



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL110 Gen11

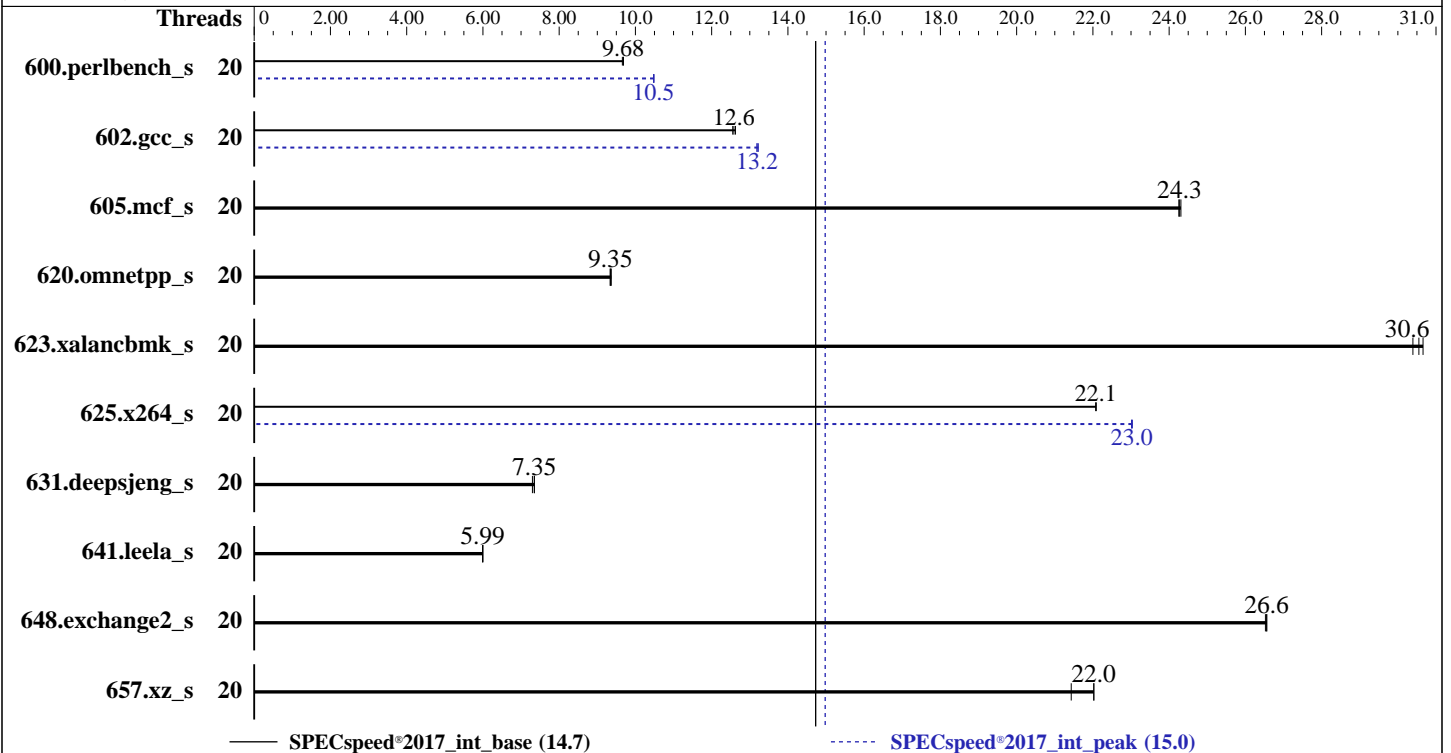
(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

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 Gold 5423N  
 Max MHz: 4000  
 Nominal: 2100  
 Enabled: 20 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: 37.5 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: Yes  
 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 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

**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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	20	184	9.66	183	9.69	<b>183</b>	<b>9.68</b>	20	169	10.5	<b>169</b>	<b>10.5</b>	169	10.5
602.gcc_s	20	315	12.6	<b>316</b>	<b>12.6</b>	317	12.6	20	301	13.2	302	13.2	<b>302</b>	<b>13.2</b>
605.mcf_s	20	194	24.3	<b>194</b>	<b>24.3</b>	195	24.3	20	194	24.3	<b>194</b>	<b>24.3</b>	195	24.3
620.omnetpp_s	20	174	9.37	<b>175</b>	<b>9.35</b>	175	9.34	20	174	9.37	<b>175</b>	<b>9.35</b>	175	9.34
623.xalancbmk_s	20	<b>46.4</b>	<b>30.6</b>	46.6	30.4	46.2	30.7	20	<b>46.4</b>	<b>30.6</b>	46.6	30.4	46.2	30.7
625.x264_s	20	79.9	22.1	<b>79.9</b>	<b>22.1</b>	79.9	22.1	20	76.7	23.0	76.6	23.0	<b>76.6</b>	<b>23.0</b>
631.deepsjeng_s	20	<b>195</b>	<b>7.35</b>	196	7.30	195	7.35	20	<b>195</b>	<b>7.35</b>	196	7.30	195	7.35
641.leela_s	20	284	6.00	<b>285</b>	<b>5.99</b>	285	5.99	20	284	6.00	<b>285</b>	<b>5.99</b>	285	5.99
648.exchange2_s	20	111	26.6	111	26.5	<b>111</b>	<b>26.6</b>	20	111	26.6	111	26.5	<b>111</b>	<b>26.6</b>
657.xz_s	20	<b>281</b>	<b>22.0</b>	288	21.4	281	22.0	20	<b>281</b>	<b>22.0</b>	288	21.4	281	22.0

