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av1.1

AMD Ryzen 9 5900X 12-Core testing with a Gigabyte B550 AORUS ELITE AX V2 (F11p BIOS) and MSI NVIDIA GeForce GTX 1070 Ti 8GB on Ubuntu 21.10 via the Phoronix Test Suite.

Test Systems:

khalid-desktop

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: Gigabyte B550 AORUS ELITE AX V2 (F11p BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB CT1000MX500SSD1 + 2000GB Western Digital WD20EZAZ-00G, Graphics: MSI NVIDIA GeForce GTX 1070 Ti 8GB, Audio: NVIDIA GP104 HD Audio, Monitor: MSI MAG241C, Network: Realtek RTL8125 2.5GbE + Intel Wi-Fi 6 AX200

OS: Ubuntu 21.10, Kernel: 5.13.0-20-generic (x86_64), Desktop: GNOME Shell 40.5, Display Server: X Server 1.20.9, Display Driver: NVIDIA 495.44, OpenGL: 4.6.0, Compiler: GCC 11.2.0 + LLVM 13.0.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --enable-checking=release --enable-clocale=gnu

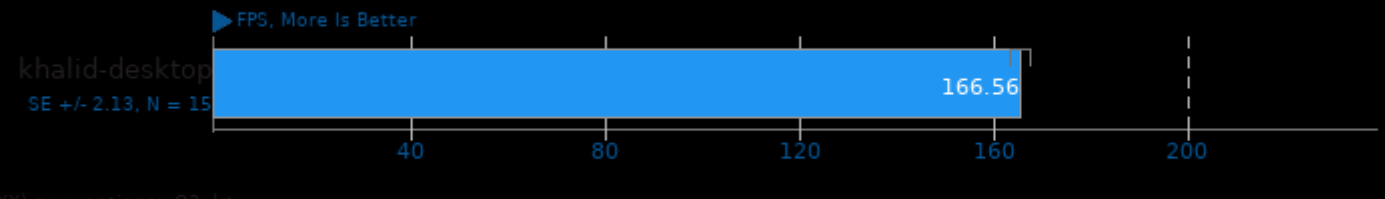
--enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-ZPT0kp/gcc-11-11.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-ZPT0kp/gcc-11-11.2.0/debian/tmp-gcn/usr --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	khalid-desktop
libgav1 - Chimera 1080p (FPS)	166.56
Standard Deviation	4.9%
libgav1 - Summer Nature 4K (FPS)	76.97
Standard Deviation	0.4%
libgav1 - S.N.1 (FPS)	250.15
Standard Deviation	15.7%
libgav1 - C.1.1.b (FPS)	78.83
Standard Deviation	0.2%
dav1d - Chimera 1080p (FPS)	860.70
Standard Deviation	0.4%
dav1d - Summer Nature 4K (FPS)	232.17
Standard Deviation	0.2%
dav1d - S.N.1 (FPS)	878.62
Standard Deviation	0.6%
dav1d - C.1.1.b (FPS)	553.03
Standard Deviation	0.1%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 4K (FPS)	0.17
Standard Deviation	2.9%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 4K (FPS)	6.07
Standard Deviation	1.2%
AOM AV1 - Speed 6 Realtime - Bosphorus 4K (FPS)	12.04
Standard Deviation	2%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 4K (FPS)	12.91
Standard Deviation	0.9%
AOM AV1 - Speed 8 Realtime - Bosphorus 4K (FPS)	51.57
Standard Deviation	0.2%
AOM AV1 - Speed 9 Realtime - Bosphorus 4K (FPS)	66.46
Standard Deviation	0.4%
AOM AV1 - Speed 10 Realtime - Bosphorus 4K (FPS)	73.06
Standard Deviation	0.4%
AOM AV1 - Speed 0 Two-Pass - Bosphorus 1080p (FPS)	0.41
Standard Deviation	0%
AOM AV1 - Speed 4 Two-Pass - Bosphorus 1080p (FPS)	11.82
Standard Deviation	0.4%
AOM AV1 - Speed 6 Realtime - Bosphorus 1080p (FPS)	10.26
Standard Deviation	0.7%
AOM AV1 - Speed 6 Two-Pass - Bosphorus 1080p (FPS)	32.96
Standard Deviation	0.3%
AOM AV1 - Speed 8 Realtime - Bosphorus 1080p (FPS)	147.40
Standard Deviation	1.3%

