SPEC CPU®2017 Integer Rate Result

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Supermicro
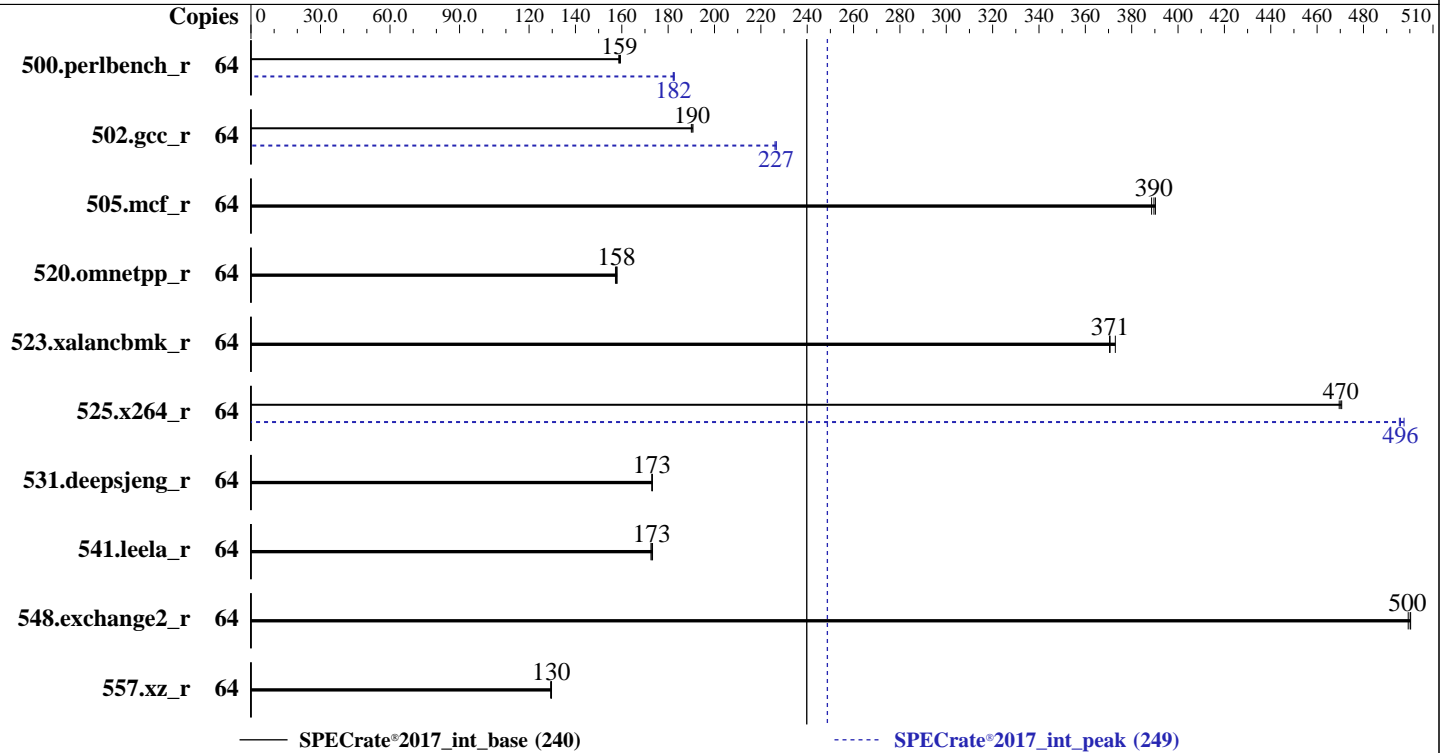
SuperServer SYS-620C-TN12R
(X12DDW-A6 , Intel Xeon Silver 4314)

$SPECrate^{®}2017\_int\_base = 240$

$SPECrate^{®}2017\_int\_peak = 249$

CPU2017 License: 9019	**Test Date:** Jul-2023
Test Sponsor: Supermicro	**Hardware Availability:** Mar-2023
Tested by: Supermicro	**Software Availability:** Dec-2022

SPECrate®2017_int_base (240)   SPECrate®2017_int_peak (249)

