SPEC CPU®2017 Floating Point Speed Result

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Cisco Systems

Cisco UCS C220 M7 (Intel Xeon Platinum 8452Y, 2.00GHz)

$SPECspeed®2017\_fp\_base = 291$
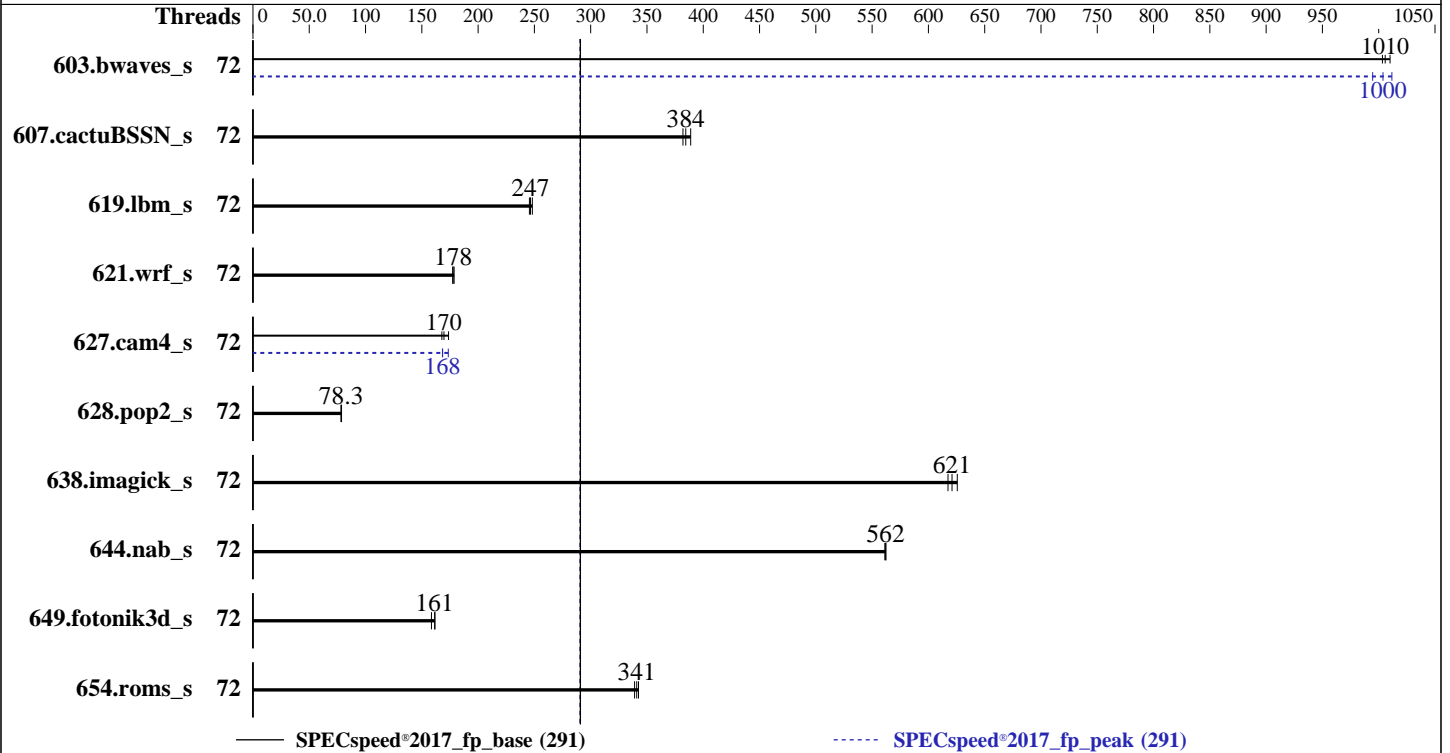
$SPECspeed®2017\_fp\_peak = 291$

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

Test Date: Feb-2024
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Threads

- 603.bwaves_s 72 — 1010 / 1000
- 607.cactuBSSN_s 72 — 384
- 619.lbm_s 72 — 247
- 621.wrf_s 72 — 178
- 627.cam4_s 72 — 170 / 168
- 628.pop2_s 72 — 78.3
- 638.imagick_s 72 — 621
- 644.nab_s 72 — 562
- 649.fotonik3d_s 72 — 161
- 654.roms_s 72 — 341

SPECspeed®2017_fp_base (291)   SPECspeed®2017_fp_peak (291)

Hardware

CPU Name: Intel Xeon Platinum 8452Y
Max MHz: 3200
Nominal: 2000
Enabled: 72 cores, 2 chips
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: 67.5 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 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;
Parallel: Yes
Firmware: Version 4.3.2d released Nov-2023
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer power save with minimal impact on performance

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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	72	58.4	1010	58.8	1000	**58.7**	**1010**	72	59.3	995	58.3	1010	**58.8**	**1000**
607.cactuBSSN_s	72	**43.4**	**384**	42.9	389	43.6	382	72	**43.4**	**384**	42.9	389	43.6	382
619.lbm_s	72	**21.2**	**247**	21.1	248	21.3	246	72	**21.2**	**247**	21.1	248	21.3	246
621.wrf_s	72	74.6	177	74.0	179	**74.4**	**178**	72	74.6	177	74.0	179	**74.4**	**178**
627.cam4_s	72	51.0	174	**52.2**	**170**	52.8	168	72	**52.6**	**168**	52.7	168	51.1	174
628.pop2_s	72	152	78.3	151	78.7	**152**	**78.3**	72	152	78.3	151	78.7	**152**	**78.3**
638.imagick_s	72	**23.2**	**621**	23.4	617	23.1	626	72	**23.2**	**621**	23.4	617	23.1	626
644.nab_s	72	31.1	562	**31.1**	**562**	31.1	561	72	31.1	562	**31.1**	**562**	31.1	561
649.fotonik3d_s	72	**56.5**	**161**	57.5	159	56.4	162	72	**56.5**	**161**	57.5	159	56.4	162
654.roms_s	72	**46.2**	**341**	46.0	342	46.4	339	72	**46.2**	**341**	46.0	342	46.4	339
SPECspeed®2017_fp_base =		**291**												
SPECspeed®2017_fp_peak =		**291**												

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 = "192M"
```

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
```

Platform Notes

```
BIOS Settings:
Intel Hyper-Threading Technology set to Disabled
```

(Continued on next page)

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Platform Notes (Continued)

```
Sub NUMA Clustering set to Disabled
LLC Dead Line set to Disabled
ADDDC Sparing set to Disabled
Processor C6 Report set to Enabled
UPI Link Enablement 1
UPI Power Management Enabled


 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Sun Feb  4 14:15:12 2024

 SUT (System Under Test) info as seen by some common utilities.

 ------------------------------------------------------------
 Table of contents
 ------------------------------------------------------------
  1. uname -a
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. BIOS
 ------------------------------------------------------------

 ------------------------------------------------------------
 1. uname -a
   Linux 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
   14:15:12 up  6:02,  1 user,  load average: 5.95, 6.42, 3.73
   USER     TTY     FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1    -                08:13   6:01m  1.55s  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
```

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Platform Notes (Continued)

```
  scheduling priority            (-e) 0
  file size            (blocks, -f) unlimited
  pending signals                (-i) 4126916
  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) 4126916
  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 ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define cores=72
   --tune all -o all --define drop_caches fpspeed
 runcpu --define default-platform-flags --configfile ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define
   cores=72 --tune all --output_format all --define drop_caches --nopower --runmode speed --tune base:peak
   --size refspeed fpspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.068/templogs/preenv.fpspeed.068.0.log --lognum 068.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/cpu2017


  ------------------------------------------------------------
6. /proc/cpuinfo
  model name        : Intel(R) Xeon(R) Platinum 8452Y
  vendor_id         : GenuineIntel
  cpu family        : 6
  model             : 143
  stepping          : 8
  microcode         : 0x2b0004b1
  bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs
  cpu cores         : 36
  siblings          : 36
  2 physical ids (chips)
  72 processors (hardware threads)
  physical id 0: core ids 0-35
  physical id 1: core ids 0-35
  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
  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
 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
```

(Continued on next page)

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Test Date: Feb-2024

Hardware Availability: Feb-2023

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Platform Notes (Continued)

```
    Byte Order:                     Little Endian
    CPU(s):                         72
    On-line CPU(s) list:            0-71
    Vendor ID:                      GenuineIntel
    Model name:                     Intel(R) Xeon(R) Platinum 8452Y
    CPU family:                     6
    Model:                          143
    Thread(s) per core:             1
    Core(s) per socket:             36
    Socket(s):                      2
    Stepping:                       8
    CPU max MHz:                    3200.0000
    CPU min MHz:                    800.0000
    BogoMIPS:                       4000.00
    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:                      3.4 MiB (72 instances)
    L1i cache:                      2.3 MiB (72 instances)
    L2 cache:                       144 MiB (72 instances)
    L3 cache:                       135 MiB (2 instances)
    NUMA node(s):                   2
    NUMA node0 CPU(s):              0-35
    NUMA node1 CPU(s):              36-71
    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     3.4M   12 Data            1    64       1             64
      L1i      32K     2.3M    8 Instruction     1    64       1             64
      L2        2M     144M   16 Unified         2  2048       1             64
      L3     67.5M     135M   15 Unified         3 73728       1             64


  ------------------------------------------------------------
  8. numactl --hardware
  NOTE: a numactl 'node' might or might not correspond to a physical chip.
    available: 2 nodes (0-1)
    node 0 cpus: 0-35
```

(Continued on next page)

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SPECspeed®2017_fp_base = 291

SPECspeed®2017_fp_peak = 291

Platform Notes (Continued)

```
   node 0 size: 515695 MB
   node 0 free: 513928 MB
   node 1 cpus: 36-71
   node 1 size: 516057 MB
   node 1 free: 508130 MB
   node distances:
   node   0   1
     0:  10  21
     1:  21  10


  --------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056515140 kB


  --------------------------------------------------------
10. who -r
   run-level 3 Feb 4 08:12


  --------------------------------------------------------
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 iscsi
                    issue-generator kbdsettings klog libvirtd lvm2-monitor nscd nvmefc-boot-connections
                    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 dnsmasq ebtables exchange-bmc-os-info
                    firewalld gpm grub2-once haveged-switch-root ipmi ipmievd iscsi-init iscsid
                    issue-add-ssh-keys kdump kdump-early kexec-load ksm kvm_stat libvirt-guests lunmask
                    man-db-create multipathd nfs nfs-blkmap nfs-server nfsserver nvmf-autoconnect rdisc
                    rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd
                    strongswan strongswan-starter svnserve systemd-boot-check-no-failures
                    systemd-network-generator systemd-nspawn@ systemd-sysext systemd-time-wait-sync
                    systemd-timesyncd tcsd udisks2 virtinterfaced virtnetworkd virtnodedevd virtnwfilterd
                    virtproxyd virtqemud virtsecretd virtstoraged
   indirect         pcscd virtlockd virtlogd wickedd

  --------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
   root=UUID=2b0c4aea-8b1a-49f8-af79-68404a8ed1d3
   splash=silent
   resume=/dev/disk/by-uuid/acc9eb67-bac8-42f3-9795-20ae507d267e
   mitigations=auto
   quiet
   security=apparmor

  --------------------------------------------------------
14. cpupower frequency-info
   analyzing CPU 0:
     current policy: frequency should be within 800 MHz and 3.20 GHz.
                     The governor "powersave" may decide which speed to use
                     within this range.
     boost state support:
```