av1.1

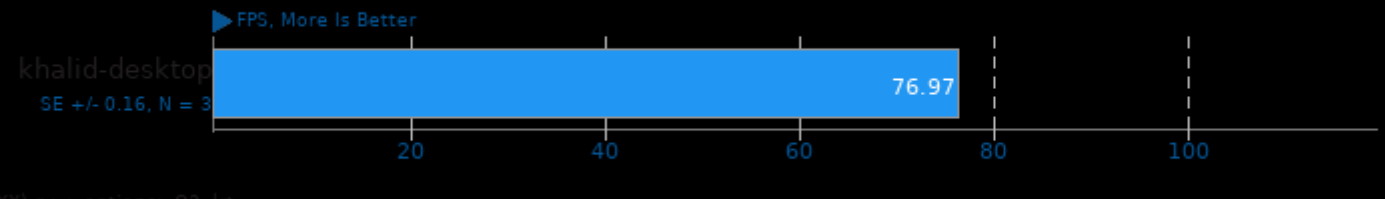
AOM AV1 - Speed 9 Realtime - Bosphorus 1080p (FPS)	177.40
Standard Deviation	0.2%
AOM AV1 - Speed 10 Realtime - Bosphorus 1080p (FPS)	187.42
Standard Deviation	1.6%
rav1e - 1 (FPS)	0.572
Standard Deviation	0.2%
rav1e - 5 (FPS)	3.073
Standard Deviation	0.4%
rav1e - 6 (FPS)	4.223
Standard Deviation	0.6%
rav1e - 10 (FPS)	11.063
Standard Deviation	1.2%
SVT-AV1 - Preset 4 - Bosphorus 4K (FPS)	2.099
Standard Deviation	0.2%
SVT-AV1 - Preset 8 - Bosphorus 4K (FPS)	22.146
Standard Deviation	2.9%
SVT-AV1 - Preset 4 - Bosphorus 1080p (FPS)	6.620
Standard Deviation	0.8%
SVT-AV1 - Preset 8 - Bosphorus 1080p (FPS)	84.916
Standard Deviation	0.8%
libavif avifenc - 0 (sec)	49.171
Standard Deviation	1.5%
libavif avifenc - 2 (sec)	26.198
Standard Deviation	0.9%
libavif avifenc - 6 (sec)	9.733
Standard Deviation	0.5%
libavif avifenc - 10 (sec)	3.215
Standard Deviation	0.4%
libavif avifenc - 6, Lossless (sec)	38.054
Standard Deviation	0.6%
libavif avifenc - 10, Lossless (sec)	5.357
Standard Deviation	0.3%