Hardware

CPU Name: Intel Xeon Silver 4314
 Max MHz: 3400
 Nominal: 2400
Enabled: 32 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: 24 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R, running at 2666)
Storage: 1 x 2 TB SATA HDD, 7200RPM
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
 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: Version 1.5 released Mar-2023
File System: xfs
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 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	**641**	**159**	642	159	639	159	64	559	182	**559**	**182**	558	183
502.gcc_r	64	**476**	**190**	475	191	477	190	64	**400**	**227**	401	226	400	227
505.mcf_r	64	266	389	265	390	**265**	**390**	64	266	389	265	390	**265**	**390**
520.omnetpp_r	64	532	158	534	157	**532**	**158**	64	532	158	534	157	**532**	**158**
523.xalancbmk_r	64	**182**	**371**	181	373	182	370	64	**182**	**371**	181	373	182	370
525.x264_r	64	238	471	**238**	**470**	239	470	64	226	495	**226**	**496**	225	498
531.deepsjeng_r	64	**424**	**173**	424	173	423	173	64	**424**	**173**	424	173	423	173
541.leela_r	64	614	173	**613**	**173**	612	173	64	614	173	**613**	**173**	612	173
548.exchange2_r	64	336	499	335	500	**335**	**500**	64	336	499	335	500	**335**	**500**
557.xz_r	64	535	129	**533**	**130**	533	130	64	535	129	**533**	**130**	533	130
SPECrate®2017_int_base =	**240**													
SPECrate®2017_int_peak =	**249**													

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.
```

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"
```

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"
```

Standard Performance Evaluation Corporation (info@spec.org)

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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>

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

Platform Notes

```
BIOS Settings:
 Adjacent Cache prefetch = Disable
 LLC Dead Line Alloc = Disable
 DCU Streamer Prefetcher = Disable
 ADDDC Sparing = Disabled
 SNC (Sub NVMA) = Enable SNC2 (2-clusters)

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on 105-55 Tue Jul 11 11:32:51 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)
 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
```

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Platform Notes (Continued)

```
          -------------------------------------------------------

          -------------------------------------------------------
          1. uname -a
            Linux 105-55 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
            11:32:51 up 2 min,  3 users,  load average: 0.80, 0.95, 0.42
            USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
            root     tty1     -                11:31    9.00s  1.28s  0.01s -bash

          -------------------------------------------------------
          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) 4124971
            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) 4124971
            virtual memory          (kbytes, -v) unlimited
            file locks                      (-x) unlimited

          -------------------------------------------------------
          5. sysinfo process ancestry
           /usr/lib/systemd/systemd --switched-root --system --deserialize 30
           login -- root
           -bash
           -bash
           runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 -c
             ic2023.0-lin-core-avx512-rate-20221201.cfg --define smt-on --define cores=32 --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
             ic2023.0-lin-core-avx512-rate-20221201.cfg --define smt-on --define cores=32 --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/CPU2017.005/templogs/preenv.intrate.005.0.log --lognum 005.0 --from_runcpu 2
           specperl $SPEC/bin/sysinfo
          $SPEC = /home/cpu2017

          -------------------------------------------------------
          6. /proc/cpuinfo
             model name      : Intel(R) Xeon(R) Silver 4314 CPU @ 2.40GHz
             vendor_id       : GenuineIntel
             cpu family      : 6
             model           : 106
             stepping        : 6
```

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Platform Notes (Continued)

```
     microcode       : 0xd000390
     bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
     cpu cores       : 16
     siblings        : 32
     2 physical ids (chips)
     64 processors (hardware threads)
     physical id 0: core ids 0-15
     physical id 1: core ids 0-15
     physical id 0: apicids 0-31
     physical id 1: apicids 64-95
  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):                   64
    On-line CPU(s) list:      0-63
    Vendor ID:                GenuineIntel
    Model name:               Intel(R) Xeon(R) Silver 4314 CPU @ 2.40GHz
    CPU family:               6
    Model:                    106
    Thread(s) per core:       2
    Core(s) per socket:       16
    Socket(s):                2
    Stepping:                 6
    CPU max MHz:              3400.0000
    CPU min MHz:              800.0000
    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 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 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 wbnoinvd
                              dtherm ida arat pln pts 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:                1.5 MiB (32 instances)
    L1i cache:                1 MiB (32 instances)
    L2 cache:                 40 MiB (32 instances)
    L3 cache:                 48 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
```

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Platform Notes (Continued)

