



# SPEC® CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL380 Gen10

(2.50 GHz, Intel Xeon Silver 4215)

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

CPU2017 License: 3

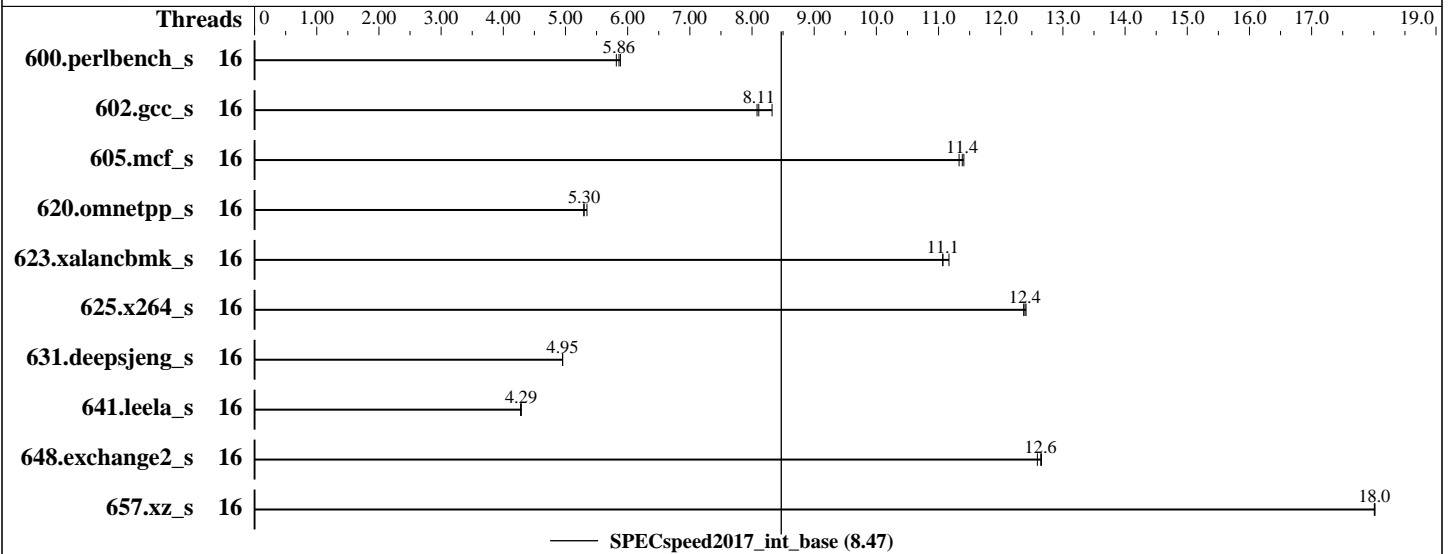
Test Sponsor: HPE

Tested by: HPE

Test Date: Apr-2019

Hardware Availability: Apr-2019

Software Availability: Feb-2019



### Hardware

CPU Name: Intel Xeon Silver 4215  
 Max MHz.: 3500  
 Nominal: 2500  
 Enabled: 16 cores, 2 chips  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 11 MB I+D on chip per chip  
 Other: None  
 Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2400)  
 Storage: 1 x 960 GB SATA SSD, RAID 0  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 (x86\_64)  
 Kernel 4.12.14-23-default  
 Compiler: C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux;  
 Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux;  
 Parallel: Yes  
 Firmware: HPE BIOS Version U30 02/02/2019 released Apr-2019  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: jemalloc memory allocator V5.0.1



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL380 Gen10

(2.50 GHz, Intel Xeon Silver 4215)

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

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

Test Date: Apr-2019  
Hardware Availability: Apr-2019  
Software Availability: Feb-2019

## Results Table

| Benchmark       | Base    |            |             |            |             |            |             | Peak    |         |       |         |       |         |       |
|-----------------|---------|------------|-------------|------------|-------------|------------|-------------|---------|---------|-------|---------|-------|---------|-------|
|                 | Threads | Seconds    | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 600.perlbench_s | 16      | <b>303</b> | <b>5.86</b> | 305        | 5.82        | 302        | 5.88        |         |         |       |         |       |         |       |
| 602.gcc_s       | 16      | 493        | 8.08        | 478        | 8.32        | <b>491</b> | <b>8.11</b> |         |         |       |         |       |         |       |
| 605.mcf_s       | 16      | 417        | 11.3        | 414        | 11.4        | <b>415</b> | <b>11.4</b> |         |         |       |         |       |         |       |
| 620.omnetpp_s   | 16      | <b>308</b> | <b>5.30</b> | 305        | 5.35        | 308        | 5.29        |         |         |       |         |       |         |       |
| 623.xalancbmk_s | 16      | <b>128</b> | <b>11.1</b> | 128        | 11.1        | 127        | 11.2        |         |         |       |         |       |         |       |
| 625.x264_s      | 16      | 143        | 12.4        | <b>142</b> | <b>12.4</b> | 142        | 12.4        |         |         |       |         |       |         |       |
| 631.deepsjeng_s | 16      | <b>289</b> | <b>4.95</b> | 289        | 4.96        | 289        | 4.95        |         |         |       |         |       |         |       |
| 641.leela_s     | 16      | 399        | 4.28        | <b>398</b> | <b>4.29</b> | 398        | 4.29        |         |         |       |         |       |         |       |
| 648.exchange2_s | 16      | <b>233</b> | <b>12.6</b> | 232        | 12.7        | 234        | 12.6        |         |         |       |         |       |         |       |
| 657.xz_s        | 16      | 343        | 18.0        | 343        | 18.0        | <b>343</b> | <b>18.0</b> |         |         |       |         |       |         |       |

