### SPEC® CPU2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL580 Gen10  
(2.50 GHz, Intel Xeon Gold 5215M)

<table>
<thead>
<tr>
<th>SPECrate2017_int_base =</th>
<th>239</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_int_peak =</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Gold 5215M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max MHz.:</td>
<td>3400</td>
</tr>
<tr>
<td>Nominal:</td>
<td>2500</td>
</tr>
<tr>
<td>Enabled:</td>
<td>40 cores, 4 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable:</td>
<td>1, 2, 3, 4 chip(s)</td>
</tr>
<tr>
<td>Cache L1:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2:</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3:</td>
<td>13.75 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>768 GB (24 x 32 GB 2Rx4 PC4-2666V-R)</td>
</tr>
<tr>
<td>Storage:</td>
<td>1 x 400 GB SAS SSD, RAID 0</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS:</td>
</tr>
<tr>
<td>Compiler:</td>
</tr>
<tr>
<td>Compiler Build:</td>
</tr>
<tr>
<td>Fortran:</td>
</tr>
<tr>
<td>Compiler Build:</td>
</tr>
<tr>
<td>Parallel:</td>
</tr>
<tr>
<td>Firmware:</td>
</tr>
<tr>
<td>File System:</td>
</tr>
<tr>
<td>System State:</td>
</tr>
<tr>
<td>Base Pointers:</td>
</tr>
<tr>
<td>Peak Pointers:</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

#### SPECrate2017_int_base = 239

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>80</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>80</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>80</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>80</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>80</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>80</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>80</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>80</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>80</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>80</td>
</tr>
</tbody>
</table>

- Hardware Availability: Apr-2019  
- Test Date: Jun-2019  
- Software Availability: Feb-2019
SPEC CPU2017 Integer Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL580 Gen10
(2.50 GHz, Intel Xeon Gold 5215M)

SPECrate2017_int_base = 239
SPECrate2017_int_peak = Not Run

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>80</td>
<td>694</td>
<td>183</td>
<td>693</td>
<td>184</td>
<td>688</td>
<td>185</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>80</td>
<td>604</td>
<td>188</td>
<td>608</td>
<td>186</td>
<td>605</td>
<td>187</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>80</td>
<td>399</td>
<td>324</td>
<td>397</td>
<td>325</td>
<td>397</td>
<td>326</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>80</td>
<td>652</td>
<td>161</td>
<td>652</td>
<td>161</td>
<td>656</td>
<td>160</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>80</td>
<td>301</td>
<td>280</td>
<td>302</td>
<td>280</td>
<td>302</td>
<td>280</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>80</td>
<td>300</td>
<td>467</td>
<td>299</td>
<td>469</td>
<td>300</td>
<td>467</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>80</td>
<td>456</td>
<td>201</td>
<td>456</td>
<td>201</td>
<td>457</td>
<td>200</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>80</td>
<td>703</td>
<td>188</td>
<td>704</td>
<td>188</td>
<td>705</td>
<td>188</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>80</td>
<td>491</td>
<td>427</td>
<td>492</td>
<td>426</td>
<td>492</td>
<td>426</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>80</td>
<td>543</td>
<td>159</td>
<td>545</td>
<td>159</td>
<td>544</td>
<td>159</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.:
numactl --interleave=all runcpu <etc>

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017_u2/lib/ia32:/home/cpu2017_u2/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)
SPEC CPU2017 Integer Rate Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL580 Gen10
(2.50 GHz, Intel Xeon Gold 5215M)

SPECrate2017_int_base = 239
SPECrate2017_int_peak = Not Run

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

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

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_u2/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-sypg Tue Jul 24 06:38:55 2018

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 5215M CPU @ 2.50GHz
 4 "physical id"s (chips)
 80 "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 : 10
siblings : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
physical 2: cores 0 1 2 3 4 8 9 10 11 12
physical 3: cores 0 1 2 3 4 8 9 10 11 12

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 80
On-line CPU(s) list: 0-79
Thread(s) per core: 2
Core(s) per socket: 10
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6

(Continued on next page)
## SPEC CPU2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL580 Gen10  
(2.50 GHz, Intel Xeon Gold 5215M)  

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>3</th>
<th>Test Date:</th>
<th>Jun-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>HPE</td>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Tested by:</td>
<td>HPE</td>
<td>Software Availability:</td>
<td>Feb-2019</td>
</tr>
</tbody>
</table>

**SPECrate2017_int_base = 239**  
**SPECrate2017_int_peak = Not Run**

### Platform Notes (Continued)

- **Model:** 85  
- **Model name:** Intel(R) Xeon(R) Gold 5215M CPU @ 2.50GHz  
- **Stepping:** 6  
- **CPU MHz:** 2500.000  
- **BogoMIPS:** 5000.00  
- **Virtualization:** VT-x  
- **L1d cache:** 32K  
- **L1i cache:** 32K  
- **L2 cache:** 1024K  
- **L3 cache:** 14080K  
- **NUMA node0 CPU(s):** 0-9, 40-49  
- **NUMA node1 CPU(s):** 10-19, 50-59  
- **NUMA node2 CPU(s):** 20-29, 60-69  
- **NUMA node3 CPU(s):** 30-39, 70-79  
- **Flags:** fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdelgb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperf perf 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 ebpx cat_13 cdp_13 invpcid_single intel_ppin mba trp_shadow vnmi flexpriority ept vpid fsqa base tsc_adjust bmi1 hle avx2 smep bmi2  
- **From numactl --hardware WARNING:** a numactl 'node' might or might not correspond to a physical chip.  
- **Cache data:** cache size : 14080 KB  
- **/proc/cpuinfo cache data**  
  - **cache size : 14080 KB**

---

(Continued on next page)
## SPEC CPU2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL580 Gen10  
(2.50 GHz, Intel Xeon Gold 5215M)  

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>239</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test Date</th>
<th>Jun-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Feb-2019</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

```
1:  21  10  21  21  
2:  21  21  10  21  
3:  21  21  21  10  
```

From `/proc/meminfo`

- MemTotal: 792252516 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From `/etc/*release* /etc/*version*`

- 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 linux-sypg 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

```
runtime 3 Jul 24 06:37
```

SPEC is set to: `/home/cpu2017_u2`

```
Filesystem  Type  Size  Used  Avail  Use%  Mounted on
/dev/sda1   xfs   894G  66G  829G   8%  /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 U34 02/02/2019
Memory:
  24x UNKNOWN NOT AVAILABLE
  24x UNKNOWN NOT AVAILABLE 32 GB 2 rank 2666
```

(End of data from sysinfo program)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL580 Gen10
(2.50 GHz, Intel Xeon Gold 5215M)

SPECrate2017_int_base = 239
SPECrate2017_int_peak = Not Run

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

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

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 19.0.2.187 Build 20190117
 Copyright (C) 1985-2019 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 19.0.2.187 Build 20190117
 Copyright (C) 1985-2019 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 19.0.2.187 Build 20190117
 Copyright (C) 1985-2019 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)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL580 Gen10
(2.50 GHz, Intel Xeon Gold 5215M)

SPECrate2017_int_base = 239
SPECrate2017_int_peak = Not Run

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE
Test Sponsor: HPE
Hardware Availability: Apr-2019
Software Availability: Feb-2019

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-revA.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-linux64.2019-04-03.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.

Tested with SPEC CPU2017 v1.0.5 on 2018-07-24 06:38:54-0400.
Originally published on 2019-06-25.