## SPEC CPU®2017 Integer Speed Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL380 Gen11  
(2.00 GHz, Intel Xeon Platinum 8452Y)  

### SPECspeed®2017_int_base = 12.3  
### SPECspeed®2017_int_peak = 12.6

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<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Feb-2023</th>
</tr>
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<tbody>
<tr>
<td>CPU2017 License:</td>
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<tr>
<td>Test Sponsor:</td>
<td>HPE</td>
</tr>
<tr>
<td>Tested by:</td>
<td>HPE</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Jan-2023</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>May-2022</td>
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<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base (12.3)</th>
<th>SPECspeed®2017_int_peak (12.6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
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<tr>
<td>602.gcc_s</td>
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</tr>
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<td>605.mcf_s</td>
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<td>623.xalancbmk_s</td>
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<td>648.exchange2_s</td>
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<td>18.8</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>72</td>
<td>23.1</td>
</tr>
</tbody>
</table>

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### Hardware

- **CPU Name:** Intel Xeon Platinum 8452Y  
- **Max MHz:** 3200  
- **Nominal:** 2000  
- **Enabled:** 72 cores, 2 chips  
- **Orderable:** 1, 2 chip(s)  
- **Cache L1:** 32 KB I + 48 KB D on chip per core  
- **L2:** 2 MB I+D on chip per core  
- **L3:** 67.5 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)  
- **Storage:** 1 x 900 GB SATA SSD  
- **Other:** None

### Software

- **OS:** Red Hat Enterprise Linux release 9.0 (Plow)  
  Kernel 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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SPECspeed®2017_int_base = 12.3
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Base</th>
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<th>Peak</th>
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<td>23.1</td>
<td>267</td>
<td>23.1</td>
<td>72</td>
<td>267</td>
</tr>
</tbody>
</table>

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

Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancmk_r / 623.xalancmk_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.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
SPEC CPU®2017 Integer Speed Result

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Test Sponsor: HPE
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SPECspeed®2017_int_peak = 12.6

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

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.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

The system ROM used for this result contains Intel microcode version 0x2b000161 for
the Intel Xeon Platinum 8452Y processor.
The reported date by sysinfo is incorrect due to computer clock being not set correctly.
The correct test date is: Feb-2023.
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
Adjacent Sector Prefetch set to Disabled
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 Thu Apr  7 05:38:09 2022

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. lsgpu
8. numaclt1 --hardware

(Continued on next page)
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Platform Notes (Continued)

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

------------------------------------------------------------
1. uname -a
Linux localhost.localdomain 5.14.0-70.13.1.e19_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
05:38:09 up 8 min, 1 user, load average: 0.00, 0.07, 0.06
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root tty1 05:32 1.00s 0.03s 0.00s top

------------------------------------------------------------
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) 4127208
 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) 4127208
 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@notty
bash -c cd $SPEC/ && $SPEC/intspeed.sh
runcpu --nobuild --action validate --define default-platform-flags -c

(Continued on next page)
Platform Notes (Continued)

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): 72
On-line CPU(s) list: 0-71
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) Platinum 8452Y
CPU family: 6
Model: 143
Thread(s) per core: 1
Core(s) per socket: 36
Socket(s): 2
Stepping: 8
BogoMIPS: 4000.00
Flags:

(Continued on next page)
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**CPU2017 License:** 3  
**Test Sponsor:** HPE  
**Tested by:** HPE

---

**Platform Notes (Continued)**

lahf_lm abm 3nowprefetch cpuid_fault epb cat_l13 cat_l12 cdp_l13  
invpcid_single cdp_l12 ssbd mba ibrs ibp_b stibp ibrs_enhanced tpr_shadow  
vmm flexpriority ept vpid ept_ad fagsbase tsc_adjust bmis avx2 smp bmi2  
erms invpcid cqm rdt_a avx512f avx512dq rdseed adx amap avx512ifma  
clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsavec  
xgetbv1 xsaveas cqm llc cqm_occupa llc cqm_mbmt_total cqm_mbmt_local  
split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pin pts  
avx512vbmi umip pku ospe waitpkg avx512_vbmi2 gfn i vaen vpcmulqdq  
avx512_vnni avx512_bitalg tme avx512_vpopcntdq las7 rpdp bus_lock_detect  
cldemote movdiri movdir64b enqcmd smf md_clear serialize tssidtrk pconfign  
arch_irq avx512_fp16 amx_tile flush_l1d arch_capabilities

---

Virtualization:

VT-x

---

L1d cache:

3.4 MiB (72 instances)

L1i cache:

2.3 MiB (72 instances)

L2 cache:

144 MiB (72 instances)

L3 cache:

135 MiB (2 instances)

NUMA node(s):

4

NUMA node 0 CPUS:

0-8,36-44

NUMA node 1 CPUS:

9-17,45-53

NUMA node 2 CPUS:

18-26,54-62

NUMA node 3 CPUS:

27-35,63-71

Vulnerability Itlb multihit:

