



SPEC CPU®2017 Floating Point Rate Result

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Lenovo Global Technology

SPECrate®2017_fp_base = 1110

ThinkSystem SD550 V3
(1.90 GHz, Intel Xeon Platinum 8592+)

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 9017

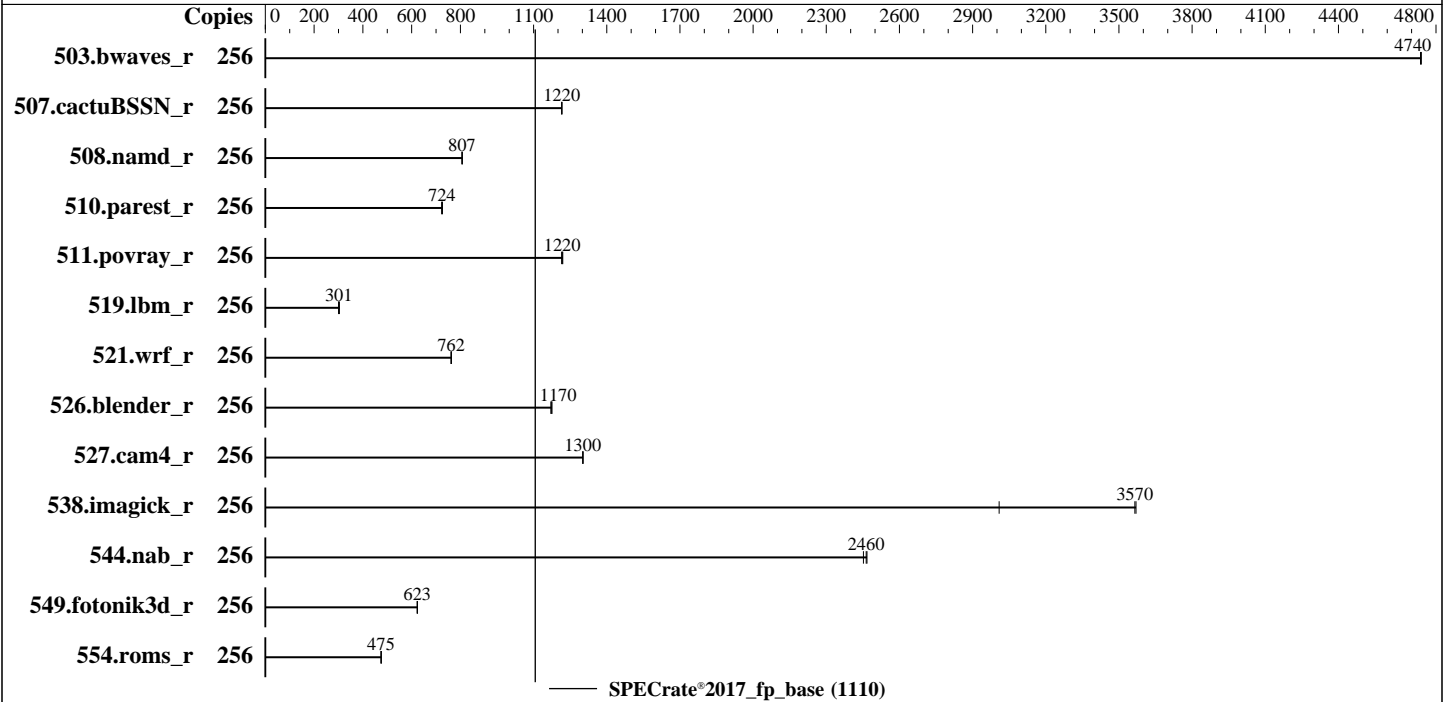
Test Date: Jan-2024

Test Sponsor: Lenovo Global Technology

Hardware Availability: Mar-2024

Tested by: Lenovo Global Technology

Software Availability: Dec-2023



Hardware

CPU Name: Intel Xeon Platinum 8592+
 Max MHz: 3900
 Nominal: 1900
 Enabled: 128 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: 320 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R)
 Storage: 1 x 480 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP5
 Kernel 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: Lenovo BIOS Version FNE113F 2.20 released Jan-2024
 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 and OS 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	256	542	4740	542	4740	542	4740							
507.cactuBSSN_r	256	267	1220	267	1220	267	1220							
508.namd_r	256	302	807	301	808	302	807							
510.parest_r	256	925	724	922	726	926	723							
511.povray_r	256	491	1220	490	1220	492	1210							
519.lbm_r	256	895	301	898	301	889	304							
521.wrf_r	256	751	763	753	762	753	762							
526.blender_r	256	332	1180	332	1170	333	1170							
527.cam4_r	256	344	1300	344	1300	344	1300							
538.imagick_r	256	179	3570	178	3570	212	3010							
544.nab_r	256	175	2460	176	2450	175	2470							
549.fotonik3d_r	256	1601	623	1600	623	1602	623							
554.roms_r	256	857	475	856	475	857	475							

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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-ic2023.2.3/lib/intel64:/home/cpu2017-1.1.9-ic2023.2.3/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.

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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:

Choose Operating Mode set to Maximum Performance and then set it to Custom Mode
C-States set to Legacy
SNC set to SNC2
LLC Prefetch set to Disabled
UPI Link Disable set to Minimum Number of Links Enabled
AMP Prefetch set to Enable

Sysinfo program /home/cpu2017-1.1.9-ic2023.2.3/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Thu Jan 11 09:31:48 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. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

1. uname -a
Linux localhost 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
x86_64 x86_64 x86_64 GNU/Linux

2. w

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Platform Notes (Continued)

```
09:31:48 up 10:42, 1 user, load average: 0.05, 0.02, 0.00
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root      tty1     -             22:51   44.00s 0.86s  0.01s  sh
Run303-compliant-ic2023.2.3-lin-sapphirerapids-ratefp-base-smt-on-20231121.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) 4126610
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) 4126610
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