libgav1 0.16.3
Video Input: Chimera 1080p



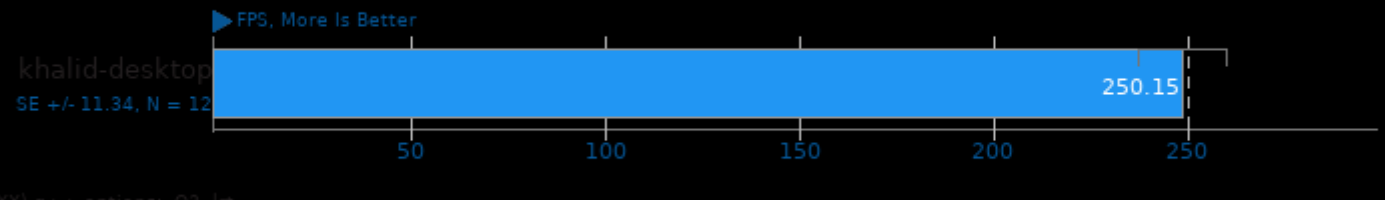
1. (CXX) g++ options: -O3 -lrt

libgav1 0.16.3
Video Input: Summer Nature 4K



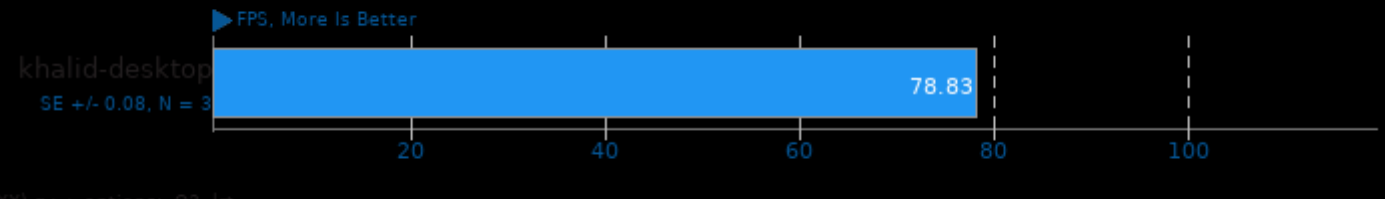
1. (CXX) g++ options: -O3 -lrt

libgav1 0.16.3
Video Input: Summer Nature 1080p



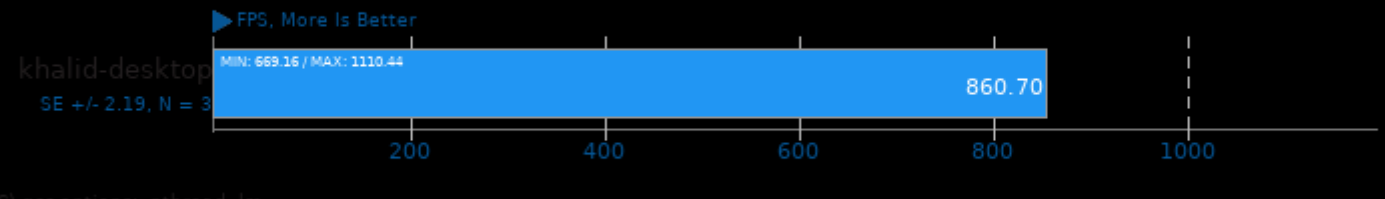
1. (CXX) g++ options: -O3 -lrt

libgav1 0.16.3
Video Input: Chimera 1080p 10-bit



1. (CXX) g++ options: -O3 -lrt

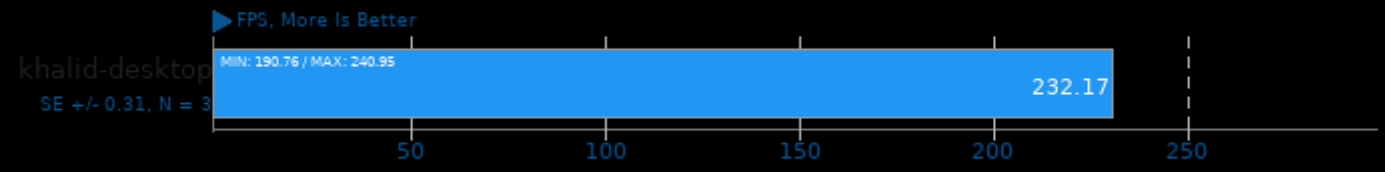
dav1d 0.9.2
Video Input: Chimera 1080p



1. (CC) gcc options: -pthread -lm

