# SPEC CPU®2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL380 Gen9  
(2.10 GHz, Intel Xeon E5-2620 v4)

## SPECrate®2017_int_base = 80.4

**SPECrate®2017_int_peak = Not Run**

<table>
<thead>
<tr>
<th>CPU2017 License: 3</th>
<th>Test Date: May-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: HPE</td>
<td>Hardware Availability: Feb-2023</td>
</tr>
<tr>
<td>Tested by: HPE</td>
<td>Software Availability: Dec-2022</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base (80.4)</th>
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<tbody>
<tr>
<td>500.perlbench_r 32</td>
<td></td>
</tr>
<tr>
<td>502.gcc_r 32</td>
<td>59.6</td>
</tr>
<tr>
<td>505.mcf_r 32</td>
<td>59.6</td>
</tr>
<tr>
<td>520.omnetpp_r 32</td>
<td>53.3</td>
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<tr>
<td>523.xalancbmk_r 32</td>
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<td>525.x264_r 32</td>
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<td>531.deepsjeng_r 32</td>
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<tr>
<td>541.leela_r 32</td>
<td>150</td>
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<tr>
<td>548.exchange2_r 32</td>
<td></td>
</tr>
<tr>
<td>557.xz_r 32</td>
<td></td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>OS: Red Hat Enterprise Linux 9.0 (Plow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler: C/C++, Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;</td>
</tr>
<tr>
<td>Parallel: No</td>
</tr>
<tr>
<td>Firmware: HPE BIOS Version P89 v3.08 01/12/2023 released Feb-2023</td>
</tr>
<tr>
<td>File System: xfs</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
</tr>
<tr>
<td>Peak Pointers: Not Applicable</td>
</tr>
<tr>
<td>Other: None</td>
</tr>
<tr>
<td>Power Management: BIOS and OS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

## CPU Name: Intel Xeon E5-2620 v4

- Max MHz: 3000
- Nominal: 2100
- Enabled: 16 cores, 2 chips, 2 threads/core
- Orderable: 1, 2 chip(s)
- Cache L1: 32 KB I + 32 KB D on chip per core
- L2: 256 KB I+D on chip per core
- L3: 20 MB I+D on chip per chip
- Other: None
- Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R, running at 2133)
- Storage: 1 x 900 GB SAS 10K HDD, RAID 0
- Other: None
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<td>59.6</td>
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<tr>
<td>541.leela_r</td>
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<td>559</td>
<td>150</td>
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<tr>
<td>557.xz_r</td>
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<td>742</td>
<td>46.6</td>
<td>741</td>
<td>46.7</td>
<td>742</td>
<td>46.6</td>
</tr>
</tbody>
</table>

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

Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk_r / 623.xalanchmark_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

Submit Notes

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, http://www.spec.org/osg/policy.html

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

This benchmark run is conducted using the latest binaries based on IC23 and to suffice the minimum software requirement, the Operating System used is RHEL9.0
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(2.10 GHz, Intel Xeon E5-2620 v4)

SPECrate®2017_int_base = 80.4
SPECrate®2017_int_peak = Not Run

Operating System Notes

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

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = */home/cpu2017/lib/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/je5.0.1-32"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8480+ CPU + 512GB RAM
memory using Red Hat Enterprise Linux 9.0
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.

Platform Notes

The system ROM used for this result contains Intel microcode version 0xb0000040 for
the Intel Xeon E5-2620 v4 processor.
BIOS Configuration:
Power Profile set to Custom
Power Regulator to Static High Performance Mode
Minimum Processor Idle Power Core C-State set to C1E State
Minimum Processor Idle Power Package C-State set to No Package State
QPI Snoop Configuration set to Cluster on Die
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c3a2c92cc097bec197
running on localhost.localdomain Mon May 15 23:08:13 2023

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

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3. Username
4. ulimit -a
5. sysinfo process ancestry

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7. lscpu
8. numactl --hardware
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10. who -r
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12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
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

------------------------------------------------------------
1. uname -a
Linux localhost.localdomain 5.14.0-70.13.1.e19_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
23:08:13 up 5:39, 1 user, load average: 0.00, 0.00, 0.00
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root pts/0 23:05 12.00s 3.15s 0.02s -bash

------------------------------------------------------------
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) 514921
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) 514921
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]

