SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

$SPECrate®2017\_int\_base = 527$

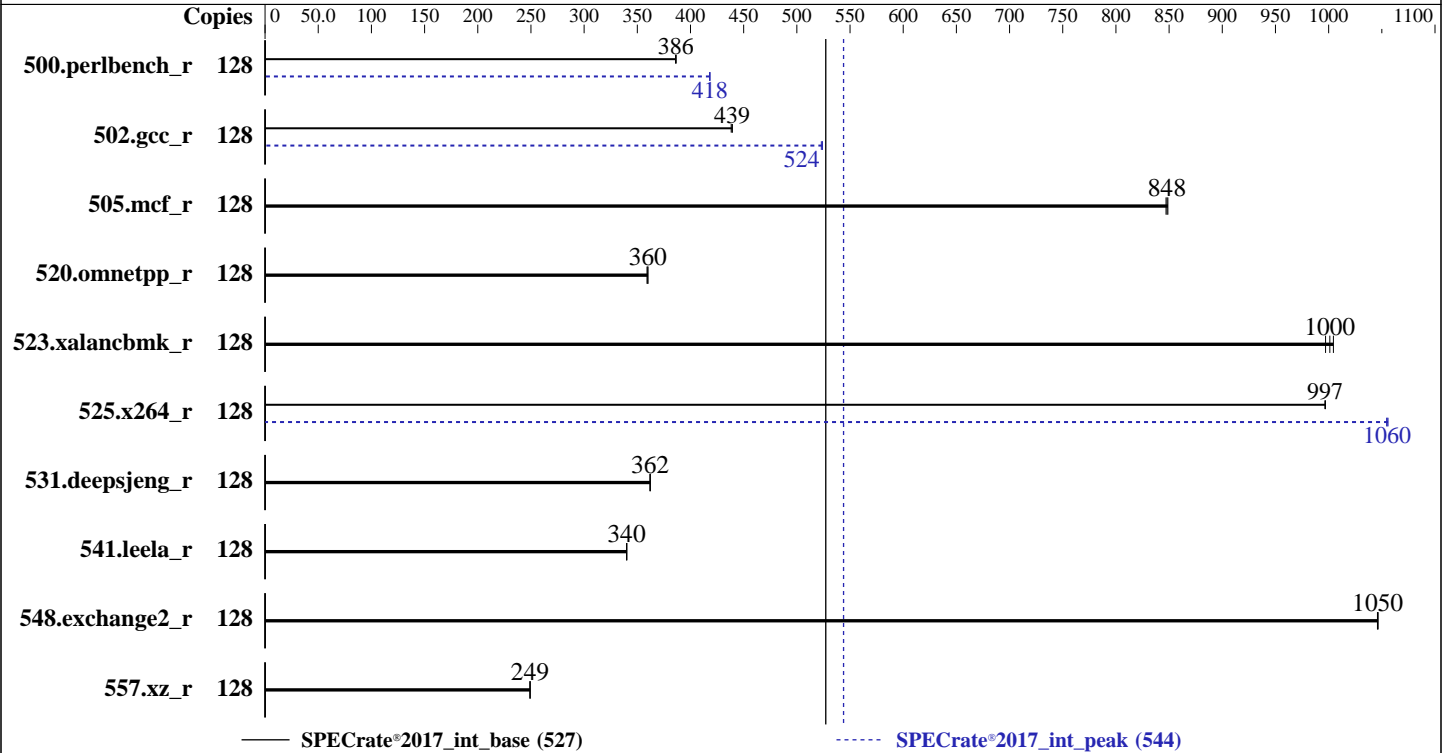$SPECrate®2017\_int\_peak = 544$

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Copies		
500.perlbench_r	128	386 / 418
502.gcc_r	128	439 / 524
505.mcf_r	128	848
520.omnetpp_r	128	360
523.xalancbmk_r	128	1000
525.x264_r	128	997 / 1060
531.deepsjeng_r	128	362
541.leela_r	128	340
548.exchange2_r	128	1050
557.xz_r	128	249

SPECrate®2017_int_base (527)   SPECrate®2017_int_peak (544)

Hardware

CPU Name: Intel Xeon Gold 6430
 Max MHz: 3400
 Nominal: 2100
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 PC5-4800B-R, running at 4400)
Storage: 1 x 960 GB M.2 SSD SATA
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 4.2.600 released Jan-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

