



SPEC CPU®2017 Integer Rate Result

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Fusionstor
(Test Sponsor: Meganet)

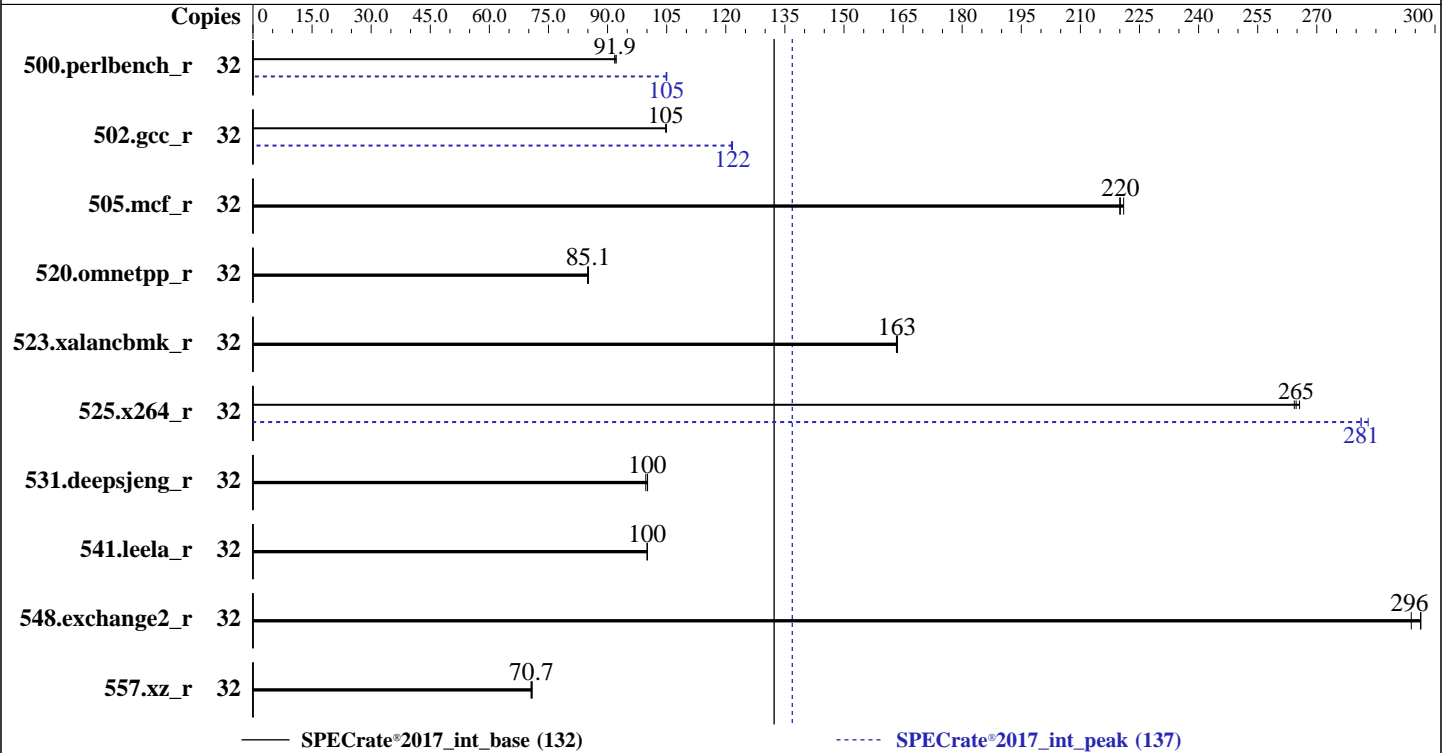
SPECrate®2017_int_base = 132

Invento i6327 (Intel Xeon Silver 4309Y)

SPECrate®2017_int_peak = 137

CPU2017 License: 6221
Test Sponsor: Meganet
Tested by: Fusionstor system

Test Date: Jul-2024
Hardware Availability: Dec-2021
Software Availability: Nov-2023



Hardware

CPU Name: Intel Xeon Silver 4309Y
Max MHz: 3600
Nominal: 2800
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1-2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1.25 MB I+D on chip per core
L3: 12 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R, running at 2666)
Storage: 960 GB SATA SSD
Other: CPU Cooling: Air

Software

OS: Ubuntu 22.04.4 LTS
6.5.0-41-generic
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: version w25.33.03 released Nov-2023
File System: ext4
System State: Run level 5 (multi-user mode)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: Default