SPECspeed®2017\_int\_base = **14.7**

SPECspeed®2017\_int\_peak = **15.0**

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.xalancbmk\_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.

## 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
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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
```



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Redhat Enterprise Linux 8.0

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.

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 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/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost.localdomain Tue Sep 19 12:48:37 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

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

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

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

## Platform Notes (Continued)

22. dmidecode  
23. BIOS

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  
12:48:37 up 2 min, 0 users, load average: 0.01, 0.00, 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) 1030602  
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) 1030602  
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  
ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=20 --tune base,peak -o all --define  
intspeedaffinity --define drop\_caches intspeed  
runcpu --nobuild --action validate --define default-platform-flags --configfile  
ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=20 --tune base,peak --output\_format all  
--define intspeeraffinity --define drop\_caches --nopower --runmode speed --tune base:peak --size refspeer  
intspeer --nopreenv --note-preenv --logfile \$SPEC/tmp/CPU2017.003/templogs/preenv.intspeer.003.0.log  
--lognum 003.0 --from\_runcpu 2  
specperl \$SPEC/bin/sysinfo 2  
\$SPEC = /home/cpu2017

6. /proc/cpuinfo  
model name : Intel(R) Xeon? Gold 5423N  
vendor\_id : GenuineIntel

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

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

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

## Platform Notes (Continued)

```
cpu family      : 6
model           : 143
stepping        : 8
microcode       : 0x2b0004b1
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores       : 20
siblings        : 20
1 physical ids (chips)
20 processors (hardware threads)
physical id 0: core ids 0-19
physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38
```

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):                 20
On-line CPU(s) list:   0-19
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:    1
Core(s) per socket:    20
Socket(s):              1
Stepping:               8
BogoMIPS:               4200.00
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:             960 KiB (20 instances)
L1i cache:             640 KiB (20 instances)
L2 cache:              40 MiB (20 instances)
L3 cache:              37.5 MiB (1 instance)
NUMA node(s):         2
NUMA node0 CPU(s):    0-4,10-14
NUMA node1 CPU(s):    5-9,15-19
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL110 Gen11

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

**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 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	960K	12	Data	1	64	1	64
L1i	32K	640K	8	Instruction	1	64	1	64
L2	2M	40M	16	Unified	2	2048	1	64
L3	37.5M	37.5M	15	Unified	3	40960	1	64

8. numactl --hardware

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

```

available: 2 nodes (0-1)
node 0 cpus: 0-4,10-14
node 0 size: 128679 MB
node 0 free: 128164 MB
node 1 cpus: 5-9,15-19
node 1 size: 129010 MB
node 1 free: 128240 MB
node distances:
node  0  1
  0:  10  20
  1:  20  10

```

9. /proc/meminfo

MemTotal: 263874892 kB

10. who -r

run-level 3 Sep 19 12:46

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
enabled-runtime	systemd-remount-fs
disabled	blk-availability chrony-wait console-getty cpupower debug-shell hwloc-dump-hwdata kvm_stat man-db-restart-cache-update nftables powertop rdisc rhsm rhsm-facts rpmdb-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

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Sep-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Dec-2022

## Platform Notes (Continued)

```

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: throughput-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
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

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

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

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

## Platform Notes (Continued)

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

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

```
=====  
Fortran | 648.exchange2_s(base, peak)  
=====
```

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

**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) 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

## 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  
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 -xsapphirerapids -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 -std=c++14 -Wl,-z,muldefs -xsapphirerapids -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 -xsapphirerapids -O3 -ffast-math -flto

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL110 Gen11**

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

**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)

Fortran benchmarks (continued):

```
-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

## 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-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-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-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-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

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL110 Gen11

(2.10 GHz, Intel Xeon Gold 5423N)

SPECspeed®2017\_int\_base = 14.7

SPECspeed®2017\_int\_peak = 15.0

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)

```
625.x264_s: -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -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-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 and SPECspeed 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 2023-09-19 03:18:36-0400.

Report generated on 2024-01-29 18:11:01 by CPU2017 PDF formatter v6716.

Originally published on 2023-10-10.