SPEC CPU®2017 Floating Point Speed Result

FusionStor

(Test Sponsor: Meganet)

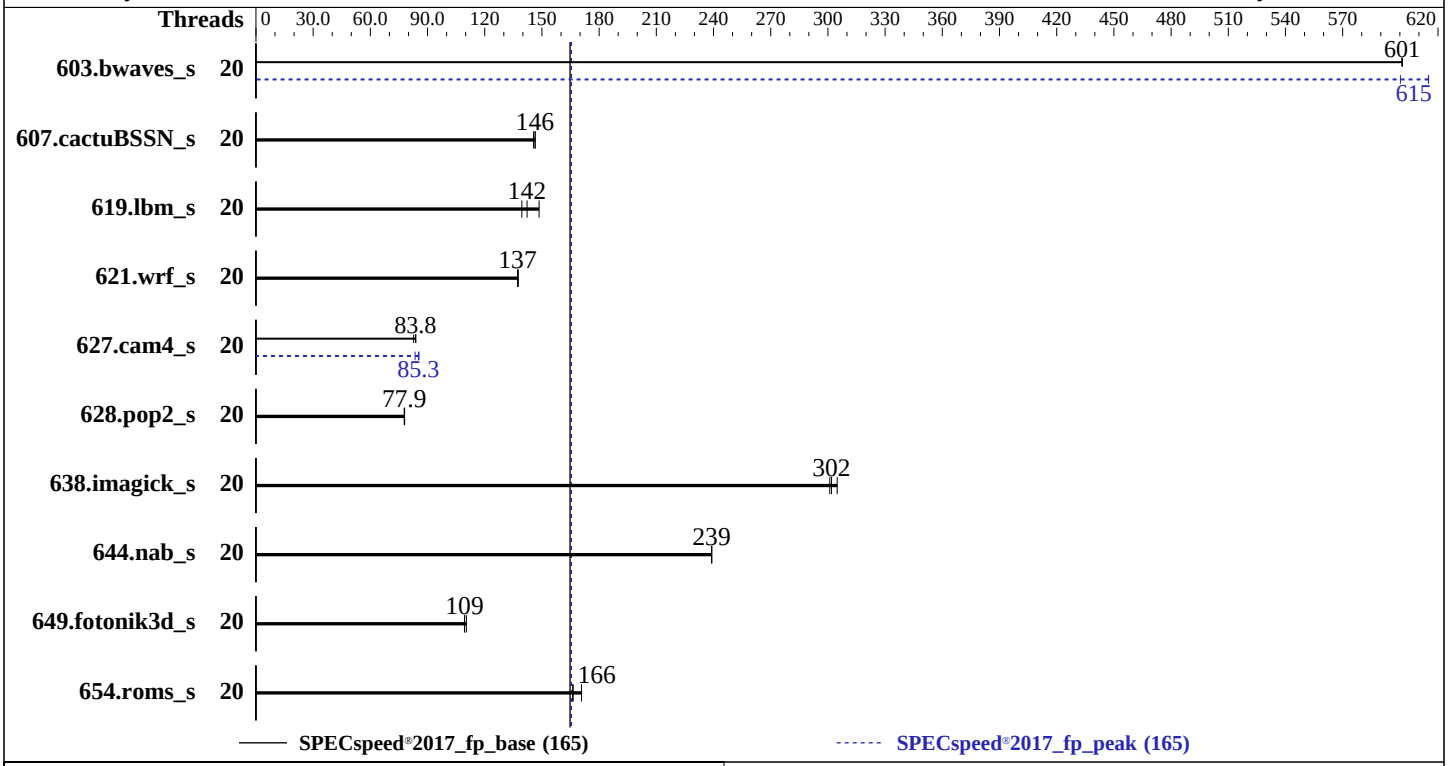
Invento i6000 (Intel Xeon Silver 4410T)

SPECspeed®2017_fp_base = 165

SPECspeed®2017_fp_peak = 165

CPU2017 License: 6221
Test Sponsor: Meganet
Tested by: FusionStor

Test Date: Feb-2025
Hardware Availability: Dec-2022
Software Availability: Nov-2024



