



SPEC CPU®2017 Floating Point Rate Result

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Lenovo Global Technology

ThinkSystem SR860 V4
(2.40 GHz, Intel Xeon 6768P)

SPECrate®2017_fp_base = 2640

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 9017

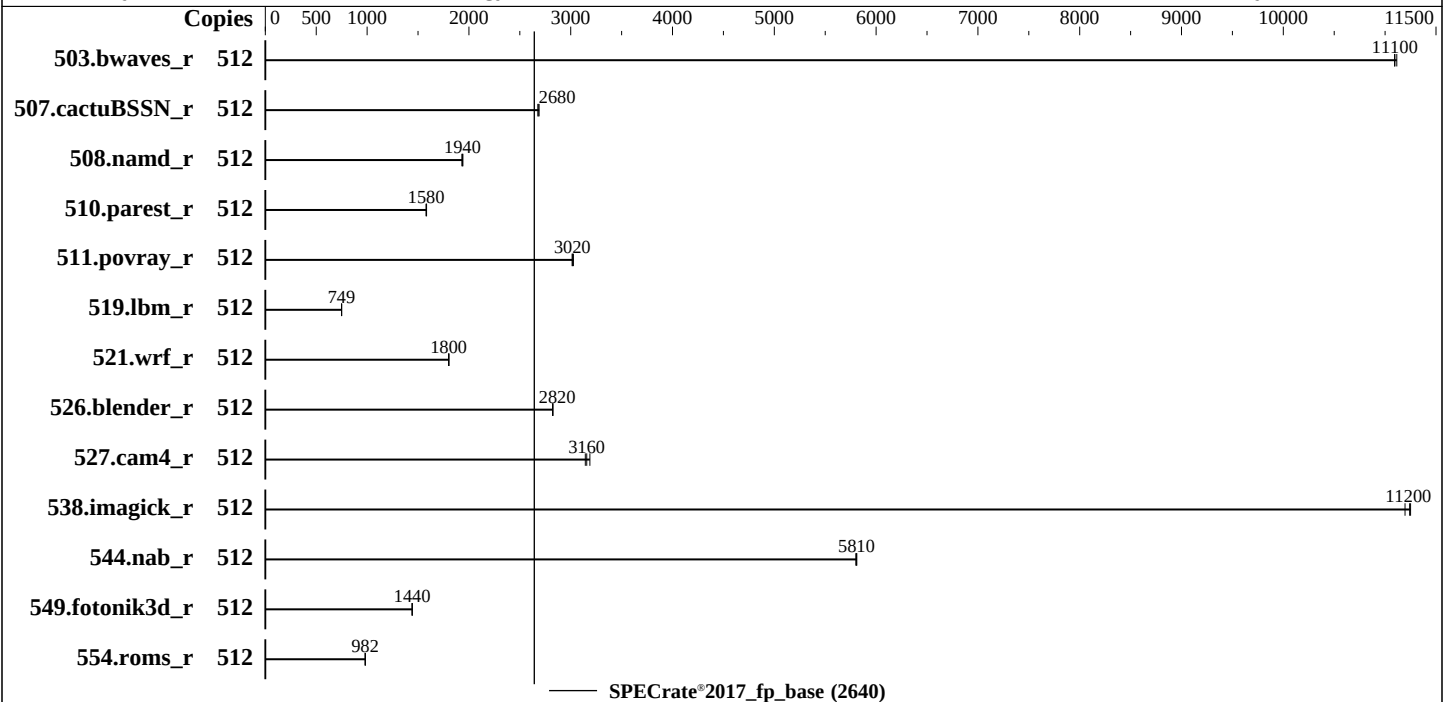
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Aug-2025

Hardware Availability: Nov-2025

Software Availability: Jun-2025



Hardware

CPU Name: Intel Xeon 6768P
Max MHz: 3900
Nominal: 2400
Enabled: 256 cores, 4 chips, 2 threads/core
Orderable: 2,4 chips
Cache L1: 64 KB I + 48 KB D on chip per core
L2: 2 MB I+D on chip per core
L3: 336 MB I+D on chip per chip
Other: None
Memory: 2 TB (32 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 1 x 1.92 TB NVMe SSD
Other: CPU Cooling: Air

