



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Esconet Technologies Ltd.

HexaData HD-R1100 Ver: RPL-01
(Intel Xeon 6357P, 3.00 GHz)

SPECspeed®2017_fp_base = 85.0

SPECspeed®2017_fp_peak = 85.0

CPU2017 License: 6523

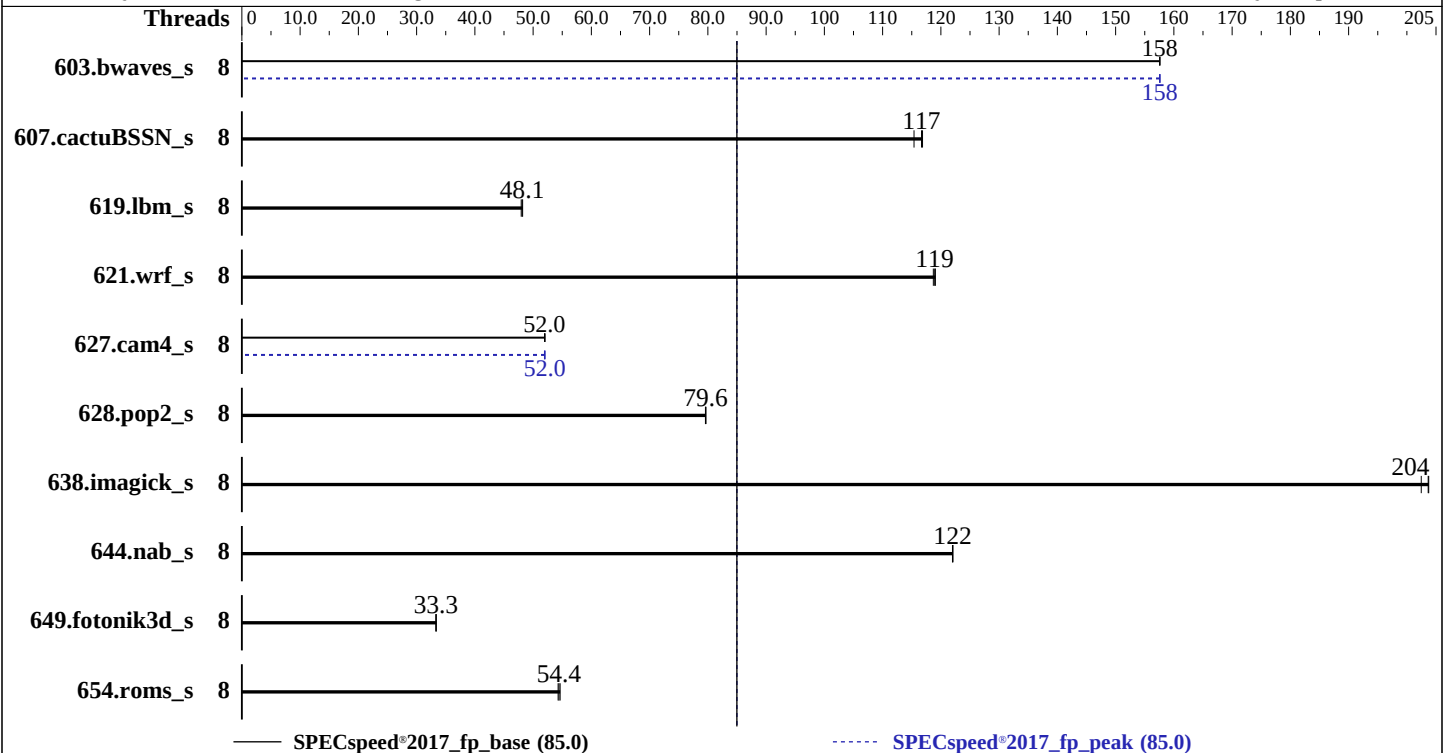
Test Sponsor: Esconet Technologies Ltd.

Tested by: Esconet Technologies Ltd.

Test Date: Jul-2025

Hardware Availability: Mar-2025

Software Availability: Apr-2025



Hardware

CPU Name: Intel Xeon 6357P
Max MHz: 5400
Nominal: 3000
Enabled: 8 cores, 1 chip, 2 threads/core
Orderable: 1 Chip
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 2 MB I+D on chip per core
L3: 24 MB I+D on chip per chip
Other: None
Memory: 64 GB (2 x 32 GB 2Rx8 PC5-4800B-E, running at 4400)
Storage: 1 x 1920 GB SATA SSD
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6
6.4.0-150600.21-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 10.06 released Apr-2025
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: OS set to prefer performance
at the cost of additional power usage.