(Continued on next page)
Platform Notes (Continued)

```
sshd: root@pts/0
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
ic2023.0-lin-core-avx2-rate-20221201.cfg --define smt-on --define cores=16 --define physicalfirst --define
invoke_with_interleave --define drop_caches --tune base -o all intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 --configfile
ic2023.0-lin-core-avx2-rate-20221201.cfg --define smt-on --define cores=16 --define physicalfirst --define
invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode rate
--tune base --size referate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.003/templogs/preenv.intrate.003.0.log --lognum 003.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

6. /proc/cpuinfo
```
model name : Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz
vendor_id : GenuineIntel
cpu family : 6
model : 79
stepping : 1
microcode : 0xb000040
bugs : cpu_meltdown spectre_v1 spectre_v2 spec_store_bypass l1tf mds swapgs taa itlb_multihit
cpu cores : 8
siblings : 16
  2 physical ids (chips)
  32 processors (hardware threads)
physical id 0: core ids 0-7
physical id 1: core ids 0-7
physical id 0: apicids 0-15
physical id 1: apicids 16-31
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, 48 bits virtual
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz
BIOS Model name: Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz
CPU family: 6
Model: 79
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 1
Stepping: 1
CPU max MHz: 3000.0000
CPU min MHz: 1200.0000
BogoMIPS: 4194.88
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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
```

(Continued on next page)
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**ProLiant DL380 Gen9**  
*(2.10 GHz, Intel Xeon E5-2620 v4)*  

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

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<tr>
<th>Test Date:</th>
<th>May-2023</th>
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</tr>
<tr>
<td>Software Availability:</td>
<td>Dec-2022</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

- `cpuid`  
- `aperfmperf`  
- `pni`  
- `pclmulqdq`  
- `dtes64`  
- `monitor`  
- `tm2`  
- `ssse3`  
- `sdbg`  
- `fma`  
- `cx16`  
- `xtrpr`  
- `pcid`  
- `dca`  
- `sse4_1`  
- `sse4_2`  
- `x2apic`  
- `movbe`  
- `popcnt`  
- `tsc_deadline_timer`  
- `aes`  
- `xsave`  
- `avx`  
- `rdrand`  
- `lahf_lm`  
- `abm`  
- `3dnowprefetch`  
- `cpuid_fault`  
- `epb`  
- `oat_l3`  
- `odp_l3`  
- `invpcid_single`  
- `gtx`  
- `intel_pinn`  
- `ssbd`  
- `ibrs`  
- `ibpb`  
- `stibp`  
- `tpr_shadow`  
- `vmni`  
- `flexpriority`  
- `ept_vpid`  
- `ept_ad`  
- `fsgsbase`  
- `tsc_adjust`  
- `bm1`  
- `hle`  
- `avx2`  
- `smap`  
- `xsave`  
- `vpi`  
- `intel_pinn`  
- `ssbd`  
- `ibrs`  
- `ibpb`  
- `stibp`  
- `tpr_shadow`  
- `vnmi`  
- `flexpriority`  
- `ept_vpid`  
- `ept_ad`  
- `fsgsbase`  
- `tsc_adjust`  
- `bm1`  
- `hle`  
- `avx2`  
- `smap`  
- `xsave`  
- `vpi`  
- `intel_pinn`  
- `ssbd`  
- `ibrs`  
- `ibpb`  
- `stibp`  
- `tpr_shadow`  
- `vnmi`  
- `flexpriority`  
- `ept_vpid`  
- `ept_ad`  
- `fsgsbase`  
- `tsc_adjust`  

**Virtualization:**  
- `VT-x`  

**L1d cache:**  
- `512 KiB (16 instances)`  

**L1i cache:**  
- `512 KiB (16 instances)`  

**L2 cache:**  
- `4 MiB (16 instances)`  

**L3 cache:**  
- `40 MiB (2 instances)`

**NUMA node(s):**  
- `0-7,16-23`

**NUMA node0 CPU(s):**  
- `0-7,16-23`

**NUMA node1 CPU(s):**  
- `8-15,24-31`

**Vulnerability Itlb multihit:**  
- `KVM: Mitigation; VMX disabled`

**Vulnerability L1tf:**  
- `Mitigation; PTE Inversion; VMX conditional cache flushes, SMT vulnerable`

**Vulnerability Mds:**  
- `Mitigation; Clear CPU buffers; SMT vulnerable`

**Vulnerability Meltdown:**  
- `Mitigation; PTI`

**Vulnerability Spec store bypass:**  
- `Mitigation; Speculative Store Bypass disabled via prctl`

**Vulnerability Spectre v1:**  
- `Mitigation; usercopy/swaps barriers and __user pointer sanitization`

**Vulnerability Spectre v2:**  
- `Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP conditional, RSB filling`

**Vulnerability Srbd:**  
- `Not affected`

**Vulnerability Tsx async abort:**  
- `Mitigation; Clear CPU buffers; SMT vulnerable`  

---

**From lscpu --cache:**

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
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<tbody>
<tr>
<td>L1d</td>
<td>32K</td>
<td>512K</td>
<td>8</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L1i</td>
<td>32K</td>
<td>512K</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
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<td>L2</td>
<td>256K</td>
<td>4M</td>
<td>8</td>
<td>Unified</td>
<td>2</td>
<td>512</td>
<td>1</td>
<td>64</td>
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<tr>
<td>L3</td>
<td>20M</td>
<td>40M</td>
<td>20</td>
<td>Unified</td>
<td>3</td>
<td>16384</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

---

**numactl --hardware**

**MemTotal:** 131857840 kB

---

**who -r**

**run-level 3** May 15 17:29

---

**Systemd service manager version:** systemd 250 (250-6.el9_0)

**Default Target Status**
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(2.10 GHz, Intel Xeon E5-2620 v4)

SPECRate®2017_int_base = 80.4
SPECRate®2017_int_peak = Not Run

Platform Notes (Continued)

multi-user degraded

12. Failed units, from systemctl list-units --state=failed
UNIT LOAD ACTIVE SUB DESCRIPTION
* dnf-makecache.service loaded failed failed dnf makecache

13. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
dbus-broker firewalld getty@ irqbalance kdump mdmonitor microcode nis-domainname rhsmcertd
rsyslog selinux-autorelabel-mark sshd ssd systemd-network-generator udisks2
enabled-runtime systemd-remount-fs
disabled chrony-wait console-getty cpupower debug-shell kvm_stat man-db-restart-cache-update
nftables rdisc rsh rshm-facts rpmdb-rebuild serial-getty@ sshd-keygen@
systemd-boot-check-no-failures systemd-pstore systemd-sysext
indirect ssd-autofs ssd-kcm ssd-ns ssd-pac ssd-pam ssd-ssh ssd-sudo

14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd1,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
root=UUID=d531e150-0015-45b7-86fe-77ec5632fb82
ro
resume=UUID=fd7d4f1b-2763-4897-8297-b8f9fd0825e6

15. cpupower frequency-info
analyzing CPU 0:
current policy: frequency should be within 1.20 GHz and 3.00 GHz.
The governor "performance" may decide which speed to use
within this range.
boost state support:
Supported: yes
Active: yes

16. sysctl
kernel.numa_balancing 1
kernel.randomize_va_space 2
vm.compaction_proactiveness 20
vm.dirty_background_bytes 0
vm.dirty_background_ratio 10
vm.dirty_bytes 0
vm.dirty_expire_centisecs 3000
vm.dirty_ratio 20
vm.dirty_writeback_centisecs 500
vm.dirtytime_expire_seconds 43200
vm.extfrag_threshold 500
vm.min_unmapped_ratio 1
vm.nr_hugepages 0
vm.nr_hugepages_mempolicy 0
vm.nr_overcommit_hugepages 0
vm.swappiness 60
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode 0

17. /sys/kernel/mm/transparent_hugepage

(Continued on next page)
Platform Notes (Continued)