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 RVE103X 1.10 released Jul-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	512	462	11100	<u>463</u>	<u>11100</u>	463	11100							
507.cactuBSSN_r	512	<u>242</u>	<u>2680</u>	241	2690	242	2680							
508.namd_r	512	252	1930	251	1940	<u>251</u>	<u>1940</u>							
510.parest_r	512	<u>847</u>	<u>1580</u>	846	1580	848	1580							
511.povray_r	512	395	3030	<u>396</u>	<u>3020</u>	397	3010							
519.lbm_r	512	720	750	<u>720</u>	<u>749</u>	721	749							
521.wrf_r	512	636	1800	<u>636</u>	<u>1800</u>	637	1800							
526.blender_r	512	276	2820	276	2820	<u>276</u>	<u>2820</u>							
527.cam4_r	512	281	3190	<u>284</u>	<u>3160</u>	285	3140							
538.imagick_r	512	<u>113</u>	<u>11200</u>	113	11300	114	11200							
544.nab_r	512	149	5800	<u>148</u>	<u>5810</u>	148	5810							
549.fotonik3d_r	512	1383	1440	<u>1383</u>	<u>1440</u>	1383	1440							
554.roms_r	512	828	982	<u>829</u>	<u>982</u>	829	981							

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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"
MALLOCONF = "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:

Workload Profile set to General Computing - Max Performance

SNC set to Enabled

Sysinfo program /home/cpu2017-1.1.9-ic2024.1/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Sat Aug 30 07:10:53 2025

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

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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
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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
07:10:53 up 4 min, 1 user, load average: 0.73, 1.95, 0.99
USER      TTY      FROM      LOGIN@   IDLE   JCPU   PCPU   WHAT
```

```
3. Username
```

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Platform Notes (Continued)

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) 8254235
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) 8254235
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
```

5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@notty
/bin/bash ./02.remote_local_SPECcpu_1.01.sh
sh Run503-compliant-ic2024.1-lin-sapphirerapids-ratefp-base-smt-on-20240308.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 -c
ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=256 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 --configfile
ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=256 --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/CPU2017.542/templogs/preenv.fprate.542.0.log --lognum 542.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017-1.1.9-ic2024.1
```

6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) 6768P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping       : 1
microcode      : 0x10003d0
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores      : 64
siblings       : 128
4 physical ids (chips)
512 processors (hardware threads)
physical id 0: core ids 0-31,64-95
physical id 1: core ids 0-31,64-95
physical id 2: core ids 0-31,64-95
physical id 3: core ids 0-31,64-95
physical id 0: apicids 0-63,128-191
physical id 1: apicids 256-319,384-447
physical id 2: apicids 512-575,640-703
```

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Platform Notes (Continued)

