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2019 Intel LLVM Clang Compiler Comparison

Tests for a future article by Michael Larabel.

Automated Executive Summary

LLVM Clang 9.0.1 had the most wins, coming in first place for 32% of the tests.

Based on the geometric mean of all complete results, the fastest (LLVM Clang 10 20191217) was 1.009x the speed of the slowest (LLVM Clang 6.0.1). LLVM Clang 8.0.1 was 0.997x the speed of LLVM Clang 10 20191217, LLVM Clang 9.0.1 was 1x the speed of LLVM Clang 8.0.1, LLVM Clang 7.1.0 was 0.997x the speed of LLVM Clang 9.0.1, LLVM Clang 6.0.1 was 0.997x the speed of LLVM Clang 7.1.0.

The results with the greatest spread from best to worst included:

GraphicsMagick (Operation: HWB Color Space) at 1.294x
Timed PHP Compilation (Time To Compile) at 1.277x
CppPerformanceBenchmarks (Test: Ctype) at 1.148x
Apache Benchmark (Static Web Page Serving) at 1.11x
GraphicsMagick (Operation: Noise-Gaussian) at 1.1x
GraphicsMagick (Operation: Swirl) at 1.086x
Himeno Benchmark (Poisson Pressure Solver) at 1.08x
Coremark (CoreMark Size 666 - Iterations Per Second) at 1.076x

C-Ray (Total Time - 4K, 16 Rays Per Pixel) at 1.067x
Zstd Compression (Compressing ubuntu-16.04.3-server-i386.img, Compression Level 19) at 1.048x.

Test Systems:

LLVM Clang 6.0.1

Processor: Intel Core i7-5960X @ 3.50GHz (8 Cores / 16 Threads), Motherboard: ASRock X99 Extreme3 (P3.70 BIOS), Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 120GB INTEL SSDSC2BW12, Graphics: AMD FirePro V7900 2GB, Audio: Realtek ALC1150, Monitor: VA2431, Network: Intel I218-V

OS: Ubuntu 19.10, Kernel: 5.3.0-24-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: Clang 6.0.1 + LLVM 6.0.1, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: CXXFLAGS="-O3 -march=native" CFLAGS="-O3 -march=native"
Compiler Notes: Optimized build; Default target: x86_64-unknown-linux-gnu; Host CPU: haswell
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x43
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

LLVM Clang 7.1.0

Processor: Intel Core i7-5960X @ 3.50GHz (8 Cores / 16 Threads), Motherboard: ASRock X99 Extreme3 (P3.70 BIOS), Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 120GB INTEL SSDSC2BW12, Graphics: AMD FirePro V7900 2GB, Audio: Realtek ALC1150, Monitor: VA2431, Network: Intel I218-V

OS: Ubuntu 19.10, Kernel: 5.3.0-24-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: Clang 7.1.0 + LLVM 7.1.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: CXXFLAGS="-O3 -march=native" CFLAGS="-O3 -march=native"
Compiler Notes: Optimized build; Default target: x86_64-unknown-linux-gnu; Host CPU: haswell
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x43
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

LLVM Clang 8.0.1

Processor: Intel Core i7-5960X @ 3.50GHz (8 Cores / 16 Threads), Motherboard: ASRock X99 Extreme3 (P3.70 BIOS), Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 120GB INTEL SSDSC2BW12, Graphics: AMD FirePro V7900 2GB, Audio: Realtek ALC1150, Monitor: VA2431, Network: Intel I218-V

OS: Ubuntu 19.10, Kernel: 5.3.0-24-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: Clang 8.0.1 + LLVM 8.0.1, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: CXXFLAGS="-O3 -march=native" CFLAGS="-O3 -march=native"
Compiler Notes: Optimized build; Default target: x86_64-unknown-linux-gnu; Host CPU: haswell
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x43
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

LLVM Clang 9.0.1

Processor: Intel Core i7-5960X @ 3.50GHz (8 Cores / 16 Threads), Motherboard: ASRock X99 Extreme3 (P3.70 BIOS), Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 120GB INTEL SSDSC2BW12, Graphics: AMD FirePro V7900 2GB, Audio: Realtek ALC1150, Monitor: VA2431, Network: Intel I218-V

OS: Ubuntu 19.10, Kernel: 5.3.0-24-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: Clang 9.0.1 + LLVM 9.0.1, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: CXXFLAGS="-O3 -march=native" CFLAGS="-O3 -march=native"
Compiler Notes: Optimized build; Default target: x86_64-unknown-linux-gnu; Host CPU: haswell
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x43
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

LLVM Clang 10 20191217

Processor: Intel Core i7-5960X @ 3.50GHz (8 Cores / 16 Threads), Motherboard: ASRock X99 Extreme3 (P3.70 BIOS), Chipset: Intel Xeon E7 v3/Xeon, Memory: 16384MB, Disk: 120GB INTEL SSDSC2BW12, Graphics: AMD FirePro V7900 2GB, Audio: Realtek ALC1150, Monitor: VA2431, Network: Intel I218-V

OS: Ubuntu 19.10, Kernel: 5.3.0-24-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, Compiler: Clang 10.0.0, File-System: ext4, Screen Resolution: 1920x1080

Environment Notes: CXXFLAGS="-O3 -march=native" CFLAGS="-O3 -march=native"
Compiler Notes: Optimized build; Default target: x86_64-unknown-linux-gnu; Host CPU: haswell
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x43
Python Notes: Python 2.7.17rc1 + Python 3.7.5
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling + tsx_async_abort: Not affected

	LLVM Clang 6.0.1	LLVM Clang 7.1.0	LLVM Clang 8.0.1	LLVM Clang 9.0.1	LLVM Clang 10 20191217
Timed MrBayes Analysis - P.P.A (sec)	**109.252**	108.759	108.616	109.030	**108.448**
Normalized	99.26%	99.71%	99.85%	99.47%	100%
Standard Deviation	0.3%	0.2%	0.5%	0.3%	0.4%
Timed HMMer Search - P.D.S (sec)	7.307	**7.181**	7.302	**7.311**	7.201
Normalized	98.28%	100%	98.34%	98.22%	99.72%
Standard Deviation	2%	1.3%	2.6%	2.1%	1.8%

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libgav1 - Chimera 1080p (FPS)	36.32	**36.21**	36.25	36.23	**36.38**
Normalized	99.84%	99.53%	99.64%	99.59%	100%
Standard Deviation	0.1%	0%	0.1%	0.1%	0.1%
libgav1 - Summer Nature 4K	15.83	**15.72**	15.76	15.74	**15.89**
Normalized	99.62%	98.93%	99.18%	99.06%	100%
Standard Deviation	0%	0.1%	0.1%	0.2%	0.1%
libgav1 - S.N.1 (FPS)	51.30	50.94	**50.88**	51.18	**51.73**
Normalized	99.17%	98.47%	98.36%	98.94%	100%
Standard Deviation	0.3%	0.1%	0.3%	0.3%	0.2%
SciMark - Composite (Mflops)	2100	2104	**2100**	**2115**	2114
Normalized	99.32%	99.48%	99.31%	100%	99.97%
Standard Deviation	0.2%	0%	0.3%	0.2%	0.2%
SciMark - Monte Carlo (Mflops)	**557.24**	557.10	557.09	555.78	**555.76**
Normalized	100%	99.97%	99.97%	99.74%	99.73%
Standard Deviation	0%	0%	0%	0%	0%
SciMark - F.F.T (Mflops)	**453.81**	**459.85**	455.34	455.31	455.49
Normalized	98.69%	100%	99.02%	99.01%	99.05%
Standard Deviation	0.1%	0.4%	0.3%	0.7%	0.2%
SciMark - S.M.M (Mflops)	**2739**	2772	2754	2808	**2829**
Normalized	96.84%	97.99%	97.38%	99.27%	100%
Standard Deviation	0.4%	0.2%	0.1%	0.4%	0.6%
SciMark - D.L.M.F (Mflops)	5240	**5218**	5222	**5243**	5220
Normalized	99.93%	99.52%	99.59%	100%	99.54%
Standard Deviation	0.4%	0.1%	0.6%	0.5%	0%
TSCP - A.C.P (Nodes/s)	1305161	1312628	**1295948**	**1351272**	1345331
Normalized	96.59%	97.14%	95.91%	100%	99.56%
Standard Deviation		0.1%		0.1%	0.1%
John The Ripper - Blowfish (Real C/S)	1337	**1343**	**1293**	**1293**	**1293**
Normalized	99.55%	100%	96.28%	96.28%	96.28%
Standard Deviation				0%	
John The Ripper - MD5 (Real	**76421**	76487	76623	76627	**77384**
Normalized	98.76%	98.84%	99.02%	99.02%	100%
Standard Deviation	0.2%	0.4%	0.1%	0.1%	0.2%
GraphicsMagick - Swirl (Iterations/min)	**35**	**35**	36	**35**	**38**
Normalized	92.11%	92.11%	94.74%	92.11%	100%
Standard Deviation			1.6%		
GraphicsMagick - Rotate (Iterations/min)	**577**	578	578	584	**591**
Normalized	97.63%	97.8%	97.8%	98.82%	100%
GraphicsMagick - Sharpen (Iterations/min)	12	12	12	12	12
GraphicsMagick - Resizing (Iterations/min)	**79**	**79**	80	**81**	80
Normalized	97.53%	97.53%	98.77%	100%	98.77%
Standard Deviation	1.5%			0.7%	
GraphicsMagick - Noise-Gaussian (Iterations/min)	**20**	21	**22**	**22**	**22**
Normalized	90.91%	95.45%	100%	100%	100%
GraphicsMagick - HWB Color Space (Iterations/min)	**109**	**109**	111	112	**141**
Normalized	77.3%	77.3%	78.72%	79.43%	100%
Standard Deviation	0.5%			2.4%	

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dav1d - Chimera 1080p (FPS)	352.92	354.12	353.14	**354.96**	**351.63**
Normalized	99.43%	99.76%	99.49%	100%	99.06%
Standard Deviation	0.4%	0.2%	1.2%	0.9%	1.3%
dav1d - Summer Nature 4K (FPS)	**105.51**	**107.13**	106.57	106.53	106.56
Normalized	98.49%	100%	99.48%	99.44%	99.47%
Standard Deviation	0.8%	0.3%	0.3%	0.2%	0.2%
dav1d - S.N.1 (FPS)	**300.97**	303.93	**305.15**	304.73	305.08
Normalized	98.63%	99.6%	100%	99.86%	99.98%
Standard Deviation	0.4%	0.4%	0.3%	0.3%	0.2%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	23.283	**23.208**	23.419	**23.451**	23.395
Normalized	99.28%	98.96%	99.86%	100%	99.76%
Standard Deviation	0.6%	0.4%	0.6%	0.6%	0.2%
SVT-HEVC - 1.8.b.Y.T.H.V.E (FPS)	**35.06**	35.11	35.48	35.88	**35.90**
Normalized	97.66%	97.8%	98.83%	99.94%	100%
Standard Deviation	0.8%	0.9%	0.8%	0.9%	0.9%
SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)	102.84	102.26	**101.77**	**102.90**	102.66
Normalized	99.94%	99.38%	98.9%	100%	99.77%
Standard Deviation	2.8%	2.8%	3%	3%	2.9%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	**110.61**	110.17	110.09	**109.56**	110.25
Normalized	100%	99.6%	99.53%	99.05%	99.67%
Standard Deviation	1.3%	1.7%	1.1%	1%	1.1%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	81.14	**80.23**	**81.50**	80.82	81.14
Normalized	99.56%	98.44%	100%	99.17%	99.56%
Standard Deviation	0.2%	0.4%	0.7%	0.7%	0.6%
VP9 libvpx Encoding - v.V.1.V.E (FPS)	**110.24**	110.78	**111.71**	111.05	110.98
Normalized	98.68%	99.17%	100%	99.41%	99.35%
Standard Deviation	8.9%	8.9%	8.7%	8.9%	8.9%
x264 - H.2.V.E (FPS)	**56.26**	56.95	57.60	57.37	**57.84**
Normalized	97.27%	98.46%	99.59%	99.19%	100%
Standard Deviation	3%	2.7%	2.9%	2.4%	2.7%
x265 - H.2.1.V.E (FPS)	**34.45**	34.59	34.52	**35.10**	34.52
Normalized	98.15%	98.55%	98.35%	100%	98.35%
Standard Deviation	0.7%	1.5%	0.5%	1.6%	0.6%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	222703	**228736**	222924	215757	**212568**
Normalized	97.36%	100%	97.46%	94.33%	92.93%
Standard Deviation	0%	0.3%	0.1%	0.2%	0.1%
Himeno Benchmark - P.P.S (MFLOPS)	**2915**	3099	3086	**3148**	3145
Normalized	92.6%	98.44%	98.02%	100%	99.91%
Standard Deviation	0.2%	0.2%	0.3%	0.2%	0.1%
asmFish - 1.H.M.2.D (Nodes/s)	21773169	22113202	**21716998**	**22125493**	21917065
Normalized	98.41%	99.94%	98.15%	100%	99.06%
Standard Deviation	1.1%	0.8%	1.2%	1.1%	1.9%
ebizzy (Records/s)	284282	278134	**285846**	278849	**272998**
Normalized	99.45%	97.3%	100%	97.55%	95.51%
Standard Deviation	2.9%	3%	2.9%	2%	3%

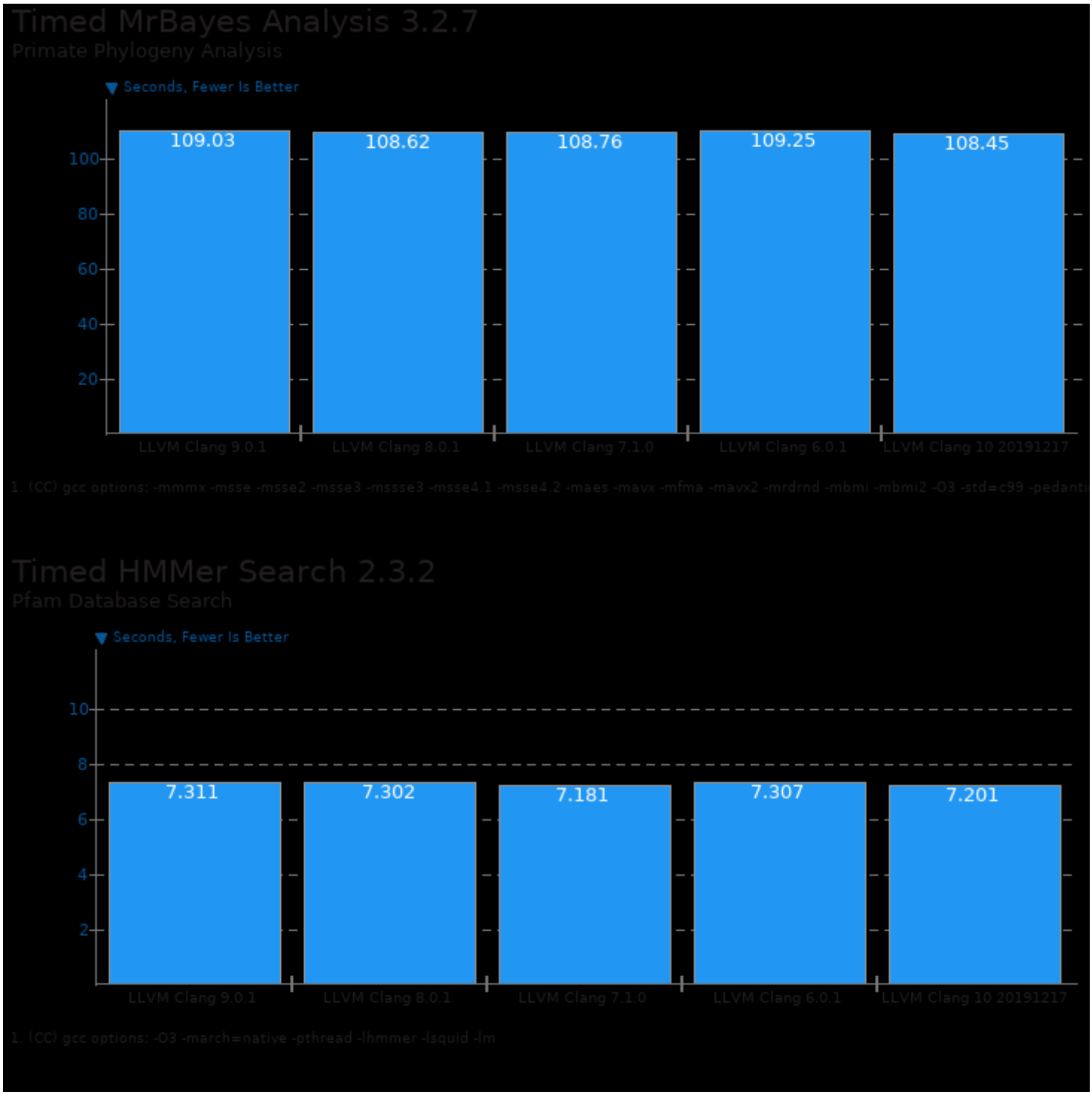
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Timed PHP Compilation - Time To Compile (sec)	**99.443**	110.278	112.170	115.967	**127.013**
Normalized	100%	90.17%	88.65%	85.75%	78.29%
Standard Deviation	0.1%	0%	0.4%	0.1%	0.2%
C-Ray - Total Time - 4.1.R.P.P (sec)	**133.539**	127.178	127.086	**125.180**	127.246
Normalized	93.74%	98.43%	98.5%	100%	98.38%
Standard Deviation	0.1%	0%	0.1%	0%	0.1%
Tungsten Renderer - Hair (sec)	35.2842	35.2485	**35.6346**	34.9660	**34.9000**
Normalized	98.91%	99.01%	97.94%	99.81%	100%
Standard Deviation	0.2%	0.1%	0.1%	0%	0%
Tungsten Renderer - Water Caustic (sec)	31.1509	**31.4654**	31.1359	**31.0105**	31.1667
Normalized	99.55%	98.55%	99.6%	100%	99.5%
Standard Deviation	0.2%	0.2%	0.4%	0.2%	0.2%
Tungsten Renderer - Non-Exponential (sec)	9.97024	9.93175	9.95480	**10.00685**	**9.83032**
Normalized	98.6%	98.98%	98.75%	98.24%	100%
Standard Deviation	0.7%	0.2%	0.1%	0.7%	0.7%
Tungsten Renderer - Volumetric Caustic (sec)	**12.3110**	12.1987	12.2350	12.2433	**12.1656**
Normalized	98.82%	99.73%	99.43%	99.37%	100%
Standard Deviation	0.8%	0.2%	0.3%	0.9%	0.8%
AOBench - 2048 x 2048 - Total Time (sec)	**41.549**	**42.200**	41.604	42.109	41.799
Normalized	100%	98.46%	99.87%	98.67%	99.4%
Standard Deviation	0.2%	2.4%	0.3%	2.9%	1.2%
XZ Compression - C.u.1.0.3.s.i.i.C.L.9 (sec)	32.170	32.111	**32.191**	**31.595**	32.128
Normalized	98.21%	98.39%	98.15%	100%	98.34%
Standard Deviation	0.3%	0.3%	0.3%	0.8%	0.6%
Zstd Compression - C.u.1.0.3.s.i.i.C.L.1 (sec)	20.938	20.953	**21.339**	20.829	**20.364**
Normalized	97.26%	97.19%	95.43%	97.77%	100%
Standard Deviation	0.6%	0.3%	0.5%	0.9%	1.3%
Minion - Graceful (sec)	64.306260	**64.366640**	63.472231	**63.040103**	63.623649
Normalized	98.03%	97.94%	99.32%	100%	99.08%
Standard Deviation	0.2%	0.1%	0.1%	0.1%	0.4%
Minion - Solitaire (sec)	**86.677773**	86.975667	86.960693	**87.056188**	86.850014
Normalized	100%	99.66%	99.67%	99.57%	99.8%
Standard Deviation	0.1%	0.3%	0.3%	0.3%	0.3%
Minion - Quasigroup (sec)	140.385022	141.394096	**139.842752**	141.484902	**144.574132**
Normalized	99.61%	98.9%	100%	98.84%	96.73%
Standard Deviation	0.1%	0.2%	0.2%	0.2%	2.7%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	**172.995715**	169.256304	167.204583	**166.392078**	168.245614
Normalized	100%	97.84%	96.65%	96.18%	97.25%
Standard Deviation	0.3%	0.5%	0.7%	0.7%	0.2%
PostgreSQL pgbench - Buffer Test - Normal Load - Read Only	**147464**	147812	148727	**149135**	148891
Normalized	98.88%	99.11%	99.73%	100%	99.84%
Standard Deviation	0%	0.1%	0.2%	0.1%	0.4%

