# SPEC CPU® 2017 Integer Speed Result

## Hardware

**CPU Name:** Intel Xeon Platinum 8156  
**Max MHz:** 3700  
**Nominal:** 3600  
**Enabled:** 8 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:** 16.5 MB I+D on chip per chip  
**Other:** None  
**Memory:** 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)  
**Storage:** 1 x 960 GB SATA SSD, RAID 0  
**Other:** None

## Software

**Operating System:** Red Hat Enterprise Linux Server release 7.3 (Maipo), Kernel 3.10.0-514.6.1.el7.x86_64  
**Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux  
**Parallel:** Yes  
**Firmware:** HPE BIOS Version U30 released Oct-2017 (tested with U30 9/29/2017)  
**File System:** xfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** jemalloc: jemalloc memory allocator library V5.0.1; jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets; jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5; jemalloc: sources available from jemalloc.net or releases  
**Power Management:** --

## Test

**CPU2017 License:** 3  
**Test Sponsor:** HPE  
**Tested by:** HPE  
**Test Date:** Oct-2017  
**Hardware Availability:** Oct-2017  
**Software Availability:** Sep-2017

## SPECspeed® 2017 Int Base

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<tr>
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<th>SPECspeed®2017_int_peak</th>
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### Threads

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<td>623.xalancbmk_s</td>
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<td>631.deepsjeng_s</td>
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<td>657.xz_s</td>
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**SPECspeed®2017_int_base (8.17)**

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**600.perlbench_s**

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**602.gcc_s**

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**605.mcf_s**

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**620.omnetpp_s**

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**623.xalancbmk_s**

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**625.x264_s**

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**631.deepsjeng_s**

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**648.exchange2_s**

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SPEC CPU®2017 Integer Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.60 GHz, Intel Xeon Platinum 8156)

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

Results Table

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</table>

SPECspeed®2017_int_base = 8.17
SPECspeed®2017_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
Filesystem page cache cleared with:
  shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
irqbalance disabled with "systemctl stop irqbalance"
tuned profile wth "tuned-adm profile throughput-performance"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/spec2017/lib/ia32:/spec2017/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/spec2017/je5.0.1-32:/spec2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4

Platform Notes

BIOS Configuration:
  Intel Hyperthreading set to Disabled
Thermal Configuration set to Maximum Cooling
Memory Patrol Scrubbing set to Disabled
LLC Prefetcher set to Enabled
LLC Dead Line Allocation set to Disabled
Workload Profile set to General Peak Frequency Compute

(Continued on next page)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.60 GHz, Intel Xeon Platinum 8156)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_peak</th>
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Test Date: Oct-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

Platform Notes (Continued)

Energy/Performance Bias set to Maximum Performance
Uncore Frequency Scaling set to Auto
Workload Profile set to General Peak Frequency Compute
NUMA Group Size Optimization set to Flat

Sysinfo program /spec2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on s1-DL380-RHEL73U Mon Oct 9 15:17:46 2017

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) Platinum 8156 CPU @ 3.60GHz
  2 "physical id"s (chips)
     8 "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 : 4
siblings : 4
physical 0: cores 1 5 9 13
physical 1: cores 1 2 5 11
```

From lscpu:
```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                8
On-line CPU(s) list:   0-7
Thread(s) per core:    1
Core(s) per socket:    4
Socket(s):             2
NUMA node(s):          2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Platinum 8156 CPU @ 3.60GHz
Stepping:              4
CPU MHz:               3600.000
BogoMIPS:              7207.19
Virtualization:        VT-x
L1d cache:             32K
L1i cache:             32K
L2 cache:              1024K
L3 cache:              16896K
NUMA node0 CPU(s):     0-3
```
**SPEC CPU®2017 Integer Speed Result**

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(3.60 GHz, Intel Xeon Platinum 8156)

<table>
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Test Date: Oct-2017  
Hardware Availability: Oct-2017  
Software Availability: Sep-2017

### Platform Notes (Continued)

```plaintext
NUMA node1 CPU(s):  4-7

/proc/cpuinfo cache data
  cache size: 16896 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
  node 0 size: 97964 MB
  node 0 free: 94470 MB
  node 1 cpus: 4 5 6 7
  node 1 size: 98303 MB
  node 1 free: 95753 MB
  node distances:
    node 0 1
    0: 10 21
    1: 21 10

From /proc/meminfo
  MemTotal: 197575884 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux Server"
    VERSION="7.3 (Maipo)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="7.3"
    PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
    ANSI_COLOR="0;31"
    CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
  redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
  system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)

uname -a:
  Linux s1-DL380-RHEL73U 3.10.0-514.6.1.el7.x86_64 #1 SMP Sat Dec 10 11:15:38 EST 2016
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 9 10:57

SPEC is set to: /spec2017

Filesystem     Type   Size  Used  Avail  Use%  Mounted on
/dev/sdb4      xfs   889G  28G   862G   4%  /
```

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

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 09/29/2017
Memory:
24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666

(End of data from sysinfo program)

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**Compiler Version Notes**

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<tr>
<th>C</th>
<th>600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(base)</th>
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<td>Copyright (C) 1985–2017 Intel Corporation. All rights reserved.</td>
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**Base Compiler Invocation**

C benchmarks:
icc
C++ benchmarks:
icpc

(Continued on next page)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.60 GHz, Intel Xeon Platinum 8156)

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Base Compiler Invocation (Continued)

Fortran benchmarks:
ifort

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:
- -W1, -z, muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
- -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
- -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
- -W1, -z, muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
- -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
- -W1, -z, muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
- -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
- -L/usr/local/je5.0.1-64/lib -ljemalloc

Base Other Flags

C benchmarks:
- -m64 -std=c11

C++ benchmarks:
- -m64

(Continued on next page)
### SPEC CPU®2017 Integer Speed Result

**Hewlett Packard Enterprise**  
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**Test Date:** Oct-2017  
**Hardware Availability:** Oct-2017  
**Software Availability:** Sep-2017

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### Base Other Flags (Continued)

Fortran benchmarks:  
- `m64`

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-SKX-revD.html](http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.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-SKX-revD.xml](http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.xml)

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.0.2 on 2017-10-09 16:17:45-0400.  
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