



SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR250 V3
(2.80 GHz, Intel Xeon E-2478)

SPECrate®2017_fp_base = 105

SPECrate®2017_fp_peak = 105

CPU2017 License: 9017

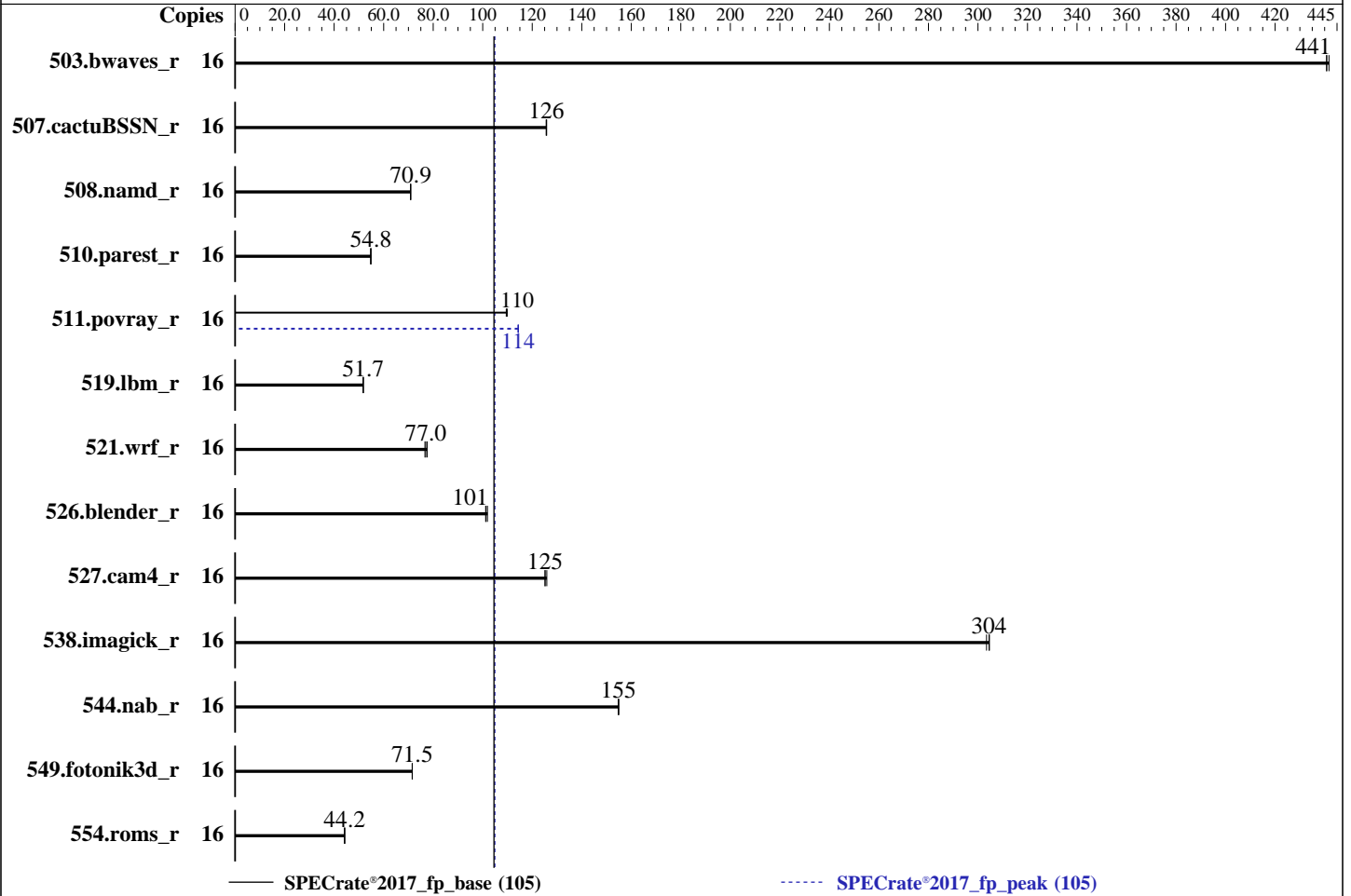
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Feb-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023



Hardware

CPU Name: Intel Xeon E-2478
 Max MHz: 5200
 Nominal: 2800
 Enabled: 8 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 24 MB I+D on chip per chip
 Other: None
 Memory: 64 GB (2 x 32 GB 2Rx8 PC5-4800B-E, running at 4400)
 Storage: 1 x 480 GB SATA SSD
 Other: None

