



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant ML350 Gen11

(2.40 GHz, Intel Xeon Silver 4510)

SPECrate®2017_int_base = 241

SPECrate®2017_int_peak = 248

CPU2017 License: 3

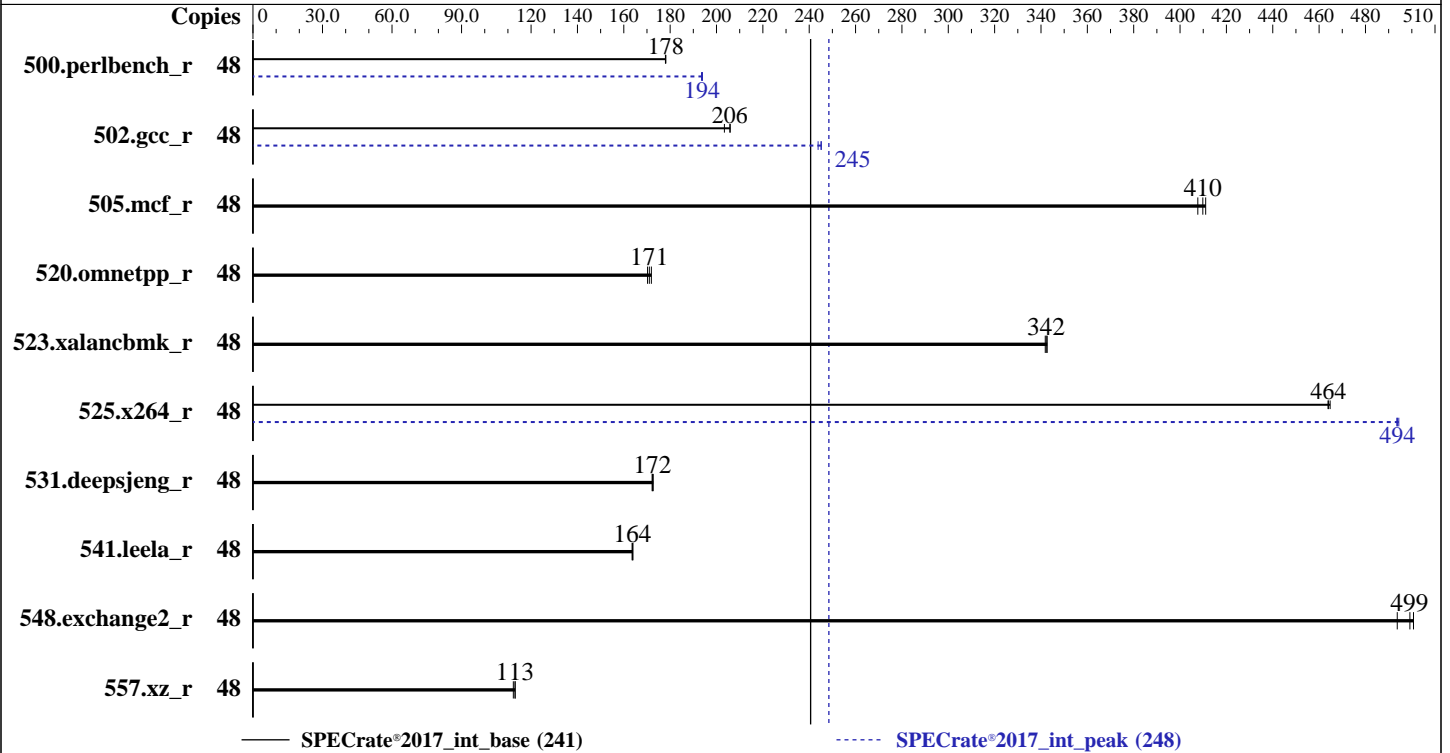
Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023



Hardware

CPU Name: Intel Xeon Silver 4510
 Max MHz: 4100
 Nominal: 2400
 Enabled: 24 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: 30 MB I+D on chip per chip
 Other: None
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-5600B-R, running at 4400)
 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	48	429	178	<u>429</u>	<u>178</u>	429	178	48	395	194	394	194	<u>394</u>	<u>194</u>
502.gcc_r	48	334	203	330	206	<u>330</u>	<u>206</u>	48	277	245	279	244	<u>277</u>	<u>245</u>
505.mcf_r	48	189	411	190	408	<u>189</u>	<u>410</u>	48	189	411	190	408	<u>189</u>	<u>410</u>
520.omnetpp_r	48	<u>368</u>	<u>171</u>	370	170	366	172	48	<u>368</u>	<u>171</u>	370	170	366	172
523.xalancbmk_r	48	148	343	148	342	<u>148</u>	<u>342</u>	48	148	343	148	342	<u>148</u>	<u>342</u>
525.x264_r	48	181	464	181	465	<u>181</u>	<u>464</u>	48	<u>170</u>	<u>494</u>	170	494	170	494
531.deepsjeng_r	48	319	172	<u>319</u>	<u>172</u>	319	173	48	319	172	<u>319</u>	<u>172</u>	319	173
541.leela_r	48	485	164	<u>485</u>	<u>164</u>	486	164	48	485	164	<u>485</u>	<u>164</u>	486	164
548.exchange2_r	48	251	501	255	494	<u>252</u>	<u>499</u>	48	251	501	255	494	<u>252</u>	<u>499</u>
557.xz_r	48	<u>458</u>	<u>113</u>	461	112	458	113	48	<u>458</u>	<u>113</u>	461	112	458	113

