# SPEC CPU®2017 Floating Point Speed Result

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

$SPECspeed®2017\_fp\_base =$ 407

$SPECspeed®2017\_fp\_peak =$ Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

### Results Chart (Threads = 240)

| Benchmark | Threads | Result |
|---|---|---|
| 603.bwaves_s | 240 | 1620 |
| 607.cactuBSSN_s | 240 | 507 |
| 619.lbm_s | 240 | 402 |
| 621.wrf_s | 240 | 190 |
| 627.cam4_s | 240 | 186 |
| 628.pop2_s | 240 | 100 |
| 638.imagick_s | 240 | 681 |
| 644.nab_s | 240 | 1150 |
| 649.fotonik3d_s | 240 | 185 |
| 654.roms_s | 240 | 740 |

SPECspeed®2017_fp_base (407)

## Hardware

CPU Name: Intel Xeon Platinum 8490H
 Max MHz: 3500
 Nominal: 1900
Enabled: 240 cores, 4 chips
Orderable: 1,2,3,4 Chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 112.5 MB I+D on chip per chip
 Other: None
Memory: 2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 240 GB SATA SSD
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: Yes
Firmware: Version 5.1.1b released Apr-2023
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer performance at the cost
 of additional power usage

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

# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base = 407
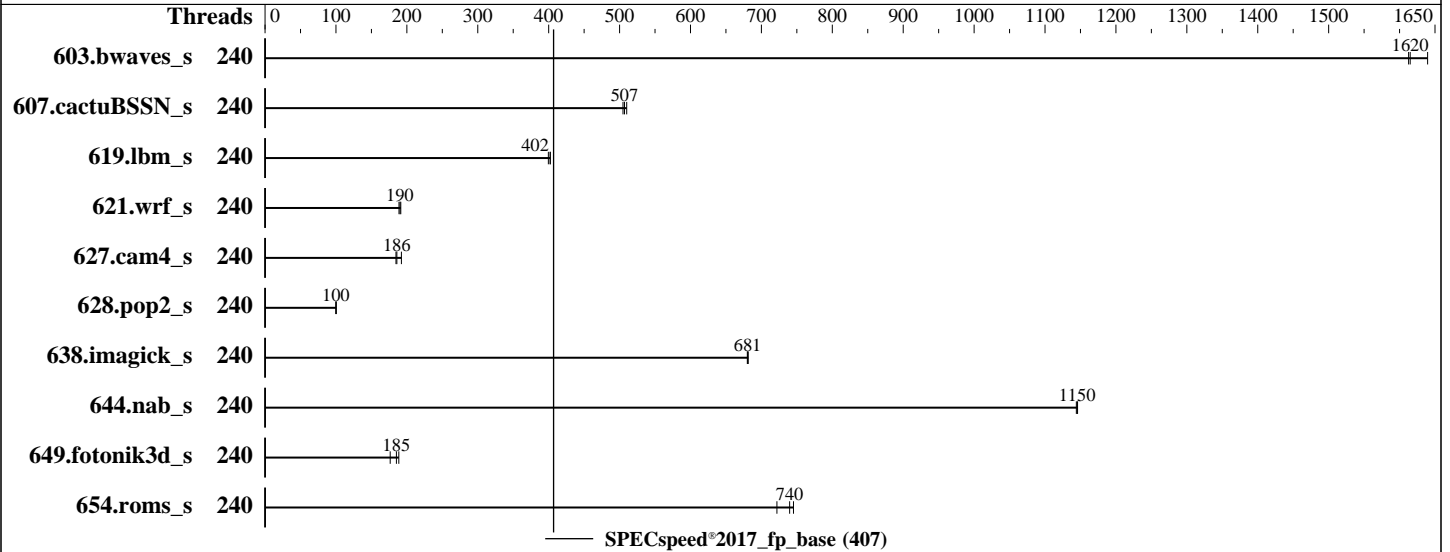
SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 603.bwaves_s | 240 | 36.0 | 1640 | 36.6 | 1610 | **36.5** | **1620** | | | | | | | |
| 607.cactuBSSN_s | 240 | 32.7 | 510 | 33.0 | 505 | **32.9** | **507** | | | | | | | |
| 619.lbm_s | 240 | 13.1 | 400 | 13.0 | 402 | **13.0** | **402** | | | | | | | |
| 621.wrf_s | 240 | 69.1 | 191 | **69.5** | **190** | 70.0 | 189 | | | | | | | |
| 627.cam4_s | 240 | 48.0 | 185 | **47.7** | **186** | 46.1 | 192 | | | | | | | |
| 628.pop2_s | 240 | **119** | **100** | 118 | 100 | 119 | 100 | | | | | | | |
| 638.imagick_s | 240 | **21.2** | **681** | 21.2 | 681 | 21.2 | 680 | | | | | | | |
| 644.nab_s | 240 | 15.3 | 1140 | **15.3** | **1150** | 15.2 | 1150 | | | | | | | |
| 649.fotonik3d_s | 240 | **49.2** | **185** | 48.3 | 189 | 51.7 | 176 | | | | | | | |
| 654.roms_s | 240 | 21.8 | 722 | 21.1 | 745 | **21.3** | **740** | | | | | | | |
| **SPECspeed®2017_fp_base =** | **407** | | | | | | | | | | | | | |
| **SPECspeed®2017_fp_peak =** | **Not Run** | | | | | | | | | | | | | |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## 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:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "32G"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Redhat Enterprise Linux 8.0
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
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

# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base = 407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Platform Notes

```
BIOS Settings:
Intel HyperThreading set to Disabled
LLC Dead Line set to Disabled
Processor C6 Report set to Enabled


 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Mon May  8 00:41:14 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. tuned-adm active
 16. sysctl
 17. /sys/kernel/mm/transparent_hugepage
 18. /sys/kernel/mm/transparent_hugepage/khugepaged
 19. OS release
 20. Disk information
 21. /sys/devices/virtual/dmi/id
 22. dmidecode
 23. BIOS
 ------------------------------------------------------------


 ------------------------------------------------------------
 1. uname -a
   Linux localhost 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
    00:41:14 up  2:46,  1 user,  load average: 152.59, 197.91, 191.80
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                22:01    2:39m  1.21s  0.13s -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
```

<div align="center">(Continued on next page)</div>

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base =          407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:**          May-2023
**Hardware Availability:** Jun-2023
**Software Availability:**   Dec-2022

## Platform Notes (Continued)

```
  file size              (blocks, -f) unlimited
  pending signals              (-i) 8255452
  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) 8255452
  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 --define default-platform-flags -c ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=240
   --tune base -o all --define drop_caches fpspeed
 runcpu --define default-platform-flags --configfile ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define
   cores=240 --tune base --output_format all --define drop_caches --nopower --runmode speed --tune base
   --size refspeed fpspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.074/templogs/preenv.fpspeed.074.0.log --lognum 074.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/cpu2017


  ----------------------------------------------------------
6. /proc/cpuinfo
   model name       : Intel(R) Xeon(R) Platinum 8490H
   vendor_id        : GenuineIntel
   cpu family       : 6
   model            : 143
   stepping         : 8
   microcode        : 0x2b000461
   bugs             : spectre_v1 spectre_v2 spec_store_bypass swapgs
   cpu cores        : 60
   siblings         : 60
   4 physical ids (chips)
   240 processors (hardware threads)
   physical id 0: core ids 0-59
   physical id 1: core ids 0-59
   physical id 2: core ids 0-59
   physical id 3: core ids 0-59
   physical id 0: apicids
   0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
   ,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118
   physical id 1: apicids
   128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
   80,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224,226,228,230,23
   2,234,236,238,240,242,244,246
   physical id 2: apicids
   256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,3
   08,310,312,314,316,318,320,322,324,326,328,330,332,334,336,338,340,342,344,346,348,350,352,354,356,358,36
   0,362,364,366,368,370,372,374
   physical id 3: apicids
   384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,4
   36,438,440,442,444,446,448,450,452,454,456,458,460,462,464,466,468,470,472,474,476,478,480,482,484,486,48
```