/bin/bash ./run_SD550V3_EMR.sh
sh Run303-compliant-ic2023.2.3-lin-sapphirerapids-ratefp-base-smt-on-20231121.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=256 -c
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=128 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=256 --configfile
ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=128 --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/CPU2017.174/temlogs/preenv.fprate.174.0.log --lognum 174.0 --from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /home/cpu2017-1.1.9-ic2023.2.3

6. /proc/cpuinfo
model name : INTEL(R) XEON(R) PLATINUM 8592+
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 : 64
siblings : 128
2 physical ids (chips)
256 processors (hardware threads)
physical id 0: core ids 0-63

(Continued on next page)



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Platform Notes (Continued)

physical id 1: core ids 0-63
physical id 0: apicids 0-127
physical id 1: apicids 128-255

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):                       256
On-line CPU(s) list:         0-255
Vendor ID:                    GenuineIntel
Model name:                   INTEL(R) XEON(R) PLATINUM 8592+
CPU family:                   6
Model:                        207
Thread(s) per core:          2
Core(s) per socket:          64
Socket(s):                    2
Stepping:                     2
BogoMIPS:                     3800.00
Flags:                         fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                                clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
                                lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
                                nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
                                ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1
                                sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand
                                lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3
                                invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                                vmni 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
                                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_lld arch_capabilities
Virtualization:               VT-x
L1d cache:                    6 MiB (128 instances)
L1i cache:                    4 MiB (128 instances)
L2 cache:                     256 MiB (128 instances)
L3 cache:                     640 MiB (2 instances)
NUMA node(s):                 4
NUMA node0 CPU(s):           0-31,128-159
NUMA node1 CPU(s):           32-63,160-191
NUMA node2 CPU(s):           64-95,192-223
NUMA node3 CPU(s):           96-127,224-255
Vulnerability Itlb multihit:  Not affected
Vulnerability L1tf:           Not affected
Vulnerability Mds:            Not affected
Vulnerability Meltdown:       Not affected
Vulnerability Mmio stale data: Not affected
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

