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3700X More march

AMD Ryzen 7 3700X 8-Core testing with a Gigabyte A320M-S2H-CF (F52a BIOS) and HIS AMD Radeon HD 7750/8740 / R7 250E 1GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 65% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.081x the speed of the slowest (3). 2 was 0.991x the speed of 1 and 3 was 0.934x the speed of 2.

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

oneDNN (Harness: IP Shapes 3D - Data Type: u8s8f32 - Engine: CPU) at 1.127x
oneDNN (Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU) at 1.07x
oneDNN (Harness: Recurrent Neural Network Training - Data Type: f32 - Engine: CPU) at 1.033x
oneDNN (Harness: Recurrent Neural Network Inference - Data Type: u8s8f32 - Engine: CPU) at 1.026x
oneDNN (Harness: Recurrent Neural Network Inference - Data Type: f32 - Engine: CPU) at 1.026x
oneDNN (Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU) at 1.024x
oneDNN (Harness: Convolution Batch Shapes Auto - Data Type: u8s8f32 - Engine: CPU) at 1.022x
oneDNN (Harness: Recurrent Neural Network Inference - Data Type: bf16bf16bf16 - Engine: CPU) at 1.021x
oneDNN (Harness: Recurrent Neural Network Training - Data Type: u8s8f32 - Engine: CPU) at 1.017x

oneDNN (Harness: Recurrent Neural Network Training - Data Type: bf16bf16bf16 - Engine: CPU) at 1.016x.

Test Systems:

1

2

3

Processor: AMD Ryzen 7 3700X 8-Core @ 3.60GHz (8 Cores / 16 Threads), Motherboard: Gigabyte A320M-S2H-CF (F52a BIOS), Chipset: AMD Starship/Matisse, Memory: 8GB, Disk: 240GB TOSHIBA RC100, Graphics: HIS AMD Radeon HD 7750/8740 / R7 250E 1GB, Audio: AMD Oland/Hainan/Cape, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.8.1-050801-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, OpenGL: 4.5 Mesa 20.0.8 (LLVM 10.0.0), Compiler: GCC 9.3.0, 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-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --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-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 ondemand (Boost: Enabled) - CPU Microcode: 0x8701021
Python Notes: Python 3.8.5
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 STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

