



gcc-znver3-first-run-on-ryzen-5950x

Tests for a future article.

Automated Executive Summary

znver3 had the most wins, coming in first place for 75% of the tests.

Based on the geometric mean of all complete results, the fastest (znver3) was 1.039x the speed of the slowest (x86-64).

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

GraphicsMagick (Operation: Sharpen) at 1.662x

dav1d (Video Input: Chimera 1080p 10-bit) at 1.392x

SciMark (Computational Test: Dense LU Matrix Factorization) at 1.343x

SciMark (Computational Test: Jacobi Successive Over-Relaxation) at 1.259x

C-Ray (Total Time - 4K, 16 Rays Per Pixel) at 1.238x

SciMark (Computational Test: Composite) at 1.219x

GraphicsMagick (Operation: Enhanced) at 1.17x

LibRaw (Post-Processing Benchmark) at 1.161x

GraphicsMagick (Operation: Resizing) at 1.119x

ACES DGEMM (Sustained Floating-Point Rate) at 1.114x.

Test Systems:

znver3

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (2311 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 2000GB Corsair Force MP600 + 2000GB, Graphics: NVIDIA GeForce RTX 3060 Ti 8GB (1665/7000MHz), Audio: NVIDIA Device 228b, Monitor: ASUS MG28U, Network: Realtek RTL8125 2.5GbE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.4.0-54-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 455.45.01, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.1.114, Vulkan: 1.2.142, Compiler: GCC 11.0.0 20201203, File-System: ext4, Screen Resolution: 3840x2160

Environment Notes: CXXFLAGS="-O3 -march=znver3" CFLAGS="-O3 -march=znver3"
 Compiler Notes: --disable-multilib --enable-checking=release
 Disk Notes: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
 OpenCL Notes: GPU Compute Cores: 4864
 Python Notes: Python 2.7.18 + Python 3.8.5
 Security Notes: itlb_multihit: Not affected + 11tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps 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

x86-64

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (2311 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 2000GB Corsair Force MP600 + 2000GB, Graphics: NVIDIA GeForce RTX 3060 Ti 8GB (360/810MHz), Audio: NVIDIA Device 228b, Monitor: ASUS MG28U, Network: Realtek RTL8125 2.5GbE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.4.0-54-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 455.45.01, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.1.114, Vulkan: 1.2.142, Compiler: GCC 11.0.0 20201203, File-System: ext4, Screen Resolution: 3840x2160

Environment Notes: CXXFLAGS="-O3 -march=x86-64" CFLAGS="-O3 -march=x86-64"
 Compiler Notes: --disable-multilib --enable-checking=release
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
 OpenCL Notes: GPU Compute Cores: 4864
 Security Notes: itlb_multihit: Not affected + 11tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps 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

	znver3	x86-64
C-Blosc - blosclz (MB/s)	14710	14700
Normalized	100%	99.93%
Standard Deviation	0.6%	0.6%
CloverLeaf - L.E.H (sec)	3.86	3.86
Standard Deviation	0.3%	0.8%
Nebular Empirical Analysis Tool (sec)	9.607	9.662
Normalized	100%	99.43%
Standard Deviation	0.1%	1.2%
FFTE - N.2.3.C.F.R (MFLOPS)	39809	39946

	Normalized	99.66%	100%
	Standard Deviation	0.6%	0.1%
FFTW - Float + SSE - 1D FFT Size 4096 (Mflops)		70884	
	Standard Deviation	1.7%	
FFTW - Float + SSE - 2D FFT Size 4096 (Mflops)		29114	
	Standard Deviation	0.5%	
Timed MAFFT Alignment - M.S.A - LSU RNA (sec)		6.926	6.970
	Normalized	100%	99.37%
	Standard Deviation	1.2%	1.6%
Monte Carlo Simulations of Ionised Nebulae - Dust 2D		181	181
	tau100.0 (sec)		
	Standard Deviation	2%	1.6%
WebP Image Encode - Default (Encode Time - sec)		1.035	1.028
	Normalized	99.32%	100%
	Standard Deviation	1%	1.7%
WebP Image Encode - Quality 100 (Encode Time - sec)		1.670	1.717
	Normalized	100%	97.26%
	Standard Deviation	2.1%	0.4%
WebP Image Encode - Q.1.L (Encode Time - sec)		13.875	13.411
	Normalized	96.66%	100%
	Standard Deviation	0.3%	0.6%
WebP Image Encode - Q.1.H.C (Encode Time - sec)		5.240	5.222
	Normalized	99.66%	100%
	Standard Deviation	0.5%	2.3%
WebP Image Encode - Q.1.L.H.C (Encode Time - sec)		28.670	27.952
	Normalized	97.5%	100%
	Standard Deviation	0.4%	0.2%
Fhourstones - C.C.4.S (Kpos / sec)		20565	20465
	Normalized	100%	99.51%
	Standard Deviation	1.2%	0.4%
Zstd Compression - 3 (MB/s)		4981	4947
	Normalized	100%	99.32%
	Standard Deviation	0.8%	0.5%
Zstd Compression - 19 (MB/s)		44.2	44.3
	Normalized	99.77%	100%
	Standard Deviation	0.1%	0.2%
SciMark - Composite (Mflops)		4463	3663
	Normalized	100%	82.06%
	Standard Deviation	0%	0.3%
SciMark - Monte Carlo (Mflops)		890.14	886.91
	Normalized	100%	99.64%
	Standard Deviation	0.1%	0.3%
SciMark - F.F.T (Mflops)		553.40	542.89
	Normalized	100%	98.1%
	Standard Deviation	0.2%	0.2%
SciMark - S.M.M (Mflops)		5091	4978
	Normalized	100%	97.77%
	Standard Deviation	0.1%	0.4%
SciMark - D.L.M.F (Mflops)		12710	9466
	Normalized	100%	74.47%
	Standard Deviation	0%	0.4%
SciMark - J.S.O.R (Mflops)		3072	2440
	Normalized	100%	79.43%
	Standard Deviation	0%	0%
LibRaw - P.P.B (Mpix/sec)		76.04	65.48

	Normalized	100%	86.11%
	Standard Deviation	0.1%	0.1%
Crafty - Elapsed Time (Nodes/s)		12060994	11828707
	Normalized	100%	98.07%
	Standard Deviation	1.7%	0.3%
TSCP - A.C.P (Nodes/s)		1950353	1936647
	Normalized	100%	99.3%
	Standard Deviation	0.2%	0.3%
GraphicsMagick - Swirl (Iterations/min)		1148	1103
	Normalized	100%	96.08%
	Standard Deviation	0.6%	0.5%
GraphicsMagick - Rotate (Iterations/min)		948	939
	Normalized	100%	99.05%
	Standard Deviation	0.2%	0.4%
GraphicsMagick - Sharpen (Iterations/min)		374	225
	Normalized	100%	60.16%
	Standard Deviation	0.5%	0.5%
GraphicsMagick - Enhanced (Iterations/min)		447	382
	Normalized	100%	85.46%
	Standard Deviation	0.2%	0.3%
GraphicsMagick - Resizing (Iterations/min)		2025	1809
	Normalized	100%	89.33%
	Standard Deviation	0.4%	0.4%
GraphicsMagick - Noise-Gaussian (Iterations/min)		429	421
	Normalized	100%	98.14%
	Standard Deviation	0.3%	
GraphicsMagick - HWB Color Space (Iterations/min)		1049	1042
	Normalized	100%	99.33%
	Standard Deviation	0.6%	0.7%
dav1d - Chimera 1080p (FPS)		897.12	899.87
	Normalized	99.69%	100%
	Standard Deviation	0.6%	0.3%
dav1d - Summer Nature 4K (FPS)		242.24	242.90
	Normalized	99.73%	100%
	Standard Deviation	0.3%	0.6%
dav1d - S.N.1 (FPS)		923.65	939.57
	Normalized	98.31%	100%
	Standard Deviation	2.2%	0.9%
dav1d - C.1.1.b (FPS)		263.97	189.62
	Normalized	100%	71.83%
	Standard Deviation	0.6%	0.2%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)		1029	1015
	Normalized	100%	98.57%
	Standard Deviation	0.4%	0.3%
AOM AV1 - Speed 4 Two-Pass (FPS)		3.66	3.62
	Normalized	100%	98.91%
	Standard Deviation	0.4%	0.4%
AOM AV1 - Speed 6 Realtime (FPS)		35.91	35.40
	Normalized	100%	98.58%
	Standard Deviation	0.6%	0.4%
AOM AV1 - Speed 6 Two-Pass (FPS)		5.73	5.70
	Normalized	100%	99.48%
	Standard Deviation	1%	0.3%
AOM AV1 - Speed 8 Realtime (FPS)		64.13	62.44
	Normalized	100%	97.36%

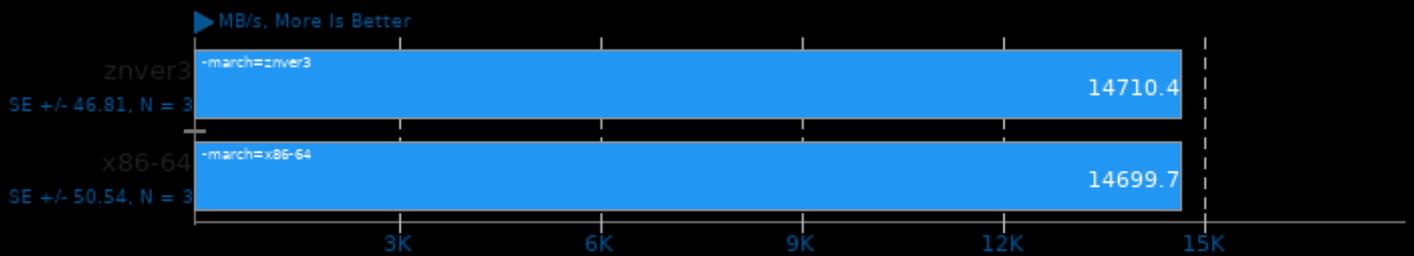
	Standard Deviation	1.5%	0.7%
Kvazaar - Bosphorus 4K - Medium (FPS)		11.89	11.88
	Normalized	100%	99.92%
	Standard Deviation	0.5%	0.4%
Kvazaar - Bosphorus 1080p - Medium (FPS)		47.40	47.49
	Normalized	99.81%	100%
	Standard Deviation	0.3%	0.3%
Kvazaar - Bosphorus 4K - Very Fast (FPS)		30.80	30.65
	Normalized	100%	99.51%
	Standard Deviation	0.2%	0.1%
Kvazaar - Bosphorus 4K - Ultra Fast (FPS)		55.82	55.07
	Normalized	100%	98.66%
	Standard Deviation	0.3%	0.3%
Kvazaar - Bosphorus 1080p - Very Fast (FPS)		113.44	113.15
	Normalized	100%	99.74%
	Standard Deviation	0.3%	0.3%
Kvazaar - Bosphorus 1080p - Ultra Fast (FPS)		203.08	202.43
	Normalized	100%	99.68%
	Standard Deviation	0.7%	0.2%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)		7.019	6.993
	Normalized	100%	99.63%
	Standard Deviation	0.6%	0.6%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)		61.311	61.265
	Normalized	100%	99.92%
	Standard Deviation	0.4%	0.5%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)		234.19	237.71
	Normalized	98.52%	100%
	Standard Deviation	2.9%	3.1%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)		225.97	227.85
	Normalized	99.17%	100%
	Standard Deviation	0.6%	0.6%
VP9 libvpx Encoding - Speed 0 (FPS)		10.76	10.17
	Normalized	100%	94.52%
	Standard Deviation	0.3%	0.4%
VP9 libvpx Encoding - Speed 5 (FPS)		39.13	36.03
	Normalized	100%	92.08%
	Standard Deviation	0.2%	0.4%
x265 - Bosphorus 4K (FPS)		27.77	27.71
	Normalized	100%	99.78%
	Standard Deviation	0.2%	0.4%
x265 - Bosphorus 1080p (FPS)		90.66	90.09
	Normalized	100%	99.37%
	Standard Deviation	0.7%	0.6%
ACES DGEMM - S.F.P.R (GFLOP/s)		8.972347	8.054180
	Normalized	100%	89.77%
	Standard Deviation	2.6%	1.6%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)		837788	783952
	Normalized	100%	93.57%
	Standard Deviation	1.1%	0.1%
Himeno Benchmark - P.P.S (MFLOPS)		5240	5256
	Normalized	99.71%	100%
	Standard Deviation	5.9%	5%
7-Zip Compression - C.S.T (MIPS)		95534	95785
	Normalized	99.74%	100%
	Standard Deviation	0.1%	0.1%

libavif avifenc - 8 (sec)	4.270	4.289
Normalized	100%	99.56%
Standard Deviation	0.8%	0.6%
libavif avifenc - 10 (sec)	4.123	4.09
Normalized	99.2%	100%
Standard Deviation	0.2%	0.8%
C-Ray - Total Time - 4.1.R.P.P (sec)	25.202	31.212
Normalized	100%	80.74%
Standard Deviation	0.5%	0.5%
Smallpt - G.I.R.1.S (sec)	4.627	5.059
Normalized	100%	91.46%
Standard Deviation	0.2%	0.3%
AOBench - 2048 x 2048 - Total Time (sec)	25.258	29.521
Normalized	100%	85.56%
Standard Deviation	0.4%	8.9%
FLAC Audio Encoding - WAV To FLAC (sec)	6.278	6.345
Normalized	100%	98.94%
Standard Deviation	0.6%	0.3%
LAME MP3 Encoding - WAV To MP3 (sec)	5.468	5.822
Normalized	100%	93.92%
Standard Deviation	0.2%	0.4%
eSpeak-NG Speech Engine - T.T.S.S (sec)	21.640	21.767
Normalized	100%	99.42%
Standard Deviation	1.4%	2.3%
m-queens - Time To Solve (sec)	30.276	30.280
Normalized	100%	99.99%
Standard Deviation	0.5%	0.6%
RNNoise (sec)	13.989	14.633
Normalized	100%	95.6%
Standard Deviation	1.6%	2.6%
Tachyon - Total Time (sec)	44.7456	44.7934
Normalized	100%	99.89%
Standard Deviation	0.7%	0.5%
OpenSSL - R.4.b.P (Signs/sec)	4821	4812
Normalized	100%	99.81%
Standard Deviation	0.1%	0.2%
Aircrack-ng (k/s)	75312	75332
Normalized	99.97%	100%
Standard Deviation	0.2%	0.2%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	267.715391	272.359830
Normalized	98.29%	100%
Standard Deviation	0.1%	0.3%
Darmstadt Automotive Parallel Heterogeneous Suite - OpenMP - NDT Mapping (Test Cases/min)	969.38	932.29
Normalized	100%	96.17%
Standard Deviation	0.7%	0.5%
Darmstadt Automotive Parallel Heterogeneous Suite - OpenMP - Points2Image (Test Cases/min)	29626	29502
Normalized	100%	99.58%
Standard Deviation	0.6%	0.6%
PostgreSQL pgbench - 1 - 1 - Read Only (TPS)	45462	45202
Normalized	100%	99.43%
Standard Deviation	0.8%	2.2%

PostgreSQL pgbench - 1 - 1 - Read Only - Average	0.022	0.022
Latency (ms)		
Standard Deviation	0%	2.6%
PostgreSQL pgbench - 1 - 1 - Read Write (TPS)	1654	1660
Normalized	99.64%	100%
Standard Deviation	0.7%	1%
PostgreSQL pgbench - 1 - 1 - Read Write - Average	0.605	0.603
Latency (ms)		
Normalized	99.67%	100%
Standard Deviation	0.7%	1%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	41.905	42.186
Normalized	100%	99.33%
Standard Deviation	1%	0.7%
Hierarchical INTegration - FLOAT (QUIPs)	539663428	521237588
Normalized	100%	96.59%
Standard Deviation	0.3%	0.5%
NGINX Benchmark - S.W.P.S (Reqs/sec)	55938	57235
Normalized	97.73%	100%
Standard Deviation	0.2%	0.2%
Apache Benchmark - S.W.P.S (Reqs/sec)	51579	51508
Normalized	100%	99.86%
Standard Deviation	0.8%	1.3%

C-Blosc 2.0 Beta 5

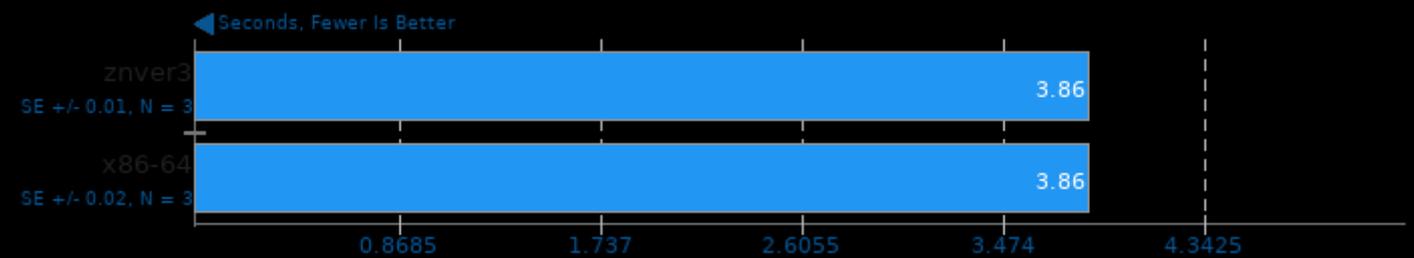
Compressor: blosclz



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

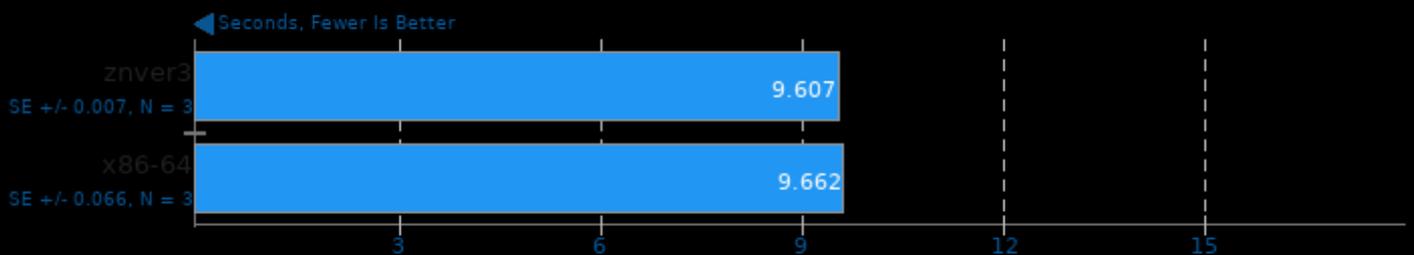
CloverLeaf

Lagrangian-Eulerian Hydrodynamics



1. (F9X) gfortran options: -O3 -march=native -funroll-loops -fopenmp

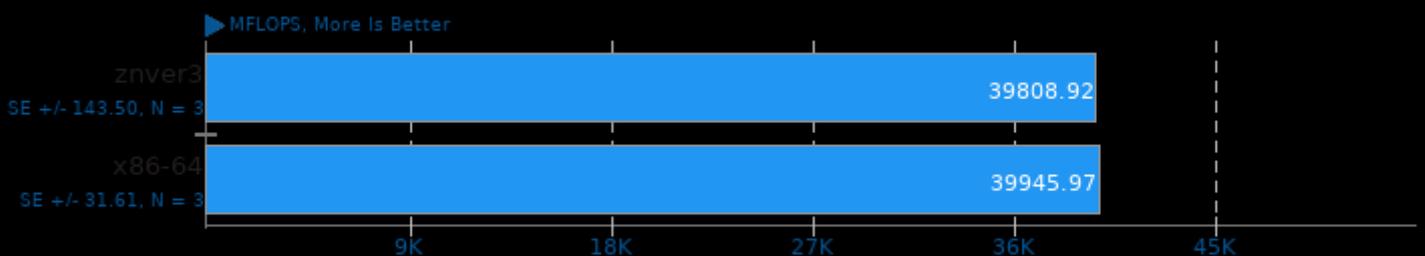
Nebular Empirical Analysis Tool 2020-02-29