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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	32	552	92.2	<u>555</u>	<u>91.9</u>	555	91.8	32	486	105	485	105	<u>485</u>	<u>105</u>
502.gcc_r	32	<u>432</u>	<u>105</u>	432	105	432	105	32	<u>372</u>	<u>122</u>	373	121	372	122
505.mcf_r	32	<u>235</u>	<u>220</u>	235	220	234	221	32	<u>235</u>	<u>220</u>	235	220	234	221
520.omnetpp_r	32	494	84.9	<u>493</u>	<u>85.1</u>	493	85.1	32	494	84.9	<u>493</u>	<u>85.1</u>	493	85.1
523.xalancbmk_r	32	207	163	207	164	<u>207</u>	<u>163</u>	32	207	163	207	164	<u>207</u>	<u>163</u>
525.x264_r	32	<u>212</u>	<u>265</u>	211	266	212	264	32	<u>199</u>	<u>281</u>	198	283	199	281
531.deepsjeng_r	32	368	99.7	<u>366</u>	<u>100</u>	366	100	32	368	99.7	<u>366</u>	<u>100</u>	366	100
541.leela_r	32	530	100	529	100	<u>530</u>	<u>100</u>	32	530	100	529	100	<u>530</u>	<u>100</u>
548.exchange2_r	32	<u>283</u>	<u>296</u>	283	296	285	294	32	<u>283</u>	<u>296</u>	283	296	285	294
557.xz_r	32	<u>489</u>	<u>70.7</u>	488	70.9	490	70.6	32	<u>489</u>	<u>70.7</u>	488	70.9	490	70.6

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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"
Kernel version used in not LTS and patch xx is applied

Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH =  
    "/home/speccpu/cpu2017/lib/intel64:/home/speccpu/cpu2017/lib/ia32:/home/speccpu/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
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>
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>



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Platform Notes

Sysinfo program /home/speccpu/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on intel Fri Jul 12 12:44:24 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 (249.11-0ubuntu3.12)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
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 intel 6.5.0-41-generic #41~22.04.2-Ubuntu SMP PREEMPT_DYNAMIC Mon Jun 3 11:32:55 UTC 2 x86_64 x86_64 x86_64 GNU/Linux

2. w
12:44:24 up 10 min, 2 users, load average: 0.02, 0.05, 0.03

USER	TTY	FROM	LOGIN@	IDLE	JCPU	PCPU	WHAT
intel	:1	:1	12:34	?xdm?	3:24	0.01s	/usr/libexec/gdm-x-session --run-script env
							GNOME_SHELL_SESSION_MODE=ubuntu /usr/bin/gnome-session --session=ubuntu
intel	pts/1	-	12:44	7.00s	1.11s	0.00s	sudo
							./reportable-ic2023.2.3-lin-core-avx512-rate-smt-on-20231121.sh

3. Username
From environment variable \$USER: root
From the command 'logname': intel

4. ulimit -a

time(seconds)	unlimited
file(blocks)	unlimited
data(kbytes)	unlimited
stack(kbytes)	unlimited
coredump(blocks)	0

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Platform Notes (Continued)

```
memory(kbytes)          unlimited
locked memory(kbytes)  132060016
process                 4126573
nofiles                 1024
vmemory(kbytes)        unlimited
locks                   unlimited
rtprio                  0
```

```
-----
5. sysinfo process ancestry
/sbin/init splash
/lib/systemd/systemd --user
/usr/libexec/gnome-terminal-server
bash
sudo ./reportable-ic2023.2.3-lin-core-avx512-rate-smt-on-20231121.sh
sudo ./reportable-ic2023.2.3-lin-core-avx512-rate-smt-on-20231121.sh
sh ./reportable-ic2023.2.3-lin-core-avx512-rate-smt-on-20231121.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
ic2023.2.3-lin-core-avx512-rate-20231121.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
ic2023.2.3-lin-core-avx512-rate-20231121.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 refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.015/temlogs/preenv.intrate.015.0.log --lognum 015.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/speccpu/cpu2017
```

```
-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Silver 4309Y CPU @ 2.80GHz
vendor_id      : GenuineIntel
cpu family     : 6
model          : 106
stepping       : 6
microcode      : 0xd0003d1
bugs           : apic_cle spectre_v1 spectre_v2 spec_store_bypass swapgs mmio_stale_data eibrs_pbrsb gds
                bhi
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 64-79
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
```

