



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

## SPECrate®2017\_fp\_base = 275

## SPECrate®2017\_fp\_peak = 285

CPU2017 License: 3

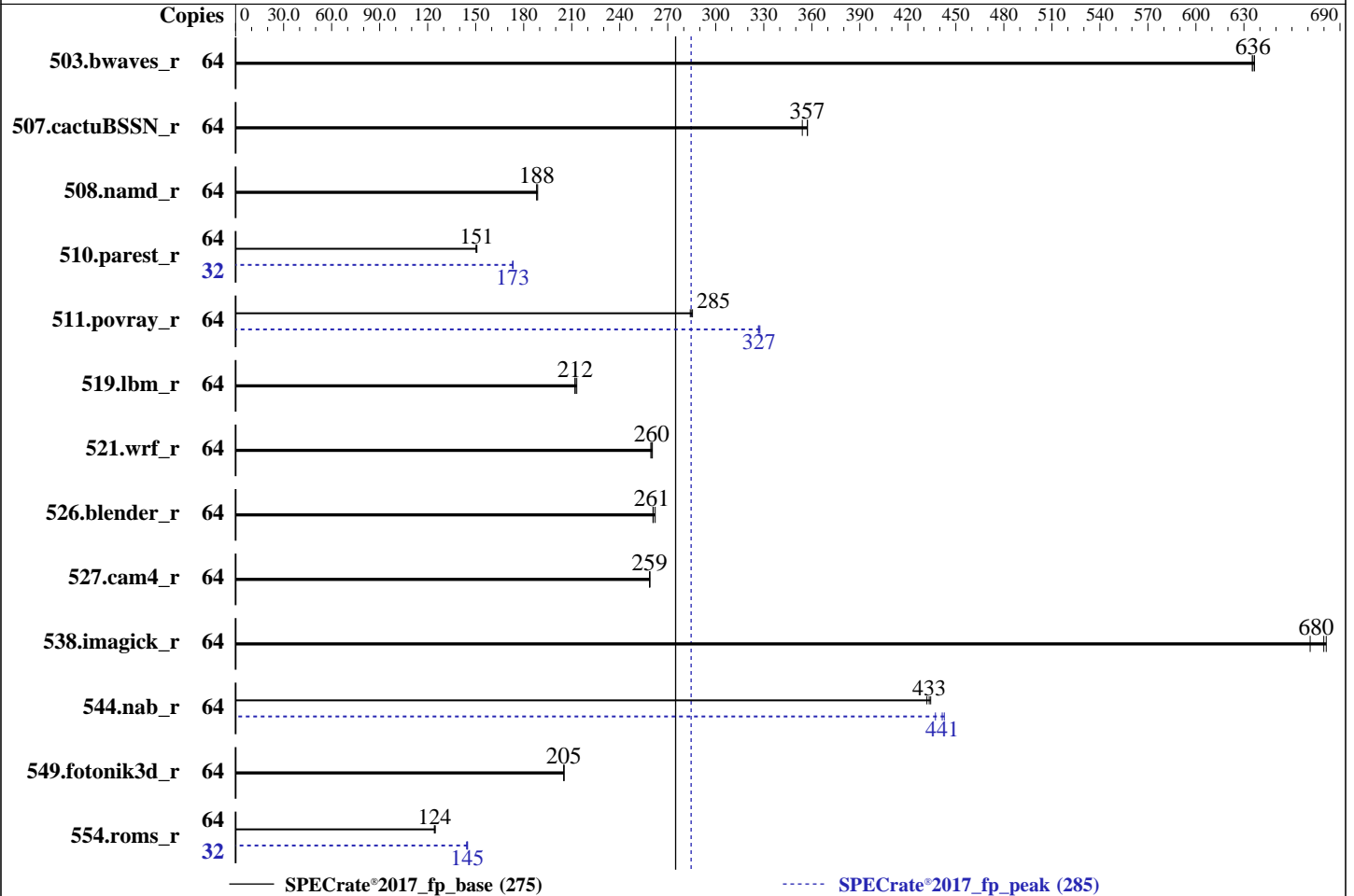
Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2021

