**SPEC CPU®2017 Integer Speed Result**

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)
ProLiant DL320 Gen11
(2.00 GHz, Intel Xeon Gold 6414U)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.8</td>
<td>13.0</td>
</tr>
</tbody>
</table>

CPU2017 License: 3  
Test Sponsor: HPE  
Tested by: HPE  
Test Date: Feb-2023  
Hardware Availability: Jan-2023  
Software Availability: May-2022

### Threads

<table>
<thead>
<tr>
<th>Test</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
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</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>32</td>
<td>8.09</td>
<td>9.65</td>
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<tr>
<td>gcc</td>
<td>32</td>
<td>11.0</td>
<td>11.6</td>
</tr>
<tr>
<td>mcf</td>
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<td>9.89</td>
<td>20.8</td>
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<tr>
<td>omnetpp</td>
<td>32</td>
<td>24.0</td>
<td></td>
</tr>
<tr>
<td>xalanchmk</td>
<td>32</td>
<td>19.0</td>
<td>19.7</td>
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<tr>
<td>x264</td>
<td>32</td>
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<td>deepsjeng</td>
<td>32</td>
<td>21.6</td>
<td></td>
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<tr>
<td>leela</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exchange2</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xz</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 6414U  
- **Max MHz:** 3400  
- **Nominal:** 2000  
- **Enabled:** 32 cores, 1 chip  
- **Orderable:** 1 chip  
- **Cache L1:** 32 KB I + 48 KB D on chip per core  
- **Cache L2:** 2 MB I+D on chip per core  
- **Cache L3:** 60 MB I+D on chip per chip  
- **Memory:** 512 GB (8 x 64 GB 2Rx4 PC5-4800B-R)  
- **Storage:** 1 x 480 GB SATA SSD  
- **Other:** None

### Software

- **OS:** Red Hat Enterprise Linux 9.0 (Plow)  
  5.14.0-70.13.1.el9_0.x86_64  
- **Compiler:** C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux;  
  Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;  
- **Parallel:** Yes  
- **Firmware:** HPE BIOS Version v1.22 01/18/2023 released Jan-2023  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** jemalloc memory allocator V5.0.1  
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage
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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>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
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<td>8.09</td>
<td>220</td>
<td>8.07</td>
<td>219</td>
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<td>361</td>
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<td>11.0</td>
<td>358</td>
<td>11.1</td>
<td>32</td>
<td>343</td>
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<tr>
<td>605.mcf_s</td>
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<td>20.7</td>
<td>227</td>
<td>20.8</td>
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<td>226</td>
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<td>9.87</td>
<td>163</td>
<td>9.98</td>
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<td>165</td>
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<td>59.0</td>
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<td>32</td>
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<tr>
<td>625.x264_s</td>
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<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>226</td>
<td>6.35</td>
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<td>6.34</td>
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<td>6.35</td>
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<td>226</td>
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<tr>
<td>641.leela_s</td>
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<td>5.06</td>
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<td>21.6</td>
<td>286</td>
<td>21.6</td>
<td>32</td>
<td>286</td>
</tr>
</tbody>
</table>

**Compiler Notes**

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalanchmk_r / 623.xalanchmk_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

**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
IRQ balance service was stopped using "systemctl stop irqbalance.service"
tuned-adm profile was set to Throughput-Performance using "tuned-adm profile throughput-performance"
perf-bias for all the CPUs is set using "cpupower set -b 0"

**Environment Variables Notes**

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4

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.


Platform Notes

The system ROM used for this result contains Intel microcode version 0x2b000161 for the Intel Xeon Gold 6414U processor.

BIOS Configuration:
- Workload Profile set to General Peak Frequency Compute
- Thermal Configuration set to Maximum Cooling
- Intel Hyper-Threading set to Disabled
- Memory Patrol Scrubbing set to Disabled
- Last Level Cache (LLC) Prefetch set to Enabled
- Last Level Cache (LLC) Dead Line Allocation set to Disabled
- Enhanced Processor Performance Profile set to Aggressive
- Dead Block Predictor set to Enabled
- Sub-NUMA Clustering set to Enabled SNC2(2-clusters)
- Workload Profile set to Custom
- Minimum Processor Idle Power Package C-State set to No Package State

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Wed Feb 1 09:48:26 2023

SUT (System Under Test) info as seen by some common utilities.

