



# SPEC CPU®2017 Integer Rate Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL380 Gen11

(2.80 GHz, Intel Xeon Gold 6526Y)

SPECrate®2017\_int\_base = 340

SPECrate®2017\_int\_peak = 350

CPU2017 License: 3

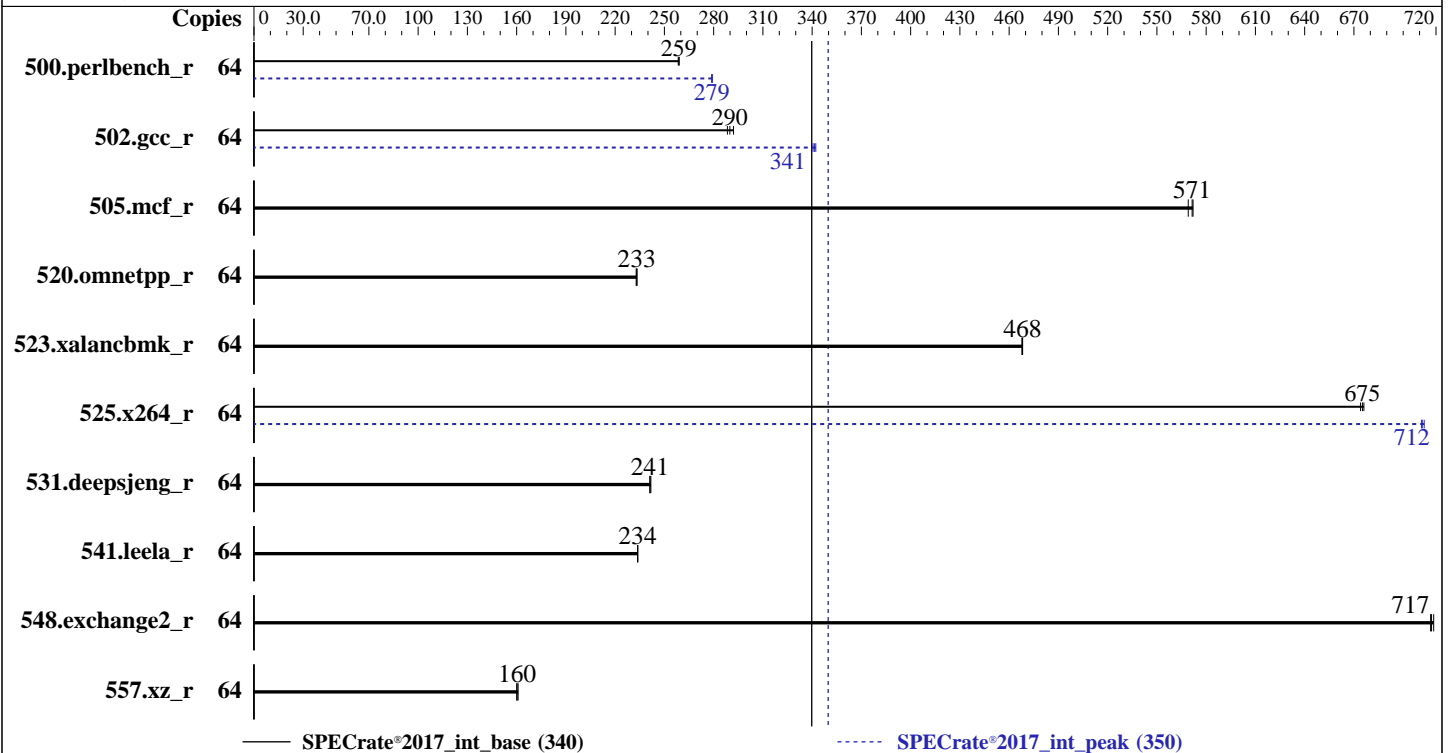
Test Sponsor: HPE

Tested by: HPE

Test Date: Jan-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023



### Hardware

CPU Name: Intel Xeon Gold 6526Y  
 Max MHz: 3900  
 Nominal: 2800  
 Enabled: 32 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: 37.5 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-5600B-R, running at 5200)  
 Storage: 1 x 480 GB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP5  
 Kernel 5.14.21-150500.53-default  
 Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux;  
 Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;  
 Parallel: No  
 Firmware: HPE BIOS Version v2.12 12/13/2023 released Dec-2023  
 File System: btrfs  
 System State: Run level 3 (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