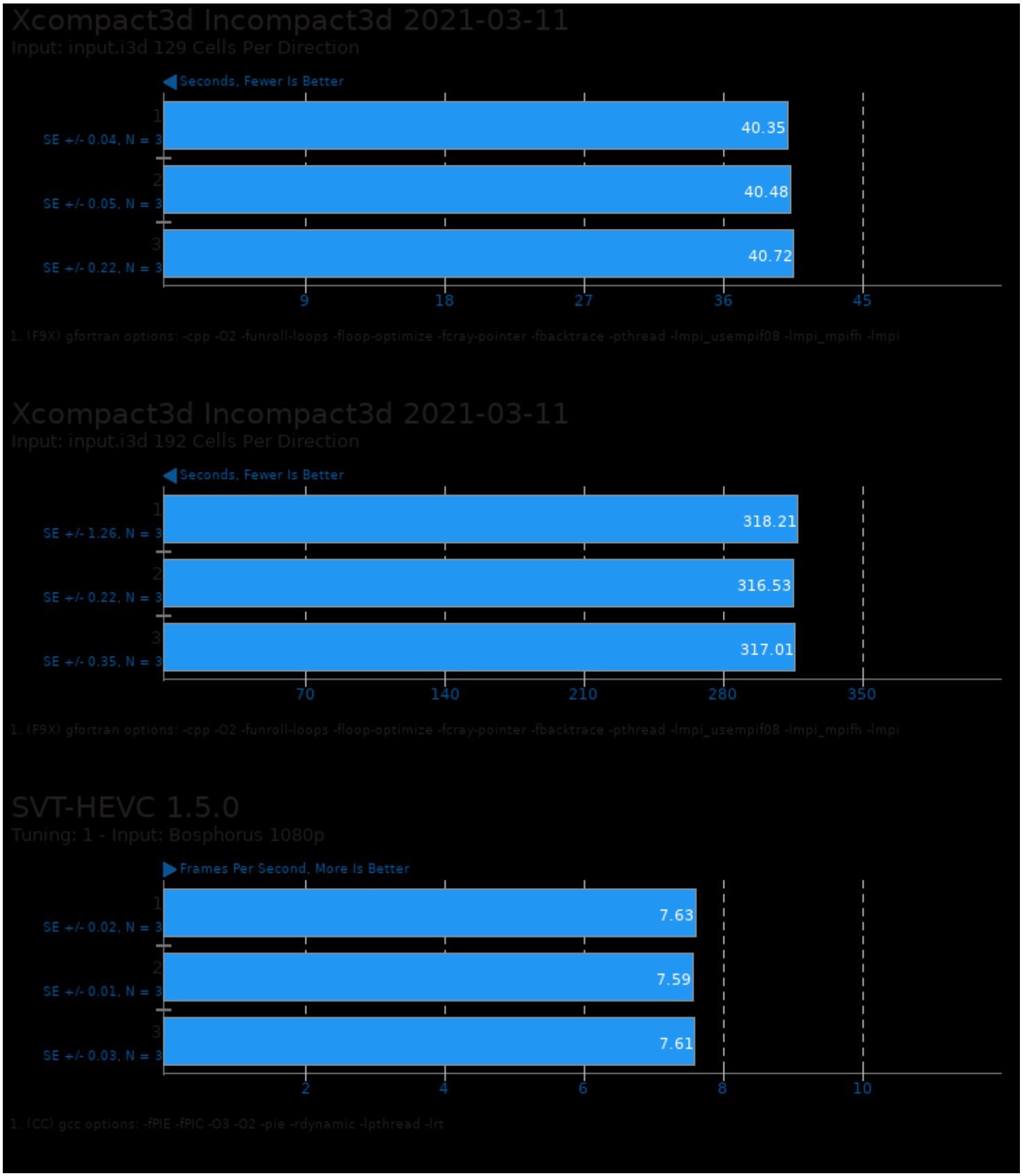
	1	2	3
Xcompact3d Incompact3d - i.i.1.C.P.D (sec)	**40.3466771**	40.4793879	**40.7185669**
Normalized	100%	99.67%	99.09%
Standard Deviation	0.2%	0.2%	0.9%
Xcompact3d Incompact3d - i.i.1.C.P.D (sec)	**318.211354**	**316.528941**	317.006622
Normalized	99.47%	100%	99.85%
Standard Deviation	0.7%	0.1%	0.2%
SVT-HEVC - 1 - Bosphorus 1080p (FPS)	**7.63**	**7.59**	7.61
Normalized	100%	99.48%	99.74%
Standard Deviation	0.5%	0.3%	0.6%
SVT-HEVC - 7 - Bosphorus 1080p (FPS)	**106.19**	**105.83**	105.92
Normalized	100%	99.66%	99.75%
Standard Deviation	0.1%	0.5%	0.4%
SVT-HEVC - 10 - Bosphorus 1080p (FPS)	209.25	**209.21**	**209.45**
Normalized	99.9%	99.89%	100%
Standard Deviation	0.3%	0.2%	0.4%