```
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
```
SPEC is set to: /home/cpu2017
Filesystem     Type  Size  Used  Avail  Use% Mounted on
/dev/sda5      xfs   763G   23G  741G   3% /home
```

21. /sys/devices/virtual/dmi/id
```
Vendor:         HP
Product:        ProLiant DL380 Gen9
Product Family: ProLiant
Serial:         USE63487A0
```

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:
  8x HP 809081-081 16 GB 2 rank 2400, configured at 2133
```

23. BIOS
```
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:     HP
BIOS Version:    P89
BIOS Date:       01/12/2023
BIOS Revision:   3.0
Firmware Revision: 2.70
```

Compiler Version Notes
```
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)
```
### SPEC CPU®2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL380 Gen9  
(2.10 GHz, Intel Xeon E5-2620 v4)

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 80.4</th>
</tr>
</thead>
</table>

**SPECrate®2017_int_peak = Not Run**

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<th>Test Date:</th>
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<tr>
<td>Hardware Availability:</td>
<td>Feb-2023</td>
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<td>Software Availability:</td>
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<th>CPU2017 License:</th>
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<td>Test Sponsor:</td>
<td>HPE</td>
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<td>Tested by:</td>
<td>HPE</td>
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</table>

#### Compiler Version Notes (Continued)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
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**C++**

| 520.omnetpp_r(base) | 523.xalancbmk_r(base) | 531.deepsjeng_r(base) | 541.leela_r(base) |

---

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
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**Fortran**

| 548.exchange2_r(base) |

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#### Base Compiler Invocation

**C benchmarks:**

icx

**C++ benchmarks:**

icpx

**Fortran benchmarks:**

ifx

#### Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64  
502.gcc_r: -DSPEC_LP64  
505.mcf_r: -DSPEC_LP64  
520.omnetpp_r: -DSPEC_LP64  
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX  
525.x264_r: -DSPEC_LP64  
531.deepsjeng_r: -DSPEC_LP64  
541.leela_r: -DSPEC_LP64  
548.exchange2_r: -DSPEC_LP64  
557.xz_r: -DSPEC_LP64
### SPEC CPU®2017 Integer Rate Result

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<td></td>
</tr>
</tbody>
</table>

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#### Base Optimization Flags

C benchmarks:
- `-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto`
- `-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

C++ benchmarks:
- `-w -std=c++14 -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math`
- `-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

Fortran benchmarks:
- `-w -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto`
- `-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs -align array32byte -auto`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

The flags files that were used to format this result can be browsed at:
- [http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html](http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html)

You can also download the XML flags sources by saving the following links:
- [http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.1-HSW-revB.xml](http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.1-HSW-revB.xml)
- [http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml](http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml)