



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8454H, 2.10GHz)

SPECspeed®2017_fp_base = 295

SPECspeed®2017_fp_peak = 295

CPU2017 License: 9019

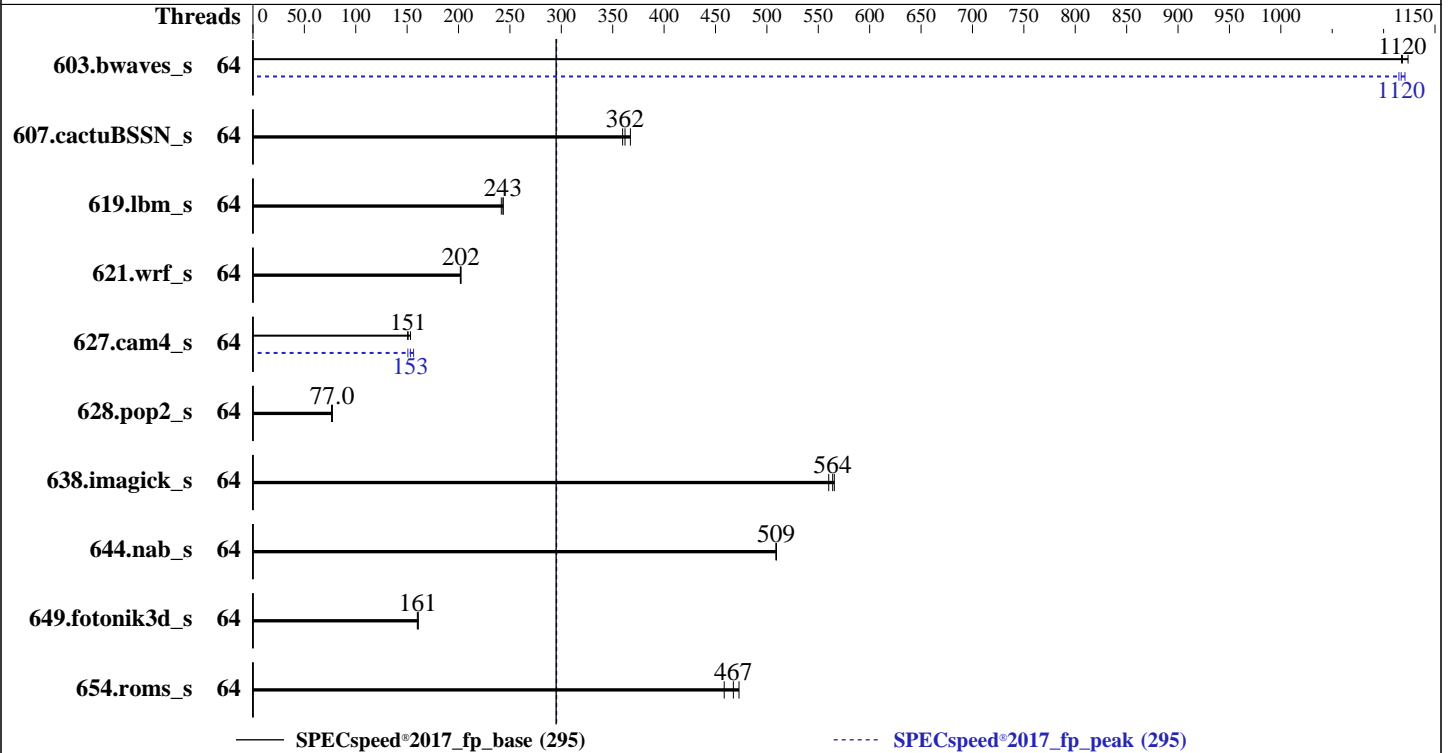
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Apr-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022



Hardware

CPU Name: Intel Xeon Platinum 8454H
 Max MHz: 3400
 Nominal: 2100
 Enabled: 64 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: 82.5 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 2023.0 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2023.0 of Intel Fortran Compiler
 for Linux;
 Parallel: Yes
 Firmware: Version 4.3.1a released Feb-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 performance at the cost
 of additional power usage



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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	64	52.5	1120	<u>52.8</u>	<u>1120</u>	52.8	1120	64	52.9	1110	<u>52.8</u>	<u>1120</u>	52.6	1120
607.cactuBSSN_s	64	45.4	367	<u>46.1</u>	<u>362</u>	46.4	360	64	45.4	367	<u>46.1</u>	<u>362</u>	46.4	360
619.lbm_s	64	21.7	242	21.5	243	<u>21.5</u>	<u>243</u>	64	21.7	242	21.5	243	<u>21.5</u>	<u>243</u>
621.wrf_s	64	65.6	202	<u>65.4</u>	<u>202</u>	65.4	202	64	65.6	202	<u>65.4</u>	<u>202</u>	65.4	202
627.cam4_s	64	58.9	151	<u>58.7</u>	<u>151</u>	57.8	153	64	<u>57.9</u>	<u>153</u>	56.7	156	58.8	151
628.pop2_s	64	154	77.2	<u>154</u>	<u>77.0</u>	155	76.5	64	154	77.2	<u>154</u>	<u>77.0</u>	155	76.5
638.imagick_s	64	<u>25.6</u>	<u>564</u>	25.5	566	25.8	560	64	<u>25.6</u>	<u>564</u>	25.5	566	25.8	560
644.nab_s	64	<u>34.3</u>	<u>509</u>	34.3	509	34.3	509	64	<u>34.3</u>	<u>509</u>	34.3	509	34.3	509
649.fotonik3d_s	64	56.7	161	57.0	160	<u>56.8</u>	<u>161</u>	64	56.7	161	57.0	160	<u>56.8</u>	<u>161</u>
654.roms_s	64	33.3	473	<u>33.7</u>	<u>467</u>	34.3	458	64	33.3	473	<u>33.7</u>	<u>467</u>	34.3	458

