



# SPEC CPU®2017 Floating Point Speed Result

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**Fusionstor**  
(Test Sponsor: Meganet)

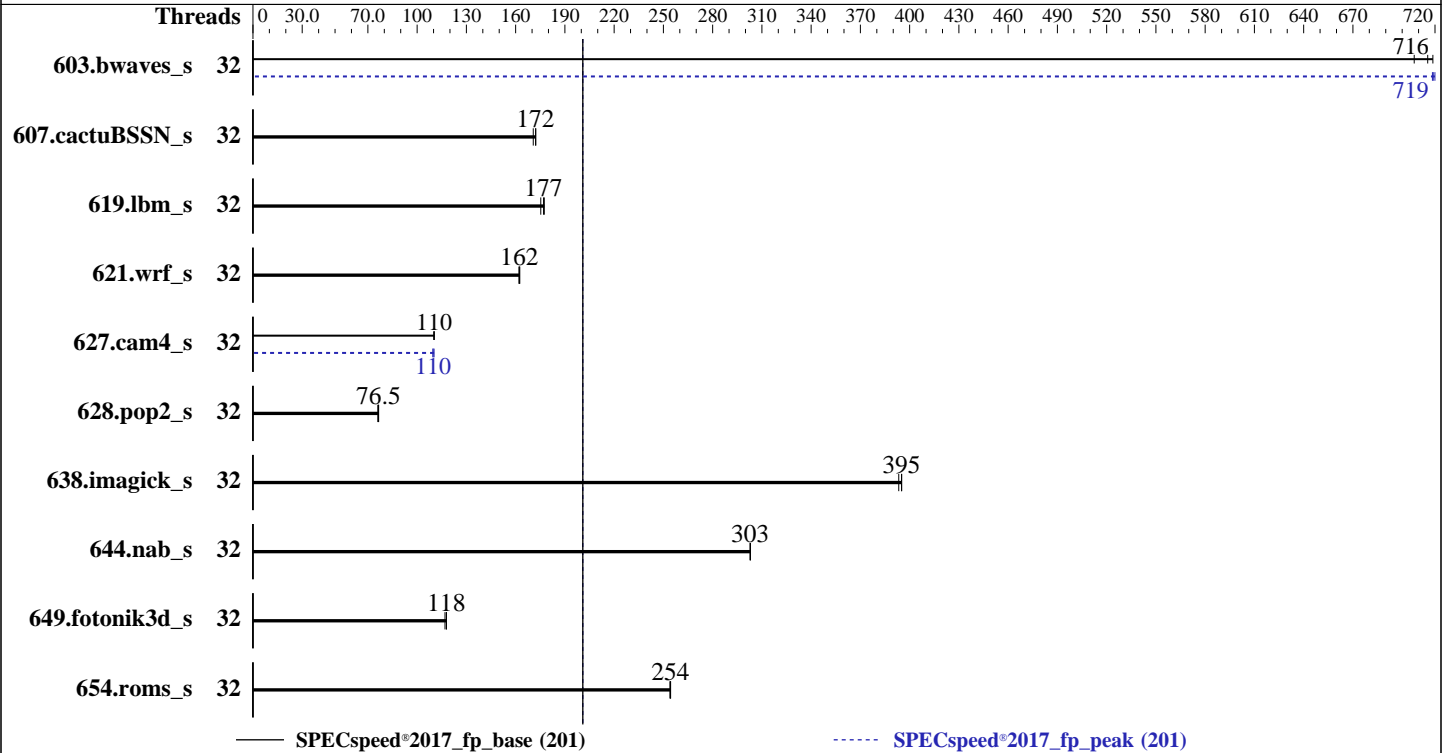
SPECspeed®2017\_fp\_base = 201

**Invento i6000 (Intel Xeon Gold 5416S)**

SPECspeed®2017\_fp\_peak = 201

**CPU2017 License:** 6221  
**Test Sponsor:** Meganet  
**Tested by:** Fusionstor system

**Test Date:** Oct-2024  
**Hardware Availability:** Feb-2023  
**Software Availability:** Oct-2024



### Hardware

CPU Name: Intel Xeon Gold 5416S  
 Max MHz: 4000  
 Nominal: 2000  
 Enabled: 88 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: 30 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R, running at 4400)  
 Storage: 960 GB SATA SSD  
 Other: CPU Cooling: Air

### Software

OS: Ubuntu 22.04.5 LTS  
 6.8.0-47-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 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	32	<b>82.5</b>	<b>716</b>	82.1	719	83.4	707	32	82.1	718	81.9	720	<b>82.1</b>	<b>719</b>
607.cactuBSSN_s	32	96.8	172	<b>96.8</b>	<b>172</b>	97.6	171	32	96.8	172	<b>96.8</b>	<b>172</b>	97.6	171
619.lbm_s	32	29.9	175	<b>29.6</b>	<b>177</b>	29.5	177	32	29.9	175	<b>29.6</b>	<b>177</b>	29.5	177
621.wrf_s	32	81.6	162	<b>81.5</b>	<b>162</b>	81.4	163	32	81.6	162	<b>81.5</b>	<b>162</b>	81.4	163
627.cam4_s	32	80.5	110	<b>80.3</b>	<b>110</b>	80.3	110	32	80.3	110	<b>80.8</b>	<b>110</b>	80.8	110
628.pop2_s	32	156	76.0	155	76.5	<b>155</b>	<b>76.5</b>	32	156	76.0	155	76.5	<b>155</b>	<b>76.5</b>
638.imagick_s	32	36.5	395	<b>36.5</b>	<b>395</b>	36.7	393	32	36.5	395	<b>36.5</b>	<b>395</b>	36.7	393
644.nab_s	32	57.7	303	57.7	303	<b>57.7</b>	<b>303</b>	32	57.7	303	57.7	303	<b>57.7</b>	<b>303</b>
649.fotonik3d_s	32	77.3	118	77.9	117	<b>77.4</b>	<b>118</b>	32	77.3	118	77.9	117	<b>77.4</b>	<b>118</b>
654.roms_s	32	62.0	254	61.9	254	<b>61.9</b>	<b>254</b>	32	62.0	254	61.9	254	<b>61.9</b>	<b>254</b>