dav1d 0.9.2

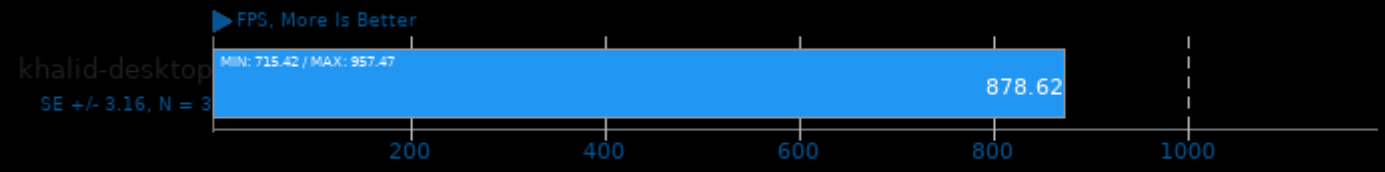
Video Input: Summer Nature 4K



1. (CC) gcc options: -pthread -lm

dav1d 0.9.2

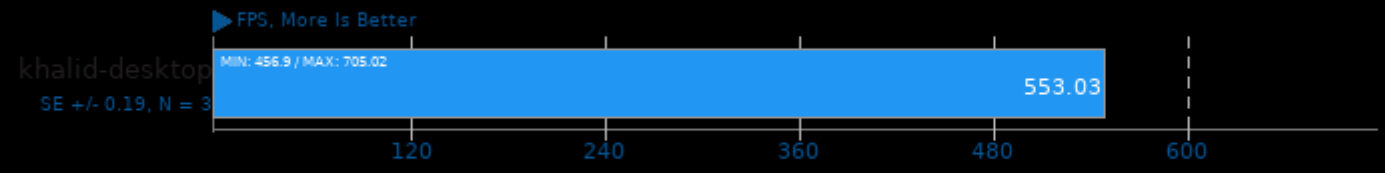
Video Input: Summer Nature 1080p



1. (CC) gcc options: -pthread -lm

dav1d 0.9.2

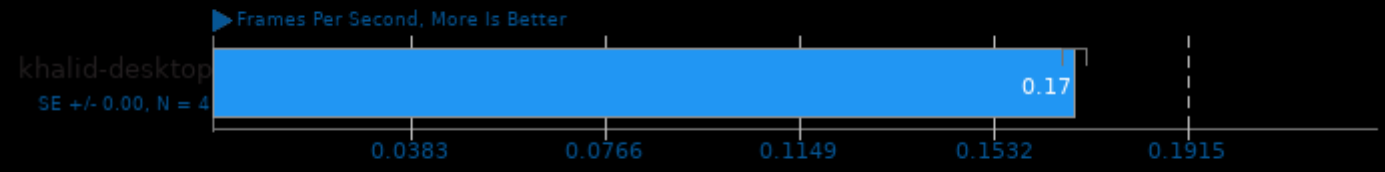
Video Input: Chimera 1080p 10-bit



1. (CC) gcc options: -pthread -lm

AOM AV1 3.2

Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 4K



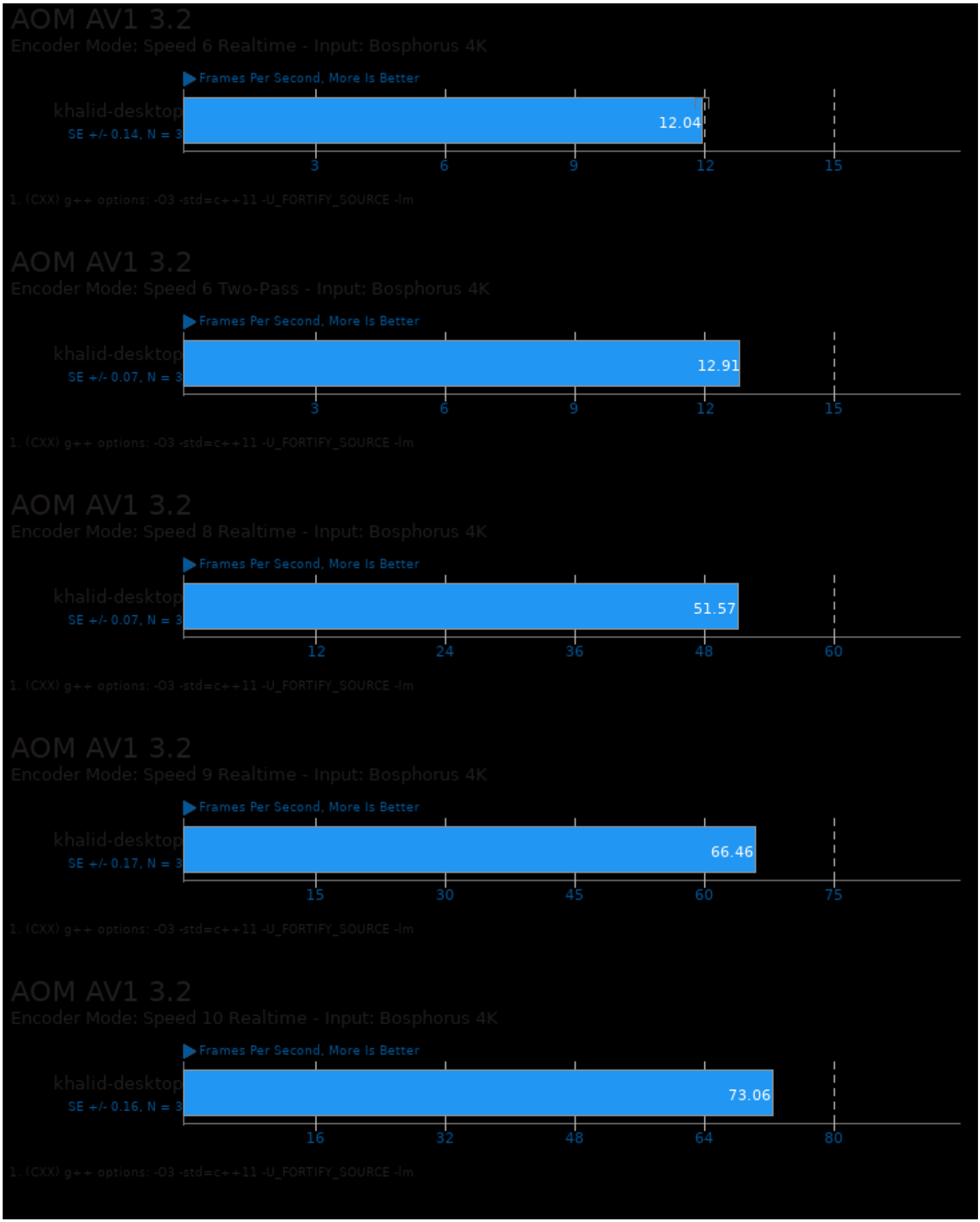
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

