



SPEC CPU®2017 Floating Point Speed Result

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Fusionstor
(Test Sponsor: Meganet)

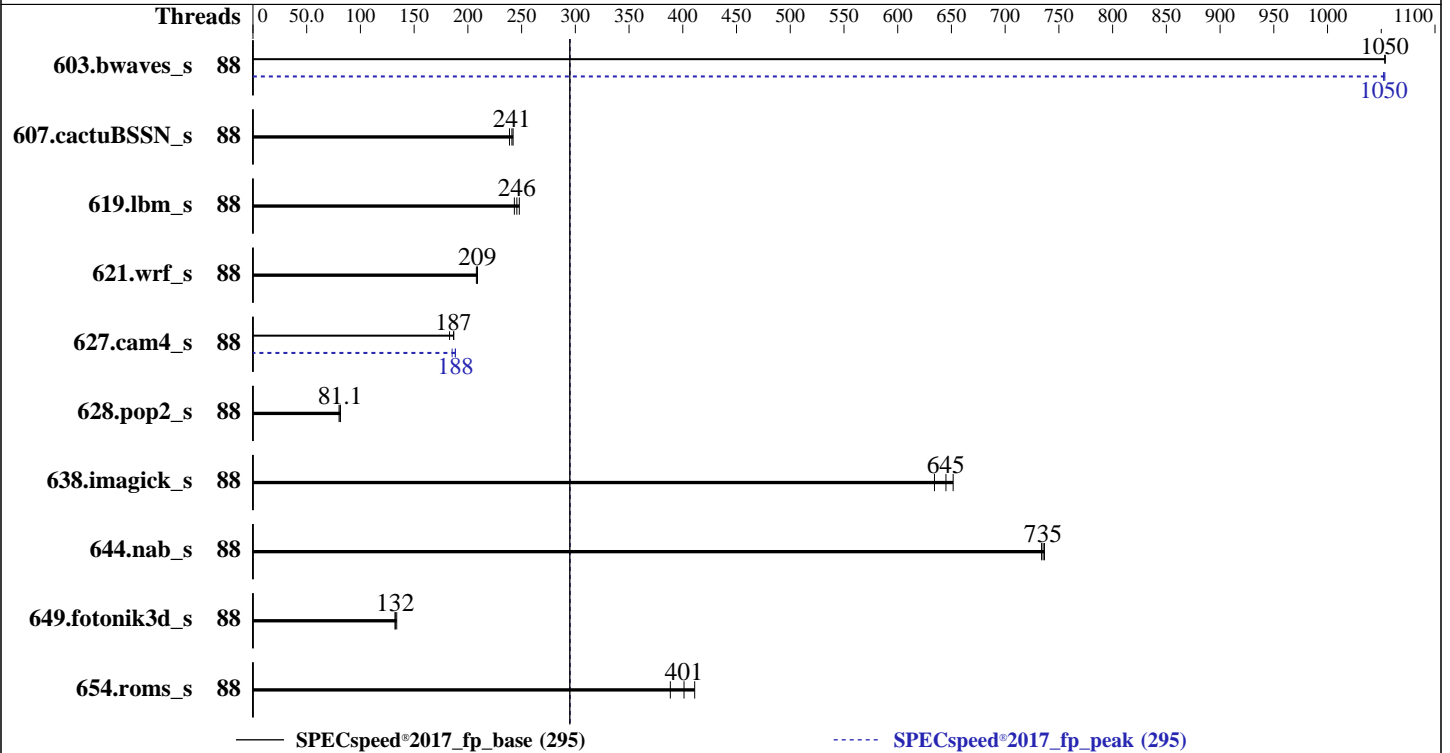
SPECspeed®2017_fp_base = 295

Invento i6000 (Intel Xeon Platinum 8458P)

SPECspeed®2017_fp_peak = 295

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 Platinum 8458P
Max MHz: 3800
Nominal: 2700
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: 82.5 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 960 GB SATA SSD
Other: CPU Cooling: Air

Software

OS: Ubuntu 22.04.4 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 and 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	88	<u>56.0</u>	<u>1050</u>	56.0	1050	56.0	1050	88	56.0	1050	56.1	1050	<u>56.1</u>	<u>1050</u>
607.cactuBSSN_s	88	68.9	242	<u>69.2</u>	<u>241</u>	69.8	239	88	68.9	242	<u>69.2</u>	<u>241</u>	69.8	239
619.lbm_s	88	21.5	243	<u>21.3</u>	<u>246</u>	21.1	248	88	21.5	243	<u>21.3</u>	<u>246</u>	21.1	248
621.wrf_s	88	63.3	209	<u>63.3</u>	<u>209</u>	63.6	208	88	63.3	209	<u>63.3</u>	<u>209</u>	63.6	208
627.cam4_s	88	47.4	187	<u>47.5</u>	<u>187</u>	48.4	183	88	47.0	188	<u>47.1</u>	<u>188</u>	47.8	185
628.pop2_s	88	146	81.4	<u>146</u>	<u>81.1</u>	148	80.1	88	146	81.4	<u>146</u>	<u>81.1</u>	148	80.1
638.imagick_s	88	22.1	652	<u>22.4</u>	<u>645</u>	22.7	634	88	22.1	652	<u>22.4</u>	<u>645</u>	22.7	634
644.nab_s	88	23.7	737	23.8	734	<u>23.8</u>	<u>735</u>	88	23.7	737	23.8	734	<u>23.8</u>	<u>735</u>
649.fotonik3d_s	88	<u>68.8</u>	<u>132</u>	68.1	134	68.9	132	88	<u>68.8</u>	<u>132</u>	68.1	134	68.9	132
654.roms_s	88	38.3	411	<u>39.3</u>	<u>401</u>	40.5	388	88	38.3	411	<u>39.3</u>	<u>401</u>	40.5	388