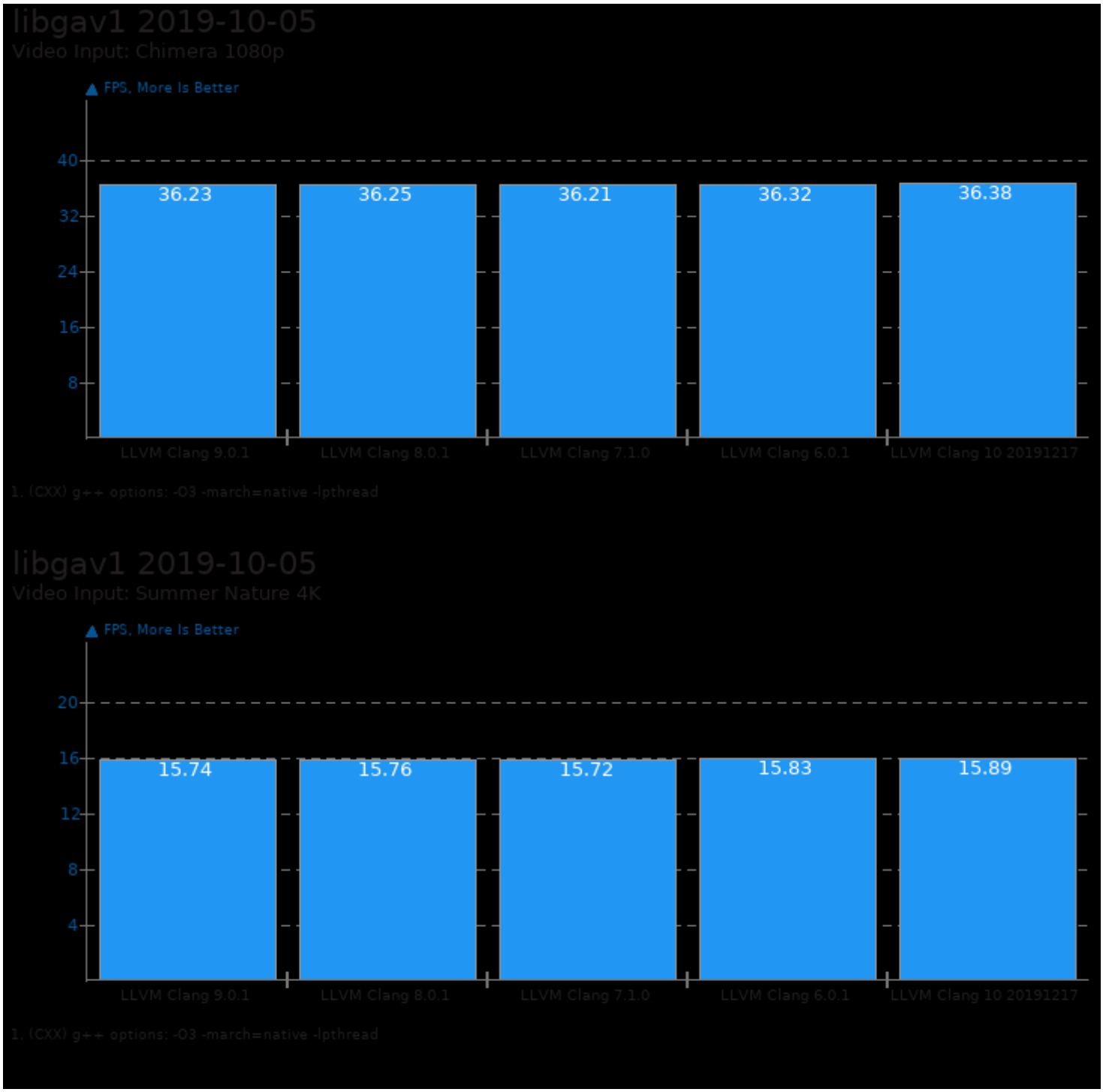
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CppPerformanceBenchmarks - Ctype (sec)	35.312	**35.698**	**31.093**	34.939	32.959
Normalized	88.05%	87.1%	100%	88.99%	94.34%
Standard Deviation	0%	0%	0%	0%	0.1%
CppPerformanceBenchmarks - Math Library (sec)	407.300	**406.432**	406.927	408.076	**408.082**
Normalized	99.79%	100%	99.88%	99.6%	99.6%
Standard Deviation	0.5%	0.1%	0.1%	0.6%	0.5%
CppPerformanceBenchmarks - Function Objects (sec)	16.134	**16.139**	15.998	16.135	**15.939**
Normalized	98.79%	98.76%	99.63%	98.79%	100%
Standard Deviation	0.6%	0.6%	0.6%	0.6%	0.6%
NGINX Benchmark - S.W.P.S (Reqs/sec)	**25228**	25579	25504	**25695**	25528
Normalized	98.18%	99.55%	99.25%	100%	99.35%
Standard Deviation	1.3%	0.5%	1.1%	0.3%	2%
Apache Benchmark - S.W.P.S (Reqs/sec)	19278	19825	20225	**20345**	**18326**
Normalized	94.76%	97.44%	99.41%	100%	90.08%
Standard Deviation	2.2%	2.5%	1.9%	0.9%	3.2%
Geometric Mean Of All Test Results - Result Composite - 2.I.L.C.C.C (Geometric Mean)	**119.966**	120.269	120.729	120.686	**121.085**
Normalized	99.08%	99.33%	99.71%	99.67%	100%

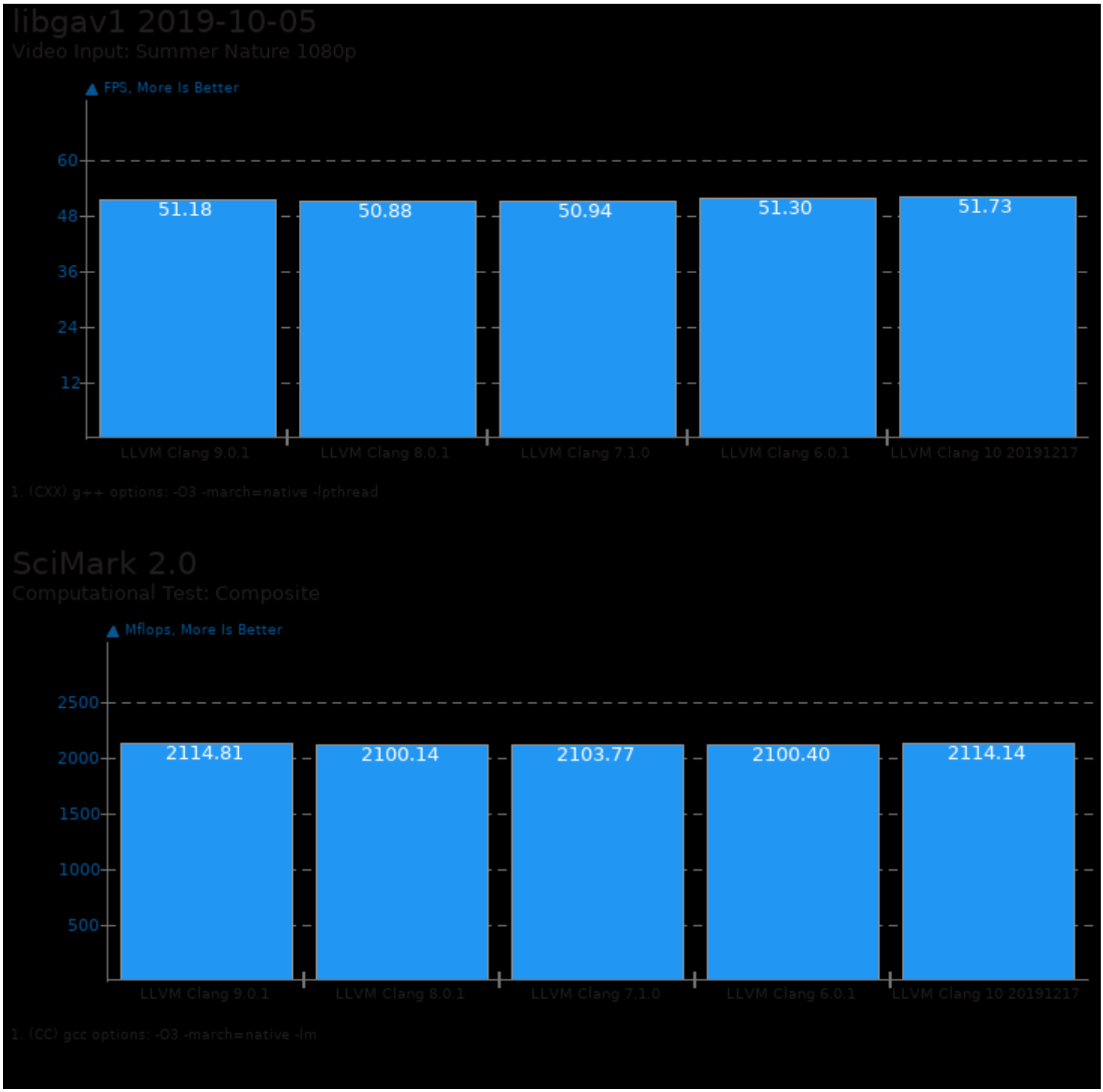
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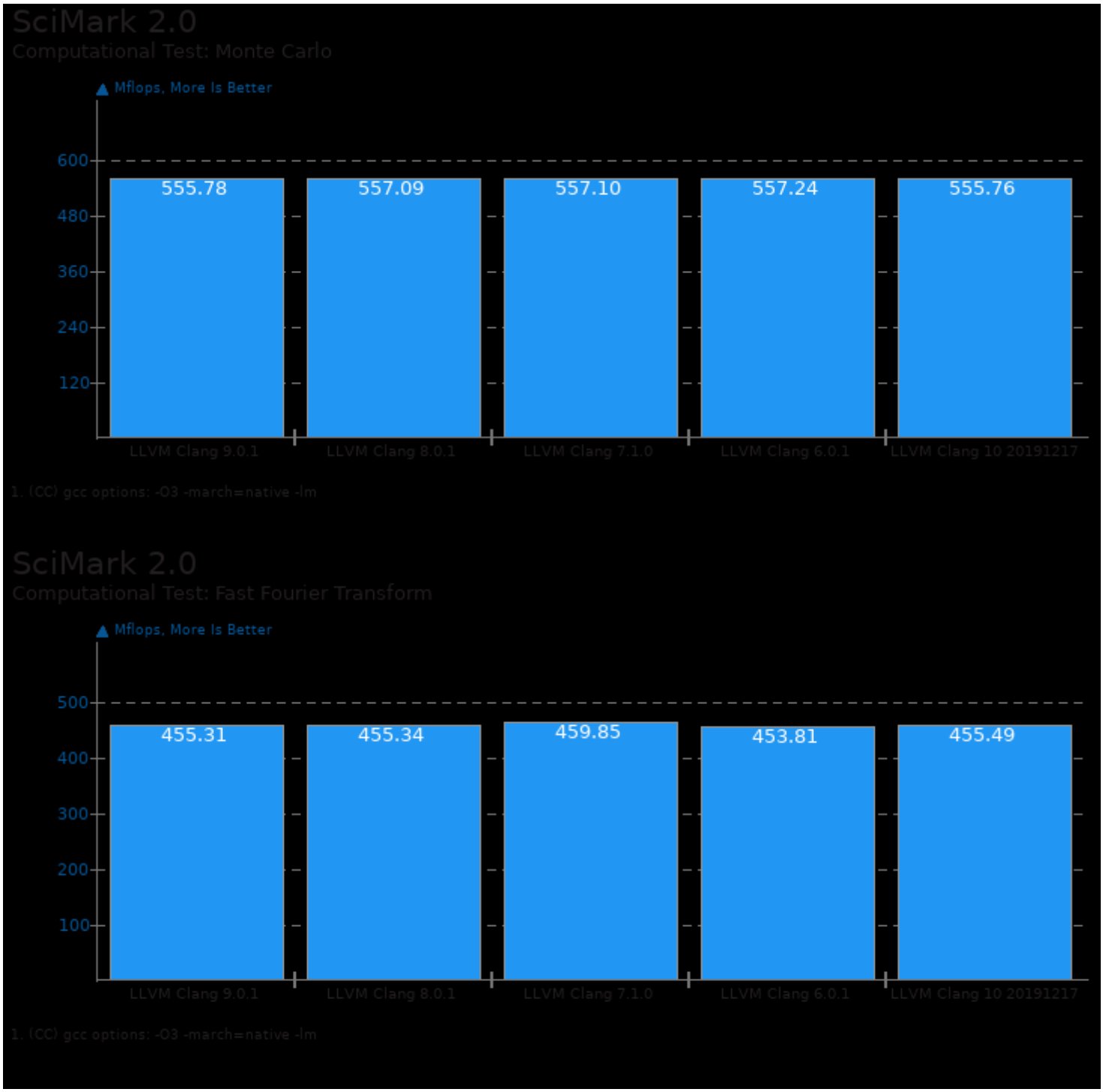
2019 Intel LLVM Clang Compiler Comparison