**(Continued on next page)**

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base = 407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Platform Notes (Continued)

```
    8,490,492,494,496,498,500,502
  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):                          240
  On-line CPU(s) list:             0-239
  Vendor ID:                       GenuineIntel
  Model name:                      Intel(R) Xeon(R) Platinum 8490H
  CPU family:                      6
  Model:                           143
  Thread(s) per core:              1
  Core(s) per socket:              60
  Socket(s):                       4
  Stepping:                        8
  CPU max MHz:                     3500.0000
  CPU min MHz:                     800.0000
  BogoMIPS:                        3800.00
  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:                       11.3 MiB (240 instances)
  L1i cache:                       7.5 MiB (240 instances)
  L2 cache:                        480 MiB (240 instances)
  L3 cache:                        450 MiB (4 instances)
  NUMA node(s):                    8
  NUMA node0 CPU(s):               0-29
  NUMA node1 CPU(s):               30-59
  NUMA node2 CPU(s):               60-89
  NUMA node3 CPU(s):               90-119
  NUMA node4 CPU(s):               120-149
  NUMA node5 CPU(s):               150-179
  NUMA node6 CPU(s):               180-209
  NUMA node7 CPU(s):               210-239
  Vulnerability Itlb multihit:     Not affected
  Vulnerability L1tf:              Not affected
  Vulnerability Mds:               Not affected
```

**(Continued on next page)**

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base =        407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Platform Notes (Continued)

```
  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    11.3M  12 Data               1     64       1             64
      L1i      32K     7.5M   8 Instruction        1     64       1             64
      L2        2M     480M  16 Unified            2   2048       1             64
      L3    112.5M     450M  15 Unified            3 122880       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: 0-29
    node 0 size: 258039 MB
    node 0 free: 253281 MB
    node 1 cpus: 30-59
    node 1 size: 257687 MB
    node 1 free: 256650 MB
    node 2 cpus: 60-89
    node 2 size: 258005 MB
    node 2 free: 257055 MB
    node 3 cpus: 90-119
    node 3 size: 258040 MB
    node 3 free: 257039 MB
    node 4 cpus: 120-149
    node 4 size: 258040 MB
    node 4 free: 256479 MB
    node 5 cpus: 150-179
    node 5 size: 258040 MB
    node 5 free: 257100 MB
    node 6 cpus: 180-209
    node 6 size: 258040 MB
    node 6 free: 255417 MB
    node 7 cpus: 210-239
    node 7 size: 257993 MB
    node 7 free: 257096 MB
    node distances:
    node   0   1   2   3   4   5   6   7
      0:  10  20  20  20  20  20  20  20
      1:  20  10  20  20  20  20  20  20
      2:  20  20  10  20  20  20  20  20
      3:  20  20  20  10  20  20  20  20
      4:  20  20  20  20  10  20  20  20
      5:  20  20  20  20  20  10  20  20
      6:  20  20  20  20  20  20  10  20
      7:  20  20  20  20  20  20  20  10


  -----------------------------------------------------------
  9. /proc/meminfo
     MemTotal:       2113420128 kB


  -----------------------------------------------------------
  10. who -r
    run-level 3 May 7 21:56
```

