## SPEC® CPU2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(3.10 GHz, Intel Xeon Gold 6254)

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon Gold 6254</td>
<td><strong>OS:</strong> SUSE Linux Enterprise Server 15 (x86_64)</td>
</tr>
<tr>
<td><strong>Max MHz.:</strong> 4000</td>
<td><strong>Kernel:</strong> 4.12.14-23-default</td>
</tr>
<tr>
<td><strong>Nominal:</strong> 3100</td>
<td><strong>Compiler:</strong> C/C++: Version 19.0.1.144 of Intel C/C++</td>
</tr>
<tr>
<td><strong>Enabled:</strong> 36 cores, 2 chips, 2 threads/core</td>
<td><strong>Compiler Build:</strong> 20181018 for Linux; Fortran: Version 19.0.1.144 of Intel Fortran</td>
</tr>
<tr>
<td><strong>Orderable:</strong> 1, 2 chip(s)</td>
<td><strong>Parallel:</strong> No</td>
</tr>
<tr>
<td><strong>Cache L1:</strong> 32 KB I + 32 KB D on chip per core</td>
<td><strong>Firmware:</strong> HPE BIOS Version U30 02/02/2019 released Apr-2019</td>
</tr>
<tr>
<td><strong>L2:</strong> 1 MB I+D on chip per core</td>
<td><strong>File System:</strong> btrfs</td>
</tr>
<tr>
<td><strong>L3:</strong> 24.75 MB I+D on chip per chip</td>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>Other:</strong> None</td>
<td><strong>Base Pointers:</strong> 64-bit</td>
</tr>
<tr>
<td><strong>Memory:</strong> 768 GB (24 x 32 GB 2Rx8 PC4-2933Y-R)</td>
<td><strong>Peak Pointers:</strong> Not Applicable</td>
</tr>
<tr>
<td><strong>Storage:</strong> 1 x 960 GB SATA SSD, RAID 0</td>
<td><strong>Other:</strong> None</td>
</tr>
<tr>
<td><strong>Other:</strong> None</td>
<td></td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base = 257**  
**SPECrate2017_int_peak = Not Run**

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

### Hardware

<table>
<thead>
<tr>
<th>Copy</th>
<th>500.perlbench_r</th>
<th>502.gcc_r</th>
<th>505.mcf_r</th>
<th>520.omnetpp_r</th>
<th>523.xalancbmk_r</th>
<th>525.x264_r</th>
<th>531.deepsjeng_r</th>
<th>541.leela_r</th>
<th>548.exchange2_r</th>
<th>557.xz_r</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>205</td>
<td>194</td>
<td>337</td>
<td>155</td>
<td>275</td>
<td>544</td>
<td>227</td>
<td>216</td>
<td>483</td>
<td>168</td>
</tr>
</tbody>
</table>
# SPEC CPU2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(3.10 GHz, Intel Xeon Gold 6254)

**SPECrate2017_int_base = 257**  
**SPECrate2017_int_peak = Not Run**

<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>72</td>
<td>559</td>
<td>205</td>
<td>559</td>
<td>205</td>
<td>557</td>
<td>206</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>72</td>
<td>520</td>
<td>196</td>
<td>525</td>
<td>194</td>
<td>528</td>
<td>193</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>72</td>
<td>344</td>
<td>339</td>
<td>345</td>
<td>337</td>
<td>347</td>
<td>336</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>72</td>
<td>609</td>
<td>155</td>
<td>609</td>
<td>155</td>
<td>609</td>
<td>155</td>
</tr>
<tr>
<td>523.xalanbmk_r</td>
<td>72</td>
<td>276</td>
<td>276</td>
<td>276</td>
<td>275</td>
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<td>72</td>
<td>232</td>
<td>544</td>
<td>231</td>
<td>546</td>
<td>232</td>
<td>543</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>72</td>
<td>364</td>
<td>226</td>
<td>364</td>
<td>227</td>
<td>364</td>
<td>227</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>72</td>
<td>557</td>
<td>214</td>
<td>546</td>
<td>218</td>
<td>553</td>
<td>216</td>
</tr>
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<td>72</td>
<td>390</td>
<td>483</td>
<td>390</td>
<td>483</td>
<td>390</td>
<td>484</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>72</td>
<td>462</td>
<td>168</td>
<td>462</td>
<td>168</td>
<td>462</td>
<td>168</td>
</tr>
</tbody>
</table>