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	128	527	386	528	386	**527**	**386**	128	**487**	**418**	487	418	487	418
502.gcc_r	128	413	439	414	438	**413**	**439**	128	347	523	**346**	**524**	346	524
505.mcf_r	128	244	849	**244**	**848**	244	847	128	244	849	**244**	**848**	244	847
520.omnetpp_r	128	467	360	468	359	**467**	**360**	128	467	360	468	359	**467**	**360**
523.xalancbmk_r	128	**135**	**1000**	136	997	135	1000	128	**135**	**1000**	136	997	135	1000
525.x264_r	128	**225**	**997**	225	997	225	997	128	**212**	**1060**	213	1050	212	1060
531.deepsjeng_r	128	405	362	405	362	**405**	**362**	128	405	362	405	362	**405**	**362**
541.leela_r	128	**623**	**340**	623	340	623	340	128	**623**	**340**	623	340	623	340
548.exchange2_r	128	320	1050	**321**	**1050**	321	1050	128	320	1050	**321**	**1050**	321	1050
557.xz_r	128	555	249	555	249	**555**	**249**	128	555	249	555	249	**555**	**249**
SPECrate®2017_int_base =		**527**												
SPECrate®2017_int_peak =		**544**												

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)
https://www.spec.org/

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

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:
Sub NUMA Clustering set to Enable SNC4
LLC Dead Line set to Disabled
ADDDC Sparing set to Disabled
Processor C6 Report set to Enabled
UPI Link Enablement 3
UPI Link Power Management Enabled


 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on srv04 Wed Mar  1 00:00:35 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
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

```
    22. BIOS
   ------------------------------------------------------------

   ------------------------------------------------------------
   1. uname -a
      Linux srv04 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
       00:00:35 up 13 min,  1 user,  load average: 0.00, 0.00, 0.00
      USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
      root     tty1     -                23:53   10.00s  1.90s  0.25s -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) 4126804
      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) 4126804
      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=128 -c
      ic2023.0-lin-sapphirerapids-rate-20221201.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 --nobuild --action validate --define default-platform-flags --define numcopies=128 --configfile
      ic2023.0-lin-sapphirerapids-rate-20221201.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/CPU2017.144/templogs/preenv.intrate.144.0.log --lognum 144.0
      --from_runcpu 2
    specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017

   ------------------------------------------------------------
   6. /proc/cpuinfo
        model name      : Intel(R) Xeon(R) Gold 6430
        vendor_id       : GenuineIntel
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

```
      cpu family      : 6
      model           : 143
      stepping        : 8
      microcode       : 0x2b000161
      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
      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 6430
     CPU family:                 6
     Model:                      143
     Thread(s) per core:         2
     Core(s) per socket:         32
     Socket(s):                  2
     Stepping:                   8
     CPU max MHz:                3400.0000
     CPU min MHz:                800.0000
     BogoMIPS:                   4200.00
     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 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
                                 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced 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 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
     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):               16
     NUMA node0 CPU(s):          0-3,64-67
```

(Continued on next page)

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

```
  NUMA node1 CPU(s):           4-7,68-71
  NUMA node2 CPU(s):           8-11,72-75
  NUMA node3 CPU(s):           12-15,76-79
  NUMA node4 CPU(s):           16-19,80-83
  NUMA node5 CPU(s):           20-23,84-87
  NUMA node6 CPU(s):           24-27,88-91
  NUMA node7 CPU(s):           28-31,92-95
  NUMA node8 CPU(s):           32-35,96-99
  NUMA node9 CPU(s):           36-39,100-103
  NUMA node10 CPU(s):          40-43,104-107
  NUMA node11 CPU(s):          44-47,108-111
  NUMA node12 CPU(s):          48-51,112-115
  NUMA node13 CPU(s):          52-55,116-119
  NUMA node14 CPU(s):          56-59,120-123
  NUMA node15 CPU(s):          60-63,124-127
  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
  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: 16 nodes (0-15)
  node 0 cpus: 0-3,64-67
  node 0 size: 64508 MB
  node 0 free: 63754 MB
  node 1 cpus: 4-7,68-71
  node 1 size: 64159 MB
  node 1 free: 63878 MB
  node 2 cpus: 8-11,72-75
  node 2 size: 64509 MB
  node 2 free: 64246 MB
  node 3 cpus: 12-15,76-79
  node 3 size: 64509 MB
  node 3 free: 64247 MB
  node 4 cpus: 16-19,80-83
  node 4 size: 64509 MB
  node 4 free: 64252 MB
  node 5 cpus: 20-23,84-87
  node 5 size: 64509 MB
  node 5 free: 64240 MB
  node 6 cpus: 24-27,88-91
  node 6 size: 64509 MB
  node 6 free: 64244 MB
  node 7 cpus: 28-31,92-95
  node 7 size: 64509 MB
  node 7 free: 64254 MB
```

(Continued on next page)

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

