



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## ASUSTeK Computer Inc.

ASUS ESC4000-E11  
(2.20 GHz, Intel Xeon Platinum 8460H)

SPECspeed®2017\_fp\_base = 360

SPECspeed®2017\_fp\_peak = 359

CPU2017 License: 9016

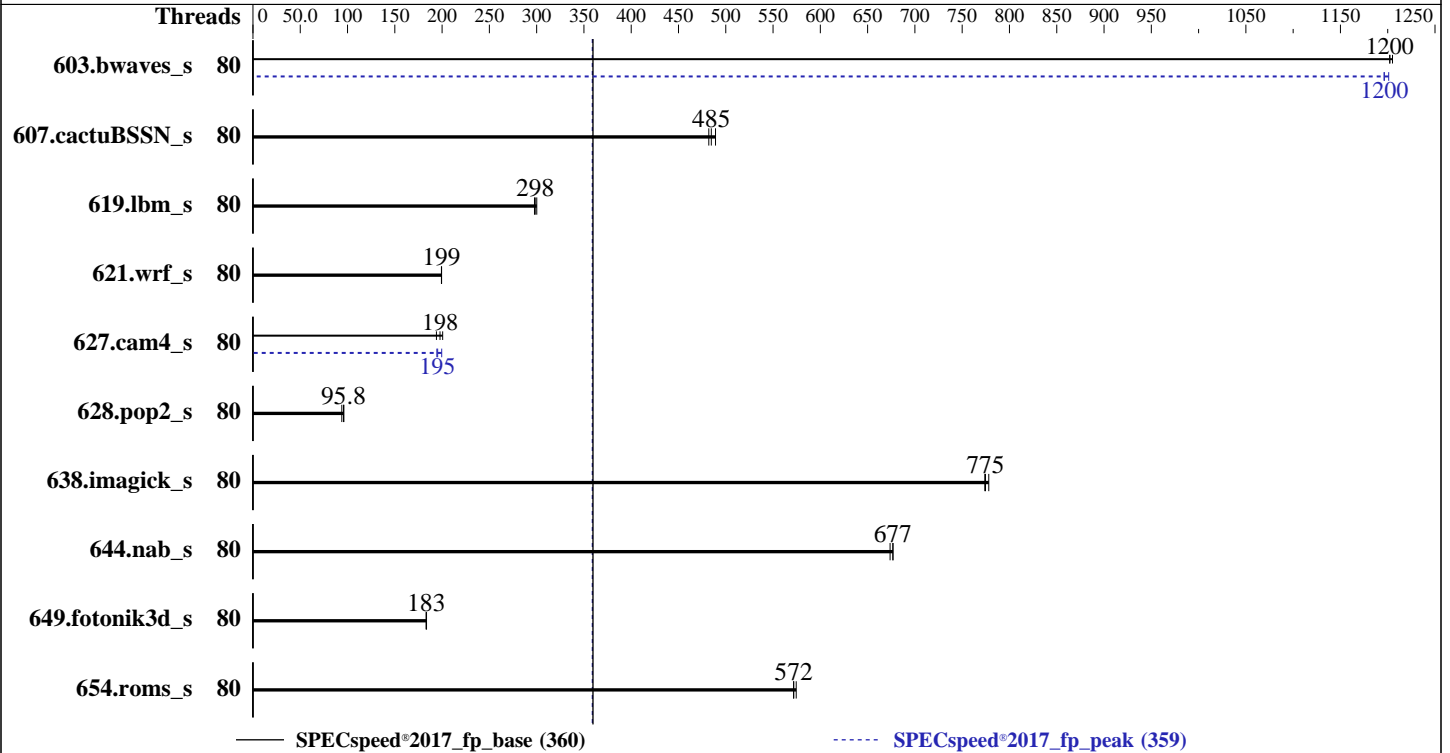
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Mar-2024

Hardware Availability: Jul-2023

Software Availability: Dec-2023



### Hardware

CPU Name: Intel Xeon Platinum 8460H  
 Max MHz: 3800  
 Nominal: 2200  
 Enabled: 80 cores, 2 chips  
 Orderable: 1, 2 chip(s)  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 105 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 1.6 TB PCIe NVMe SSD  
 Other: Cooling: DLC