**(Continued on next page)**

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base =          407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Platform Notes (Continued)

```
      ----------------------------------------------------------
   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 tuned
                       udisks2
     indirect          wickedd

      ----------------------------------------------------------
   13. Linux kernel boot-time arguments, from /proc/cmdline
     BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
     root=UUID=12b2e04c-dcaa-4714-8aee-50db4fb2f389
     splash=silent
     mitigations=auto
     quiet
     security=apparmor

      ----------------------------------------------------------
   14. cpupower frequency-info
     analyzing CPU 0:
        current policy: frequency should be within 800 MHz and 3.50 GHz.
                        The governor "performance" may decide which speed to use
                        within this range.
        boost state support:
          Supported: yes
          Active: yes

      ----------------------------------------------------------
   15. tuned-adm active
     Current active profile: latency-performance

      ----------------------------------------------------------
   16. sysctl
     kernel.numa_balancing          1
     kernel.randomize_va_space      0
     vm.compaction_proactiveness    20
     vm.dirty_background_bytes      0
     vm.dirty_background_ratio      3
     vm.dirty_bytes                 0
     vm.dirty_expire_centisecs      3000
     vm.dirty_ratio                 8
     vm.dirty_writeback_centisecs   500
     vm.dirtytime_expire_seconds    43200
     vm.extfrag_threshold           500
     vm.min_unmapped_ratio          1
```

**(Continued on next page)**

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

$SPECspeed®2017\_fp\_base =$ 407

$SPECspeed®2017\_fp\_peak =$ Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Platform Notes (Continued)

```
  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                1


----------------------------------------------------------------
17. /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


----------------------------------------------------------------
18. /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


----------------------------------------------------------------
19. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP4


----------------------------------------------------------------
20. Disk information
SPEC is set to: /home/cpu2017
  Filesystem      Type   Size  Used Avail Use% Mounted on
  /dev/sdb2       btrfs  222G   15G  206G   7% /home


----------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
  Vendor:         Cisco Systems Inc
  Product:        UCSX-410C-M7
  Serial:         FCH264873NT


----------------------------------------------------------------
22. 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:
    1x 0xAD00 HMCG94MEBRA109N 64 GB 2 rank 4800
    1x 0xAD00 HMCG94MEBRA121N 64 GB 2 rank 4800
    30x 0xAD00 HMCG94MEBRA123N 64 GB 2 rank 4800



----------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
  BIOS Vendor:      Cisco Systems, Inc.
  BIOS Version:     X410M7.5.1.1b.10.0424230829
  BIOS Date:        04/24/2023
```

# SPEC CPU®2017 Floating Point Speed Result

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base = 407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Platform Notes (Continued)

```
   BIOS Revision:     5.29
```

## Compiler Version Notes

```
==============================================================================
C               | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
------------------------------------------------------------------------------
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++, C, Fortran | 607.cactuBSSN_s(base)
------------------------------------------------------------------------------
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.
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.
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.
------------------------------------------------------------------------------


==============================================================================
Fortran         | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
------------------------------------------------------------------------------
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.
------------------------------------------------------------------------------


==============================================================================
Fortran, C      | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
------------------------------------------------------------------------------
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.
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.
------------------------------------------------------------------------------
```

## Base Compiler Invocation

C benchmarks:
```
icx
```

Fortran benchmarks:
```
ifx
```

Benchmarks using both Fortran and C:
```
ifx icx
```

Benchmarks using Fortran, C, and C++:
```
icpx icx ifx
```

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

# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base = 407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

## Base Portability Flags

603.bwaves_s: `-DSPEC_LP64`
607.cactuBSSN_s: `-DSPEC_LP64`
619.lbm_s: `-DSPEC_LP64`
621.wrf_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian`
627.cam4_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG`
628.pop2_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian -assume byterecl`
638.imagick_s: `-DSPEC_LP64`
644.nab_s: `-DSPEC_LP64`
649.fotonik3d_s: `-DSPEC_LP64`
654.roms_s: `-DSPEC_LP64`

## Base Optimization Flags

C benchmarks:
```
-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:
```
-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using both Fortran and C:
```
-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

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.2023-05-23.html

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H, 1.90GHz)

SPECspeed®2017_fp_base =     407

SPECspeed®2017_fp_peak = Not Run

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

**Test Date:** May-2023
**Hardware Availability:** Jun-2023
**Software Availability:** Dec-2022

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.2023-05-23.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 2023-05-08 03:41:13-0400.
Report generated on 2023-05-23 19:10:22 by CPU2017 PDF formatter v6716.
Originally published on 2023-05-23.