SPEC CPU®2017 Floating Point Speed Result

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Lenovo Global Technology

ThinkSystem SR630 V4
(2.20 GHz, Intel Xeon 6731E)

$SPECspeed®2017\_fp\_base$ = 236

$SPECspeed®2017\_fp\_peak$ = Not Run

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Oct-2024
Hardware Availability: Nov-2024
Software Availability: Apr-2024

Threads | 0 30.0 60.0 90.0 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 630

- **603.bwaves_s** 96 — 619
- **607.cactuBSSN_s** 96 — 322
- **619.lbm_s** 96 — 149
- **621.wrf_s** 96 — 204
- **627.cam4_s** 96 — 155
- **628.pop2_s** 96 — 91.2
- **638.imagick_s** 96 — 509
- **644.nab_s** 96 — 478
- **649.fotonik3d_s** 96 — 101
- **654.roms_s** 96 — 257

SPECspeed®2017_fp_base (236)

Hardware

CPU Name: Intel Xeon 6731E
 Max MHz: 3100
 Nominal: 2200
Enabled: 96 cores, 1 chip
Orderable: 1 chip
Cache L1: 64 KB I + 32 KB D on chip per core
 L2: 4 MB I+D on chip per core
 L3: 96 MB I+D on chip per chip
 Other: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC5-6400B-R, running at 5600)
Storage: 1 x 3.84 TB NVME SSD
Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.4 (Plow)
 Kernel 5.14.0-427.13.1.el9_4.x86_64
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: Yes
Firmware: Lenovo BIOS Version IHE107B 1.10 released Sep-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 set to prefer performance at the cost of additional power usage

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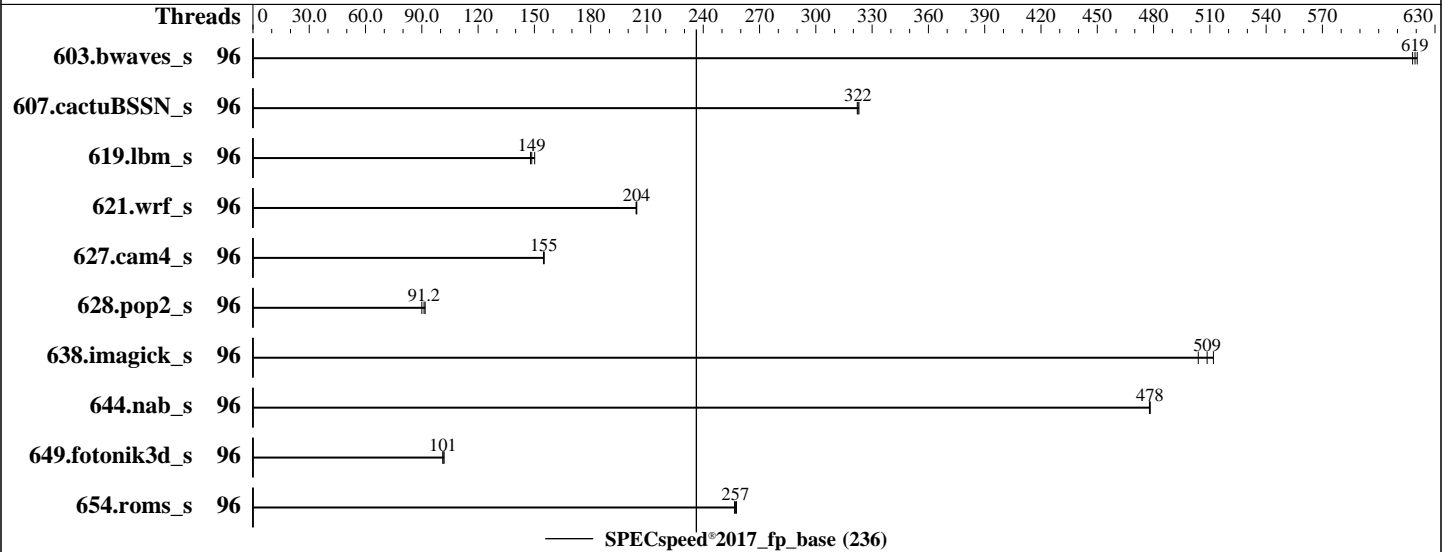
SPECspeed®2017_fp_peak = Not Run

