**SPEC® CPU2017 Integer Speed Result**

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.40 GHz, Intel Xeon Gold 6148)

| SPECspeed2017_int_base = 8.88 |
| SPECspeed2017_int_peak = Not Run |

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

### Hardware
- **CPU Name:** Intel Xeon Gold 6148  
- **Max MHz.:** 3700  
- **Nominal:** 2400  
- **Enabled:** 40 cores, 2 chips  
- **Orderable:** 1, 2 chip(s)  
- **L1:** 32 KB I + 32 KB D on chip per core  
- **L2:** 1 MB I+D on chip per core  
- **L3:** 27.5 MB I+D on chip per chip  
- **Cache:** 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)  
- **Kernel:** 3.10.0-514.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  
- **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;  
- **Other:** jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets;  
- **Other:** jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5;  
- **Other:** jemalloc: sources available from jemalloc.net or releases

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**Threads**

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<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Results</th>
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<td>641.leela_s</td>
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<td>648.exchange2_s</td>
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<td>657.xz_s</td>
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**SPECspeed2017_int_base (8.88)**
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Results Table

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<tr>
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SPECspeed2017_int_base = 8.88
SPECspeed2017_int_peak = Not Run

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"
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

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
  Stale A to S set to Disabled
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**Platform Notes (Continued)**

- Workload Profile set to General Peak Frequency Compute
- Energy/Performance Bias set to Maximum Performance
- Uncore Frequency Scaling set to Auto
- Workload Profile 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 96c45e4568ad54c135fd618bcc091c0f
running on DL380Gen10 Fri Oct 20 01:45:22 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 6148 CPU @ 2.40GHz
- 2 "physical id"s (chips)
- 40 "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 : 20
  - siblings : 20
  - physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  - physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 40
- On-line CPU(s) list: 0-39
- Thread(s) per core: 1
- Core(s) per socket: 20
- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Gold 6148 CPU @ 2.40GHz
- Stepping: 4
- CPU MHz: 2400.000
- BogoMIPS: 4805.13
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 28160K

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Platform Notes (Continued)

NUMA node0 CPU(s): 0-19
NUMA node1 CPU(s): 20-39

/proc/cpuinfo cache data
  cache size: 28160 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

From /proc/meminfo
  MemTotal: 197571144 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 DL380Gen10 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016 x86_64
  x86_64 x86_64 GNU/Linux

run-level 3 Oct 20 01:44

SPEC is set to: /home/cpu2017
  Filesystem Type  Size  Used  Avail Use% Mounted on
  /dev/mapper/rhel-home xfs 839G 30G 810G  4% /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 09/29/2017
  Memory:
    24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666

(End of data from sysinfo program)
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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

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

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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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