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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"  
MALLOCONF = "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 Configuration  
SNC (Sub NUMA) set to Enable SNC2 (2-Clusters)  
  
Sysinfo program /home/speccpu/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on intel Wed Oct 23 23:31:59 2024

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## Platform Notes (Continued)

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 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
- 15. cpupower frequency-info
- 16. sysctl
- 17. /sys/kernel/mm/transparent\_hugepage
- 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 6.8.0-47-generic #47~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Wed Oct 2 16:16:55 UTC 2 x86_64 x86_64
x86_64 GNU/Linux
```

```
2. w
23:31:59 up 5:53, 2 users, load average: 5.14, 6.76, 4.12
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
intel :1 :1 18:40 ?xdm? 46:53 0.00s /usr/libexec/gdm-x-session --run-script env
GNOME_SHELL_SESSION_MODE=ubuntu /usr/bin/gnome-session --session=ubuntu
intel pts/4 - 18:43 4:48m 1.57s 0.06s 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) 132061220
process 4126609
nofiles 1024
```

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## 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=32 --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=32 --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/CPU2017.019/temlogs/preenv.fpspeed.019.0.log --lognum 019.0
--from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/speccpu/cpu2017
```

```
-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Gold 5416S
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2b0005c0
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb bhi
cpu cores      : 16
siblings       : 32
2 physical ids (chips)
64 processors (hardware threads)
physical id 0: core ids 0-15
physical id 1: core ids 0-15
physical id 0: apicids 0-31
physical id 1: apicids 128-159
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):                64
On-line CPU(s) list:   0-63
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Gold 5416S
CPU family:            6
Model:                 143
Thread(s) per core:    2
Core(s) per socket:    16
```

(Continued on next page)



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## Platform Notes (Continued)

```

Socket(s):                2
Stepping:                 8
CPU max MHz:              4000.0000
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 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 nba 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
                           vnni 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_lld arch_capabilities
Virtualization:          VT-x
L1d cache:               1.5 MiB (32 instances)
L1i cache:               1 MiB (32 instances)
L2 cache:                 64 MiB (32 instances)
L3 cache:                 60 MiB (2 instances)
NUMA node(s):            4
NUMA node0 CPU(s):       0-7,32-39
NUMA node1 CPU(s):       8-15,40-47
NUMA node2 CPU(s):       16-23,48-55
NUMA node3 CPU(s):       24-31,56-63
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:       Not affected
Vulnerability Lltf:                 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/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:           Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
                                       PBRSE-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      1.5M   12 Data          1     64     1         64
L1i   32K      1M     8 Instruction    1     64     1         64
L2    2M       64M   16 Unified       2    2048    1         64
L3   30M      60M   15 Unified       3   32768    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: 0-7,32-39
node 0 size: 257605 MB
node 0 free: 254859 MB
node 1 cpus: 8-15,40-47
node 1 size: 258042 MB
node 1 free: 254746 MB
node 2 cpus: 16-23,48-55
node 2 size: 258042 MB
node 2 free: 252438 MB
node 3 cpus: 24-31,56-63
node 3 size: 258037 MB
node 3 free: 254816 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:      1056489784 kB

```

```

-----
10. who -r
    run-level 5 Oct 23 17:39

```

```

-----
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 uidd
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-6.8.0-47-generic
root=UUID=073562bb-1438-42b9-adfa-6a6f7f3d3559
ro
quiet
splash
vt.handoff=7
```

15. cpupower frequency-info

```
analyzing CPU 9:
  current policy: frequency should be within 800 MHz and 4.00 GHz.
                  The governor "ondemand" 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+madvice [madvice] never
enabled         always [madvice] 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 684G 150G 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 4400

### 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  
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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  
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x  
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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:  
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

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**Fusionstor**  
(Test Sponsor: Meganet)

SPECspeed®2017\_fp\_base = 201

**Invento i6000 (Intel Xeon Gold 5416S)**

SPECspeed®2017\_fp\_peak = 201

**CPU2017 License:** 6221  
**Test Sponsor:** Meganet  
**Tested by:** Fusionstor system

**Test Date:** Oct-2024  
**Hardware Availability:** Feb-2023  
**Software Availability:** Oct-2024

## 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



# SPEC CPU®2017 Floating Point Speed Result

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**CPU2017 License:** 6221  
**Test Sponsor:** Meganet  
**Tested by:** Fusionstor system

**Test Date:** Oct-2024  
**Hardware Availability:** Feb-2023  
**Software Availability:** Oct-2024

## 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
-gopt-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
-gopt-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>



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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

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