**Hewlett Packard Enterprise**  
/Test Sponsor: HPE/  
ProLiant DL360 Gen11  
/(3.70 GHz, Intel Xeon Gold 6434)/  

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 197</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = 203</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 3  
**Test Date:** May-2023  
**Test Sponsor:** HPE  
**Hardware Availability:** Mar-2023  
**Software Availability:** Dec-2022

| Test Date: | May-2023 |
| Test Sponsor: | HPE |
| Hardware Availability: | Mar-2023 |
| Software Availability: | Dec-2022 |

### Hardware
- **CPU Name:** Intel Xeon Gold 6434  
- **Max MHz:** 4100  
- **Nominal:** 3700  
- **Enabled:** 16 cores, 2 chips, 2 threads/core  
- **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:** 22.5 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)  
- **Storage:** 1 x 960 GB SATA SSD  
- **Other:** None  

### Software
- **OS:** SUSE Linux Enterprise Server 15 SP4  
- **Kernel:** 5.14.21-150400.22-default  
- **Compiler:** C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;  
- **Parallel:** No  
- **Firmware:** HPE BIOS Version v1.30 03/01/2023 released Mar-2023  
- **File System:** xfs  
- **System State:** Run level 5 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other:** jemalloc memory allocator V5.0.1  
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage

---

**SPEC CPU®2017 Integer Rate Result**  
Copyright 2017-2024 Standard Performance Evaluation Corporation  

---

**Copies**

| Test | 0 | 20 | 40 | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 | 410 | 415 |
|------|---|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| perlbench_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| gcc_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| mcf_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| omnetpp_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| xalancbmk_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| x264_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| deepsjeng_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| leela_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| exchange2_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| xz_r | 32 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

---

**SPECrate®2017_int_base (197)**  
**SPECrate®2017_int_peak (203)**

---

**CPU Name:** Intel Xeon Gold 6434  
**Max MHz:** 4100  
**Nominal:** 3700  
**Enabled:** 16 cores, 2 chips, 2 threads/core  
**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:** 22.5 MB I+D on chip per chip  
**Other:** None  
**Memory:** 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)  
**Storage:** 1 x 960 GB SATA SSD  
**Other:** None  

---

**Software**

- **OS:** SUSE Linux Enterprise Server 15 SP4  
- **Kernel:** 5.14.21-150400.22-default  
- **Compiler:** C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2023.0 of Intel Fortran Compiler for Linux;  
- **Parallel:** No  
- **Firmware:** HPE BIOS Version v1.30 03/01/2023 released Mar-2023  
- **File System:** xfs  
- **System State:** Run level 5 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other:** jemalloc memory allocator V5.0.1  
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage
## SPEC CPU®2017 Integer Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL360 Gen11  
(3.70 GHz, Intel Xeon Gold 6434)  