```
   node 8 cpus: 32-35,96-99
   node 8 size: 64509 MB
   node 8 free: 64237 MB
   node 9 cpus: 36-39,100-103
   node 9 size: 64509 MB
   node 9 free: 64263 MB
   node 10 cpus: 40-43,104-107
   node 10 size: 64475 MB
   node 10 free: 64219 MB
   node 11 cpus: 44-47,108-111
   node 11 size: 64509 MB
   node 11 free: 64240 MB
   node 12 cpus: 48-51,112-115
   node 12 size: 64509 MB
   node 12 free: 64278 MB
   node 13 cpus: 52-55,116-119
   node 13 size: 64509 MB
   node 13 free: 64282 MB
   node 14 cpus: 56-59,120-123
   node 14 size: 64509 MB
   node 14 free: 64248 MB
   node 15 cpus: 60-63,124-127
   node 15 size: 64462 MB
   node 15 free: 64217 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  20  20  20  20  20  20  20  20  20  20  20  20  20  20  20
     1:  20  10  20  20  20  20  20  20  20  20  20  20  20  20  20  20
     2:  20  20  10  20  20  20  20  20  20  20  20  20  20  20  20  20
     3:  20  20  20  10  20  20  20  20  20  20  20  20  20  20  20  20
     4:  20  20  20  20  10  20  20  20  20  20  20  20  20  20  20  20
     5:  20  20  20  20  20  10  20  20  20  20  20  20  20  20  20  20
     6:  20  20  20  20  20  20  10  20  20  20  20  20  20  20  20  20
     7:  20  20  20  20  20  20  20  10  20  20  20  20  20  20  20  20
     8:  20  20  20  20  20  20  20  20  10  20  20  20  20  20  20  20
     9:  20  20  20  20  20  20  20  20  20  10  20  20  20  20  20  20
    10:  20  20  20  20  20  20  20  20  20  20  10  20  20  20  20  20
    11:  20  20  20  20  20  20  20  20  20  20  20  10  20  20  20  20
    12:  20  20  20  20  20  20  20  20  20  20  20  20  10  20  20  20
    13:  20  20  20  20  20  20  20  20  20  20  20  20  20  10  20  20
    14:  20  20  20  20  20  20  20  20  20  20  20  20  20  20  10  20
    15:  20  20  20  20  20  20  20  20  20  20  20  20  20  20  20  10


   ----------------------------------------------------------
9. /proc/meminfo
   MemTotal:      1056486428 kB


   ----------------------------------------------------------
10. who -r
   run-level 3 Feb 28 23:47


   ----------------------------------------------------------
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 getty@ haveged irqbalance
```

(Continued on next page)

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Mar-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

Platform Notes (Continued)

```
                  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 svnserve systemd-boot-check-no-failures
                  systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
  indirect        wickedd

  ----------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
  root=UUID=e05292c4-0a31-46de-94f3-3ad8c6a360dd
  splash=silent
  mitigations=auto
  quiet
  security=

  ----------------------------------------------------------------
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             0
  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

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

(Continued on next page)

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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/sdb3      xfs   218G   10G  208G   5% /


   -------------------------------------------------------------
   20. /sys/devices/virtual/dmi/id
     Vendor:         Cisco Systems Inc
     Product:        UCSC-C240-M7SX
     Serial:         WZP263592NZ


   -------------------------------------------------------------
   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 0xAD00 HMCG94MEBRA109N 64 GB 2 rank 4800, configured at 4400



   -------------------------------------------------------------
   22. BIOS
   (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:        Cisco Systems, Inc.
     BIOS Version:       C240M7.4.2.600.594.0120230612
     BIOS Date:          01/20/2023
     BIOS Revision:      5.29
```

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)
----------------------------------------------------------------------------------------------
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.
```

(Continued on next page)

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

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

Test Date: Mar-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Compiler Version Notes (Continued)

```
----------------------------------------------------------------------------------------
==========================================================================================
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`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`

(Continued on next page)

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

$SPECrate®2017\_int\_peak = 544$

Base Portability Flags (Continued)

523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2023.0.0/linux/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/usr/local/intel/compiler/2023.0.0/linux/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/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
```

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

CPU2017 License: 9019		**Test Date:**	Mar-2023
Test Sponsor:	Cisco Systems	**Hardware Availability:**	Mar-2023
Tested by:	Cisco Systems	**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 -xsapphirerapids -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)

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Gold 6430, 2.10GHz)

SPECrate®2017_int_base = 527

SPECrate®2017_int_peak = 544

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Mar-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

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/Cisco-Platform-Settings-V1.0-SPR-revE.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/Cisco-Platform-Settings-V1.0-SPR-revE.xml`

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

Tested with SPEC CPU®2017 v1.1.9 on 2023-03-01 03:00:34-0500.
Report generated on 2024-01-29 17:27:23 by CPU2017 PDF formatter v6716.
Originally published on 2023-03-28.