



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL110 Gen11

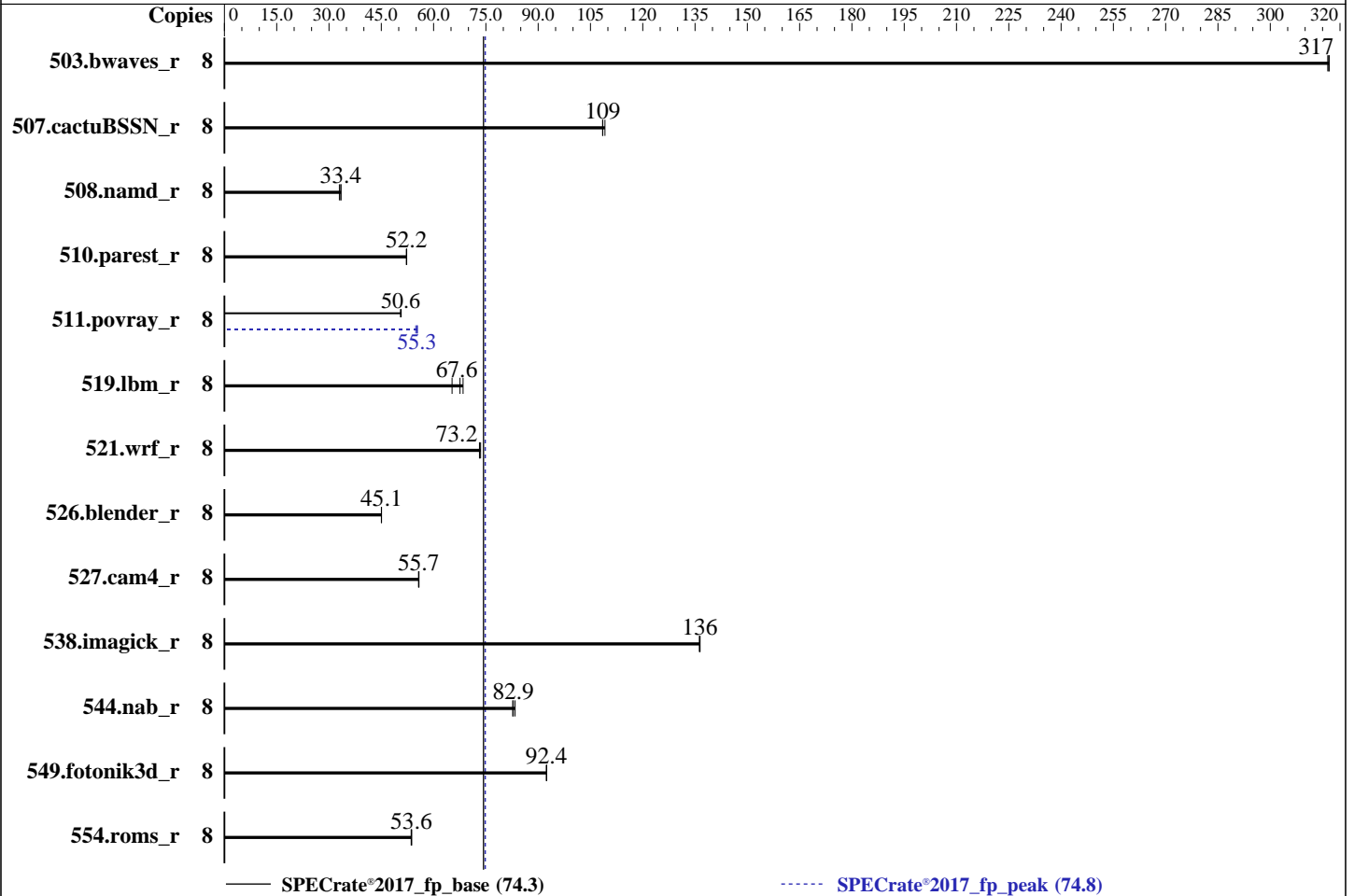
(1.80 GHz, Intel Xeon Bronze 3408U)

SPECrate®2017\_fp\_base = 74.3

SPECrate®2017\_fp\_peak = 74.8

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

Test Date: Sep-2023  
Hardware Availability: Oct-2023  
Software Availability: Dec-2022



### Hardware

CPU Name: Intel Xeon Bronze 3408U  
Max MHz: 1900  
Nominal: 1800  
Enabled: 8 cores, 1 chip  
Orderable: 1 Chip  
Cache L1: 32 KB I + 48 KB D on chip per core  
L2: 2 MB I+D on chip per core  
L3: 22.5 MB I+D on chip per chip  
Other: None  
Memory: 256 GB (8 x 32 GB 2Rx8 PC5-4800B-R)  
Storage: 1 x 480 GB Embedded SATA M.2 drive  
Other: None