```

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Platform Notes (Continued)

Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBR SB-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	6M	12	Data	1	64	1	64
L1i	32K	4M	8	Instruction	1	64	1	64
L2	2M	256M	16	Unified	2	2048	1	64
L3	320M	640M	20	Unified	3	262144	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: 0-31,128-159
node 0 size: 257696 MB
node 0 free: 256307 MB
node 1 cpus: 32-63,160-191
node 1 size: 258031 MB
node 1 free: 256615 MB
node 2 cpus: 64-95,192-223
node 2 size: 258031 MB
node 2 free: 256770 MB
node 3 cpus: 96-127,224-255
node 3 size: 257922 MB
node 3 free: 256721 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: 1056443068 kB

10. who -r

run-level 3 Jan 10 22:50

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

```

Default Target Status
multi-user      degraded

```

12. Failed units, from systemctl list-units --state=failed

```

UNIT          LOAD  ACTIVE SUB    DESCRIPTION
* ntp_sync.service loaded failed failed ntp_sync.service

```

13. 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

```

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Platform Notes (Continued)

```

disabled      autofsd autofast-initscripts 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 haveged-switch-root 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-network-generator systemd-sysexit systemd-time-wait-sync systemd-timesyncd
generated     ntp_sync
indirect      wickedd

```

```

-----
14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
root=UUID=1f1165ee-d57c-4884-9a69-769de0319f56
ro
splash=silent
mitigations=auto
quiet
security=apparmor

```

```

-----
15. cpupower frequency-info
analyzing CPU 0:
  Unable to determine current policy
  boost state support:
    Supported: yes
    Active: yes

```

```

-----
16. 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

```

```

-----
17. /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

```

```

-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs  60000
defrag                  1

```

(Continued on next page)



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Platform Notes (Continued)

max_ptes_none	511
max_ptes_shared	256
max_ptes_swap	64
pages_to_scan	4096
scan_sleep_millisecs	10000

 19. OS release
 From /etc/*-release /etc/*-version
 os-release SUSE Linux Enterprise Server 15 SP5

 20. Disk information
 SPEC is set to: /home/cpu2017-1.1.9-ic2023.2.3

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdb3	xf	446G	30G	416G	7%	/

 21. /sys/devices/virtual/dmi/id
 Vendor: Lenovo
 Product: ThinkSystem SD550 V3
 Product Family: ThinkSystem
 Serial: 1234567890

 22. 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:
 9x Samsung M321R8GA0PB0-CWMKH 64 GB 2 rank 5600
 7x Samsung M321R8GA0PB0-CWMXH 64 GB 2 rank 5600

 23. BIOS
 (This section combines info from /sys/devices and dmidecode.)
 BIOS Vendor: Lenovo
 BIOS Version: FNE113F-2.20
 BIOS Date: 01/02/2024
 BIOS Revision: 2.20
 Firmware Revision: 1.10

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 2023.2.3 Build x
 Copyright (C) 1985-2023 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 2023.2.3 Build x
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(Continued on next page)



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Compiler Version Notes (Continued)

=====
C++, C | 511.povray_r(base) 526.blender_r(base)

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)

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) 549.fotonik3d_r(base) 554.roms_r(base)

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) 527.cam4_r(base)

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

(Continued on next page)



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Base Compiler Invocation (Continued)

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 -xsaphirerapids -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 -xsaphirerapids -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 -xsaphirerapids -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 -xsaphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
```

(Continued on next page)



SPEC CPU®2017 Floating Point Rate Result

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Lenovo Global Technology

SPECrate®2017_fp_base = 1110

ThinkSystem SD550 V3
(1.90 GHz, Intel Xeon Platinum 8592+)

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 9017

Test Date: Jan-2024

Test Sponsor: Lenovo Global Technology

Hardware Availability: Mar-2024

Tested by: Lenovo Global Technology

Software Availability: Dec-2023

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

```
-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 -xsaphirerapids -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 -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
```

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

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