```
  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     1.5M   12 Data           1    64        1             64
      L1i       32K       1M    8 Instruction    1    64        1             64
      L2       1.3M      40M   20 Unified        2  1024        1             64
      L3        24M      48M   12 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: 0-7,32-39
   node 0 size: 257519 MB
   node 0 free: 255103 MB
   node 1 cpus: 8-15,40-47
   node 1 size: 258009 MB
   node 1 free: 257507 MB
   node 2 cpus: 16-23,48-55
   node 2 size: 258043 MB
   node 2 free: 257680 MB
   node 3 cpus: 24-31,56-63
   node 3 size: 257693 MB
   node 3 free: 257262 MB
   node distances:
   node   0   1   2   3
     0:  10  11  20  20
     1:  11  10  20  20
     2:  20  20  10  11
     3:  20  20  11  10


 ---------------------------------------------------------------
 9. /proc/meminfo
    MemTotal:       1056017356 kB


 ---------------------------------------------------------------
 10. who -r
   run-level 3 Jul 11 11:31 last=5


 ---------------------------------------------------------------
 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          YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager
                    firewalld getty@ haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early
                    klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd wicked
                    wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
   enabled-runtime  systemd-remount-fs
```

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Platform Notes (Continued)

```
   disabled           accounts-daemon appstream-sync-cache autofs autoyast-initscripts blk-availability
                      bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
                      cups-browsed debug-shell ebtables exchange-bmc-os-info gpm grub2-once haveged-switch-root
                      ipmi ipmievd iscsi-init iscsid iscsiuio issue-add-ssh-keys kexec-load lunmask
                      man-db-create multipathd nfs nfs-blkmap nmb ostree-remount rdisc 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 udisks2 upower
   indirect           wickedd


  ----------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
    root=UUID=ebf0634e-4c48-4c5b-86b6-a36f33a307a7
    splash=silent
    resume=/dev/disk/by-uuid/cf02ba25-9f51-46af-b067-8adca89c27bb
    mitigations=auto
    quiet
    security=apparmor
    crashkernel=321M,high
    crashkernel=72M,low


  ----------------------------------------------------------
  14. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 3.40 GHz.
                      The governor "powersave" may decide which speed to use
                      within this range.
      boost state support:
        Supported: yes
        Active: yes


  ----------------------------------------------------------
  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
```

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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/sda3      xfs   815G  6.7G  808G   1% /home

    ----------------------------------------------------------------
    20. /sys/devices/virtual/dmi/id
        Vendor:         FruPM10
        Product:        FruPPM10
        Product Family: Family
        Serial:         FruPS10

    ----------------------------------------------------------------
    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:
        16x Micron Technology 36ASF8G72PZ-3G2F1 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:     1.5
      BIOS Date:        03/23/2023
      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 2023.0.0 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)
         | 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 2023.0.0 Build 20221201
 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------


================================================================================
 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)
        | 557.xz_r(base, peak)
--------------------------------------------------------------------------------
 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.
--------------------------------------------------------------------------------


================================================================================
 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 2023.0.0 Build 20221201
 Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------


================================================================================
 Fortran | 548.exchange2_r(base, peak)
--------------------------------------------------------------------------------
 Intel(R) Fortran Compiler for applications running on Intel(R) 64, 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`
502.gcc_r: `-DSPEC_LP64`

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Base Portability Flags (Continued)

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

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/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
```

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SPEC CPU®2017 Integer Rate Result

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Supermicro

SuperServer SYS-620C-TN12R
(X12DDW-A6 , Intel Xeon Silver 4314)

SPECrate®2017_int_base = 240

SPECrate®2017_int_peak = 249

CPU2017 License: 9019
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Jul-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 -xCORE-AVX512 -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)

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SPEC CPU®2017 Integer Rate Result

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CPU2017 License: 9019
Test Sponsor: Supermicro
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Test Date: Jul-2023
Hardware Availability: Mar-2023
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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/Intel-ic2023-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SPR-revC.2023-05-23.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml`
`http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SPR-revC.2023-05-23.xml`

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