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SPECspeed®2017_fp_base = 291

$SPECspeed®2017\_fp\_peak = 291$

Platform Notes (Continued)

```
         Supported: yes
         Active: yes


        ----------------------------------------------------------
        15. sysctl
          kernel.numa_balancing           1
          kernel.randomize_va_space       2
          vm.compaction_proactiveness     20
          vm.dirty_background_bytes        0
          vm.dirty_background_ratio       10
          vm.dirty_bytes                   0
          vm.dirty_expire_centisecs     3000
          vm.dirty_ratio                  20
          vm.dirty_writeback_centisecs   500
          vm.dirtytime_expire_seconds  43200
          vm.extfrag_threshold           500
          vm.min_unmapped_ratio            1
          vm.nr_hugepages                  0
          vm.nr_hugepages_mempolicy        0
          vm.nr_overcommit_hugepages       0
          vm.swappiness                    1
          vm.watermark_boost_factor    15000
          vm.watermark_scale_factor       10
          vm.zone_reclaim_mode             0


        ----------------------------------------------------------
        16. /sys/kernel/mm/transparent_hugepage
          defrag          [always] defer defer+madvise madvise never
          enabled         [always] madvise never
          hpage_pmd_size  2097152
          shmem_enabled   always within_size advise [never] deny force


        ----------------------------------------------------------
        17. /sys/kernel/mm/transparent_hugepage/khugepaged
          alloc_sleep_millisecs   60000
          defrag                      1
          max_ptes_none             511
          max_ptes_shared           256
          max_ptes_swap              64
          pages_to_scan            4096
          scan_sleep_millisecs    10000


        ----------------------------------------------------------
        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/nvme0n1p3 xfs   741G   19G  722G   3% /home


        ----------------------------------------------------------
        20. /sys/devices/virtual/dmi/id
            Vendor:       Cisco Systems Inc
            Product:      UCSC-C220-M7N
            Serial:       WZP27010H2C

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

(Continued on next page)

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Platform Notes (Continued)

```
   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:
       15x 0xCE00 M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
       1x 0xCE00 M321R8GA0BB0-CQKMG 64 GB 2 rank 4800


     ------------------------------------------------------------
     22. BIOS
     (This section combines info from /sys/devices and dmidecode.)
       BIOS Vendor:       Cisco Systems, Inc.
       BIOS Version:      C220M7.4.3.2d.0.1101232037
       BIOS Date:         11/01/2023
       BIOS Revision:     5.31
```

Compiler Version Notes

```
==============================================================================================
C            | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran      | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran, C   | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------
```

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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`

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:
`-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Fortran benchmarks:
`-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -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:
`-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math`

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Cisco Systems

Cisco UCS C220 M7 (Intel Xeon Platinum 8452Y, 2.00GHz)

SPECspeed®2017_fp_base = 291

SPECspeed®2017_fp_peak = 291

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

Test Date: Feb-2024
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
```
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:
```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Peak 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
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

619.lbm_s: `basepeak = yes`

638.imagick_s: `basepeak = yes`

644.nab_s: `basepeak = yes`

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Cisco Systems

Cisco UCS C220 M7 (Intel Xeon Platinum 8452Y, 2.00GHz)

SPECspeed®2017_fp_base = 291

SPECspeed®2017_fp_peak = 291

CPU2017 License: 9019
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Tested by: Cisco Systems

Test Date: Feb-2024
Hardware Availability: Feb-2023
Software Availability: Dec-2022

Peak Optimization Flags (Continued)

Fortran benchmarks:

603.bwaves_s: `-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -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`

649.fotonik3d_s: `basepeak = yes`

654.roms_s: `basepeak = yes`

Benchmarks using both Fortran and C:

621.wrf_s: `basepeak = yes`

627.cam4_s: `-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

628.pop2_s: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: `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-revM.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-revM.xml

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

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