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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"
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 Configuration
SNC (Sub NUMA) set to Enable SNC4 (4-Clusters)

Sysinfo program /home/speccpu/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on intel Fri Oct 18 16:36:39 2024

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

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Platform Notes (Continued)

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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
16:36:39 up 23:08, 2 users, load average: 5.58, 6.81, 4.07
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
intel    :1        :1              Thu18   ?xdm?  31:43  0.00s /usr/libexec/gdm-x-session --run-script env
GNOME_SHELL_SESSION_MODE=ubuntu /usr/bin/gnome-session --session=ubuntu
intel    pts/1    -               12:30   4:06m  0.97s  0.00s 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) 132055920
process            4126443
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
```

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Platform Notes (Continued)

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=88 --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=88 --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/CPU2017.013/templogs/preenv.fpspeed.013.0.log --lognum 013.0
--from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/specpcpu/cpu2017
-----

```

```

-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Platinum 8458P
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      : 44
siblings       : 88
2 physical ids (chips)
176 processors (hardware threads)
physical id 0: core ids 0-43
physical id 1: core ids 0-43
physical id 0: apicids 0-87
physical id 1: apicids 128-215
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):                176
On-line CPU(s) list:   0-175
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Platinum 8458P
CPU family:            6
Model:                 143
Thread(s) per core:    2
Core(s) per socket:    44
Socket(s):             2
Stepping:              8
-----

```

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Platform Notes (Continued)

```

CPU max MHz:          3800.0000
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:           4.1 MiB (88 instances)
L1i cache:           2.8 MiB (88 instances)
L2 cache:            176 MiB (88 instances)
L3 cache:            165 MiB (2 instances)
NUMA node(s):        8
NUMA node0 CPU(s):  0-10,88-98
NUMA node1 CPU(s):  11-21,99-109
NUMA node2 CPU(s):  22-32,110-120
NUMA node3 CPU(s):  33-43,121-131
NUMA node4 CPU(s):  44-54,132-142
NUMA node5 CPU(s):  55-65,143-153
NUMA node6 CPU(s):  66-76,154-164
NUMA node7 CPU(s):  77-87,165-175
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;
                    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      4.1M    12 Data          1     64      1             64
L1i   32K      2.8M     8 Instruction    1     64      1             64
L2    2M      176M    16 Unified       2  2048     1             64
L3   82.5M    165M    15 Unified       3 90112     1             64

```

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Platform Notes (Continued)

```

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0-7)
node 0 cpus: 0-10,88-98
node 0 size: 128622 MB
node 0 free: 126523 MB
node 1 cpus: 11-21,99-109
node 1 size: 129016 MB
node 1 free: 127738 MB
node 2 cpus: 22-32,110-120
node 2 size: 129016 MB
node 2 free: 121514 MB
node 3 cpus: 33-43,121-131
node 3 size: 129016 MB
node 3 free: 128190 MB
node 4 cpus: 44-54,132-142
node 4 size: 129016 MB
node 4 free: 128366 MB
node 5 cpus: 55-65,143-153
node 5 size: 129016 MB
node 5 free: 128400 MB
node 6 cpus: 66-76,154-164
node 6 size: 128973 MB
node 6 free: 128403 MB
node 7 cpus: 77-87,165-175
node 7 size: 129008 MB
node 7 free: 128390 MB
node distances:
node  0  1  2  3  4  5  6  7
  0:  10 12 12 12 21 21 21 21
  1:  12 10 12 12 21 21 21 21
  2:  12 12 10 12 21 21 21 21
  3:  12 12 12 10 21 21 21 21
  4:  21 21 21 21 10 12 12 12
  5:  21 21 21 21 12 10 12 12
  6:  21 21 21 21 12 12 10 12
  7:  21 21 21 21 12 12 12 10

```

```

9. /proc/meminfo
MemTotal:      1056447388 kB

```

```

10. who -r
run-level 5 Oct 17 17:28

```

```

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

```

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Platform Notes (Continued)

```

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

```

```

-----
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 122:
  current policy: frequency should be within 800 MHz and 3.80 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

```

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```
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
os-release Ubuntu 22.04.4 LTS
```

```
-----
20. Disk information
SPEC is set to: /home/speccpu/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  879G  682G  153G  82% /
```

```
-----
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
```

```
-----
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.

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Compiler Version Notes (Continued)

=====
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
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=====
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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=====
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

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SPEC CPU®2017 Floating Point Speed Result

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Fusionstor
(Test Sponsor: Meganet)

SPECspeed®2017_fp_base = 295

Invento i6000 (Intel Xeon Platinum 8458P)

SPECspeed®2017_fp_peak = 295

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

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

Base Portability Flags (Continued)

```
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
-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
```

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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 Compiler Invocation (Continued)

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

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Hardware Availability: Feb-2023
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Peak Optimization Flags (Continued)

627.cam4_s (continued):
-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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