Hardware

CPU Name:	Intel Xeon Silver 4410T
Max MHz:	4000
Nominal:	2700
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:	26.25 MB I+D on chip per chip
Other:	None
Memory:	1 TB (16 x 64 GB 2Rx4 PC5-4800B-R, running at 4000)
Storage:	960 GB SATA SSD
Other:	CPU Cooling: Air

Software

OS:	Ubuntu 22.04.5 LTS 6.8.0-49-generic
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:	Yes
Firmware:	Version EG0.10.01 released Mar-2024
File System:	ext4
System State:	Run level 5 (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 expense of additional power usage

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	20	98.1	601	98.2	601	**98.1**	**601**	20	95.9	615	**95.9**	**615**	98.3	600
607.cactuBSSN_s	20	**114**	**146**	115	146	114	146	20	**114**	**146**	115	146	114	146
619.lbm_s	20	35.3	149	**36.8**	**142**	37.6	139	20	35.3	149	**36.8**	**142**	37.6	139
621.wrf_s	20	96.1	138	96.4	137	**96.3**	**137**	20	96.1	138	96.4	137	**96.3**	**137**
627.cam4_s	20	**106**	**83.8**	107	82.7	106	83.8	20	**104**	**85.3**	104	85.5	106	83.5
628.pop2_s	20	153	77.8	**152**	**77.9**	152	78.0	20	153	77.8	**152**	**77.9**	152	78.0
638.imagick_s	20	**47.8**	**302**	47.9	301	47.3	305	20	**47.8**	**302**	47.9	301	47.3	305
644.nab_s	20	**73.1**	**239**	73.1	239	73.1	239	20	**73.1**	**239**	73.1	239	73.1	239
649.fotonik3d_s	20	**83.3**	**109**	82.6	110	83.4	109	20	**83.3**	**109**	82.6	110	83.4	109
654.roms_s	20	94.8	166	**94.6**	**166**	92.2	171	20	94.8	166	**94.6**	**166**	92.2	171

SPECspeed®2017_fp_base = 165

SPECspeed®2017_fp_peak = 165

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/speccpu/cpu2017/lib/intel64:/home/speccpu/cpu2017/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
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 settings
Enable SNC2 (2-Clusters)

 Sysinfo program /home/speccpu/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on intel Thu Feb  6 15:12:21 2025
```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Platform Notes (Continued)

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

------------------------------------------------------------
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------------------------------------------------------------
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 2. w
 3. Username
 4. ulimit -a
 5. sysinfo process ancestry
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 7. lscpu
 8. numactl --hardware
 9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.12)
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
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18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -a
  Linux intel 6.8.0-49-generic #49~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Wed Nov  6 17:42:15 UTC 2 x86_64 x86_64
  x86_64 GNU/Linux

------------------------------------------------------------
2. w
   15:12:21 up 3 days,  4:26,  2 users,  load average: 5.76, 6.57, 4.01
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  intel    :1       :1               Mon10   ?xdm?   2:47m  0.00s /usr/libexec/gdm-x-session --run-script env
  GNOME_SHELL_SESSION_MODE=ubuntu /usr/bin/gnome-session --session=ubuntu
  intel    pts/1    -                11:02    4:09m  0.93s  0.04s sudo
  ./reportable-ic2023.2.3-lin-sapphirerapids-speed-smt-on-20231121.sh

------------------------------------------------------------
3. Username
  From environment variable $USER:  root
  From the command 'logname':       intel

------------------------------------------------------------
4. ulimit -a
  time(seconds)        unlimited
  file(blocks)         unlimited
  data(kbytes)         unlimited
  stack(kbytes)        unlimited
  coredump(blocks)     0
  memory(kbytes)       unlimited
  locked memory(kbytes) 132062276
  process              4126642
  nofiles              1024
```

(Continued on next page)

