Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL110 Gen11
(2.10 GHz, Intel Xeon Gold 5423N)

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

<table>
<thead>
<tr>
<th>Test Date: Sep-2023</th>
<th>Hardware Availability: Oct-2023</th>
<th>Software Availability: Dec-2022</th>
</tr>
</thead>
</table>

| SPECrate®2017_fp_base | 238 | SPECrate®2017_fp_peak | 244 |

### Hardware

- **CPU Name:** Intel Xeon Gold 5423N
- **Max MHz:** 4000
- **Nominal:** 2100
- **Enabled:** 20 cores, 1 chip, 2 threads/core
- **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:** 37.5 MB I+D on chip per core
- **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;
- **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
Results Table

<table>
<thead>
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<th>Ratio</th>
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<td>274</td>
<td>116</td>
</tr>
</tbody>
</table>

SPECrate®2017_fp_base = 238
SPECrate®2017_fp_peak = 244

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
Filesyste 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"
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"
MALLOC_CONF = "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
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

Platform Notes

The system ROM used for this result contains Intel microcode version 0x2b0004b1 for
the Intel Xeon Gold 5423N 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 Tue Sep 19 04:43:14 2023

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

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10. who -r
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12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
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SPEC CPU®2017 Floating Point Rate Result

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SPECraten®2017_fp_base = 238
SPECraten®2017_fp_peak = 244

CPU2017 License: 3
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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 GNU/Linux

2. w
   04:43:14 up 2 min, 0 users, load average: 0.02, 0.02, 0.00
   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) 1029818
   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) 1029818
   virtual memory (kbytes, -v) unlimited
   file locks (-x) unlimited

5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 27
   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=40 -c
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=20 --define physicalfirst
   --define no-numa --tune base,peak --all --define drop_caches fprate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=40 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=20 --define physicalfirst
   --define no-numa --tune base,peak --output_format all --define drop_caches --noprereq --runmode rate --tune
   base:peak --size refrate fprate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CP2017.001/templogs/preenv.fprate.000.0.log --lognum 000.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017

6. /proc/cpuinfo
   model name: Intel(R) Xeon? Gold 5423N
   vendor_id: GenuineIntel
   cpu family: 6
   model: 143

   (Continued on next page)
Platform Notes (Continued)

stepping     : 8
microcode    : 0x2b0004b1
bugs         : spectre_v1 spectre_v2 spec_store_bypass swaps
cpu cores    : 20
siblings     : 40
  1 physical ids (chips)
  40 processors (hardware threads)
  physical id 0: core ids 0-19
  physical id 0: apic ids 0-19
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):                          40
On-line CPU(s) list:             0-39
Vendor ID:                       GenuineIntel
BIOS Vendor ID:                  Intel(R) Corporation
Model name:                      Intel(R) Xeon? Gold 5423N
BIOS Model name:                 Intel(R) Xeon? Gold 5423N
CPU family:                      6
Model:                           143
Thread(s) per core:              2
Core(s) per socket:              20
Socket(s):                       1
Stepping:                        8
BogoMIPS:                        4200.00
Flags:
fpu vme de pse tsc msr pae mce cmov pat pse36
clflush dtsc acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdebug rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
lahf_lm 3dnow 3dnowext pdcm cmov dtes67 mdtes67 mdttes67 tsa xtica
arch_perfmon cpuid_fault epb cat1 cat2 cdp cdp
invcpcd_single cdp_12 ssbd mba ibs ibpb stibp ibrs enhanced tpr_shadow
vnmi fxeclipsepriority ept vpid ept_ad fqsbase tsc_adjust bts avx2 smep bmi2
erms invpcid cqm rdt_a avx512f avx512dq rdseed adx amap avx512ifma
clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl vxsaveopt xsavec
xgetb v1 xsave cqm cqm_11c cqm_occup_11c cqm_mbb cqm_mmb total cqm_mmb local
split_lock_detect avx_vnni avx512 bfi16 wnoindvd dtherm ida arat pin pts
avx512vbmi umpu pkpu ospke waitpkg avx512 vmbmi 2 gfni vaes vclmulqdq
avx512_vnni avx512_bitalig tme avx512_vpopcntdq la57 rdpid bus_lock_detect
cldemote movdiri movdir64b enqcmd fasm md_clear serialize tsxidtrk pconfign
arch_lbr avx512_fp16 flush_lid arch_capabilities

