SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

xFusion

FusionServer 5288 V7 (Intel Xeon Gold 5418Y)

$SPECspeed^{®}2017\_fp\_base = 277$

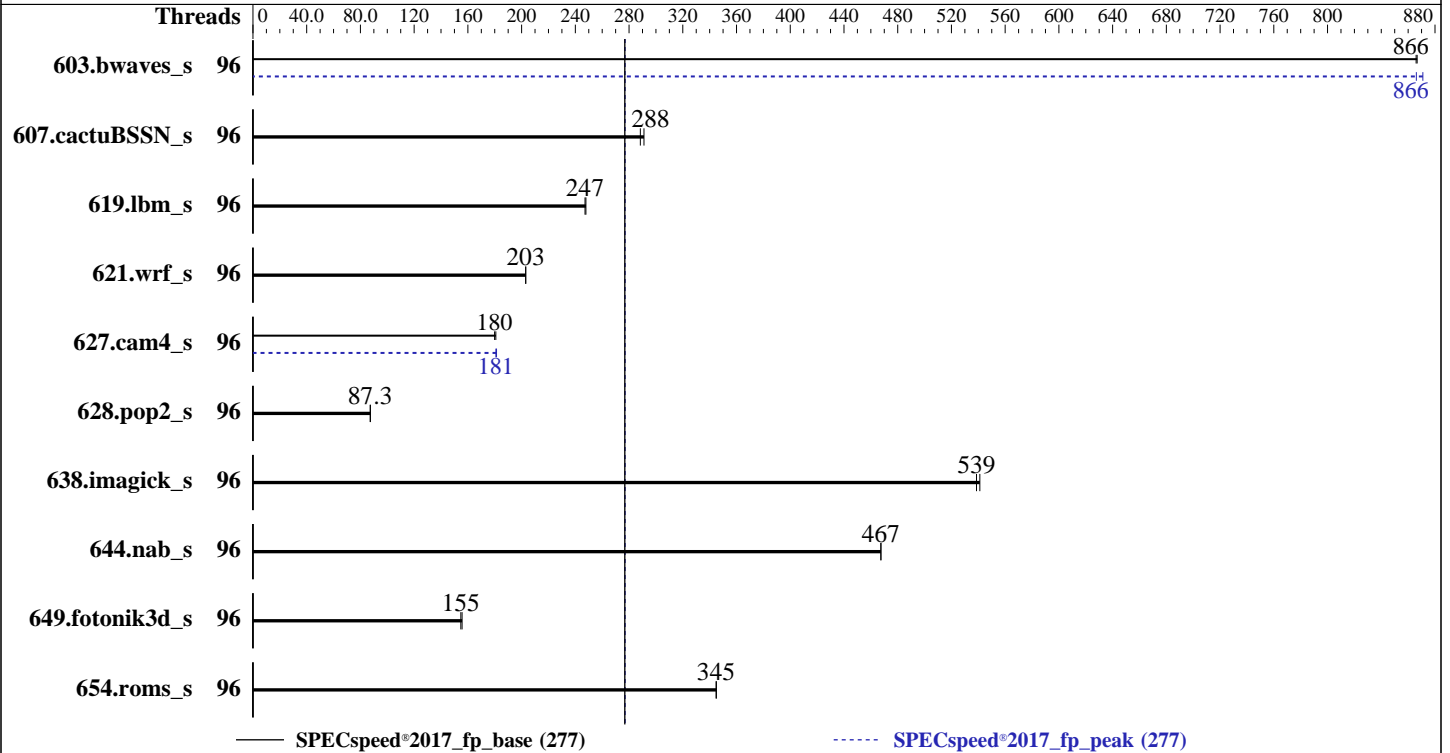$SPECspeed^{®}2017\_fp\_peak = 277$

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

Test Date: Sep-2023
Hardware Availability: Jan-2023
Software Availability: Dec-2022

Threads	
603.bwaves_s	96 — 866 / 866
607.cactuBSSN_s	96 — 288
619.lbm_s	96 — 247
621.wrf_s	96 — 203
627.cam4_s	96 — 180 / 181
628.pop2_s	96 — 87.3
638.imagick_s	96 — 539
644.nab_s	96 — 467
649.fotonik3d_s	96 — 155
654.roms_s	96 — 345

— SPECspeed®2017_fp_base (277)   ----- SPECspeed®2017_fp_peak (277)

Hardware

CPU Name: Intel Xeon Gold 5418Y
 Max MHz: 3800
 Nominal: 2000
Enabled: 48 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 45 MB I+D on chip per chip
 Other: None
Memory: 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R, running at 4400)
Storage: 1 x 1920 GB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux release 9.0 (Plow)
 5.14.0-70.13.1.el9_0.x86_64
Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2023.0 of Intel Fortran Compiler
 for Linux;
Parallel: Yes
Firmware: Version 2.00.55 Released Mar-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: OS set to prefer performance at the cost of additional power usage

