SPEC CPU®2017 Integer Rate Result

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Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8444H, 2.90GHz)

$SPECrate^{®}2017\_int\_base = 328$

$SPECrate^{®}2017\_int\_peak = 338$

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

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

Benchmark	Copies	base	peak
500.perlbench_r	64	234	253
502.gcc_r	64	279	328
505.mcf_r	64	533	
520.omnetpp_r	64	232	
523.xalancbmk_r	64	655	
525.x264_r	64	609	645
531.deepsjeng_r	64	222	
541.leela_r	64	209	
548.exchange2_r	64	647	
557.xz_r	64	149	

SPECrate®2017_int_base (328)   SPECrate®2017_int_peak (338)

Hardware

CPU Name: Intel Xeon Platinum 8444H
 Max MHz: 4000
 Nominal: 2900
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: 2 MB I+D on chip per core
 L3: 45 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
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 4.3.1a released Feb-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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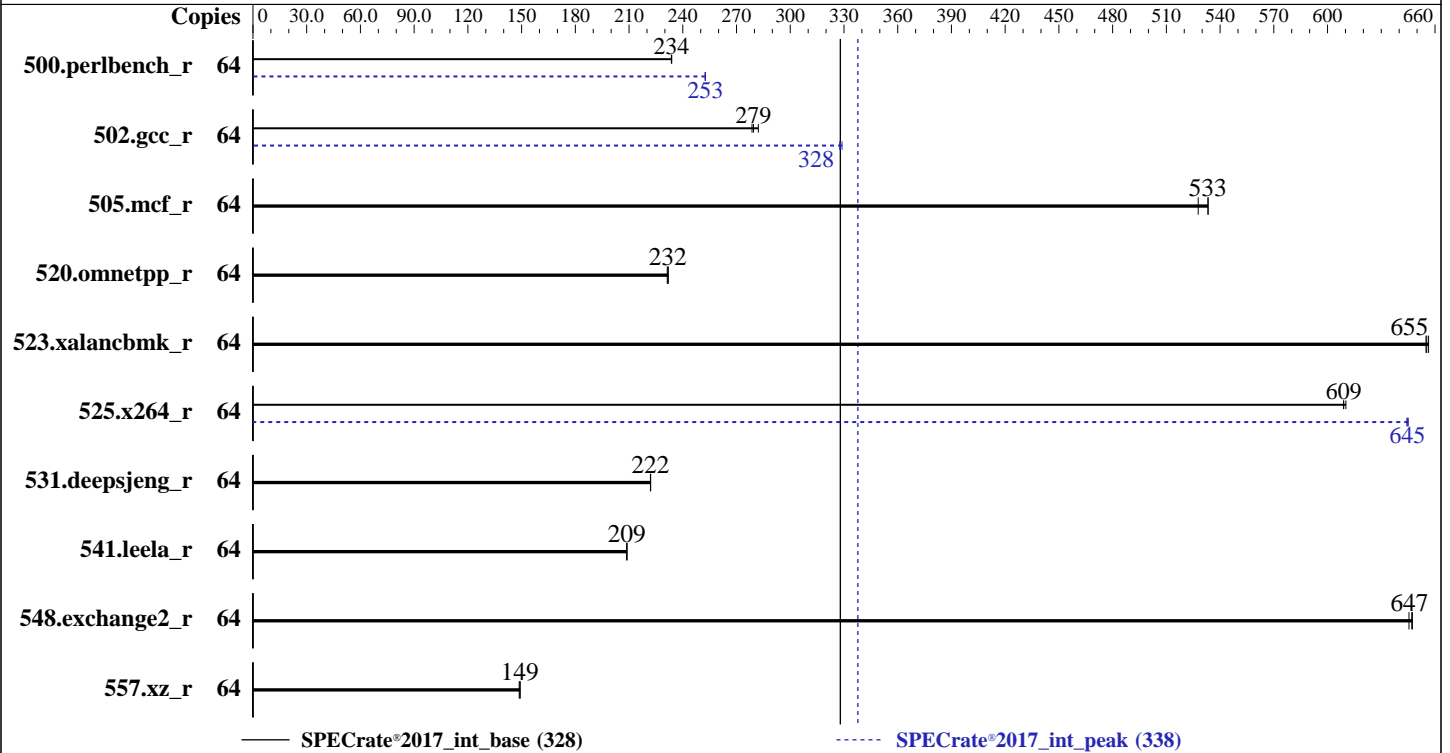SPECrate®2017_int_peak = 338

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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	**436**	**234**	436	234	436	234	64	**403**	**253**	404	252	403	253
502.gcc_r	64	325	279	321	282	**324**	**279**	64	277	328	**276**	**328**	276	329
505.mcf_r	64	196	528	**194**	**533**	194	533	64	196	528	**194**	**533**	194	533
520.omnetpp_r	64	363	231	362	232	**362**	**232**	64	363	231	362	232	**362**	**232**
523.xalancbmk_r	64	**103**	**655**	103	656	103	655	64	**103**	**655**	103	656	103	655
525.x264_r	64	**184**	**609**	184	609	184	610	64	174	645	174	644	**174**	**645**
531.deepsjeng_r	64	330	222	**330**	**222**	330	222	64	330	222	**330**	**222**	330	222
541.leela_r	64	508	209	508	209	**508**	**209**	64	508	209	508	209	**508**	**209**
548.exchange2_r	64	260	645	259	647	**259**	**647**	64	260	645	259	647	**259**	**647**
557.xz_r	64	463	149	**464**	**149**	465	149	64	463	149	**464**	**149**	465	149
SPECrate®2017_int_base =	**328**												
SPECrate®2017_int_peak =			**338**										