**SPEC CPU®2017 Int Base = 197**  
**SPEC CPU®2017 Int Peak = 203**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</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>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_r</td>
<td>32</td>
<td>366</td>
<td>139</td>
<td>365</td>
<td>139</td>
<td>366</td>
<td>139</td>
<td>365</td>
<td>139</td>
</tr>
<tr>
<td>gcc_r</td>
<td>32</td>
<td>288</td>
<td>157</td>
<td>284</td>
<td>160</td>
<td>282</td>
<td>160</td>
<td>284</td>
<td>160</td>
</tr>
<tr>
<td>mcf_r</td>
<td>32</td>
<td>163</td>
<td>318</td>
<td>162</td>
<td>319</td>
<td>162</td>
<td>319</td>
<td>162</td>
<td>319</td>
</tr>
<tr>
<td>omnetpp_r</td>
<td>32</td>
<td>334</td>
<td>126</td>
<td>335</td>
<td>125</td>
<td>334</td>
<td>126</td>
<td>335</td>
<td>125</td>
</tr>
<tr>
<td>xalancbmk_r</td>
<td>32</td>
<td>85.1</td>
<td>397</td>
<td>84.6</td>
<td>400</td>
<td>86.0</td>
<td>393</td>
<td>84.6</td>
<td>400</td>
</tr>
<tr>
<td>x264_r</td>
<td>32</td>
<td>147</td>
<td>80</td>
<td>147</td>
<td>82</td>
<td>147</td>
<td>81</td>
<td>147</td>
<td>81</td>
</tr>
<tr>
<td>deepsjeng_r</td>
<td>32</td>
<td>263</td>
<td>139</td>
<td>263</td>
<td>140</td>
<td>263</td>
<td>140</td>
<td>263</td>
<td>140</td>
</tr>
<tr>
<td>leela_r</td>
<td>32</td>
<td>400</td>
<td>133</td>
<td>400</td>
<td>133</td>
<td>400</td>
<td>133</td>
<td>400</td>
<td>133</td>
</tr>
<tr>
<td>exchange2_r</td>
<td>32</td>
<td>203</td>
<td>413</td>
<td>203</td>
<td>413</td>
<td>203</td>
<td>413</td>
<td>203</td>
<td>413</td>
</tr>
<tr>
<td>xz_r</td>
<td>32</td>
<td>411</td>
<td>84.1</td>
<td>408</td>
<td>84.7</td>
<td>408</td>
<td>84.6</td>
<td>408</td>
<td>84.6</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.xalancbmk_r / 623.xalancbmk_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  
runcpu command invoked through numactl i.e.:  
numactl --interleave=all runcpu <etc>  
IRQ balance service was stopped using "systemctl stop irqbalance.service"  
tuned-adm profile was set to Accelerator-Performance using "tuned-adm profile accelerator-performance"
Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = */home/cpu2017/lib/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/je5.0.1-32*
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
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 Gold 6434 processor.
BIOS Configuration
Workload Profile set to General Throughput Compute
Memory Patrol Scrubbing set to Disabled
Last Level Cache (LLC) Dead Line Allocation set to Disabled
Intel UPI Link Enablement set to Single Link
Enhanced Processor Performance Profile set to Aggressive
Thermal Configuration set to Maximum Cooling
Workload Profile set to Custom
Adjacent Sector Prefetch set to Disabled
DCU Stream Prefetcher set to Disabled
Intel UPI Link Power Management set to Enabled
Minimum Processor Idle Power Package C-State set to Package C6 (non-retention) State

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Sat May 13 04:05:10 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 249 (249.11+suse.124.g2bc0b2c447)

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

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen11
(3.70 GHz, Intel Xeon Gold 6434)

SPECrate®2017_int_base = 197
SPECrate®2017_int_peak = 203

Copyright 2017-2024 Standard Performance Evaluation Corporation

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

Test Date: May-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS

1. uname -a
   Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
   x86_64 x86_64 x86_64 GNU/Linux

2. w
   04:05:10 up 15 min, 0 users, load average: 0.00, 0.00, 0.02
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT

3. Username
   From environment variable $USER: root

4. ulimit -a
   core file size           (blocks, -c) unlimited
   data seg size            (kbytes, -d) unlimited
   scheduling priority      (-e) 0
   file size                (blocks, -f) unlimited
   pending signals          (-l) 2062886
   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) 2062886
   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@notty
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=16 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak -o all intrate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=16 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
   --runmode rate --tune base:peak --size refrage intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPUC2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2

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

6. `/proc/cpuinfo`

```
model name      : Intel(R) Xeon(R) Gold 6434
vendor_id       : GenuineIntel
cpu family      : 6
model           : 143
stepping        : 7
microcode       : 0x2b0001b0
bugs            : spectre_v1 spectre_v2 spec_store_bypass swaps
cpu cores       : 8
siblings        : 16
2 physical ids (chips)
32 processors (hardware threads)
physical id 0: core ids 0-7
physical id 1: core ids 0-7
physical id 0: apicids 0-15
physical id 1: apicids 128-143
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 2.37.2:
```
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
Model name:                      Intel(R) Xeon(R) Gold 6434
CPU family:                      6
Model:                           143
Thread(s) per core:              2
Core(s) per socket:              8
Socket(s):                       2
Stepping:                        7
BogoMIPS:                        7400.00