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	8	374	158	374	158	374	158	8	374	158	374	158	374	158
607.cactuBSSN_s	8	143	117	143	117	144	115	8	143	117	143	117	144	115
619.lbm_s	8	109	48.2	109	48.0	109	48.1	8	109	48.2	109	48.0	109	48.1
621.wrf_s	8	111	119	111	119	111	119	8	111	119	111	119	111	119
627.cam4_s	8	171	52.0	171	52.0	170	52.1	8	170	52.0	170	52.0	171	52.0
628.pop2_s	8	149	79.6	149	79.7	149	79.6	8	149	79.6	149	79.7	149	79.6
638.imagick_s	8	71.3	202	70.8	204	70.8	204	8	71.3	202	70.8	204	70.8	204
644.nab_s	8	143	122	143	122	143	122	8	143	122	143	122	143	122
649.fotonik3d_s	8	273	33.4	273	33.3	273	33.3	8	273	33.4	273	33.3	273	33.3
654.roms_s	8	290	54.3	288	54.6	289	54.4	8	290	54.3	288	54.6	289	54.4

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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/cpu17/lib/intel64:/home/cpu17/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>
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.



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Platform Notes

BIOS settings: Default

Sysinfo program /home/cpu17/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Fri Jul 25 16:44:03 2025

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

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1. uname -a
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10. who -r
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
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13. Linux kernel boot-time arguments, from /proc/cmdline
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20. /sys/devices/virtual/dmi/id
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22. BIOS

1. uname -a
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
x86_64 x86_64 x86_64 GNU/Linux

2. w
16:44:03 up 3:14, 1 user, load average: 7.26, 6.56, 4.05
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 13:55 2:44m 0.71s 0.00s sh
reportable-ic2023.2.3-lin-core-avx2-speed-smt-on-20231121.sh

3. Username
From environment variable \$USER: root

4. ulimit -a
core file size (blocks, -c) unlimited
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 254863
max locked memory (kbytes, -l) 8192

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Platform Notes (Continued)

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) 254863
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

```
-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=31
login -- root
-bash
sh reportable-ic2023.2.3-lin-core-avx2-speed-smt-on-20231121.sh
runcpu --nobuild --action validate --define default-platform-flags -c
  ic2023.2.3-lin-core-avx2-speed-20231121.cfg --define cores=8 --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-core-avx2-speed-20231121.cfg --define cores=8 --tune base,peak --output_format all --define
  smt-on --define drop_caches --nopower --runmode speed --tune base:peak --size refspeak fpspeed --nopreenv
  --note-preenv --logfile $SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0
  --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu17
-----
```

```
-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) 6357P
vendor_id       : GenuineIntel
cpu family      : 6
model           : 183
stepping        : 1
microcode       : 0x12e
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb bhi
cpu cores       : 8
siblings        : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0:  core ids 0-7
physical id 0:  apicids 0-15
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 2.39.3:

Architecture:	x86_64
CPU op-mode(s):	32-bit, 64-bit
Address sizes:	42 bits physical, 48 bits virtual
Byte Order:	Little Endian
CPU(s):	16
On-line CPU(s) list:	0-15
Vendor ID:	GenuineIntel
BIOS Vendor ID:	Intel(R) Corporation
Model name:	Intel(R) Xeon(R) 6357P
BIOS Model name:	Intel(R) Xeon(R) 6357P To Be Filled By O.E.M. CPU @ 2.9GHz

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Platform Notes (Continued)

BIOS CPU family: 179
CPU family: 6
Model: 183
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 1
Stepping: 1
Frequency boost: enabled
CPU(s) scaling MHz: 95%
CPU max MHz: 3001.0000
CPU min MHz: 800.0000
BogoMIPS: 5990.40
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 sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb ssbd ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid rdseed adx smap clflushopt clwb intel_pt sha_ni xsaveopt xsavec xgetbv1 xsaves split_lock_detect user_shstk avx_vnni dtherm ida arat pln pts hfi vnmi umip pku ospke waitpkg gfni vaes vpclmulqdq tme rdpid movdiri movdir64b fsrm md_clear serialize pconfig arch_lbr ibt flush_l1d arch_capabilities

Virtualization: VT-x
L1d cache: 384 KiB (8 instances)
L1i cache: 256 KiB (8 instances)
L2 cache: 16 MiB (8 instances)
L3 cache: 24 MiB (1 instance)
NUMA node(s): 1
NUMA node0 CPU(s): 0-15
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	384K	12	Data	1	64	1	64
L1i	32K	256K	8	Instruction	1	64	1	64
L2	2M	16M	16	Unified	2	2048	1	64
L3	24M	24M	12	Unified	3	32768	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 1 nodes (0)

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Platform Notes (Continued)