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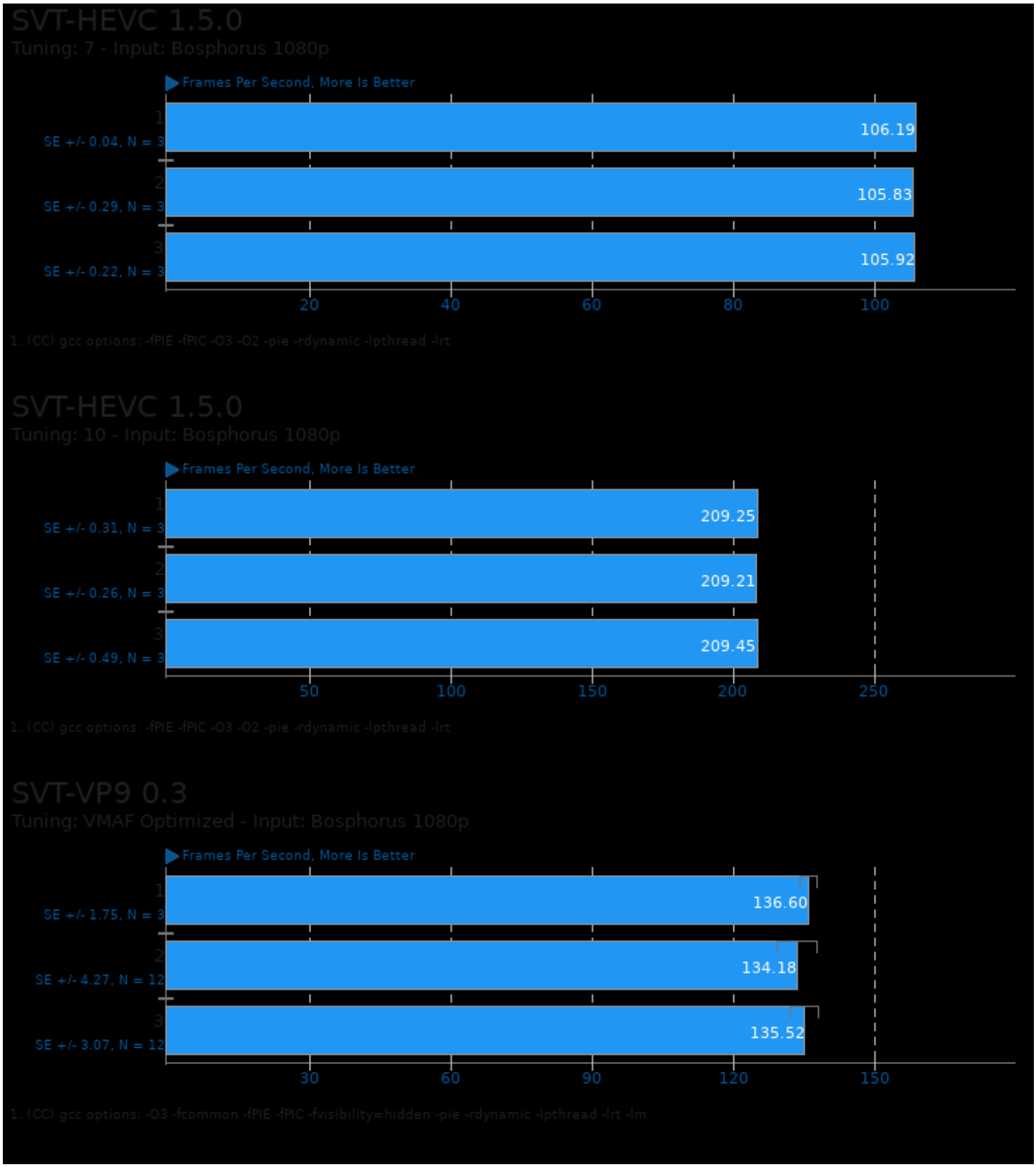
SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)	**136.60**	**134.18**	135.52
Normalized	100%	98.23%	99.21%
Standard Deviation	2.2%	11%	7.9%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	**143.24**	**143.51**	143.34
Normalized	99.81%	100%	99.88%
Standard Deviation	0.2%	0.5%	0.3%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	114.39	**114.45**	**114.17**
Normalized	99.95%	100%	99.76%
Standard Deviation	0.3%	0.1%	0.7%
Timed Mesa Compilation - Time To Compile (sec)	**55.883**	**55.559**	55.758
Normalized	99.42%	100%	99.64%
Standard Deviation	0%	0.3%	0.2%
oneDNN - IP Shapes 1D - f32 - CPU (ms)	**5.56715**	**5.53204**	5.53438
Normalized	99.37%	100%	99.96%
Standard Deviation	0.7%	0.4%	0.3%
oneDNN - IP Shapes 3D - f32 - CPU (ms)	**10.2333**	10.7400	**10.9520**
Normalized	100%	95.28%	93.44%
Standard Deviation	0.5%	0.4%	0.1%
oneDNN - IP Shapes 1D - u8s8f32 - CPU (ms)	2.63018	**2.62524**	**11.59989**
Normalized	99.81%	100%	22.63%
Standard Deviation	0.3%	0.2%	151.8%
oneDNN - IP Shapes 3D - u8s8f32 - CPU (ms)	**2.38623**	**2.68827**	2.46096
Normalized	100%	88.76%	96.96%
Standard Deviation	0.8%	0.5%	0.3%
oneDNN - C.B.S.A - f32 - CPU (ms)	23.0380	**23.0943**	**22.9538**
Normalized	99.63%	99.39%	100%
Standard Deviation	0%	0.2%	0.1%
oneDNN - D.B.s - f32 - CPU (ms)	**8.99245**	**8.70508**	8.71411
Normalized	96.8%	100%	99.9%
Standard Deviation	0.3%	7.2%	9.5%
oneDNN - D.B.s - f32 - CPU (ms)	**6.69724**	**6.74862**	6.73558
Normalized	100%	99.24%	99.43%