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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	**68.1**	**866**	68.1	867			96	67.7	871	**68.1**	**866**		
607.cactuBSSN_s	96	57.3	291	**57.8**	**288**			96	57.3	291	**57.8**	**288**		
619.lbm_s	96	**21.2**	**247**	21.1	248			96	**21.2**	**247**	21.1	248		
621.wrf_s	96	**65.1**	**203**	65.1	203			96	**65.1**	**203**	65.1	203		
627.cam4_s	96	49.0	181	**49.3**	**180**			96	**49.0**	**181**	48.9	181		
628.pop2_s	96	136	87.4	**136**	**87.3**			96	136	87.4	**136**	**87.3**		
638.imagick_s	96	**26.8**	**539**	26.7	541			96	**26.8**	**539**	26.7	541		
644.nab_s	96	**37.4**	**467**	37.4	468			96	**37.4**	**467**	37.4	468		
649.fotonik3d_s	96	**58.9**	**155**	58.6	156			96	**58.9**	**155**	58.6	156		
654.roms_s	96	45.6	345	**45.7**	**345**			96	45.6	345	**45.7**	**345**		
SPECspeed®2017_fp_base =	**277**													
SPECspeed®2017_fp_peak =	**277**													

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"
LD_LIBRARY_PATH = "/home/spec2017-ic2023/lib/intel64:/home/spec2017-ic2023/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 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)
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:
Performance Profile Set to Load Balance

Sysinfo program /home/spec2017-ic2023/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Mon Sep 18 00:06:37 2023

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 250 (250-6.el9_0)
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 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
  x86_64 x86_64 GNU/Linux

-------------------------------------------------------------
2. w
  00:06:37 up 3 min,  1 user,  load average: 0.05, 0.22, 0.11
  USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1       00:05    1:09   0.95s  0.00s -bash

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

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Platform Notes (Continued)

```
  pending signals                      (-i) 2060200
  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) 2060200
  virtual memory              (kbytes, -v) unlimited
  file locks                           (-x) unlimited

  ------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 27
 login -- root
 -bash
 -bash
 runcpu --define default-platform-flags -c ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=96
   --tune base,peak --iterations 2 -o all --define drop_caches fpspeed
 runcpu --define default-platform-flags --configfile ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define
   cores=96 --tune base,peak --iterations 2 --output_format all --define drop_caches --nopower --runmode
   speed --tune base:peak --size refspeed fpspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.227/templogs/preenv.fpspeed.227.0.log --lognum 227.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/spec2017-ic2023

  ------------------------------------------------------------
6. /proc/cpuinfo
    model name        : Intel(R) Xeon(R) Gold 5418Y
    vendor_id         : GenuineIntel
    cpu family        : 6
    model             : 143
    stepping          : 7
    microcode         : 0x2b000111
    bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores         : 24
    siblings          : 48
    2 physical ids (chips)
    96 processors (hardware threads)
    physical id 0: core ids 0-23
    physical id 1: core ids 0-23
    physical id 0: apicids 0-47
    physical id 1: apicids 128-175
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
  virtualized systems.  Use the above data carefully.

  ------------------------------------------------------------
7. lscpu

 From lscpu from util-linux 2.37.4:
  Architecture:                  x86_64
  CPU op-mode(s):                32-bit, 64-bit
  Address sizes:                 46 bits physical, 57 bits virtual
  Byte Order:                    Little Endian
  CPU(s):                        96
  On-line CPU(s) list:           0-95
  Vendor ID:                     GenuineIntel
  BIOS Vendor ID:                Intel(R) Corporation
```

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CPU2017 License: 6488
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Platform Notes (Continued)

```
   Model name:                       Intel(R) Xeon(R) Gold 5418Y
   BIOS Model name:                  Intel(R) Xeon(R) Gold 5418Y
   CPU family:                       6
   Model:                            143
   Thread(s) per core:               2
   Core(s) per socket:               24
   Socket(s):                        2
   Stepping:                         7
   Frequency boost:                  enabled
   CPU max MHz:                      2001.0000
   CPU min MHz:                       800.0000
   BogoMIPS:                         4000.00
   Flags:                            fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                                     clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
                                     lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
                                     nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
                                     ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1
                                     sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand
                                     lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3
                                     invpcid_single intel_ppin cdp_l2 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 avx_vnni avx512_bf16 wbnoinvd dtherm ida
                                     arat pln pts avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes
                                     vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid
                                     bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear serialize
                                     tsxldtrk pconfig arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities
   Virtualization:                   VT-x
   L1d cache:                        2.3 MiB (48 instances)
   L1i cache:                        1.5 MiB (48 instances)
   L2 cache:                         96 MiB (48 instances)
   L3 cache:                         90 MiB (2 instances)
   NUMA node(s):                     2
   NUMA node0 CPU(s):                0-23,48-71
   NUMA node1 CPU(s):                24-47,72-95
   Vulnerability Itlb multihit:      Not affected
   Vulnerability L1tf:               Not affected
   Vulnerability Mds:                Not affected
   Vulnerability Meltdown:           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
   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     2.3M   12 Data           1    64      1          64
     L1i      32K     1.5M    8 Instruction    1    64      1          64
     L2        2M      96M   16 Unified        2  2048      1          64
     L3       45M      90M   15 Unified        3 49152      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: 0-23,48-71
   node 0 size: 257062 MB
```

