SPEC CPU®2017 Integer Rate Result

Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 6538Y+, 2.20GHz)

$SPECrate®2017\_int\_base = 604$

$SPECrate®2017\_int\_peak = 624$

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

Test Date: Feb-2024
Hardware Availability: Feb-2024
Software Availability: Dec-2023

Benchmark	Copies	base	peak
500.perlbench_r	128	463	506
502.gcc_r	128	494	596
505.mcf_r	128	947	
520.omnetpp_r	128	389	
523.xalancbmk_r	128	793	
525.x264_r	128	1240	1300
531.deepsjeng_r	128	448	
541.leela_r	128	439	
548.exchange2_r	128	1350	
557.xz_r	128	293	

SPECrate®2017_int_base (604)   SPECrate®2017_int_peak (624)

Hardware

CPU Name: Intel Xeon Gold 6538Y+
 Max MHz: 4000
 Nominal: 2200
Enabled: 64 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 60 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R, running at 5200)
Storage: 1 TB SATA SSDs 6Gb/s
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4 5.14.21-150400.22-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: Version 4.3.3a released Jan-2024
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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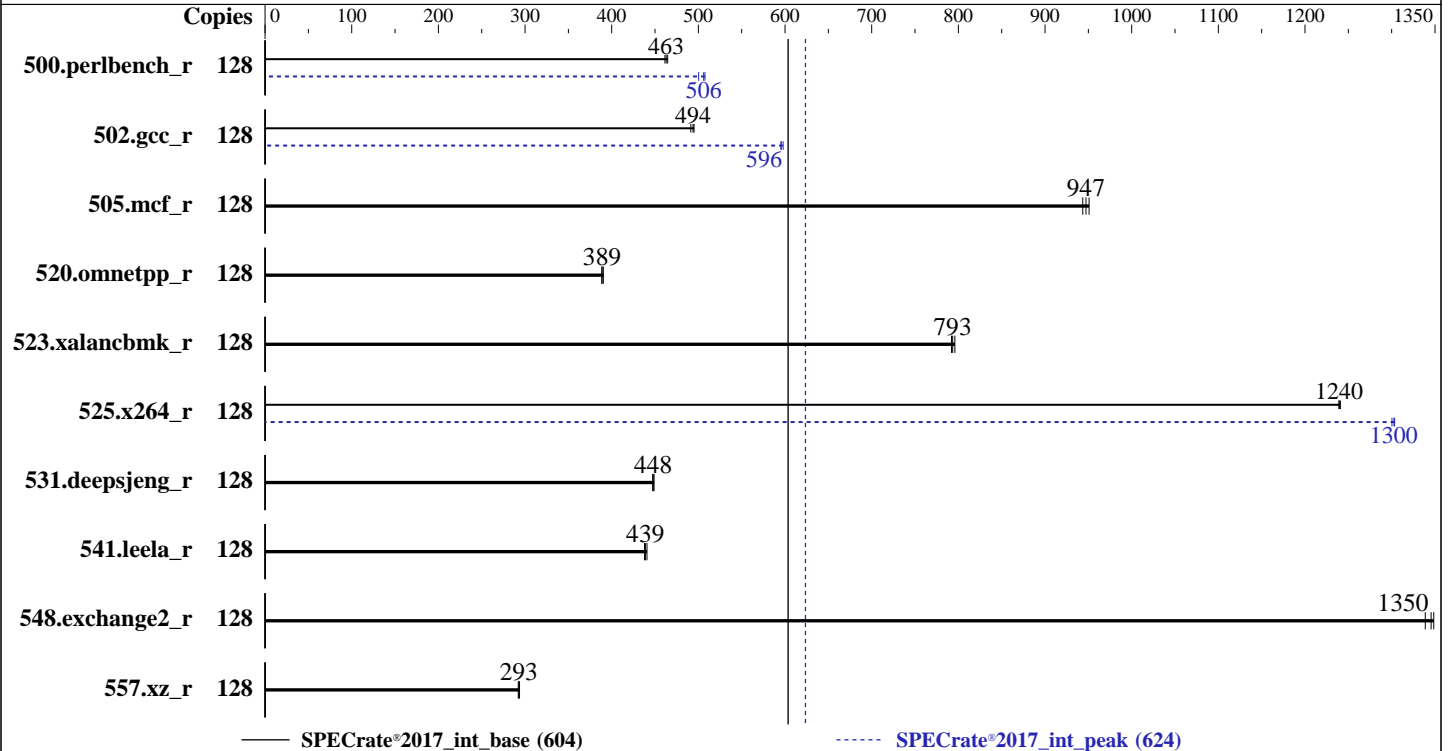
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	128	439	465	442	461	**440**	**463**	128	401	508	**403**	**506**	407	500
502.gcc_r	128	**367**	**494**	366	495	369	491	128	**304**	**596**	304	595	303	598
505.mcf_r	128	218	951	219	944	**218**	**947**	128	218	951	219	944	**218**	**947**
520.omnetpp_r	128	**432**	**389**	432	389	430	390	128	**432**	**389**	432	389	430	390
523.xalancbmk_r	128	171	792	170	796	**170**	**793**	128	171	792	170	796	**170**	**793**
525.x264_r	128	**181**	**1240**	181	1240	181	1240	128	**172**	**1300**	172	1300	172	1300
531.deepsjeng_r	128	327	449	**327**	**448**	328	447	128	327	449	**327**	**448**	328	447
541.leela_r	128	**483**	**439**	484	438	481	441	128	**483**	**439**	484	438	481	441
548.exchange2_r	128	249	1350	**249**	**1350**	250	1340	128	249	1350	**249**	**1350**	250	1340
557.xz_r	128	471	294	**472**	**293**	473	292	128	471	294	**472**	**293**	473	292
SPECrate®2017_int_base =		**604**												
SPECrate®2017_int_peak =		**624**												