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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"
MALLOCONF = "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
Sub NUMA Clustering set to Disabled

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Platform Notes (Continued)

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 srv04 Wed Apr 12 15:08:33 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

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
15:08:33 up 17 min, 1 user, load average: 0.00, 0.06, 0.23
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 15:07 40.00s 1.33s 0.16s -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

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Platform Notes (Continued)

```

pending signals                (-i) 4126948
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) 4126948
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=64
--tune all -o all --define drop_caches fpspeed
runcpu --define default-platform-flags --configfile ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define
cores=64 --tune all --output_format all --define drop_caches --nopower --runmode speed --tune base:peak
--size refspeed fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.230/temlogs/preenv.fpspeed.230.0.log --lognum 230.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

```

```

-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Platinum 8454H
vendor_id      : GenuineIntel
cpu family      : 6
model           : 143
stepping        : 8
microcode       : 0x2b000161
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores       : 32
siblings        : 32
2 physical ids (chips)
64 processors (hardware threads)
physical id 0:  core ids 0-31
physical id 1:  core ids 0-31
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
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
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

```

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Platform Notes (Continued)

```

On-line CPU(s) list:      0-63
Vendor ID:                GenuineIntel
Model name:               Intel(R) Xeon(R) Platinum 8454H
CPU family:               6
Model:                    143
Thread(s) per core:      1
Core(s) per socket:      32
Socket(s):                2
Stepping:                 8
Frequency boost:          enabled
CPU max MHz:              2101.0000
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 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 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 fstrm md_clear serialize
                          tsxldtrk pconfig arch_lbr avx512_fp16 amx_tile flush_lld arch_capabilities
Virtualization:           VT-x
L1d cache:                3 MiB (64 instances)
L1i cache:                2 MiB (64 instances)
L2 cache:                 128 MiB (64 instances)
L3 cache:                 165 MiB (2 instances)
NUMA node(s):             4
NUMA node0 CPU(s):        0-15
NUMA node1 CPU(s):        16-31
NUMA node2 CPU(s):        32-47
NUMA node3 CPU(s):        48-63
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/swaps 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   82.5M   165M   15 Unified          3  90112    1         64

```

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.

(Continued on next page)



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Platform Notes (Continued)

```

available: 4 nodes (0-3)
node 0 cpus: 0-15
node 0 size: 258042 MB
node 0 free: 256971 MB
node 1 cpus: 16-31
node 1 size: 257659 MB
node 1 free: 257039 MB
node 2 cpus: 32-47
node 2 size: 258043 MB
node 2 free: 257576 MB
node 3 cpus: 48-63
node 3 size: 258014 MB
node 3 free: 257372 MB
node distances:
node  0  1  2  3
  0:  10  20  20  20
  1:  20  10  20  20
  2:  20  20  10  20
  3:  20  20  20  10

```

```

-----
9. /proc/meminfo
   MemTotal:      1056523420 kB

```

```

-----
10. who -r
    run-level 3 Apr 12 14:51

```

```

-----
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                             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 blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
                                     cups-browsed debug-shell ebttables exchange-bmc-os-info firewallld 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 svnservice systemd-boot-check-no-failures
                                     systemd-network-generator systemd-sysexit systemd-time-wait-sync systemd-timesyncd
indirect                             wickedd

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=82136e43-7b14-445e-80c8-a54855d5e2c7
splash=silent
mitigations=auto
quiet
security=apparmor

```

```

-----
14. cpupower frequency-info
    analyzing CPU 0:

```

(Continued on next page)



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Platform Notes (Continued)

current policy: frequency should be within 800 MHz and 2.10 GHz.
The governor "ondemand" may decide which speed to use within this range.

boost state support:
Supported: yes
Active: yes

```

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

```

```

-----
16. /sys/kernel/mm/transparent_hugepage
defrag          [always] defer+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/sdb3       xfs   436G  14G  423G  4% /
-----

```

```

-----
20. /sys/devices/virtual/dmi/id
Vendor:          Cisco Systems Inc
-----

```

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Platform Notes (Continued)

Product: UCSC-C240-M7SX
Serial: WZP26360KC7

21. dmidecode

Additional information from dmidecode 3.2 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:
16x 0xCE00 M321R8GA0BB0-CQKDG 64 GB 2 rank 4800

22. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: Cisco Systems, Inc.
BIOS Version: C240M7.4.3.1a.0.0201231701
BIOS Date: 02/01/2023
BIOS Revision: 5.29

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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 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, peak) 649.fotonik3d_s(base, peak) 654.roms_s(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.

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 2023.0.0 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
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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.ibm_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
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

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Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8454H, 2.10GHz)

SPECspeed®2017_fp_base = 295

SPECspeed®2017_fp_peak = 295

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Apr-2023

Hardware Availability: Mar-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 -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
```

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

(Continued on next page)



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Test Date: Apr-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

Peak Optimization Flags (Continued)

644.nab_s: basepeak = yes

Fortran benchmarks:

```
603.bwaves_s: -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
```

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

```
627.cam4_s: -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
```

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-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>

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