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Platform Notes (Continued)

```

Model name: Intel(R) Xeon(R) Silver 4309Y CPU @ 2.80GHz
CPU family: 6
Model: 106
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 2
Stepping: 6
CPU max MHz: 3600.0000
CPU min MHz: 800.0000
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 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 invpcid_single
intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 avx2 smep bmi2
erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma
clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt
xsaves xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
split_lock_detect wbnoinvd dtherm ida arat pln pts hwp hwp_act_window
hwp_epp hwp_pkg_req vmmi avx512vbmi umip pku ospke avx512_vbmi2 gfni
vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57
rdpid fsrm md_clear pconfig flush_l1d arch_capabilities

Virtualization: VT-x
L1d cache: 768 KiB (16 instances)
L1i cache: 512 KiB (16 instances)
L2 cache: 20 MiB (16 instances)
L3 cache: 24 MiB (2 instances)
NUMA node(s): 2
NUMA node0 CPU(s): 0-7,16-23
NUMA node1 CPU(s): 8-15,24-31
Vulnerability Gather data sampling: Mitigation; Microcode
Vulnerability Itlb multihit: Not affected
Vulnerability Lltf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Mitigation; Clear CPU buffers; SMT vulnerable
Vulnerability Retbleed: Not affected
Vulnerability Spec rstack overflow: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
PBRSE-eIBRS SW sequence; BHI Syscall hardening, KVM SW loop
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	1.3M	20M	20	Unified	2	1024	1	64
L3	12M	24M	12	Unified	3	16384	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 2 nodes (0-1)

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Platform Notes (Continued)

```
node 0 cpus: 0-7,16-23
node 0 size: 515681 MB
node 0 free: 513832 MB
node 1 cpus: 8-15,24-31
node 1 size: 516037 MB
node 1 free: 514095 MB
node distances:
node 0 1
  0: 10 20
  1: 20 10
```

```
-----
9. /proc/meminfo
   MemTotal:      1056480136 kB
```

```
-----
10. who -r
    run-level 5 Jul 12 12:35
```

```
-----
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.12)
    Default Target   Status
    graphical        degraded
```

```
-----
12. Failed units, from systemctl list-units --state=failed
    UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
    * NetworkManager-wait-online.service loaded failed failed Network Manager Wait Online
```

```
-----
13. Services, from systemctl list-unit-files
    STATE      UNIT FILES
    enabled    ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
              accounts-daemon anacron anydesk apparmor avahi-daemon bluetooth console-setup cron cups
              cups-browsed dmesg e2scrub_reap getty@ gpu-manager grub-common grub-initrd-fallback
              irqbalance kerneloops keyboard-setup networkd-dispatcher openvpn power-profiles-daemon
              rsyslog secureboot-db setvtrgb snapd ssh switcheroo-control systemd-oom systemd-pstore
              systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw
              unattended-upgrades wpa_supplicant
    enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
    disabled    acpid brltty console-getty debug-shell nftables openvpn-client@ openvpn-server@ openvpn@
              rsync rtkit-daemon serial-getty@ speech-dispatcherd systemd-boot-check-no-failures
              systemd-network-generator systemd-networkd systemd-networkd-wait-online systemd-sysext
              systemd-time-wait-sync upower wpa_supplicant-nl80211@ wpa_supplicant-wired@
              wpa_supplicant@
    generated   apport speech-dispatcher
    indirect    saned@ spice-vdagentd uidd
    masked      alsa-utils cryptdisks cryptdisks-early hwclock pulseaudio-enable-autospawn rc rcS saned
              screen-cleanup sudo x11-common
```

```
-----
14. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-6.5.0-41-generic
    root=UUID=eed05ad7-3678-4b37-aff7-318ba9064a38
    ro
    quiet
    splash
    vt.handoff=7
```

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Platform Notes (Continued)

```

15. 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

-----

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

-----

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 Ubuntu 22.04.4 LTS

-----

19. Disk information
    SPEC is set to: /home/speccpu/cpu2017
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       ext4  879G  244G  591G  30% /

-----

20. /sys/devices/virtual/dmi/id
    Vendor:      Fusionstor
    Product:     Invento i6327
    Product Family: Family
    Serial:      i6327240317

-----

21. 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

```

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Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

16x NO DIMM NO DIMM
16x Samsung M393A8G40CB4-CWE 64 GB 2 rank 3200, configured at 2666

22. BIOS

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

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: W25.33.03
BIOS Date: 11/16/2023
BIOS Revision: 5.22

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
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

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Compiler Version Notes (Continued)

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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
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -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
-lqkmallo

C++ benchmarks:

-w -std=c++14 -m64 -Wl,-z,muldefs -xCORE-AVX512 -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
-lqkmallo

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SPECrate®2017_int_peak = 137

CPU2017 License: 6221
Test Sponsor: Meganet
Tested by: Fusionstor system

Test Date: Jul-2024
Hardware Availability: Dec-2021
Software Availability: Nov-2023

Base Optimization Flags (Continued)

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -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
-lqkmallocc
```

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
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
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

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Peak Optimization Flags (Continued)

500.perlbench_r (continued):

```
-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 -xCORE-AVX512 -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

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/Intel-ic2023p2-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Fusionstor-Platform-Flags-Intel-ICX-rev3.html>

You can also download the XML flags sources by saving the following links:

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

<http://www.spec.org/cpu2017/flags/Fusionstor-Platform-Flags-Intel-ICX-rev3.xml>



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