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 rdtsdp
im 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 smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca ssse4 l
ssse4_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 mbx ibrs ibpb stibp ibrs_enhanced tpr_shadow
vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bm11 hle avx2 smep
bm12 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512v1
xsaveopt xsaves xtpr xsetbv xsaveopt xsave xreadwrite xsavec xsaveprec
xgetbv1 xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt xsaveopt
```

Virtualization: VT-x

(Continued on next page)
**SPEC CPU®2017 Integer Rate Result**

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)
ProLiant DL360 Gen11
(3.70 GHz, Intel Xeon Gold 6434)

**SPECrate®2017_int_base = 197**
**SPECrate®2017_int_peak = 203**

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

**Platform Notes (Continued)**

L1d cache: 768 KiB (16 instances)
L1i cache: 512 KiB (16 instances)
L2 cache: 32 MiB (16 instances)
L3 cache: 45 MiB (2 instances)
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 L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
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:

```
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d  48K  768K   12 Data  1  64  1  64
L1i  32K  512K    8 Instruction 1  64  1  64
L2   2M   32M   16 Unified  2  2048  1  64
L3  22.5M  45M  15 Unified  3 24576  1  64
```

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: 257722 MB
node 0 free: 256214 MB
node 1 cpus: 8-15,24-31
node 1 size: 258023 MB
node 1 free: 257151 MB
node distances:
node   0   1
0:  10  20
1:  20  10

9. /proc/meminfo
MemTotal: 528124240 kB

10. who -r
run-level 5 May 13 03:50

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
Default Target Status
graphical running

12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron
display-manager getty@ havaeged irqbalance iscsi issue-generator kbdsettings klog
lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd wicked wickedd-auto4
wicked-dhcp4 wicked-dhcp6 wickedd-nanny wpa_supplicant
enabled-runtime systemd-remount-fs

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

13. Linux kernel boot-time arguments, from /proc/cmdline

```
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=1e60573a-310f-4bf6-bf70-5d68ef583396
splash=silent
resume=/dev/disk/by-uuid/cf0ec919-f0ba-4578-8c4a-52c5338b25df
mitigations=auto
quiet
security=apparmor
```

14. cpupower frequency-info

```
analyzing CPU 0:
   Unable to determine current policy
   boost state support:
      Supported: yes
      Active: yes
```

15. sysctl

```
kern.1 numa_balancing 1
kern.randomize_va_space 2
vm.compaclnty_proactiveness 20
vm.dirty_background_bytes 0
vm.dirty_background_ratio 10
vm.dirty_bytes 0
vm.dirty_expire_centisecs 3000
vm.dirty_ratio 20
vm.dirty_writeback_centisecs 500
vm.dirtytime_expire_seconds 43200
vm.extrfrag_threshold 500
vm.min_unmapped_ratio 1
vm.nr_hugepages 0
vm.nr_hugepages_mempolicy 0
vm.nr_overcommit Haguepages 0
vm.swappiness 60
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode 0
```

16. /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
```

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

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen11
(3.70 GHz, Intel Xeon Gold 6434)

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

---

Platform Notes (Continued)

17. /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

-------------------------------
18. OS release
   From /etc/*-release /etc/*-version
   os-release SUSE Linux Enterprise Server 15 SP4

-------------------------------
19. Disk information
   SPEC is set to: /home/cpu2017
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda4      xfs   349G  110G  240G  32% /home

-------------------------------
20. /sys/devices/virtual/dmi/id
   Vendor:         HPE
   Product:        ProLiant DL360 Gen11
   Product Family: ProLiant
   Serial:         CNX2070DC1

-------------------------------
21. dmidecode
   Additional information from dmidecode 3.2 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:
   4x Hynix HMCGB8AEBRA168N 32 GB 2 rank 4800
   8x Hynix HMCGB8MEBRA118N 32 GB 2 rank 4800
   4x Hynix HMCGB8MEBRA115N 32 GB 2 rank 4800

-------------------------------
22. BIOS
   (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       HPE
   BIOS Version:      1.30
   BIOS Date:         03/01/2023
   BIOS Revision:     1.30
   Firmware Revision: 1.20

---

Compiler Version Notes

---

C       | 502.gcc_r(peak)
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

---

C       | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)

(Continued on next page)
Hewlett Packard Enterprise  
ProLiant DL360 Gen11  
(3.70 GHz, Intel Xeon Gold 6434)  