------------------------------------------------------------
Table of contents
------------------------------------------------------------
1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 250 (250-6.e19_0)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information

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Platform Notes (Continued)

21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

------------------------------------------------------------
1. uname -a
   Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
   x86_64 x86_64 GNU/Linux

2. w
   09:48:27 up 1 min, 2 users, load average: 0.13, 0.06, 0.02
   USER   TTY       LOGIN@  IDLE   JCPU   PCPU WHAT
   root    tty1     09:47    1:15   0.00s  0.00s -bash
   root    pts/0    09:47   11.00s  0.92s  0.00s -bash

3. Username
   From environment variable $USER: root

4. ulimit -a
   real-time non-blocking time (microseconds, -R) unlimited
   core file size (blocks, -c) 0
   data seg size (kbytes, -d) unlimited
   scheduling priority (-e) 0
   file size (blocks, -f) unlimited
   pending signals (-i) 2062860
   max locked memory (kbytes, -l) 64
   max memory size (kbytes, -m) unlimited
   open files (-n) 1024
   pipe size (512 bytes, -p) 8
   POSIX message queues (bytes, -q) 819200
   real-time priority (-r) 0
   stack size (kbytes, -s) unlimited
   cpu time (seconds, -t) unlimited
   max user processes (-u) 2062860
   virtual memory (kbytes, -v) unlimited
   file locks (-x) unlimited

5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 30
   sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
   sshd: root [priv]
   sshd: root@pts/0
   -bash
   -bash
   runcpu --nobuild --action validate --define default-platform-flags -c
   ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=32 --tune base,peak -o all --define
   intspeedaffinity --define drop_caches intspeed
   runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=32 --tune base,peak --output_format all
   --define intspeedaffinity --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed
   intspeed --nopreenv --note-preenv --logfile $SPEC/tmp/CP2017.011/templogs/preenv.intspeed.011.0.log
   --lognum 011.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017

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Platform Notes (Continued)

6. /proc/cpuinfo
   
   model name : Intel(R) Xeon(R) Gold 6414U
   vendor_id : GenuineIntel
   cpu family : 6
   model : 143
   stepping : 6
   microcode : 0x2b000161
   bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs
   cpu cores : 32
   siblings : 32
   1 physical ids (chips)
   32 processors (hardware threads)
   physical id 0: core ids 0-31
   physical id 0: apicids
   0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62
   Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.37.4:

Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 46 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) Gold 6414U
CPU family: 6
Model: 143
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s): 1
Stepping: 6
BogoMIPS: 4000.00

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 pdpe1gb rdtscp
   lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
   nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
   ds_cpl vmx 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 epb cat_13 cat_12 cdp_13
   invpcid_single cdp_12 ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow
   vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adj haci bx86 1x x86
   mcpu pmca cmov pat pse36
   clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
   lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
   nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
   ds_cpl vmx 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 epb cat_13 cat_12 cdp_13
   invpcid_single cdp_12 ssbd mba ibrs ibpb ibrs_enhanced tpr_shadow
   vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adj haci bx86 1x x86
   mcpu pmca cmov pat pse36

Virtualization: VT-x

L1d cache: 1.5 MiB (32 instances)
L1i cache: 1.5 MiB (32 instances)

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**Platform Notes (Continued)**

L2 cache: 64 MiB (32 instances)  
L3 cache: 60 MiB (1 instance)  
NUMA node(s): 2  
NUMA node0 CPU(s): 0-7,16-23  
NUMA node1 CPU(s): 8-15,24-31  
Vulnerability Itlb multihit: Not affected  
Vulnerability Lttf: Not affected  
Vulnerability Mds: Not affected  
Vulnerability Meltdown: Not affected  
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl  
Vulnerability Spectre v1: Mitigation; usercopy/swapps barriers and __user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling  
Vulnerability Srbds: Not affected  
Vulnerability Tsx async abort: Not affected

From lscpu --cache:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
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<tr>
<td>L1d</td>
<td>48K</td>
<td>1.5M</td>
<td>12</td>
<td>Data</td>
<td>1</td>
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<td>L1i</td>
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<tr>
<td>L3</td>
<td>60M</td>
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<td>15</td>
<td>Unified</td>
<td>3</td>
<td>65536</td>
<td></td>
<td>64</td>
</tr>
</tbody>
</table>

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 2 nodes (0-1)

node 0 cpus: 0-7,16-23
node 0 size: 257757 MB
node 0 free: 256935 MB
node 1 cpus: 8-15,24-31
node 1 size: 257997 MB
node 1 free: 257433 MB

node distances:

node   0   1
0:  10  20
1:  20  10

9. /proc/meminfo

MemTotal: 528133128 kB

10. who -r

run-level 3 Feb 1 09:46

11. Systemd service manager version: systemd 250 (250-6.el9_0)

Default Target: multi-user
Status: running

12. Services, from systemctl list-unit-files

STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode
nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd ssd
systemd-network-generator tuned udisks2
enabled-runtime systemd-remount-fs
disabled blk-availability chrony-wait console-getty cpupower debug-shell kvm_stat
man-db-restart-cache-update nftables powertop rdisc rhsm rsys-facts rpmdb-rebuild

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Platform Notes (Continued)

serial-getty@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
indirect ssd-autofs ssd-kcm ssd-ns ssd-pac ssd-pam ssd-ssh ssd-sudo

13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
   root=/dev/mapper/rhel-root
   resume=/dev/mapper/rhel-swap
   rd.lvm.lv=rhel/root
   rd.lvm.lv=rhel/swap

14. cpupower frequency-info
   analyzing CPU 0:
   Unable to determine current policy
   boost state support:
   Supported: yes
   Active: yes

