SPEC CPU®2017 Floating Point Rate Result

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xFusion

xFusion 2288H V6 (Intel Xeon Gold 6326)

$SPECrate®2017\_fp\_base = 154$

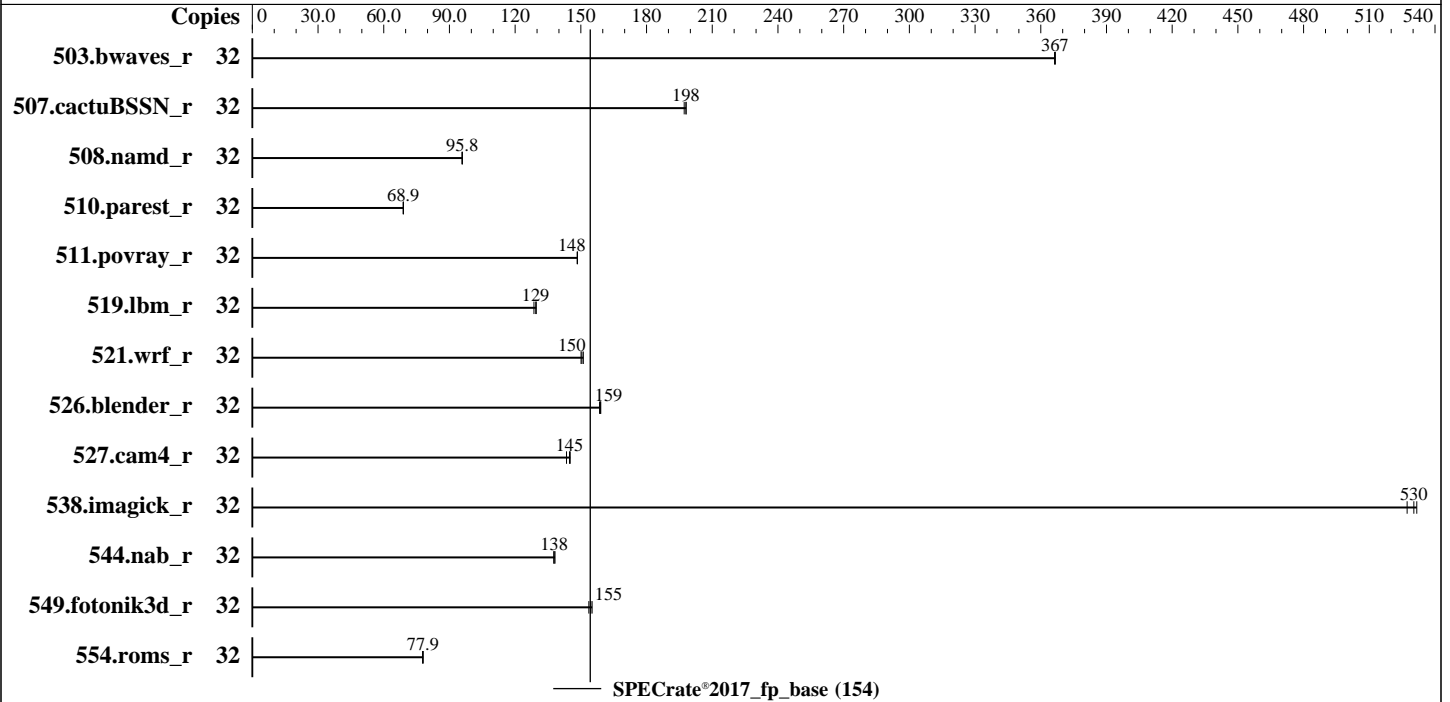$SPECrate®2017\_fp\_peak = Not Run$

CPU2017 License: 6488
Test Sponsor: xFusion
Tested by: xFusion

Test Date: Oct-2024
Hardware Availability: Apr-2021
Software Availability: Mar-2024

Benchmark	Copies	Result
503.bwaves_r	32	367
507.cactuBSSN_r	32	198
508.namd_r	32	95.8
510.parest_r	32	68.9
511.povray_r	32	148
519.lbm_r	32	129
521.wrf_r	32	150
526.blender_r	32	159
527.cam4_r	32	145
538.imagick_r	32	530
544.nab_r	32	138
549.fotonik3d_r	32	155
554.roms_r	32	77.9

SPECrate®2017_fp_base (154)

