



# SPEC CPU®2017 Integer Speed Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL380 Gen11

(2.10 GHz, Intel Xeon Gold 6430)

SPECspeed®2017\_int\_base = 12.9

SPECspeed®2017\_int\_peak = 13.1

CPU2017 License: 3

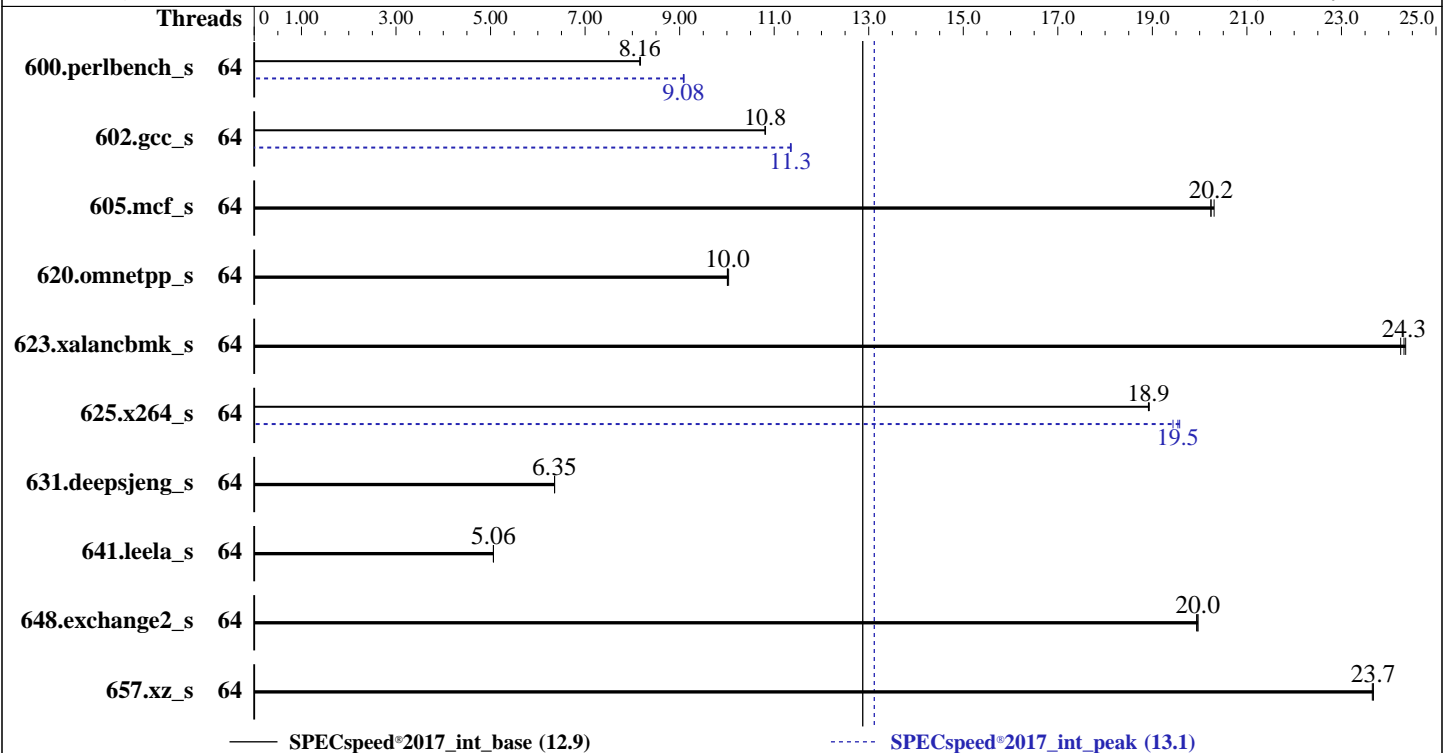
Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022



### Hardware

CPU Name: Intel Xeon Gold 6430  
 Max MHz: 3400  
 Nominal: 2100  
 Enabled: 64 cores, 2 chips  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 60 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R, running at 4400)  
 Storage: 1 x 400 GB SATA SSD  
 Other: None

### Software

OS: Red Hat Enterprise Linux release 9.0 (Plow)  
 Kernel 5.14.0-70.13.1.el9\_0.x86\_64  
 Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux;  
 Fortran: Version 2022.1 of Intel Fortran Compiler for Linux  
 Parallel: Yes  
 Firmware: HPE BIOS Version v1.22 01/18/2023 released Jan-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