### Software

OS: SUSE Linux Enterprise Server 15 SP4 (x86\_64)  
 Kernel 5.14.21-150400.22-default  
 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 2101 released Dec-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: 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	80	49.1	1200	<b><u>49.1</u></b>	<b><u>1200</u></b>	49.0	1210	80	49.3	1200	<b><u>49.3</u></b>	<b><u>1200</u></b>	49.1	1200
607.cactuBSSN_s	80	<b><u>34.4</u></b>	<b><u>485</u></b>	34.1	489	34.6	482	80	<b><u>34.4</u></b>	<b><u>485</u></b>	34.1	489	34.6	482
619.lbm_s	80	<b><u>17.5</u></b>	<b><u>298</u></b>	17.6	298	17.5	300	80	<b><u>17.5</u></b>	<b><u>298</u></b>	17.6	298	17.5	300
621.wrf_s	80	66.3	199	<b><u>66.3</u></b>	<b><u>199</u></b>	66.4	199	80	66.3	199	<b><u>66.3</u></b>	<b><u>199</u></b>	66.4	199
627.cam4_s	80	44.2	201	45.7	194	<b><u>44.8</u></b>	<b><u>198</u></b>	80	44.4	200	45.6	194	<b><u>45.4</u></b>	<b><u>195</u></b>
628.pop2_s	80	<b><u>124</u></b>	<b><u>95.8</u></b>	124	96.1	126	94.0	80	<b><u>124</u></b>	<b><u>95.8</u></b>	124	96.1	126	94.0
638.imagick_s	80	18.6	774	<b><u>18.6</u></b>	<b><u>775</u></b>	18.5	778	80	18.6	774	<b><u>18.6</u></b>	<b><u>775</u></b>	18.5	778
644.nab_s	80	<b><u>25.8</u></b>	<b><u>677</u></b>	25.8	677	25.9	674	80	<b><u>25.8</u></b>	<b><u>677</u></b>	25.8	677	25.9	674
649.fotonik3d_s	80	49.8	183	49.7	184	<b><u>49.7</u></b>	<b><u>183</u></b>	80	49.8	183	49.7	184	<b><u>49.7</u></b>	<b><u>183</u></b>
654.roms_s	80	27.4	574	<b><u>27.5</u></b>	<b><u>572</u></b>	27.5	572	80	27.4	574	<b><u>27.5</u></b>	<b><u>572</u></b>	27.5	572

SPECSpeed®2017\_fp\_base = **360**

SPECSpeed®2017\_fp\_peak = **359**

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"  
OS set to performance mode via cpupower frequency-set -g performance

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
KMP\_AFFINITY = "granularity=fine,compact"  
LD\_LIBRARY\_PATH = "/ic23u2/lib/intel64:/ic23u2/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 8.0  
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  
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>

## Platform Notes

BIOS Configuration:  
VT-d = Disabled

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### Platform Notes (Continued)

Patrol Scrub = Disabled  
Hyper-Threading = Disable  
LLC dead line allc = Disabled  
Engine Boost = Aggressive  
SR-IOV Support = Disabled  
BMC Configuration:  
Fan mode = Full speed mode

Sysinfo program /ic23u2/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Tue Mar 5 13:28:52 2024

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

#### Table of contents

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
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 localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
13:28:52 up 2:31, 2 users, load average: 53.83, 69.68, 72.60
USER  TTY  FROM          LOGIN@  IDLE   JCPU   PCPU WHAT
root  tty1  -              10:59   2:28m  0.88s  0.00s /bin/bash ./speed.sh
root  tty2  -              11:05   1:39m  0.03s  0.03s -bash
```

```
3. Username
From environment variable $USER: root
```

```
4. ulimit -a
```

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### Platform Notes (Continued)

```

core file size      (blocks, -c) unlimited
data seg size      (kbytes, -d) unlimited
scheduling priority (-e) 0
file size          (blocks, -f) unlimited
pending signals    (-i) 4126888
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) 4126888
virtual memory     (kbytes, -v) unlimited
file locks         (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
/bin/bash ./speed.sh
/bin/bash ./speed.sh
runcpu --nobuild --action validate --define default-platform-flags -c
  ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define cores=80 --tune base,peak -o all --define
  drop_caches fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
  ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define cores=80 --tune base,peak --output_format all
  --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv
  --note-preenv --logfile $SPEC/tmp/CPU2017.477/templogs/preenv.fpspeed.477.0.log --lognum 477.0
  --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /ic23u2

```

```

-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Platinum 8460H
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2b000461
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 40
siblings       : 40
2 physical ids (chips)
80 processors (hardware threads)
physical id 0: core ids 0-39
physical id 1: core ids 0-39
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
,74,76,78
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
80,182,184,186,188,190,192,194,196,198,200,202,204,206
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

```

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### Platform Notes (Continued)

7. lscpu

From lscpu from util-linux 2.37.2:

```

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):                80
On-line CPU(s) list:   0-79
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Platinum 8460H
CPU family:            6
Model:                 143
Thread(s) per core:    1
Core(s) per socket:    40
Socket(s):             2
Stepping:              8
CPU max MHz:           3800.0000
CPU min MHz:           800.0000
BogoMIPS:              4400.00
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 bmil hle
                        avx2 smep bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                        avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                        xsaveopt xsavec xgetbv1 xsavec cqm_llc cqm_occup_llc cqm_mbm_total
                        cqm_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                        arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req 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_lld arch_capabilities
Virtualization:        VT-x
L1d cache:             3.8 MiB (80 instances)
L1i cache:             2.5 MiB (80 instances)
L2 cache:              160 MiB (80 instances)
L3 cache:              210 MiB (2 instances)
NUMA node(s):         2
NUMA node0 CPU(s):    0-39
NUMA node1 CPU(s):    40-79
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 and seccomp
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

```

Virtualization:

```

L1d cache:             3.8 MiB (80 instances)
L1i cache:             2.5 MiB (80 instances)
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Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
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	3.8M	12	Data	1	64	1	64
L1i	32K	2.5M	8	Instruction	1	64	1	64

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### Platform Notes (Continued)

L2	2M	160M	16 Unified	2	2048	1	64
L3	105M	210M	15 Unified	3	114688	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: 0-39
node 0 size: 515689 MB
node 0 free: 514201 MB
node 1 cpus: 40-79
node 1 size: 516056 MB
node 1 free: 514021 MB
node distances:
node  0  1
  0: 10 21
  1: 21 10

```

#### 9. /proc/meminfo

MemTotal: 1056508628 kB

#### 10. who -r

run-level 3 Mar 5 10:58

#### 11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)

```

Default Target Status
multi-user      running

```

#### 12. Services, from systemctl list-unit-files

```

STATE UNIT FILES
enabled YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ haveged
irgbalance issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections
postfix purge-kernels rollback rsyslog smartd sshd wickd wickd-auto4 wickd-dhcp4
wickd-dhcp6 wickd-nanny
enabled-runtime systemd-remount-fs
disabled autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info
firewalld gpm grub2-once haveged-switch-root hwloc-dump-hwdata ipmi ipmievd
issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap
nvmmf-autoconnect rdisc rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts
snmpd snmptrapd svnserv systemd-boot-check-no-failures systemd-network-generator
systemd-sysext systemd-time-wait-sync systemd-timesyncd tuned udisks2
indirect wickd

```

#### 13. Linux kernel boot-time arguments, from /proc/cmdline

```

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=9bcf0374-b29f-4a4c-932e-9c0e90fb0803
splash=silent
mitigations=auto
quiet

```

#### 14. cpupower frequency-info

```

analyzing CPU 0:
current policy: frequency should be within 800 MHz and 3.80 GHz.

```

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### Platform Notes (Continued)

The governor "performance" may decide which speed to use within this range.

boost state support:

Supported: yes

Active: yes

-----  
15. tuned-adm active

It seems that tuned daemon is not running, preset profile is not activated.  
Preset profile: throughput-performance

-----  
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+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 SUSE Linux Enterprise Server 15 SP4

-----  
20. Disk information

SPEC is set to: /ic23u2  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/nvme0n1p8 xfs 500G 296G 205G 60% /

(Continued on next page)



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### Platform Notes (Continued)

-----  
21. /sys/devices/virtual/dmi/id  
Vendor: ASUSTeK COMPUTER INC.  
Product: ESC4000-E11  
Product Family: Server  
Serial: /psn/  
-----

-----  
22. dmidecode  
Additional information from dmidecode 3.2 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 M321R8GA0BB0-CQKVG 64 GB 2 rank 4800  
-----

-----  
23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: American Megatrends Inc.  
BIOS Version: 2101  
BIOS Date: 12/12/2023  
BIOS Revision: 21.1  
-----

### 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  
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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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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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# SPEC CPU®2017 Floating Point Speed Result

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**ASUSTeK Computer Inc.**

SPECspeed®2017\_fp\_base = 360

ASUS ESC4000-E11  
(2.20 GHz, Intel Xeon Platinum 8460H)

SPECspeed®2017\_fp\_peak = 359

CPU2017 License: 9016

Test Date: Mar-2024

Test Sponsor: ASUSTeK Computer Inc.

Hardware Availability: Jul-2023

Tested by: ASUSTeK Computer Inc.

Software Availability: Dec-2023

## Compiler Version Notes (Continued)

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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 -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
```

(Continued on next page)



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## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-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 -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -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 -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-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:

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

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## ASUSTeK Computer Inc.

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CPU2017 License: 9016

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Tested by: ASUSTeK Computer Inc.

Test Date: Mar-2024

Hardware Availability: Jul-2023

Software Availability: Dec-2023

## Peak Optimization Flags (Continued)

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 -xCORE-AVX512
-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 -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-Wno-implicit-int -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/ASUSTekPlatform-Settings-z13-V1.3.html>

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.html>

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

<http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z13-V1.3.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml>



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**Test Date:** Mar-2024

**Hardware Availability:** Jul-2023

**Software Availability:** Dec-2023

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