```
node 0 cpus: 0-15
node 0 size: 63741 MB
node 0 free: 48499 MB
node distances:
node 0
0: 10
```

```
-----
9. /proc/meminfo
MemTotal: 65271188 kB
```

```
-----
10. who -r
run-level 3 Jul 25 18:59
```

```
-----
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
Default Target Status
multi-user running
```

```
-----
12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled apparmor auditd cron firewalld getty@ irqbalance issue-generator kbdsettings kdump
kdump-early kdump-notify nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels
rollback sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
wickedd-nanny
enabled-runtime systemd-remount-fs
disabled boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell ebttables fsidd
grub2-once haveged issue-add-ssh-keys kexec-load lunmask nfs nfs-blkmap rpcbind
rpmconfigcheck serial-getty@ systemd-boot-check-no-failures systemd-confext
systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd
indirect systemd-userdbd wickedd
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=9d685bc7-17eb-472e-9948-94652a6a5f8f
splash=silent
resume=/dev/disk/by-uuid/767864c6-130c-4bba-bf53-bf715ee2aa3c
mitigations=auto
quiet
security=apparmor
crashkernel=347M,high
crashkernel=72M,low
```

```
-----
14. cpupower frequency-info
analyzing CPU 6:
current policy: frequency should be within 800 MHz and 3.00 GHz.
The governor "performance" may decide which speed to use
within this range.
boost state support:
Supported: yes
Active: yes
```

```
-----
15. sysctl
kernel.numa_balancing 0
kernel.randomize_va_space 2
```

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Platform Notes (Continued)

```
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
```

```
-----
16. /sys/kernel/mm/transparent_hugepage
   defrag      always defer+madvice [madvice] never
   enabled     [always] madvice never
   hpage_pmd_size 2097152
   shmem_enabled always within_size advise [never] deny force
-----
```

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

```
-----
18. OS release
   From /etc/*-release /etc/*-version
   os-release SUSE Linux Enterprise Server 15 SP6
-----
```

```
-----
19. Disk information
   SPEC is set to: /home/cpu17
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/nvme0n1p8 xfs   700G  27G  673G  4% /home
-----
```

```
-----
20. /sys/devices/virtual/dmi/id
   Vendor:      HexaData
   Product:     HD-R1100
   Serial:      H5FSYR003205
-----
```

```
-----
21. dmidecode
   Additional information from dmidecode 3.4 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:
     2x SK Hynix TMXS03260830KKK 32 GB 2 rank 4800, configured at 4400
-----
```

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Platform Notes (Continued)

22. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 10.06
BIOS Date: 04/17/2025
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.
=====

=====
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
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
=====

Base Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

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Base Compiler Invocation (Continued)

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-AVX2 -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-AVX2 -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 -xCORE-AVX2 -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-AVX2 -Ofast

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Software Availability: Apr-2025

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

-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:

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-AVX2 -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

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

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Esconet Technologies Ltd.

HexaData HD-R1100 Ver: RPL-01
(Intel Xeon 6357P, 3.00 GHz)

SPECspeed®2017_fp_base = 85.0

SPECspeed®2017_fp_peak = 85.0

CPU2017 License: 6523

Test Sponsor: Esconet Technologies Ltd.

Tested by: Esconet Technologies Ltd.

Test Date: Jul-2025

Hardware Availability: Mar-2025

Software Availability: Apr-2025

Peak Optimization Flags (Continued)

603.bwaves_s (continued):

-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-AVX2 -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/Intel-ic2023p2-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Hexadata-Platform-Flags-Intel-rev1.8.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/Hexadata-Platform-Flags-Intel-rev1.8.xml>

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