1. (F9X) gfortran options: -cpp -free-line-length-0 -jsource/ -fopenmp -O3 -fno-backtrace

FFTE 7.0

N=256, 3D Complex FFT Routine



1. (F9X) gfortran options: -O3 -fomit-frame-pointer -fopenmp

FFTW 3.3.6

Build: Float + SSE - Size: 1D FFT Size 4096



1. (C) gcc options: -pthread -O3 -march=znver3 -lm

FFTW 3.3.6

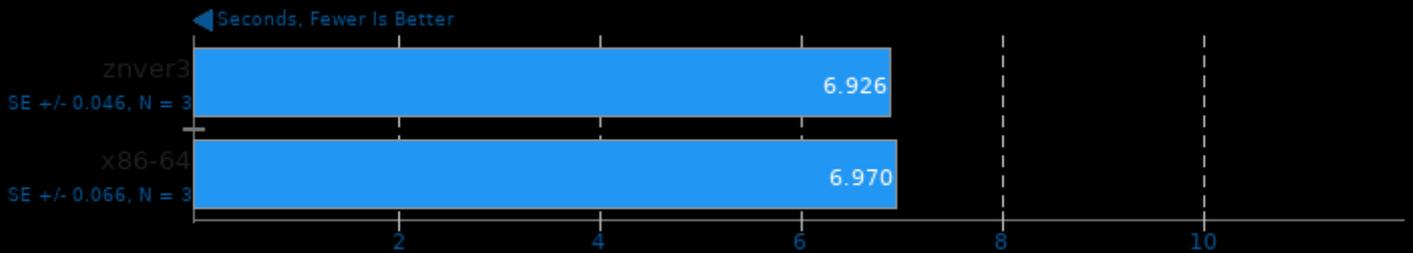
Build: Float + SSE - Size: 2D FFT Size 4096



1. (C) gcc options: -pthread -O3 -march=znver3 -lm

Timed MAFFT Alignment 7.471

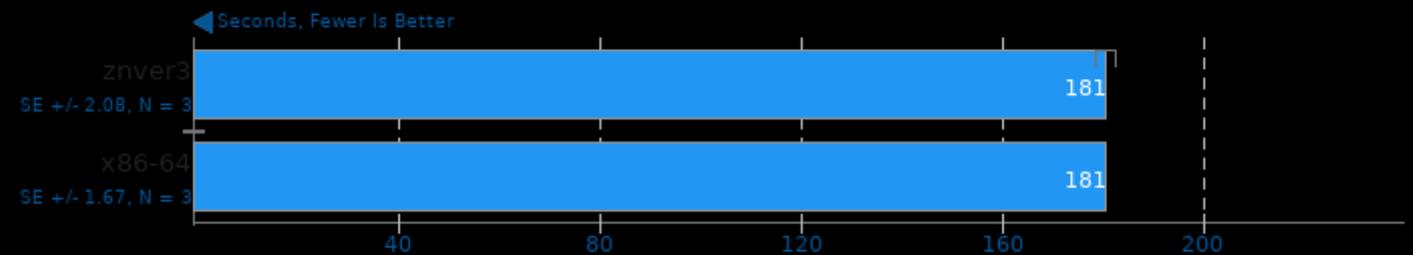
Multiple Sequence Alignment - LSU RNA



1. (C) gcc options: -std=c99 -O3 -lm -lpthread

Monte Carlo Simulations of Ionised Nebulae 2019-03-24

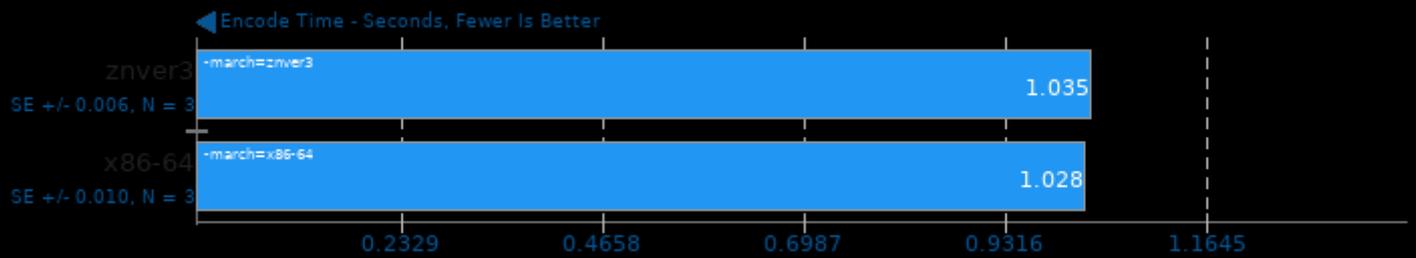
Input: Dust 2D tau100.0



1. (F9X) gfortran options: -cpp -jsource/ -ffree-line-length-0 -lm -std=legacy -O3 -O2 -pthread -mpi_usempif08 -mpi_mpifh -mpi

WebP Image Encode 1.1

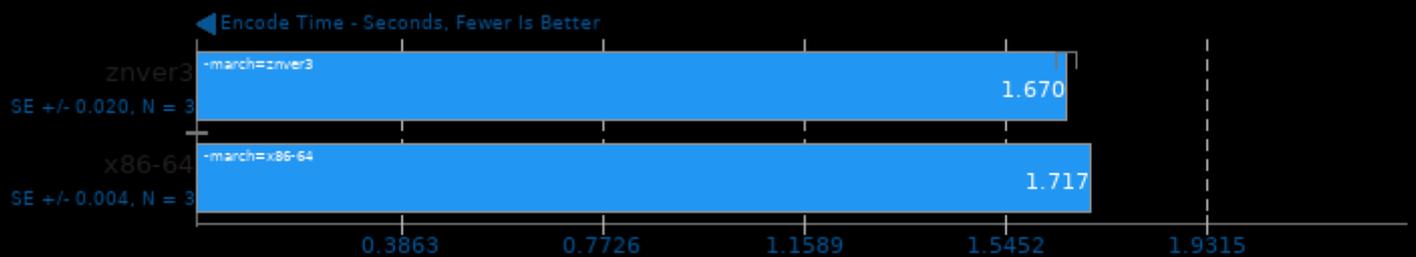
Encode Settings: Default



1. (CC) gcc options: -fvisibility=hidden -O3 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

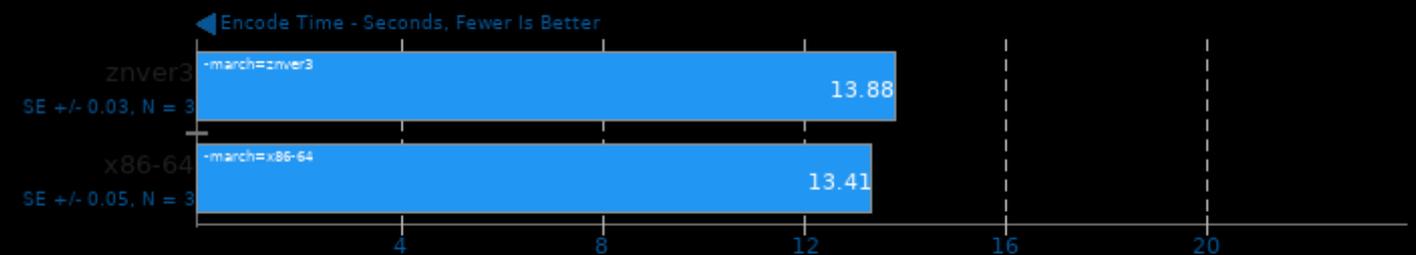
Encode Settings: Quality 100



1. (CC) gcc options: -fvisibility=hidden -O3 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

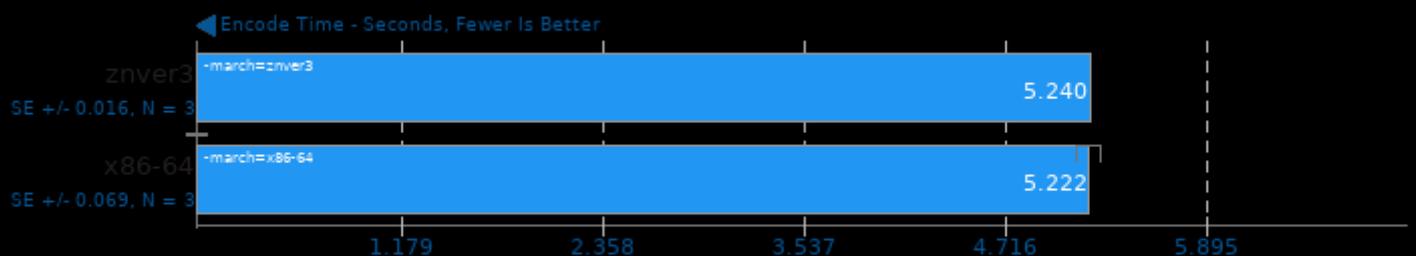
Encode Settings: Quality 100, Lossless



1. (CC) gcc options: -fvisibility=hidden -O3 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

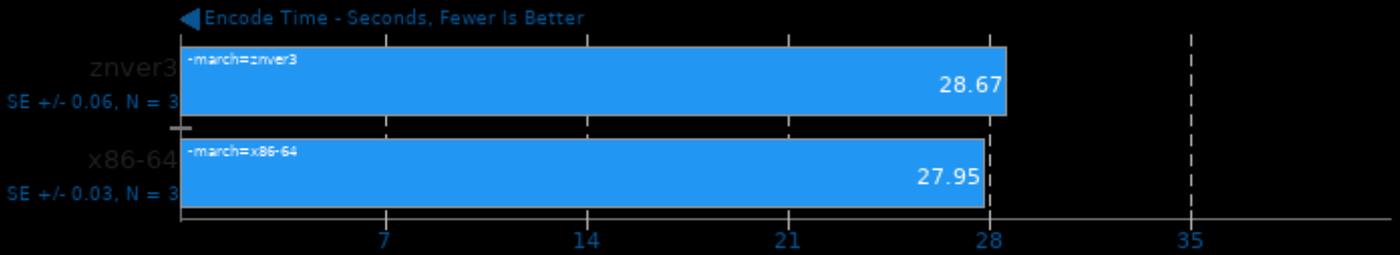
Encode Settings: Quality 100, Highest Compression



1. (CC) gcc options: -fvisibility=hidden -O3 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

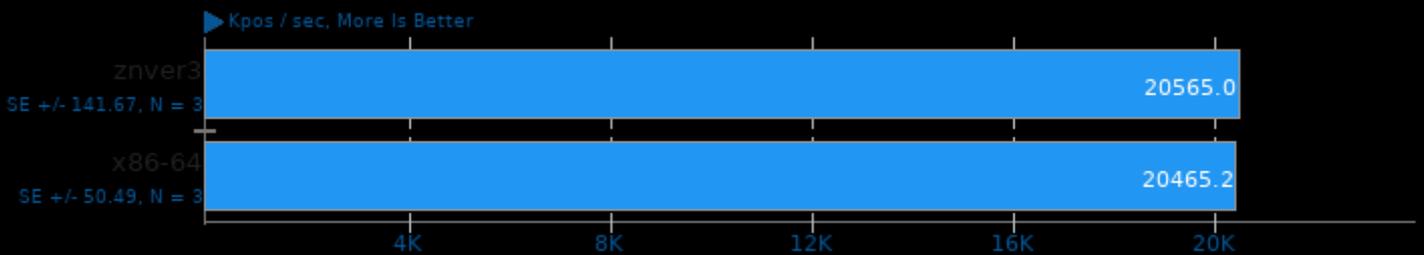
Encode Settings: Quality 100, Lossless, Highest Compression