### Software

OS: Red Hat Enterprise Linux 9.0 (Plow)  
Kernel 5.14.0-70.13.1.el9\_0.x86\_64  
Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux;  
Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;  
Parallel: No  
Firmware: HPE BIOS Version v1.50 (07/12/2023) released Jul-2023  
File System: xfs  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 64-bit  
Other: jemalloc memory allocator V5.0.1  
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL110 Gen11

(1.80 GHz, Intel Xeon Bronze 3408U)

SPECrate®2017\_fp\_base = 74.3

SPECrate®2017\_fp\_peak = 74.8

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

Test Date: Sep-2023  
Hardware Availability: Oct-2023  
Software Availability: Dec-2022

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	8	253	317	<u>253</u>	<u>317</u>	253	316	8	253	317	<u>253</u>	<u>317</u>	253	316
507.cactuBSSN_r	8	<u>93.3</u>	<u>109</u>	93.4	108	92.8	109	8	<u>93.3</u>	<u>109</u>	93.4	108	92.8	109
508.namd_r	8	231	33.0	<u>228</u>	<u>33.4</u>	227	33.4	8	231	33.0	<u>228</u>	<u>33.4</u>	227	33.4
510.parest_r	8	<u>401</u>	<u>52.2</u>	401	52.2	400	52.3	8	<u>401</u>	<u>52.2</u>	401	52.2	400	52.3
511.povray_r	8	<u>369</u>	<u>50.6</u>	370	50.5	368	50.7	8	<u>338</u>	<u>55.3</u>	340	54.9	337	55.4
519.lbm_r	8	<u>125</u>	<u>67.6</u>	123	68.5	129	65.3	8	<u>125</u>	<u>67.6</u>	123	68.5	129	65.3
521.wrf_r	8	244	73.5	<u>245</u>	<u>73.2</u>	245	73.2	8	244	73.5	<u>245</u>	<u>73.2</u>	245	73.2
526.blender_r	8	271	45.0	<u>270</u>	<u>45.1</u>	270	45.1	8	271	45.0	<u>270</u>	<u>45.1</u>	270	45.1
527.cam4_r	8	251	55.8	251	55.7	<u>251</u>	<u>55.7</u>	8	251	55.8	251	55.7	<u>251</u>	<u>55.7</u>
538.imagick_r	8	<u>146</u>	<u>136</u>	146	136	146	136	8	<u>146</u>	<u>136</u>	146	136	146	136
544.nab_r	8	163	82.7	161	83.4	<u>162</u>	<u>82.9</u>	8	163	82.7	161	83.4	<u>162</u>	<u>82.9</u>
549.fotonik3d_r	8	<u>337</u>	<u>92.4</u>	337	92.4	337	92.4	8	<u>337</u>	<u>92.4</u>	337	92.4	337	92.4
554.roms_r	8	<u>237</u>	<u>53.6</u>	237	53.7	237	53.6	8	<u>237</u>	<u>53.6</u>	237	53.7	237	53.6

SPECrate®2017\_fp\_base = **74.3**

SPECrate®2017\_fp\_peak = **74.8**

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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
IRQ balance service was stopped using "systemctl stop irqbalance.service"
tuned-adm profile was set to Throughput-Performance using "tuned-adm profile throughput-performance"
perf-bias for all the CPUs is set using "cpupower set -b 0"
```

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOCONF = "retain:true"
```

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

## General Notes (Continued)

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

The system ROM used for this result contains Intel microcode version 0x2b0004b1 for the Intel Xeon Bronze 3408U processor.

BIOS Configuration:

Workload Profile set to General Throughput Compute  
 Thermal Configuration set to Maximum Cooling  
 Enhanced Processor Performance Profile set to Aggressive  
 Last Level Cache (LLC) Dead Line Allocation set to Disabled  
 Memory Patrol Scrubbing set to Disabled  
 Workload Profile set to Custom  
 DCU Stream Prefetcher set to Disabled  
 Adjacent Sector Prefetch set to Disabled  
 Minimum Processor Idle Power Package C-State set to Package C6 (non-retention) State

Sysinfo program /home/cpu2017/bin/sysinfo  
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
 running on localhost.localdomain Sat Sep 9 02:56:31 2023

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 250 (250-6.el9\_0)
  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
- 