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"
```

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
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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
```

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Test Date: Feb-2024
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Software Availability: Dec-2023

General Notes (Continued)

```
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.
```

Platform Notes

```
BIOS Settings:
Sub NUMA Clustering set to Enable SNC2(2-clusters)
Adjacent cache line prefetcher set to Enabled
DCU streamer prefetch set to Disabled
Enhanced CPU performance set to Auto
LLC Dead Line set to Disabled
Processor C6 Report set to Enabled
ADDDC Sparing set to Disabled


 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on speccpu-EMR Wed Feb 21 23:59:14 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+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
 -----------------------------------------------------------


 -----------------------------------------------------------
 1. uname -a
   Linux speccpu-EMR 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
   23:59:14 up 4 min,  1 user,  load average: 0.11, 0.19, 0.09
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
```

(Continued on next page)

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Platform Notes (Continued)

```
   root     tty1         -                  23:57   10.00s  1.11s  0.12s -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) 4126759
     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) 4126759
     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
    sh runrate.ic2023.sh
    runcpu --action=build --action validate --define default-platform-flags --define numcopies=128 -c
      ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --reportable --iterations 3 --define smt-on --define
      cores=64 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune all -o all
      intrate
    runcpu --action build --action validate --define default-platform-flags --define numcopies=128 --configfile
      ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --reportable --iterations 3 --define smt-on --define
      cores=64 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune all
      --output_format all --nopower --runmode rate --tune base:peak --size refrate intrate --nopreenv
      --note-preenv --logfile $SPEC/tmp/CPU2017.010/templogs/preenv.intrate.010.0.log --lognum 010.0
      --from_runcpu 2
    specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017


   ----------------------------------------------------------
   6. /proc/cpuinfo
       model name       : INTEL(R) XEON(R) GOLD 6538Y+
       vendor_id        : GenuineIntel
       cpu family       : 6
       model            : 207
       stepping         : 2
       microcode        : 0x21000200
       bugs             : spectre_v1 spectre_v2 spec_store_bypass swapgs
       cpu cores        : 32
       siblings         : 64
       2 physical ids (chips)
       128 processors (hardware threads)
       physical id 0: core ids 0-31
       physical id 1: core ids 0-31
       physical id 0: apicids 0-63
```

(Continued on next page)