1. (CC) gcc options: -fvisibility=hidden -O3 -pthread -lm -ljpeg -lpng16 -ltiff

Fhourstones 3.1

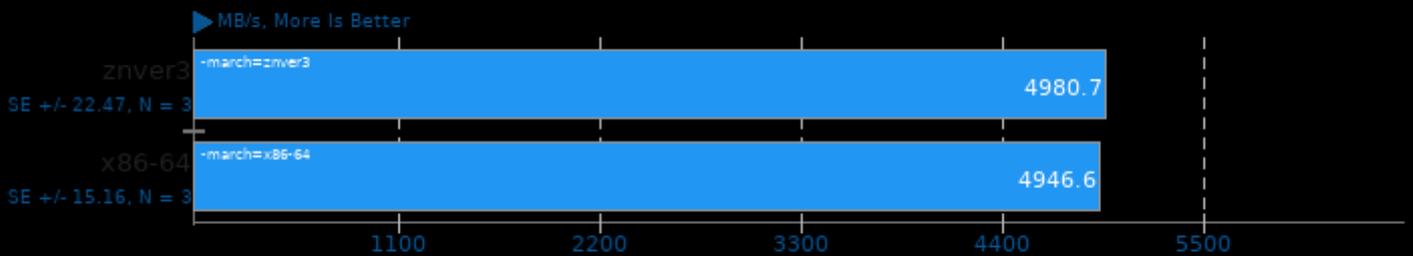
Complex Connect-4 Solving



1. (CC) gcc options: -O3

Zstd Compression 1.4.5

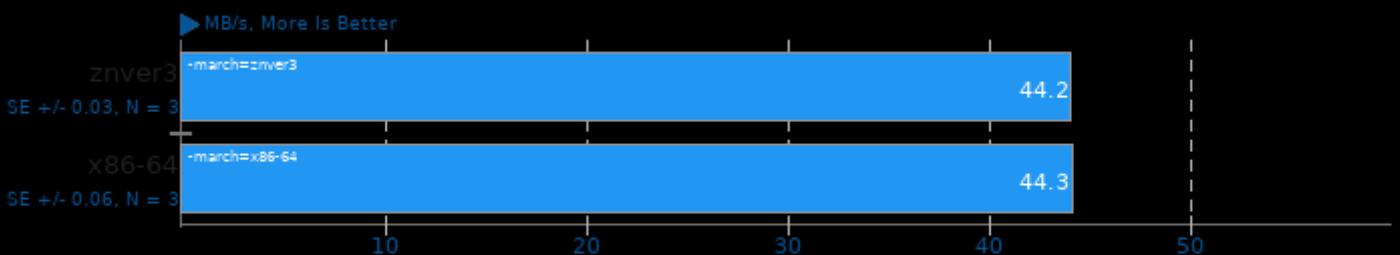
Compression Level: 3



1. (CC) gcc options: -O3 -pthread -lz -llzma

Zstd Compression 1.4.5

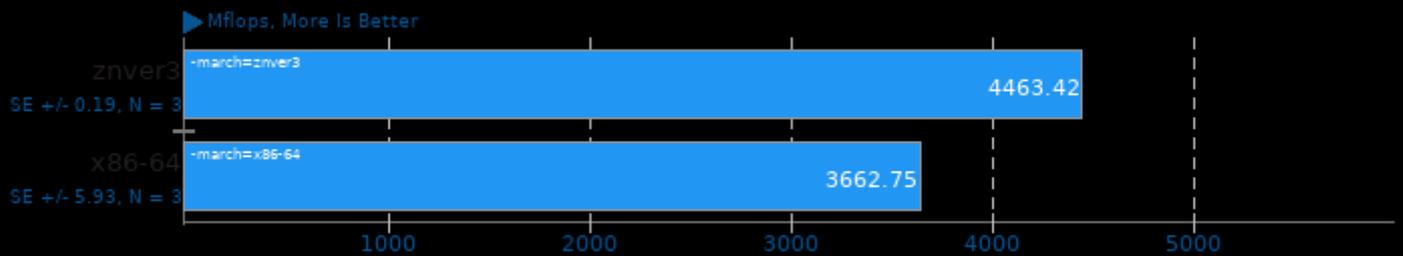
Compression Level: 19



1. (CC) gcc options: -O3 -pthread -lz -llzma

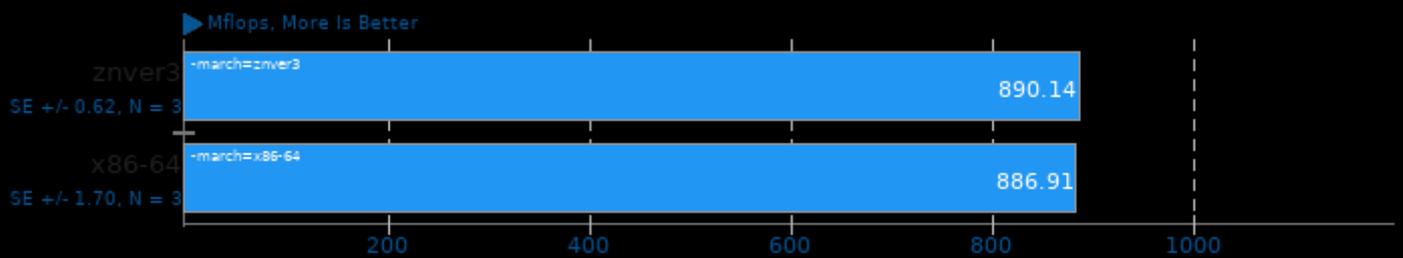
SciMark 2.0

Computational Test: Composite



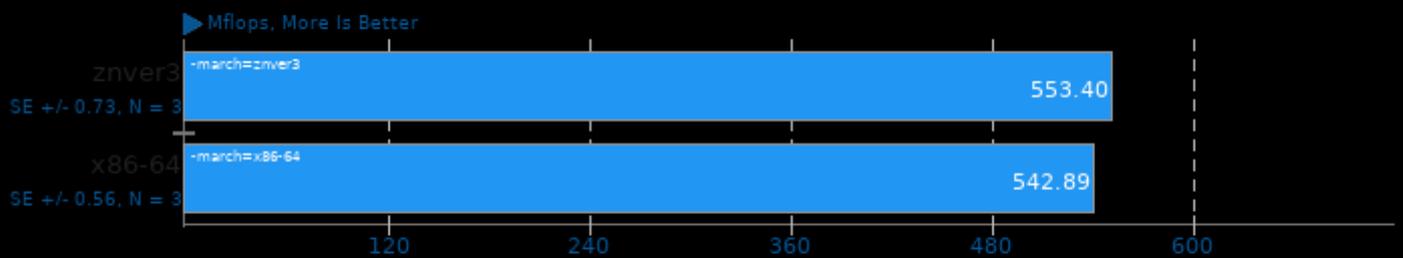
SciMark 2.0

Computational Test: Monte Carlo



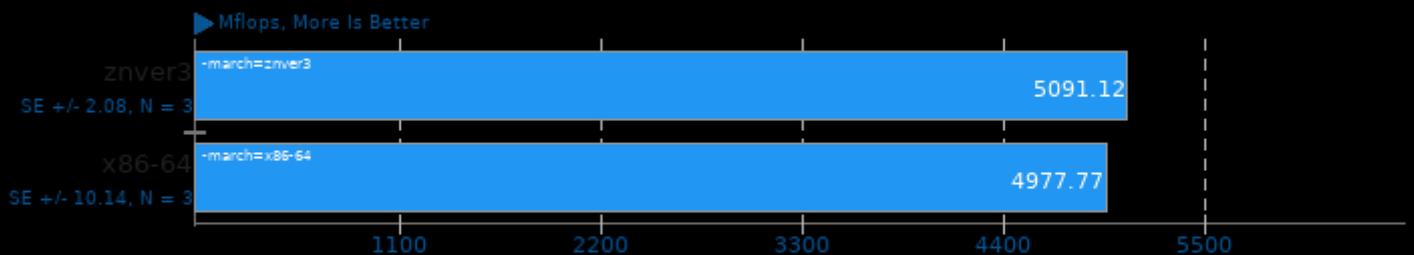
SciMark 2.0

Computational Test: Fast Fourier Transform



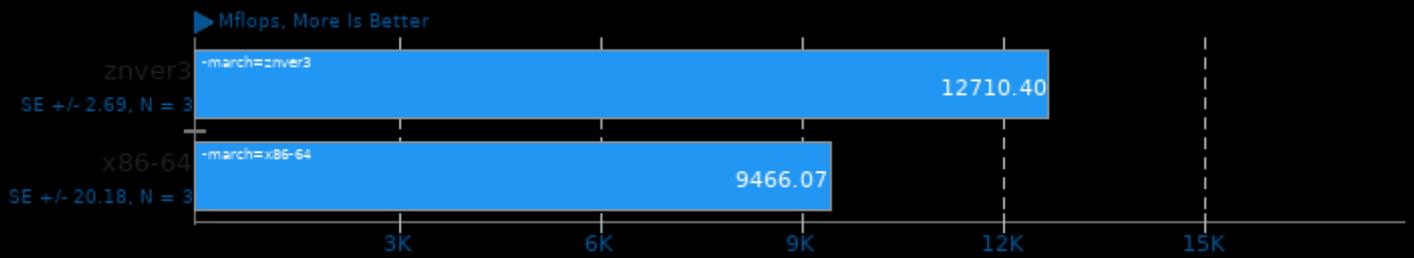
SciMark 2.0

Computational Test: Sparse Matrix Multiply



SciMark 2.0

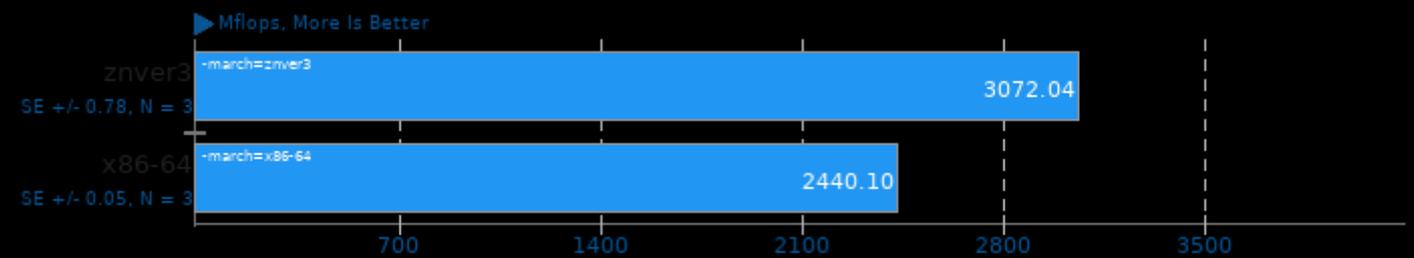
Computational Test: Dense LU Matrix Factorization



1. (CC) gcc options: -O3 -lm

SciMark 2.0

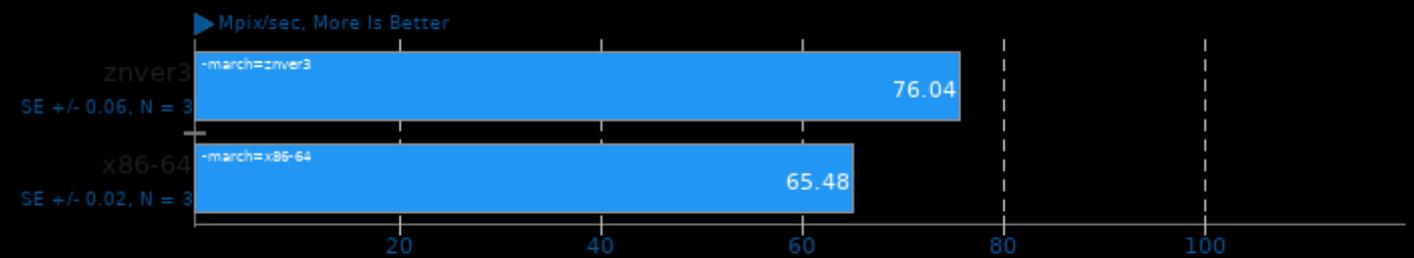
Computational Test: Jacobi Successive Over-Relaxation



1. (CC) gcc options: -O3 -lm

LibRaw 0.20

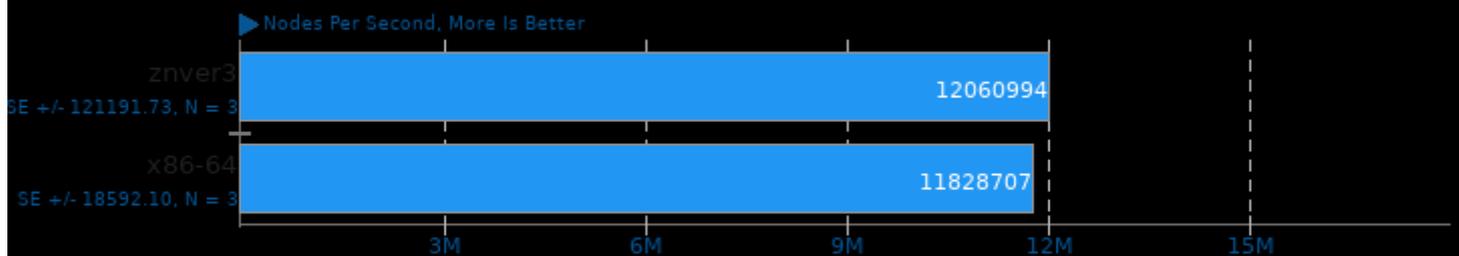
Post-Processing Benchmark



1. (CXX) g++ options: -O3 -fopenmp -ljpeg -lz -lm

Crafty 25.2

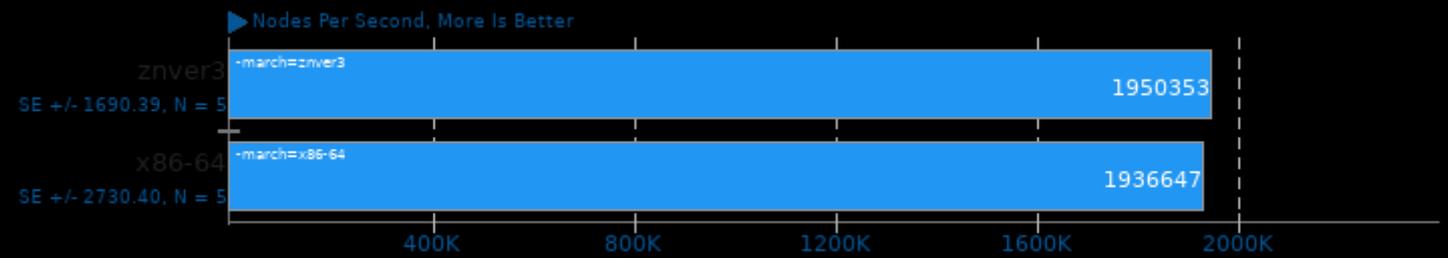
Elapsed Time



1. (CC) gcc options: -pthread -lstdc++ -fprofile-use -lm

TSCP 1.81

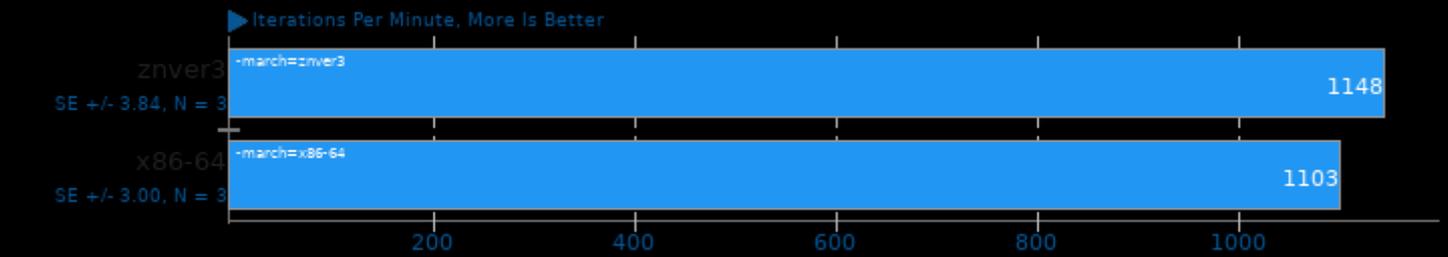
AI Chess Performance



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

GraphicsMagick 1.3.33

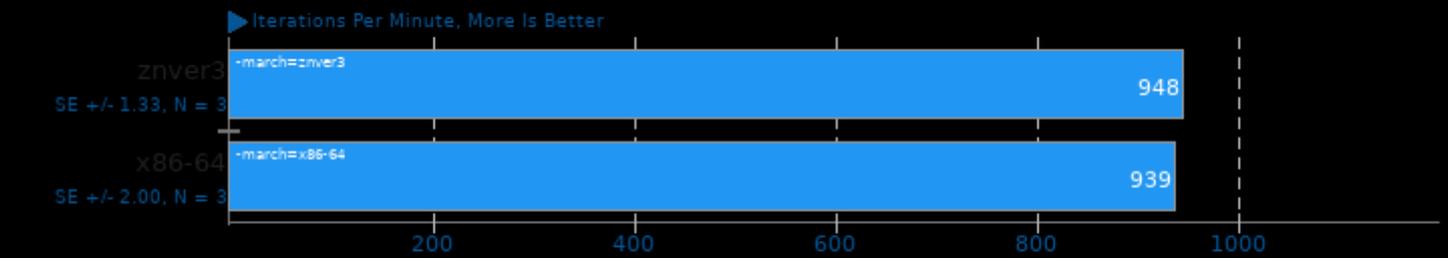
Operation: Swirl



1. (CC) gcc options: -fopenmp -O3 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

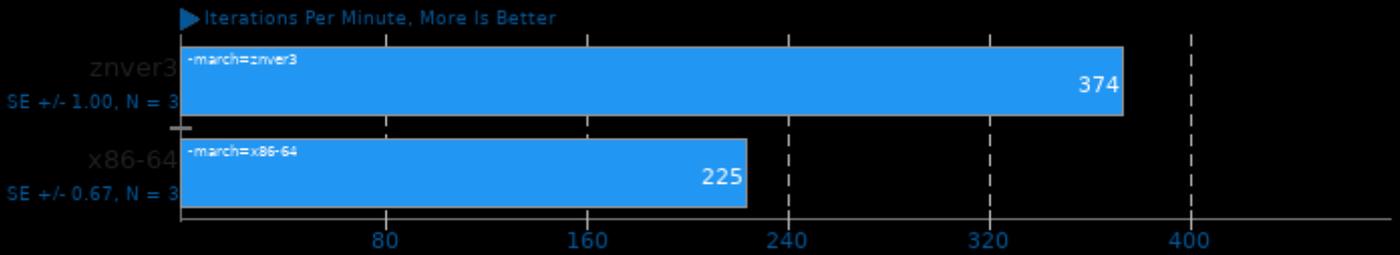
Operation: Rotate



1. (CC) gcc options: -fopenmp -O3 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

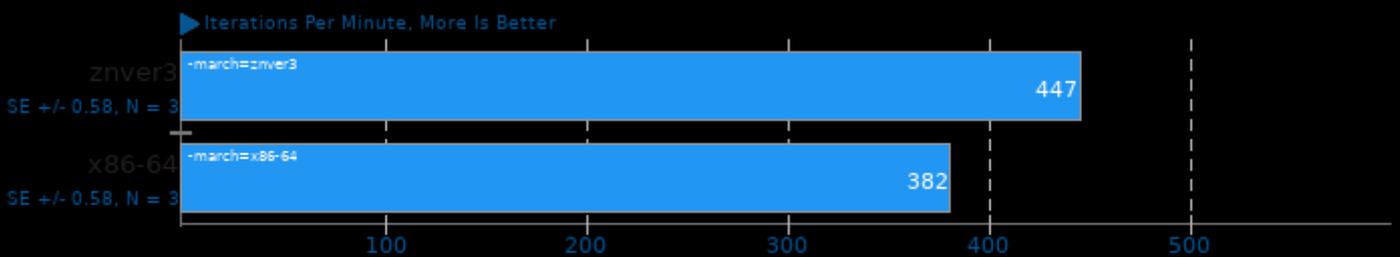
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O3 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

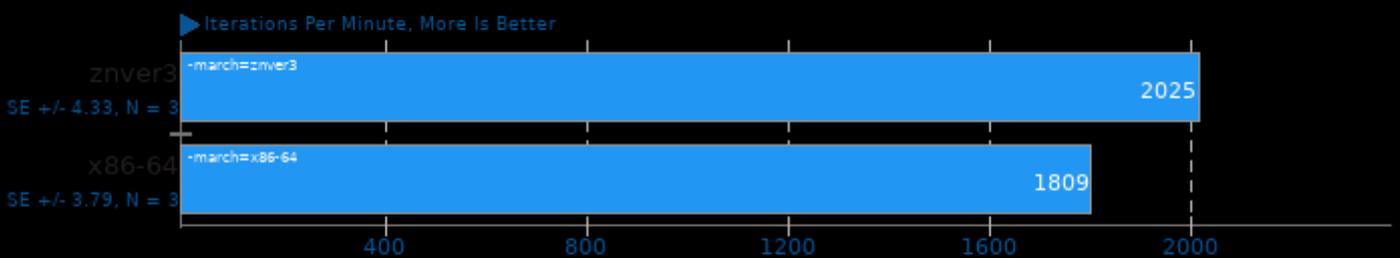
Operation: Enhanced



1. (CC) gcc options: -fopenmp -O3 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

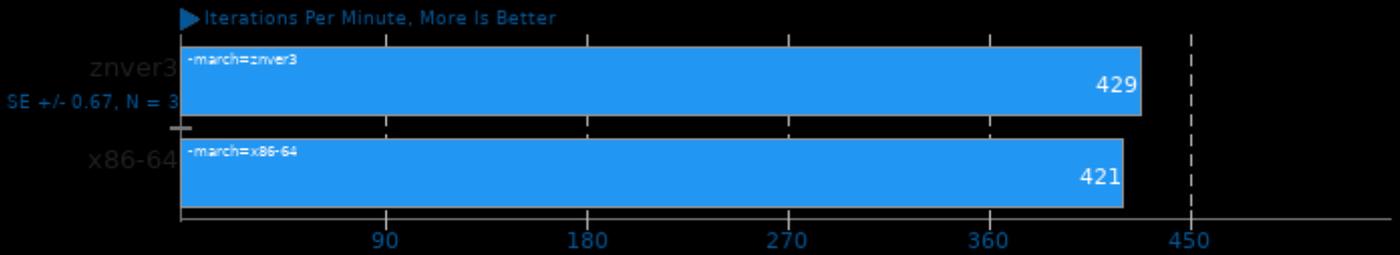
Operation: Resizing



1. (CC) gcc options: -fopenmp -O3 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

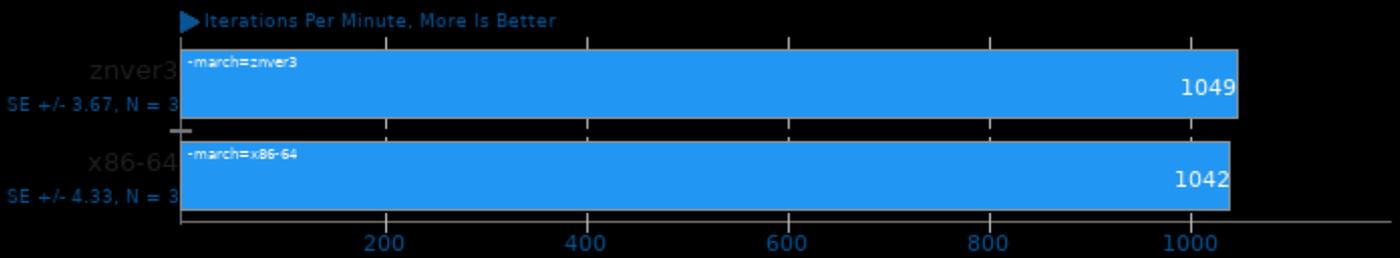
Operation: Noise-Gaussian



1. (CC) gcc options: -fopenmp -O3 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