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 197</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = 203</td>
</tr>
</tbody>
</table>

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

### Compiler Version Notes (Continued)

```
<table>
<thead>
<tr>
<th>557.xz_r(base, peak)</th>
</tr>
</thead>
</table>
| Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
| Copyright (C) 1985-2022 Intel Corporation. All rights reserved. |

<table>
<thead>
<tr>
<th>502.gcc_r(peak)</th>
</tr>
</thead>
</table>
| Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201  
| Copyright (C) 1985-2022 Intel Corporation. All rights reserved. |
```

### Base Compiler Invocation

**C benchmarks:**  
- icx

**C++ benchmarks:**  
- icpx

**Fortran benchmarks:**  
- ifx

### Base Portability Flags

```
500.perlbench_r -DSPEC_LP64 -DSPEC_LINUX_X64
```

(Continued on next page)
**SPEC CPU®2017 Integer Rate Result**

Hewlett Packard Enterprise  
ProLiant DL360 Gen11  
(3.70 GHz, Intel Xeon Gold 6434)  

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 197</th>
<th>SPECrate®2017_int_peak = 203</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: HPE</td>
<td>Test Date: May-2023</td>
</tr>
<tr>
<td>Hardware Availability: Mar-2023</td>
<td></td>
</tr>
<tr>
<td>Tested by: HPE</td>
<td>Software Availability: Dec-2022</td>
</tr>
</tbody>
</table>

---

**Base Portability Flags (Continued)**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>502.gcc_r:</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>505.mcf_r:</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>520.omnetpp_r:</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>523.xalancbmk_r:</td>
<td>-DSPEC_LP64 -DSPEC_LINUX</td>
</tr>
<tr>
<td>525.x264_r:</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>531.deepsjeng_r:</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>541.leela_r:</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>548.exchange2_r:</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>557.xz_r:</td>
<td>-DSPEC_LP64</td>
</tr>
</tbody>
</table>

---

**Base Optimization Flags**

C benchmarks:
- `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math`
- `-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

C++ benchmarks:
- `-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math`
- `-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

Fortran benchmarks:
- `-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto`
- `-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs -align array32byte -auto`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

---

**Peak Compiler Invocation**

C benchmarks:
- `icx`

C++ benchmarks:
- `icpx`

Fortran benchmarks:
- `ifx`
SPEC CPU®2017 Integer Rate Result
Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL360 Gen11  
(3.70 GHz, Intel Xeon Gold 6434)  
SPECrater®2017_int_base = 197  
SPECrater®2017_int_peak = 203

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

Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64  
502.gcc_r: -D_FILE_OFFSET_BITS=64  
505.mcf_r: -DSPEC_LP64  
520.omnetpp_r: -DSPEC_LP64  
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX  
525.x264_r: -DSPEC_LP64  
531.deepsjeng_r: -DSPEC_LP64  
541.leela_r: -DSPEC_LP64  
548.exchange2_r: -DSPEC_LP64  
557.xz_r: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs  
-fprofile-generate(pass 1)  
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)  
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse  
-funroll-loops -qopt-mem-layout-trans=4  
-fno-strict-overflow  
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin  
-lqkmalloc

502.gcc_r: -m32  
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin  
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)  
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)  
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse  
-funroll-loops -qopt-mem-layout-trans=4  
-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -fno-alias  
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin  
-lqkmalloc

557.xz_r: basepeak = yes

C++ benchmarks:

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

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen11
(3.70 GHz, Intel Xeon Gold 6434)

SPECrate®2017_int_base = 197
SPECrate®2017_int_peak = 203

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

Test Date: May-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Peak Optimization Flags (Continued)

520.omnetpp_r: basepeak = yes
523.xalancbmk_r: basepeak = yes
531.deepsjeng_r: basepeak = yes
541.leela_r: basepeak = yes

Fortran benchmarks:
548.exchange2_r: 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-rev1.2.html
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.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-rev1.2.xml
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml

SPEC CPU and SPECrate are registered trademarks 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 CPU®2017 v1.1.9 on 2023-05-12 18:35:09-0400.
Originally published on 2023-06-20.