15. tuned-adm active
   Current active profile: throughput-performance

16. sysctl
   kernel.numa_balancing               1
   kernel.randomize_va_space           2
   vm.compaction_proactiveness         20
   vm.dirty_background_bytes           0
   vm.dirty_background_ratio           10
   vm.dirty_bytes                      0
   vm.dirty_expire_centisecs           3000
   vm.dirty_ratio                      40
   vm.dirty_writeback_centisecs        500
   vm.dirtytime_expire_seconds         43200
   vm.extfrag_threshold                500
   vm.min_unmapped_ratio               1
   vm.nr_hugepages                     0
   vm.nr_hugepages_mempolicy           0
   vm.nr_overcommit_hugepages          0
   vm.swappiness                       10
   vm.watermark_boost_factor           15000
   vm.watermark_scale_factor           10
   vm.zone_reclaim_mode                0

17. /sys/kernel/mm/transparent_hugepage
   defrag always defer defer+madvise [madvise] never
   enabled [always] madvise never
   hpage_pmd_size 2097152
   shmem_enabled always within_size advise [never] deny force

18. /sys/kernel/mm/transparent_hugepage/khugepaged
   alloc_sleeptime_millisecs 60000
   defrag 1
   max_ptes_none 511
   max_ptes_shared 256
   max_ptes_swap 64

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Platform Notes (Continued)

19. OS release
From /etc/*-release /etc/*-version
os-release Red Hat Enterprise Linux 9.0 (Plow)
redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
system-release Red Hat Enterprise Linux release 9.0 (Plow)

20. Disk information
SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 372G 72G 300G 20% /home

21. /sys/devices/virtual/dmi/id
Vendor: HPE
Product: ProLiant DL320 Gen11
Product Family: ProLiant
Serial: CNX2210H28

22. dmidecode
Additional information from dmidecode 3.3 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.
Memory:
8x Hynix HMCG94AEBRA103N 64 GB 2 rank 4800

23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: HPE
BIOS Version: 1.22
BIOS Date: 01/18/2023
BIOS Revision: 1.22
Firmware Revision: 1.20

Compiler Version Notes

<table>
<thead>
<tr>
<th>C</th>
<th>600.perlbench_s(base, peak)</th>
<th>602.gcc_s(base, peak)</th>
<th>605.mcf_s(base, peak)</th>
<th>625.x264_s(base, peak)</th>
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<tbody>
<tr>
<td></td>
<td>657.xz_s(base, peak)</td>
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
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<table>
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<tr>
<th>C++</th>
<th>620.omnetpp_s(base, peak)</th>
<th>623.xalancbmk_s(base, peak)</th>
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<td></td>
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(Continued on next page)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL320 Gen11
(2.00 GHz, Intel Xeon Gold 6414U)

SPECspeed®2017_int_base = 12.8
SPECspeed®2017_int_peak = 13.0

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

Test Date: Feb-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Compiler Version Notes (Continued)

============================================================================================================
Fortran | 648.exchange2_s(base, peak)
------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
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------------------------------------------------------------------------------------------------------------

Base Compiler Invocation

C benchmarks:
   icx
C++ benchmarks:
   icpx
Fortran benchmarks:
   ifx

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:
   -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
   -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
   -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:
   -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
   -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
   -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

(Continued on next page)
### SPEC CPU®2017 Integer Speed Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL320 Gen11  
(2.00 GHz, Intel Xeon Gold 6414U)  

**SPECspeed®2017_int_base = 12.8**  
**SPECspeed®2017_int_peak = 13.0**

<table>
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<tr>
<th>CPU2017 License: 3</th>
<th>Test Date: Feb-2023</th>
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</tr>
<tr>
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<td>Software Availability: May-2022</td>
</tr>
</tbody>
</table>

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#### Base Optimization Flags (Continued)

Fortran benchmarks:
- `-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto`  
- `-mfpmath=sse -funroll-loops -gopt-mem-layout-trans=4`  
- `-nostandard-realloc-lhs -align array32byte`  
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

#### Peak Compiler Invocation

- **C benchmarks:** `icx`
- **C++ benchmarks:** `icpx`
- **Fortran benchmarks:** `ifx`

#### Peak Portability Flags

Same as Base Portability Flags

#### Peak Optimization Flags

- **C benchmarks:**
  
  600.perlbench_s: `-m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)`  
  `-fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -O3`  
  `-ffast-math -flto -mfpmath=sse -funroll-loops`  
  `-gopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP`  
  `-fno-strict-overflow -L/usr/local/jemalloc64-5.0.1/lib`  
  `-ljemalloc`

  602.gcc_s: `-m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)`  
  `-fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -O3`  
  `-ffast-math -flto -mfpmath=sse -funroll-loops`  
  `-gopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP`  
  `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

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

605.mcf_s: basepeak = yes

625.x264_s: -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP -fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: basepeak = yes
623.xalancbmk_s: basepeak = yes
631.deepsjeng_s: basepeak = yes
641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

The flags files that were used to format this result can be browsed at:
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev1.1.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev1.1.xml

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

Tested with SPEC CPU®2017 v1.1.9 on 2023-01-31 23:18:26-0500.
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