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Platform Notes (Continued)

```
   node 0 free: 254169 MB
   node 1 cpus: 24-47,72-95
   node 1 size: 258026 MB
   node 1 free: 254331 MB
   node distances:
   node   0   1
     0:  10  21
     1:  21  10


  ----------------------------------------------------------
9. /proc/meminfo
   MemTotal:       527451800 kB


  ----------------------------------------------------------
10. who -r
   run-level 3 Sep 18 00:02


  ----------------------------------------------------------
11. Systemd service manager version: systemd 250 (250-6.el9_0)
   Default Target  Status
   multi-user      degraded


  ----------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
     UNIT          LOAD   ACTIVE SUB    DESCRIPTION
   * sep5.service loaded failed failed systemd script to load sep5 driver at boot time


  ----------------------------------------------------------
13. Services, from systemctl list-unit-files
   STATE             UNIT FILES
   enabled           NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
                     dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode
                     nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sep5 sshd sssd sysstat
                     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 kvm_stat
                     man-db-restart-cache-update nftables powertop rdisc rhsm rhsm-facts rpmdb-rebuild
                     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

  ----------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.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


  ----------------------------------------------------------
15. cpupower frequency-info
   analyzing CPU 0:
     current policy: frequency should be within 800 MHz and 2.00 GHz.
                     The governor "performance" may decide which speed to use
                     within this range.
     boost state support:
       Supported: yes
       Active: yes
```

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Platform Notes (Continued)

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

    ----------------------------------------------------------
    17. 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                  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+madvise [madvise] never
      enabled        [always] madvise 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 9.0 (Plow)
      redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
      system-release Red Hat Enterprise Linux release 9.0 (Plow)

    ----------------------------------------------------------
    21. Disk information
    SPEC is set to: /home/spec2017-ic2023
      Filesystem           Type  Size  Used Avail Use% Mounted on
      /dev/mapper/rhel-home xfs   1.7T   69G  1.7T   4% /home

    ----------------------------------------------------------
    22. /sys/devices/virtual/dmi/id
        Vendor:         XFUSION
```

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Platform Notes (Continued)

```
      Product:       5288 V7
      Product Family: Eagle Stream
      Serial:        serial


    --------------------------------------------------------------
 23. 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:
     16x Samsung M321R4GA3BB6-CQKDG 32 GB 2 rank 4800, configured at 4400


    --------------------------------------------------------------
 24. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:     XFUSION
    BIOS Version:    2.00.55
    BIOS Date:       03/07/2023
    BIOS Revision:   0.55
```

Compiler Version Notes

```
==============================================================================================
C               | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran         | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)
----------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------------------------
```

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Base Compiler Invocation

C benchmarks:
`icx`

Fortran benchmarks:
`ifx`

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:
`-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp`
`-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512`
`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Fortran benchmarks:
`-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids -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:
`-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math`

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xFusion

FusionServer 5288 V7 (Intel Xeon Gold 5418Y)

SPECspeed®2017_fp_base = 277

SPECspeed®2017_fp_peak = 277

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

Test Date: Sep-2023
Hardware Availability: Jan-2023
Software Availability: Dec-2022

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
```
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

Fortran benchmarks:
```
ifx
```

Benchmarks using both Fortran and C:
```
ifx icx
```

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

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

619.lbm_s: `basepeak = yes`

638.imagick_s: `basepeak = yes`

(Continued on next page)

xFusion

FusionServer 5288 V7 (Intel Xeon Gold 5418Y)

SPECspeed®2017_fp_base = 277

SPECspeed®2017_fp_peak = 277

CPU2017 License: 6488　　　　　　　　　　　　　　　　　**Test Date:** Sep-2023
Test Sponsor: xFusion　　　　　　　　　　　　　　**Hardware Availability:** Jan-2023
Tested by: xFusion　　　　　　　　　　　　　　**Software Availability:** Dec-2022

Peak Optimization Flags (Continued)

644.nab_s: `basepeak = yes`

Fortran benchmarks:

603.bwaves_s: `-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids -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`

649.fotonik3d_s: `basepeak = yes`

654.roms_s: `basepeak = yes`

Benchmarks using both Fortran and C:

621.wrf_s: `basepeak = yes`

627.cam4_s: `-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

628.pop2_s: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html
http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-SPR-V1.1-revC.html

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml
http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-SPR-V1.1-revC.xml

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

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