Software

OS: Red Hat Enterprise Linux 9.3 (Plow)
 Kernel 5.14.0-362.8.1.el9_3.x86_64
 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 CTE101Z 1.10 released Dec-2023
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: jemalloc memory allocator V5.0.1
 Power Management: BIOS 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	16	364	441	364	441	363	442	16	364	441	364	441	363	442
507.cactuBSSN_r	16	161	126	161	126	161	126	16	161	126	161	126	161	126
508.namd_r	16	215	70.8	214	70.9	214	70.9	16	215	70.8	214	70.9	214	70.9
510.parest_r	16	765	54.7	763	54.8	763	54.9	16	765	54.7	763	54.8	763	54.9
511.povray_r	16	340	110	341	110	341	110	16	327	114	327	114	327	114
519.lbm_r	16	326	51.7	326	51.8	326	51.7	16	326	51.7	326	51.8	326	51.7
521.wrf_r	16	467	76.7	465	77.0	462	77.6	16	467	76.7	465	77.0	462	77.6
526.blender_r	16	240	101	239	102	241	101	16	240	101	239	102	241	101
527.cam4_r	16	224	125	222	126	224	125	16	224	125	222	126	224	125
538.imagick_r	16	131	304	131	305	131	303	16	131	304	131	305	131	303
544.nab_r	16	174	155	174	155	174	155	16	174	155	174	155	174	155
549.fotonik3d_r	16	871	71.5	872	71.5	871	71.6	16	871	71.5	872	71.5	871	71.6
554.roms_r	16	575	44.2	574	44.3	575	44.2	16	575	44.2	574	44.3	575	44.2

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"
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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)

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General Notes (Continued)

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
Turbo Limit for 95W CPU set to Disabled

Sysinfo program /home/cpu2017-1.1.9-ic2023.2.3/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Sun Feb 25 13:58:11 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 252 (252-18.el9)
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. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. BIOS

```
1. uname -a
Linux localhost.localdomain 5.14.0-362.8.1.el9_3.x86_64 #1 SMP PREEMPT_DYNAMIC Tue Oct 3 11:12:36 EDT 2023
x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
13:58:11 up 4:51, 1 user, load average: 12.99, 15.28, 15.71
USER      TTY      LOGIN@   IDLE   JCPU   PCPU WHAT
root     tty1      09:08    4:49m  0.78s  0.00s -bash
```

3. Username

(Continued on next page)



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Platform Notes (Continued)

From environment variable \$USER: root

```

-----
4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size (blocks, -c) 0
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 256649
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) 256649
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
login -- root
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=16 -c
ic2023.2.3-lin-core-avx2-rate-20231121.cfg --define smt-on --define cores=8 --define physicallogical
--define no-numa --tune base,peak -o all --define drop_caches fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=16 --configfile
ic2023.2.3-lin-core-avx2-rate-20231121.cfg --define smt-on --define cores=8 --define physicallogical
--define no-numa --tune base,peak --output_format all --define drop_caches --nopower --runmode rate --tune
base:peak --size refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.114/tempslogs/preenv.fprate.114.0.log --lognum 114.0 --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) E E-2478
vendor_id      : GenuineIntel
cpu family     : 6
model          : 183
stepping       : 1
microcode      : 0x11f
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores      : 8
siblings       : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0: core ids 0-7
physical id 0: apicids 0-15
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

```

```

-----
7. lscpu

```

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Platform Notes (Continued)

From lscpu from util-linux 2.37.4:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         42 bits physical, 48 bits virtual
Byte Order:            Little Endian
CPU(s):                16
On-line CPU(s) list:   0-15
Vendor ID:             GenuineIntel
BIOS Vendor ID:       Intel(R) Corporation
Model name:            Intel(R) Xeon(R) E E-2478
BIOS Model name:      Intel(R) Xeon(R) E E-2478
CPU family:            6
Model:                 183
Thread(s) per core:    2
Core(s) per socket:    8
Socket(s):             1
Stepping:              1
BogoMIPS:              5606.40
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 aperfperf tsc_known_freq pni pclmulqdq
                        dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm
                        sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c
                        rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb ssbd ibrs ibpb stibp
                        ibrs_enhanced tpr_shadow flexpriority ept vpid ept_ad fsgsbase
                        tsc_adjust bmi1 avx2 smep bmi2 erms invpcid rdseed adx smap clflushopt
                        clwb intel_pt sha_ni xsaveopt xsavec xgetbv1 xsaves split_lock_detect
                        avx_vnni dtherm ida arat pln pts hfi vnmi umip pku ospke waitpkg gfni
                        vaes vpclmulqdq tme rdpid movdiri movdir64b fsrm md_clear serialize
                        pconfig arch_lbr ibt flush_lld arch_capabilities
Virtualization:        VT-x
L1d cache:             384 KiB (8 instances)
L1i cache:             256 KiB (8 instances)
L2 cache:              16 MiB (8 instances)
L3 cache:              24 MiB (1 instance)
NUMA node(s):         1
NUMA node0 CPU(s):    0-15
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 Retbleed: 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,
                        PBRSE-eIBRS SW sequence
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

```

```

Virtualization:        VT-x
L1d cache:             384 KiB (8 instances)
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                        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 384K 12 Data 1 64 1 64
L1i 32K 256K 8 Instruction 1 64 1 64
L2 2M 16M 16 Unified 2 2048 1 64
L3 24M 24M 12 Unified 3 32768 1 64

```

(Continued on next page)



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Platform Notes (Continued)

8. numactl --hardware

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