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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 service was stopped using "systemctl stop tuned"
```

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
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 0x2b000571 for the Intel Xeon Silver 4510 processor.

BIOS Configuration:

Workload Profile set to General Throughput Compute

Thermal Configuration set to Maximum Cooling

Memory Patrol Scrubbing set to Disabled

Enhanced Processor Performance Profile set to Aggressive

Last Level Cache (LLC) Dead Line Allocation set to Disabled

Sub-NUMA Clustering (SNC) set to Enable SNC2(2-clusters)

Workload Profile set to Custom

Adjacent Sector Prefetch set to Disabled

DCU Stream Prefetcher set to Disabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Thu Feb 8 07:32:02 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)
x86_64 x86_64 x86_64 GNU/Linux

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Platform Notes (Continued)

2. w
07:32:02 up 2 min, 0 users, load average: 0.08, 0.03, 0.00
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) 2062831
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) 2062831
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 29
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=48 -c
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=24 --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=48 --configfile
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=24 --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

6. /proc/cpuinfo
model name : INTEL(R) XEON(R) SILVER 4510
vendor_id : GenuineIntel
cpu family : 6
model : 143
stepping : 8
microcode : 0x2b000571
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores : 12
siblings : 24
2 physical ids (chips)
48 processors (hardware threads)
physical id 0: core ids 0-11
physical id 1: core ids 0-11

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Platform Notes (Continued)

physical id 0: apicids 0-23
physical id 1: apicids 64-87

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):                      48
On-line CPU(s) list:        0-47
Vendor ID:                   GenuineIntel
Model name:                  INTEL(R) XEON(R) SILVER 4510
CPU family:                  6
Model:                       143
Thread(s) per core:         2
Core(s) per socket:         12
Socket(s):                   2
Stepping:                    8
BogoMIPS:                    4800.00
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 split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                             arat pln pts 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:                   1.1 MiB (24 instances)
L1i cache:                   768 KiB (24 instances)
L2 cache:                    48 MiB (24 instances)
L3 cache:                    60 MiB (2 instances)
NUMA node(s):                4
NUMA node0 CPU(s):          0-5,24-29
NUMA node1 CPU(s):          6-11,30-35
NUMA node2 CPU(s):          12-17,36-41
NUMA node3 CPU(s):          18-23,42-47
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
Vulnerability Spectre v1:   Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:   Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRBS-eIBRS SW

```

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Platform Notes (Continued)

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	1.1M	12	Data	1	64	1	64
L1i	32K	768K	8	Instruction	1	64	1	64
L2	2M	48M	16	Unified	2	2048	1	64
L3	30M	60M	15	Unified	3	32768	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: 0-5,24-29
node 0 size: 128714 MB
node 0 free: 128157 MB
node 1 cpus: 6-11,30-35
node 1 size: 129020 MB
node 1 free: 128593 MB
node 2 cpus: 12-17,36-41
node 2 size: 128986 MB
node 2 free: 128650 MB
node 3 cpus: 18-23,42-47
node 3 size: 129009 MB
node 3 free: 128618 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: 528108392 kB

10. who -r

run-level 3 Feb 8 07:31

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 apparmor auditd cron getty@ irqbalance issue-generator kbdsettings lvm2-monitor postfix
purge-kernels rollback sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4
wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-remount-fs
disabled blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell
grub2-once haveged haveged-switch-root issue-add-ssh-keys kexec-load lunmask
rpmconfigcheck serial-getty@ systemd-boot-check-no-failures systemd-network-generator
systemd-sysext systemd-time-wait-sync systemd-timesyncd tuned
indirect wickedd

```

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Platform Notes (Continued)

13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
root=UUID=930f8b53-ff67-403e-9053-e3aa4fef0050
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
It seems that tuned daemon is not running, preset profile is not activated.
Preset 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 60
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

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

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Platform Notes (Continued)

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
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 btrfs 446G 207G 239G 47% /home

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

Vendor: HPE
Product: ProLiant ML350 Gen11
Product Family: ProLiant
Serial: CNX20800P4

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 4400

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: 1.54

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)

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

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Compiler Version Notes (Continued)

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
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

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Base Portability Flags (Continued)

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

Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64

502.gcc_r: -D_FILE_OFFSET_BITS=64

505.mcf_r: -DSPEC_LP64

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant ML350 Gen11

(2.40 GHz, Intel Xeon Silver 4510)

SPECrate®2017_int_base = 241

SPECrate®2017_int_peak = 248

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

Peak 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
```

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:

520.omnetpp_r: basepeak = yes

(Continued on next page)



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Hardware Availability: Feb-2024

Software Availability: Dec-2023

Peak Optimization Flags (Continued)

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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