



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

CPU2017 License: 9019

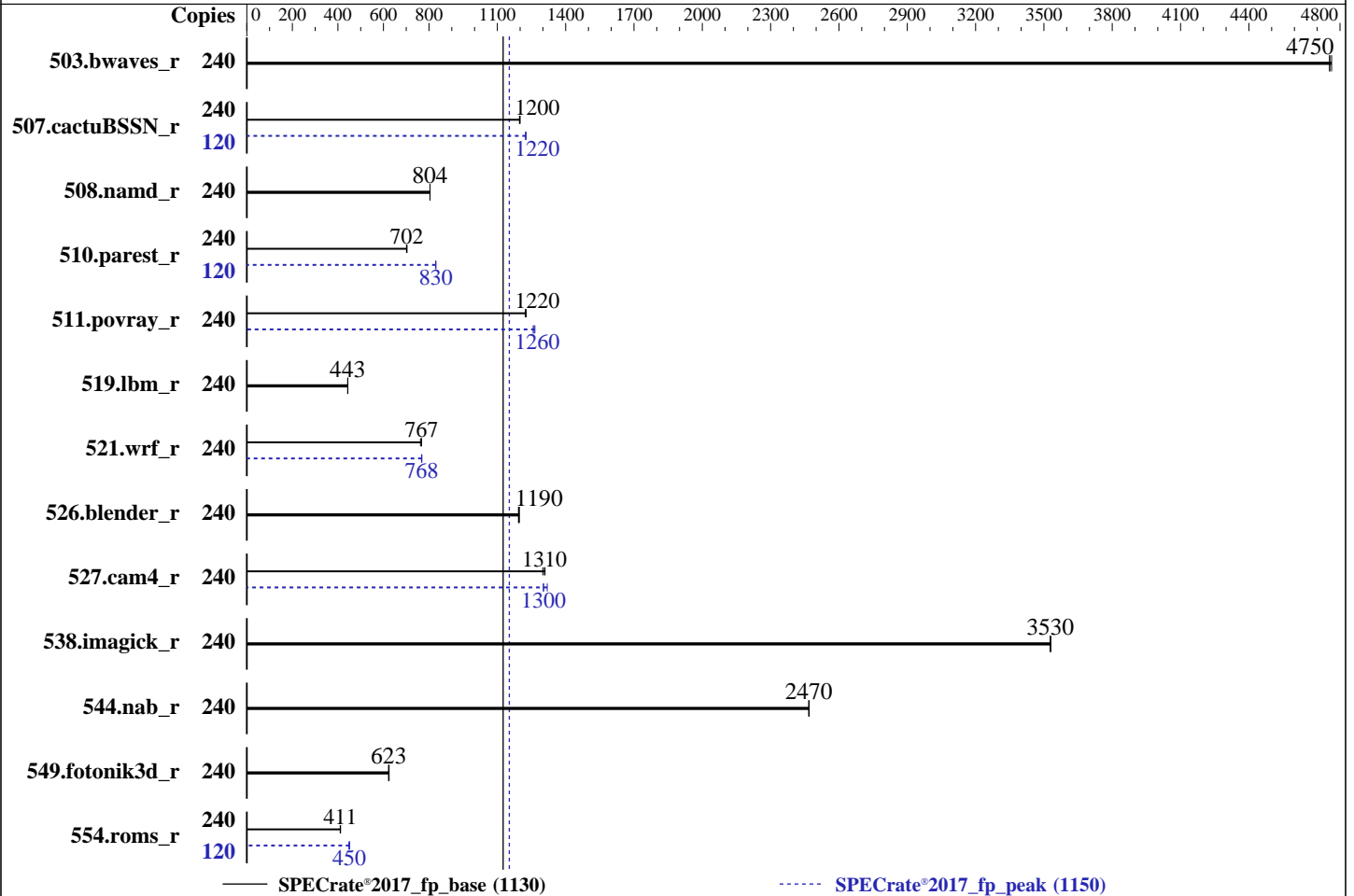
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Mar-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023



### Hardware

CPU Name: Intel Xeon Platinum 8580  
 Max MHz: 4000  
 Nominal: 2000  
 Enabled: 120 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: 300 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R)  
 Storage: 1 x 960 GB M.2 SSD SATA  
 Other: Cooling: Air

### Software

OS: SUSE Linux Enterprise Server 15 SP5  
 5.14.21-150500.53-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: No  
 Firmware: Version 4.3.3a released Jan-2024  
 File System: btrfs  
 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



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

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

**Test Date:** Mar-2024  
**Hardware Availability:** Feb-2024  
**Software Availability:** Dec-2023

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	240	505	4760	506	4750	<b>506</b>	<b>4750</b>	240	505	4760	506	4750	<b>506</b>	<b>4750</b>
507.cactuBSSN_r	240	253	1200	<b>253</b>	<b>1200</b>	254	1200	120	<b>124</b>	<b>1220</b>	124	1220	124	1230
508.namd_r	240	283	804	284	804	<b>283</b>	<b>804</b>	240	283	804	284	804	<b>283</b>	<b>804</b>
510.parest_r	240	892	704	895	701	<b>895</b>	<b>702</b>	120	379	829	378	830	<b>378</b>	<b>830</b>
511.povray_r	240	457	1230	<b>458</b>	<b>1220</b>	458	1220	240	446	1260	443	1260	<b>444</b>	<b>1260</b>
519.lbm_r	240	571	443	<b>571</b>	<b>443</b>	570	444	240	571	443	<b>571</b>	<b>443</b>	570	444
521.wrf_r	240	<b>701</b>	<b>767</b>	705	763	701	767	240	701	767	<b>700</b>	<b>768</b>	700	768
526.blender_r	240	<b>306</b>	<b>1190</b>	306	1190	305	1200	240	<b>306</b>	<b>1190</b>	306	1190	305	1200
527.cam4_r	240	323	1300	<b>321</b>	<b>1310</b>	321	1310	240	318	1320	322	1300	<b>322</b>	<b>1300</b>
538.imagick_r	240	169	3530	<b>169</b>	<b>3530</b>	169	3530	240	169	3530	<b>169</b>	<b>3530</b>	169	3530
544.nab_r	240	<b>164</b>	<b>2470</b>	164	2470	164	2470	240	<b>164</b>	<b>2470</b>	164	2470	164	2470
549.fotonik3d_r	240	1502	623	1497	625	<b>1501</b>	<b>623</b>	240	1502	623	1497	625	<b>1501</b>	<b>623</b>
554.roms_r	240	930	410	<b>929</b>	<b>411</b>	926	412	120	425	449	423	451	<b>424</b>	<b>450</b>

SPECrate®2017\_fp\_base = **1130**

SPECrate®2017\_fp\_peak = **1150**

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

## 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/je5.0.1-64"  
MALLOC\_CONF = "retain:true"

## 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.

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## General Notes (Continued)

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 SNC2(2-clusters)  
Adjacent cache line prefetcher set to Enabled  
DCU streamer prefetch set to Disabled  
Enhanced CPU performance set to Auto  
LLC Dead Line set to Disabled  
Processor C6 Report set to Enabled  
ADDDC Sparing set to Disabled

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Sat Mar 2 20:55:15 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 (249.16+suse.171.gdad0071f15)
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 5.14.21-150500.53-default #1 SMP PREEMPT\_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)  
x86\_64 x86\_64 x86\_64 GNU/Linux

-----

2. w

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

### Platform Notes (Continued)

```

20:55:15 up 12:01, 1 user, load average: 82.51, 192.17, 196.71
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root      tty1     -             08:55   45:46  1.25s  0.34s  -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) 4126711
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) 4126711
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=240 -c
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --reportable --iterations 3 --define smt-on --define
cores=120 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune all -o all
fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=240 --configfile
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --reportable --iterations 3 --define smt-on --define
cores=120 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune all
--output_format all --nopower --runmode rate --tune base:peak --size refrate fprate --nopreenv
--note-preenv --logfile $SPEC/tmp/CPU2017.026/templogs/preenv.fprate.026.0.log --lognum 026.0
--from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

```

#### 6. /proc/cpuinfo

```

model name      : INTEL(R) XEON(R) PLATINUM 8580
vendor_id       : GenuineIntel
cpu family      : 6
model           : 207
stepping        : 2
microcode       : 0x21000200
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores       : 60
siblings        : 120
2 physical ids (chips)
240 processors (hardware threads)
physical id 0: core ids 0-59

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

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

**Test Date:** Mar-2024  
**Hardware Availability:** Feb-2024  
**Software Availability:** Dec-2023

### Platform Notes (Continued)

physical id 1: core ids 0-59  
physical id 0: apicids 0-119  
physical id 1: apicids 128-247

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 2.37.4:

```

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 8580
CPU family:                   6
Model:                        207
Thread(s) per core:          2
Core(s) per socket:          60
Socket(s):                    2
Stepping:                     2
CPU max MHz:                  4000.0000
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 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 cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                                vmmi 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 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_vpoperndq la57 rdpid bus_lock_detect cldemote movdiri movdir64b
                                enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr avx512_fp16
                                amx_tile flush_lld arch_capabilities

```

```

Virtualization:              VT-x
L1d cache:                   5.6 MiB (120 instances)
L1i cache:                   3.8 MiB (120 instances)
L2 cache:                     240 MiB (120 instances)
L3 cache:                     600 MiB (2 instances)
NUMA node(s):                4
NUMA node0 CPU(s):           0-29,120-149
NUMA node1 CPU(s):           30-59,150-179
NUMA node2 CPU(s):           60-89,180-209
NUMA node3 CPU(s):           90-119,210-239
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:          Not affected
Vulnerability Mds:           Not affected
Vulnerability Meltdown:      Not affected
Vulnerability Mmio stale data: Not affected

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Mar-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

### Platform Notes (Continued)

Vulnerability Retbleed: 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, PBRSE-eIBRS SW sequence  
 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	5.6M	12	Data	1	64	1	64
L1i	32K	3.8M	8	Instruction	1	64	1	64
L2	2M	240M	16	Unified	2	2048	1	64
L3	300M	600M	20	Unified	3	245760	1	64

8. numactl --hardware

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

```

available: 4 nodes (0-3)
node 0 cpus: 0-29,120-149
node 0 size: 257682 MB
node 0 free: 256768 MB
node 1 cpus: 30-59,150-179
node 1 size: 258032 MB
node 1 free: 257247 MB
node 2 cpus: 60-89,180-209
node 2 size: 258032 MB
node 2 free: 257038 MB
node 3 cpus: 90-119,210-239
node 3 size: 257959 MB
node 3 free: 257194 MB
node distances:
node  0  1  2  3
 0:  10  12  21  21
 1:  12  10  21  21
 2:  21  21  10  12
 3:  21  21  12  10

```

9. /proc/meminfo

MemTotal: 1056468884 kB

10. who -r

run-level 3 Mar 2 08:55

11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)

```

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@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-remount-fs
disabled autofsd autofsd-initscripts blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

### Platform Notes (Continued)

```

firewalld gpm grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys
kexec-load ksm kvm_stat lunmask man-db-create multipathd nfs nfs-blkmap rpcbind
rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd svnservice
systemd-boot-check-no-failures systemd-network-generator systemd-sysext
systemd-time-wait-sync systemd-timesyncd udisks2
wickedd

```

indirect

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline

```

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
root=UUID=ec07819c-bf3e-428b-8399-e735655f61af
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
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+madvice [madvice] never
enabled         [always] madvice 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

```

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

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

**Test Date:** Mar-2024  
**Hardware Availability:** Feb-2024  
**Software Availability:** Dec-2023

### Platform Notes (Continued)

```
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 SP5  
-----

19. Disk information  
SPEC is set to: /home/cpu2017  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sdb5 btrfs 60G 12G 45G 21% /home  
-----

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

21. dmidecode  
Additional information from dmidecode 3.4 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 M321R8GA0PB0-CWMCH 64 GB 2 rank 5600  
-----

22. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: Cisco Systems, Inc.  
BIOS Version: C240M7.4.3.3a.0.0118241337  
BIOS Date: 01/18/2024  
BIOS Revision: 5.32  
-----

### Compiler Version Notes

=====  
C | 519.lbm\_r(base, peak) 538.imagick\_r(base, peak) 544.nab\_r(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++ | 508.namd\_r(base, peak) 510.parest\_r(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 | 511.povray\_r(base, peak) 526.blender\_r(base, peak)  
-----

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

### Compiler Version Notes (Continued)

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.

=====  
 C++, C, Fortran | 507.cactuBSSN\_r(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 | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak) 554.roms\_r(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 | 521.wrf\_r(base, peak) 527.cam4\_r(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.

### Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Base Portability Flags

```

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

```

## Base Optimization Flags

### C benchmarks:

```

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

```

### C++ benchmarks:

```

-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

```

### Fortran benchmarks:

```

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

```

### Benchmarks using both Fortran and C:

```

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

```

### Benchmarks using both C and C++:

```

-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):

```
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:

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

## Peak Compiler Invocation

C benchmarks:

```
icx
```

C++ benchmarks:

```
icpx
```

Fortran benchmarks:

```
ifx
```

Benchmarks using both Fortran and C:

```
ifx icx
```

Benchmarks using both C and C++:

```
icpx icx
```

Benchmarks using Fortran, C, and C++:

```
icpx icx ifx
```

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
519.lbm_r: basepeak = yes
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Peak Optimization Flags (Continued)

538.imagick\_r: basepeak = yes

544.nab\_r: basepeak = yes

C++ benchmarks:

508.namd\_r: basepeak = yes

510.parest\_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids  
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -mprefer-vector-width=512  
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves\_r: basepeak = yes

549.fotonik3d\_r: basepeak = yes

554.roms\_r: -w -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs  
-align array32byte -auto -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both Fortran and C:

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

Benchmarks using both C and C++:

511.povray\_r: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs  
-fprofile-generate(pass 1)  
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)  
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse  
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int  
-mprefer-vector-width=512 -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib

526.blender\_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C240 M7 (Intel Xeon Platinum 8580, 2.00GHz)

SPECrate®2017\_fp\_base = 1130

SPECrate®2017\_fp\_peak = 1150

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Mar-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-EMR-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-EMR-revB.xml>

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2024-03-02 20:55:15-0500.

Report generated on 2024-03-27 20:27:48 by CPU2017 PDF formatter v6716.

Originally published on 2024-03-26.