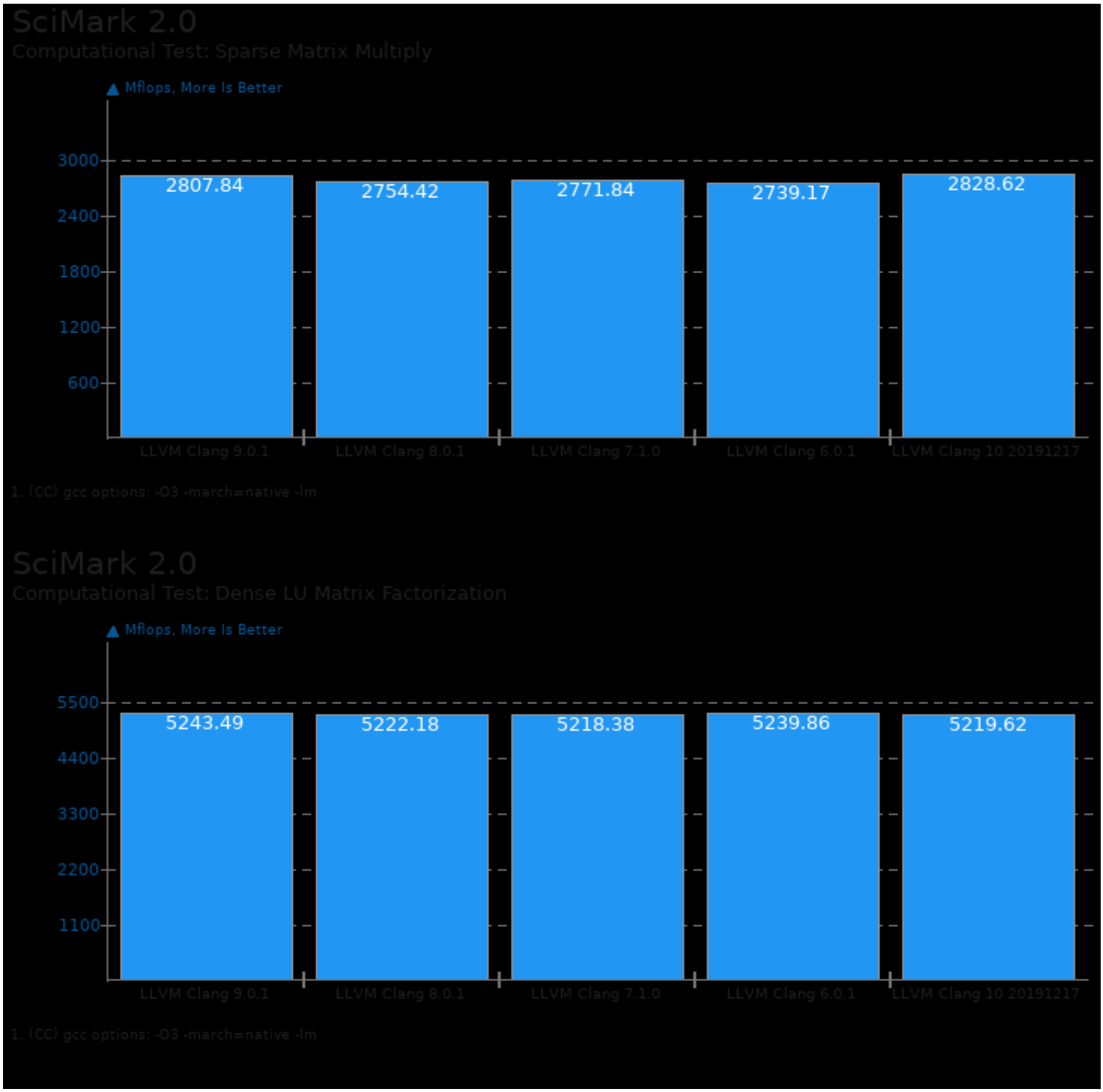
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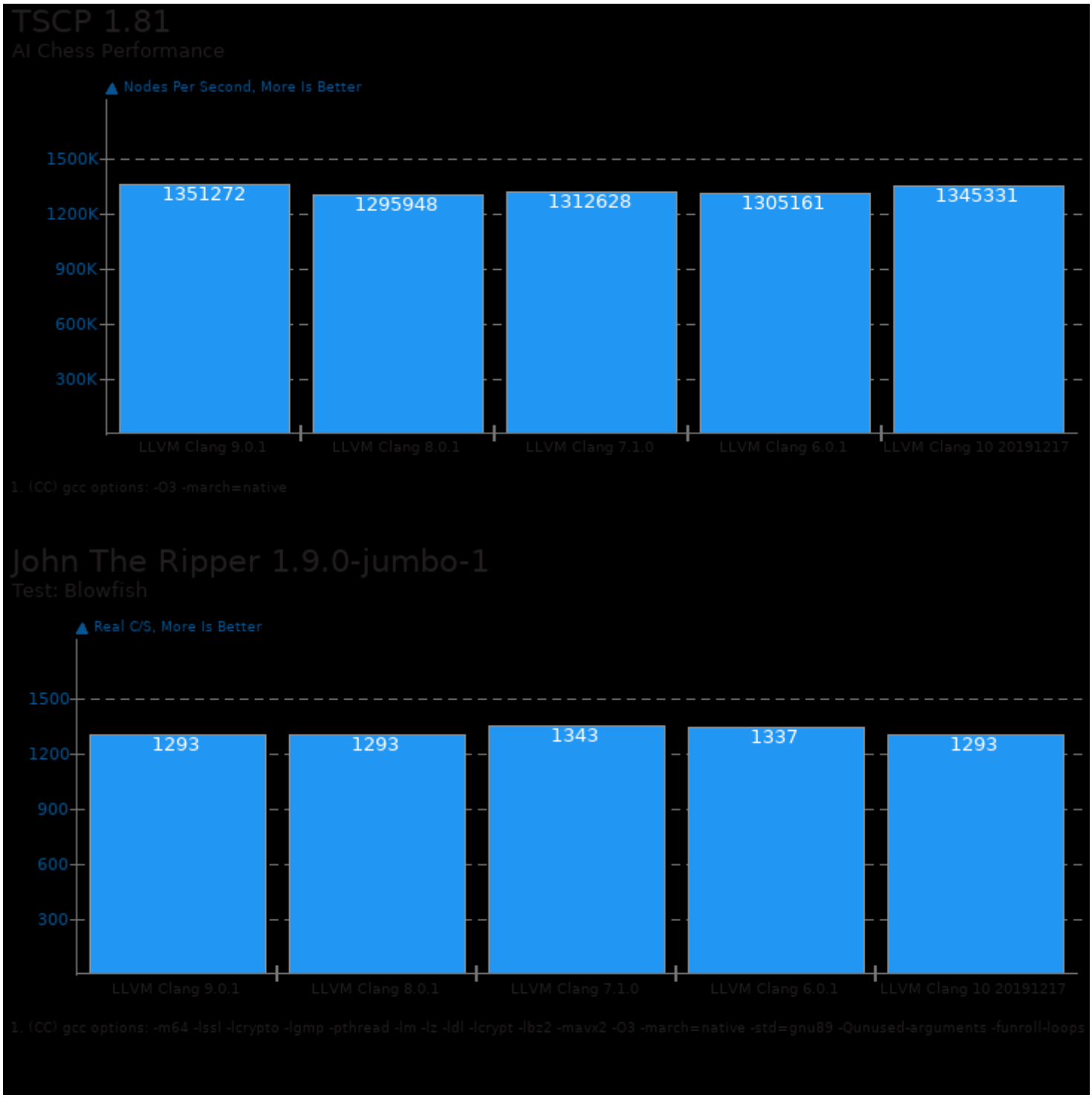
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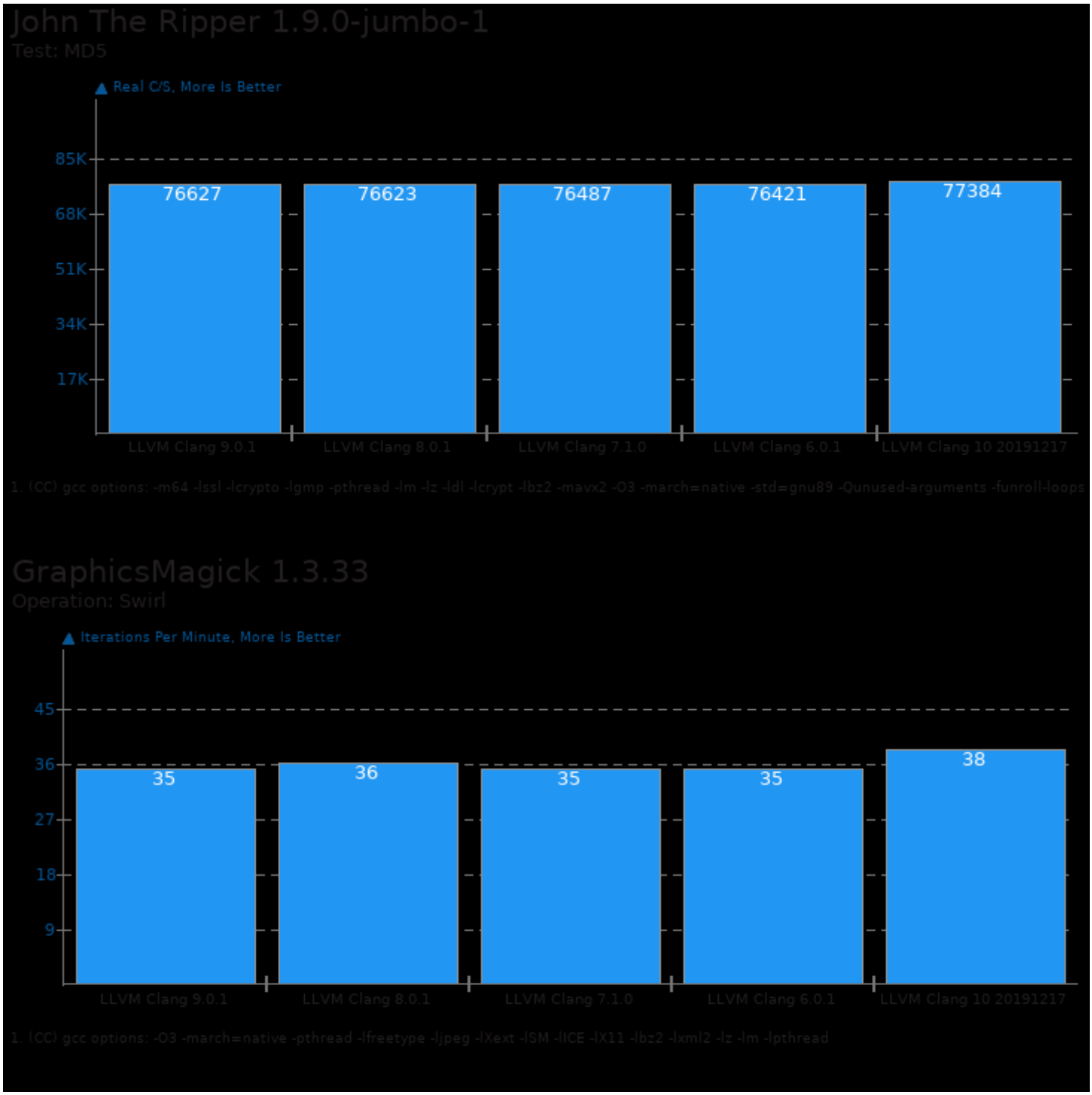
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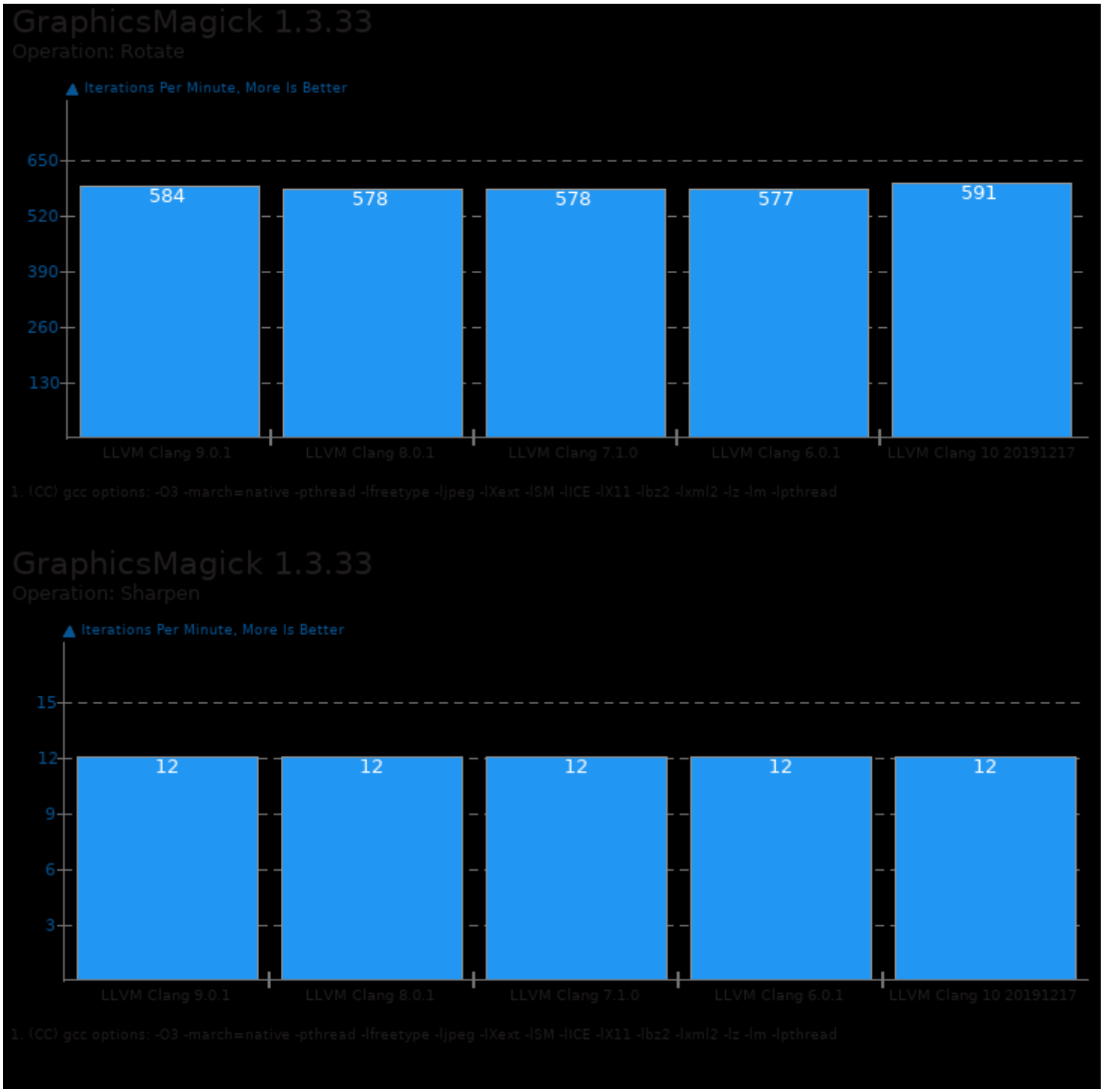
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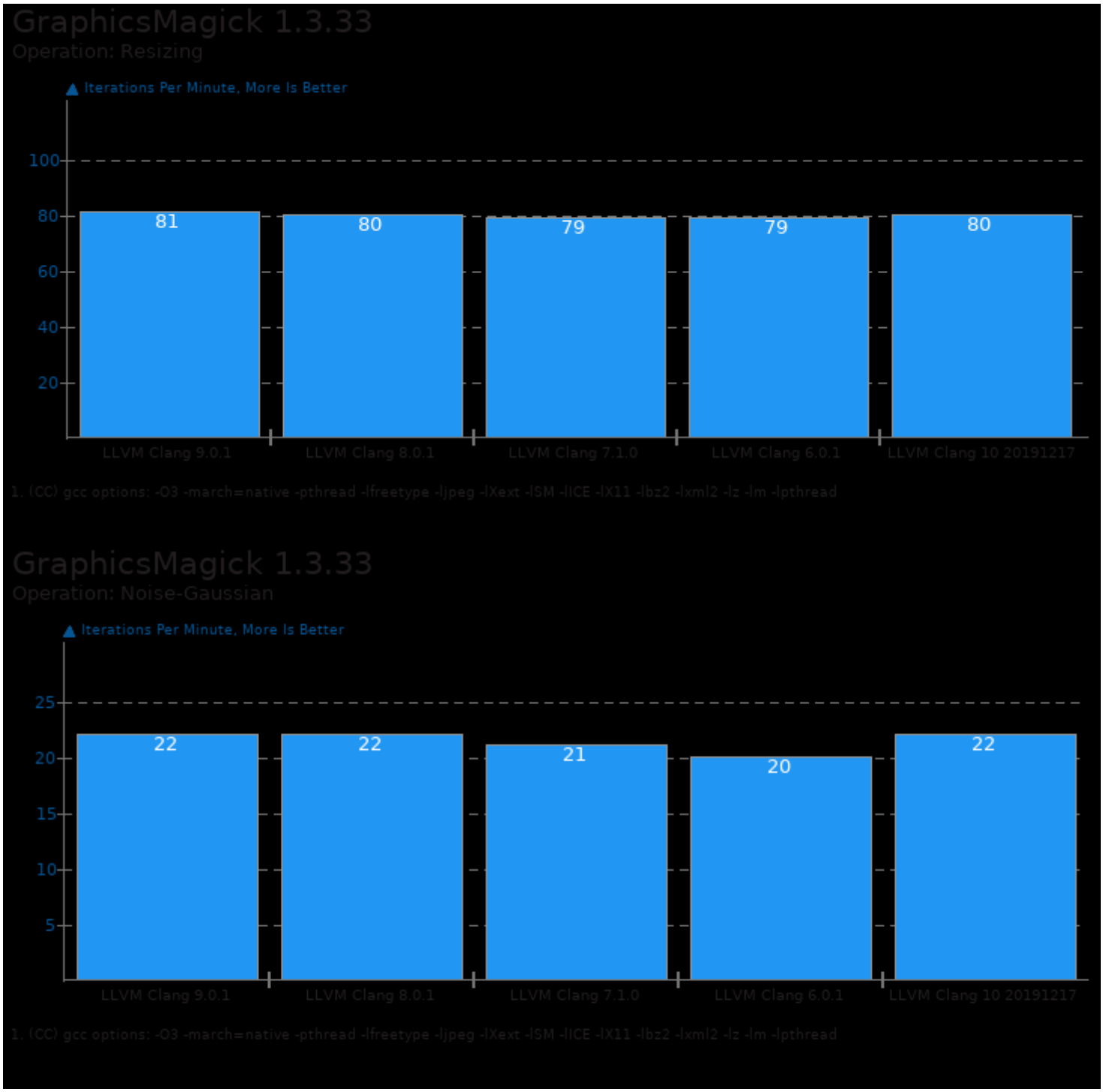
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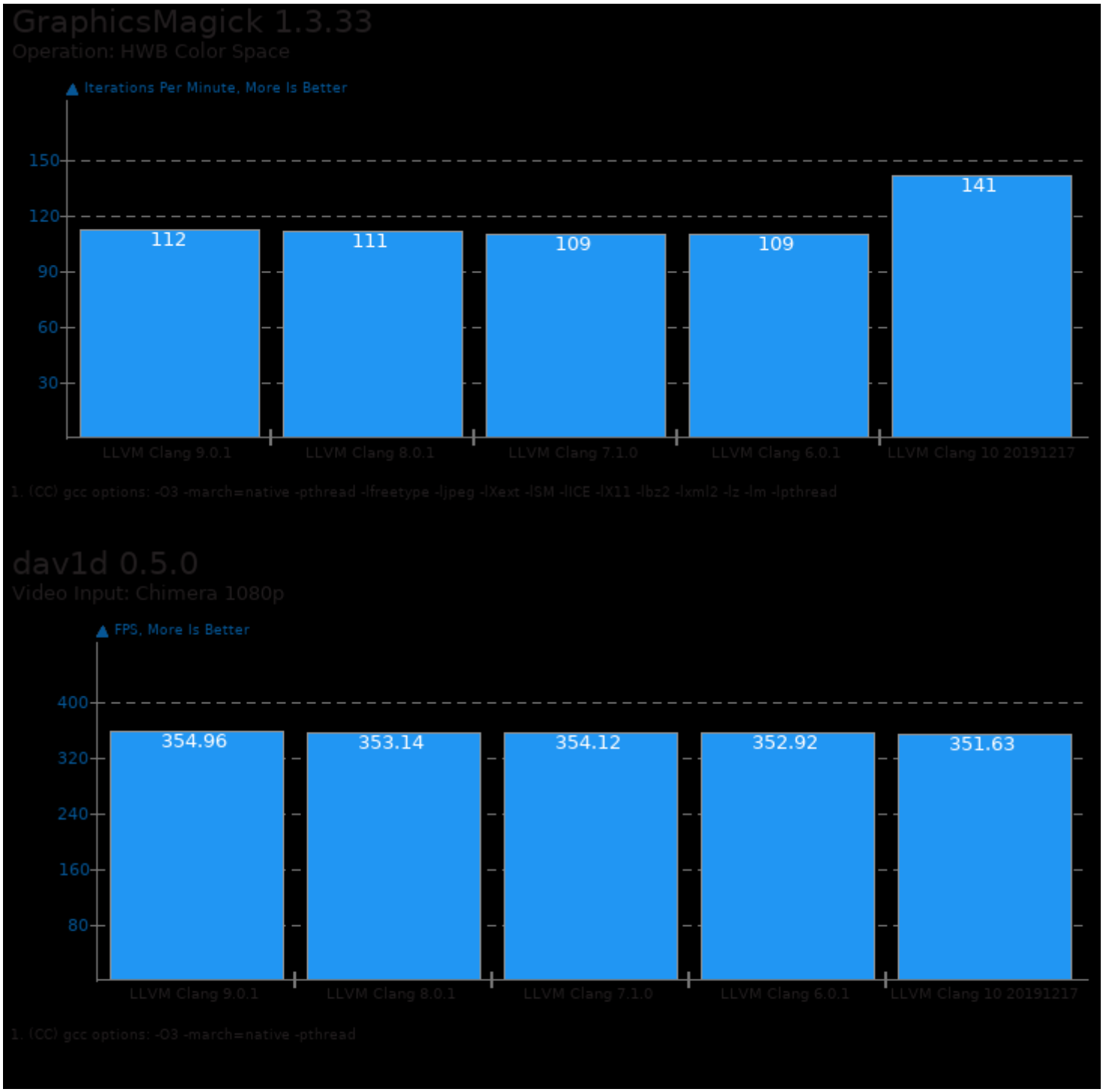
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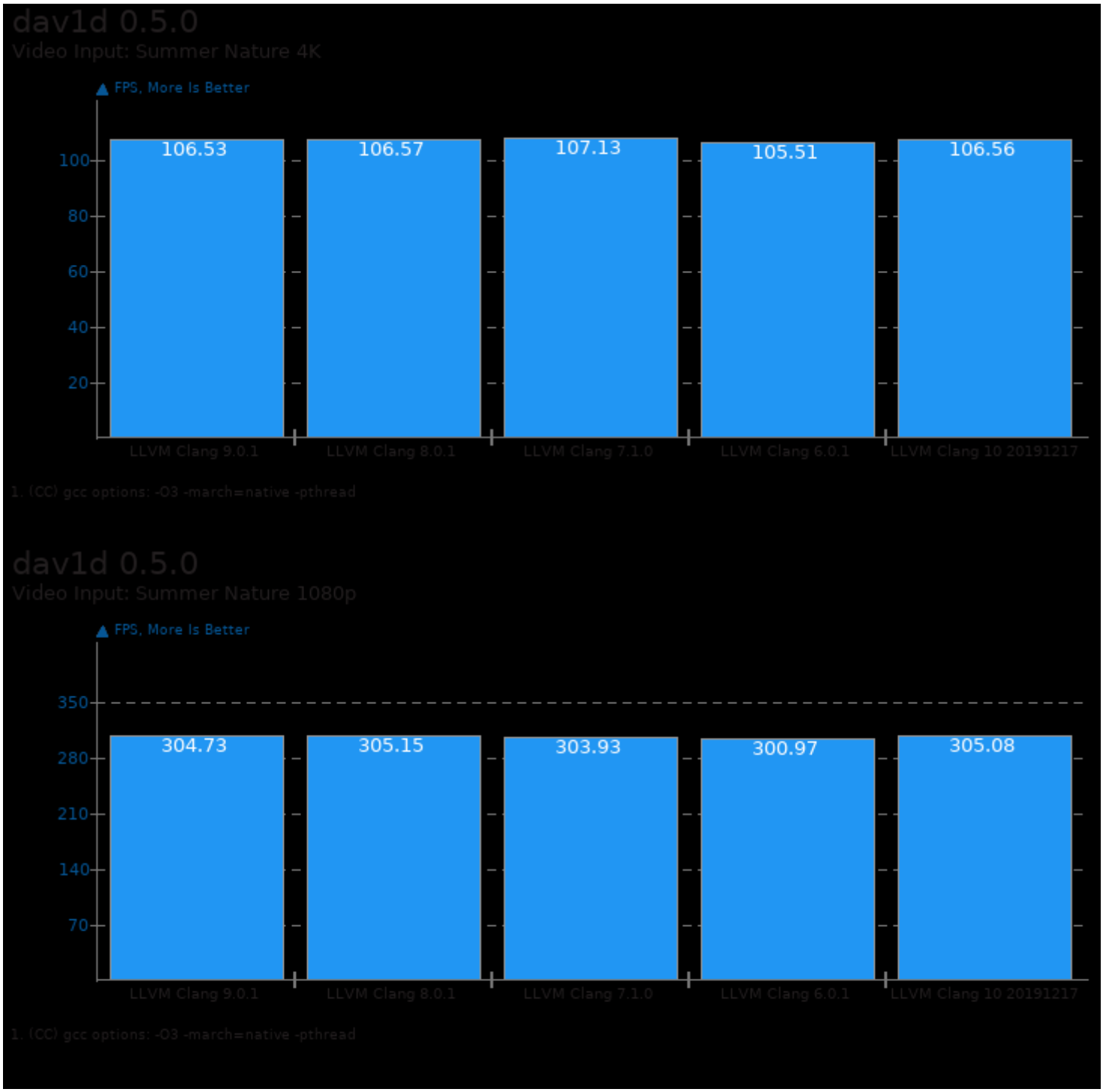
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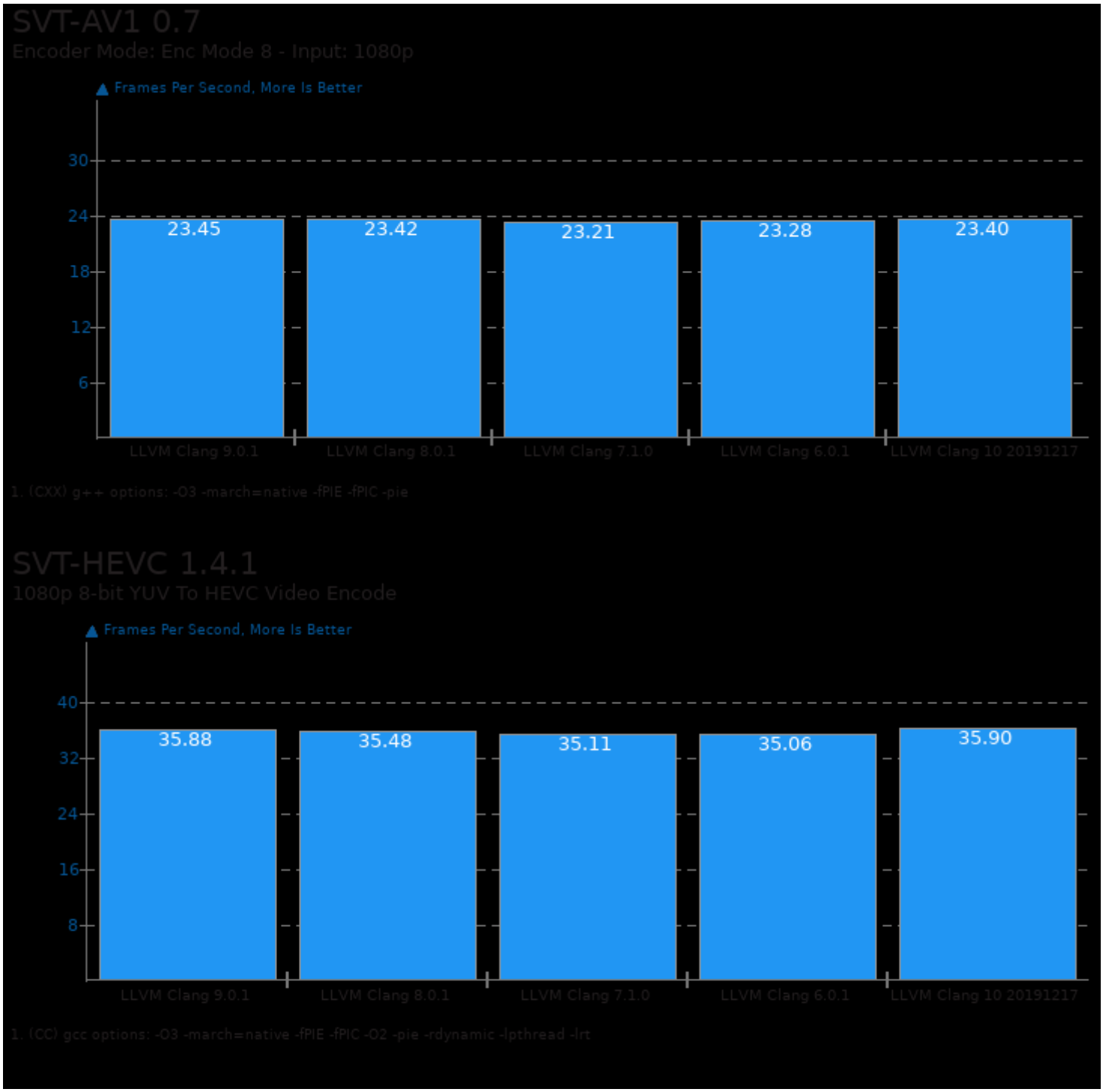
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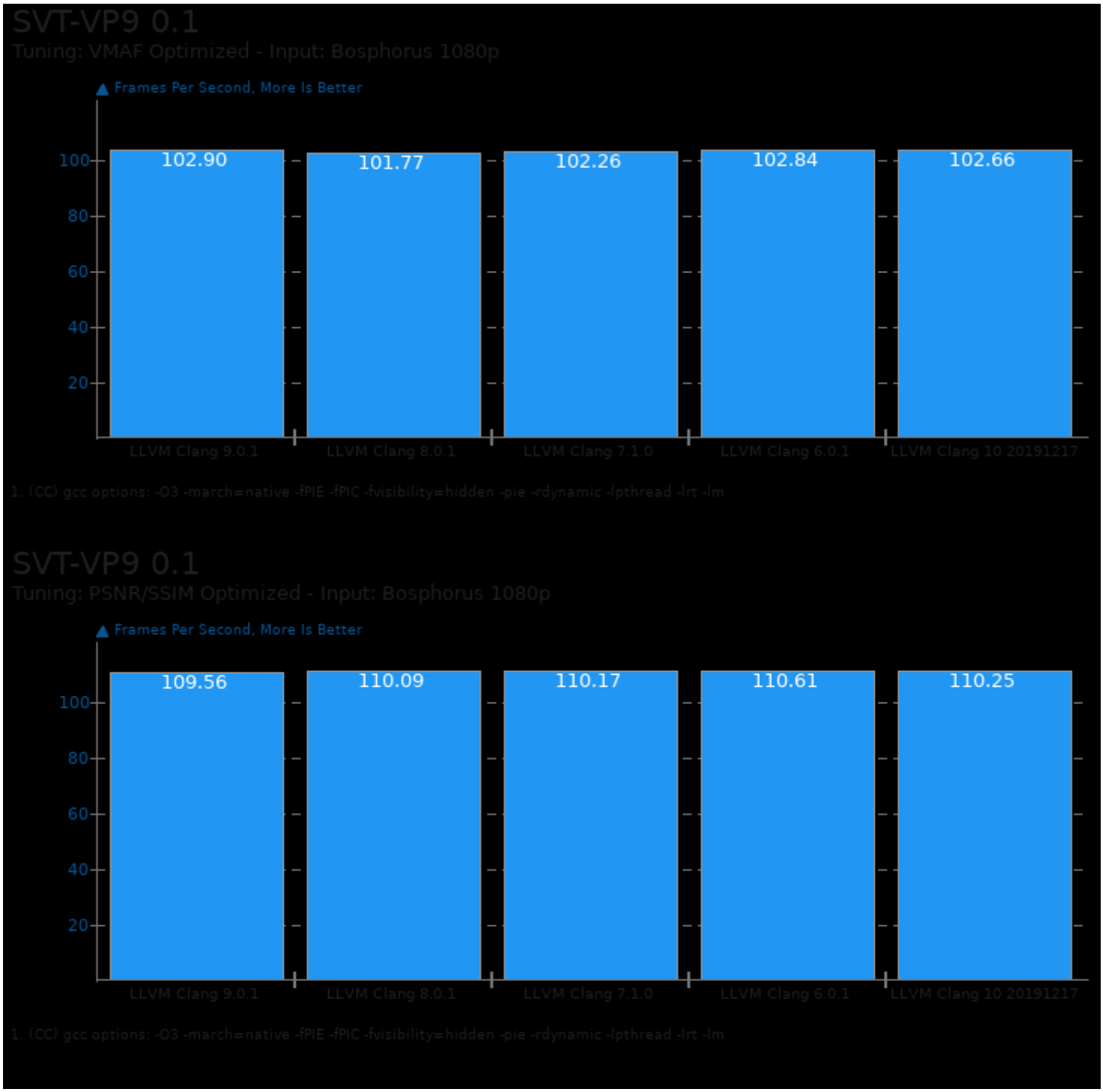
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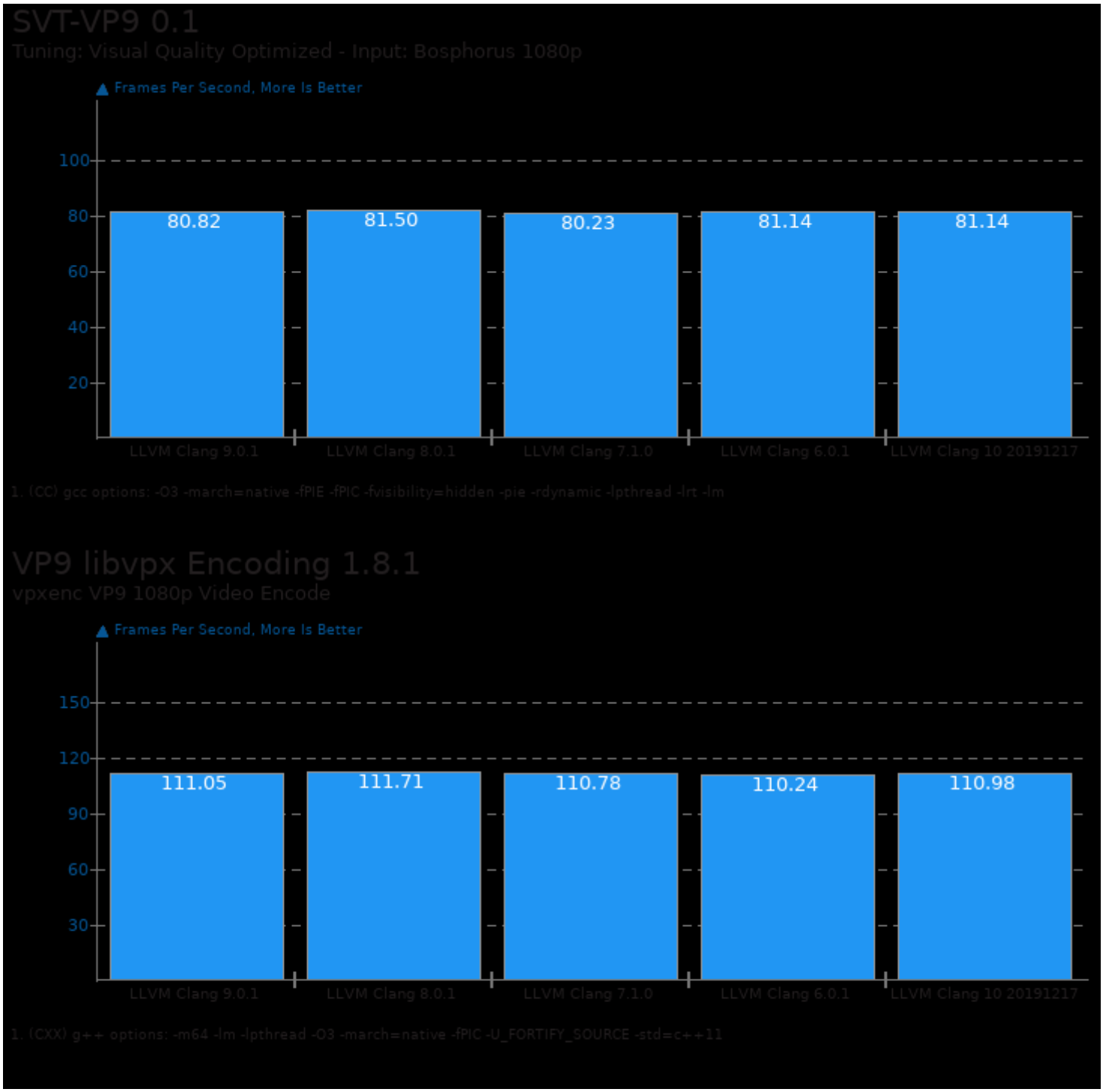
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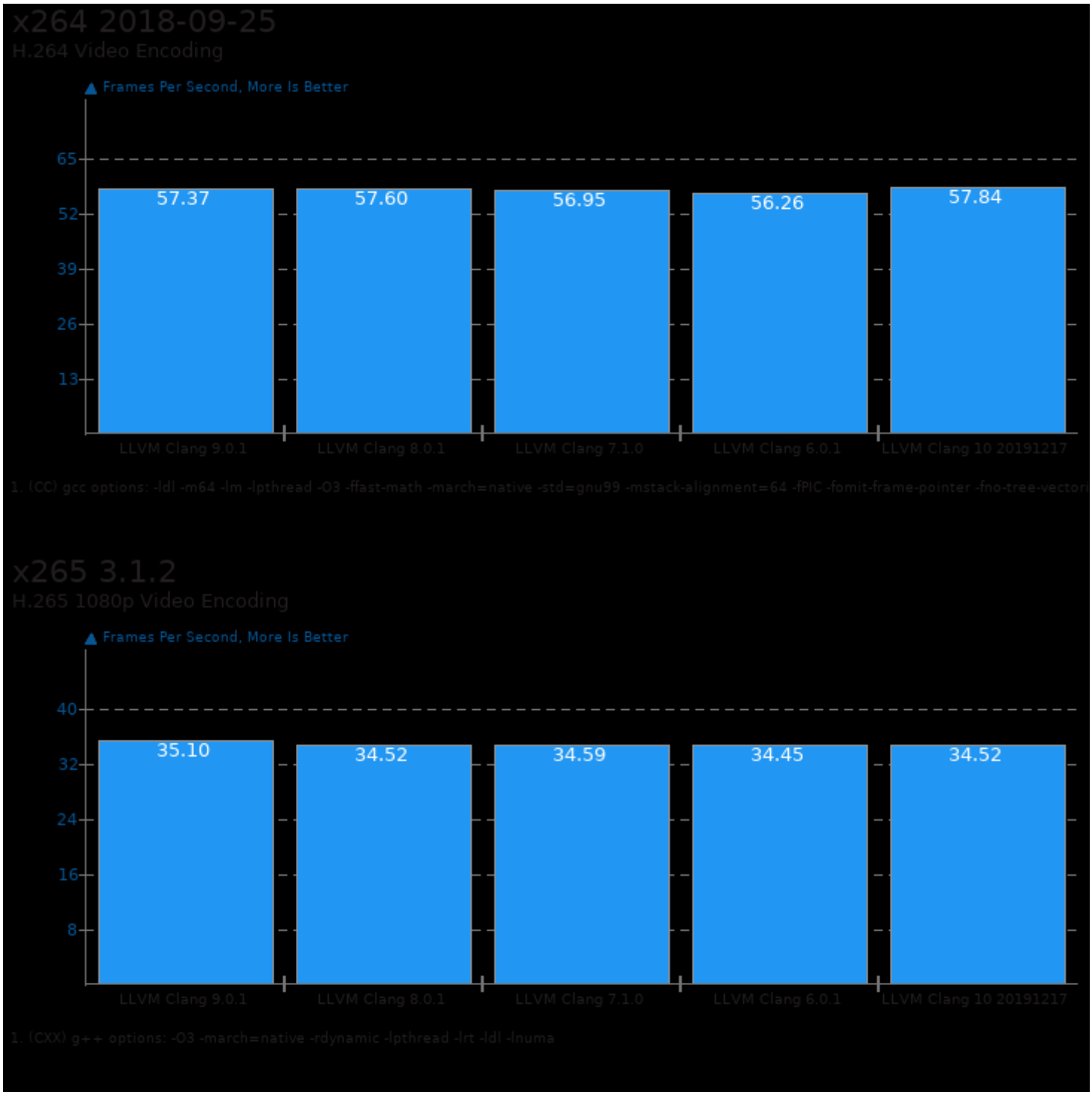
2019 Intel LLVM Clang Compiler Comparison



