## SPEC® CPU2017 Integer Speed Result

### Hewlett Packard Enterprise

**Test Sponsor:** HPE  
**ProLiant DL380 Gen10**  
(2.10 GHz, Intel Xeon Gold 6130)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>32</td>
<td>6.14</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>32</td>
<td>9.07</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>11.1</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>32</td>
<td>6.09</td>
</tr>
<tr>
<td>623.xalannebmk_s</td>
<td>32</td>
<td>9.32</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>32</td>
<td>11.8</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>5.07</td>
</tr>
<tr>
<td>641.leea_s</td>
<td>32</td>
<td>4.33</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>13.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>32</td>
<td>21.7</td>
</tr>
</tbody>
</table>

--- SPECspeed2017_int_base (8.75)

### Hardware

**CPU Name:** Intel Xeon Gold 6130  
**Max MHz.:** 3700  
**Nominal:** 2100  
**Enabled:** 32 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:** 22 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 SSD SATA, RAID 0  
**Other:** None

### Software

**OS:** Red Hat Enterprise Linux Server release 7.3  
(Maipo)  
**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
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---

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>32</td>
<td>289</td>
<td>6.14</td>
<td>291</td>
<td>6.10</td>
<td>288</td>
<td>6.16</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>424</td>
<td>11.1</td>
<td>422</td>
<td>11.2</td>
<td>424</td>
<td>11.1</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>32</td>
<td>267</td>
<td>6.12</td>
<td>270</td>
<td>6.05</td>
<td><strong>268</strong></td>
<td><strong>6.09</strong></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>32</td>
<td>152</td>
<td>9.32</td>
<td>152</td>
<td>9.35</td>
<td>152</td>
<td>9.30</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>32</td>
<td>150</td>
<td>11.8</td>
<td>150</td>
<td>11.7</td>
<td><strong>150</strong></td>
<td><strong>11.8</strong></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>283</td>
<td>5.07</td>
<td>283</td>
<td>5.06</td>
<td><strong>283</strong></td>
<td><strong>5.07</strong></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>32</td>
<td><strong>394</strong></td>
<td><strong>4.33</strong></td>
<td>395</td>
<td>4.32</td>
<td>394</td>
<td>4.33</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td><strong>220</strong></td>
<td><strong>13.3</strong></td>
<td>222</td>
<td>13.2</td>
<td>220</td>
<td>13.4</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>32</td>
<td>284</td>
<td>21.7</td>
<td><strong>285</strong></td>
<td><strong>21.7</strong></td>
<td>287</td>
<td>21.5</td>
</tr>
</tbody>
</table>

**SPECspeed2017_int_base = 8.75**  
**SPECspeed2017_int_peak = Not Run**

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

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**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 set with "tuned-adm profile throughput-performance"

---

**General Notes**

Environment variables set by runcpu before the start of the run:  
KMP_AFFINITY = "granularity=fine,scatter"  
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32"  
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017/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

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**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)
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| SPECspeed2017_int_base = 8.75 |
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CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Oct-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

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Platform Notes (Continued)

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

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135f618bce091c0f
running on DL380Gen10 Fri Oct 6 11:47:45 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) Gold 6130 CPU @ 2.10GHz
  2 "physical id"s (chips)
  32 "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 : 16
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 1
Core(s) per socket: 16
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6130 CPU @ 2.10GHz
Stepping: 4
CPU MHz: 2100.000
BogoMIPS: 4204.65
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 22528K
NUMA node0 CPU(s): 0-15

(Continued on next page)
<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMA node CPU(s): 16-31</td>
</tr>
<tr>
<td>/proc/cpuinfo cache data</td>
</tr>
<tr>
<td>cache size : 22528 KB</td>
</tr>
<tr>
<td>From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.</td>
</tr>
<tr>
<td>From /proc/meminfo</td>
</tr>
<tr>
<td>MemTotal: 197572716 kB</td>
</tr>
<tr>
<td>HugePages_Total: 0</td>
</tr>
<tr>
<td>Hugepagesize: 2048 kB</td>
</tr>
<tr>
<td>From /etc/<em>release</em> /etc/<em>version</em></td>
</tr>
<tr>
<td>os-release:</td>
</tr>
<tr>
<td>NAME=&quot;Red Hat Enterprise Linux Server&quot;</td>
</tr>
<tr>
<td>VERSION=&quot;7.3 (Maipo)&quot;</td>
</tr>
<tr>
<td>ID=&quot;rhel&quot;</td>
</tr>
<tr>
<td>ID_LIKE=&quot;fedora&quot;</td>
</tr>
<tr>
<td>VERSION_ID=&quot;7.3&quot;</td>
</tr>
<tr>
<td>PRETTY_NAME=&quot;Red Hat Enterprise Linux Server 7.3 (Maipo)&quot;</td>
</tr>
<tr>
<td>ANSI_COLOR=&quot;0;31&quot;</td>
</tr>
<tr>
<td>CPE_NAME=&quot;cpe:/o:redhat:enterprise_linux:7.3:GA:server&quot;</td>
</tr>
<tr>
<td>redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)</td>
</tr>
<tr>
<td>system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)</td>
</tr>
<tr>
<td>uname -a:</td>
</tr>
<tr>
<td>Linux DL380Gen10 3.10.0-514.e17.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016 x86_64 x86_64 GNU/Linux</td>
</tr>
<tr>
<td>run-level 3 Oct 6 11:46</td>
</tr>
<tr>
<td>SPEC is set to: /home/cpu2017</td>
</tr>
<tr>
<td>Filesystem</td>
</tr>
<tr>
<td>/dev/mapper/rhel-home</td>
</tr>
<tr>
<td>Additional information from dmidecode follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is &quot;intended to allow hardware to be accurately determined&quot;, but the intent may not be met, as there are frequent changes to hardware, firmware, and the &quot;DMTF SMBIOS&quot; standard.</td>
</tr>
<tr>
<td>BIOS HPE U30 09/29/2017</td>
</tr>
<tr>
<td>Memory:</td>
</tr>
<tr>
<td>24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666</td>
</tr>
<tr>
<td>(End of data from sysinfo program)</td>
</tr>
</tbody>
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**Compiler Version Notes**

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

icc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)  
     641.leela_s(base)

icpc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

FC 648.exchange2_s(base)

ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

**Base Compiler Invocation**

- **C benchmarks:** icc
- **C++ benchmarks:** icpc
- **Fortran benchmarks:** ifort

**Base Portability Flags**

<table>
<thead>
<tr>
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<th>605.mcf_s</th>
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<tr>
<td>-DSPEC_LP64</td>
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<td>-DSPEC_LP64</td>
<td>-DSPEC_LP64</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>-DSPEC_LINUX_X64</td>
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Base Portability Flags (Continued)

641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -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=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -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

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

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

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