physical id 3: apicids 768-831,896-959

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):                512
On-line CPU(s) list:   0-511
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) 6768P
CPU family:            6
Model:                 173
Thread(s) per core:    2
Core(s) per socket:    64
Socket(s):              4
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 bmi1 avx2 smep bmi2 erms invpcid cqm
                        rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb
                        intel_pt avx512cd sha_ni avx512bw avx512v1 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 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 enqcmd fsrm md_clear
                        serialize tsxldtrk pconfig arch_lbr ibt amx_bf16 avx512_fp16 amx_tile
                        amx_int8 flush_l1d arch_capabilities
Virtualization:         VT-x
L1d cache:              12 MiB (256 instances)
L1i cache:              16 MiB (256 instances)
L2 cache:               512 MiB (256 instances)
L3 cache:               1.3 GiB (4 instances)
NUMA node(s):           8
NUMA node0 CPU(s):      0-31,256-287
NUMA node1 CPU(s):      32-63,288-319
NUMA node2 CPU(s):      64-95,320-351
NUMA node3 CPU(s):      96-127,352-383
NUMA node4 CPU(s):      128-159,384-415
NUMA node5 CPU(s):      160-191,416-447
NUMA node6 CPU(s):      192-223,448-479
NUMA node7 CPU(s):      224-255,480-511
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:       Not affected
Vulnerability L1tf:                Not affected
Vulnerability Mds:                 Not affected
```

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Platform Notes (Continued)

Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Reg file data sampling: Not affected
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/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling; PBRSSB-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	12M	12	Data	1	64	1	64
L1i	64K	16M	16	Instruction	1	64	1	64
L2	2M	512M	16	Unified	2	2048	1	64
L3	336M	1.3G	16	Unified	3	344064	1	64

8. numactl --hardware

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

available: 8 nodes (0-7)
node 0 cpus: 0-31,256-287
node 0 size: 257526 MB
node 0 free: 256513 MB
node 1 cpus: 32-63,288-319
node 1 size: 258030 MB
node 1 free: 257290 MB
node 2 cpus: 64-95,320-351
node 2 size: 258030 MB
node 2 free: 257026 MB
node 3 cpus: 96-127,352-383
node 3 size: 258030 MB
node 3 free: 257167 MB
node 4 cpus: 128-159,384-415
node 4 size: 258030 MB
node 4 free: 257240 MB
node 5 cpus: 160-191,416-447
node 5 size: 258030 MB
node 5 free: 257246 MB
node 6 cpus: 192-223,448-479
node 6 size: 258030 MB
node 6 free: 257291 MB
node 7 cpus: 224-255,480-511
node 7 size: 257873 MB
node 7 free: 256997 MB

node distances:

node	0	1	2	3	4	5	6	7
0:	10	12	21	21	21	21	21	21
1:	12	10	21	21	21	21	21	21
2:	21	21	10	12	21	21	21	21
3:	21	21	12	10	21	21	21	21
4:	21	21	21	21	10	12	21	21
5:	21	21	21	21	12	10	21	21
6:	21	21	21	21	21	21	10	12
7:	21	21	21	21	21	21	12	10

9. /proc/meminfo

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Platform Notes (Continued)

MemTotal: 2113112072 kB

10. who -r
run-level 3 Aug 30 07:08

11. Systemd service manager version: systemd 254 (254.24+suse.148.g83b9060b6e)
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 nvme-fc-boot-connections nvme-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 autostart-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 udisks2
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=50860560-ae42-405b-bae3-a2b14754d476
splash=silent
mitigations=auto
quiet
security=apparmor

14. cpupower frequency-info
analyzing CPU 261:
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

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Platform Notes (Continued)

```
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+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 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   69G  1.7T   4% /
-----
```

```
-----
20. /sys/devices/virtual/dmi/id
Vendor:          Lenovo
Product:         ThinkSystem SR860 V4
Product Family:  ThinkSystem
Serial:          9876543210
-----
```

```
-----
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:
```

```
4x SK Hynix HMC94AHBRA275N 64 GB 2 rank 6400
7x SK Hynix HMC94AHBRA277N 64 GB 2 rank 6400
3x SK Hynix HMC94AHBRA281N 64 GB 2 rank 6400
2x SK Hynix HMC94AHBRA283N 64 GB 2 rank 6400
8x SK Hynix HMC94AHBRA480N 64 GB 2 rank 6400
3x SK Hynix HMC94AHBRA481N 64 GB 2 rank 6400
3x SK Hynix HMC94AHBRA486N 64 GB 2 rank 6400
2x SK Hynix HMC94AHBRA487N 64 GB 2 rank 6400
-----
```

```
-----
22. BIOS
-----
```

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Platform Notes (Continued)

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

BIOS Vendor: Lenovo
BIOS Version: RVE103X-1.10
BIOS Date: 07/17/2025
BIOS Revision: 1.10
Firmware Revision: 1.40

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
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
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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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)
=====

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=====
Fortran, C | 521.wrf_r(base) 527.cam4_r(base)
=====

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SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR860 V4
(2.40 GHz, Intel Xeon 6768P)

SPECrate®2017_fp_base = 2640

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Aug-2025

Hardware Availability: Nov-2025

Software Availability: Jun-2025

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

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

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Base Optimization Flags (Continued)

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  
-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-F.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-F.xml>
<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

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