Hardware Availability: Nov-2021

Software Availability: Dec-2020



### Hardware

CPU Name: Intel Xeon Gold 6326  
 Max MHz: 3500  
 Nominal: 2900  
 Enabled: 32 cores, 2 chips, 2 threads/core  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1.25 MB I+D on chip per core  
 L3: 24 MB I+D on chip per chip  
 Other: None  
 Memory: 2 TB (32 x 64 GB 2Rx4 PC4-3200AA-R)  
 Storage: 1 x 800 GB SAS SSD, RAID 0  
 Other: None

### Software

OS: Red Hat Enterprise Linux 8.3 (Ootpa)  
 Kernel 4.18.0-240.el8.x86\_64  
 Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;  
 Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;  
 C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux  
 Parallel: No  
 Firmware: HPE BIOS Version I44 v1.54 11/03/2021 released Nov-2021  
 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  
 (Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

SPECrate®2017\_fp\_base = 275

SPECrate®2017\_fp\_peak = 285

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

Test Date: Dec-2021  
Hardware Availability: Nov-2021  
Software Availability: Dec-2020

### Software (Continued)

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	64	1008	637	<b>1010</b>	<b>636</b>	1010	635	64	1008	637	<b>1010</b>	<b>636</b>	1010	635
507.cactuBSSN_r	64	<b>227</b>	<b>357</b>	229	354	227	357	64	<b>227</b>	<b>357</b>	229	354	227	357
508.namd_r	64	323	188	322	189	<b>323</b>	<b>188</b>	64	323	188	322	189	<b>323</b>	<b>188</b>
510.parest_r	64	1111	151	<b>1112</b>	<b>151</b>	1115	150	32	484	173	483	173	<b>483</b>	<b>173</b>
511.povray_r	64	524	285	<b>525</b>	<b>285</b>	526	284	64	458	327	456	328	<b>457</b>	<b>327</b>
519.lbm_r	64	318	212	<b>318</b>	<b>212</b>	316	213	64	318	212	<b>318</b>	<b>212</b>	316	213
521.wrf_r	64	551	260	553	259	<b>552</b>	<b>260</b>	64	551	260	553	259	<b>552</b>	<b>260</b>
526.blender_r	64	374	261	372	262	<b>373</b>	<b>261</b>	64	374	261	372	262	<b>373</b>	<b>261</b>
527.cam4_r	64	432	259	<b>433</b>	<b>259</b>	433	259	64	432	259	<b>433</b>	<b>259</b>	433	259
538.imagick_r	64	237	671	234	681	<b>234</b>	<b>680</b>	64	237	671	234	681	<b>234</b>	<b>680</b>
544.nab_r	64	<b>249</b>	<b>433</b>	248	434	249	432	64	243	443	246	437	<b>244</b>	<b>441</b>
549.fotonik3d_r	64	<b>1216</b>	<b>205</b>	1216	205	1216	205	64	<b>1216</b>	<b>205</b>	1216	205	1216	205
554.roms_r	64	<b>818</b>	<b>124</b>	819	124	815	125	32	351	145	352	144	<b>351</b>	<b>145</b>

SPECrate®2017\_fp\_base = 275

SPECrate®2017\_fp\_peak = 285

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"  
Transparent Huge Pages enabled by default  
Prior to runcpu invocation  
Filesystem page cache synced and cleared with:  
sync; echo 3 > /proc/sys/vm/drop\_caches  
Tuned-adm profile was set to throughput-performance using "tuned-adm profile throughput-performance"  
Cpupower Frequency was set to performance using "cpupower frequency-set -g performance"

## 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"

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

**SPECrate®2017\_fp\_base = 275**

**SPECrate®2017\_fp\_peak = 285**

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

**Test Date:** Dec-2021  
**Hardware Availability:** Nov-2021  
**Software Availability:** Dec-2020

## 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  
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) 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>