Hardware

CPU Name: Intel Xeon Gold 6326
 Max MHz: 3500
 Nominal: 2900
Enabled: 16 cores, 1 chip, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 1.25 MB I+D on chip per core
 L3: 24 MB I+D on chip per chip
 Other: None
Memory: 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)
Storage: 1 x 480 GB SATA SSD
Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.2 (Plow)
5.14.0-284.11.1.el9_2.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: No
Firmware: Version 1.79 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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Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	32	875	367	**876**	**367**	876	366							
507.cactuBSSN_r	32	205	197	**205**	**198**	205	198							
508.namd_r	32	317	95.8	**317**	**95.8**	317	95.9							
510.parest_r	32	1213	69.0	1215	68.9	**1215**	**68.9**							
511.povray_r	32	503	148	504	148	**503**	**148**							
519.lbm_r	32	262	129	**261**	**129**	260	130							
521.wrf_r	32	**476**	**150**	478	150	474	151							
526.blender_r	32	306	159	**306**	**159**	307	159							
527.cam4_r	32	**386**	**145**	386	145	390	143							
538.imagick_r	32	151	527	150	532	**150**	**530**							
544.nab_r	32	**391**	**138**	391	138	390	138							
549.fotonik3d_r	32	**807**	**155**	804	155	812	154							
554.roms_r	32	**653**	**77.9**	652	78.0	654	77.7							
SPECrate®2017_fp_base =		**154**												
SPECrate®2017_fp_peak =		**Not Run**												

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/spec/lib/intel64:/home/spec/je5.0.1-64"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>   /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.

(Continued on next page)

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General Notes (Continued)

```
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

```
BIOS configuration:
Performance Profile Set to Performance
SNC Set to Enable SNC2 (2-clusters)

 Sysinfo program /home/spec/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Thu Oct 24 11:27:47 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 (252-13.el9_2)
 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 5.14.0-284.11.1.el9_2.x86_64 #1 SMP PREEMPT_DYNAMIC Wed Apr 12 10:45:03 EDT
   2023 x86_64 x86_64 x86_64 GNU/Linux


 ------------------------------------------------------------
 2. w
   11:27:47 up  4:59,  2 users,  load average: 22.64, 29.79, 31.13
   USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1       08:12    3:15m  1.24s  0.06s -bash
   root     pts/0      06:32    3:15m  0.00s  0.00s -bash
```

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Platform Notes (Continued)

```
          ----------------------------------------------------------
          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) 2060011
            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) 2060011
            virtual memory              (kbytes, -v) unlimited
            file locks                      (-x) unlimited

          ----------------------------------------------------------
          5. sysinfo process ancestry
           /usr/lib/systemd/systemd --switched-root --system --deserialize 31
           login -- root
           -bash
           -bash
           runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 -c
             ic2024.1-lin-core-avx512-rate-20240308.cfg --define smt-on --define cores=16 --define physicalfirst
             --define invoke_with_interleave --define drop_caches --tune base -o all fprate
           runcpu --nobuild --action validate --define default-platform-flags --define numcopies=32 --configfile
             ic2024.1-lin-core-avx512-rate-20240308.cfg --define smt-on --define cores=16 --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/CPU2017.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
           specperl $SPEC/bin/sysinfo
          $SPEC = /home/spec

          ----------------------------------------------------------
          6. /proc/cpuinfo
              model name        : Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz
              vendor_id         : GenuineIntel
              cpu family        : 6
              model             : 106
              stepping          : 6
              microcode         : 0xd0003e7
              bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs mmio_stale_data eibrs_pbrsb
              cpu cores         : 16
              siblings          : 32
              1 physical ids (chips)
              32 processors (hardware threads)
              physical id 0: core ids 0-15
              physical id 0: apicids 0-31
            Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
            virtualized systems.  Use the above data carefully.

          ----------------------------------------------------------
```

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Platform Notes (Continued)

```
 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):                          32
  On-line CPU(s) list:             0-31
  Vendor ID:                       GenuineIntel
  BIOS Vendor ID:                  Intel(R) Corporation
  Model name:                      Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz
  BIOS Model name:                 Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz
  CPU family:                      6
  Model:                           106
  Thread(s) per core:              2
  Core(s) per socket:              16
  Socket(s):                       1
  Stepping:                        6
  BogoMIPS:                        5800.00
  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 pni pclmulqdq dtes64 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 invpcid_single ssbd mba ibrs ibpb stibp
                                   ibrs_enhanced tpr_shadow vnmi 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 avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc
                                   cqm_mbm_total cqm_mbm_local split_lock_detect wbnoinvd dtherm ida arat pln
                                   pts hwp_epp avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq
                                   avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid fsrm md_clear
                                   pconfig flush_l1d arch_capabilities
  Virtualization:                  VT-x
  L1d cache:                       768 KiB (16 instances)
  L1i cache:                       512 KiB (16 instances)
  L2 cache:                        20 MiB (16 instances)
  L3 cache:                        24 MiB (1 instance)
  NUMA node(s):                    2
  NUMA node0 CPU(s):               0-7,16-23
  NUMA node1 CPU(s):               8-15,24-31
  Vulnerability Itlb multihit:     Not affected
  Vulnerability L1tf:              Not affected
  Vulnerability Mds:               Not affected
  Vulnerability Meltdown:          Not affected
  Vulnerability Mmio stale data:   Mitigation; Clear CPU buffers; SMT vulnerable
  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 IBRS, IBPB conditional, RSB filling, PBRSB-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     768K   12 Data            1    64        1             64
      L1i       32K     512K    8 Instruction     1    64        1             64
```

(Continued on next page)

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Platform Notes (Continued)