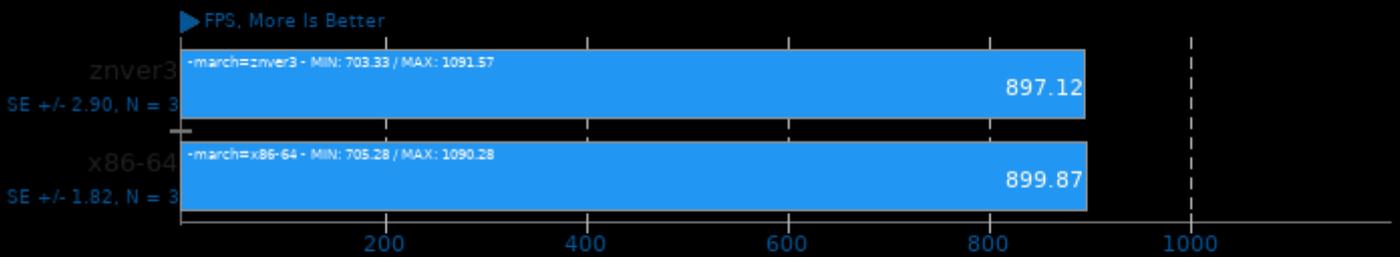
Operation: HWB Color Space



1. (CC) gcc options: -fopenmp -O3 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

dav1d 0.7.0

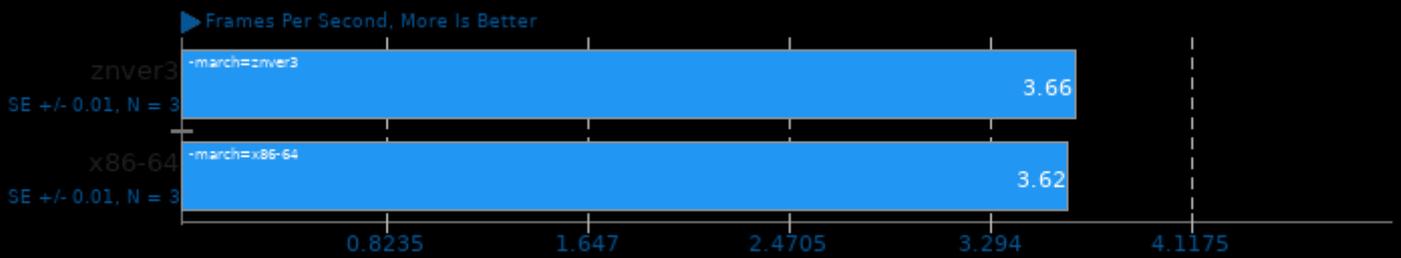
Video Input: Chimera 1080p



1. (CC) gcc options: -O3 -pthread

AOM AV1 2.0

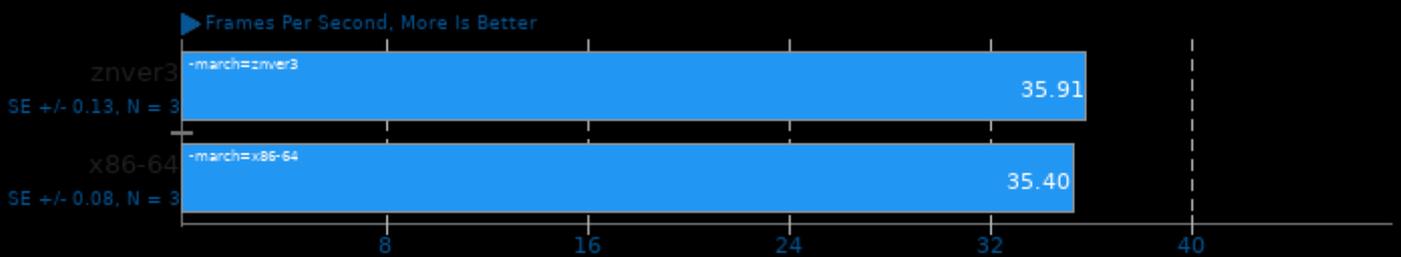
Encoder Mode: Speed 4 Two-Pass



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

AOM AV1 2.0

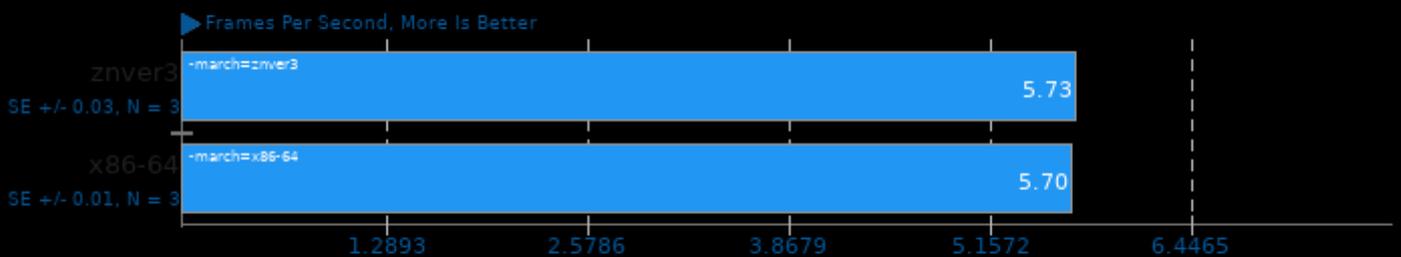
Encoder Mode: Speed 6 Realtime



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

AOM AV1 2.0

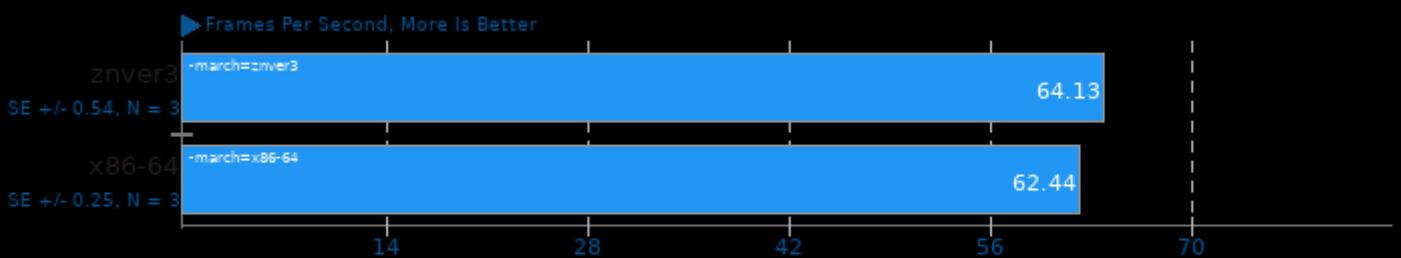
Encoder Mode: Speed 6 Two-Pass



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

AOM AV1 2.0

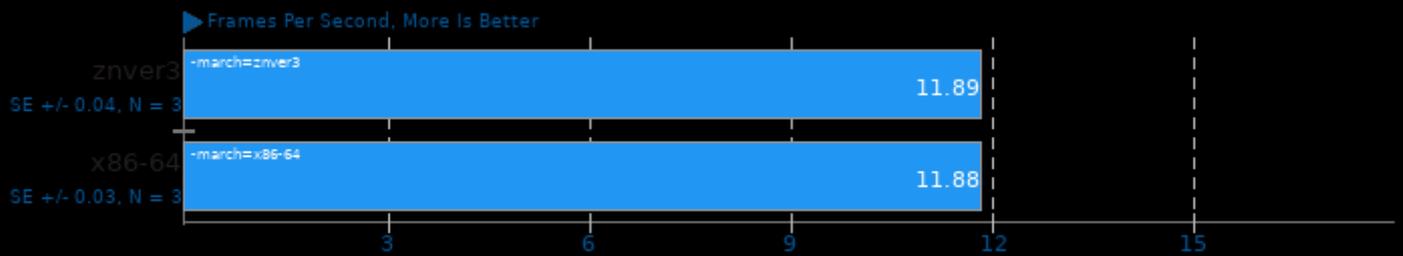
Encoder Mode: Speed 8 Realtime



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

Kvazaar 2.0

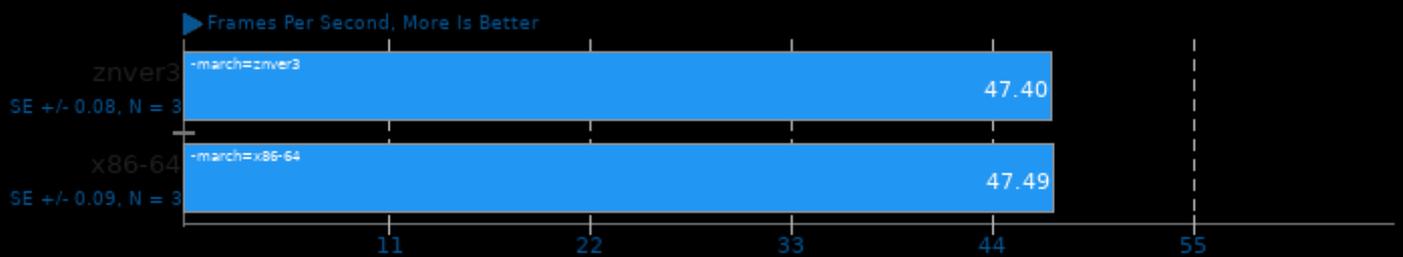
Video Input: Bosphorus 4K - Video Preset: Medium



1. (CC) gcc options: -pthread -free-vectorize -fvisibility=hidden -O3 -lpthread -lm -lrt

Kvazaar 2.0

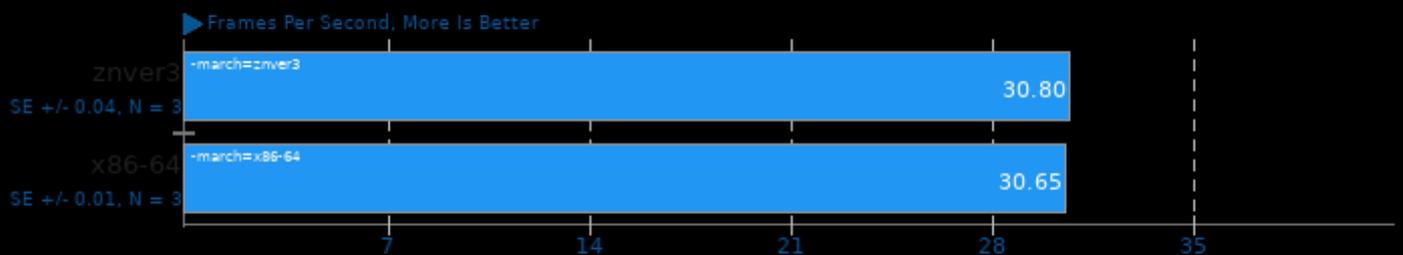
Video Input: Bosphorus 1080p - Video Preset: Medium



1. (CC) gcc options: -pthread -free-vectorize -fvisibility=hidden -O3 -lpthread -lm -lrt

Kvazaar 2.0

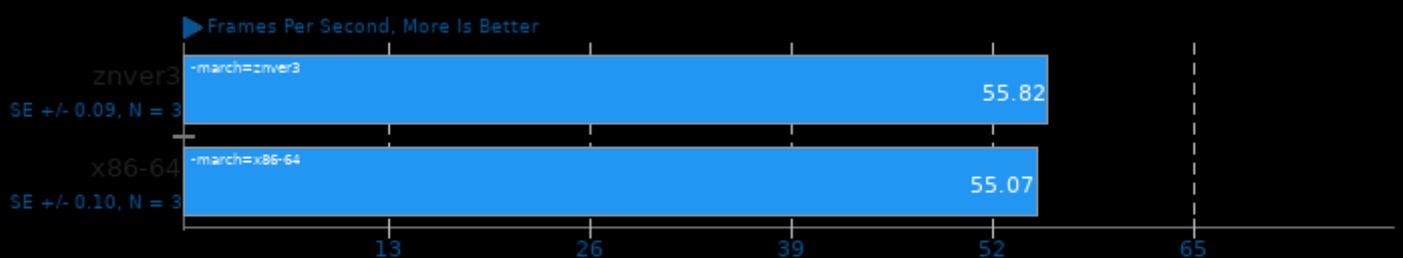
Video Input: Bosphorus 4K - Video Preset: Very Fast



1. (CC) gcc options: -pthread -free-vectorize -fvisibility=hidden -O3 -lpthread -lm -lrt

Kvazaar 2.0

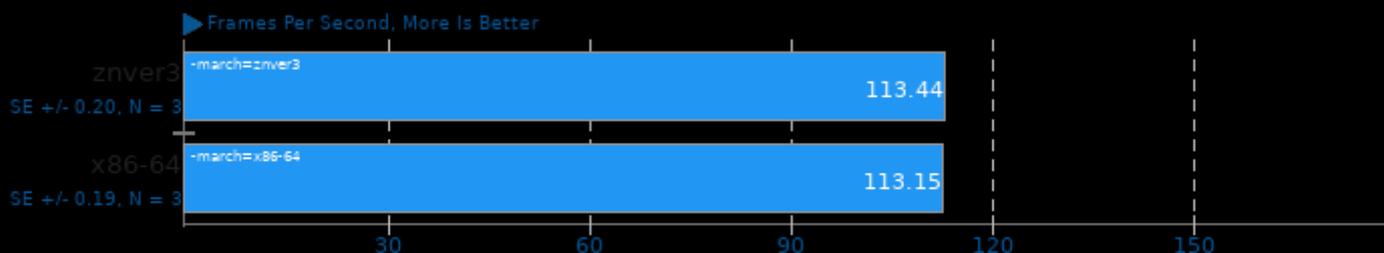
Video Input: Bosphorus 4K - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -free-vectorize -fvisibility=hidden -O3 -lpthread -lm -lrt

Kvazaar 2.0

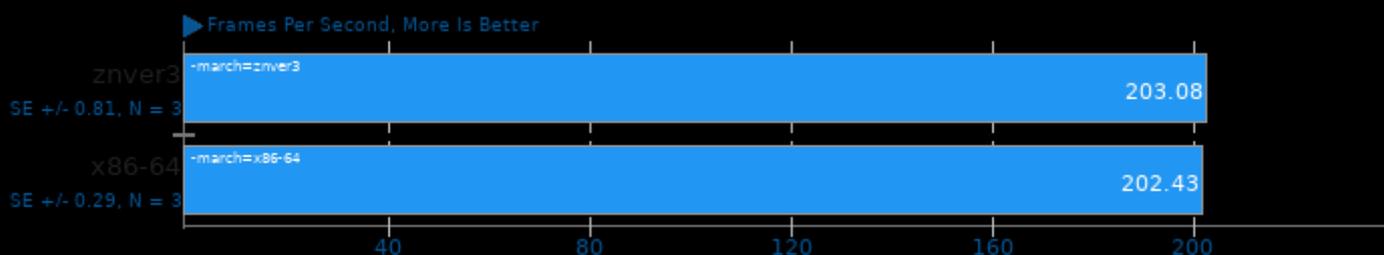
Video Input: Bosphorus 1080p - Video Preset: Very Fast



1. (GCC) gcc options: -pthread -free-vectorize -fvisibility=hidden -O3 -lpthread -lm -lrt

Kvazaar 2.0

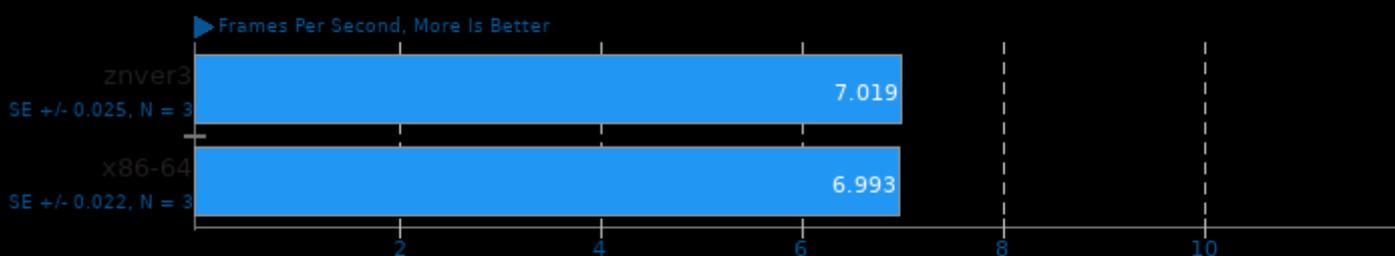
Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



1. (GCC) gcc options: -pthread -free-vectorize -fvisibility=hidden -O3 -lpthread -lm -lrt

SVT-AV1 0.8

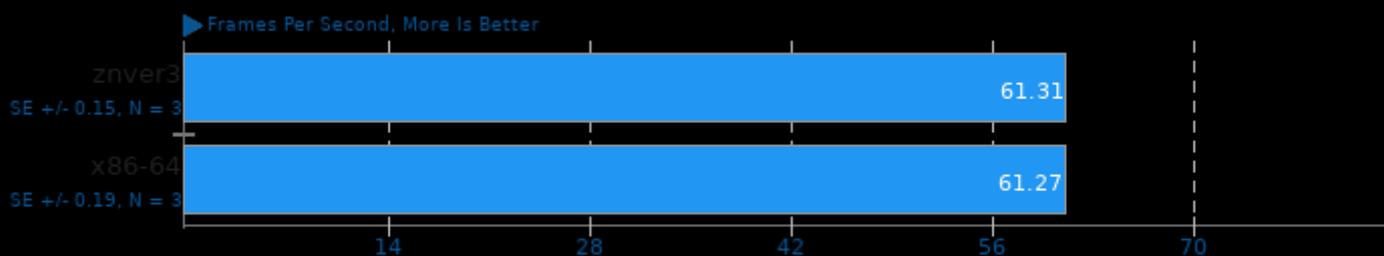
Encoder Mode: Enc Mode 4 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

SVT-AV1 0.8

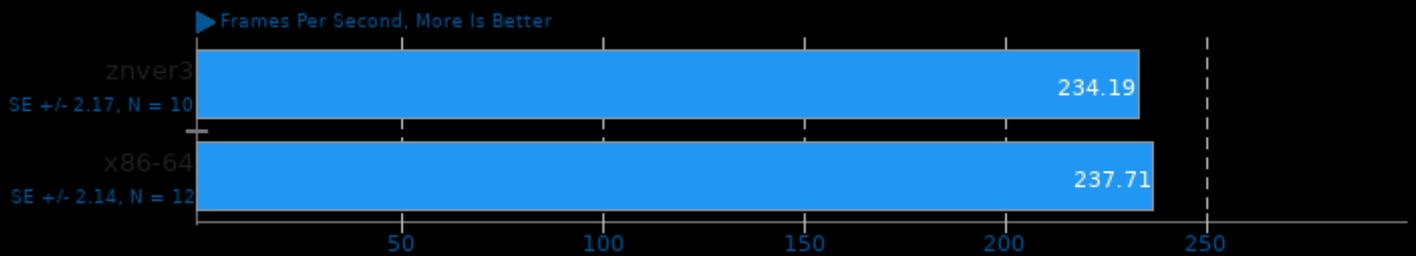
Encoder Mode: Enc Mode 8 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

SVT-VP9 0.1

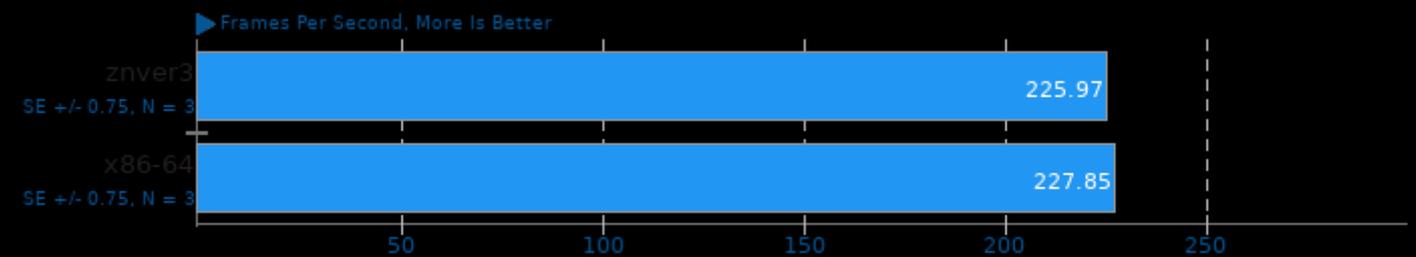
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



1. (GCC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

SVT-VP9 0.1

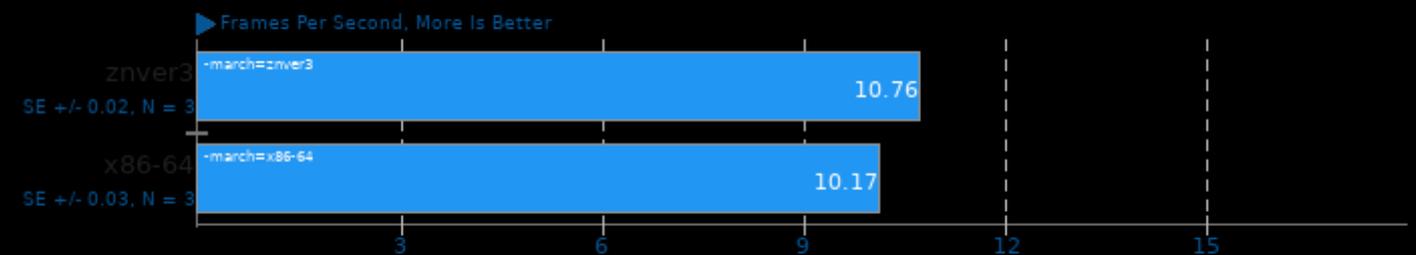
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p



