



# SPEC CPU®2017 Floating Point Rate Result

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## Lenovo Global Technology

SPECrate®2017\_fp\_base = 2380

ThinkSystem SC750 V4  
(2.40 GHz, Intel Xeon 6972P)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 9017

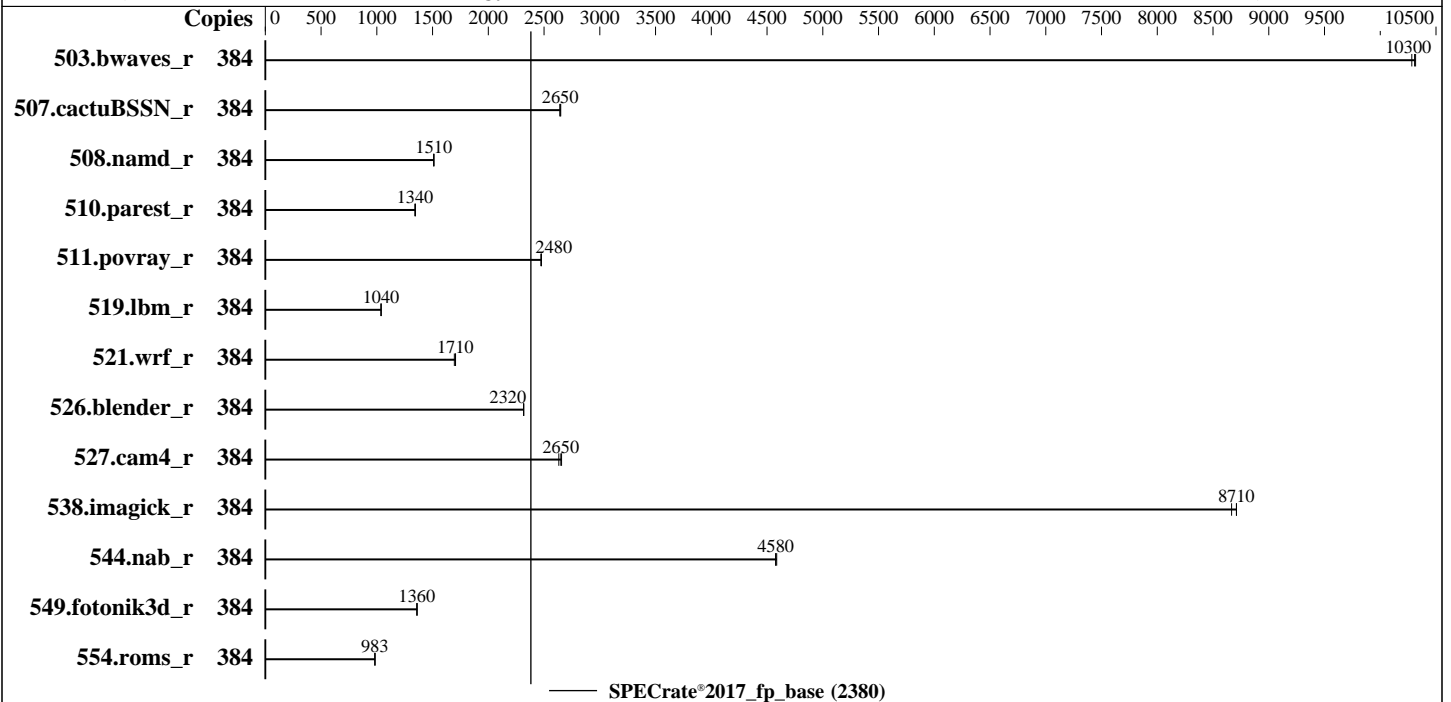
Test Date: Apr-2026

Test Sponsor: Lenovo Global Technology

Hardware Availability: Mar-2026

Tested by: Lenovo Global Technology

Software Availability: Jun-2025



### Hardware

CPU Name: Intel Xeon 6972P  
 Max MHz: 3900  
 Nominal: 2400  
 Enabled: 192 cores, 2 chips, 2 threads/core  
 Orderable: 2 chips  
 Cache L1: 64 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 480 MB I+D on chip per chip  
 Other: None  
 Memory: 768 GB (24 x 32 GB 2Rx8 PC5-88/64B-H)  
 Storage: 1 x 1.92 TB NVME SSD  
 Other: CPU Cooling: DLC

### Software

OS: SUSE Linux Enterprise Server 15 SP7  
 Kernel 6.4.0-150700.51-default  
 Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux;  
 Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;  
 Parallel: No  
 Firmware: Lenovo BIOS Version Q5E111L 1.20 released Dec-2025  
 File System: xfs  
 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