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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	96	95.1	621	95.5	618	**95.3**	**619**							
607.cactuBSSN_s	96	**51.7**	**322**	51.8	322	51.6	323							
619.lbm_s	96	**35.3**	**149**	35.4	148	34.9	150							
621.wrf_s	96	**64.7**	**204**	64.8	204	64.7	205							
627.cam4_s	96	57.2	155	57.1	155	**57.2**	**155**							
628.pop2_s	96	129	91.8	**130**	**91.2**	132	90.0							
638.imagick_s	96	**28.4**	**509**	28.6	504	28.2	512							
644.nab_s	96	36.5	478	36.6	478	**36.5**	**478**							
649.fotonik3d_s	96	90.1	101	89.5	102	**90.0**	**101**							
654.roms_s	96	61.1	258	**61.2**	**257**	61.3	257							
SPECspeed®2017_fp_base =		**236**												
SPECspeed®2017_fp_peak =		**Not Run**												

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

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:
KMP_AFFINITY = "granularity=fine,compact,1,0"
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"
OMP_STACKSIZE = "192M"
```

General Notes

```
  Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
  memory using Redhat Enterprise Linux 8.0
  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)
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
```

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Platform Notes

```
BIOS configuration:
Workload Profile set to High Performance Computing

 Sysinfo program /home/cpu2017-1.1.9-ic2024.1/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Mon Oct 28 02:33:18 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 (252-32.el9_4)
 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.localdomain 5.14.0-427.13.1.el9_4.x86_64 #1 SMP PREEMPT_DYNAMIC Wed Apr 10 10:29:16 EDT
   2024 x86_64 x86_64 x86_64 GNU/Linux


 ------------------------------------------------------------
 2. w
   02:33:18 up 2 min,  0 users,  load average: 0.17, 0.06, 0.01
  USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT

 ------------------------------------------------------------
 3. Username
   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) 2062126
   max locked memory           (kbytes, -l) unlimited
   max memory size             (kbytes, -m) unlimited
```

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Platform Notes (Continued)

```
   open files                          (-n) 102400
   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) 2062126
   virtual memory             (kbytes, -v) unlimited
   file locks                          (-x) unlimited


   ------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 31
 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 Run743-compliant-ic2024.1-lin-sierraforest-speedfp-base-20240308.sh
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=96 --tune base -o all --define smt-on --define
   drop_caches fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=96 --tune base --output_format all --define
   smt-on --define drop_caches --nopower --runmode speed --tune base --size refspeed fpspeed --nopreenv
   --note-preenv --logfile $SPEC/tmp/CPU2017.567/templogs/preenv.fpspeed.567.0.log --lognum 567.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/cpu2017-1.1.9-ic2024.1


   ------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) 6731E
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 175
    stepping        : 3
    microcode       : 0x3000270
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores       : 96
    siblings        : 96
    1 physical ids (chips)
    96 processors (hardware threads)
    physical id 0: core ids 0-95
    physical id 0: apicids
    0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
    ,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,1
    32,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,18
    4,186,188,190
  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:                 52 bits physical, 48 bits virtual
   Byte Order:                    Little Endian
   CPU(s):                        96
```

(Continued on next page)

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Platform Notes (Continued)

```
On-line CPU(s) list:              0-95
Vendor ID:                        GenuineIntel
BIOS Vendor ID:                   Intel(R) Corporation
Model name:                       Intel(R) Xeon(R) 6731E
BIOS Model name:                  Intel(R) Xeon(R) 6731E
CPU family:                       6
Model:                            175
Thread(s) per core:               1
Core(s) per socket:               96
Socket(s):                        1
Stepping:                         3
BogoMIPS:                         4400.00
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 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 rdseed adx smap clflushopt clwb intel_pt sha_ni
                                  xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                                  cqm_mbm_local split_lock_detect avx_vnni lam wbnoinvd dtherm ida arat
                                  pln pts vnmi umip pku ospke waitpkg gfni vaes vpclmulqdq tme rdpid
                                  bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear
                                  serialize pconfig arch_lbr ibt flush_l1d arch_capabilities
Virtualization:                   VT-x
L1d cache:                        3 MiB (96 instances)
L1i cache:                        6 MiB (96 instances)
L2 cache:                         96 MiB (24 instances)
L3 cache:                         96 MiB (1 instance)
NUMA node(s):                     1
NUMA node0 CPU(s):                0-95
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 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,
                                  PBRSB-eIBRS Not affected
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       32K       3M    8 Data            1      64       1             64
    L1i       64K       6M    8 Instruction     1     128       1             64
    L2         4M      96M   16 Unified         2    4096       1             64
    L3        96M      96M   12 Unified         3  131072       1             64

--------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 1 nodes (0)
```

(Continued on next page)

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Platform Notes (Continued)

```
   node 0 cpus: 0-95
   node 0 size: 515570 MB
   node 0 free: 514486 MB
   node distances:
   node   0
     0:  10


  ------------------------------------------------------------
  9. /proc/meminfo
     MemTotal:       527944588 kB


  ------------------------------------------------------------
  10. who -r
    run-level 3 Oct 28 02:30