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	64	394	258	<b>394</b>	<b>259</b>	393	259	64	<b>365</b>	<b>279</b>	365	279	365	279
502.gcc_r	64	314	288	<b>313</b>	<b>290</b>	310	292	64	265	342	266	341	<b>265</b>	<b>341</b>
505.mcf_r	64	<b>181</b>	<b>571</b>	182	569	181	572	64	<b>181</b>	<b>571</b>	182	569	181	572
520.omnetpp_r	64	361	233	360	233	<b>360</b>	<b>233</b>	64	361	233	360	233	<b>360</b>	<b>233</b>
523.xalancbmk_r	64	144	468	<b>144</b>	<b>468</b>	144	468	64	144	468	<b>144</b>	<b>468</b>	144	468
525.x264_r	64	166	674	166	676	<b>166</b>	<b>675</b>	64	<b>157</b>	<b>712</b>	158	711	157	713
531.deepsjeng_r	64	303	242	304	241	<b>304</b>	<b>241</b>	64	303	242	304	241	<b>304</b>	<b>241</b>
541.leela_r	64	454	234	453	234	<b>453</b>	<b>234</b>	64	454	234	453	234	<b>453</b>	<b>234</b>
548.exchange2_r	64	234	717	233	719	<b>234</b>	<b>717</b>	64	234	717	233	719	<b>234</b>	<b>717</b>
557.xz_r	64	432	160	430	161	<b>431</b>	<b>160</b>	64	432	160	430	161	<b>431</b>	<b>160</b>

SPECrate®2017\_int\_base = **340**

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

## 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>  
tuned-adm profile was set to throughput-performance using "tuned-adm profile throughput-performance"

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu2017\_new/lib/intel64:/home/cpu2017\_new/lib/ia32:/home/cpu2017\_new/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  
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)

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## General Notes (Continued)

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  
sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

## Platform Notes

The system ROM used for this result contains Intel microcode version 0x21000200 for the Intel Xeon Gold 6526Y 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  
Enhanced Processor Performance Profile set to Aggressive  
Thermal Configuration set to Maximum Cooling  
Intel UPI Link Enablement set to Single Link Operation  
Sub-NUMA Clustering (SNC) set to Enable SNC2(2-clusters)  
Workload Profile set to Custom  
DCU Stream Prefetcher set to Disabled  
Adjacent Sector Prefetch set to Disabled  
Intel UPI Link Power Management set to Enabled

Sysinfo program /home/cpu2017\_new/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Fri Jan 19 06:05:30 2024

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 (249.16+suse.171.gdad0071f15)
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 5.14.21-150500.53-default #1 SMP PREEMPT\_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)

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## Platform Notes (Continued)

x86\_64 x86\_64 x86\_64 GNU/Linux

-----  
2. w  
06:05:30 up 0 min, 0 users, load average: 0.20, 0.07, 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 (-i) 2062747  
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) 2062747  
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  
bash -c cd \$SPEC/ && \$SPEC/intrate.sh  
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 -c  
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define cores=64 --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=64 --configfile  
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define cores=64 --define physicalfirst --define  
invoke\_with\_interleave --define drop\_caches --tune base,peak --output\_format all --nopower --runmode rate  
--tune base:peak --size refrate intrate --nopreenv --note-preenv --logfile  
\$SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from\_runcpu 2  
specperl \$SPEC/bin/sysinfo  
\$SPEC = /home/cpu2017\_new

-----  
6. /proc/cpuinfo  
model name : INTEL(R) XEON(R) GOLD 6526Y  
vendor\_id : GenuineIntel  
cpu family : 6  
model : 207  
stepping : 2  
microcode : 0x21000200  
bugs : spectre\_v1 spectre\_v2 spec\_store\_bypass swapgs eibrs\_pbrsb  
cpu cores : 16  
siblings : 32  
2 physical ids (chips)  
64 processors (hardware threads)

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## Platform Notes (Continued)

physical id 0: core ids 0-15  
physical id 1: core ids 0-15  
physical id 0: apicids 0-31  
physical id 1: apicids 128-159

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):                 64
On-line CPU(s) list:   0-63
Vendor ID:              GenuineIntel
Model name:             INTEL(R) XEON(R) GOLD 6526Y
CPU family:             6
Model:                  207
Thread(s) per core:    2
Core(s) per socket:    16
Socket(s):              2
Stepping:               2
BogoMIPS:               5600.00
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 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 smx 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_l3 cat_l2 cdp_l3
                        invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                        vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep
                        bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                        avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                        xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                        cqm_mbm_local avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hfi
                        avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq
                        avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid bus_lock_detect
                        cldemote movdiri movdir64b enqcmd fsrm md_clear serialize tsxldtrk pconfig
                        arch_lbr avx512_fp16 amx_tile flush_lld arch_capabilities