Platform Notes (Continued)

```
   vmemory(kbytes)      unlimited
   locks                unlimited
   rtprio               0

------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init splash
 /lib/systemd/systemd --user
 /usr/libexec/gnome-terminal-server
 bash
 sudo ./reportable-ic2023.2.3-lin-sapphirerapids-speed-smt-on-20231121.sh
 sudo ./reportable-ic2023.2.3-lin-sapphirerapids-speed-smt-on-20231121.sh
 sh ./reportable-ic2023.2.3-lin-sapphirerapids-speed-smt-on-20231121.sh
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=20 --tune base,peak -o all --define smt-on
   --define drop_caches fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2023.2.3-lin-sapphirerapids-speed-20231121.cfg --define cores=20 --tune base,peak --output_format all
   --define smt-on --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed
   --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.042/templogs/preenv.fpspeed.042.0.log --lognum 042.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/speccpu/cpu2017

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Silver 4410T
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
    microcode       : 0x2b000603
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb bhi
    cpu cores       : 10
    siblings        : 20
    2 physical ids (chips)
    40 processors (hardware threads)
    physical id 0: core ids 0-9
    physical id 1: core ids 0-9
    physical id 0: apicids 0-19
    physical id 1: apicids 128-147
  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 2.37.2:
  Architecture:                         x86_64
  CPU op-mode(s):                       32-bit, 64-bit
  Address sizes:                        52 bits physical, 57 bits virtual
  Byte Order:                           Little Endian
  CPU(s):                               40
  On-line CPU(s) list:                  0-39
  Vendor ID:                            GenuineIntel
  Model name:                           Intel(R) Xeon(R) Silver 4410T
  CPU family:                           6
  Model:                                143
  Thread(s) per core:                   2
  Core(s) per socket:                   10
```

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Platform Notes (Continued)

```
  Socket(s):                           2
  Stepping:                            8
  CPU max MHz:                         4000.0000
  CPU min MHz:                         800.0000
  BogoMIPS:                            5400.00
  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 ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm
                                       pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
                                       xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb
                                       cat_l3 cat_l2 cdp_l3 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp
                                       ibrs_enhanced tpr_shadow flexpriority ept vpid ept_ad fsgsbase
                                       tsc_adjust bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a avx512f
                                       avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd
                                       sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc
                                       cqm_occup_llc cqm_mbm_total cqm_mbm_local split_lock_detect
                                       user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hfi
                                       vnmi avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes
                                       vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid
                                       bus_lock_detect cldemote movdiri movdir64b enqcmd fsrm md_clear
                                       serialize tsxldtrk pconfig arch_lbr ibt amx_bf16 avx512_fp16 amx_tile
                                       amx_int8 flush_l1d arch_capabilities
  Virtualization:                      VT-x
  L1d cache:                           960 KiB (20 instances)
  L1i cache:                           640 KiB (20 instances)
  L2 cache:                            40 MiB (20 instances)
  L3 cache:                            52.5 MiB (2 instances)
  NUMA node(s):                        4
  NUMA node0 CPU(s):                   0-4,20-24
  NUMA node1 CPU(s):                   5-9,25-29
  NUMA node2 CPU(s):                   10-14,30-34
  NUMA node3 CPU(s):                   15-19,35-39
  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 Reg file data sampling: Not affected
  Vulnerability Retbleed:              Not affected
  Vulnerability Spec rstack overflow:  Not affected
  Vulnerability Spec store bypass:     Mitigation; Speculative Store Bypass disabled via prctl
  Vulnerability Spectre v1:            Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:            Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
                                       PBRSB-eIBRS SW sequence; BHI BHI_DIS_S
  Vulnerability Srbds:                 Not affected
  Vulnerability Tsx async abort:       Not affected

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL  SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     960K   12 Data            1    64        1             64
     L1i       32K     640K    8 Instruction     1    64        1             64
     L2         2M      40M   16 Unified         2  2048        1             64
     L3      26.3M    52.5M   15 Unified         3 28672        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
```