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.:  
umactl --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)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.10 GHz, Intel Xeon Gold 6254)

SPECrate2017_int_base = 257
SPECrate2017_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

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 9bdc08f2999c33d61f64985e45859ea9
running on dl380-clx-sles15hs Tue May 21 04:01:34 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) Gold 6254 CPU @ 3.10GHz
  2. "physical id"s (chips)
  72 "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 : 18
siblings : 36
physical 0: cores 0 1 2 3 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 8 9 10 11 16 17 18 19 20 24 25 26 27

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 72
On-line CPU(s) list: 0-71
Thread(s) per core: 2
Core(s) per socket: 18
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6254 CPU @ 3.10GHz

(Continued on next page)
SPEC CPU2017 Integer Rate Result

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SPECrate2017_int_base = 257
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Platform Notes (Continued)

Stepping: 7
CPU MHz: 3100.000
BogoMIPS: 6200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-8,36-44
NUMA node1 CPU(s): 9-17,45-53
NUMA node2 CPU(s): 18-26,54-62
NUMA node3 CPU(s): 27-35,63-71
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_tcb cpuid
aperfctimer tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3
sdbg fma cx16 xtpr pdcm pclid dca sse4_1 sse4_2 x2apic movbe popcnt
tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault
ebp cat_l3 cdp_l3 invpcid_single intel_p6in mba tpr_shadow vmxiflexpriority ept
vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ibrms invpcid rtm cqm mpx rdt_a
avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
xsaves opt xsaveopt xsavevc xgetbv1 xsaves cqm_llc cqm_occuup_llc cqm_mbb_total
cqm_mbb_local ibpb ibrs stibp dtherm ida arat pln pts pku ospke avx512_vnni arch_capabilities ssbd

/proc/cpuinfo cache data
    cache size : 25344 KB

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 36 37 38 39 40 41 42 43 44
    node 0 size: 193017 MB
    node 0 free: 192519 MB
    node 1 cpus: 9 10 11 12 13 14 15 16 17 45 46 47 48 49 50 51 52 53
    node 1 size: 193532 MB
    node 1 free: 193040 MB
    node 2 cpus: 18 19 20 21 22 23 24 25 26 54 55 56 57 58 59 60 61 62
    node 2 size: 193532 MB
    node 2 free: 193332 MB
    node 3 cpus: 27 28 29 30 31 32 33 34 35 63 64 65 66 67 68 69 70 71
    node 3 size: 193333 MB
    node 3 free: 193135 MB
    node distances:
    node 0 1 2 3
    0: 10 21 31 31
    1: 21 10 31 31
    2: 31 31 10 21

(Continued on next page)
Hewlett Packard Enterprise

ProLiant DL380 Gen10
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<tr>
<th>Test Sponsor:</th>
<th>HPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Nov-2018</td>
</tr>
<tr>
<td>Test Date:</td>
<td>May-2019</td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base = 257**

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<thead>
<tr>
<th>CPU2017 License:</th>
<th>3</th>
</tr>
</thead>
</table>

**Platform Notes (Continued)**

3: 31 31 21 10

From /proc/meminfo

MemTotal: 791978712 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_FW

run-level 3 May 21 03:59

SPEC is set to: /home/cpu2017

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda3</td>
<td>xfs</td>
<td>476G</td>
<td>99G</td>
<td>378G</td>
<td>21%</td>
<td>/home</td>
</tr>
</tbody>
</table>

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 32 GB 2 rank 2933

(End of data from sysinfo program)
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(Test Sponsor: HPE)
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Test Date: May-2019
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Compiler Version Notes

==============================================================================
 CC  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.
------------------------------------------------------------------------------
==============================================================================
 CXXC  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.
------------------------------------------------------------------------------
==============================================================================
 FC  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

(Continued on next page)
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| SPECrate2017_int_base | 257 |

| SPECrate2017_int_peak | Not Run |

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### 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:**

**C++ benchmarks:**

**Fortran benchmarks:**

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

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

Tested with SPEC CPU2017 v1.0.5 on 2019-05-21 04:01:33-0400.

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