```
    L2         1.3M    20M   20 Unified         2 1024     1          64
    L3          24M    24M   12 Unified         3 32768     1          64


-------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 2 nodes (0-1)
  node 0 cpus: 0-7,16-23
  node 0 size: 257045 MB
  node 0 free: 255877 MB
  node 1 cpus: 8-15,24-31
  node 1 size: 258000 MB
  node 1 free: 256819 MB
  node distances:
  node   0   1
    0:  10  11
    1:  11  10


-------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       527406296 kB


-------------------------------------------------------------
10. who -r
   run-level 3 Oct 24 06:28


-------------------------------------------------------------
11. Systemd service manager version: systemd 252 (252-13.el9_2)
   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
                    lvm2-monitor mdmonitor microcode nis-domainname rhsmcertd rsyslog rtkit-daemon
                    selinux-autorelabel-mark sshd sssd systemd-boot-update systemd-network-generator udisks2
                    upower
   enabled-runtime  systemd-remount-fs
   disabled         blk-availability canberra-system-bootup canberra-system-shutdown
                    canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell
                    dnf-system-upgrade ipsec kvm_stat man-db-restart-cache-update nftables 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
   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)/vmlinuz-5.14.0-284.11.1.el9_2.x86_64
   root=/dev/mapper/rhel-root
   ro
   crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
   resume=/dev/mapper/rhel-swap
   rd.lvm.lv=rhel/root
   rd.lvm.lv=rhel/swap

-------------------------------------------------------------
14. 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


    ----------------------------------------------------------
15. sysctl
    kernel.numa_balancing              1
    kernel.randomize_va_space          2
    vm.compaction_proactiveness       20
    vm.dirty_background_bytes          0
    vm.dirty_background_ratio         10
    vm.dirty_bytes                     0
    vm.dirty_expire_centisecs       3000
    vm.dirty_ratio                    20
    vm.dirty_writeback_centisecs     500
    vm.dirtytime_expire_seconds    43200
    vm.extfrag_threshold             500
    vm.min_unmapped_ratio              1
    vm.nr_hugepages                    0
    vm.nr_hugepages_mempolicy          0
    vm.nr_overcommit_hugepages         0
    vm.swappiness                     60
    vm.watermark_boost_factor      15000
    vm.watermark_scale_factor         10
    vm.zone_reclaim_mode               0


    ----------------------------------------------------------
16. /sys/kernel/mm/transparent_hugepage
    defrag          always defer defer+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 9.2 (Plow)
    redhat-release Red Hat Enterprise Linux release 9.2 (Plow)
    system-release Red Hat Enterprise Linux release 9.2 (Plow)


    ----------------------------------------------------------
19. Disk information
SPEC is set to: /home/spec
    Filesystem              Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rhel-home xfs   372G   14G  358G   4% /home


    ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
```

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Platform Notes (Continued)

```
     Vendor:         XFUSION
     Product:        2288H V6
     Product Family: Whitley
     Serial:         1234567


   --------------------------------------------------------------
21. dmidecode
   Additional information from dmidecode 3.3 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:
       8x Hynix HMAA8GR7AJR4N-XN 64 GB 2 rank 3200


   --------------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:       XFUSION
     BIOS Version:      1.79
     BIOS Date:         09/27/2024
     BIOS Revision:     1.79
```

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
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.
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
Fortran     | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 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 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`

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`

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xFusion 2288H V6 (Intel Xeon Gold 6326)

SPECrate®2017_fp_base =   154

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 6488
Test Sponsor: xFusion
Tested by: xFusion

Test Date: Oct-2024
Hardware Availability: Apr-2021
Software Availability: Mar-2024

Base Portability Flags (Continued)

```
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-AVX512 -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-AVX512 -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-AVX512 -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-AVX512 -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-AVX512 -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-AVX512 -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
```

SPEC CPU®2017 Floating Point Rate Result

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xFusion

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

http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html
http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-EMR-V1.1.html

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

http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml
http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-EMR-V1.1.xml

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

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