2019 Intel LLVM Clang Compiler Comparison



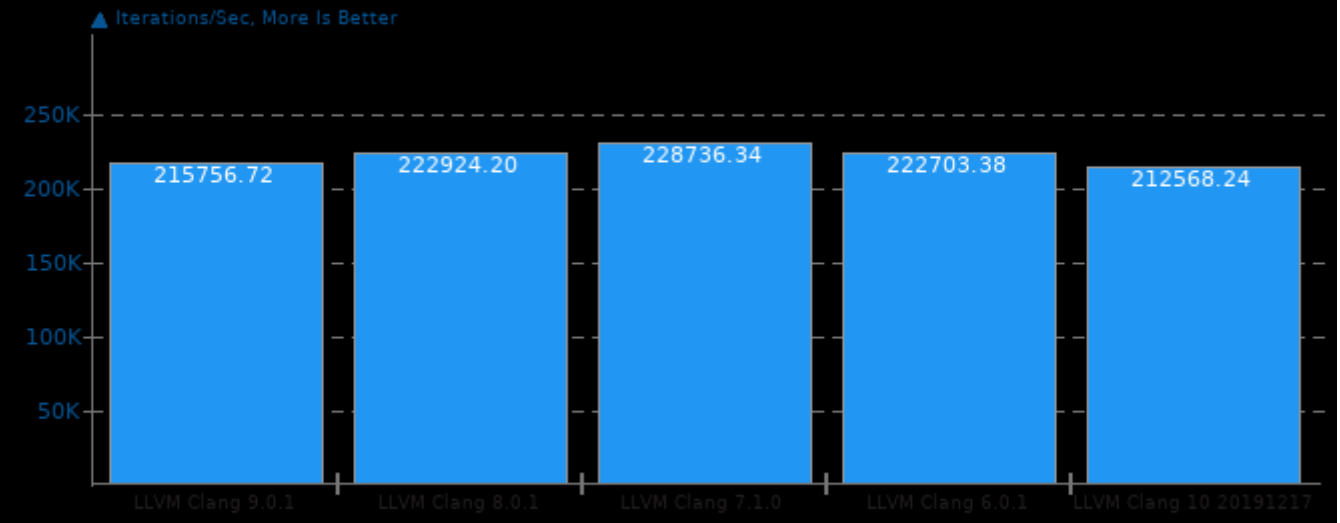
2019 Intel LLVM Clang Compiler Comparison



2019 Intel LLVM Clang Compiler Comparison

Coremark 1.0

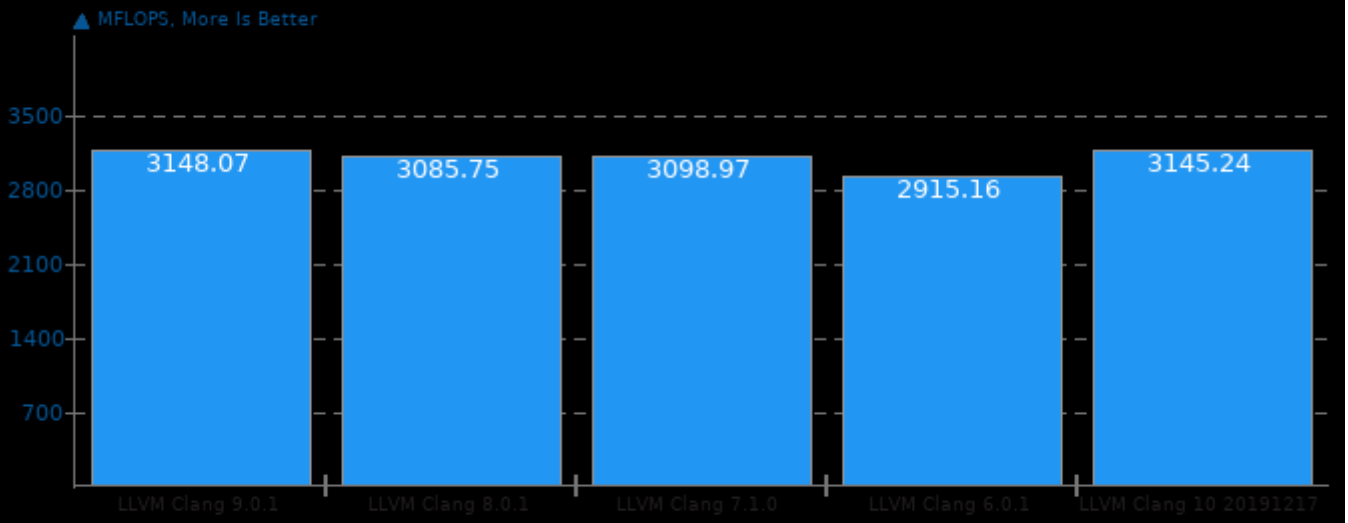
CoreMark Size 666 - Iterations Per Second