  ------------------------------------------------------------
  11. Systemd service manager version: systemd 252 (252-32.el9_4)
    Default Target  Status
    multi-user      running


  ------------------------------------------------------------
  12. Services, from systemctl list-unit-files
    STATE           UNIT FILES
    enabled         NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
                    dbus-broker firewalld getty@ insights-client-boot irqbalance kdump low-memory-monitor
                    mdmonitor microcode nis-domainname nvmefc-boot-connections rhsmcertd rsyslog rtkit-daemon
                    selinux-autorelabel-mark sshd sssd systemd-boot-update systemd-network-generator udisks2
                    upower
    enabled-runtime systemd-remount-fs
    disabled        canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot
                    chrony-wait chronyd-restricted console-getty cpupower debug-shell dnf-system-upgrade
                    kvm_stat man-db-restart-cache-update nftables nvmf-autoconnect pesign rdisc rhcd rhsm
                    rhsm-facts rpmdb-rebuild selinux-check-proper-disable serial-getty@ sshd-keygen@
                    systemd-boot-check-no-failures systemd-pstore systemd-sysext
    generated       jexec
    indirect        sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate
                    systemd-sysupdate-reboot

  ------------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd0,gpt2)/boot/vmlinuz-5.14.0-427.13.1.el9_4.x86_64
    root=UUID=218263b5-b938-4bb9-acd2-fdd6e13af967
    ro
    resume=UUID=28b98cc0-6b11-4f02-b151-4d764447b0f5


  ------------------------------------------------------------
  14. cpupower frequency-info
    analyzing CPU 71:
      Unable to determine current policy
      boost state support:
        Supported: yes
        Active: yes


  ------------------------------------------------------------
  15. sysctl
    kernel.numa_balancing              0
    kernel.randomize_va_space          2
    vm.compaction_proactiveness        20
    vm.dirty_background_bytes          0
    vm.dirty_background_ratio          10
```

(Continued on next page)

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Platform Notes (Continued)

```
  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+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      Red Hat Enterprise Linux 9.4 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.4 (Plow)
  system-release Red Hat Enterprise Linux release 9.4 (Plow)


  ----------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017-1.1.9-ic2024.1
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p4 xfs   3.5T   42G  3.4T   2% /home


  ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Lenovo
    Product:        ThinkSystem SR630 V4
    Product Family: ThinkSystem
    Serial:         0987654321


  ----------------------------------------------------------
21. 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:
    4x SK Hynix HMCG94AHBRA275N 64 GB 2 rank 6400, configured at 5600
```

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Platform Notes (Continued)

```
     4x SK Hynix HMCG94AHBRA281N 64 GB 2 rank 6400, configured at 5600


    ------------------------------------------------------------
  22. BIOS
  (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:
     BIOS Version:      IHE107B-1.10
     BIOS Date:         09/11/2024
     BIOS Revision:     1.10
     Firmware Revision: 1.0
```

Compiler Version Notes

```
==============================================================================
C              | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(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, Fortran | 607.cactuBSSN_s(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.
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.
------------------------------------------------------------------------------


==============================================================================
Fortran        | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(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.
------------------------------------------------------------------------------


==============================================================================
Fortran, C     | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(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
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

Fortran benchmarks:
ifx

(Continued on next page)

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Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
`ifx icx`

Benchmarks using Fortran, C, and C++:
`icpx icx ifx`

Base Portability Flags

603.bwaves_s: `-DSPEC_LP64`
607.cactuBSSN_s: `-DSPEC_LP64`
619.lbm_s: `-DSPEC_LP64`
621.wrf_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian`
627.cam4_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG`
628.pop2_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian`
`-assume byterecl`
638.imagick_s: `-DSPEC_LP64`
644.nab_s: `-DSPEC_LP64`
649.fotonik3d_s: `-DSPEC_LP64`
654.roms_s: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
```
-w -std=c11 -m64 -Wl,-z,muldefs -xsierraforest -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

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

Benchmarks using both Fortran and C:
```
-w -m64 -std=c11 -Wl,-z,muldefs -xsierraforest -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

(Continued on next page)

SPEC CPU®2017 Floating Point Speed Result
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Lenovo Global Technology

ThinkSystem SR630 V4
(2.20 GHz, Intel Xeon 6731E)

SPECspeed®2017_fp_base = 236

SPECspeed®2017_fp_peak = Not Run

CPU2017 License: 9017		**Test Date:**	Oct-2024
Test Sponsor:	Lenovo Global Technology	**Hardware Availability:**	Nov-2024
Tested by:	Lenovo Global Technology	**Software Availability:**	Apr-2024

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:

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

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-B.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-B.xml
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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