```
available: 1 nodes (0)
node 0 cpus: 0-15
node 0 size: 64205 MB
node 0 free: 62804 MB
node distances:
node 0
0: 10
```

9. /proc/meminfo

```
MemTotal: 65746176 kB
```

10. who -r

```
run-level 3 Feb 25 09:07
```

11. Systemd service manager version: systemd 252 (252-18.el9)

```
Default Target Status
multi-user degraded
```

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

```
UNIT LOAD ACTIVE SUB DESCRIPTION
* dnf-makecache.service loaded failed failed dnf makecache
```

13. Services, from systemctl list-unit-files

```
STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online atd auditd bluetooth
chronyd crond dbus-broker firewalld getty@ insights-client-boot irqbalance iscsi
iscsi-onboot kdump libstoragemgmt low-memory-monitor lvm2-monitor mcelog mdmonitor
microcode multipathd nis-domainname nvme-fc-boot-connections rhsmcertd rsyslog rtkit-daemon
selinux-autorelabel-mark smartd sshd sssd systemd-boot-update systemd-network-generator
tuned udisks2 upower
enabled-runtime systemd-remount-fs
disabled arp-ethers blk-availability canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell
dnf-system-upgrade iprddump iprinit iprupdate iscsid iscsiuiop kpatch kvm_stat ledmon
man-db-restart-cache-update nftables nvme-fc-autoconnect pesign psacct rdisc rhcd rhsm
rhsm-facts rpmdm-rebuild selinux-check-proper disable serial-getty@ sshd-keygen@
systemd-boot-check-no-failures systemd-pstore systemd-sysex
indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate
systemd-sysupdate-reboot
```

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

```
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-362.8.1.el9_3.x86_64
root=/dev/mapper/rhel-root
ro
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
rhgb
quiet
```

15. cpupower frequency-info

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Platform Notes (Continued)

```
analyzing CPU 0:
  Unable to determine current policy
boost state support:
  Supported: yes
  Active: yes
```

```
-----
16. tuned-adm active
  Current active profile: throughput-performance
```

```
-----
17. sysctl
  kernel.numa_balancing          0
  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                 40
  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                  10
  vm.watermark_boost_factor     15000
  vm.watermark_scale_factor     10
  vm.zone_reclaim_mode          0
```

```
-----
18. /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
```

```
-----
19. /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
```

```
-----
20. OS release
  From /etc/*-release /etc/*-version
  os-release      Red Hat Enterprise Linux 9.3 (Plow)
  redhat-release  Red Hat Enterprise Linux release 9.3 (Plow)
  system-release  Red Hat Enterprise Linux release 9.3 (Plow)
```

```
-----
21. Disk information
SPEC is set to: /home/cpu2017-1.1.9-ic2023.2.3
Filesystem      Type  Size  Used Avail Use% Mounted on
```

(Continued on next page)



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Platform Notes (Continued)

/dev/mapper/rhel-home xfs 344G 15G 330G 5% /home

22. /sys/devices/virtual/dmi/id
Vendor: Lenovo
Product: ThinkSystem SR250 V3
Product Family: ThinkSystem
Serial: 1234567890

23. dmidecode
Additional information from dmidecode 3.5 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:
1x Samsung M324R4GA3BB0-CQKOD 32 GB 2 rank 4800, configured at 4400
1x Samsung M324R4GA3BB0-CQKOL 32 GB 2 rank 4800, configured at 4400

24. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: Lenovo
BIOS Version: CTE101Z-1.10
BIOS Date: 12/27/2023
BIOS Revision: 1.10
Firmware Revision: 1.10

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)

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
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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

Base Portability Flags

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64

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(2.80 GHz, Intel Xeon E-2478)

SPECrate®2017_fp_peak = 105

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Feb-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023

Base Portability Flags (Continued)

```

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 -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

```

C++ benchmarks:

```

-w -std=c++14 -m64 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

```

Fortran benchmarks:

```

-w -m64 -Wl,-z,muldefs -xCORE-AVX2 -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 -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -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 -xCORE-AVX2 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

```

Benchmarks using Fortran, C, and C++:

```

-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops

```

(Continued on next page)



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Base Optimization Flags (Continued)

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

-qopt-mem-layout-trans=4 -Wno-implicit-int -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

538.imagick_r: basepeak = yes

544.nab_r: basepeak = yes

C++ benchmarks:

(Continued on next page)



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Peak Optimization Flags (Continued)

508.namd_r: basepeak = yes

510.parest_r: basepeak = yes

Fortran benchmarks:

503.bwaves_r: basepeak = yes

549.fotonik3d_r: basepeak = yes

554.roms_r: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

527.cam4_r: basepeak = yes

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 -flto
-Ofast -ffast-math -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes

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-Catlow-A.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-Catlow-A.xml>

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



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