1. (CC) gcc options: -O2 -O3 -march=native -lrt" -lrt

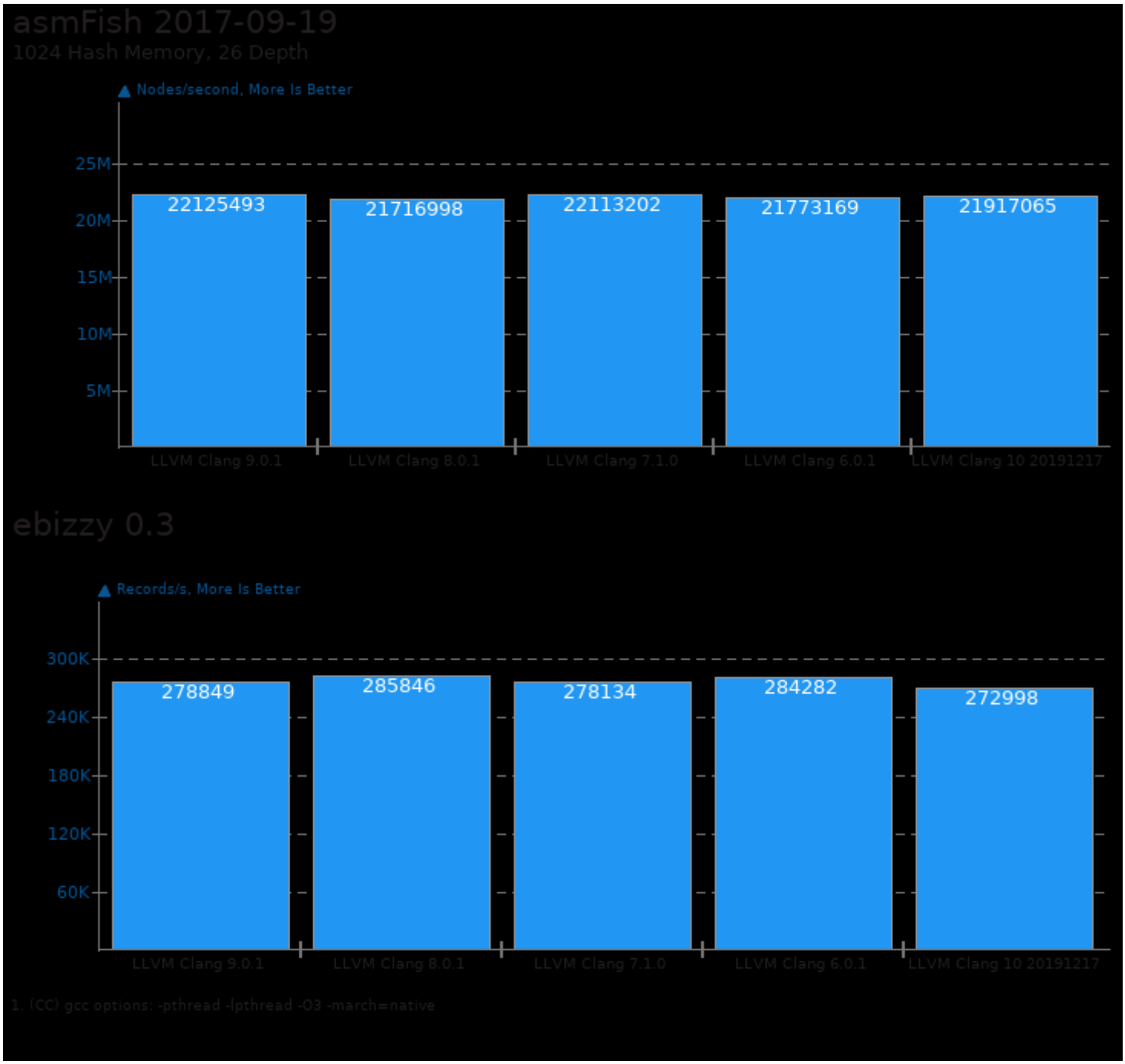
Himeno Benchmark 3.0

Poisson Pressure Solver

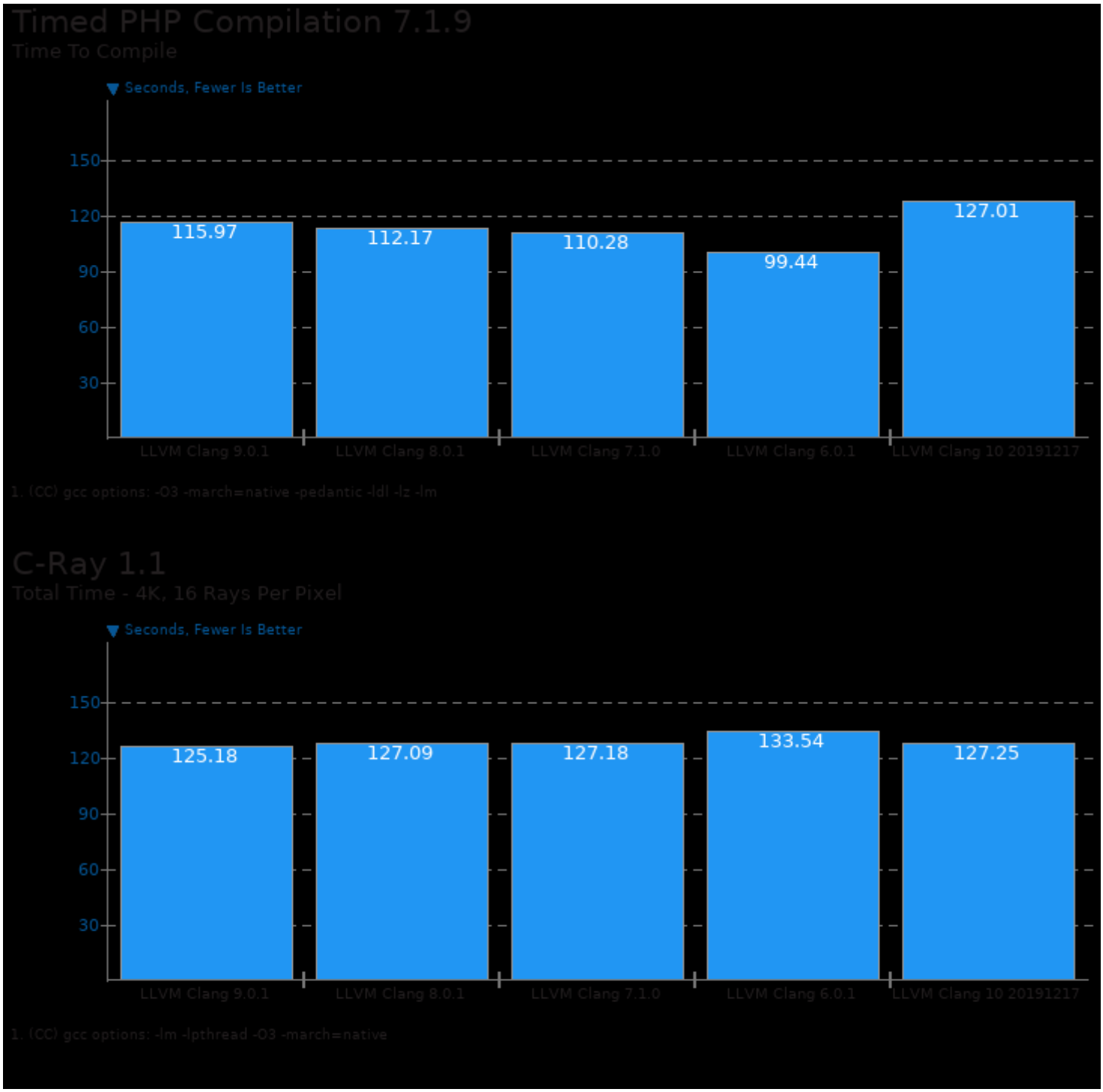


1. (CC) gcc options: -O3 -march=native -mavx2

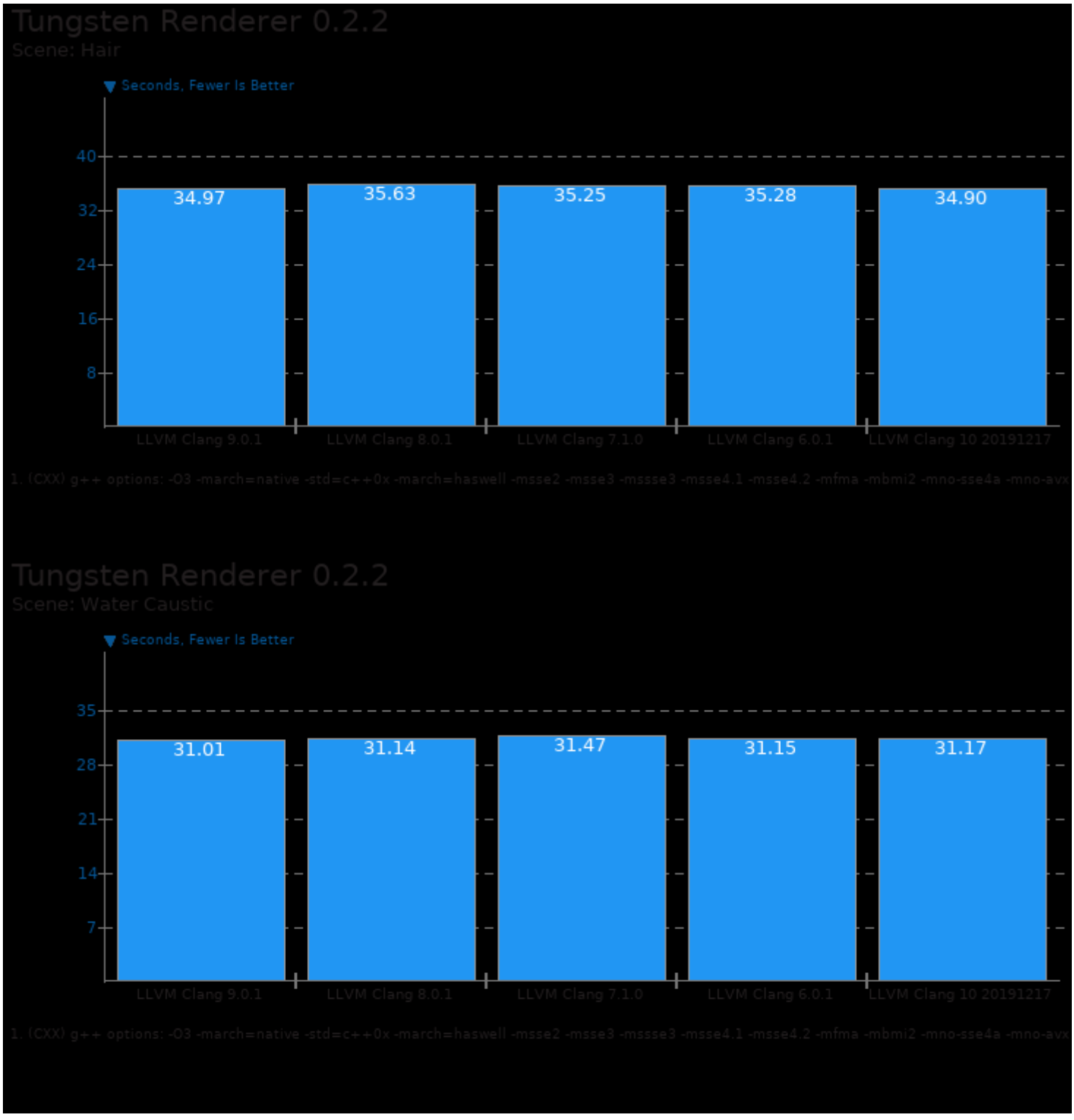
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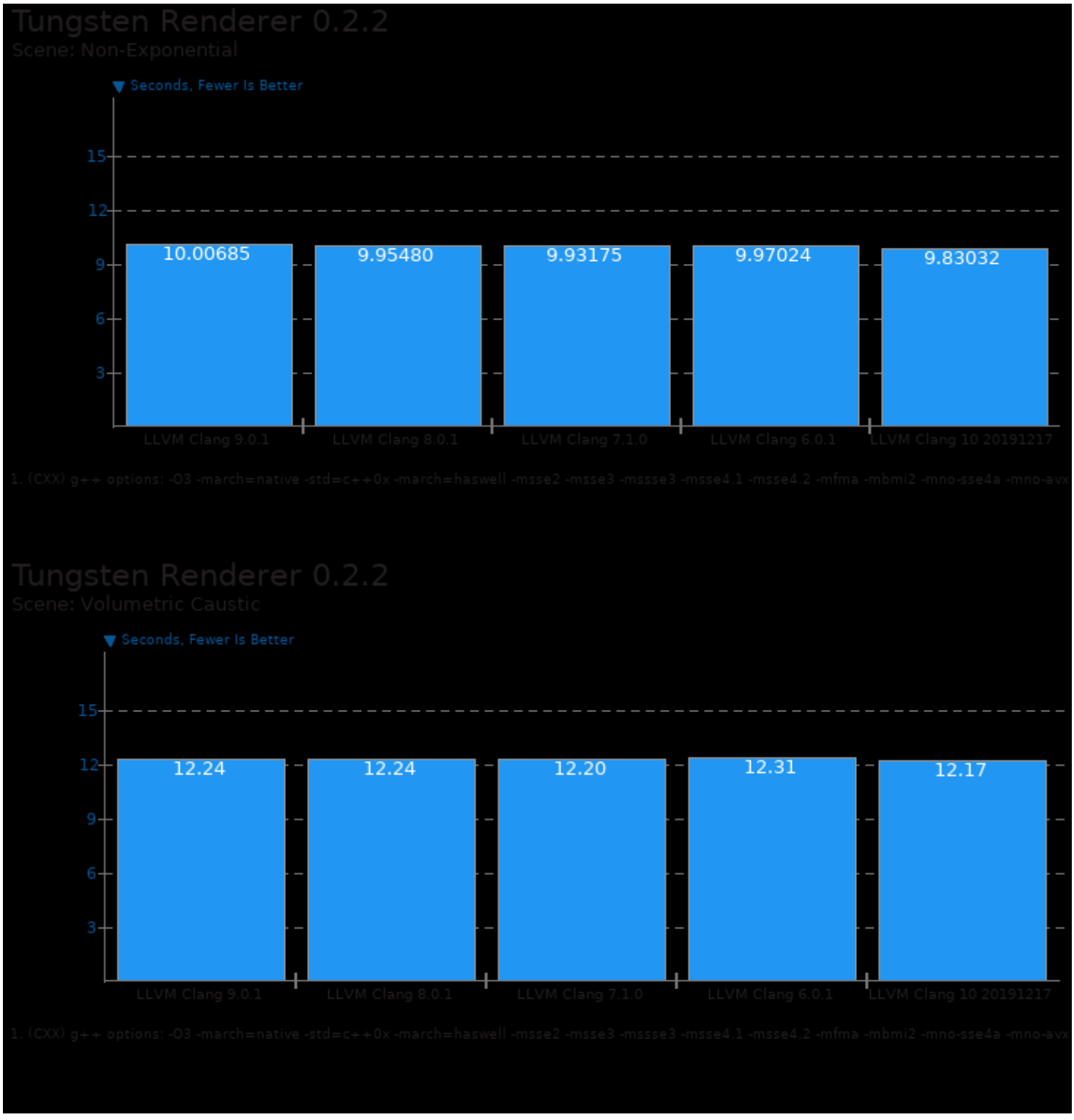
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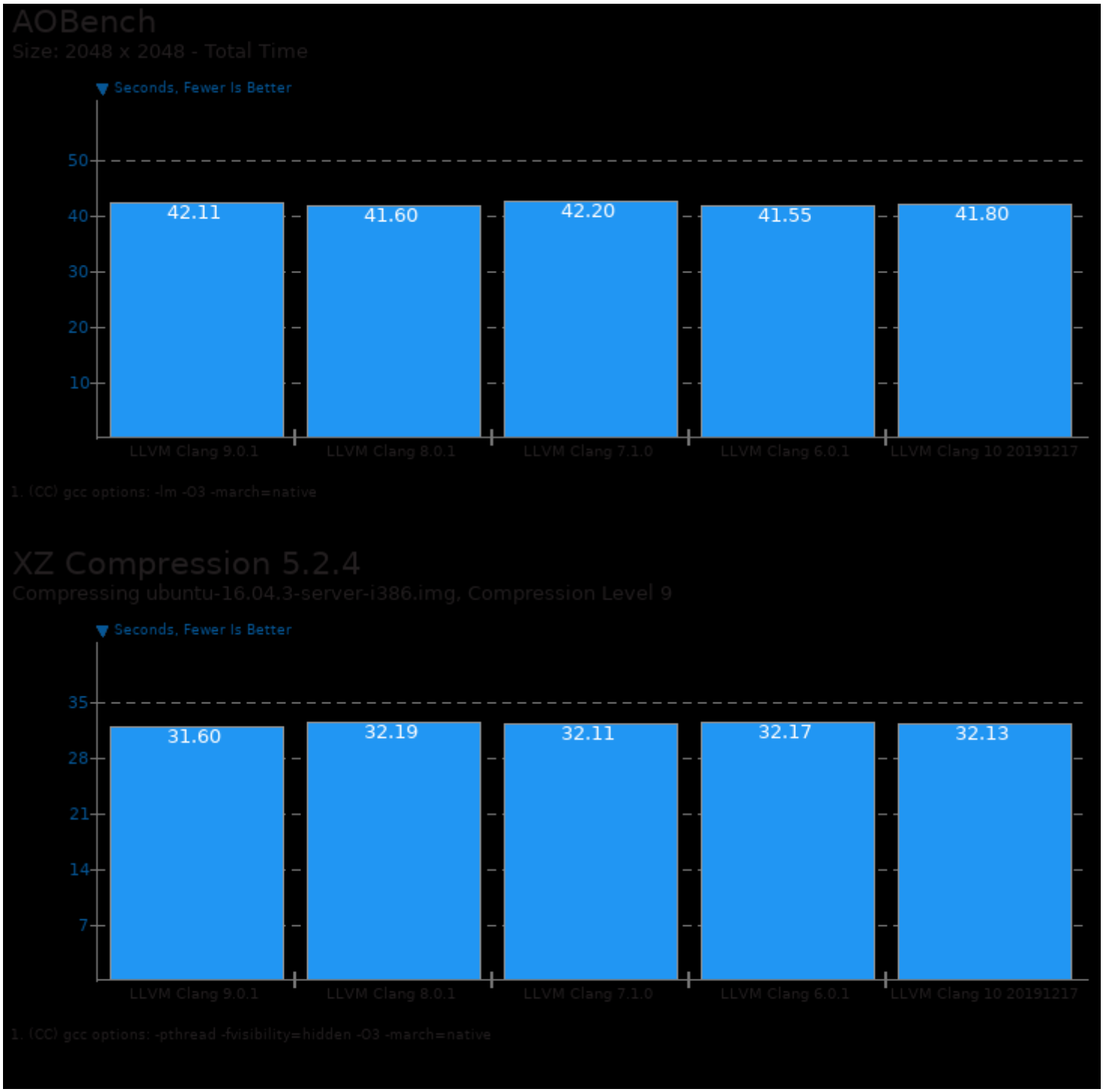
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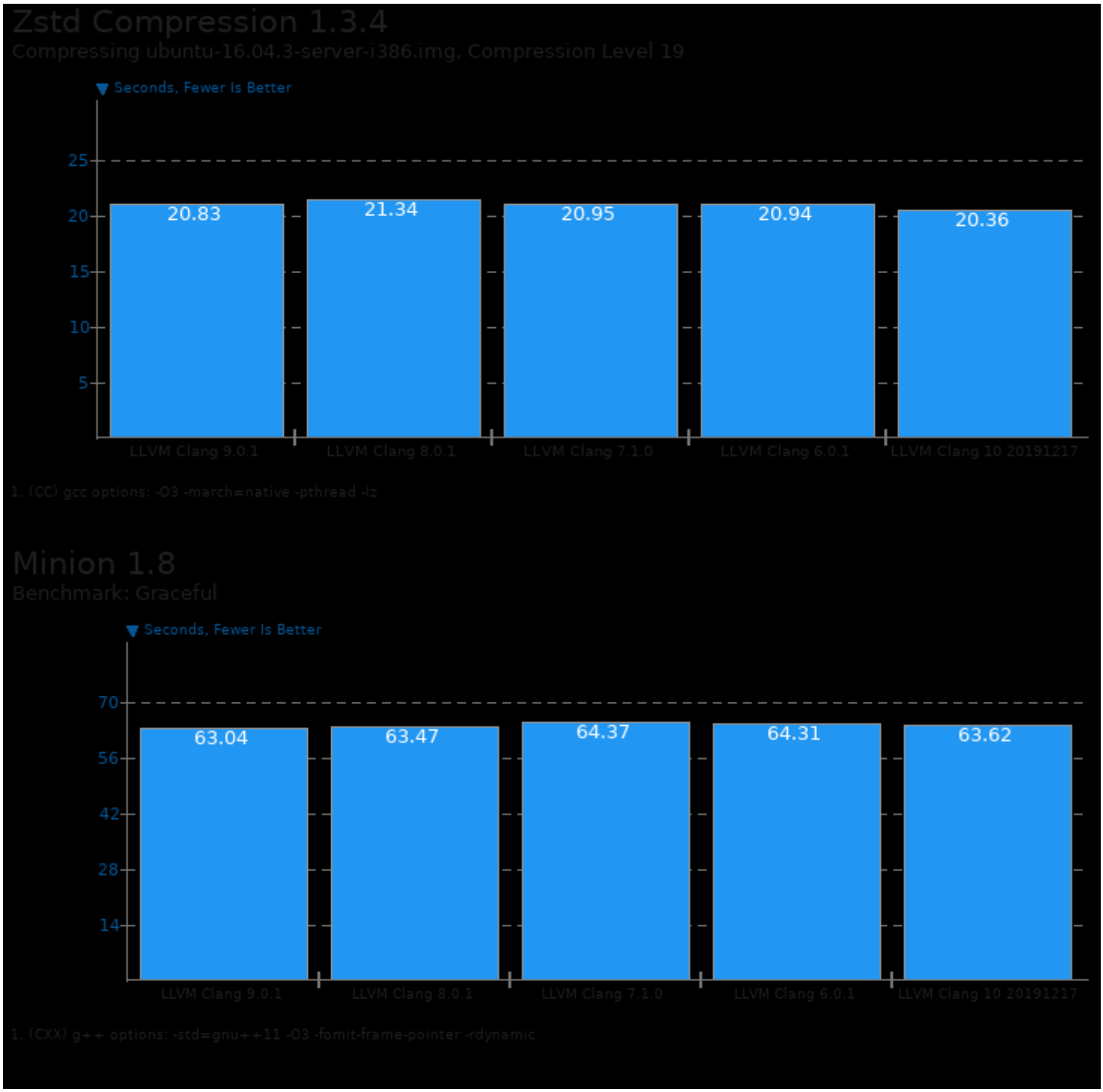
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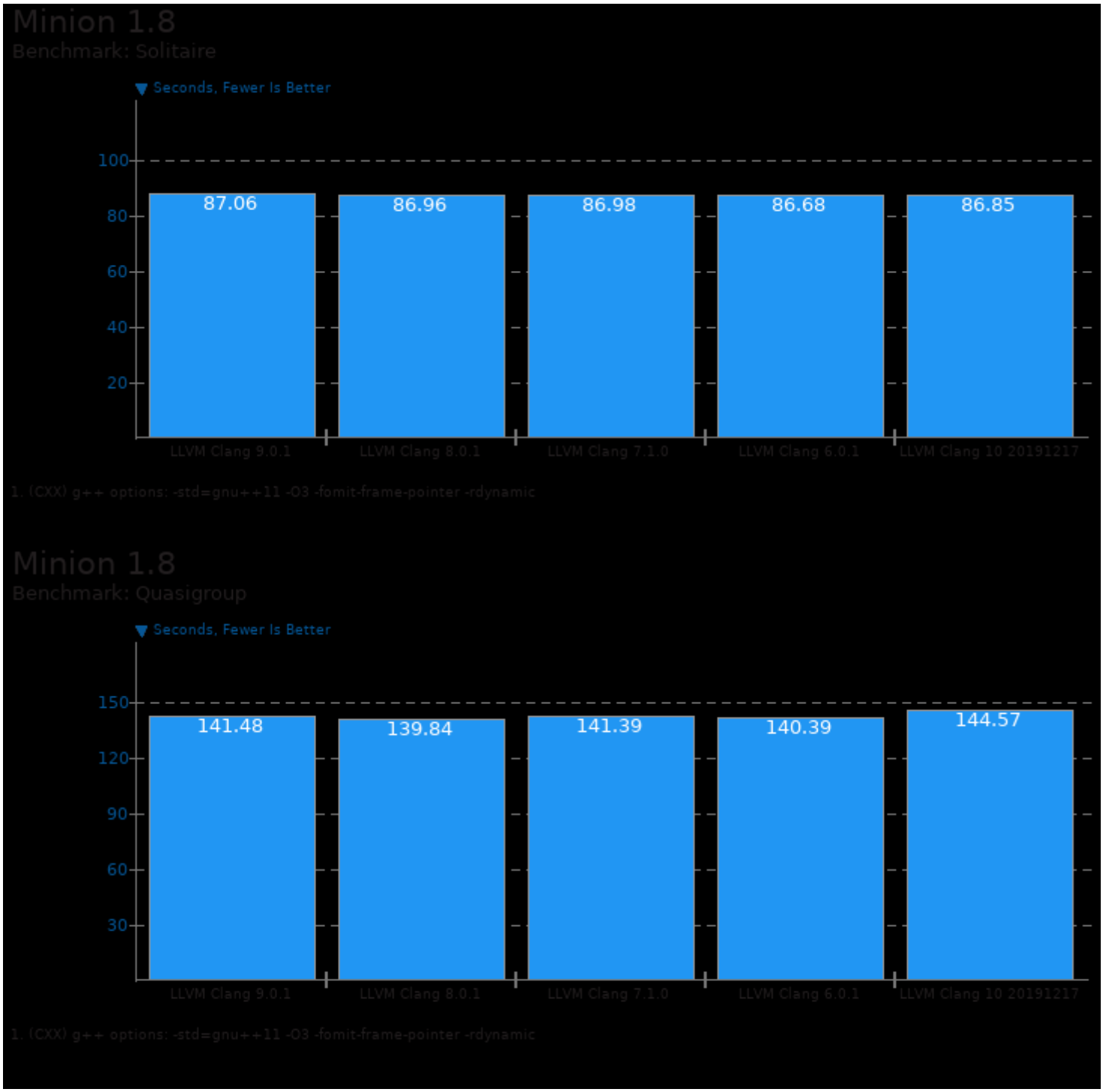
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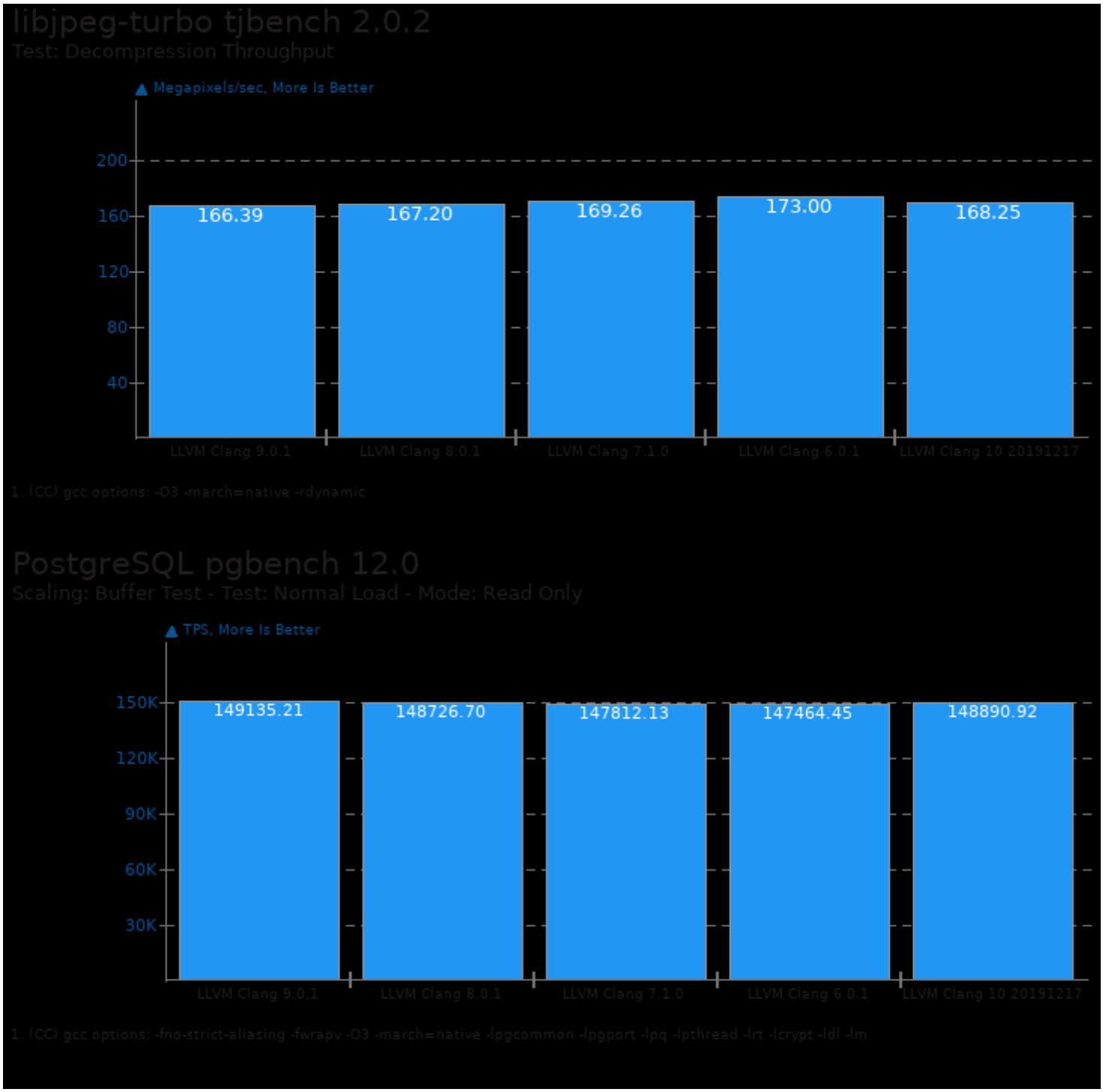
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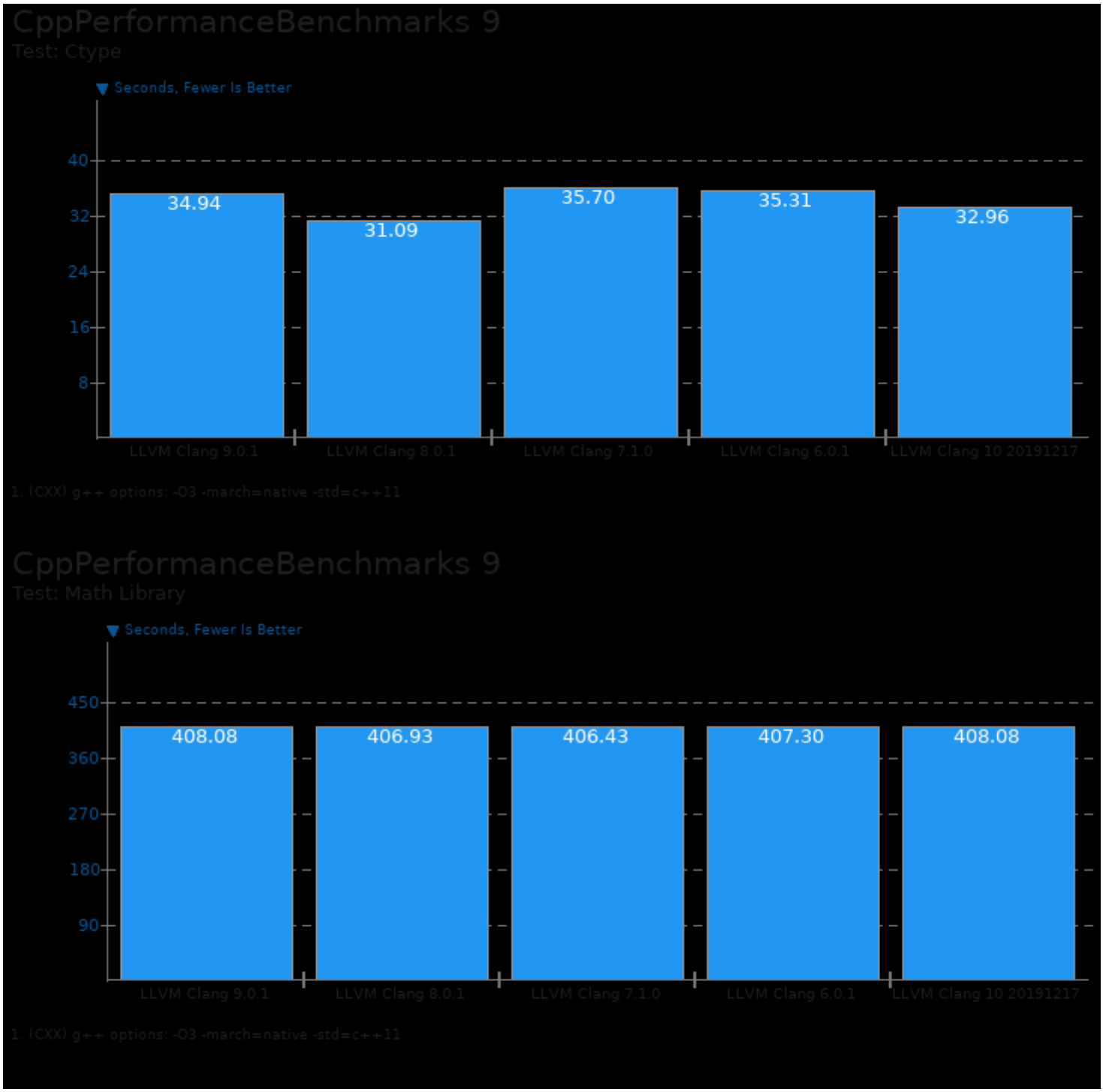
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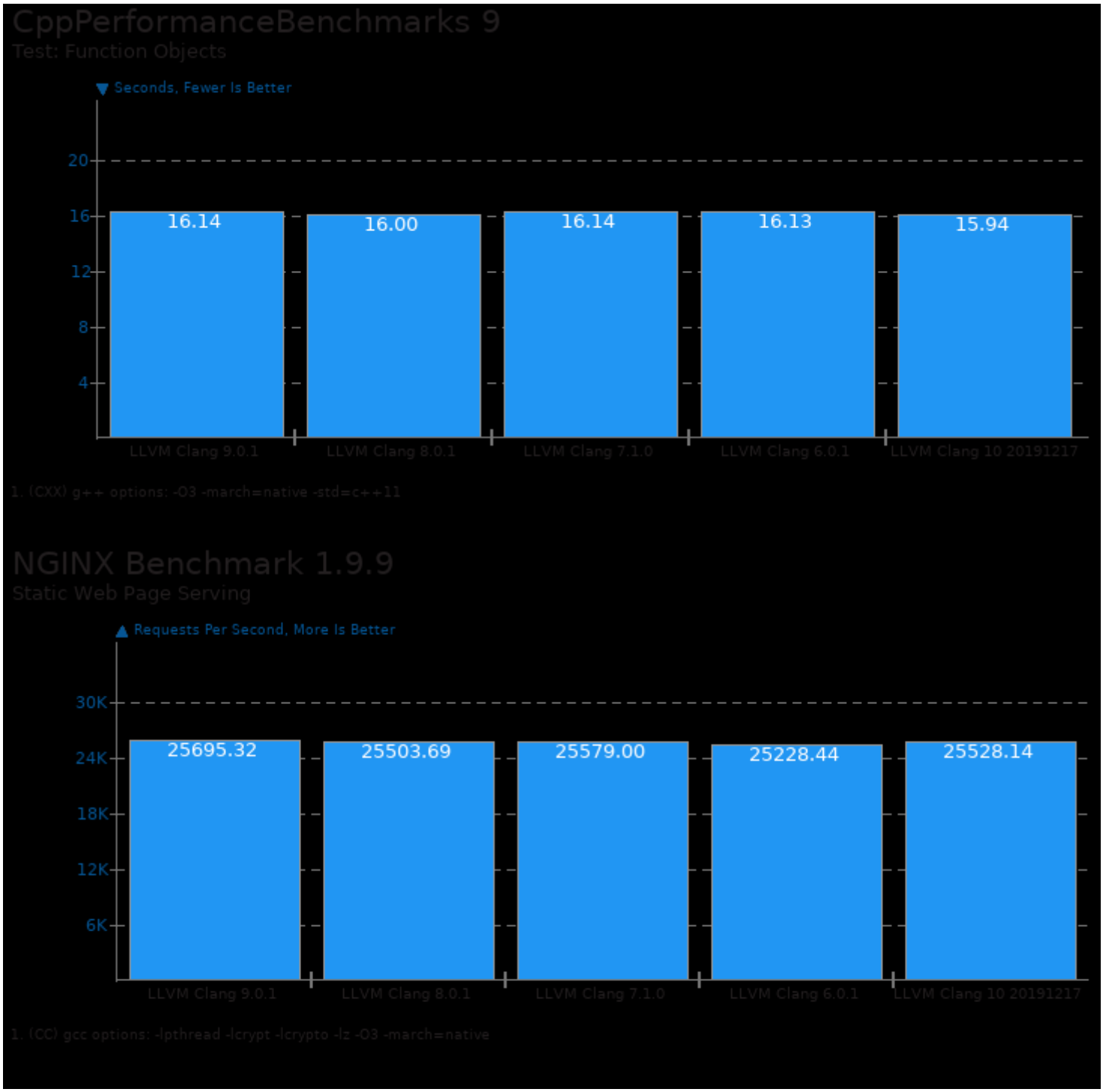
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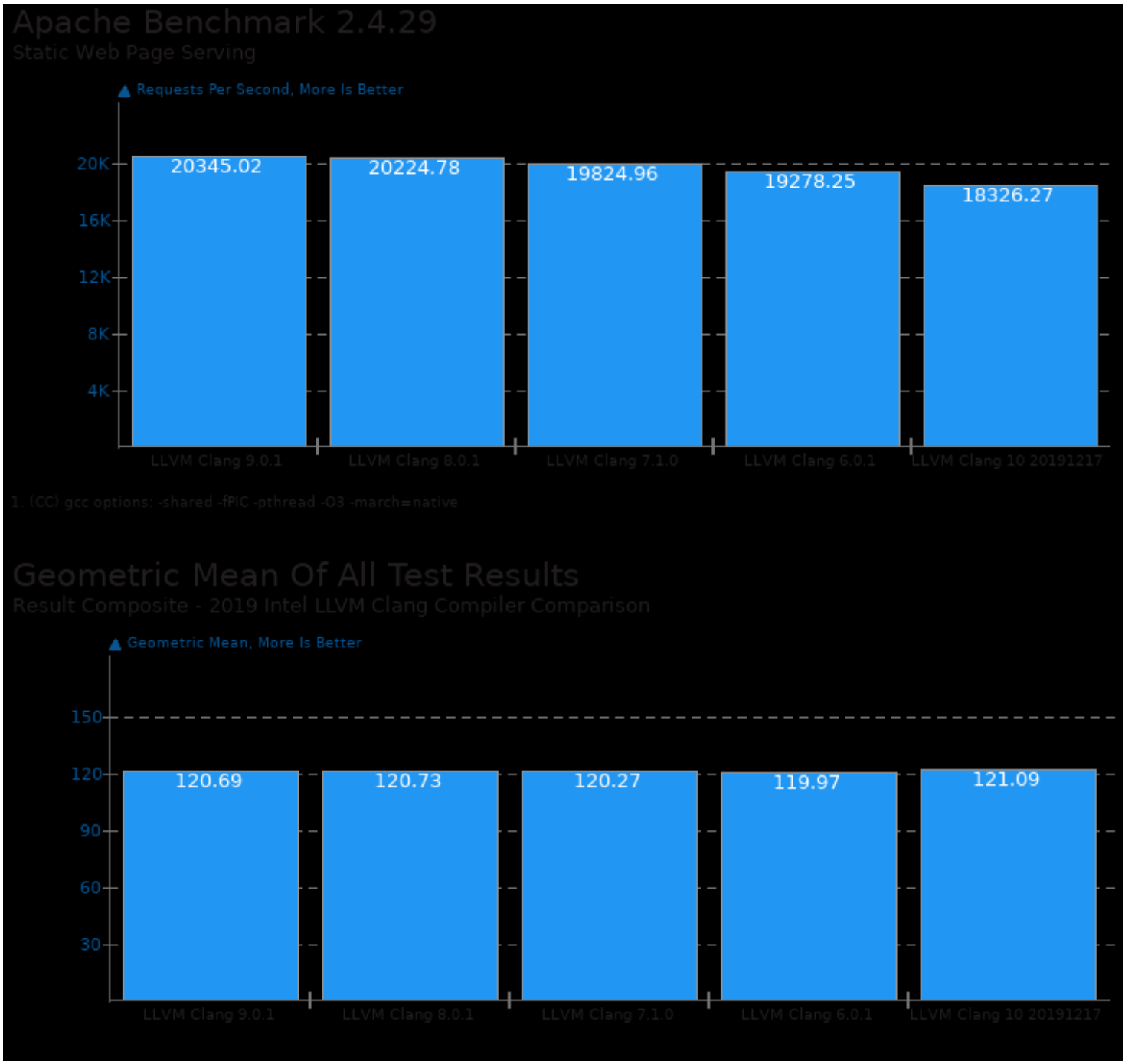
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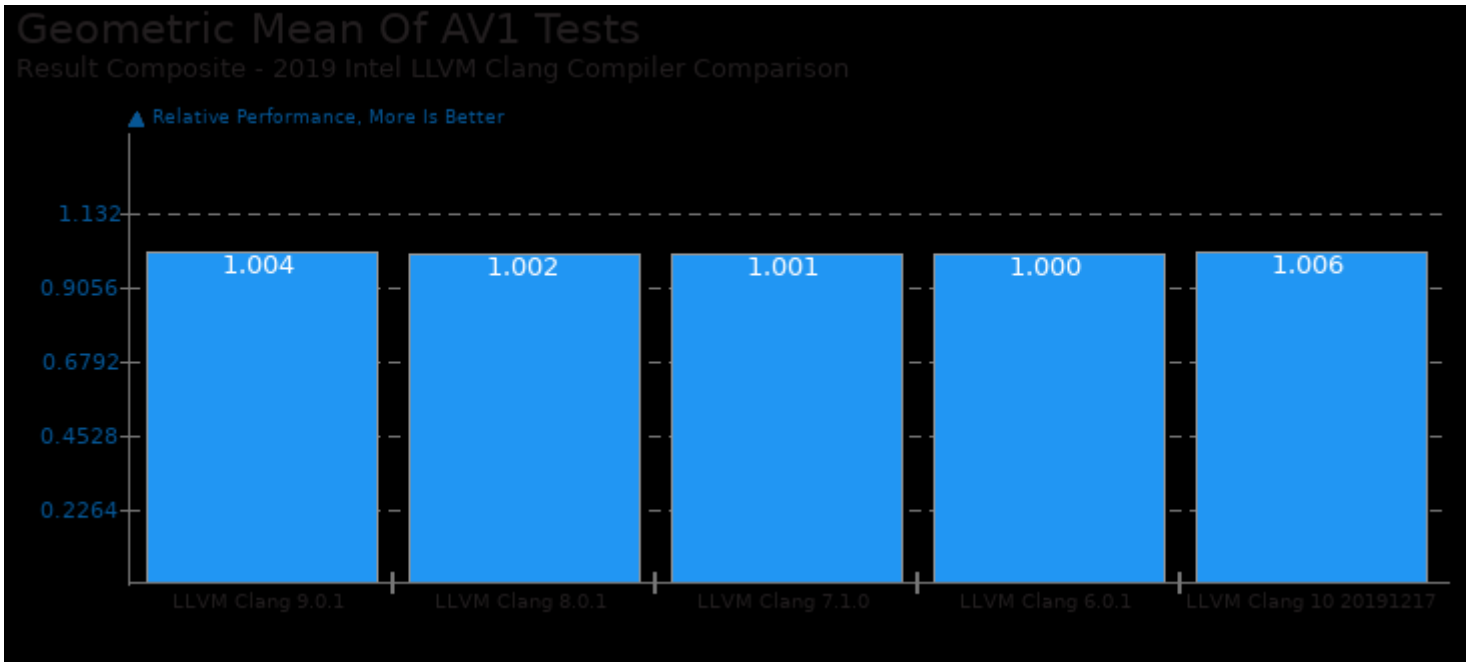


