Hewlett Packard Enterprise
ProLiant DL380 Gen10
(2.50 GHz, Intel Xeon Gold 6210U)

SPECspeed2017_int_base = 9.96
SPECspeed2017_int_peak = Not Run

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

Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed2017_int_base</th>
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<tbody>
<tr>
<td>perlbench_s</td>
<td>20</td>
<td>6.75</td>
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<tr>
<td>gcc_s</td>
<td>20</td>
<td>9.50</td>
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<td>mcf_s</td>
<td>20</td>
<td>8.38</td>
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<tr>
<td>omnetpp_s</td>
<td>20</td>
<td>12.3</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>20</td>
<td>14.6</td>
</tr>
<tr>
<td>x264_s</td>
<td>20</td>
<td>8.38</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>20</td>
<td>14.6</td>
</tr>
<tr>
<td>x264_s</td>
<td>20</td>
<td>8.38</td>
</tr>
</tbody>
</table>

Hardware
CPU Name: Intel Xeon Gold 6210U
Max MHz.: 3900
Nominal: 2500
Enabled: 20 cores, 1 chip
Orderable: 1 chip(s)
Cache 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
Other: None
Memory: 384 GB (12 x 32 GB 2Rx8 PC4-2933Y-R)
Storage: 1 x 960 GB SATA SSD, RAID 0

Software
OS: SUSE Linux Enterprise Server 15 (x86_64)
Kernel 4.12.14-23-default
Compiler: C/C++: Version 19.0.1.144 of Intel C/C++
Compiler Build 20181018 for Linux;
Fortran: Version 19.0.1.144 of Intel Fortran
Compiler Build 20181018 for Linux;
Parallel: Yes
Firmware: HPE BIOS Version U30 04/18/2019 released Apr-2019
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator V5.0.1
SPEC CPU2017 Integer Speed Result
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Results Table

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<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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</tr>
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SPECspeed2017_int_base = 9.96
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
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>/proc/sys/vm/drop_caches

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:/home/cpu2017/je5.0.1-64"
OMP_STACKSIZE = "192M"
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)
is mitigated in the system as tested and documented.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
## SPEC CPU2017 Integer Speed Result

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)

**ProLiant DL380 Gen10**
(2.50 GHz, Intel Xeon Gold 6210U)

<table>
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<td>Software Availability: Nov-2018</td>
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</tbody>
</table>

### SPECspeed2017_int_base = 9.96

### SPECspeed2017_int_peak = Not Run

---

**Platform Notes**

**BIOS Configuration:**
- Hyper-Threading set to Disabled
- 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 Peak Frequency Compute
- Minimum Processor Idle Power Core C-State set to C1E State
- Energy/Performance Bias set to Balanced Power
- Workload Profile set to Custom
- Numa Group Size Optimization set to Flat

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on dl380-clx-sles15 Mon May 27 19:48:47 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 6210U CPU @ 2.50GHz
  1 "physical id"s (chips)
  20 "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

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 20
- On-line CPU(s) list: 0-19
- Thread(s) per core: 1
- Core(s) per socket: 20
- Socket(s): 1
- NUMA node(s): 1
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Gold 6210U CPU @ 2.50GHz
- Stepping: 6
- CPU MHz: 2500.000
- BogoMIPS: 5000.00

(Continued on next page)
SPEC CPU2017 Integer Speed Result

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</table>

Platform Notes (Continued)

Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 28160K
NUMA node0 CPU(s): 0-19
Flags: fpu vme de pse tsc msr pae 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_tsc cpuid aperf
perf_event tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrav pdc md dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single intel_pmm mba tpr_shadow vt plm

From /proc/cpuinfo cache data
  cache size: 28160 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
  available: 1 nodes (0)
  node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
  node 0 size: 386356 MB
  node 0 free: 385707 MB
  node distances:
    node 0
    0: 10

From /proc/meminfo
  MemTotal: 395628700 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"

(Continued on next page)
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Platform Notes (Continued)

uname -a:
    Linux dl380-clx-sles15 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 27 19:46

SPEC is set to: /home/cpu2017
    Filesystem  Type  Size  Used  Avail  Use%  Mounted on
    /dev/sda3     btrfs  407G   87G  320G  22%  /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 04/18/2019
    Memory:
        12x UNKNOWN NOT AVAILABLE
        12x UNKNOWN NOT AVAILABLE 32 GB 2 rank 2933

(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)
==============================================================================
 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 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
       641.leela_s(base)
==============================================================================
 Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
 Version 19.0.1.144 Build 20181018
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spec

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Tested by: HPE

Spec

---

Compiler Version Notes (Continued)

------------------------------------------------------------------------------
FC  648.exchange2_s(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

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:
-W1, -z, muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

(Continued on next page)
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Base Optimization Flags (Continued)

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:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs

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

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

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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 2019-05-27 19:48:46-0400.  