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Platform Notes (Continued)

```
     physical id 1: apicids 128-191
   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):                      128
     On-line CPU(s) list:         0-127
     Vendor ID:                   GenuineIntel
     Model name:                  INTEL(R) XEON(R) GOLD 6538Y+
     CPU family:                  6
     Model:                       207
     Thread(s) per core:          2
     Core(s) per socket:          32
     Socket(s):                   2
     Stepping:                    2
     CPU max MHz:                 4000.0000
     CPU min MHz:                 800.0000
     BogoMIPS:                    4400.00
     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 hwp
                                  hwp_act_window hwp_epp hwp_pkg_req 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_l1d arch_capabilities
     Virtualization:              VT-x
     L1d cache:                   3 MiB (64 instances)
     L1i cache:                   2 MiB (64 instances)
     L2 cache:                    128 MiB (64 instances)
     L3 cache:                    120 MiB (2 instances)
     NUMA node(s):                4
     NUMA node0 CPU(s):           0-15,64-79
     NUMA node1 CPU(s):           16-31,80-95
     NUMA node2 CPU(s):           32-47,96-111
     NUMA node3 CPU(s):           48-63,112-127
     Vulnerability Itlb multihit: Not affected
     Vulnerability L1tf:          Not affected
     Vulnerability Mds:           Not affected
     Vulnerability Meltdown:      Not affected
     Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
     Vulnerability Spectre v1:        Mitigation; usercopy/swapgs barriers and __user pointer sanitization
     Vulnerability Spectre v2:        Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
```

(Continued on next page)

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Platform Notes (Continued)

```
  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       3M   12 Data            1    64        1             64
    L1i       32K       2M    8 Instruction     1    64        1             64
    L2         2M     128M   16 Unified         2  2048        1             64
    L3        60M     120M   15 Unified         3 65536        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: 0-15,64-79
  node 0 size: 257675 MB
  node 0 free: 256491 MB
  node 1 cpus: 16-31,80-95
  node 1 size: 258005 MB
  node 1 free: 257464 MB
  node 2 cpus: 32-47,96-111
  node 2 size: 258039 MB
  node 2 free: 257538 MB
  node 3 cpus: 48-63,112-127
  node 3 size: 257992 MB
  node 3 free: 257510 MB
  node distances:
  node   0   1   2   3
    0:  10  12  21  21
    1:  12  10  21  21
    2:  21  21  10  12
    3:  21  21  12  10


-------------------------------------------------------------
9. /proc/meminfo
   MemTotal:      1056474664 kB


-------------------------------------------------------------
10. who -r
  run-level 3 Feb 21 23:55


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


-------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE           UNIT FILES
  enabled         YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ haveged
                  irqbalance issue-generator kbdsettings 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
  disabled        autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                  chronyd console-getty cups cups-browsed debug-shell ebtables exchange-bmc-os-info
                  firewalld gpm grub2-once haveged-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load
                  lunmask man-db-create multipathd nfs nfs-blkmap rdisc rpcbind rpmconfigcheck rsyncd
                  serial-getty@ smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures
                  systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
```

(Continued on next page)

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SPECrate®2017_int_base = 604

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Platform Notes (Continued)

```
    indirect         wickedd


   --------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
    root=UUID=155d53d1-2428-4816-a80b-8d0438d0586b
    splash=silent
    mitigations=auto
    quiet
    security=apparmor


   --------------------------------------------------------------
14. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 4.00 GHz.
                      The governor "performance" 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                    1
    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
```

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Platform Notes (Continued)

```
    ----------------------------------------------------------------
    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/sdb2       btrfs  892G   21G  871G   3% /home

    ----------------------------------------------------------------
    20. /sys/devices/virtual/dmi/id
        Vendor:         Cisco Systems Inc
        Product:        UCSX-210C-M7
        Serial:         FCH270978F5

    ----------------------------------------------------------------
    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 0xCE00 M321R8GA0PB0-CWMCH 64 GB 2 rank 5600, configured at 5200


    ----------------------------------------------------------------
    22. BIOS
    (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:        Cisco Systems, Inc.
      BIOS Version:       X210M7.4.3.3a.0.0118241337
      BIOS Date:          01/18/2024
      BIOS Revision:      5.32
```

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.
------------------------------------------------------------------------------
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

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Compiler Version Notes (Continued)

```
==============================================================================
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`
557.xz_r: `-DSPEC_LP64`

SPEC CPU®2017 Integer Rate Result

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Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 6538Y+, 2.20GHz)

SPECrate®2017_int_base = 604

SPECrate®2017_int_peak = 624

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Feb-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

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`
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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Peak Portability Flags (Continued)

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/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.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

505.mcf_r: `basepeak = yes`

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/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`

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Peak Optimization Flags (Continued)

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/Cisco-Platform-Settings-V1.0-EMR-revB.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/Cisco-Platform-Settings-V1.0-EMR-revB.xml`

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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