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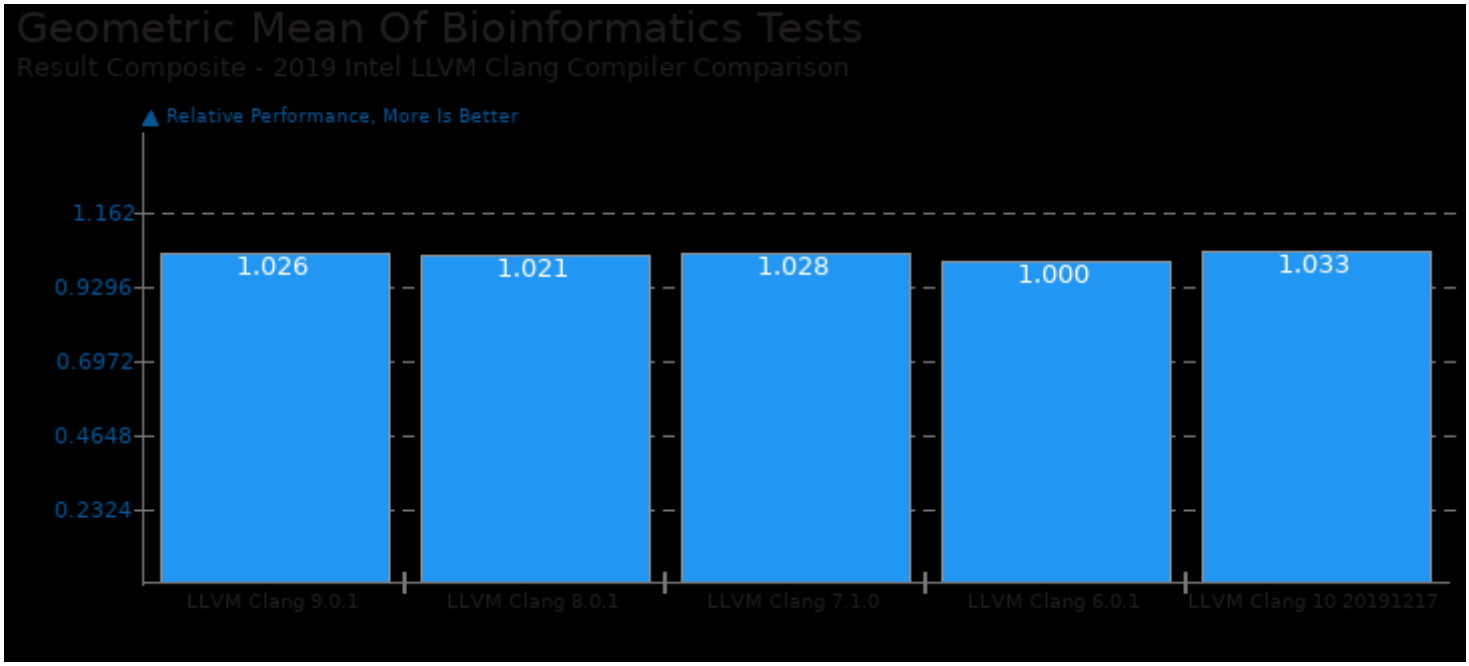


2019 Intel LLVM Clang Compiler Comparison

These geometric means are based upon test groupings / test suites for this result file.