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"
```

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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:
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 Power Management Enabled

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on specsrv Thu Jun 22 07:53:49 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 specsrv 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
            07:53:49 up 2 min,  1 user,  load average: 2.10, 1.98, 0.83
           USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
           root     tty1      -                07:52   13.00s  1.26s  0.18s -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) 4126941
           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) 4126941
           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-sapphirerapids-rate-20221201.cfg --reportable --iterations 3 --define smt-on --define
            cores=32 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune all -o all
            intrate
          runcpu --nobuild --action validate --define default-platform-flags --define numcopies=64 --configfile
            ic2023.0-lin-sapphirerapids-rate-20221201.cfg --reportable --iterations 3 --define smt-on --define
            cores=32 --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/CPU2017.193/templogs/preenv.intrate.193.0.log --lognum 193.0
            --from_runcpu 2
          specperl $SPEC/bin/sysinfo
         $SPEC = /home/cpu2017

         --------------------------------------------------------
         6. /proc/cpuinfo
             model name       : Intel(R) Xeon(R) Platinum 8444H
             vendor_id        : GenuineIntel
             cpu family       : 6
```

(Continued on next page)

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Platform Notes (Continued)

```
    model            : 143
    stepping         : 8
    microcode        : 0x2b000161
    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 128-159
  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) Platinum 8444H
  CPU family:              6
  Model:                   143
  Thread(s) per core:      2
  Core(s) per socket:      16
  Socket(s):               2
  Stepping:                8
  CPU max MHz:             4000.0000
  CPU min MHz:             800.0000
  BogoMIPS:                5800.00
  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 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
                           tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle
                           avx2 smep bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                           avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                           xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                           cqm_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                           arat pln pts 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:               1.5 MiB (32 instances)
  L1i cache:               1 MiB (32 instances)
  L2 cache:                64 MiB (32 instances)
  L3 cache:                90 MiB (2 instances)
  NUMA node(s):            8
```

(Continued on next page)

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Platform Notes (Continued)

```
  NUMA node0 CPU(s):             0-3,32-35
  NUMA node1 CPU(s):             4-7,36-39
  NUMA node2 CPU(s):             8-11,40-43
  NUMA node3 CPU(s):             12-15,44-47
  NUMA node4 CPU(s):             16-19,48-51
  NUMA node5 CPU(s):             20-23,52-55
  NUMA node6 CPU(s):             24-27,56-59
  NUMA node7 CPU(s):             28-31,60-63
  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     1.5M   12 Data          1    64       1              64
      L1i      32K      1M    8 Instruction    1    64       1              64
      L2        2M      64M   16 Unified       2  2048       1              64
      L3       45M      90M   15 Unified       3 49152       1              64


  ------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 8 nodes (0-7)
  node 0 cpus: 0-3,32-35
  node 0 size: 128670 MB
  node 0 free: 127917 MB
  node 1 cpus: 4-7,36-39
  node 1 size: 128987 MB
  node 1 free: 128723 MB
  node 2 cpus: 8-11,40-43
  node 2 size: 129021 MB
  node 2 free: 128776 MB
  node 3 cpus: 12-15,44-47
  node 3 size: 129021 MB
  node 3 free: 128789 MB
  node 4 cpus: 16-19,48-51
  node 4 size: 129021 MB
  node 4 free: 128802 MB
  node 5 cpus: 20-23,52-55
  node 5 size: 129021 MB
  node 5 free: 128751 MB
  node 6 cpus: 24-27,56-59
  node 6 size: 129021 MB
  node 6 free: 128828 MB
  node 7 cpus: 28-31,60-63
  node 7 size: 128992 MB
  node 7 free: 128788 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  12  12  12  21  21  21  21
    1:  12  10  12  12  21  21  21  21
    2:  12  12  10  12  21  21  21  21
    3:  12  12  12  10  21  21  21  21
    4:  21  21  21  21  10  12  12  12
```

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Platform Notes (Continued)

```
     5:  21  21  21  21  12  10  12  12
     6:  21  21  21  21  12  12  10  12
     7:  21  21  21  21  12  12  12  10


    ------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056521708 kB


    ------------------------------------------------------------
10. who -r
   run-level 3 Jun 22 07:52


    ------------------------------------------------------------
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
                    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=7a984919-bd0d-4451-8476-5139e3d5b29b
   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
```

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Platform Notes (Continued)

```
   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


   ----------------------------------------------------------
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   220G   13G  208G   6% /


   ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
   Vendor:        Cisco Systems Inc
   Product:       UCSC-C240-M7SX
   Serial:        WZP26330JLV


   ----------------------------------------------------------
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



   ----------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
```

(Continued on next page)

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Platform Notes (Continued)

```
        BIOS Vendor:         Cisco Systems, Inc.
        BIOS Version:        C240M7.4.3.1a.0.0201231701
        BIOS Date:           02/01/2023
        BIOS Revision:       5.29
The system clock was reset to a future date before running the test
and the exact test date is updated
```

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.
------------------------------------------------------------------------------


==============================================================================
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
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------------------------------------------------------------------------------


==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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------------------------------------------------------------------------------
```

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8444H, 2.90GHz)

SPECrate®2017_int_base = 328

SPECrate®2017_int_peak = 338

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

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

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 -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
```

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

Cisco Systems

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

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.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`

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Cisco Systems

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Peak Optimization Flags (Continued)

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:

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-revG.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-revG.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 2023-06-22 10:53:48-0400.
Report generated on 2024-01-29 17:31:35 by CPU2017 PDF formatter v6716.
Originally published on 2023-04-11.