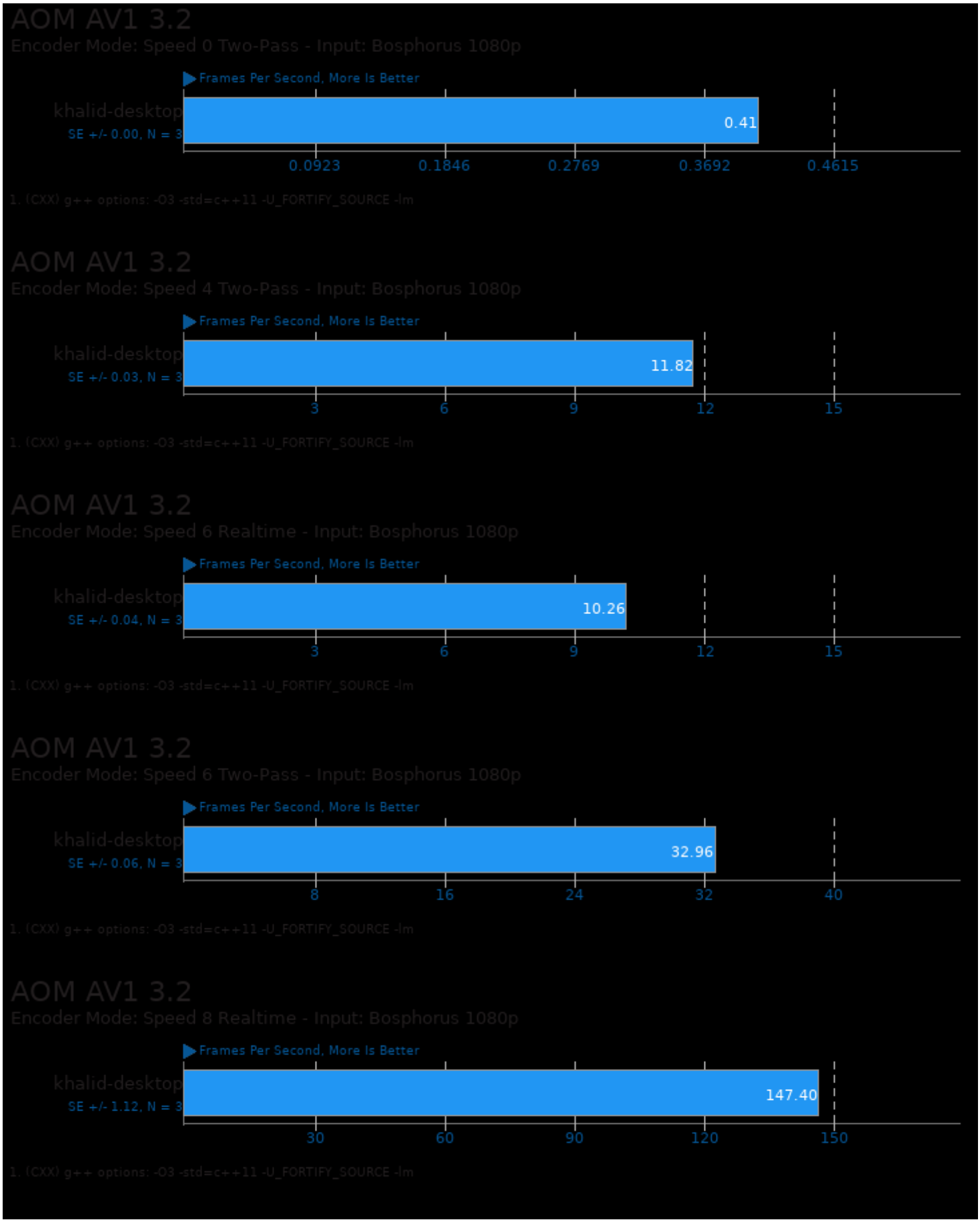
AOM AV1 3.2

Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 4K