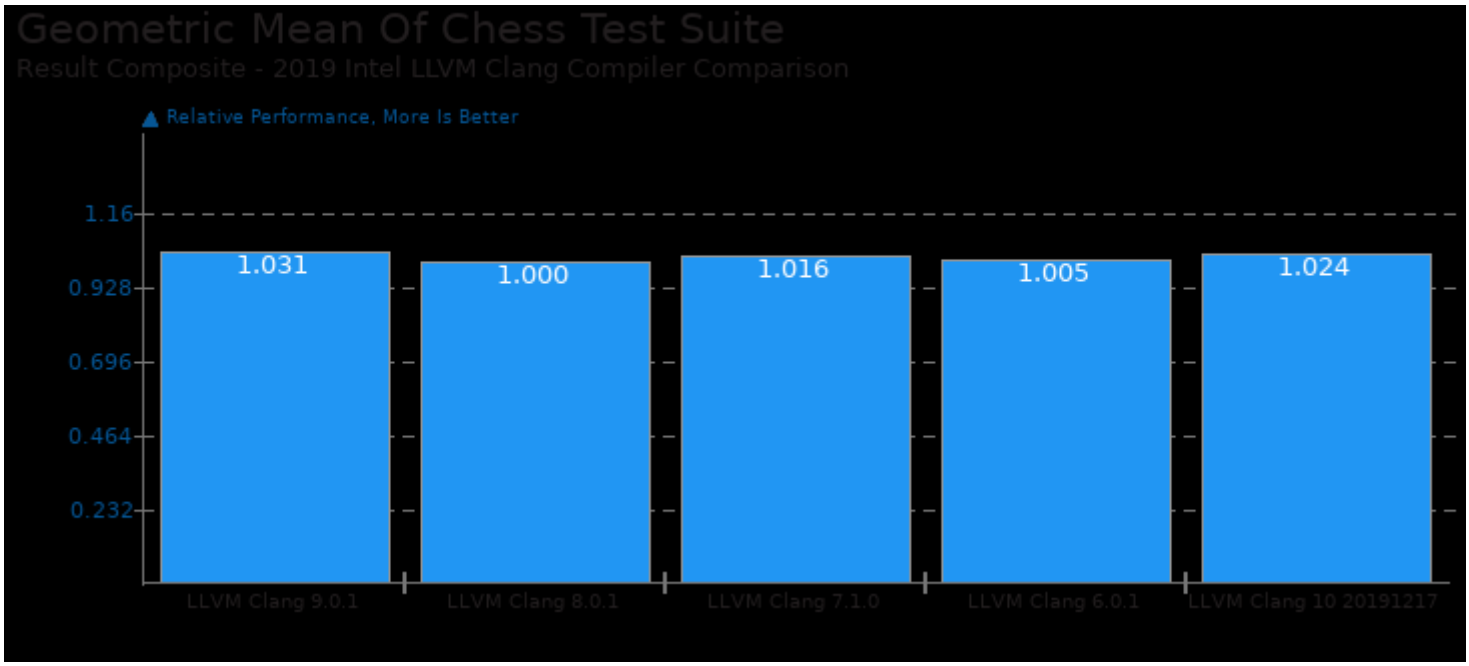


Geometric mean based upon tests: pts/dav1d, pts/svt-av1 and pts/libgav1

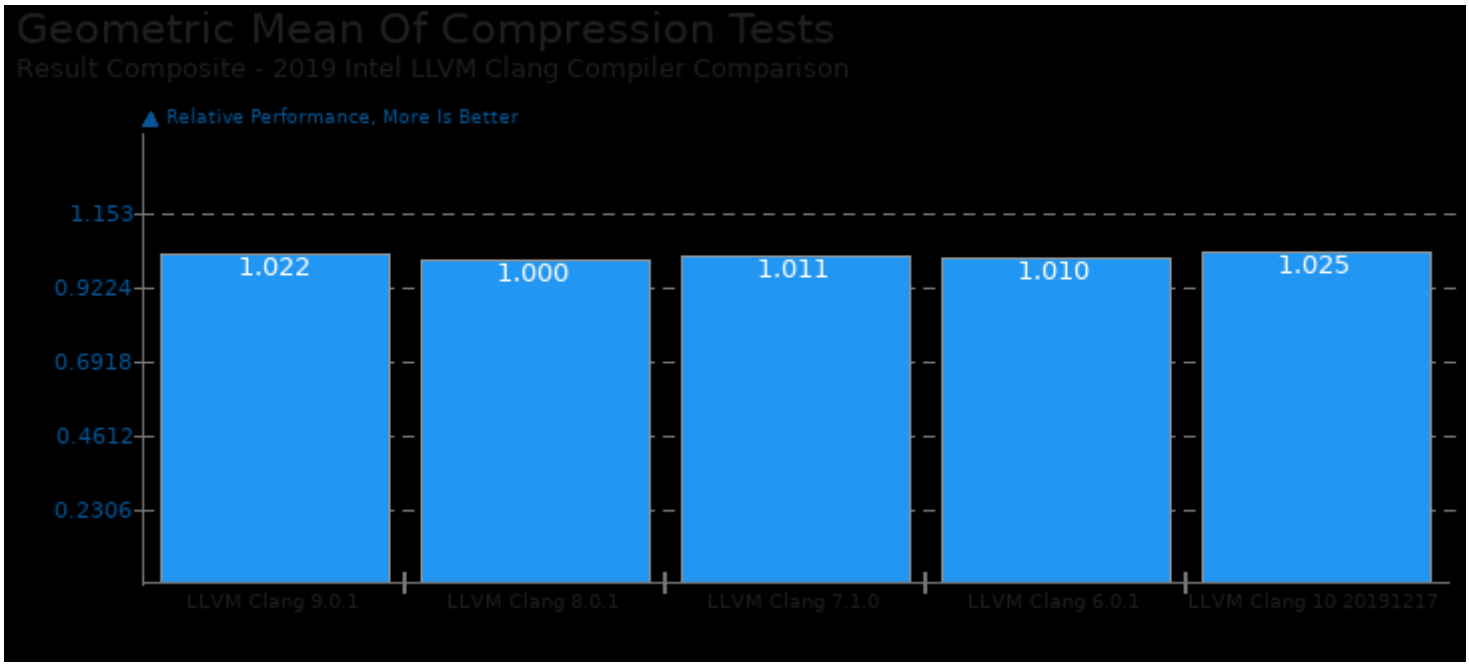


Geometric mean based upon tests: pts/himeno, pts/mrbayes and pts/hmmer

2019 Intel LLVM Clang Compiler Comparison

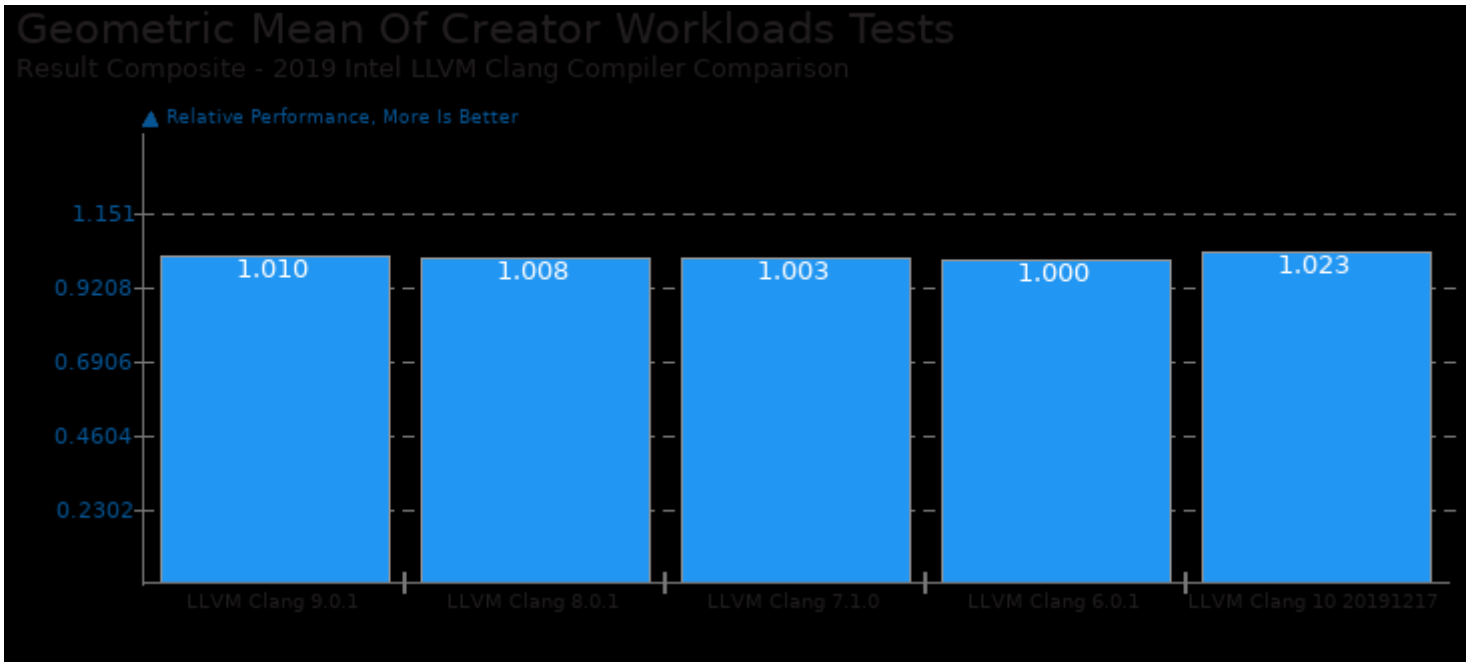


Geometric mean based upon tests: pts/tscp and pts/asmfish

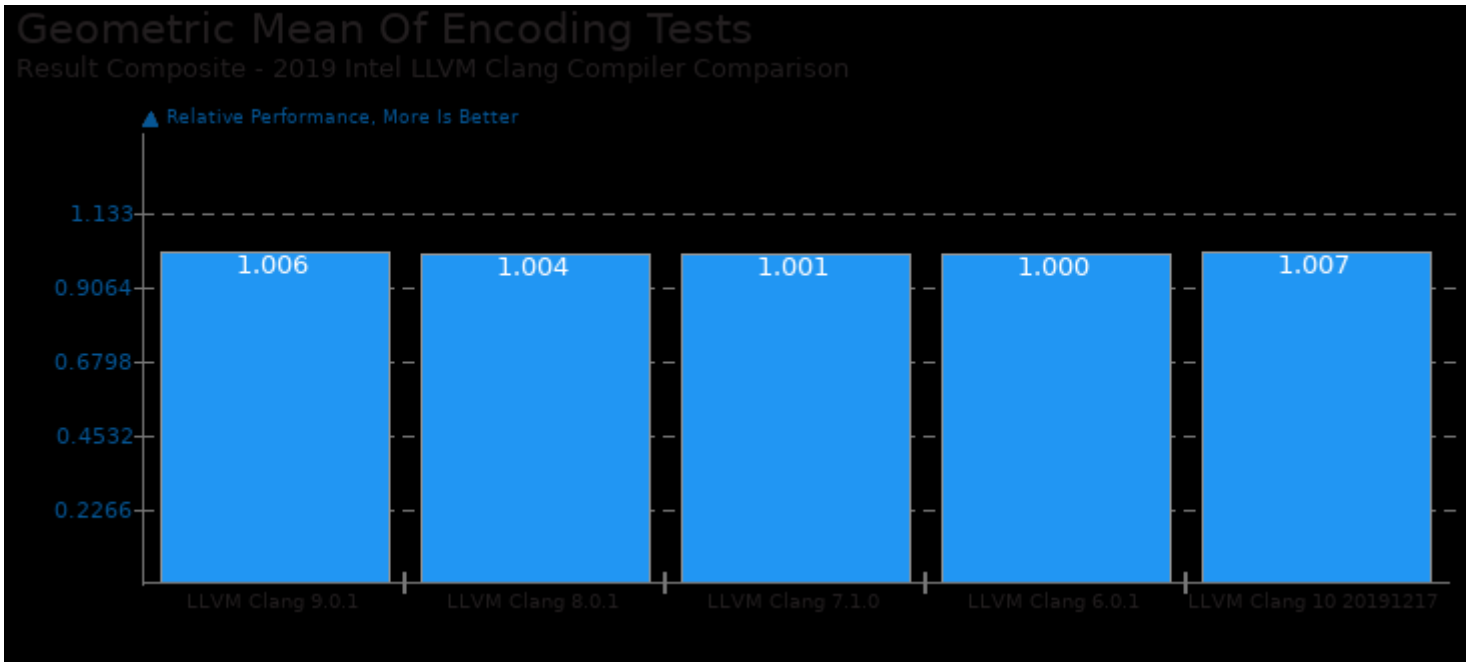


Geometric mean based upon tests: pts/compress-zstd and pts/compress-xz

2019 Intel LLVM Clang Compiler Comparison

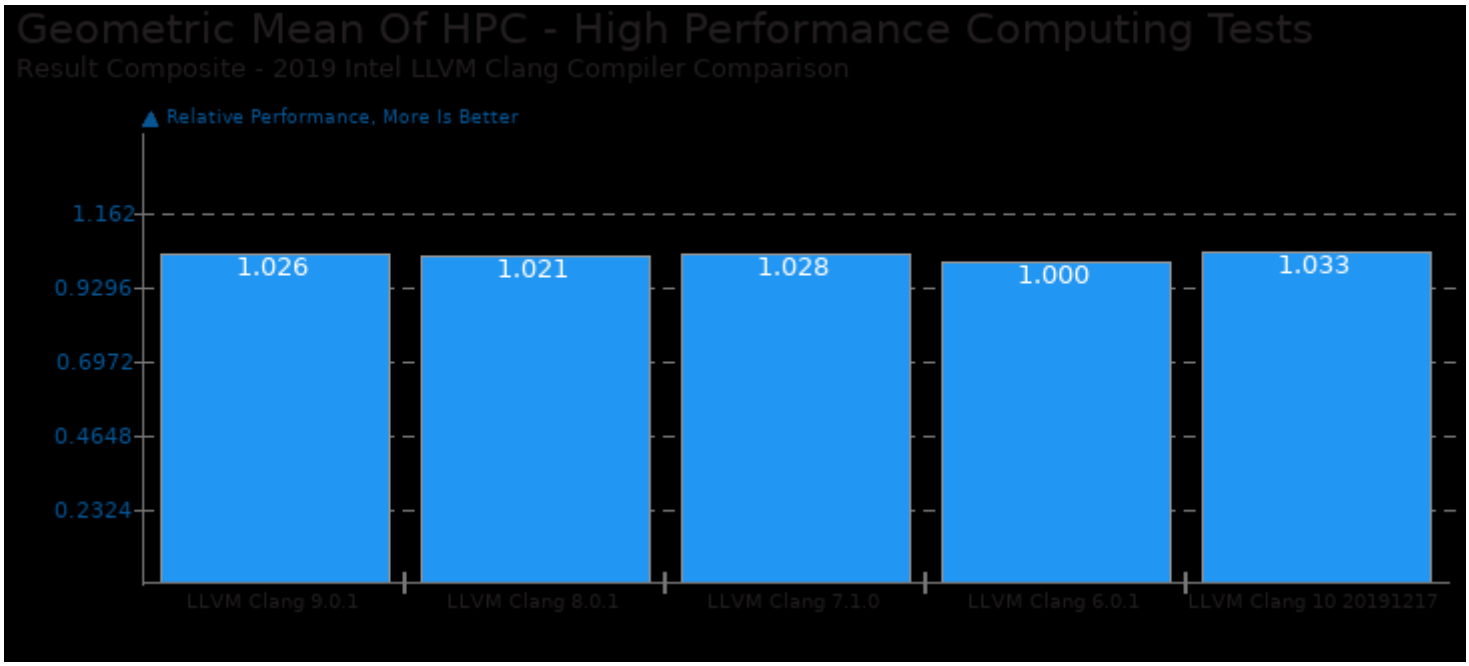


Geometric mean based upon tests: pts/c-ray, pts/tungsten, pts/aobench, pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d, pts/svt-av1, pts/libgav1, pts/graphics-magick and pts/tjbench

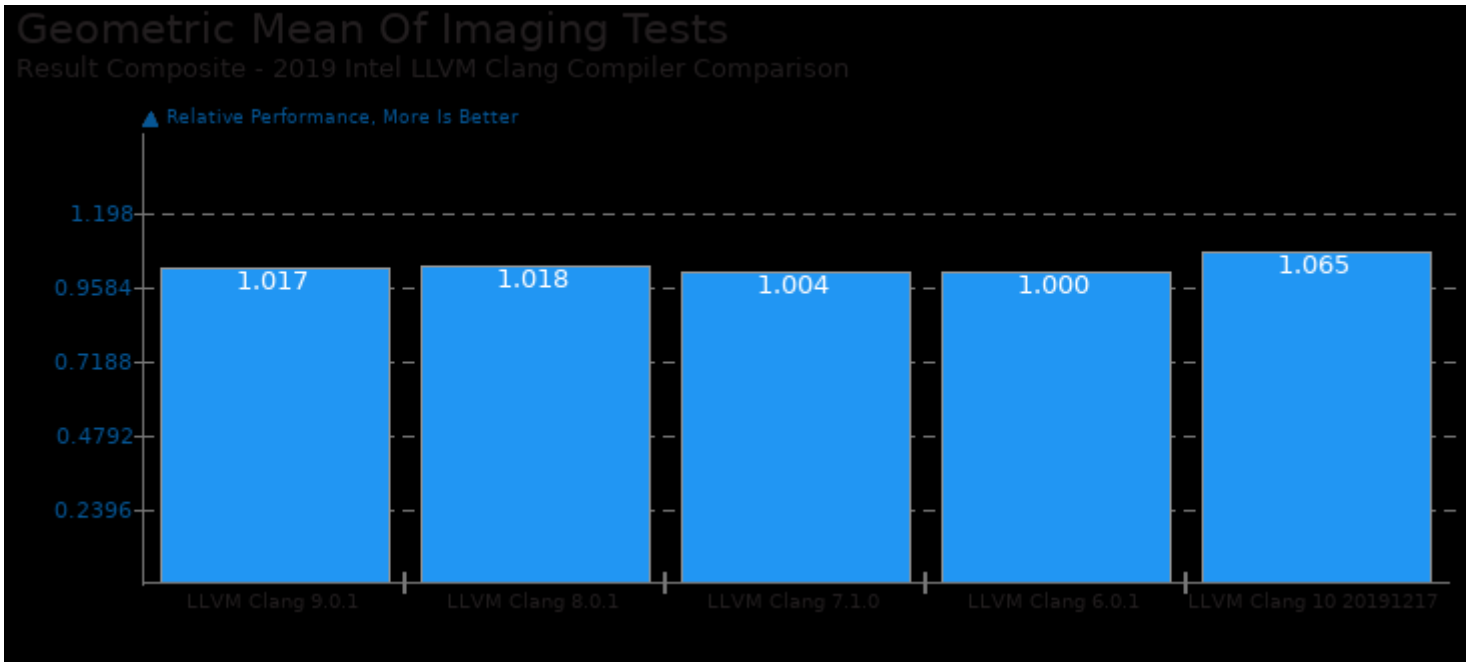


Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d, pts/svt-av1 and pts/libgav1