Virtualization:        VT-x
L1d cache:             1.5 MiB (32 instances)
L1i cache:             1 MiB (32 instances)
L2 cache:              64 MiB (32 instances)
L3 cache:              75 MiB (2 instances)
NUMA node(s):          4
NUMA node0 CPU(s):    0-7,32-39
NUMA node1 CPU(s):    8-15,40-47
NUMA node2 CPU(s):    16-23,48-55
NUMA node3 CPU(s):    24-31,56-63
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:    Not affected
Vulnerability Mds:     Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp

```

(Continued on next page)



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## Platform Notes (Continued)

Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBR SB-eIBRS SW sequence  
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	1.5M	12	Data	1	64	1	64
L1i	32K	1M	8	Instruction	1	64	1	64
L2	2M	64M	16	Unified	2	2048	1	64
L3	37.5M	75M	15	Unified	3	40960	1	64

8. numactl --hardware

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

```
available: 4 nodes (0-3)
node 0 cpus: 0-7,32-39
node 0 size: 128713 MB
node 0 free: 128231 MB
node 1 cpus: 8-15,40-47
node 1 size: 128985 MB
node 1 free: 128443 MB
node 2 cpus: 16-23,48-55
node 2 size: 129019 MB
node 2 free: 128535 MB
node 3 cpus: 24-31,56-63
node 3 size: 128999 MB
node 3 free: 128551 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
```

9. /proc/meminfo

MemTotal: 528095072 kB

10. who -r

run-level 3 Jan 19 06:04

11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)

```
Default Target Status
multi-user      running
```

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd bluetooth cron display-manager getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny wpa_supplicant
enabled-runtime	systemd-remount-fs
disabled	NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon autofs autoyast-initscripts blk-availability bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell dnsmasq ebttables

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## Platform Notes (Continued)

```
exchange-bmc-os-info firewallld gpm grub2-once haveged haveged-switch-root
hwloc-dump-hwdata ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create
multipathd nfs nfs-blkmap nmb openvpn@ ostree-remount rpcbind rpmconfigcheck rsyncd
rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd
systemd-boot-check-no-failures systemd-network-generator systemd-sysext
systemd-time-wait-sync systemd-timesyncd tuned udisks2 update-system-flatpaks upower
vncserver@ wpa_supplicant@
pcscd saned@ wickedd
```

indirect

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default  
root=UUID=6079f3c4-d2d9-4c4b-9d1e-bcf377d7f052  
splash=silent  
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. 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 20  
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+madvice [madvice] never  
enabled [always] madvice never  
hpage\_pmd\_size 2097152  
shmem\_enabled always within\_size advise [never] deny force

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## Platform Notes (Continued)

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 SUSE Linux Enterprise Server 15 SP5
```

20. Disk information

SPEC is set to: /home/cpu2017\_new

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 btrfs 444G 272G 172G 62% /home
```

21. /sys/devices/virtual/dmi/id

```
Vendor: HPE
Product: ProLiant DL380 Gen11
Product Family: ProLiant
Serial: CNX21000G8
```

22. dmidecode

Additional information from dmidecode 3.4 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 Hynix HMC88AGBRA193N 32 GB 2 rank 5600, configured at 5200
```

23. BIOS

(This section combines info from /sys/devices and dmidecode.)

```
BIOS Vendor: HPE
BIOS Version: 2.12
BIOS Date: 12/13/2023
BIOS Revision: 2.12
Firmware Revision: 1.50
```

## Compiler Version Notes

C | 502.gcc\_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 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)  
557.xz\_r(base, peak)

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## Compiler Version Notes (Continued)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

C | 502.gcc\_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 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)  
| 557.xz\_r(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

C++ | 520.omnetpp\_r(base, peak) 523.xalancbmk\_r(base, peak) 531.deepsjeng\_r(base, peak)  
| 541.leela\_r(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

Fortran | 548.exchange2\_r(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
Copyright (C) 1985-2023 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

502.gcc\_r: -DSPEC\_LP64

505.mcf\_r: -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.80 GHz, Intel Xeon Gold 6526Y)

SPECrate®2017\_int\_base = 340

SPECrate®2017\_int\_peak = 350

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Jan-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

## Base Portability Flags (Continued)

```
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
```

## 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/home/specdev/new_compilers/ic2023.2.3/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/home/specdev/new_compilers/ic2023.2.3/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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



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**Software Availability:** Dec-2023

## 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.profddata(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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: basepeak = yes

```

C++ benchmarks:

(Continued on next page)



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Test Date: Jan-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

## 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-EMR-rev1.0.html>

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-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-EMR-rev1.0.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml>

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