# SPEC CPU®2017 Integer Rate Result

## Hewlett Packard Enterprise

**Test Sponsor:** HPE  
**Computer Model:** ProLiant DL380 Gen10  
**CPU Frequency:** 2.40 GHz, Intel Xeon Platinum 8260Y

### SPECrate®2017_int_base = 287

### SPECrate®2017_int_peak = Not Run

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>May-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2017 License:</td>
<td>3</td>
</tr>
<tr>
<td>Tested by:</td>
<td>HPE</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Platinum 8260Y  
- **Max MHz:** 3900  
- **Nominal:** 2400  
- **Enabled:** 48 cores, 2 chips, 2 threads/core  
- **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:** 35.75 MB I+D on chip per chip  
- **Memory:** 768 GB (24 x 32 GB 2Rx8 PC4-2933Y-R)  
- **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:** No  
- **Firmware:** HPE BIOS Version U30 04/18/2019 released Apr-2019  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** Not Applicable  
- **Other:** None

---

### SPECrate®2017_int_base = 287

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>287</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

---

### Copies

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>96</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>96</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>96</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>96</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>96</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>96</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>96</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>96</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>96</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>96</td>
</tr>
</tbody>
</table>

---

### Hardware

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>228</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>231</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>376</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>182</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>309</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>572</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>247</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>236</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>526</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>195</td>
</tr>
</tbody>
</table>

---

### 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:** No
- **Firmware:** HPE BIOS Version U30 04/18/2019 released Apr-2019
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** None

---

**Power Management:** --
SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.40 GHz, Intel Xeon Platinum 8260Y)

Copyright 2017-2019 Standard Performance Evaluation Corporation

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

SPECrate®2017_int_base = 287
SPECrate®2017_int_peak = Not Run

Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Nov-2018

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>96</td>
<td>672</td>
<td>228</td>
<td>670</td>
<td>228</td>
<td>671</td>
<td>228</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>96</td>
<td>588</td>
<td>231</td>
<td>583</td>
<td>233</td>
<td>590</td>
<td>230</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>96</td>
<td>413</td>
<td>376</td>
<td>412</td>
<td>376</td>
<td>412</td>
<td>377</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>96</td>
<td>696</td>
<td>181</td>
<td>692</td>
<td>182</td>
<td>693</td>
<td>182</td>
</tr>
<tr>
<td>523.xalanbmkr_r</td>
<td>96</td>
<td>329</td>
<td>309</td>
<td>328</td>
<td>309</td>
<td>328</td>
<td>310</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>96</td>
<td>294</td>
<td>571</td>
<td>294</td>
<td>572</td>
<td>294</td>
<td>572</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>96</td>
<td>446</td>
<td>247</td>
<td>445</td>
<td>247</td>
<td>447</td>
<td>246</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>96</td>
<td>673</td>
<td>236</td>
<td>677</td>
<td>235</td>
<td>673</td>
<td>236</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>96</td>
<td>478</td>
<td>527</td>
<td>479</td>
<td>526</td>
<td>478</td>
<td>526</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>96</td>
<td>530</td>
<td>196</td>
<td>531</td>
<td>195</td>
<td>531</td>
<td>195</td>
</tr>
</tbody>
</table>

SPECrate®2017_int_base = 287
SPECrate®2017_int_peak = Not Run

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

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>

General Notes

Environment variables set by runcpu before the start of the run:
  LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64"

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)
(Continued on next page)
General Notes (Continued)

is mitigated in the system as tested and documented.

Platform Notes

BIOS Configuration:
- 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 Throughput Compute
- Workload Profile set to Custom
- Energy/Performance Bias set to Balanced Performance

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on dl380-clx-sles15hs Thu May 30 23:09:31 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) Platinum 8260C CPU @ 2.40GHz
  2 "physical id"s (chips)
  96 "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 : 24
siblings : 48
physical 0: cores 0 1 2 3 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
physical 1: cores 0 1 2 3 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Platinum 8260C CPU @ 2.40GHz

(Continued on next page)
Hewlett Packard Enterprise
ProLiant DL380 Gen10
(2.40 GHz, Intel Xeon Platinum 8260Y)