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

## Platform Notes (Continued)

- ```

1. uname -a
Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
x86_64 x86_64 GNU/Linux

2. w
 02:56:31 up 1 min,  0 users,  load average: 0.12, 0.05, 0.01
USER      TTY      LOGIN@  IDLE   JCPU   PCPU   WHAT

3. Username
From environment variable $USER:  root

4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) 0
data seg size               (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                   (blocks, -f) unlimited
pending signals             (-i) 1029844
max locked memory           (kbytes, -l) 64
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) 1029844
virtual memory              (kbytes, -v) unlimited
file locks                  (-x) unlimited

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@notty
bash -c cd $SPEC/ && $SPEC/fprate.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=8 -c
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=4 --define physicalfirst
--define no-numa --tune base,peak -o all --define drop_caches fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=8 --configfile
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=4 --define physicalfirst
--define no-numa --tune base,peak --output_format all --define drop_caches --nopower --runmode rate --tune
base:peak --size refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Bronze 3408U
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping      : 8
microcode     : 0x2b0004b1

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

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

**Test Date:** Sep-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Dec-2022

## Platform Notes (Continued)

bugs : spectre\_v1 spectre\_v2 spec\_store\_bypass swappg  
cpu cores : 8  
siblings : 8  
1 physical ids (chips)  
8 processors (hardware threads)  
physical id 0: core ids 0-7  
physical id 0: apicids 0,2,4,6,8,10,12,14  
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

### 7. lscpu

From lscpu from util-linux 2.37.4:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 46 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 8
On-line CPU(s) list: 0-7
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) Bronze 3408U
BIOS Model name: Intel(R) Xeon(R) Bronze 3408U
CPU family: 6
Model: 143
Thread(s) per core: 1
Core(s) per socket: 8
Socket(s): 1
Stepping: 8
BogoMIPS: 3600.00
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
invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 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 cqm_mbm_local
split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts
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 avx512_fp16 flush_l1d arch_capabilities

Virtualization: VT-x
L1d cache: 384 KiB (8 instances)
L1i cache: 256 KiB (8 instances)
L2 cache: 16 MiB (8 instances)
L3 cache: 22.5 MiB (1 instance)
NUMA node(s): 1
NUMA node0 CPU(s): 0-7
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

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

**Test Date:** Sep-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Dec-2022

## Platform Notes (Continued)

Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling  
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      | 384K     | 12   | Data        | 1     | 64    | 1        | 64             |
| L1i  | 32K      | 256K     | 8    | Instruction | 1     | 64    | 1        | 64             |
| L2   | 2M       | 16M      | 16   | Unified     | 2     | 2048  | 1        | 64             |
| L3   | 22.5M    | 22.5M    | 15   | Unified     | 3     | 24576 | 1        | 64             |

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.  
available: 1 nodes (0)  
node 0 cpus: 0-7  
node 0 size: 257500 MB  
node 0 free: 256709 MB  
node distances:  
node 0  
0: 10

9. /proc/meminfo

MemTotal: 263681008 kB

10. who -r

run-level 3 Sep 9 02:54

11. Systemd service manager version: systemd 250 (250-6.el9\_0)

Default Target Status  
multi-user running

12. Services, from systemctl list-unit-files

| STATE           | UNIT FILES                                                                                                                                                                                                                                                                                                                                               |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enabled         | NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond<br>dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode<br>nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd<br>systemd-network-generator tuned udisks2                                                             |
| enabled-runtime | systemd-remount-fs                                                                                                                                                                                                                                                                                                                                       |
| disabled        | blk-availability chrony-wait console-getty cpupower debug-shell hwloc-dump-hwdata kvm_stat<br>man-db-restart-cache-update nftables powertop rdisc rhsm rhsm-facts rpmdb-rebuild<br>serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysex<br>indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo |

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

BOOT\_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9\_0.x86\_64  
root=/dev/mapper/rhel-root  
ro  
resume=/dev/mapper/rhel-swap  
rd.lvm.lv=rhel/root  
rd.lvm.lv=rhel/swap

14. cpupower frequency-info

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

## Platform Notes (Continued)

```

analyzing CPU 0:
  Unable to determine current policy
boost state support:
  Supported: yes
  Active: yes

```

```

-----
15. tuned-adm active
  Current active profile: throughput-performance

```

```

-----
16. sysctl
  kernel.numa_balancing          0
  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                 40
  vm.dirty_writeback_centisecs  500
  vm.dirtytime_expire_seconds   43200
  vm.extfrag_threshold          500
  vm.min_unmapped_ratio         1
  vm.nr_hugepages                0
  vm.nr_hugepages_mempolicy     0
  vm.nr_overcommit_hugepages    0
  vm.swappiness                  10
  vm.watermark_boost_factor     15000
  vm.watermark_scale_factor     10
  vm.zone_reclaim_mode          0

```