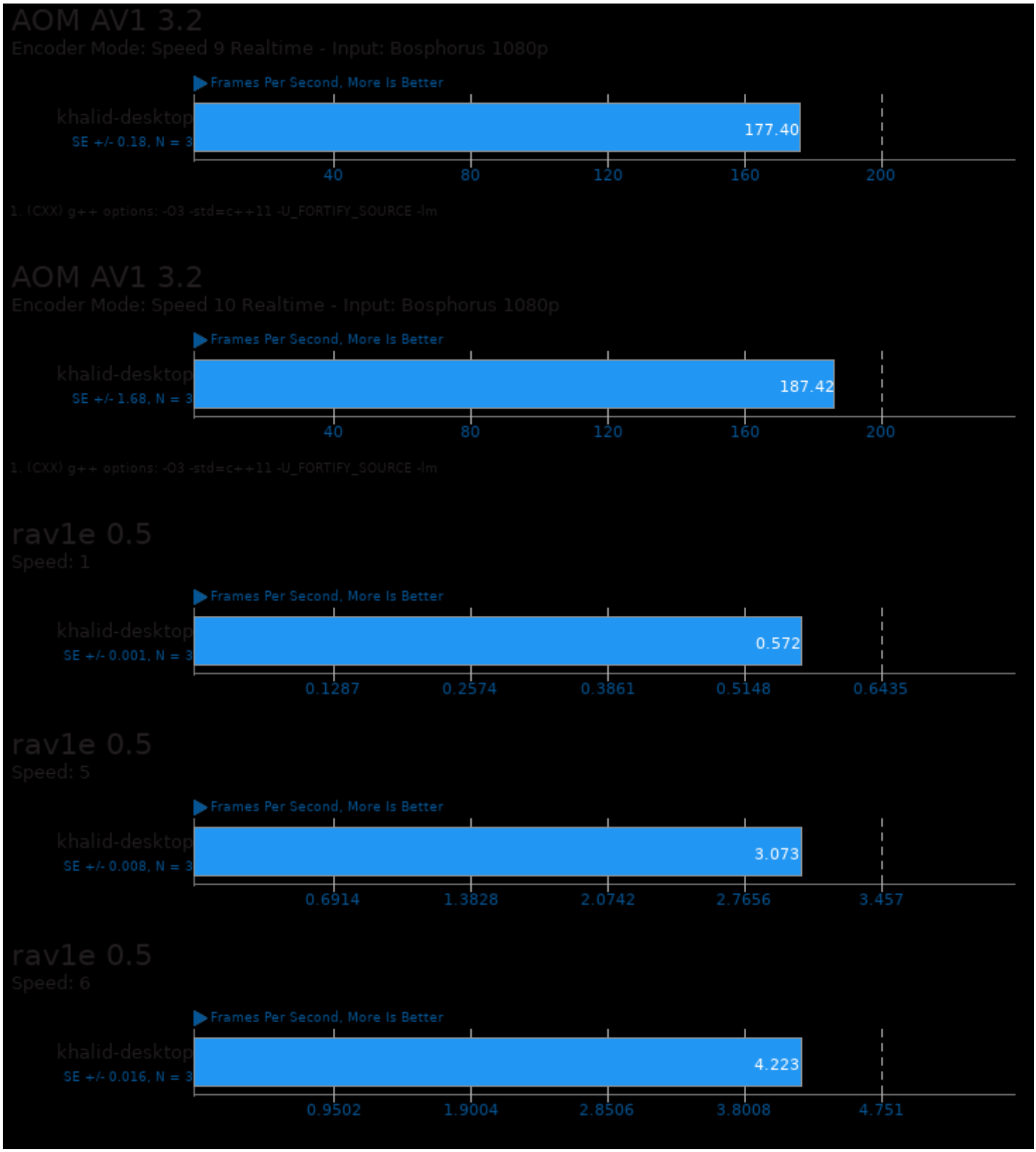


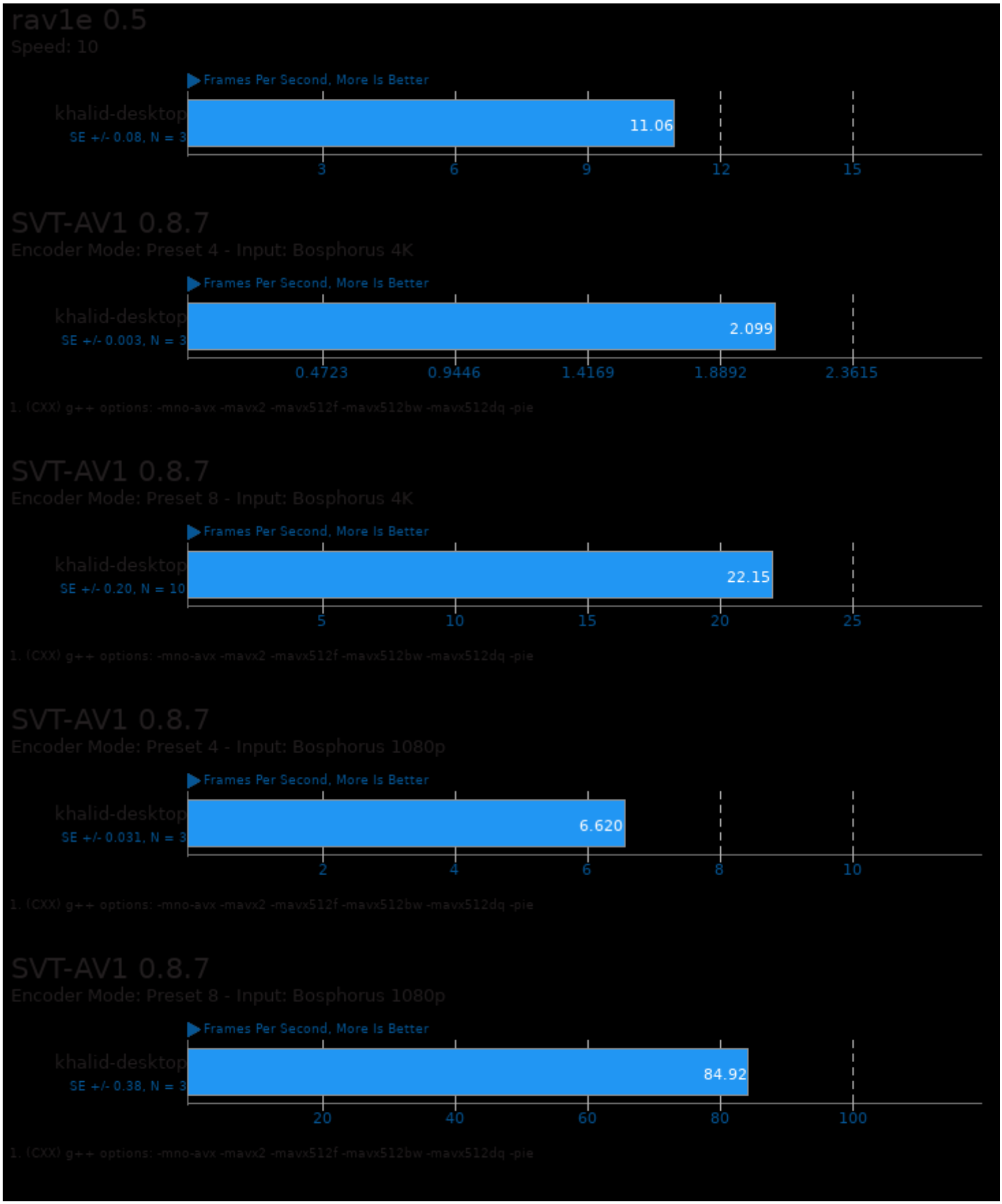
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

