CPU(s):   0-7
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
aperfmpperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3
sdbg fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer
aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single
ssbd ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad
fsgsbase tsc_adjust sgx bmi1 avx2 smep bmi2 erms invpcid mpx avx512f avx512dq rdseed
adx smap avx512ifma clflushopt intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt
xsaves xgetbv1 xsaves dtherm ida arat pln pts avx512vbmi umip pku ospke avx512_vbmi2
gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq rdpid sgx_lc fsrm
md_clear flush_llid arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 8192 KB

```

```

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5 6 7
node 0 size: 64324 MB
node 0 free: 63596 MB
node distances:
node 0
0: 10

```

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## Platform Notes (Continued)

From /proc/meminfo

MemTotal: 65868480 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/sbin/tuned-adm active

Current active profile: throughput-performance

From /etc/\*release\* /etc/\*version\*

os-release:

NAME="Red Hat Enterprise Linux"

VERSION="8.5 (Ootpa)"

ID="rhel"

ID\_LIKE="fedora"

VERSION\_ID="8.5"

PLATFORM\_ID="platform:el8"

PRETTY\_NAME="Red Hat Enterprise Linux 8.5 (Ootpa)"

ANSI\_COLOR="0;31"

redhat-release: Red Hat Enterprise Linux release 8.5 (Ootpa)

system-release: Red Hat Enterprise Linux release 8.5 (Ootpa)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:8::baseos

uname -a:

Linux localhost.localdomain 4.18.0-348.el8.x86\_64 #1 SMP Mon Oct 4 12:17:22 EDT 2021

x86\_64 x86\_64 x86\_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):

Not affected

CVE-2018-3620 (L1 Terminal Fault):

Not affected

Microarchitectural Data Sampling:

Not affected

CVE-2017-5754 (Meltdown):

Not affected

CVE-2018-3639 (Speculative Store Bypass):

Mitigation: Speculative Store Bypass disabled via prctl and seccomp

CVE-2017-5753 (Spectre variant 1):

Mitigation: usercopy/swapgs barriers and \_\_user pointer sanitization

CVE-2017-5715 (Spectre variant 2):

Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling):

Not affected

CVE-2019-11135 (TSX Asynchronous Abort):

Not affected

run-level 3 Aug 11 13:54

SPEC is set to: /home/cpu2017\_newbinaries

(Continued on next page)



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## Platform Notes (Continued)

| Filesystem            | Type | Size | Used | Avail | Use% | Mounted on |
|-----------------------|------|------|------|-------|------|------------|
| /dev/mapper/rhel-home | xfs  | 270G | 72G  | 199G  | 27%  | /home      |

```

From /sys/devices/virtual/dmi/id
Vendor:          HPE
Product:         ProLiant MicroServer Gen10 Plus v2
Product Family: ProLiant
Serial:          MSG10PV2001

```

Additional information from dmidecode 3.2 follows. **WARNING:** Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

```

Memory:
  2x Micron 18ASF4G72AZ-3G2B1 32 GB 2 rank 3200

```

```

BIOS:
  BIOS Vendor:      HPE
  BIOS Version:     U64
  BIOS Date:        06/30/2022
  BIOS Revision:    1.60
  Firmware Revision: 2.70

```

(End of data from sysinfo program)

## 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 2021.4.0 Build 20210924
Copyright (C) 1985-2021 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 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
-----

```

```

=====
C++, C   | 511.povray_r(peak)
-----

```

(Continued on next page)



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## Compiler Version Notes (Continued)

```
-----
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
  64, Version 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
-----
```

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

```
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.
-----
```

```
=====
C++, C          | 511.povray_r(peak)
-----
```

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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
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-----
```

```
=====
C++, C          | 511.povray_r(base) 526.blender_r(base, peak)
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Copyright (C) 1985-2021 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,
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Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.4.0 Build 20210910\_000000

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=====  
Fortran | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak)  
| 554.roms\_r(base, peak)

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Intel(R) 64, Version 2021.4.0 Build 20210910\_000000

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=====  
Fortran, C | 521.wrf\_r(peak)

-----  
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Intel(R) 64, Version 2021.4.0 Build 20210910\_000000

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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
64, Version 2021.4.0 Build 20210910\_000000

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base, peak)

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Fortran, C | 521.wrf\_r(peak)

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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)

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Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
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Copyright (C) 1985-2021 Intel Corporation. All rights reserved.  
-----

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifort

## 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

(Continued on next page)



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## Base Portability Flags (Continued)

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 -xCORE-AVX512 -Ofast -ffast-math

-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4

-mbranches-within-32B-boundaries -ljemalloc

-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:

-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto

-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4

-mbranches-within-32B-boundaries -ljemalloc

-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div

-qopt-prefetch -ffinite-math-only

-qopt-multiple-gather-scatter-by-shuffles -qopt-mem-layout-trans=4

-nostandard-realloc-lhs -align array32byte -auto

-mbranches-within-32B-boundaries -ljemalloc

-L/usr/local/jemalloc64-5.0.1/lib

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 -O3 -ipo

-no-prec-div -qopt-prefetch -ffinite-math-only

-qopt-multiple-gather-scatter-by-shuffles

-mbranches-within-32B-boundaries -nostandard-realloc-lhs

-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both C and C++:

-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math

-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4

-mbranches-within-32B-boundaries -ljemalloc

-L/usr/local/jemalloc64-5.0.1/lib

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# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

MicroServer Gen10 Plus v2

(3.40 GHz, Intel Xeon E-2334)

SPECrate®2017\_fp\_base = 44.8

SPECrate®2017\_fp\_peak = 46.8

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Aug-2022

**Hardware Availability:** Sep-2022

**Software Availability:** Nov-2021

## Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -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:

ifort

Benchmarks using both Fortran and C:

521.wrf\_r: ifort icc

527.cam4\_r: ifort icx

Benchmarks using both C and C++:

511.povray\_r: icpc icc

526.blender\_r: icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifort

## Peak Portability Flags

Same as Base Portability Flags



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**Tested by:** HPE

**Test Date:** Aug-2022  
**Hardware Availability:** Sep-2022  
**Software Availability:** Nov-2021

## 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 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries  
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves\_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-multiple-gather-scatter-by-shuffles  
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs  
-align array32byte -auto -mbranches-within-32B-boundaries  
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

549.fotonik3d\_r: basepeak = yes

554.roms\_r: Same as 503.bwaves\_r

Benchmarks using both Fortran and C:

521.wrf\_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -O3  
-ipo -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-multiple-gather-scatter-by-shuffles  
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries  
-nostandard-realloc-lhs -align array32byte -auto  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

527.cam4\_r: basepeak = yes

Benchmarks using both C and C++:

511.povray\_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -O3  
-ipo -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-multiple-gather-scatter-by-shuffles

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**CPU2017 License:** 3

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**Tested by:** HPE

**Test Date:** Aug-2022

**Hardware Availability:** Sep-2022

**Software Availability:** Nov-2021

## Peak Optimization Flags (Continued)

511.povray\_r (continued):

```
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

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-V1.0-ICX-revF.html>

[http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64\\_revA.html](http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html)

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.0-ICX-revF.xml>

[http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64\\_revA.xml](http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml)

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