```

-----
17. /sys/kernel/mm/transparent_hugepage
  defrag          always defer defer+madvice [madvice] never
  enabled         [always] madvice never
  hpage_pmd_size 2097152
  shmem_enabled   always within_size advise [never] deny force

```

```

-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs  60000
  defrag                  1
  max_ptes_none          511
  max_ptes_shared        256
  max_ptes_swap          64
  pages_to_scan          4096
  scan_sleep_millisecs   10000

```

```

-----
19. OS release
  From /etc/*-release /etc/*-version
  os-release      Red Hat Enterprise Linux 9.0 (Plow)
  redhat-release  Red Hat Enterprise Linux release 9.0 (Plow)
  system-release  Red Hat Enterprise Linux release 9.0 (Plow)

```

```

-----
20. Disk information
SPEC is set to: /home/cpu2017
  Filesystem      Type  Size  Used Avail Use% Mounted on

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

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

**Test Date:** Sep-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Dec-2022

## Platform Notes (Continued)

/dev/mapper/rhel-home xfs 372G 87G 286G 24% /home

-----  
21. /sys/devices/virtual/dmi/id  
Vendor: HPE  
Product: ProLiant DL110 Gen11  
Product Family: ProLiant  
Serial: 7CE244P9LL  
-----

22. dmidecode  
Additional information from dmidecode 3.3 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:  
7x Hynix HMC88MEBRA113N 32 GB 2 rank 4800, configured at 4000  
1x Hynix HMC88MEBRA115N 32 GB 2 rank 4800, configured at 4000  
-----

23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: HPE  
BIOS Version: 1.50  
BIOS Date: 07/12/2023  
BIOS Revision: 1.50  
Firmware Revision: 1.30  
-----

## 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 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
-----

=====  
C++, C | 511.povray\_r(base, peak) 526.blender\_r(base, peak)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
-----

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

## Compiler Version Notes (Continued)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
 Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

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

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

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

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
 Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Base Portability Flags

503.bwaves\_r: -DSPEC\_LP64  
 507.cactuBSSN\_r: -DSPEC\_LP64  
 508.namd\_r: -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

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

**Test Date:** Sep-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Dec-2022

## Base Portability Flags (Continued)

510.parest\_r: -DSPEC\_LP64  
511.povray\_r: -DSPEC\_LP64  
519.lbm\_r: -DSPEC\_LP64  
521.wrf\_r: -DSPEC\_LP64 -DSPEC\_CASE\_FLAG -convert big\_endian  
526.blender\_r: -DSPEC\_LP64 -DSPEC\_LINUX -funsigned-char  
527.cam4\_r: -DSPEC\_LP64 -DSPEC\_CASE\_FLAG  
538.imagick\_r: -DSPEC\_LP64  
544.nab\_r: -DSPEC\_LP64  
549.fotonik3d\_r: -DSPEC\_LP64  
554.roms\_r: -DSPEC\_LP64

## Base Optimization Flags

### C benchmarks:

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

### C++ benchmarks:

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

### Fortran benchmarks:

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

### Benchmarks using both Fortran and C:

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

### Benchmarks using both C and C++:

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

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(1.80 GHz, Intel Xeon Bronze 3408U)

**SPECrate®2017\_fp\_base = 74.3**

**SPECrate®2017\_fp\_peak = 74.8**

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

## Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:

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

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: basepeak = yes

538.imagick\_r: basepeak = yes

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL110 Gen11

(1.80 GHz, Intel Xeon Bronze 3408U)

SPECrate®2017\_fp\_base = 74.3

SPECrate®2017\_fp\_peak = 74.8

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2023

Hardware Availability: Oct-2023

Software Availability: Dec-2022

## Peak Optimization Flags (Continued)

544.nab\_r: basepeak = yes

C++ benchmarks:

508.namd\_r: basepeak = yes

510.parest\_r: basepeak = yes

Fortran benchmarks:

503.bwaves\_r: basepeak = yes

549.fotonik3d\_r: basepeak = yes

554.roms\_r: basepeak = yes

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: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int
-mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender\_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN\_r: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev2.4.html>

[http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64\\_revB.2023-10-11.html](http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64_revB.2023-10-11.html)

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev2.4.xml>

[http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64\\_revB.2023-10-11.xml](http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64_revB.2023-10-11.xml)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL110 Gen11

(1.80 GHz, Intel Xeon Bronze 3408U)

SPECrate®2017\_fp\_base = 74.3

SPECrate®2017\_fp\_peak = 74.8

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

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 v1.1.9 on 2023-09-08 17:26:31-0400.

Report generated on 2023-10-11 12:31:42 by CPU2017 PDF formatter v6716.

Originally published on 2023-10-10.