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	384	373	10300	<b><u>374</u></b>	<b><u>10300</u></b>	374	10300							
507.cactuBSSN_r	384	183	2650	184	2640	<b><u>184</u></b>	<b><u>2650</u></b>							
508.namd_r	384	241	1510	<b><u>241</u></b>	<b><u>1510</u></b>	242	1510							
510.parest_r	384	746	1350	<b><u>748</u></b>	<b><u>1340</u></b>	748	1340							
511.povray_r	384	363	2470	<b><u>362</u></b>	<b><u>2480</u></b>	362	2480							
519.lbm_r	384	<b><u>390</u></b>	<b><u>1040</u></b>	390	1040	390	1040							
521.wrf_r	384	504	1710	<b><u>504</u></b>	<b><u>1710</u></b>	507	1700							
526.blender_r	384	253	2320	<b><u>252</u></b>	<b><u>2320</u></b>	252	2320							
527.cam4_r	384	255	2630	253	2660	<b><u>253</u></b>	<b><u>2650</u></b>							
538.imagick_r	384	110	8670	<b><u>110</u></b>	<b><u>8710</u></b>	110	8710							
544.nab_r	384	141	4590	<b><u>141</u></b>	<b><u>4580</u></b>	141	4580							
549.fotonik3d_r	384	1101	1360	1099	1360	<b><u>1100</u></b>	<b><u>1360</u></b>							
554.roms_r	384	621	983	620	984	<b><u>621</u></b>	<b><u>983</u></b>							

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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/cpu2017-1.1.9-ic2024.1/lib/intel64:/home/cpu2017-1.1.9-ic2024.1/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)



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### 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 configuration:

Workload Profile set to General Computing - Max Performance and then set it to Custom

C-States set to Legacy

SNC set to Enabled

Processor Plus set to +2

Page Policy set to Adaptive

Sysinfo program /home/cpu2017-1.1.9-ic2024.1/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Fri Apr 24 16:43:32 2026

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 254 (254.24+suse.148.g83b9060b6e)
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 6.4.0-150700.51-default #1 SMP PREEMPT\_DYNAMIC Wed Apr 30 21:35:43 UTC 2025 (6930611)  
x86\_64 x86\_64 x86\_64 GNU/Linux  
-----

2. w  
16:43:32 up 3 min, 1 user, load average: 4.14, 4.23, 1.80  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT

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### Platform Notes (Continued)

```
root      tty1      -                16:42  12.00s  1.04s  0.02s /bin/bash ./run_multi_speedfp.sh
```

-----  
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) 3094282
max locked memory       (kbytes, -l) 8192
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) 3094282
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
```

-----  
5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
login -- root
-bash
/bin/bash ./run_multi_speedfp.sh
/bin/bash ./run_multi_speedfp.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=384 -c
  ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=192 --define physicalfirst
  --define invoke_with_interleave --define drop_caches --tune base -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=384 --configfile
  ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=192 --define physicalfirst
  --define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
  rate --tune base --size refrate fprate --nopreenv --note-preenv --logfile
  $SPEC/tmp/CPU2017.398/templots/preenv.fprate.398.0.log --lognum 398.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017-1.1.9-ic2024.1
```

-----  
6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6972P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping      : 1
microcode     : 0x1000405
bugs          : spectre_v1 spectre_v2 spec_store_bypass swaps bhi
cpu cores     : 96
siblings      : 192
2 physical ids (chips)
384 processors (hardware threads)
physical id 0: core ids 0-31,64-95,128-159
physical id 1: core ids 0-31,64-95,128-159
physical id 0: apicids 0-63,128-191,256-319
physical id 1: apicids 512-575,640-703,768-831
```

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### Platform Notes (Continued)

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 2.40.4:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         52 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                384
On-line CPU(s) list:  0-383
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) 6972P
CPU family:            6
Model:                 173
Thread(s) per core:   2
Core(s) per socket:   96
Socket(s):             2
Stepping:              1
BogoMIPS:              4800.00
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 intel_ppin cdp_l2
ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept
vpid ept_ad fsgsbase tsc_adjust bmil avx2 smep bmi2 erms invpcid 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 user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida
arat pln pts hfi vnmi 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 engcmd fsrm
md_clear serialize tsxldtrk pconfig arch_lbr ibt amx_bf16 avx512_fp16
amx_tile amx_int8 flush_lld arch_capabilities

Virtualization:       VT-x
L1d cache:           9 MiB (192 instances)
L1i cache:           12 MiB (192 instances)
L2 cache:            384 MiB (192 instances)
L3 cache:            960 MiB (2 instances)
NUMA node(s):        6
NUMA node0 CPU(s):  0-31,192-223
NUMA node1 CPU(s):  32-63,224-255
NUMA node2 CPU(s):  64-95,256-287
NUMA node3 CPU(s):  96-127,288-319
NUMA node4 CPU(s):  128-159,320-351
NUMA node5 CPU(s):  160-191,352-383
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:      Not affected
Vulnerability L1tf:               Not affected
Vulnerability Mds:                 Not affected
Vulnerability Meltdown:           Not affected
Vulnerability Mmio stale data:     Not affected
Vulnerability Reg file data sampling: Not affected

```

(Continued on next page)