Not affected

Vulnerability L1tf:

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/swapgs 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:

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<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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<td>48K</td>
<td>3.4M</td>
<td>12</td>
<td>Data</td>
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<td>L1i</td>
<td>32K</td>
<td>2.3M</td>
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<td>Instruction</td>
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<td>64</td>
<td>1</td>
<td>64</td>
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<td>L2</td>
<td>2M</td>
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<td>Unified</td>
<td>2</td>
<td>2048</td>
<td>1</td>
<td>64</td>
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<td>L3</td>
<td>67.5M</td>
<td>135M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>73728</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

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8. numactl --hardware

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

available: 4 nodes (0-3)

node 0 cpus: 0-8,36-44
node 0 size: 257756 MB
node 0 free: 253888 MB
node 1 cpus: 9-17,45-53
node 1 size: 258007 MB
node 1 free: 257543 MB
node 2 cpus: 18-26,54-62
node 2 size: 258043 MB
node 2 free: 257633 MB
node 3 cpus: 27-35,63-71
node 3 size: 258033 MB
node 3 free: 257603 MB
node distances:

node 0 1 2 3
0: 10 20 30 30
1: 20 10 30 30
2: 30 30 10 20
3: 30 30 20 10

(Continued on next page)
Platform Notes (Continued)

9. /proc/meminfo
   MemTotal: 1056605764 kB

10. who -r
    run-level 3 Apr 7 05:30

11. Systemd service manager version: systemd 250 (250-6.e19_0)
    Default Target Status
    multi-user running

12. Services, from systemctl list-unit-files
    STATE UNIT FILES
    enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
dbuss-broker firewalld irqbalance kdump lvm2-monitor mdmonitor microcode
    nis-domainname rshmcertd rsyslog selinux-autorelabel-mark sshd sssd
    systemd-network-generator tuned udisks2 upower
    enabled-runtime systemd-remount-fs
    disabled blk-availability canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait console-getty debug-shell
dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode
    nis-domainname rshmcertd rsyslog selinux-autorelabel-mark sshd sssd
    systemd-network-generator tuned udisks2 upower
    indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-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
    ro
    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.compage_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

(Continued on next page)
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<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>vm.dirty_writeback_centisecs 500</td>
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<tr>
<td>vm.dirtytime_expire_seconds 43200</td>
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<tr>
<td>vm.extrfrag_threshold 500</td>
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<tr>
<td>vm.min_unmapped_ratio 1</td>
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<tr>
<td>vm.nr_hugepages 0</td>
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<tr>
<td>vm.nr_hugepages_mempolicy 0</td>
</tr>
<tr>
<td>vm.nr_overcommit_hugepages 0</td>
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<tr>
<td>vm.swappiness 10</td>
</tr>
<tr>
<td>vm.watermark_boost_factor 15000</td>
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<tr>
<td>vm.watermark_scale_factor 10</td>
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<tr>
<td>vm.zone_reclaim_mode 0</td>
</tr>
</tbody>
</table>

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

18. /sys/kernel/mm/transparent_hugepage/khugepaged
   alloc_sleep_millisecs 60000
   defrag 1
   max_ptes_none 511
   max_ptes_shared 256
   max_ptes_swap 64
   pages_to_scan 4096
   scan_sleep_millisecs 10000

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 819G 92G 728G 12% /home

21. /sys/devices/virtual/dmi/id
   Vendor: HPE
   Product: ProLiant DL380 Gen11
   Product Family: ProLiant
   Serial: CNX2100007

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:
   16x Samsung M321R8GA0BB0-CQKDGE 64 GB 2 rank 4800

(Continued on next page)
### Platform Notes (Continued)

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: 1.30

### Compiler Version Notes

```
<table>
<thead>
<tr>
<th></th>
<th>600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_s(base, peak)</th>
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</thead>
<tbody>
<tr>
<td>C</td>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
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<tr>
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<th>620.omnetpp_s(base, peak) 623.xalanchmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)</th>
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```
<table>
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<tr>
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<th>634.exchange2_s(base, peak)</th>
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<tbody>
<tr>
<td>Fortran</td>
<td>Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>
```

### 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
SPEC CPU®2017 Integer Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen11
(2.00 GHz, Intel Xeon Platinum 8452Y)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.3</td>
<td>12.6</td>
</tr>
</tbody>
</table>

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

Base Portability Flags (Continued)

- 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:
```bash
-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:
```bash
-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
```

Fortran benchmarks:
```bash
-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-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
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen11
(2.00 GHz, Intel Xeon Platinum 8452Y)

SPECspeed®2017_int_base = 12.3
SPECspeed®2017_int_peak = 12.6

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
-qopt-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
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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 -fiopenmp -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.xalancbnk_s: basepeak = yes

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:
648.exchange2_s: basepeak = yes
## SPEC CPU®2017 Integer Speed Result

### Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8452Y)

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</table>

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

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](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](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® v1.1.9 on 2022-04-06 20:08:09-0400.  
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