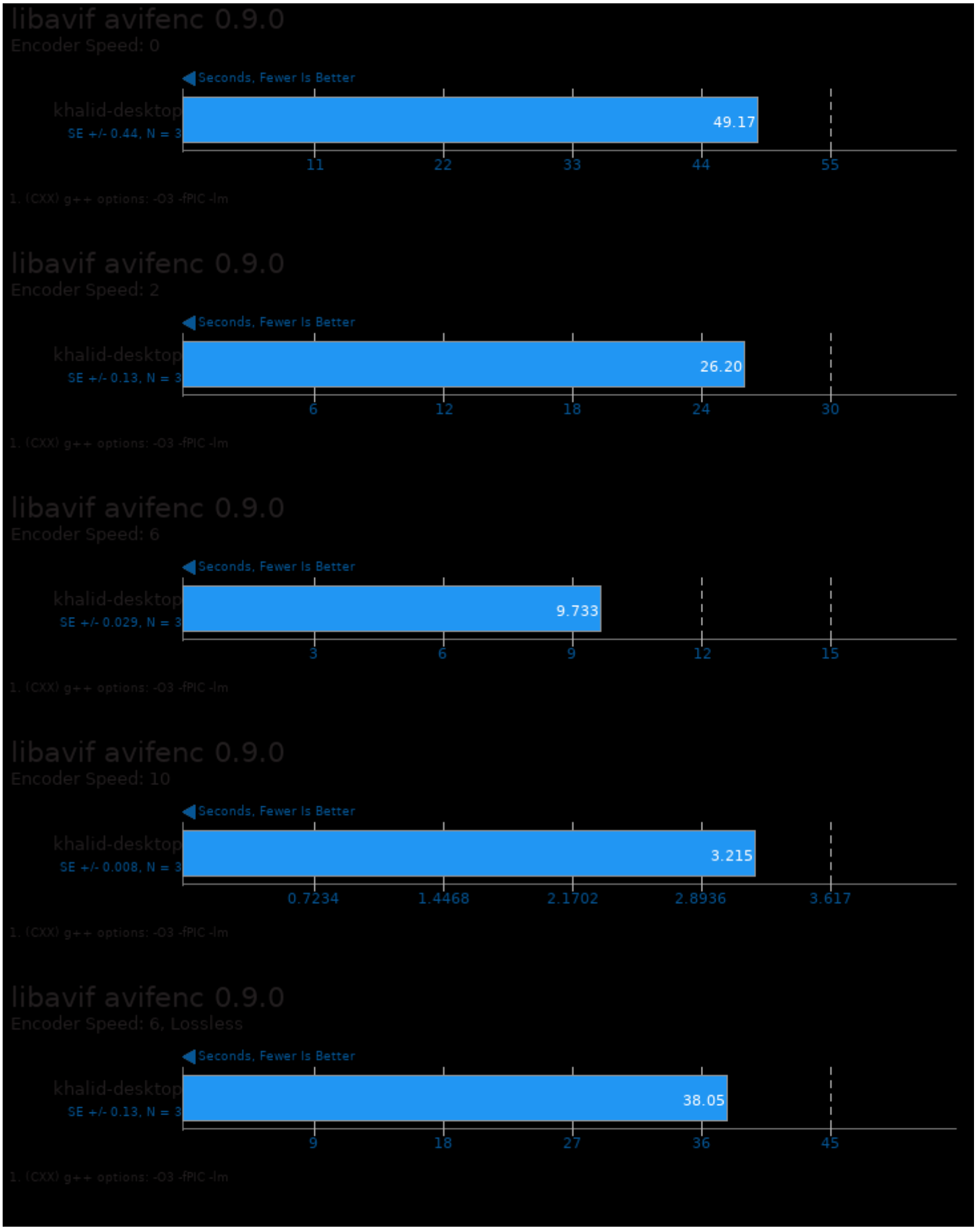

AOM AV1 3.2
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.14, N = 3
12.04
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 4K
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.07, N = 3
12.91
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.07, N = 3
51.57
12
24
36
48
60
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.17, N = 3
66.46
15
30
45
60
75
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 4K
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.16, N = 3
73.06
16
32
48
64
80
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