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

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

## 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

## General Notes

Environment variables set by runcpu before the start of the run:  
KMP\_AFFINITY = "granularity=fine,compact"  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:  
/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"  
OMP\_STACKSIZE = "192M"  
Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM  
memory using Redhat Enterprise Linux 7.5  
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>



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL380 Gen10**

(2.50 GHz, Intel Xeon Silver 4215)

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Apr-2019

**Hardware Availability:** Apr-2019

**Software Availability:** Feb-2019

## Platform Notes

BIOS Configuration:

Hyper-Threading set to Disabled  
 Thermal Configuration set to Maximum Cooling  
 Memory Patrol Scrubbing set to Disabled  
 LLC Prefetch set to Enabled  
 LLC Dead Line Allocation set to Disabled  
 Enhanced Processor Performance set to Enabled  
 Workload Profile set to General Peak Frequency Compute  
 Minimum Processor Idle Power Core C-State set to C1E State  
 Energy/Performance Bias set to Balanced Power  
 Workload Profile set to Custom  
 Numa Group Size Optimization set to Flat  
 Sysinfo program /home/cpu2017\_B0/bin/sysinfo  
 Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
 running on linux-9mbf Thu Apr 25 15:59:05 2019

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

For more information on this section, see

<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

```

model name : Intel(R) Xeon(R) Silver 4215 CPU @ 2.50GHz
 2 "physical id"s (chips)
 16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following
excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores : 8
  siblings  : 8
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7

```

From lscpu:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
CPU(s):                 16
On-line CPU(s) list:   0-15
Thread(s) per core:    1
Core(s) per socket:    8
Socket(s):              2
NUMA node(s):          2
Vendor ID:              GenuineIntel
CPU family:             6
Model:                  85
Model name:             Intel(R) Xeon(R) Silver 4215 CPU @ 2.50GHz
Stepping:               6
CPU MHz:                2500.000

```

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

**ProLiant DL380 Gen10**

(2.50 GHz, Intel Xeon Silver 4215)

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

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

**Test Date:** Apr-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Feb-2019

## Platform Notes (Continued)

BogoMIPS: 5000.00  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K  
L3 cache: 11264K  
NUMA node0 CPU(s): 0-7  
NUMA node1 CPU(s): 8-15

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 cdp\_l3 invpcid\_single intel\_ppin mba tpr\_shadow vnmi flexpriority ept vpid fsgsbase tsc\_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt\_a avx512f avx512dq rdseed adx smap clflushopt clwb intel\_pt avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm\_llc cqm\_occup\_llc cqm\_mbm\_total cqm\_mbm\_local ibpb ibrs stibp dtherm ida arat pln pts pku ospke avx512\_vnni arch\_capabilities ssbd

```
/proc/cpuinfo cache data
cache size : 11264 KB
```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

```
available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7
node 0 size: 193049 MB
node 0 free: 192495 MB
node 1 cpus: 8 9 10 11 12 13 14 15
node 1 size: 193307 MB
node 1 free: 193100 MB
node distances:
node  0  1
0:  10  21
1:  21  10
```

```
From /proc/meminfo
MemTotal: 395629832 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15"
VERSION_ID="15"
```

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL380 Gen10

(2.50 GHz, Intel Xeon Silver 4215)

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

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

Test Date: Apr-2019  
Hardware Availability: Apr-2019  
Software Availability: Feb-2019

## Platform Notes (Continued)

```
PRETTY_NAME="SUSE Linux Enterprise Server 15"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="/o:suse:sles:15"
```

```
uname -a:
Linux linux-9mbf 4.12.14-23-default #1 SMP Tue May 29 21:04:44 UTC 2018 (cd0437b)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

```
CVE-2017-5754 (Meltdown): Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Indirect Branch Restricted Speculation,
IBPB, IBRS_FW
```

```
run-level 3 Apr 25 15:57
```

```
SPEC is set to: /home/cpu2017_B0
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb4 xfs 436G 313G 124G 72% /home
```

Additional information from dmidecode 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.

```
BIOS HPE U30 02/02/2019
Memory:
24x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666, configured at 2400
```

(End of data from sysinfo program)

## Compiler Version Notes

```
=====  
CC 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base)  
657.xz_s(base)  
-----
```

```
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.  
-----
```

```
=====  
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)  
-----
```

(Continued on next page)



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL380 Gen10

(2.50 GHz, Intel Xeon Silver 4215)

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Apr-2019

Hardware Availability: Apr-2019

Software Availability: Feb-2019

## Compiler Version Notes (Continued)

641.leela\_s(base)

-----  
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.  
-----

=====  
FC 648.exchange2\_s(base)

-----  
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
64, Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.  
-----

## Base Compiler Invocation

C benchmarks:

icc -m64 -std=c11

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

## 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



# SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL380 Gen10

(2.50 GHz, Intel Xeon Silver 4215)

SPECspeed2017\_int\_base = 8.47

SPECspeed2017\_int\_peak = Not Run

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Apr-2019

**Hardware Availability:** Apr-2019

**Software Availability:** Feb-2019

## Base Optimization Flags

C benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

C++ benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc
```

Fortran benchmarks:

```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs
```

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-CLX-revA.html>

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.html>

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-CLX-revA.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.xml>

SPEC is a registered trademark 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 CPU2017 v1.0.5 on 2019-04-25 15:59:04-0400.

Report generated on 2019-05-30 13:35:41 by CPU2017 PDF formatter v6067.

Originally published on 2019-05-30.