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### Platform Notes (Continued)

Vulnerability Retbleed:	Not affected
Vulnerability Spec rstack overflow:	Not affected
Vulnerability Spec store bypass:	Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:	Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:	Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling; PBRSE-eIBRS Not affected; BHI BHI_DIS_S
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	9M	12	Data	1	64	1	64
L1i	64K	12M	16	Instruction	1	64	1	64
L2	2M	384M	16	Unified	2	2048	1	64
L3	480M	960M	16	Unified	3	491520	1	64

8. numactl --hardware

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

```

available: 6 nodes (0-5)
node 0 cpus: 0-31,192-223
node 0 size: 128679 MB
node 0 free: 128056 MB
node 1 cpus: 32-63,224-255
node 1 size: 129006 MB
node 1 free: 128358 MB
node 2 cpus: 64-95,256-287
node 2 size: 129006 MB
node 2 free: 128442 MB
node 3 cpus: 96-127,288-319
node 3 size: 128968 MB
node 3 free: 128481 MB
node 4 cpus: 128-159,320-351
node 4 size: 129006 MB
node 4 free: 128400 MB
node 5 cpus: 160-191,352-383
node 5 size: 128928 MB
node 5 free: 128419 MB
node distances:
node  0  1  2  3  4  5
 0: 10 15 17 26 23 26
 1: 15 10 15 23 26 23
 2: 17 15 10 26 28 21
 3: 26 23 26 10 15 17
 4: 23 26 23 15 10 15
 5: 26 28 21 17 15 10

```

9. /proc/meminfo

MemTotal: 792164020 kB

10. who -r

run-level 3 Apr 24 16:42

11. Systemd service manager version: systemd 254 (254.24+suse.148.g83b9060b6e)

Default Target	Status
multi-user	running

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### Platform Notes (Continued)

-----  
12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore 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 ebttables exchange-bmc-os-info firewalld fsidd gpm grub2-once haveged ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysexit systemd-time-wait-sync systemd-timesyncd vncserver@
indirect	systemd-userdbd wickedd

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

```

BOOT_IMAGE=/boot/vmlinuz-6.4.0-150700.51-default
root=UUID=ce1519fb-457a-4blf-ab59-fcfcc7e58c27
splash=silent
mitigations=auto
quiet
security=apparmor

```

-----  
14. cpupower frequency-info

```

analyzing CPU 190:
  Unable to determine current policy
  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                   60
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

```

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### Platform Notes (Continued)

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 SP7

-----  
19. Disk information  
SPEC is set to: /home/cpu2017-1.1.9-ic2024.1  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/nvme0n1p3 xfs 1.8T 50G 1.7T 3% /

-----  
20. /sys/devices/virtual/dmi/id  
Vendor: Lenovo  
Product: Lenovo ThinkSystem SC750 V4 Neptune Tray  
Product Family: ThinkSystem  
Serial: 1234567890

-----  
21. dmidecode  
Additional information from dmidecode 3.6 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:  
7x SK Hynix HMC88BDJHA380N 32 GB 2 rank 8800  
4x SK Hynix HMC88BDJHA383N 32 GB 2 rank 8800  
9x SK Hynix HMC88BDJHA462N 32 GB 2 rank 8800  
4x SK Hynix HMC88BDJHA464N 32 GB 2 rank 8800

-----  
22. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: Lenovo  
BIOS Version: Q5E111L-1.20  
BIOS Date: 12/18/2025  
BIOS Revision: 1.20  
Firmware Revision: 2.0

### Compiler Version Notes

=====  
C | 519.lbm\_r(base) 538.imagick\_r(base) 544.nab\_r(base)  
-----  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308

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## Compiler Version Notes (Continued)

Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

=====  
C++ | 508.namd\_r(base) 510.parest\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

=====  
C++, C | 511.povray\_r(base) 526.blender\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.

=====  
C++, C, Fortran | 507.cactuBSSN\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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=====  
Fortran | 503.bwaves\_r(base) 549.fotonik3d\_r(base) 554.roms\_r(base)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(base)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

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**Lenovo Global Technology**

SPECrate®2017\_fp\_base = 2380

ThinkSystem SC750 V4  
(2.40 GHz, Intel Xeon 6972P)

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 9017

**Test Date:** Apr-2026

**Test Sponsor:** Lenovo Global Technology

**Hardware Availability:** Mar-2026

**Tested by:** Lenovo Global Technology

**Software Availability:** Jun-2025

## Base Compiler Invocation (Continued)

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

## 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

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# SPEC CPU®2017 Floating Point Rate Result

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## Lenovo Global Technology

ThinkSystem SC750 V4  
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SPECrate®2017\_fp\_base = 2380

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**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Apr-2026

**Hardware Availability:** Mar-2026

**Software Availability:** Jun-2025

## Base Optimization Flags (Continued)

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
-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 -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
```

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

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Birchstream-K.html>  
<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

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

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Birchstream-K.xml>  
<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

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

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