1. (GCC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

VP9 libvpx Encoding 1.8.2

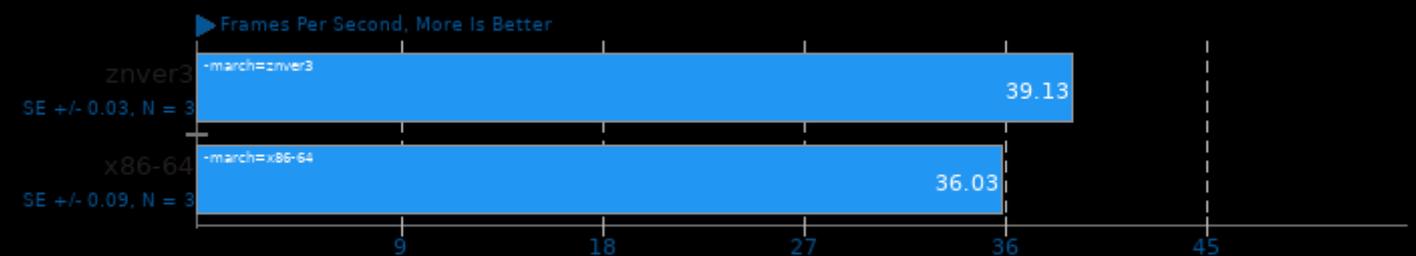
Speed: Speed 0



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

VP9 libvpx Encoding 1.8.2

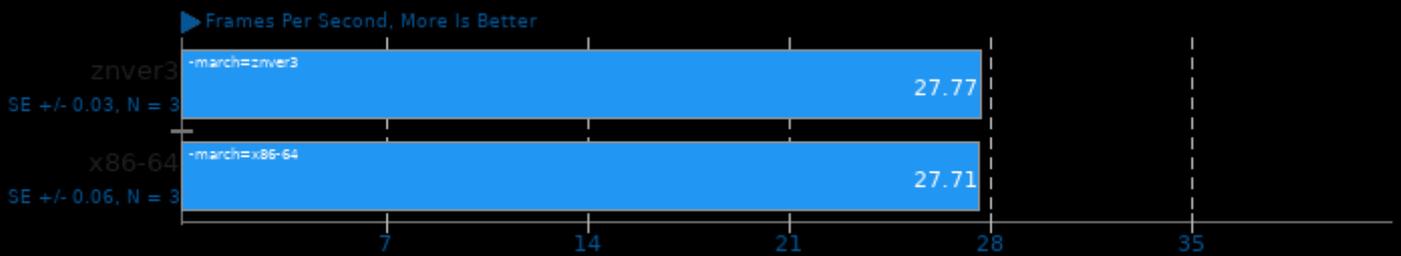
Speed: Speed 5



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

x265 3.4

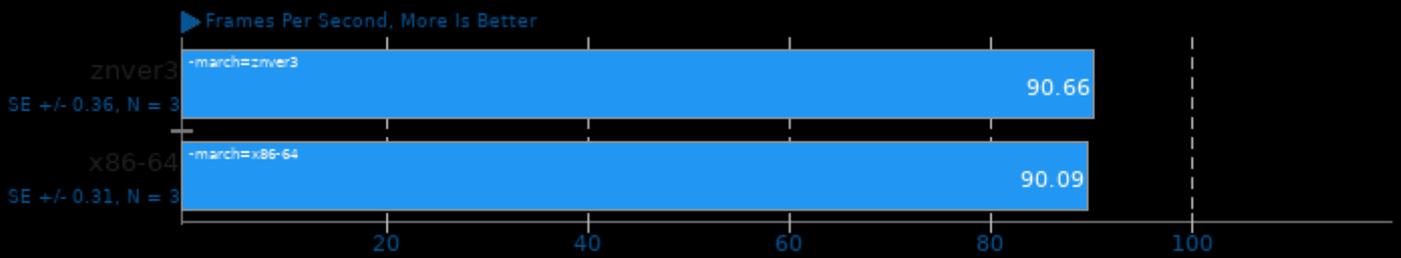
Video Input: Bosphorus 4K



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

x265 3.4

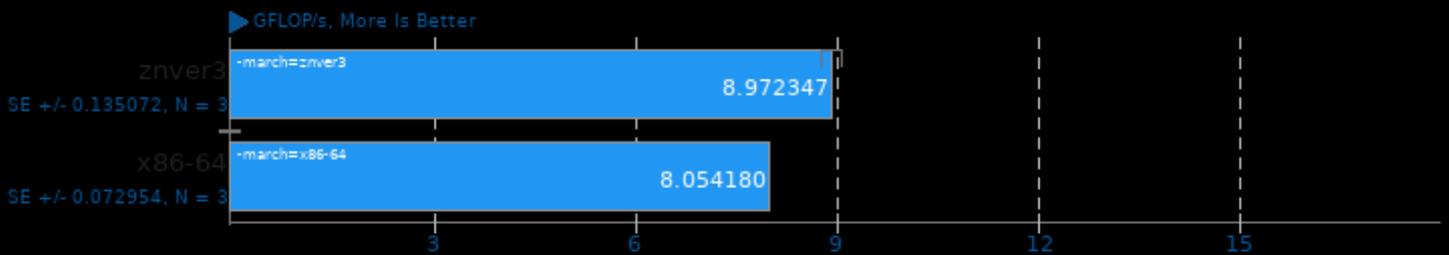
Video Input: Bosphorus 1080p



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

ACES DGEMM 1.0

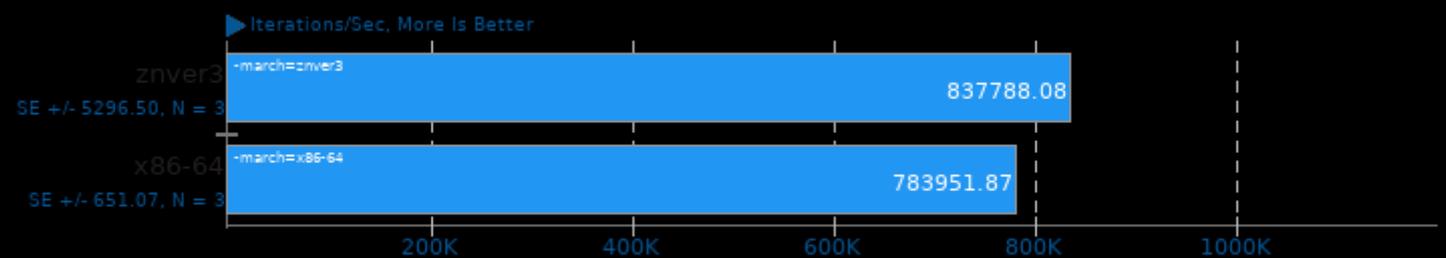
Sustained Floating-Point Rate



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

Coremark 1.0

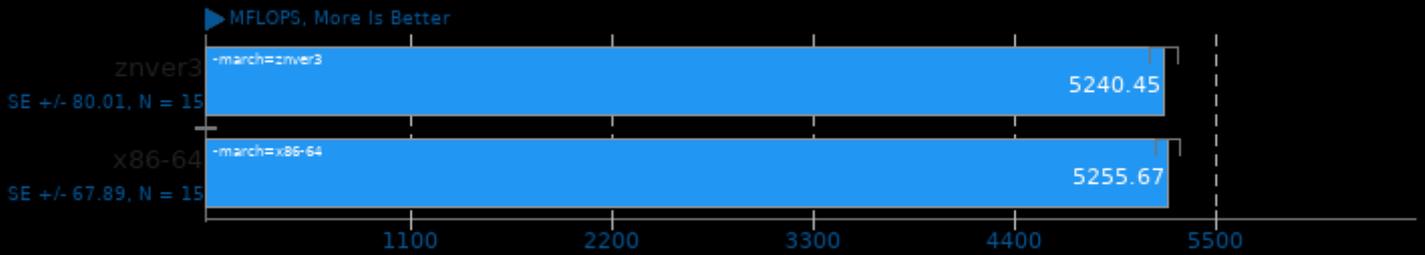
CoreMark Size 666 - Iterations Per Second



1. (CC) gcc options: -O2 -O3 -lrt -lrt

Himeno Benchmark 3.0

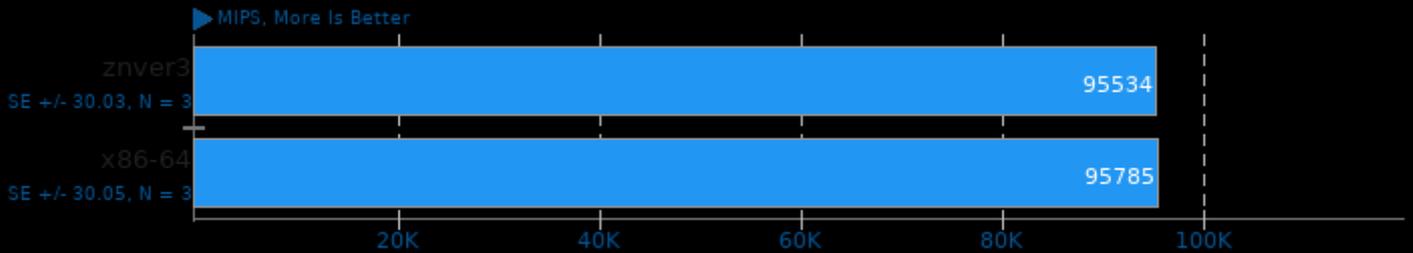
Poisson Pressure Solver



1. (CC) gcc options: -O3 -mavx2

7-Zip Compression 16.02

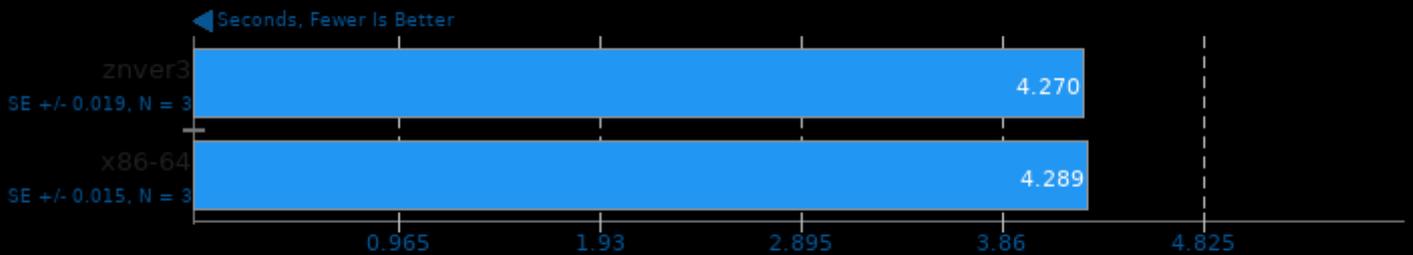
Compress Speed Test



1. (CXX) g++ options: -pipe -lpthread

libavif avifenc 0.7.3

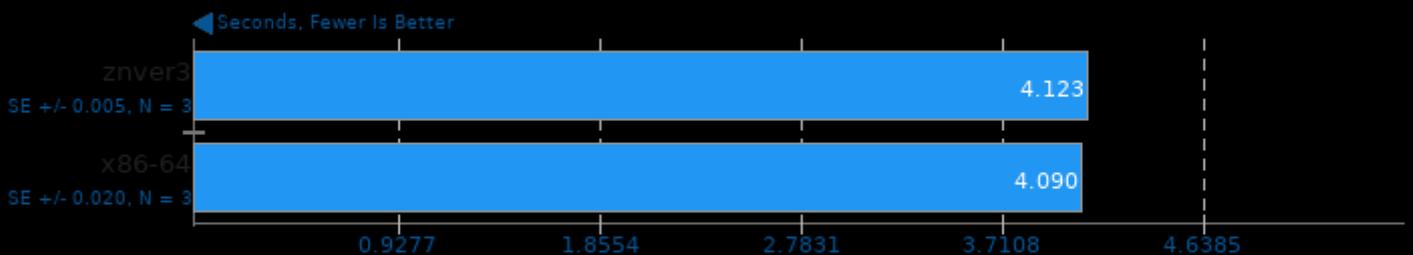
Encoder Speed: 8



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

libavif avifenc 0.7.3

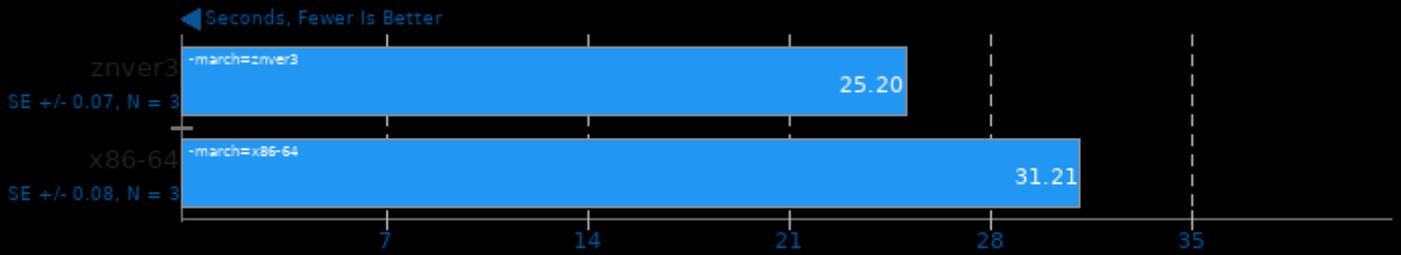
Encoder Speed: 10



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

C-Ray 1.1

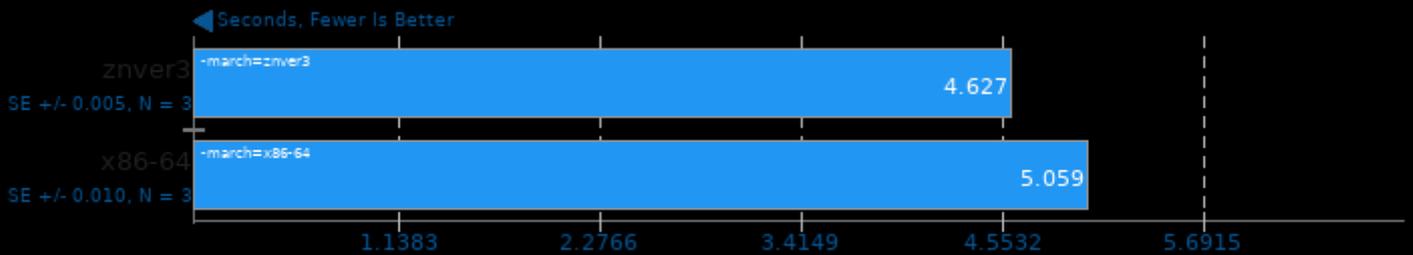
Total Time - 4K, 16 Rays Per Pixel



1. (CC) gcc options: -lm -lpthread -O3

Smallpt 1.0

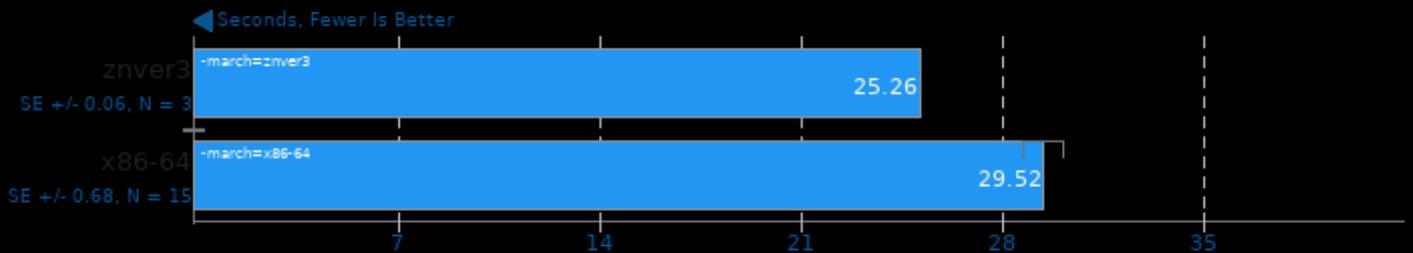
Global Illumination Renderer; 128 Samples



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

AOBench

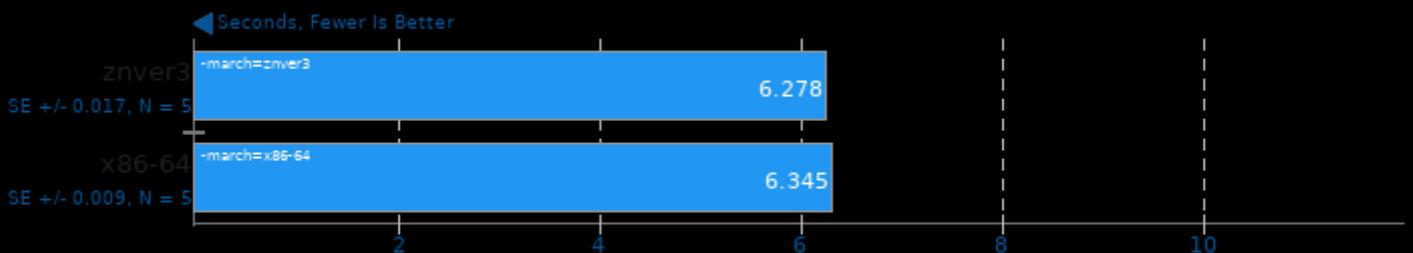
Size: 2048 x 2048 - Total Time



1. (CC) gcc options: -lm -O3

FLAC Audio Encoding 1.3.2

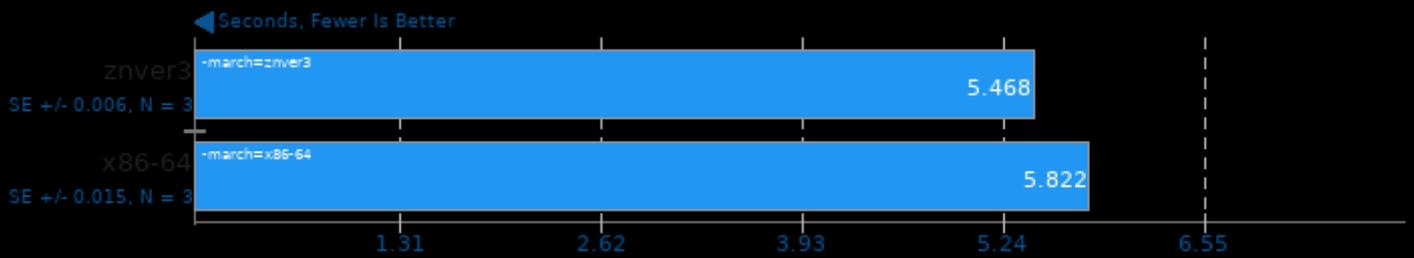
WAV To FLAC



1. (CXX) g++ options: -O3 -fvisibility=hidden -logg -lm

LAME MP3 Encoding 3.100

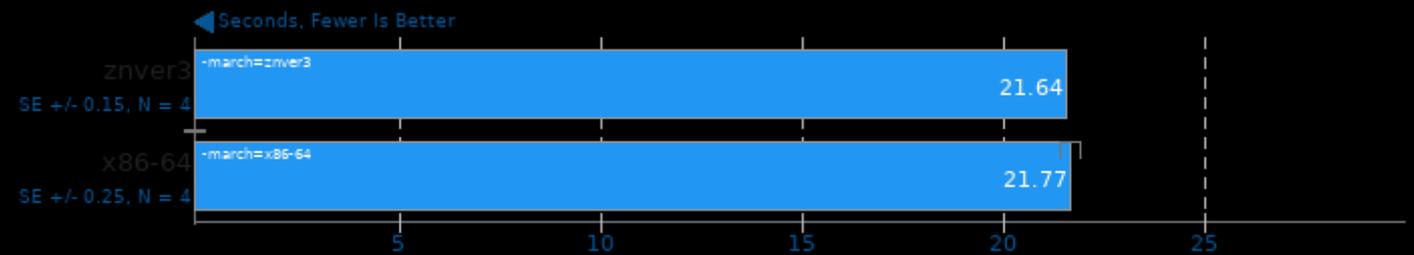
WAV To MP3



1. (CC) gcc options: -O3 -ffast-math -funroll-loops -fschedule-insns2 -fbranch-count-reg -fforce-addr -pipe -Incurses -lm