Virtualization:                 VT-x
L1d cache:                      960 KIB (20 instances)
L1l cache:                      640 KIB (20 instances)
L2 cache:                       40 MIB (20 instances)
L3 cache:                       37.5 MIB (1 instance)
NUMA node(s):                   1
NUMA node0 CPU(s):              0-39
Vulnerability Itlb multihit:    Not affected
Vulnerability Lttf:             Not affected
Vulnerability Mds:              Not affected

(Continued on next page)
## Platform Notes (Continued)

- **Vulnerability Meltdown:** Not affected
- **Vulnerability Spec store bypass:** Mitigation; Speculative Store Bypass disabled via prctl
- **Vulnerability Spectre v1:** Mitigation; usercopy/swaps barriers and __user pointer sanitation
- **Vulnerability Spectre v2:** Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
- **Vulnerability Srbdss:** Not affected
- **Vulnerability Tsx async abort:** Not affected

### From lscpu --cache:

```plaintext
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<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
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<th>SETS</th>
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<td>960K</td>
<td>12</td>
<td>Data</td>
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<td>64</td>
<td>1</td>
<td>64</td>
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<tr>
<td>L1i</td>
<td>32K</td>
<td>640K</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
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<tr>
<td>L2</td>
<td>2M</td>
<td>40M</td>
<td>16</td>
<td>Unified</td>
<td>2</td>
<td>2048</td>
<td>1</td>
<td>64</td>
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<tr>
<td>L3</td>
<td>37.5M</td>
<td>37.5M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>40960</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>
```

### numactl --hardware

```
available: 1 nodes (0)
  node 0 cpus: 0-39
  node 0 size: 257494 MB
  node 0 free: 256434 MB
  node distances:
    node 0
    0: 10
```

### /proc/meminfo

```
MemTotal: 263674208 kB
```

### who -r

```
run-level 3 Sep 19 04:41
```

### Systemd service manager version:

```
systemd 250 (250-6.el9_0)
Default Target: multi-user running
```

### Linux kernel boot-time arguments:

```
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
```

(Continued on next page)
Platform Notes (Continued)

14. cpupower frequency-info
   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                    10
    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+madvise [madvise] never
    enabled         [always] madvise 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

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 SPEC CPU®2017 Floating Point Rate Result
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Platform Notes (Continued)

SPEC is set to: /home/cpu2017
Filesystem            Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   372G   85G  287G  23% /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 HMCG88MEBRA113N 32 GB 2 rank 4800, configured at 4000
1x Hynix HMCG88MEBRA115N 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.

C++, C, Fortran | 507.cactuBSSN_r(base, peak)

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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) 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.

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

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SPEC CPU®2017 Floating Point Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL110 Gen11
(2.10 GHz, Intel Xeon Gold 5423N)

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

SPECrate®2017_fp_base = 238
SPECrate®2017_fp_peak = 244

Base Portability Flags (Continued)

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

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)
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:
ifix

Benchmarks using both Fortran and C:
ifix 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)
**Peak Optimization Flags (Continued)**

544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -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
-1jemalloc -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 -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -1jemalloc
-1/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: -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 -1jemalloc
-1/usr/local/jemalloc64-5.0.1/lib

526.blender_r: basepeak = yes

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 -1jemalloc

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# SPEC CPU®2017 Floating Point Rate Result

## Hewlett Packard Enterprise

(3 GHz, Intel Xeon Gold 5423N)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<td>238</td>
</tr>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>244</td>
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</table>

**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)

**Benchmarks using Fortran, C, and C++ (continued):**

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

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/HPE-Platform-Flags-Intel-SPR-rev2.4.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/HPE-Platform-Flags-Intel-SPR-rev2.4.xml)

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