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## Results Table

| Benchmark       | Base    |            |             |             |             |         |       | Peak    |            |             |             |             |            |             |
|-----------------|---------|------------|-------------|-------------|-------------|---------|-------|---------|------------|-------------|-------------|-------------|------------|-------------|
|                 | Threads | Seconds    | Ratio       | Seconds     | Ratio       | Seconds | Ratio | Threads | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       |
| 600.perlbench_s | 64      | <b>218</b> | <b>8.16</b> | 218         | 8.16        | 217     | 8.17  | 64      | 195        | 9.09        | 196         | 9.08        | <b>195</b> | <b>9.08</b> |
| 602.gcc_s       | 64      | 368        | 10.8        | <b>368</b>  | <b>10.8</b> | 368     | 10.8  | 64      | <b>351</b> | <b>11.3</b> | 351         | 11.3        | 351        | 11.4        |
| 605.mcf_s       | 64      | 232        | 20.3        | <b>233</b>  | <b>20.2</b> | 233     | 20.2  | 64      | 232        | 20.3        | <b>233</b>  | <b>20.2</b> | 233        | 20.2        |
| 620.omnetpp_s   | 64      | 163        | 10.0        | <b>163</b>  | <b>10.0</b> | 163     | 10.0  | 64      | 163        | 10.0        | <b>163</b>  | <b>10.0</b> | 163        | 10.0        |
| 623.xalanbmk_s  | 64      | 58.2       | 24.4        | <b>58.3</b> | <b>24.3</b> | 58.4    | 24.3  | 64      | 58.2       | 24.4        | <b>58.3</b> | <b>24.3</b> | 58.4       | 24.3        |
| 625.x264_s      | 64      | 93.2       | 18.9        | <b>93.2</b> | <b>18.9</b> | 93.2    | 18.9  | 64      | 90.8       | 19.4        | <b>90.3</b> | <b>19.5</b> | 90.1       | 19.6        |
| 631.deepsjeng_s | 64      | <b>226</b> | <b>6.35</b> | 225         | 6.36        | 226     | 6.35  | 64      | <b>226</b> | <b>6.35</b> | 225         | 6.36        | 226        | 6.35        |
| 641.leela_s     | 64      | <b>337</b> | <b>5.06</b> | 337         | 5.06        | 337     | 5.06  | 64      | <b>337</b> | <b>5.06</b> | 337         | 5.06        | 337        | 5.06        |
| 648.exchange2_s | 64      | 147        | 20.0        | <b>147</b>  | <b>20.0</b> | 147     | 19.9  | 64      | 147        | 20.0        | <b>147</b>  | <b>20.0</b> | 147        | 19.9        |
| 657.xz_s        | 64      | <b>261</b> | <b>23.7</b> | 261         | 23.7        | 261     | 23.7  | 64      | <b>261</b> | <b>23.7</b> | 261         | 23.7        | 261        | 23.7        |

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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.xalanbmk\_r / 623.xalanbmk\_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](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

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
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 Accelerator-Performance using "tuned-adm profile accelerator-performance"
```



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## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/home/cpu2017\_19/lib/intel64:/home/cpu2017\_19/je5.0.1-64"  
MALLOC\_CONF = "retain:true"  
OMP\_STACKSIZE = "192M"

## 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 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 0x2b000161 for the Intel Xeon Gold 6430 processor.

BIOS Configuration:

Workload Profile set to General Peak Frequency Compute  
Thermal Configuration set to Maximum Cooling  
Intel Hyper-Threading set to Disabled  
Memory Patrol Scrubbing set to Disabled  
Last Level Cache (LLC) Prefetch set to Enabled  
Last Level Cache (LLC) Dead Line Allocation set to Disabled  
Enhanced Processor Performance Profile set to Aggressive  
Dead Block Predictor set to Enabled  
Sub-NUMA Clustering set to Enabled SNC2(2-clusters)  
Workload Profile set to Custom  
Adjacent Sector Prefetch set to Disabled  
Minimum Processor Idle Power Package C-State set to No Package State

Sysinfo program /home/cpu2017\_19/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost.localdomain Mon Feb 13 04:29:00 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

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## Platform Notes (Continued)

- 11. Systemd service manager version: systemd 250 (250-6.e19\_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

```
-----
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
 04:29:00 up 0 min,  0 users,  load average: 0.19, 0.07, 0.02
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) 4127214
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) 4127214
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/intspeed.sh
runcpu --nobuild --action validate --define default-platform-flags -c
ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=64 --tune base,peak -o all --define
intspeedaffinity --define drop_caches intspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
-----
```

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## Platform Notes (Continued)

```
ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=64 --tune base,peak --output_format all
--define intspeedaffinity --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed
intspeed --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.intspeed.001.0.log
--lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017_19
```

```
-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Gold 6430
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 6
microcode      : 0x2b000161
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores     : 32
siblings       : 32
2 physical ids (chips)
64 processors (hardware threads)
physical id 0: core ids 0-31
physical id 1: core ids 0-31
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
80,182,184,186,188,190
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):                64
On-line CPU(s) list:  0-63
Vendor ID:             GenuineIntel
BIOS Vendor ID:       Intel(R) Corporation
Model name:            Intel(R) Xeon(R) Gold 6430
BIOS Model name:      Intel(R) Xeon(R) Gold 6430
CPU family:            6
Model:                 143
Thread(s) per core:    1
Core(s) per socket:    32
Socket(s):             2
Stepping:              6
BogoMIPS:              3800.00
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 peps 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
```

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## Platform Notes (Continued)

```
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 amx_tile flush_lld arch_capabilities
```