Submitted\_by: "Bucek, James" <james.bucek@hpe.com>  
Submitted: Wed Jan 12 10:02:51 EST 2022  
Submission: cpu2017-20220103-30715.sub

## Platform Notes

BIOS Configuration:

Workload Profile set to General Throughput Compute  
Memory Patrol Scrubbing set to Disabled  
Advanced Memory Protection set to Advanced ECC  
Last Level Cache (LLC) Prefetch set to Enabled  
Last Level Cache (LLC) Dead Line Allocation set to Disabled  
Enhanced Processor Performance set to Enabled  
Thermal Configuration set to Maximum Cooling  
Workload Profile set to Custom  
DCU Stream Prefetcher set to Disabled  
XPT Remote Prefetcher set to Enabled  
Energy/Performance Bias set to Balanced Performance

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on localhost.localdomain Fri Dec 17 06:31:32 2021

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>

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

**SPECrate®2017\_fp\_base = 275**

**SPECrate®2017\_fp\_peak = 285**

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

**Test Date:** Dec-2021  
**Hardware Availability:** Nov-2021  
**Software Availability:** Dec-2020

## Platform Notes (Continued)

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz

2 "physical id"s (chips)

64 "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 : 16

siblings : 32

physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

From lscpu from util-linux 2.32.1:

Architecture: x86\_64

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

Byte Order: Little Endian

CPU(s): 64

On-line CPU(s) list: 0-63

Thread(s) per core: 2

Core(s) per socket: 16

Socket(s): 2

NUMA node(s): 2

Vendor ID: GenuineIntel

CPU family: 6

Model: 106

Model name: Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz

Stepping: 6

CPU MHz: 1115.986

CPU max MHz: 3500.0000

CPU min MHz: 800.0000

BogoMIPS: 5800.00

Virtualization: VT-x

L1d cache: 48K

L1i cache: 32K

L2 cache: 1280K

L3 cache: 24576K

NUMA node0 CPU(s): 0-15,32-47

NUMA node1 CPU(s): 16-31,48-63

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

aperfperf 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 invpcid\_single ssbd

mba ibrs ibpb stibp ibrs\_enhanced tpr\_shadow vnmi flexpriority ept vpid ept\_ad

fgsbase tsc\_adjust bmi1 hle avx2 smep bmi2 erms invpcid cqm rdt\_a avx512f avx512dq

rdseed adx smap avx512ifma clflushopt clwb intel\_pt avx512cd sha\_ni avx512bw

avx512vl xsaveopt xsavec xgetbv1 xsaves cqm\_llc cqm\_occup\_llc cqm\_mbm\_total

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

SPECrate®2017\_fp\_base = 275

SPECrate®2017\_fp\_peak = 285

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Dec-2021

**Hardware Availability:** Nov-2021

**Software Availability:** Dec-2020

## Platform Notes (Continued)

```
cqm_mbm_local split_lock_detect wbnoinvd dtherm ida arat pln pts hwp hwp_act_window
hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni
avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_llid
arch_capabilities
```

```
/proc/cpuinfo cache data
cache size : 24576 KB
```

From numactl --hardware

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

available: 2 nodes (0-1)

```
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 32 33 34 35 36 37 38 39 40 41 42 43
44 45 46 47
```

node 0 size: 985654 MB

node 0 free: 1030960 MB

```
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 48 49 50 51 52 53 54 55 56
57 58 59 60 61 62 63
```

node 1 size: 985979 MB

node 1 free: 1031389 MB

node distances:

```
node  0  1
 0:  10  20
 1:  20  10
```

From /proc/meminfo

MemTotal: 2113488388 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/sbin/tuned-adm active

Current active profile: throughput-performance

```
/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
performance
```

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

os-release:

NAME="Red Hat Enterprise Linux"

VERSION="8.3 (Ootpa)"

ID="rhel"

ID\_LIKE="fedora"

VERSION\_ID="8.3"

PLATFORM\_ID="platform:el8"

PRETTY\_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"

ANSI\_COLOR="0;31"

redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)

system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

**SPECrate®2017\_fp\_base = 275**

**SPECrate®2017\_fp\_peak = 285**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Dec-2021

**Hardware Availability:** Nov-2021

**Software Availability:** Dec-2020

## Platform Notes (Continued)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:8.3:ga

uname -a:

```
Linux localhost.localdomain 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
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 Dec 17 06:27

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel-home	xf	670G	112G	559G	17%	/home

From /sys/devices/virtual/dmi/id

Vendor:	HPE
Product:	Synergy 480 Gen10 Plus
Product Family:	Synergy
Serial:	CN70330Q5F

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:

32x Micron 36ASF8G72PZ-3G2B2 64 GB 2 rank 3200

BIOS:

BIOS Vendor:	HPE
BIOS Version:	I44
BIOS Date:	11/03/2021
BIOS Revision:	1.54

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

**SPECrate®2017\_fp\_base = 275**

**SPECrate®2017\_fp\_peak = 285**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Dec-2021

**Hardware Availability:** Nov-2021

**Software Availability:** Dec-2020

## Platform Notes (Continued)

Firmware Revision: 2.50

(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 2021.1 Build 20201113
Copyright (C) 1985-2020 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 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
=====

```

```

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

```

```

Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 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 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
=====

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

**SPECrate®2017\_fp\_base = 275**

**SPECrate®2017\_fp\_peak = 285**

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

**Test Date:** Dec-2021  
**Hardware Availability:** Nov-2021  
**Software Availability:** Dec-2020

## Compiler Version Notes (Continued)

C++, C | 511.povray\_r(peak)

-----  
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 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 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 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 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

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

-----  
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112\_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

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

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

SPECrate®2017\_fp\_base = 275

SPECrate®2017\_fp\_peak = 285

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Dec-2021

**Hardware Availability:** Nov-2021

**Software Availability:** Dec-2020

## Compiler Version Notes (Continued)

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
 Intel(R) 64, Version 2021.1 Build 20201112\_000000  
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
 Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
 Version 2021.1 Build 20201113  
 Copyright (C) 1985-2020 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  
 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



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**Synergy 480 Gen10 Plus**

(2.90 GHz, Intel Xeon Gold 6326)

**SPECrate®2017\_fp\_base = 275**

**SPECrate®2017\_fp\_peak = 285**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Dec-2021

**Hardware Availability:** Nov-2021

**Software Availability:** Dec-2020

## 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
```

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
```



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

SPECrate®2017\_fp\_base = 275

SPECrate®2017\_fp\_peak = 285

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Dec-2021

**Hardware Availability:** Nov-2021

**Software Availability:** Dec-2020

## Peak 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++:

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

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: basepeak = yes

538.imagick\_r: basepeak = yes

544.nab\_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto  
-Ofast -qopt-mem-layout-trans=4  
-fimf-accuracy-bits=14:sqrt  
-mbranches-within-32B-boundaries -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Synergy 480 Gen10 Plus

(2.90 GHz, Intel Xeon Gold 6326)

SPECrate®2017\_fp\_base = 275

SPECrate®2017\_fp\_peak = 285

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Dec-2021

Hardware Availability: Nov-2021

Software Availability: Dec-2020

## Peak Optimization Flags (Continued)

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: basepeak = yes

549.fotonik3d\_r: basepeak = yes

```
554.roms_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
```

Benchmarks using both Fortran and C:

521.wrf\_r: basepeak = yes

527.cam4\_r: basepeak = yes

Benchmarks using both C and C++:

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

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



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**Synergy 480 Gen10 Plus**

(2.90 GHz, Intel Xeon Gold 6326)

**SPECrate®2017\_fp\_base = 275**

**SPECrate®2017\_fp\_peak = 285**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Dec-2021

**Hardware Availability:** Nov-2021

**Software Availability:** Dec-2020

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

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

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

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.8 on 2021-12-16 20:01:31-0500.

Report generated on 2022-01-18 18:58:40 by CPU2017 PDF formatter v6442.

Originally published on 2022-01-18.