2019 Intel LLVM Clang Compiler Comparison

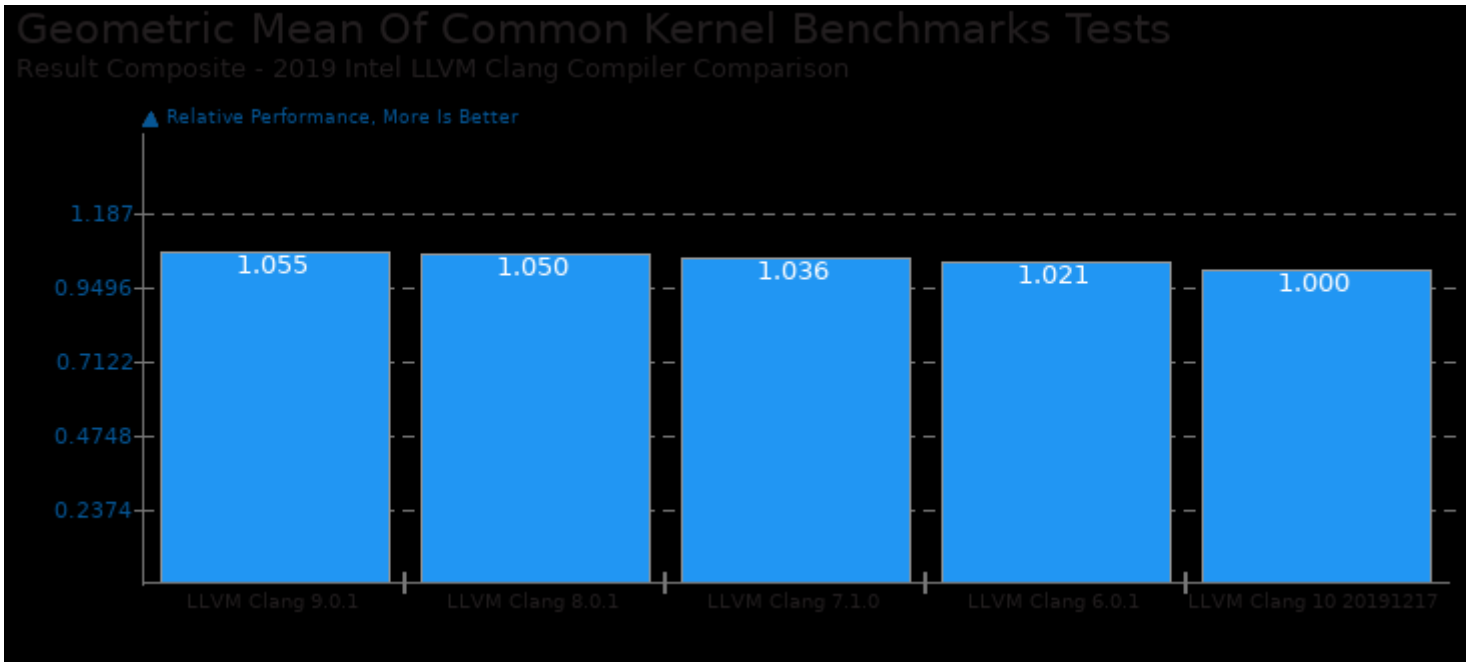


Geometric mean based upon tests: pts/himeno, pts/mrbayes and pts/hmmer

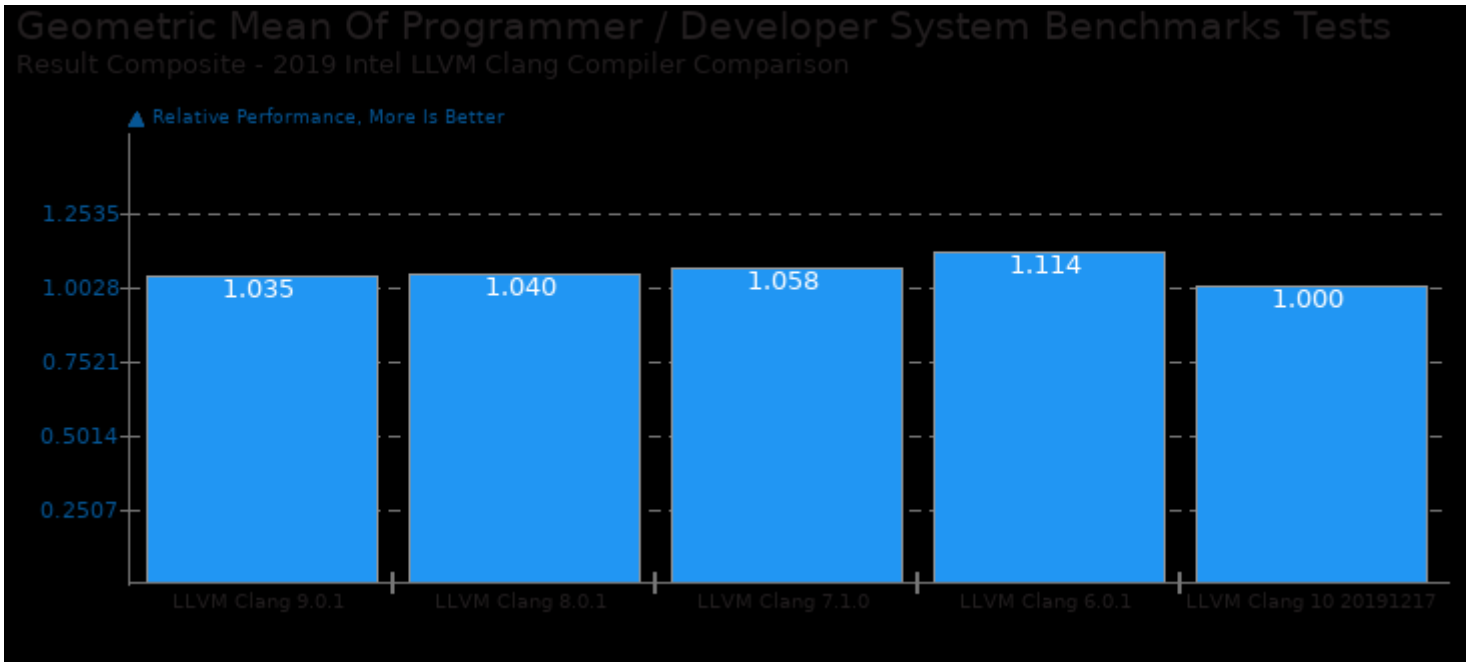


Geometric mean based upon tests: pts/graphics-magick and pts/tjbench

2019 Intel LLVM Clang Compiler Comparison

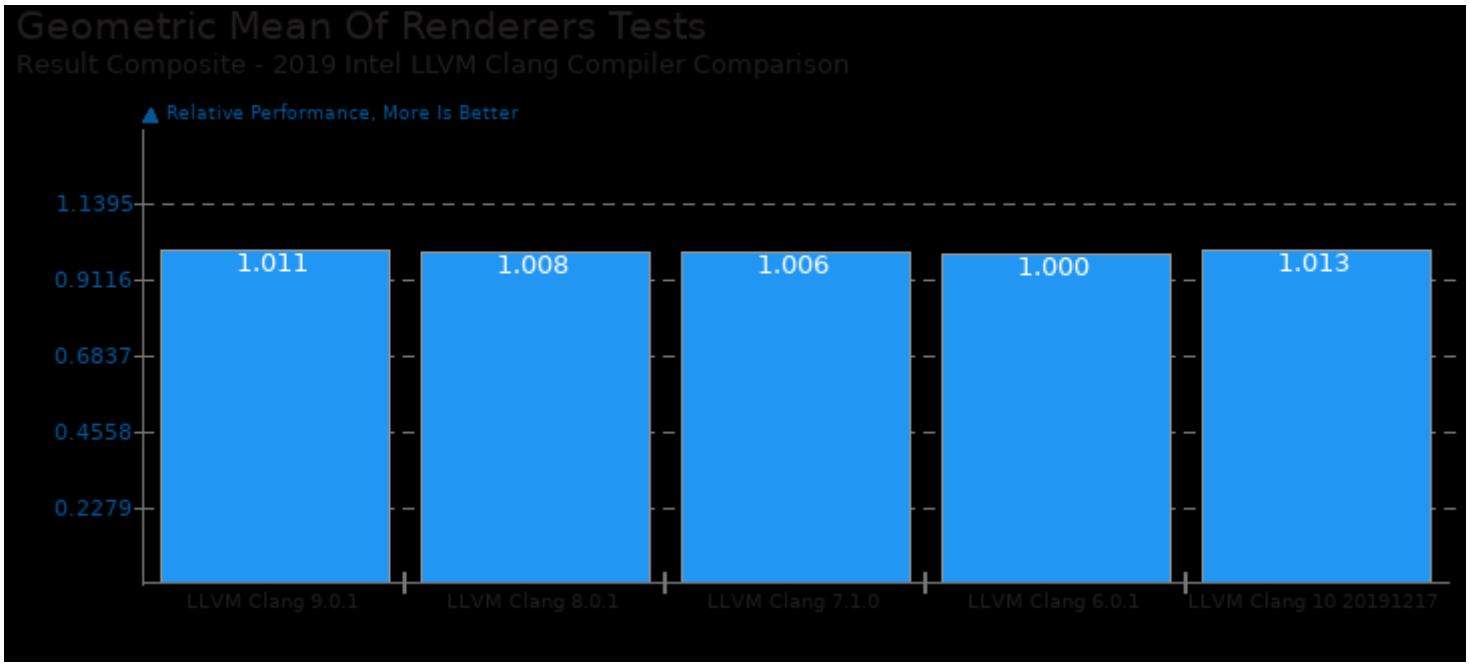


Geometric mean based upon tests: pts/apache and pts/pgbench

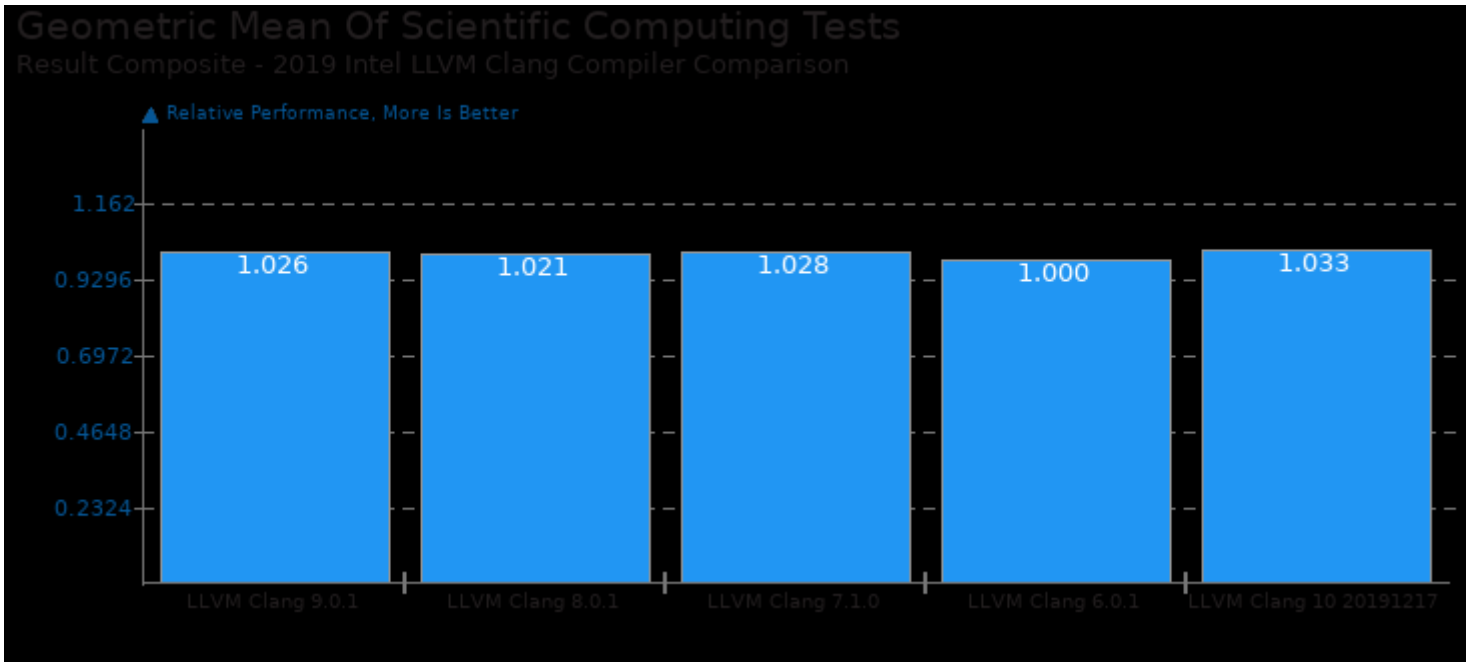


Geometric mean based upon tests: pts/compress-zstd and pts/build-php

2019 Intel LLVM Clang Compiler Comparison

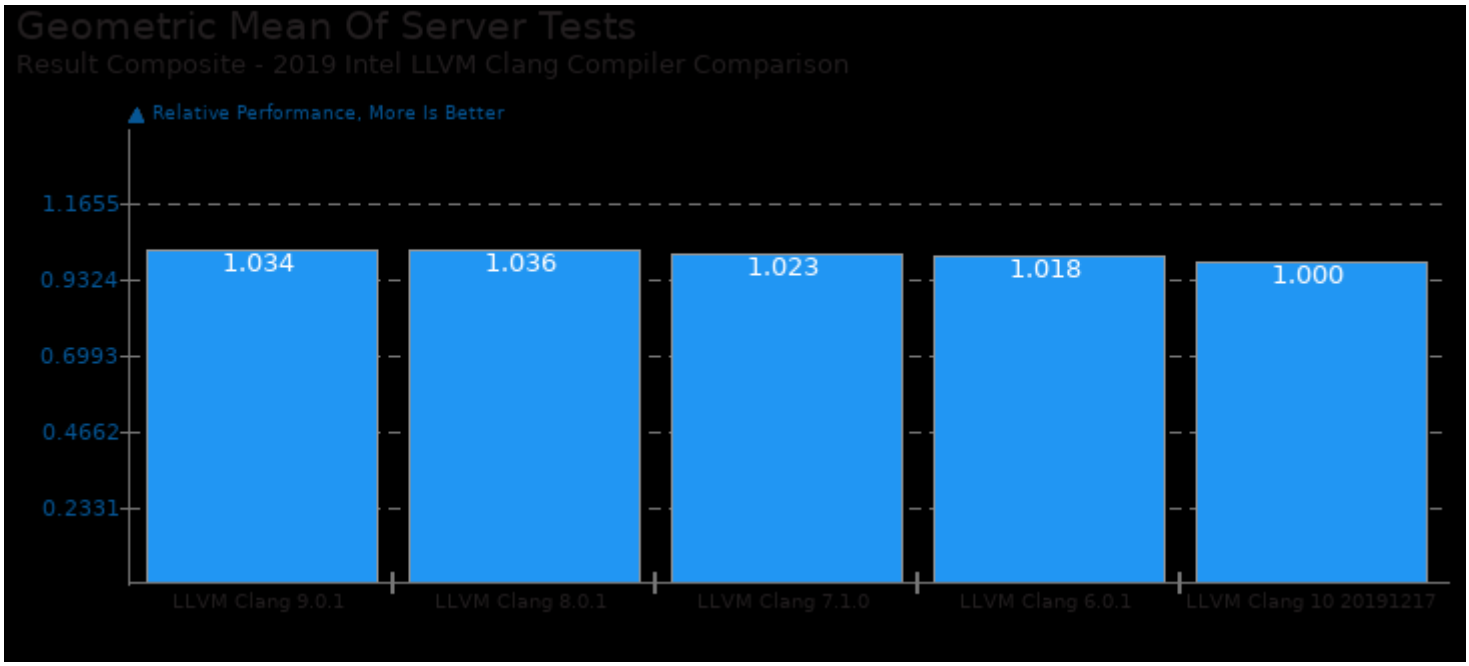


Geometric mean based upon tests: pts/c-ray, pts/tungsten and pts/aobench

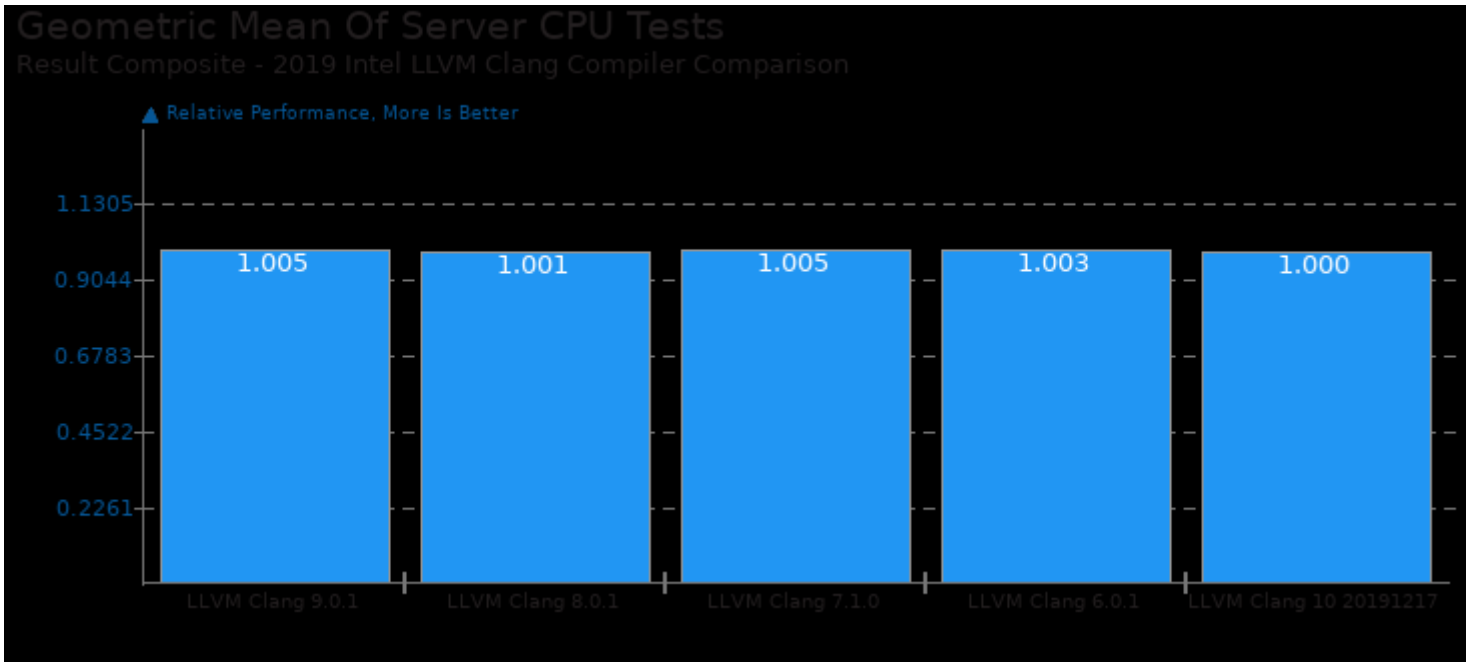


Geometric mean based upon tests: pts/himeno, pts/mrbayes and pts/hmmer

2019 Intel LLVM Clang Compiler Comparison

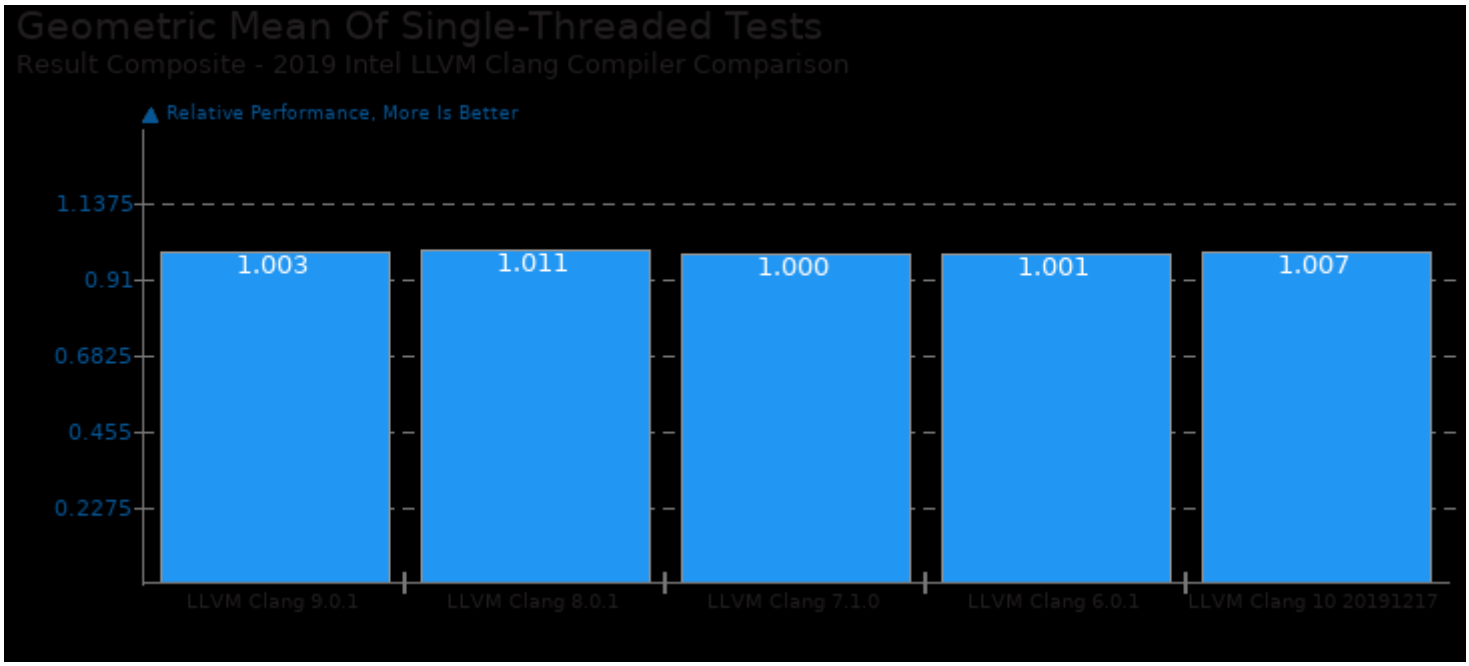


Geometric mean based upon tests: pts/apache, pts/nginx, pts/ebizzy and pts/pgbench

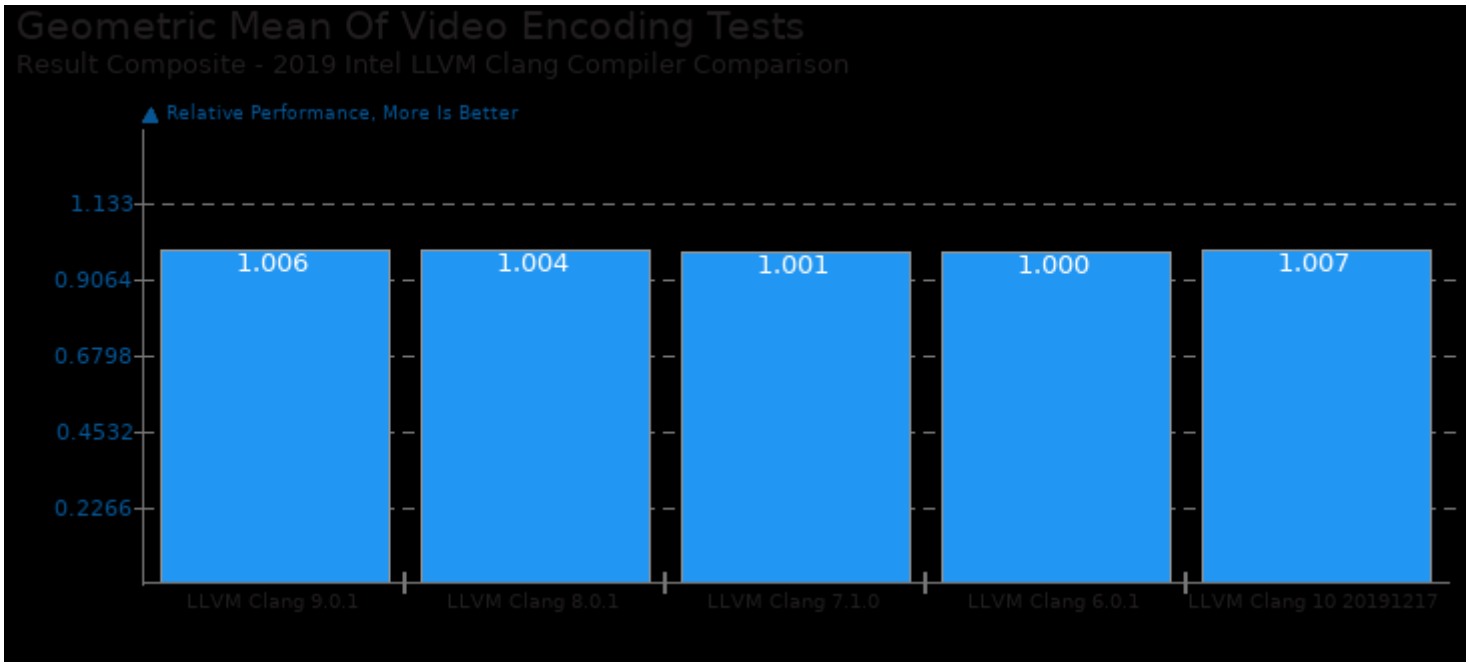


Geometric mean based upon tests: pts/john-the-ripper, pts/svt-av1, pts/svt-hevc, pts/svt-vp9, pts/x264, pts/x265, pts/dav1d, pts/himeno, pts/asmfish, pts/build-php, pts/c-ray, pts/compress-zstd and pts/tjbench

2019 Intel LLVM Clang Compiler Comparison

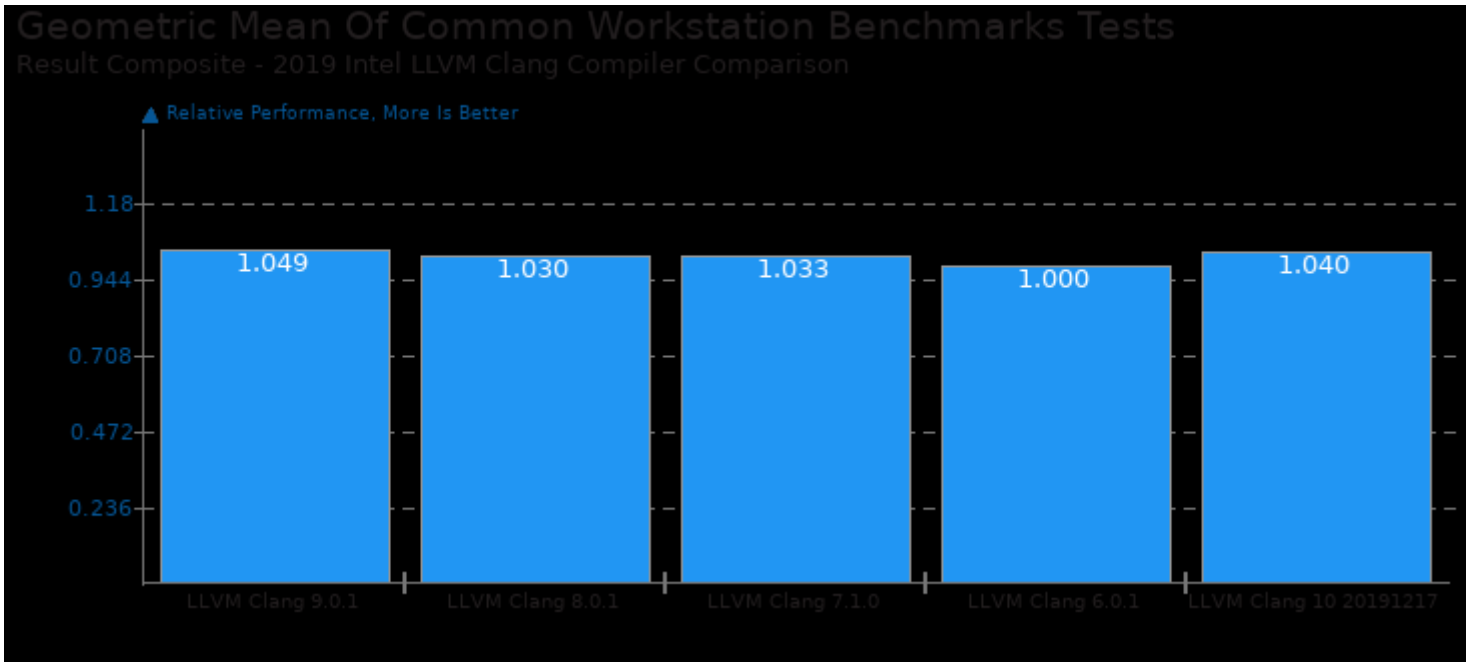


Geometric mean based upon tests: pts/scimark2, pts/minion, pts/tjbench, pts/cpp-perf-bench and pts/nginx



Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/vpxenc, pts/dav1d, pts/svt-av1 and pts/libgav1

2019 Intel LLVM Clang Compiler Comparison



Geometric mean based upon tests: pts/himeno and pts/x265

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 12:27.