```
Virtualization: VT-x
L1d cache: 3 MiB (64 instances)
L1i cache: 2 MiB (64 instances)
L2 cache: 128 MiB (64 instances)
L3 cache: 120 MiB (2 instances)
NUMA node(s): 4
NUMA node0 CPU(s): 0-7,32-39
NUMA node1 CPU(s): 8-15,40-47
NUMA node2 CPU(s): 16-23,48-55
NUMA node3 CPU(s): 24-31,56-63
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
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      | 3M       | 12   | Data        | 1     | 64    | 1        | 64             |
| L1i  | 32K      | 2M       | 8    | Instruction | 1     | 64    | 1        | 64             |
| L2   | 2M       | 128M     | 16   | Unified     | 2     | 2048  | 1        | 64             |
| L3   | 60M      | 120M     | 15   | Unified     | 3     | 65536 | 1        | 64             |

8. numactl --hardware

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

```
available: 4 nodes (0-3)
node 0 cpus: 0-7,32-39
node 0 size: 257720 MB
node 0 free: 256941 MB
node 1 cpus: 8-15,40-47
node 1 size: 258044 MB
node 1 free: 257522 MB
node 2 cpus: 16-23,48-55
node 2 size: 258044 MB
node 2 free: 257436 MB
node 3 cpus: 24-31,56-63
node 3 size: 258033 MB
node 3 free: 257582 MB
node distances:
node 0 1 2 3
0: 10 20 30 30
1: 20 10 30 30
2: 30 30 10 20
3: 30 30 20 10
```

9. /proc/meminfo

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## Platform Notes (Continued)

MemTotal: 1056607468 kB

-----  
10. who -r  
run-level 3 Feb 13 04:28

-----  
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  
dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode  
nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd  
systemd-network-generator tuned udisks2 upower  
enabled-runtime systemd-remount-fs  
disabled blk-availability canberra-system-bootup canberra-system-shutdown  
canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell  
hwloc-dump-hwdata ipsec kvm\_stat man-db-restart-cache-update nftables powertop rdisc rhsm  
rhsm-facts rpmdm-rebuild serial-getty@ sshd-keygen@ systemd-boot-check-no-failures  
systemd-pstore systemd-sysex  
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  
analyzing CPU 0:  
Unable to determine current policy  
boost state support:  
Supported: yes  
Active: yes

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

-----  
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 40  
vm.dirty\_writeback\_centisecs 500  
vm.dirtytime\_expire\_seconds 43200  
vm.extfrag\_threshold 500

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## Platform Notes (Continued)

```

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_19
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   372G 361G  11G  98% /home

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:      HPE
Product:     ProLiant DL380 Gen11
Product Family: ProLiant
Serial:      CNX21000G8

```

```

-----
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:
  16x Hynix HMC94AEBRA103N 64 GB 2 rank 4800, configured at 4400

```

```

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      HPE

```

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# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.10 GHz, Intel Xeon Gold 6430)

SPECspeed®2017\_int\_base = 12.9

SPECspeed®2017\_int\_peak = 13.1

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

## Platform Notes (Continued)

BIOS Version: 1.22  
BIOS Date: 01/18/2023  
BIOS Revision: 1.22  
Firmware Revision: 1.10

## Compiler Version Notes

-----  
C | 600.perlbench\_s(base, peak) 602.gcc\_s(base, peak) 605.mcf\_s(base, peak) 625.x264\_s(base, peak)  
| 657.xz\_s(base, peak)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316  
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-----  
C++ | 620.omnetpp\_s(base, peak) 623.xalancbmk\_s(base, peak) 631.deepsjeng\_s(base, peak)  
| 641.leela\_s(base, peak)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316  
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-----  
Fortran | 648.exchange2\_s(base, peak)  
-----

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316  
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## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Base Portability Flags

600.perlbench\_s: -DSPEC\_LP64 -DSPEC\_LINUX\_X64  
602.gcc\_s: -DSPEC\_LP64  
605.mcf\_s: -DSPEC\_LP64  
620.omnetpp\_s: -DSPEC\_LP64  
623.xalancbmk\_s: -DSPEC\_LP64 -DSPEC\_LINUX

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## Base Portability Flags (Continued)

625.x264\_s: -DSPEC\_LP64  
631.deepsjeng\_s: -DSPEC\_LP64  
641.leela\_s: -DSPEC\_LP64  
648.exchange2\_s: -DSPEC\_LP64  
657.xz\_s: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp  
-DSPEC\_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:

-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:

-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-nostandard-realloc-lhs -align array32byte  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Peak Portability Flags

Same as Base Portability Flags



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SPECspeed®2017\_int\_peak = 13.1

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Feb-2023

**Hardware Availability:** Jan-2023

**Software Availability:** May-2022

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX512 -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-strict-overflow -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

```
602.gcc_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX512 -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

605.mcf\_s: basepeak = yes

```
625.x264_s: -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

623.xalancbmk\_s: basepeak = yes

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: 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-rev1.1.html>

[http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64\\_revA.html](http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.html)

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev1.1.xml>

[http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64\\_revA.xml](http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.xml)



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