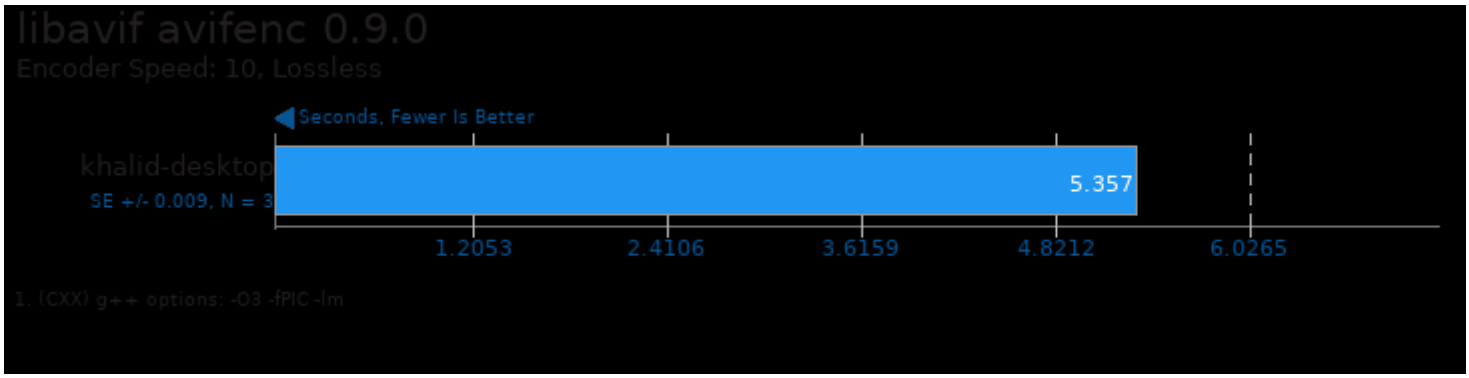

AOM AV1 3.2
Encoder Mode: Speed 0 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.00, N = 3
0.41
0.0923
0.1846
0.2769
0.3692
0.4615
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 4 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.03, N = 3
11.82
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 6 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.04, N = 3
10.26
3
6
9
12
15
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 6 Two-Pass - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.06, N = 3
32.96
8
16
24
32
40
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 8 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 1.12, N = 3
147.40
30
60
90
120
150
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm

av1.1


AOM AV1 3.2
Encoder Mode: Speed 9 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.18, N = 3
177.40
40
80
120
160
200
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
AOM AV1 3.2
Encoder Mode: Speed 10 Realtime - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 1.68, N = 3
187.42
40
80
120
160
200
1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm
rav1e 0.5
Speed: 1
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.001, N = 3
0.572
0.1287
0.2574
0.3861
0.5148
0.6435
rav1e 0.5
Speed: 5
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.008, N = 3
3.073
0.6914
1.3828
2.0742
2.7656
3.457
rav1e 0.5
Speed: 6
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.016, N = 3
4.223
0.9502
1.9004
2.8506
3.8008
4.751


rav1e 0.5
Speed: 10
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.08, N = 3
11.06
3
6
9
12
15
SVT-AV1 0.8.7
Encoder Mode: Preset 4 - Input: Bosphorus 4K
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.003, N = 3
2.099
0.4723
0.9446
1.4169
1.8892
2.3615
1. (CXX) g++ options: -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq -pie
SVT-AV1 0.8.7
Encoder Mode: Preset 8 - Input: Bosphorus 4K
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.20, N = 10
22.15
5
10
15
20
25
1. (CXX) g++ options: -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq -pie
SVT-AV1 0.8.7
Encoder Mode: Preset 4 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.031, N = 3
6.620
2
4
6
8
10
1. (CXX) g++ options: -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq -pie
SVT-AV1 0.8.7
Encoder Mode: Preset 8 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
khalid-desktop
SE +/- 0.38, N = 3
84.92
20
40
60
80
100
1. (CXX) g++ options: -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq -pie


libavif avifenc 0.9.0
Encoder Speed: 0
Seconds, Fewer Is Better
khalid-desktop
SE +/- 0.44, N = 3
49.17
11
22
33
44
55
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.9.0
Encoder Speed: 2
Seconds, Fewer Is Better
khalid-desktop
SE +/- 0.13, N = 3
26.20
6
12
18
24
30
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.9.0
Encoder Speed: 6
Seconds, Fewer Is Better
khalid-desktop
SE +/- 0.029, N = 3
9.733
3
6
9
12
15
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.9.0
Encoder Speed: 10
Seconds, Fewer Is Better
khalid-desktop
SE +/- 0.008, N = 3
3.215
0.7234
1.4468
2.1702
2.8936
3.617
1. (CXX) g++ options: -O3 -fPIC -lm
libavif avifenc 0.9.0
Encoder Speed: 6, Lossless
Seconds, Fewer Is Better
khalid-desktop
SE +/- 0.13, N = 3
38.05
9
18
27
36
45
1. (CXX) g++ options: -O3 -fPIC -lm



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