eSpeak-NG Speech Engine 20200907

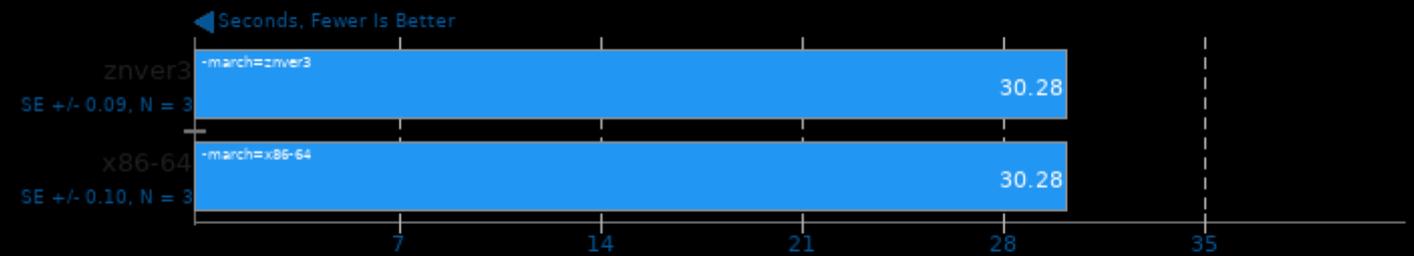
Text-To-Speech Synthesis



1. (CC) gcc options: -O3 -std=c99

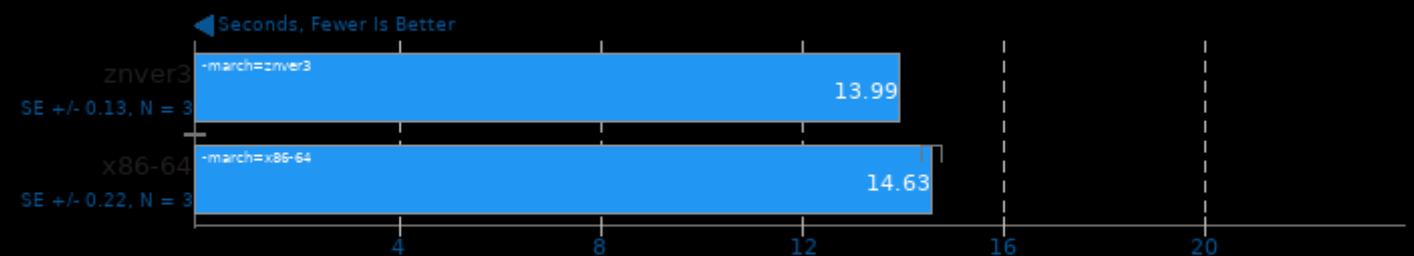
m-queens 1.2

Time To Solve



1. (CXX) g++ options: -fopenmp -O3 -O2 -march=native

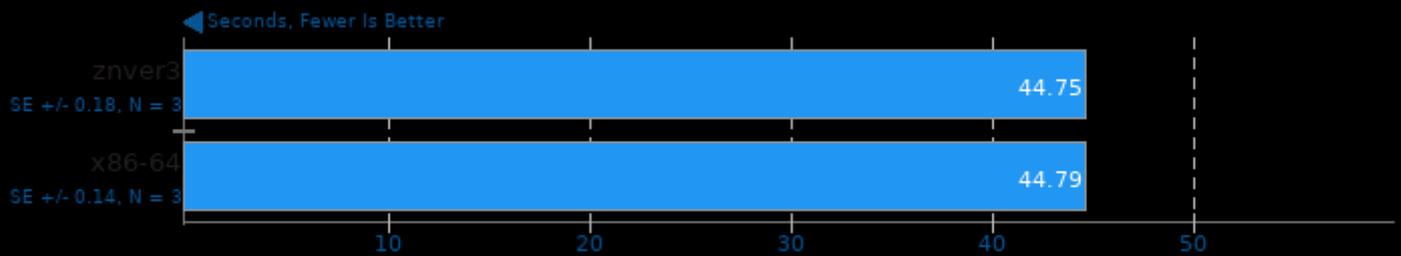
RNNoise 2020-06-28



1. (CC) gcc options: -O3 -pedantic -fvisibility=hidden

Tachyon 0.99b6

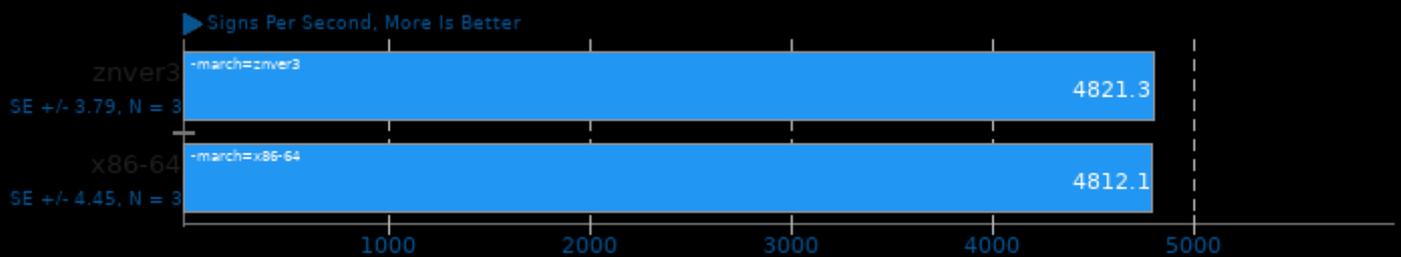
Total Time



1. (CC) gcc options: -m64 -O3 -fomit-frame-pointer -ffast-math -ltachyon -lm -lpthread

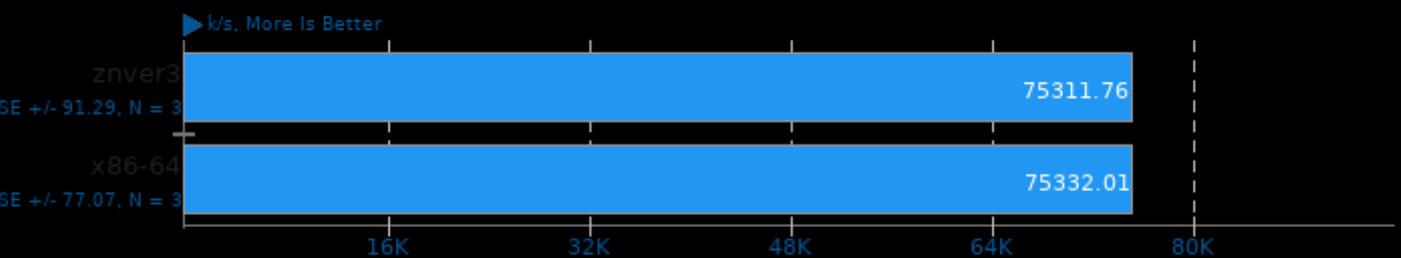
OpenSSL 1.1.1

RSA 4096-bit Performance



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

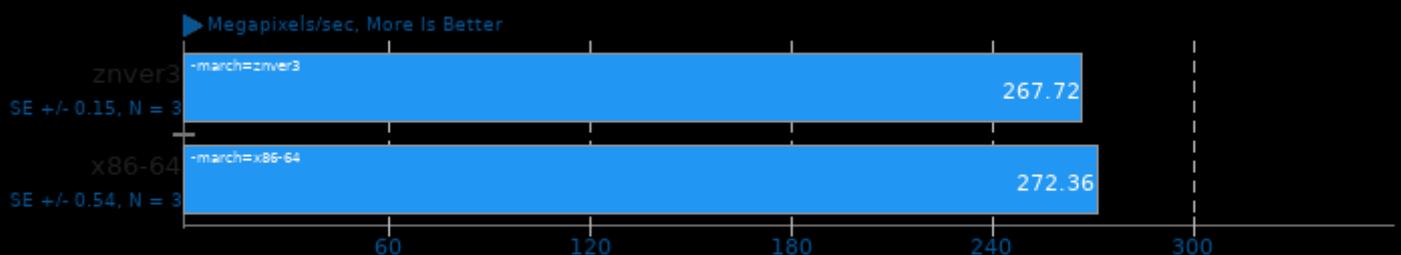
Aircrack-ng 1.5.2



1. (CXX) g++ options: -O3 -fvisibility=hidden -masm=intel -fcommon -rdynamic -lpthread -lz -lcrypto -lhwloc -ldl -lm -pthread

libjpeg-turbo tjbench 2.0.2

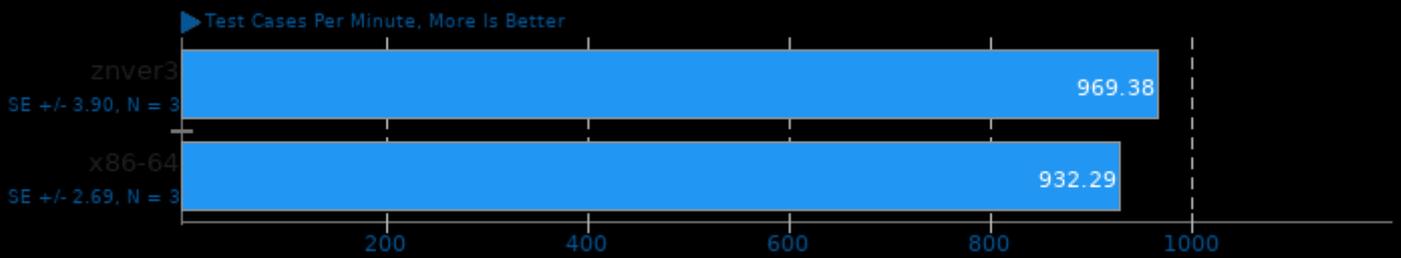
Test: Decompression Throughput



1. (CC) gcc options: -O3 -rdynamic

Darmstadt Automotive Parallel Heterogeneous Suite

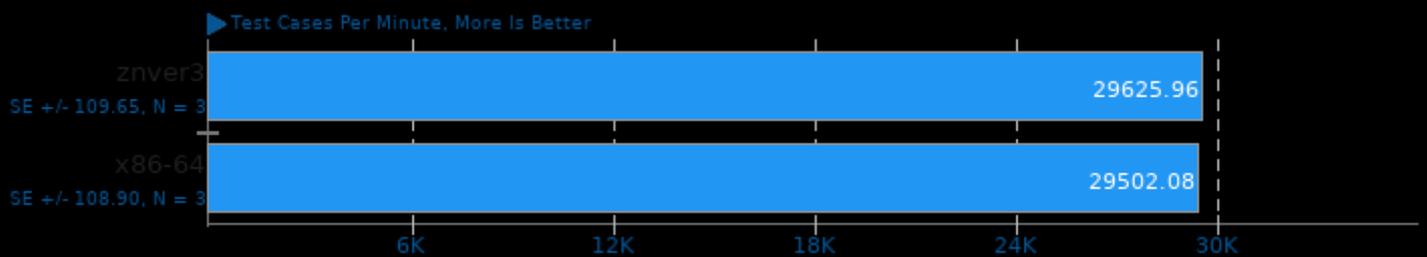
Backend: OpenMP - Kernel: NDT Mapping



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

Darmstadt Automotive Parallel Heterogeneous Suite

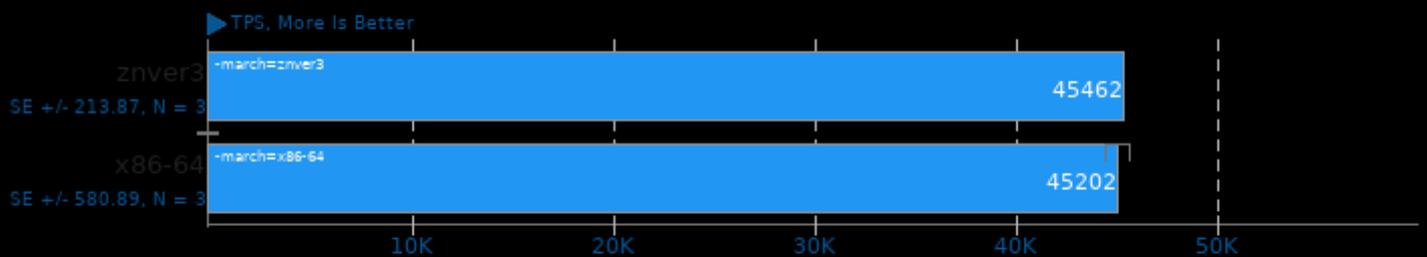
Backend: OpenMP - Kernel: Points2Image



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

PostgreSQL pgbench 13.0

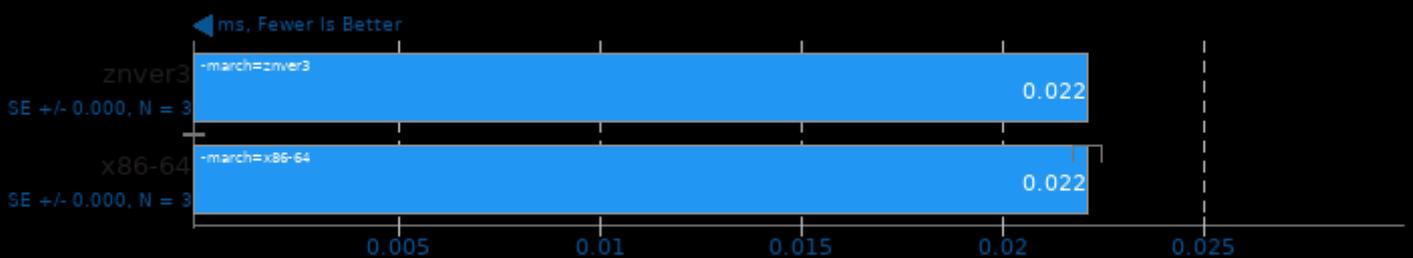
Scaling Factor: 1 - Clients: 1 - Mode: Read Only



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O3 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 13.0

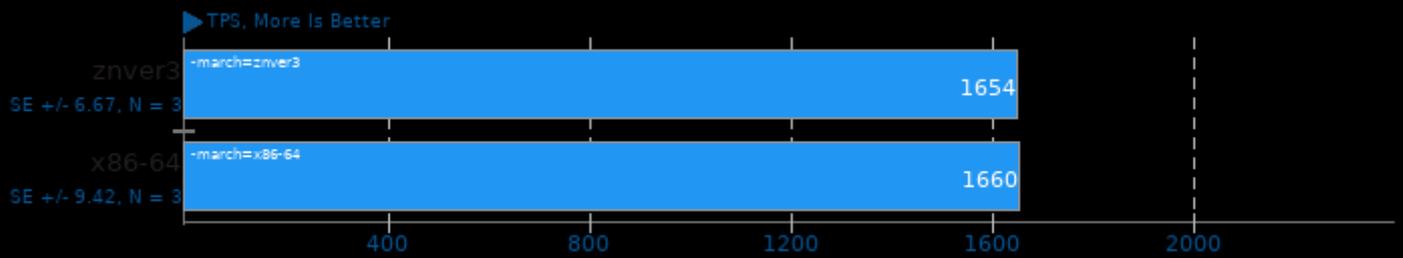
Scaling Factor: 1 - Clients: 1 - Mode: Read Only - Average Latency



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O3 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 13.0

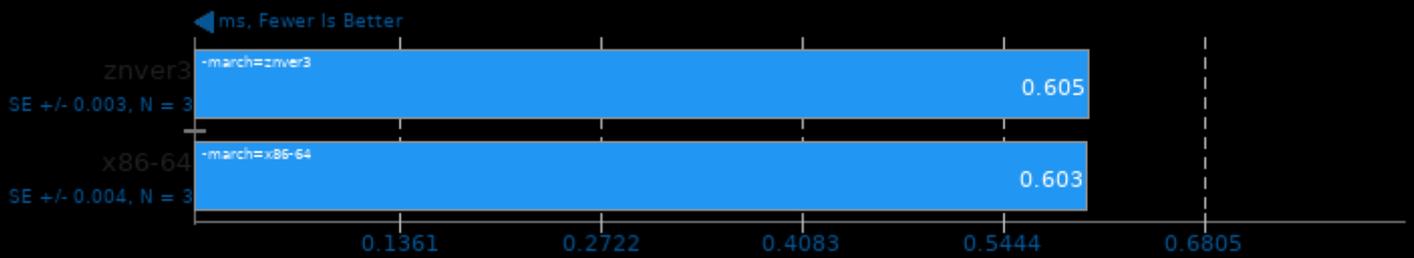
Scaling Factor: 1 - Clients: 1 - Mode: Read Write



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O3 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 13.0

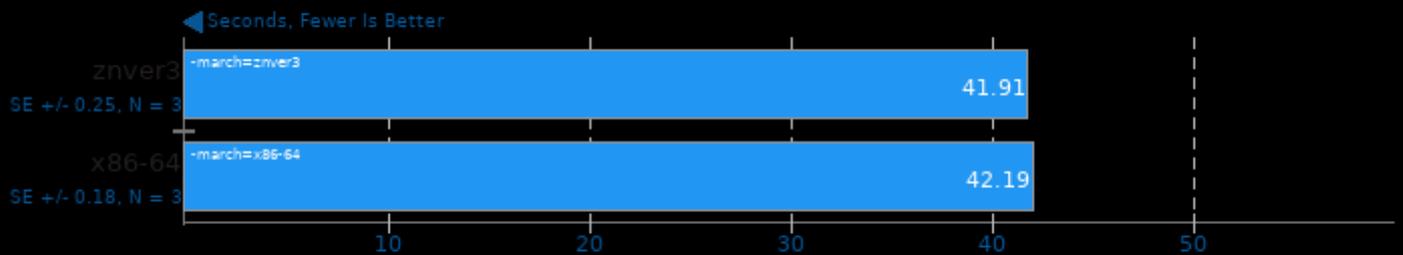
Scaling Factor: 1 - Clients: 1 - Mode: Read Write - Average Latency



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O3 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

