SPEC® CPU2017 Integer Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.10 GHz, Intel Xeon Platinum 8170)

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

SPECspeed2017_int_base = 8.96
SPECspeed2017_int_peak = Not Run

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

Threads

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base (8.96)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s 52</td>
</tr>
<tr>
<td>602.gcc_s 52</td>
</tr>
<tr>
<td>605.mcf_s 52</td>
</tr>
<tr>
<td>620.omnetpp_s 52</td>
</tr>
<tr>
<td>623.xalancbmk_s 52</td>
</tr>
<tr>
<td>625.x264_s 52</td>
</tr>
<tr>
<td>631.deepsjeng_s 52</td>
</tr>
<tr>
<td>641.leela_s 52</td>
</tr>
<tr>
<td>648.exchange2_s 52</td>
</tr>
<tr>
<td>657.xz_s 52</td>
</tr>
</tbody>
</table>

Hardware

CPU Name: Intel Xeon Platinum 8170
Max MHz.: 3700
Nominal: 2100
Enabled: 52 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: 35.75 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

OS: Red Hat Enterprise Linux Server 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
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
SPEC CPU2017 Integer Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.10 GHz, Intel Xeon Platinum 8170)

SPECspeed2017_int_base = 8.96
SPECspeed2017_int_peak = Not Run

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>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>52</td>
<td>285</td>
<td>6.24</td>
<td>287</td>
<td>6.19</td>
<td>287</td>
<td>6.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>52</td>
<td>435</td>
<td>9.16</td>
<td>437</td>
<td>9.12</td>
<td>433</td>
<td>9.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>52</td>
<td>420</td>
<td>11.2</td>
<td>422</td>
<td>11.2</td>
<td>420</td>
<td>11.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>52</td>
<td>225</td>
<td>7.24</td>
<td>223</td>
<td>7.31</td>
<td>222</td>
<td>7.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>52</td>
<td>152</td>
<td>9.35</td>
<td>150</td>
<td>9.44</td>
<td>151</td>
<td>9.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>52</td>
<td>153</td>
<td>11.5</td>
<td>153</td>
<td>11.6</td>
<td>152</td>
<td>11.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>52</td>
<td>280</td>
<td>5.12</td>
<td>279</td>
<td>5.13</td>
<td>280</td>
<td>5.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>52</td>
<td>398</td>
<td>4.29</td>
<td>397</td>
<td>4.30</td>
<td>397</td>
<td>4.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>52</td>
<td>219</td>
<td>13.4</td>
<td>219</td>
<td>13.4</td>
<td>219</td>
<td>13.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>52</td>
<td>275</td>
<td>22.5</td>
<td>277</td>
<td>22.3</td>
<td>278</td>
<td>22.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed2017_int_base = 8.96
SPECspeed2017_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 set with "tuned-adm profile throughput-performance"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
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
   Energy/Performance Bias set to Maximum Performance

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

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(2.10 GHz, Intel Xeon Platinum 8170)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.96</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>HPE</td>
</tr>
<tr>
<td>Tested by:</td>
<td>HPE</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

- 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 96c45e4568ad54c135fd618b091c0f  
running on DL380-sys2-RHEL73 Thu Sep 28 10:36:29 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 8170 CPU @ 2.10GHz
  - 2 "physical id"s (chips)
  - 52 "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: 26
  - siblings : 26
  - physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 24 25 26 27 28 29
  - physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 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): 52
- On-line CPU(s) list: 0-51
- Thread(s) per core: 1
- Core(s) per socket: 26
- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Platinum 8170 CPU @ 2.10GHz
- Stepping: 4
- CPU MHz: 2100.000
- BogoMIPS: 4204.82
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 36608K

(Continued on next page)
Hewlett Packard Enterprise  
ProLiant DL380 Gen10  
(2.10 GHz, Intel Xeon Platinum 8170)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.96</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

Platform Notes (Continued)

```
NUMA node0 CPU(s): 0-25  
NUMA node1 CPU(s): 26-51
```

```/proc/cpuinfo cache data
    cache size : 36608 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 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25  
node 0 size: 97963 MB  
node 0 free: 94536 MB  
node 1 cpus: 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
node 1 size: 98303 MB  
node 1 free: 95745 MB  
node distances:
   node   0   1
     0: 10 21
     1: 21 10
```

From /proc/meminfo

```
MemTotal: 197569552 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 DL380-sys2-RHEL73 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 Sep 28 09:37
SPEC is set to: /spec2017
```
SPEC CPU2017 Integer Speed Result

Hewlett Packard Enterprise

ProLiant DL380 Gen10
(2.10 GHz, Intel Xeon Platinum 8170)

SPECspeed2017_int_base = 8.96
SPECspeed2017_int_peak = Not Run

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

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

Platform Notes (Continued)

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda4      xfs  889G  29G  861G   4% /

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)

Compiler Version Notes

==============================================================================
CC  600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_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

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.10 GHz, Intel Xeon Platinum 8170)

| SPECspeed2017_int_base = 8.96 |
| SPECspeed2017_int_peak = Not Run |

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

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

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:
-Wl,-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:
-Wl,-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:
-Wl,-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

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

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(2.10 GHz, Intel Xeon Platinum 8170)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.96</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:      | Sep-2017 |
| Hardware Availability: | Oct-2017 |
| Software Availability: | Sep-2017 |

### Base Other Flags (Continued)

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/Intel-ic18.0-official-linux64.xml
- http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.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 v1.0.2 on 2017-09-28 12:36:29-0400.  
Originally published on 2017-10-18.