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Platform Notes (Continued)

```
  available: 4 nodes (0-3)
  node 0 cpus: 0-4,20-24
  node 0 size: 257650 MB
  node 0 free: 239883 MB
  node 1 cpus: 5-9,25-29
  node 1 size: 258044 MB
  node 1 free: 247056 MB
  node 2 cpus: 10-14,30-34
  node 2 size: 258044 MB
  node 2 free: 249087 MB
  node 3 cpus: 15-19,35-39
  node 3 size: 257997 MB
  node 3 free: 248066 MB
  node distances:
  node   0   1   2   3
    0:  10  12  21  21
    1:  12  10  21  21
    2:  21  21  10  12
    3:  21  21  12  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1056498212 kB

------------------------------------------------------------
10. who -r
  run-level 5 Feb 3 10:46

------------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.12)
  Default Target  Status
  graphical       degraded

------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT                              LOAD   ACTIVE SUB    DESCRIPTION
  * NetworkManager-wait-online.service loaded failed failed Network Manager Wait Online

------------------------------------------------------------
13. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
                   accounts-daemon anacron anydesk apparmor avahi-daemon bluetooth console-setup cron cups
                   cups-browsed dmesg e2scrub_reap getty@ gpu-manager grub-common grub-initrd-fallback
                   irqbalance kerneloops keyboard-setup networkd-dispatcher openvpn power-profiles-daemon
                   rsyslog secureboot-db setvtrgb snapd ssh switcheroo-control systemd-oomd systemd-pstore
                   systemd-resolved systemd-timesyncd teamviewerd thermald ua-reboot-cmds ubuntu-advantage
                   udisks2 ufw unattended-upgrades wpa_supplicant
  enabled-runtime  netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
  disabled         acpid brltty console-getty debug-shell nftables openvpn-client@ openvpn-server@ openvpn@
                   rsync rtkit-daemon serial-getty@ speech-dispatcherd systemd-boot-check-no-failures
                   systemd-network-generator systemd-networkd systemd-networkd-wait-online systemd-sysext
                   systemd-time-wait-sync tlp upower wpa_supplicant-nl80211@ wpa_supplicant-wired@
                   wpa_supplicant@
  generated        apport cpufrequtils loadcpufreq speech-dispatcher
  indirect         saned@ spice-vdagentd uuidd
  masked           alsa-utils cryptdisks cryptdisks-early hwclock pulseaudio-enable-autospawn rc rcS saned
                   screen-cleanup sudo systemd-rfkill x11-common

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

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Platform Notes (Continued)

```
14. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.8.0-49-generic
  root=UUID=073562bb-1438-42b9-adfa-6a6f7f3d3559
  ro
  quiet
  splash
  vt.handoff=7

------------------------------------------------------------
15. cpupower frequency-info
  analyzing CPU 18:
    current policy: frequency should be within 800 MHz and 4.00 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
16. 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

------------------------------------------------------------
17. /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

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

------------------------------------------------------------
19. OS release
  From /etc/*-release /etc/*-version
```

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Platform Notes (Continued)

```
  os-release Ubuntu 22.04.5 LTS

------------------------------------------------------------
20. Disk information
SPEC is set to: /home/speccpu/cpu2017
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda2      ext4  879G  686G  149G  83% /

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         Fusionstor
    Product:        Invento_i6000
    Product Family: SG_Intel_EagleStream
    Serial:         HQ3110001BDA03CD0002

------------------------------------------------------------
22. 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 NO DIMM NO DIMM
    16x Samsung M321R8GA0BB0-CQKZJ 64 GB 2 rank 4800, configured at 4000


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       American Megatrends International, LLC.
   BIOS Version:      EG0.10.01
   BIOS Date:         03/22/2024
   BIOS Revision:     5.32
```

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 2023.2.3 Build x
Copyright (C) 1985-2023 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 2023.2.3 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.
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         | 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 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
```

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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------------------------------------
==============================================================================================================
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 2023.2.3 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

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:
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp

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Base Optimization Flags (Continued)

C benchmarks (continued):
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:
-w -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:
-w -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

Benchmarks using Fortran, C, and C++:
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -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`

644.nab_s: `basepeak = yes`

Fortran benchmarks:

603.bwaves_s: `-w -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: `-w -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-ic2023p2-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Fusionstor-Platform-Flags-Intel-ICX-rev6.html`

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

`http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml`
`http://www.spec.org/cpu2017/flags/Fusionstor-Platform-Flags-Intel-ICX-rev6.xml`

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

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