SPECrate®2017_int_base = 287
SPECrate®2017_int_peak = Not Run

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

Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Nov-2018

Platform Notes (Continued)

Stepping: 6
CPU MHz: 2400.000
BogoMIPS: 4800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 36608K
NUMA node0 CPU(s): 0-11,48-59
NUMA node1 CPU(s): 12-23,60-71
NUMA node2 CPU(s): 24-35,72-83
NUMA node3 CPU(s): 36-47,84-95
Flags: fpu vme de pse 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 cpuid
aperfperf 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_pni mba tpr_shadow vnni flexpriority ept
vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erva invpcid rtm cqmx mpx rdt_a
avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
xsaveopt xsavec 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

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
  available: 4 nodes (0-3)
    node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 48 49 50 51 52 53 54 55 56 57 58 59
    node 0 size: 193045 MB
    node 0 free: 192481 MB
    node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23 60 61 62 63 64 65 66 67 68 69 70 71
    node 1 size: 193531 MB
    node 1 free: 193060 MB
    node 2 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 72 73 74 75 76 77 78 79 80 81 82 83
    node 2 size: 193531 MB
    node 2 free: 193327 MB
    node 3 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 84 85 86 87 88 89 90 91 92 93 94 95
    node 3 size: 193303 MB
    node 3 free: 193107 MB
    node distances:
    node 0 1 2 3
      0: 10 21 31
      1: 21 10 31
      2: 31 31 10 21

(Continued on next page)
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(2.40 GHz, Intel Xeon Platinum 8260Y)  

CPU2017 License: 3  
Test Sponsor: HPE  
Test Date: May-2019  
Hardware Availability: Apr-2019  
Tested by: HPE  
Software Availability: Nov-2018  

SPECRate®2017_int_base = 287  
SPECRate®2017_int_peak = Not Run

Platform Notes (Continued)

3: 31 31 21 10

From /proc/meminfo  
MemTotal: 791974140 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*  
os-release:  
NAME="SLES"  
VERSION="15"  
VERSION_ID="15"  
PRETTY_NAME="SUSE Linux Enterprise Server 15"  
ID="sles"  
ID_LIKE="suse"  
ANSI_COLOR="0;32"  
CPE_NAME="cpe:/o:suse:sles:15"

uname -a:  
Linux dl380-clx-sles15hs 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_PW

run-level 3 May 30 23:07

SPEC is set to: /home/cpu2017  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda3 xfs 476G 97G 380G 21% /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 04/18/2019  
Memory:  
24x UNKNOWN NOT AVAILABLE 32 GB 2 rank 2933

(End of data from sysinfo program)

The marketing name for the processor in this result, which appears in the CPU name and hardware model areas, is different from sysinfo because a pre-production processor was used. The pre-production processor differs from the production processor in name only.
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(2.40 GHz, Intel Xeon Platinum 8260Y)  

SPECrater®2017_int_base = 287  
SPECrater®2017_int_peak = Not Run

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

Test Date: May-2019  
Hardware Availability: Apr-2019  
Software Availability: Nov-2018

Compiler Version Notes

==============================================================================
| C    | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)       |
|      | 525.x264_r(base) 557.xz_r(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.  
------------------------------------------------------------------------------

==============================================================================
| C++   | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) |
|       | 541.leela_r(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.  
------------------------------------------------------------------------------

==============================================================================
| Fortran | 548.exchange2_r(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

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64  
502.gcc_r: -DSPEC_LP64  
505.mcf_r: -DSPEC_LP64  
520.omnetpp_r: -DSPEC_LP64
SPEC CPU®2017 Integer Rate Result

Hewlett Packard Enterprise
ProLiant DL380 Gen10
(2.40 GHz, Intel Xeon Platinum 8260Y)

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

SPECrate®2017_int_base = 287
SPECrate®2017_int_peak = Not Run

Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Nov-2018

Base Portability Flags (Continued)

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

Base Optimization Flags

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

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:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc

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-revB.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-revB.xml

SPEC CPU and SPECrate 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.

Tested with SPEC CPU®2017 v1.0.5 on 2019-05-30 23:09:30-0400.
Originally published on 2019-11-04.