SQLite Speedtest 3.30

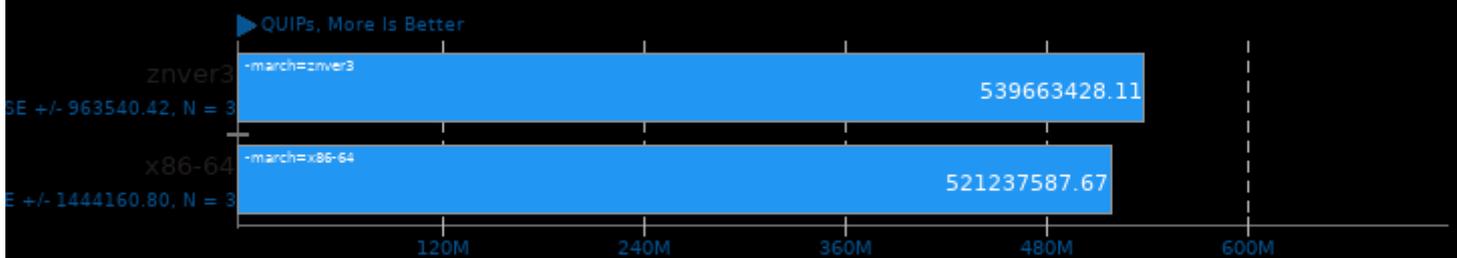
Timed Time - Size 1,000



1. (CC) gcc options: -O3 -ldl -lz -lpthread

Hierarchical INTegration 1.0

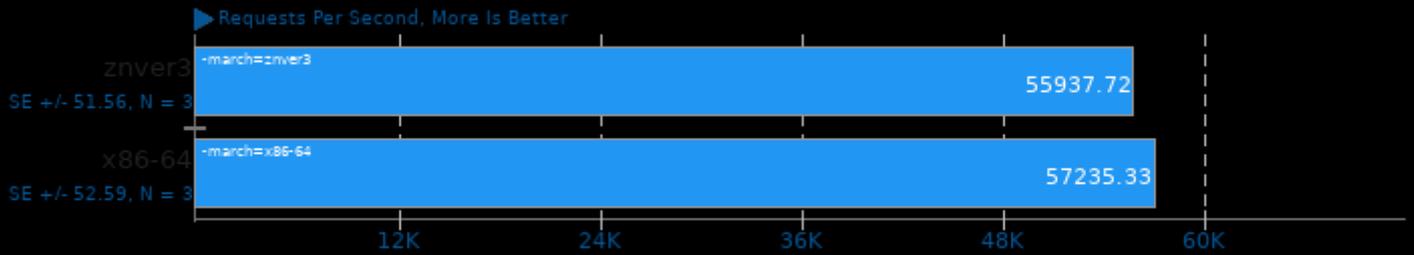
Test: FLOAT



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

NGINX Benchmark 1.9.9

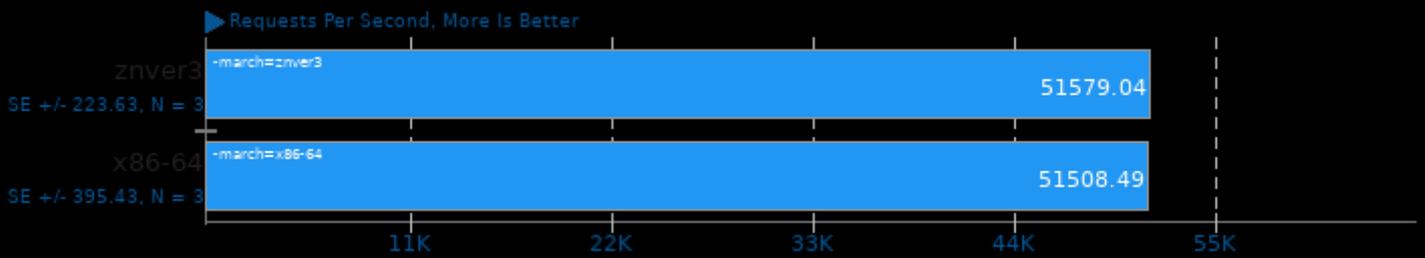
Static Web Page Serving



1. (CC) gcc options: -pthread -lcrypt -lcrypto -lz -O3 -march=native

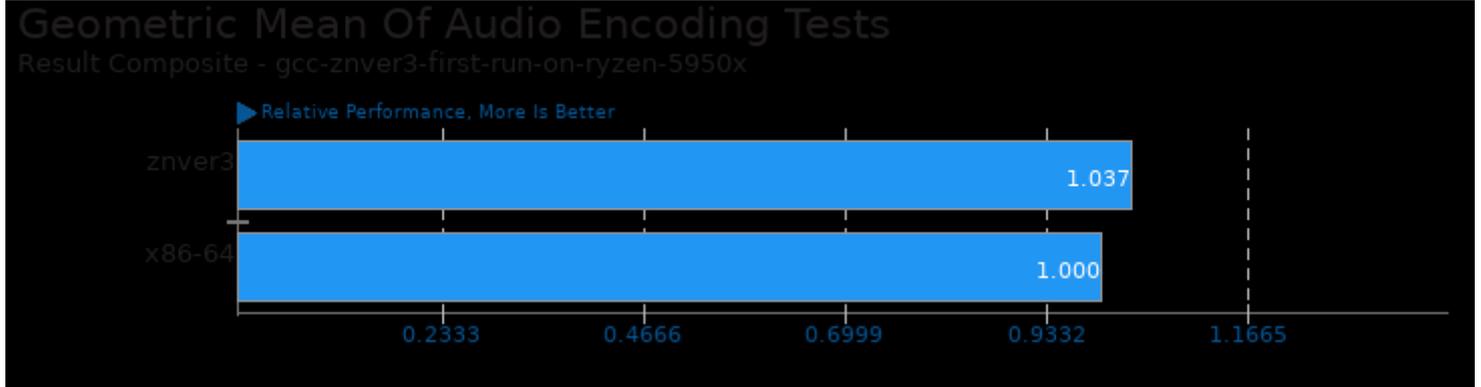
Apache Benchmark 2.4.29

Static Web Page Serving

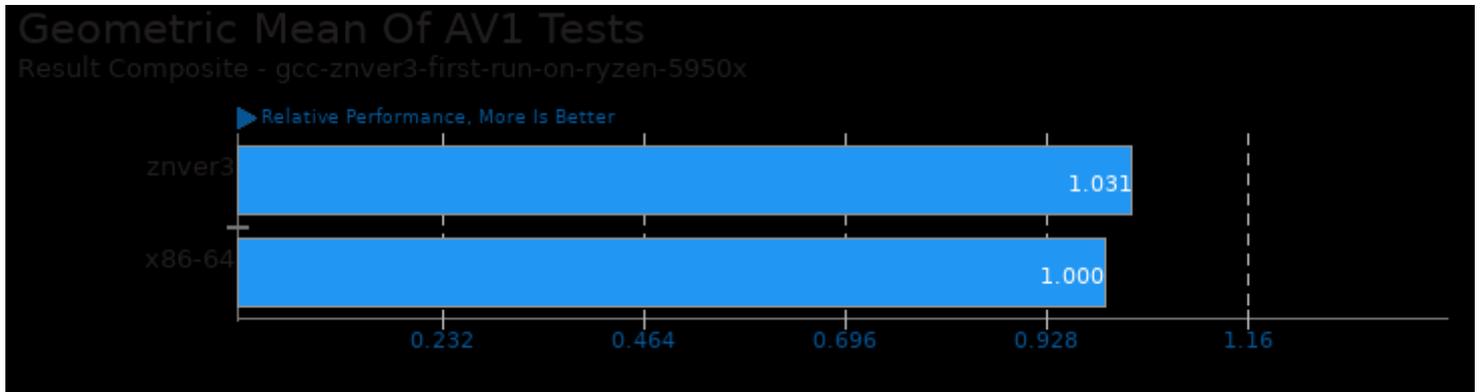


1. (CC) gcc options: -shared -fPIC -pthread -O3

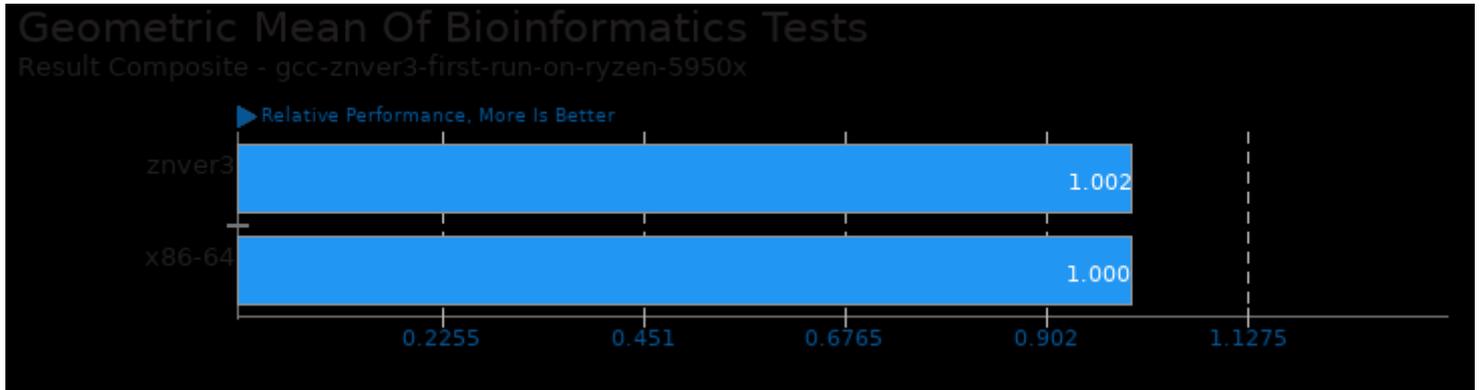
These geometric means are based upon test groupings / test suites for this result file.



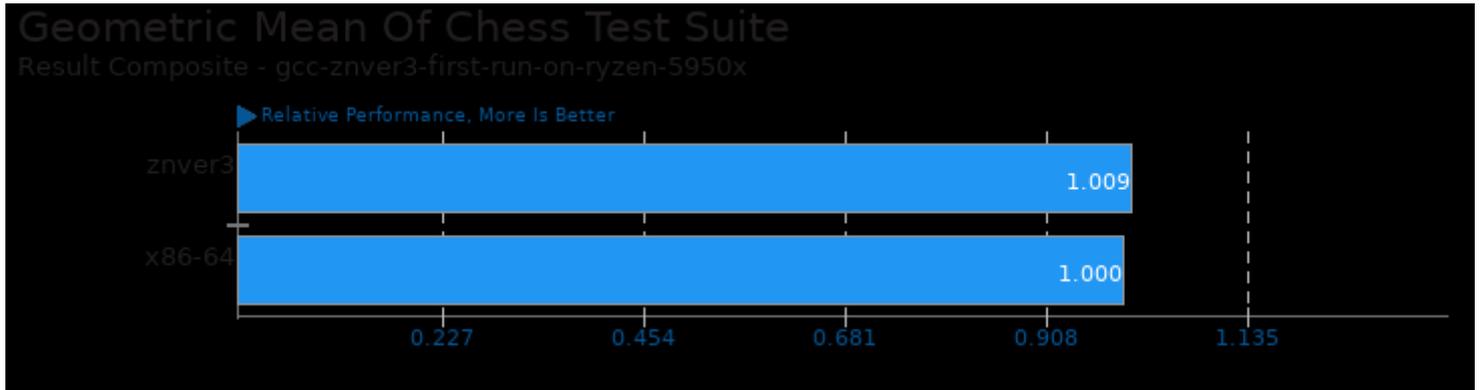
Geometric mean based upon tests: pts/encode-mp3 and pts/encode-flac



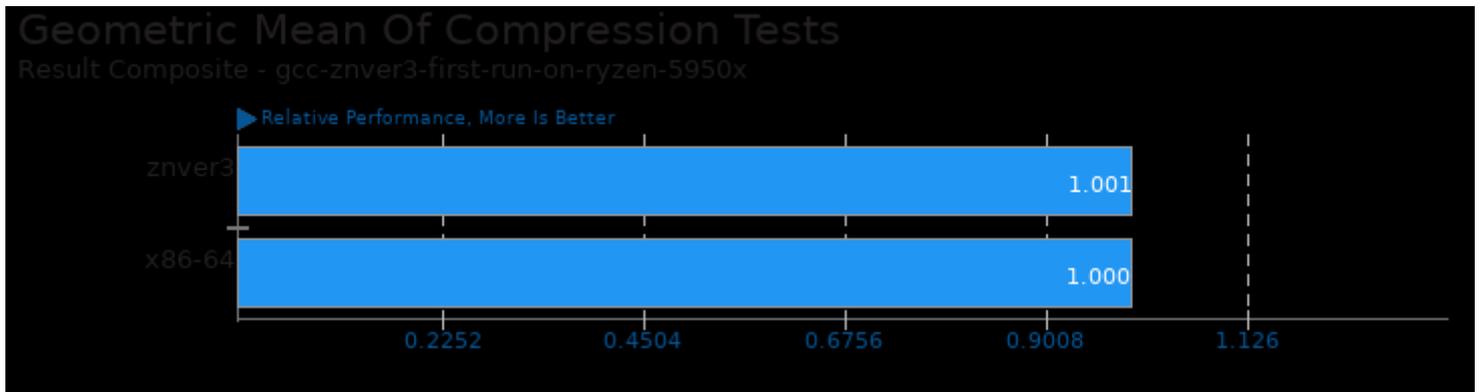
Geometric mean based upon tests: pts/dav1d, pts/aom-av1, pts/svt-av1 and pts/avifenc



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



Geometric mean based upon tests: pts/crafty, pts/tscp and pts/m-queens



Geometric mean based upon tests: pts/compress-7zip, pts/compress-zstd and pts/blosc



Geometric mean based upon tests: pts/openssl and pts/aircrack-ng



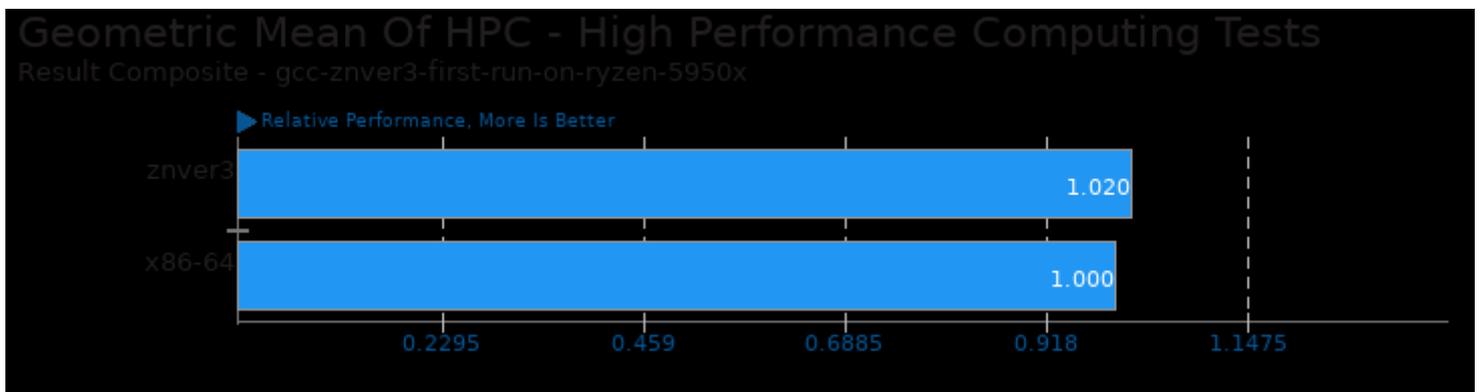
Geometric mean based upon tests: pts/sqlite-speedtest and pts/pgbench



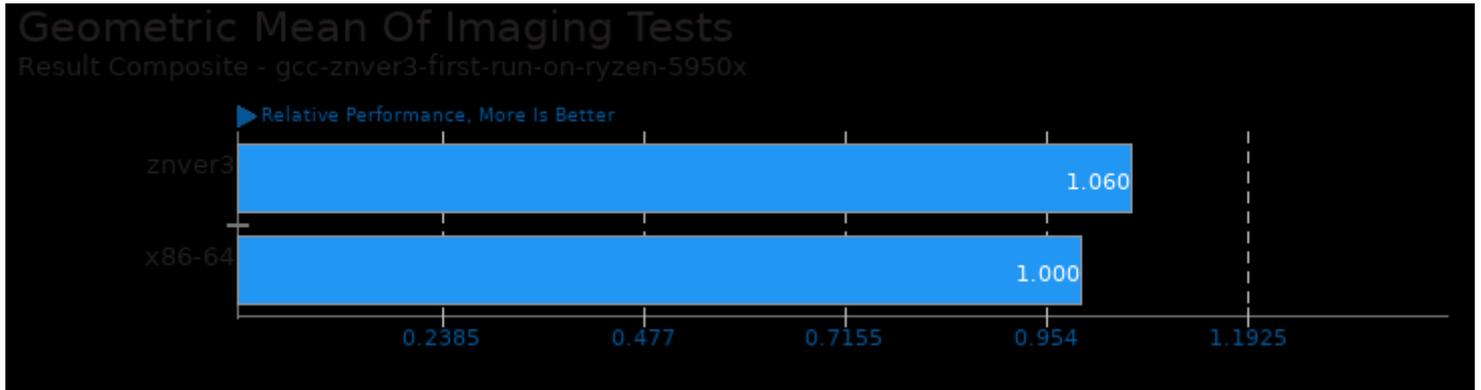
Geometric mean based upon tests: pts/encode-mp3, pts/encode-flac, pts/svt-vp9, pts/x265, pts/kvazaar, pts/vpxenc, pts/dav1d, pts/aom-av1, pts/svt-av1 and pts/avifenc



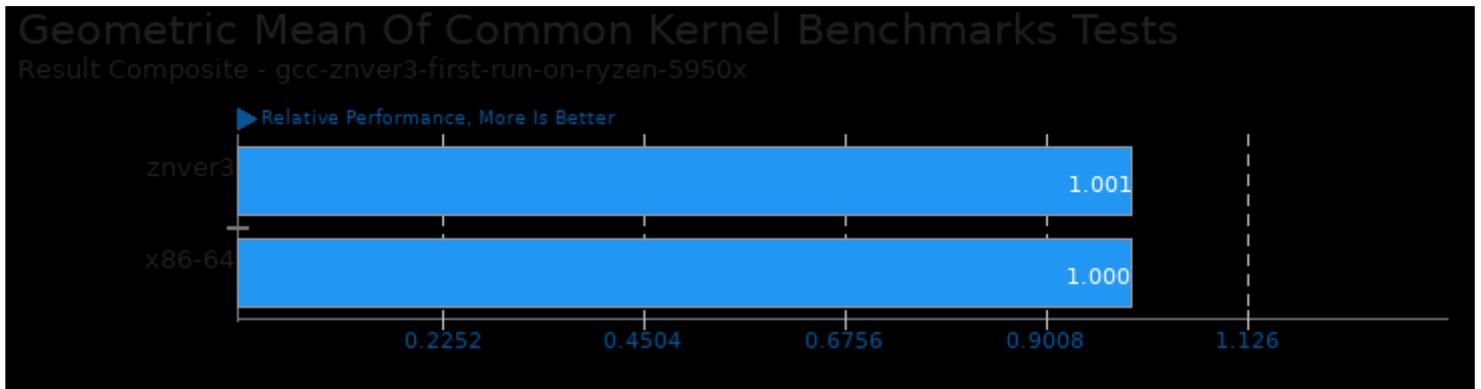
Geometric mean based upon tests: pts/cloverleaf, pts/neat, pts/ffte and pts/mocassin



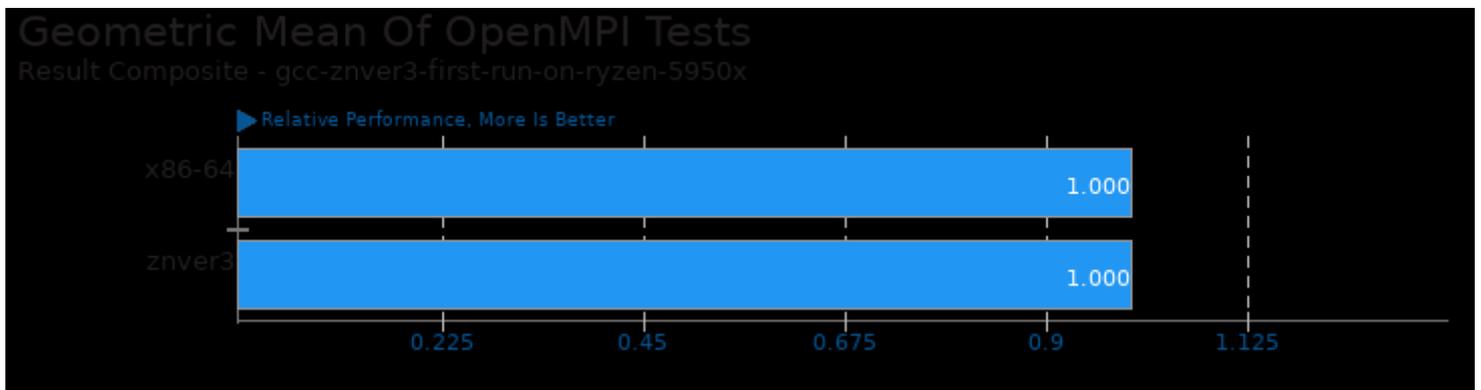
Geometric mean based upon tests: pts/daphne, pts/ffte, pts/fftw, pts/neat, pts/mt-dgemm, pts/cloverleaf, pts/himeno, pts/mafft, pts/mocassin and pts/rnnoise



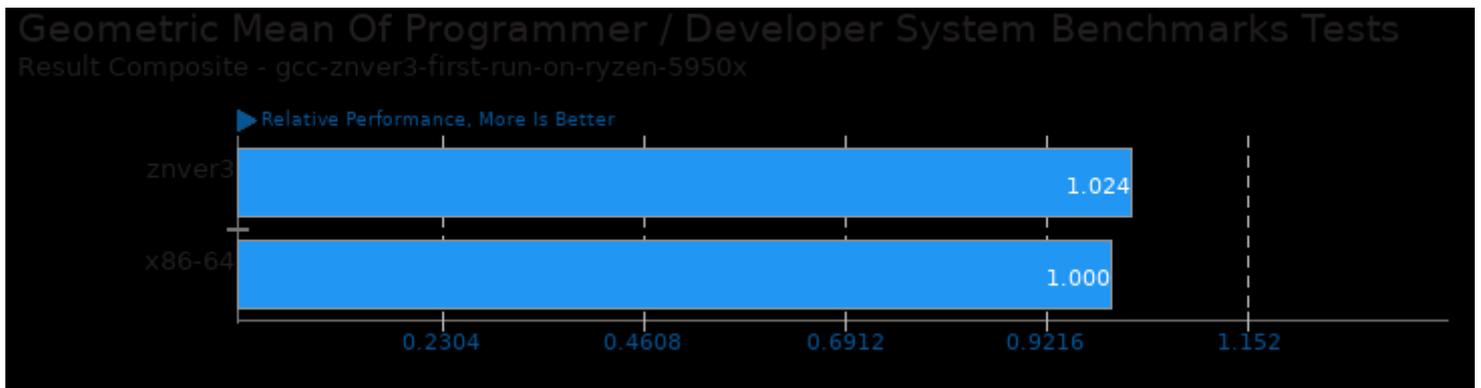
Geometric mean based upon tests: pts/graphics-magick, pts/libraw, pts/webp, pts/tjbench and pts/avifenc



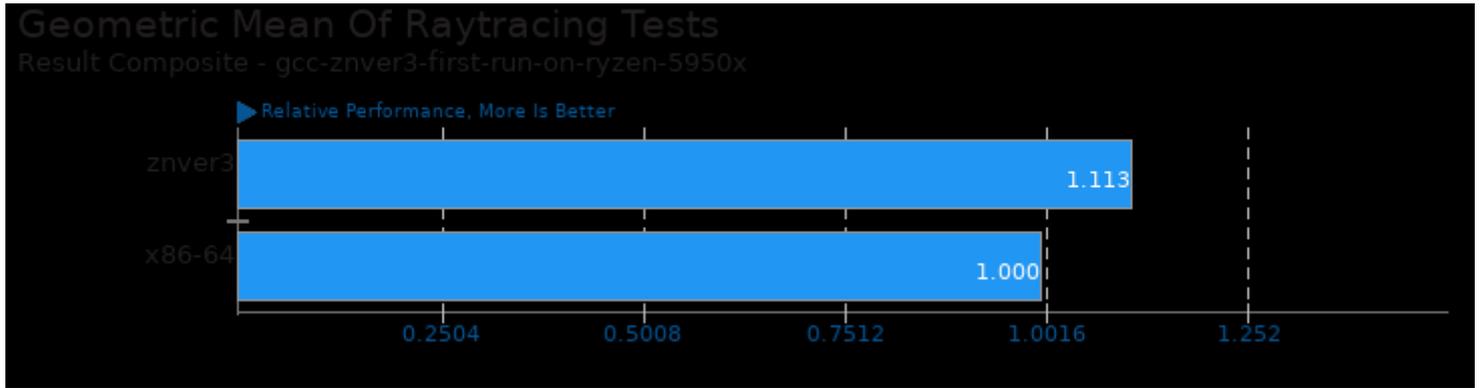
Geometric mean based upon tests: pts/apache, pts/sqlite-speedtest, pts/pgbench and pts/openssl



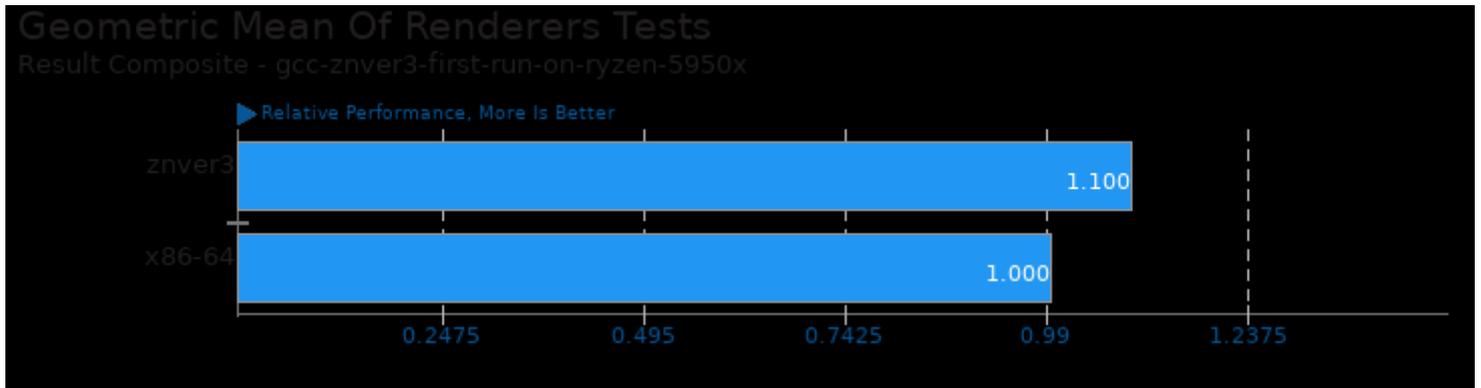
Geometric mean based upon tests: pts/cloverleaf and pts/mocassin



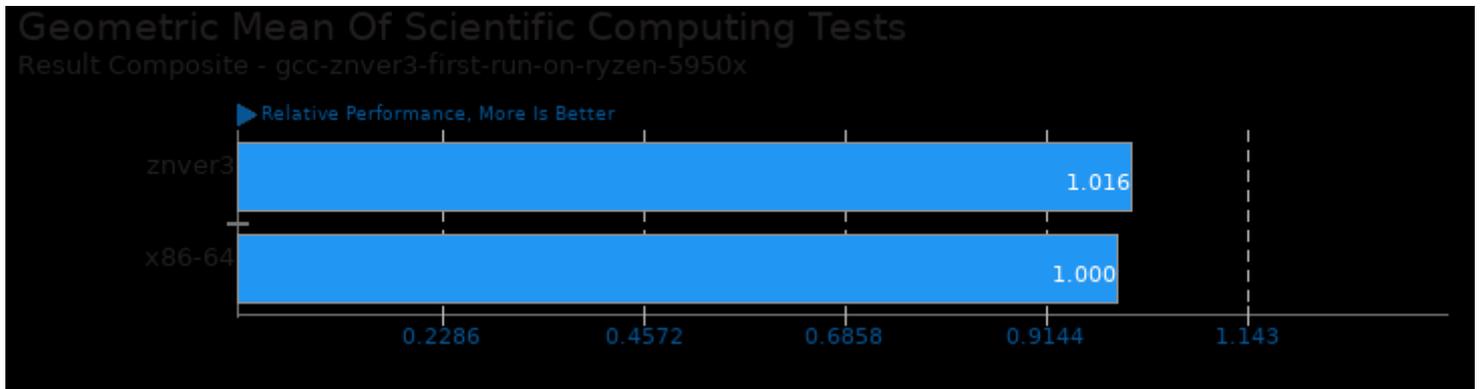
Geometric mean based upon tests: pts/sqlite-speedtest, pts/blosc, pts/compress-zstd and pts/mt-dgemm



Geometric mean based upon tests: pts/c-ray and pts/tachyon



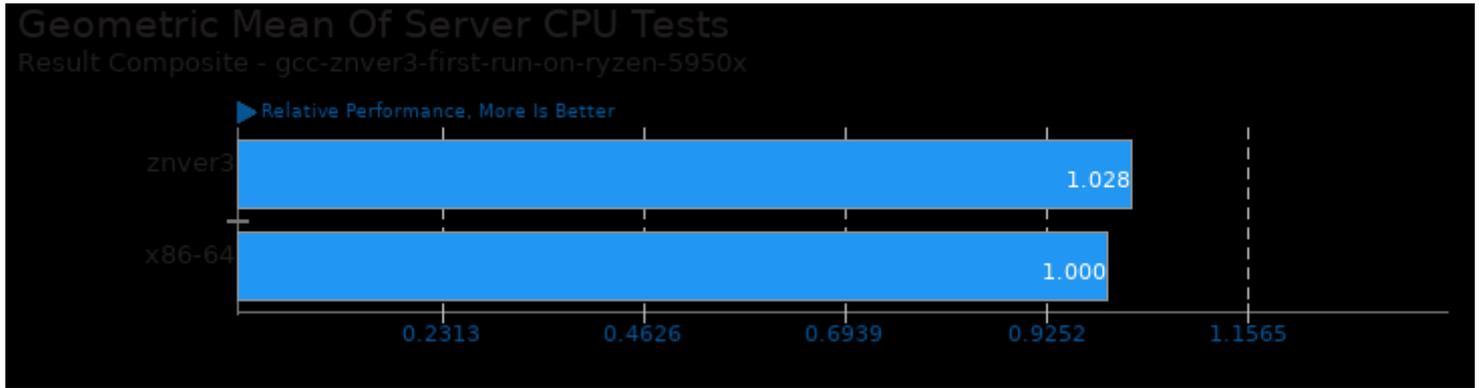
Geometric mean based upon tests: pts/c-ray, pts/tachyon, pts/aobench, pts/smallpt and pts/ttsiod-renderer



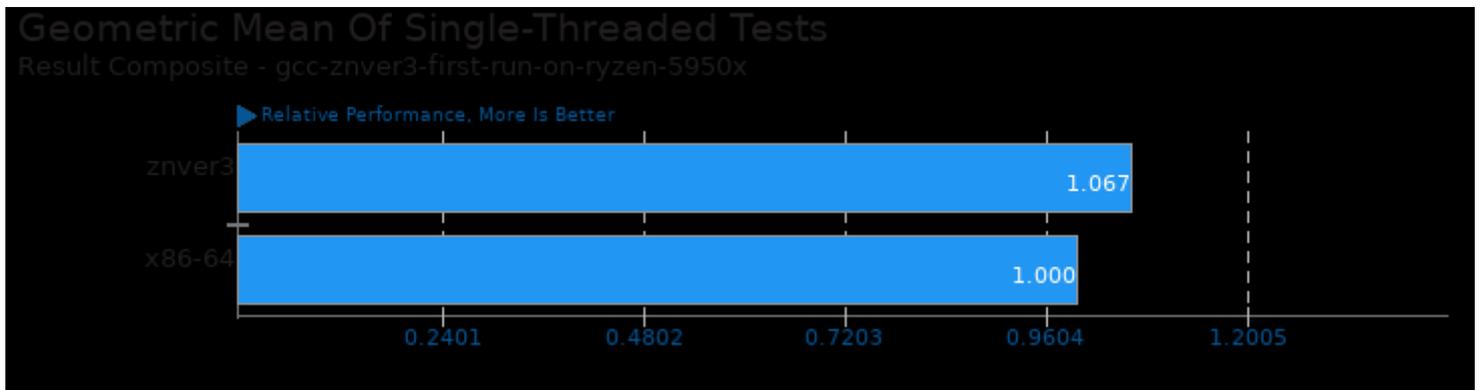
Geometric mean based upon tests: pts/ffte, pts/fftw, pts/neat, pts/mt-dgemm, pts/cloverleaf, pts/himeno, pts/mafft and pts/mocassin



Geometric mean based upon tests: pts/apache, pts/nginx, pts/pgbench, pts/openssl and pts/sqlite-speedtest



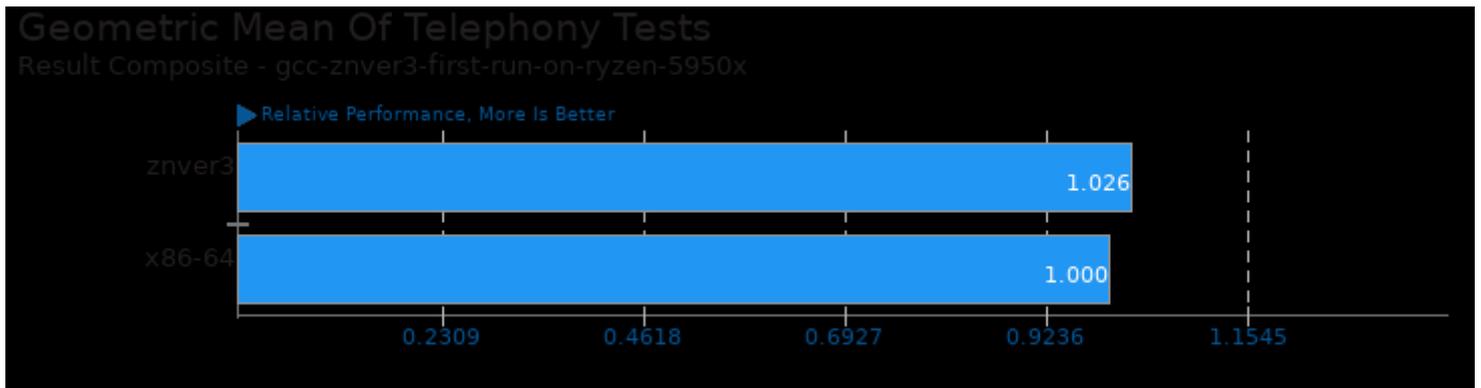
Geometric mean based upon tests: pts/svt-av1, pts/svt-vp9, pts/x265, pts/dav1d, pts/himeno, pts/compress-7zip, pts/c-ray, pts/compress-zstd, pts/m-queens, pts/openssl and pts/tjbench



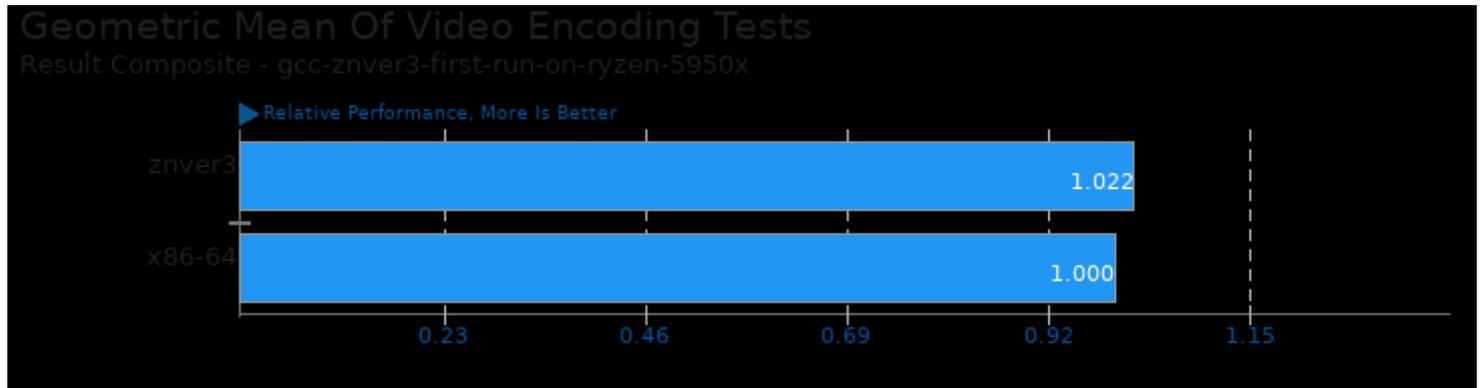
Geometric mean based upon tests: pts/fhourstones, pts/scimark2, pts/encode-flac, pts/encode-mp3, pts/espeak, pts/tjbench, pts/hint and pts/nginx



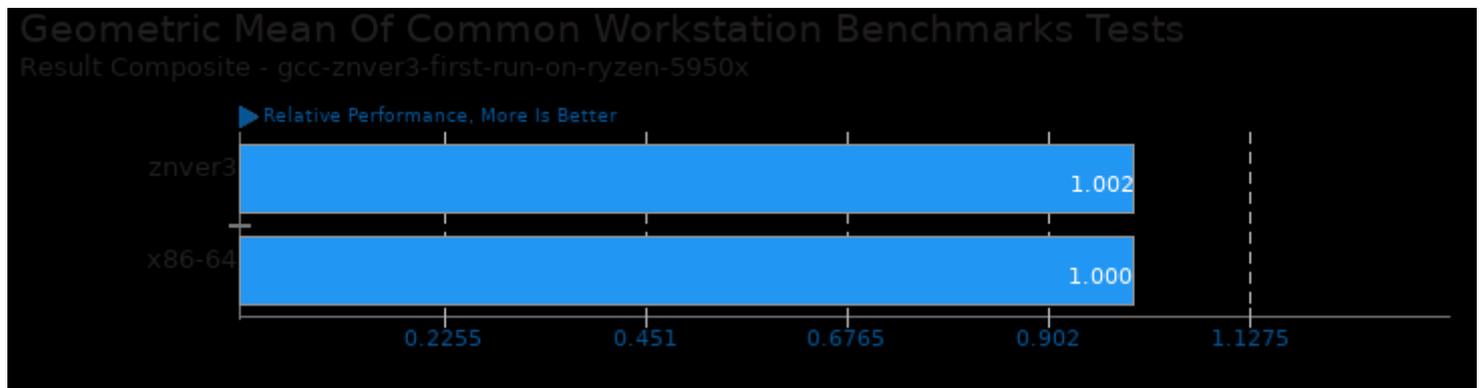
Geometric mean based upon tests: pts/espeak and pts/rnoise



Geometric mean based upon tests: pts/espeak and pts/rnoise



Geometric mean based upon tests: pts/svt-vp9, pts/x265, pts/kvazaar, pts/vpxenc, pts/dav1d, pts/aom-av1, pts/svt-av1 and pts/avifenc



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

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 07:53.