Standard Deviation	0.2%	0.4%	0.2%
oneDNN - C.B.S.A - u8s8f32 - CPU (ms)	**21.0584**	**21.522**	21.2447
Normalized	100%	97.85%	99.12%
Standard Deviation	0.3%	0.1%	0.3%
oneDNN - D.B.s - u8s8f32 - CPU (ms)	**3.63976**	**3.64478**	3.64264
Normalized	100%	99.86%	99.92%
Standard Deviation	0.4%	0.2%	0.6%
oneDNN - D.B.s - u8s8f32 - CPU (ms)	**4.62287**	**4.64339**	4.63664
Normalized	100%	99.56%	99.7%
Standard Deviation	0.2%	0.4%	0.3%
oneDNN - R.N.N.T - f32 - CPU (ms)	3899	**3937**	**3811**
Normalized	97.74%	96.81%	100%
Standard Deviation	0.1%	0.9%	0.2%
oneDNN - R.N.N.I - f32 - CPU (ms)	**2759**	**2831**	
Normalized	100%	97.46%	
Standard Deviation	0.8%	0.5%	
oneDNN - R.N.N.T - u8s8f32 - CPU (ms)	**3873**	**3939**	
Normalized	100%	98.34%	
Standard Deviation	0.7%	0.3%	
oneDNN - R.N.N.I - u8s8f32 - CPU (ms)	**2747**	**2820**	
Normalized	100%	97.42%	

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Standard Deviation	0.8%	0.5%
oneDNN - M.M.B.S.T - f32 - CPU (ms)	**4.82779**	**4.94477**
Normalized	100%	97.63%
Standard Deviation	0.5%	0.5%
oneDNN - R.N.N.T - bf16bf16bf16 - CPU (ms)	**3858**	**3919**
Normalized	100%	98.44%
Standard Deviation	0.6%	0.1%
oneDNN - R.N.N.I - bf16bf16bf16 - CPU (ms)	**2743**	**2801**
Normalized	100%	97.93%
Standard Deviation	1%	0.5%
oneDNN - M.M.B.S.T - u8s8f32 - CPU (ms)	**3.05660**	**3.06767**
Normalized	100%	99.64%
Standard Deviation	0.1%	0%
Sysbench - RAM / Memory (MiB/sec)	**10289**	**10277**
Normalized	100%	99.88%
Standard Deviation	0.1%	0.4%
Sysbench - CPU (Events/sec)	**17383**	**17342**
Normalized	100%	99.76%
Standard Deviation	0.1%	0.3%

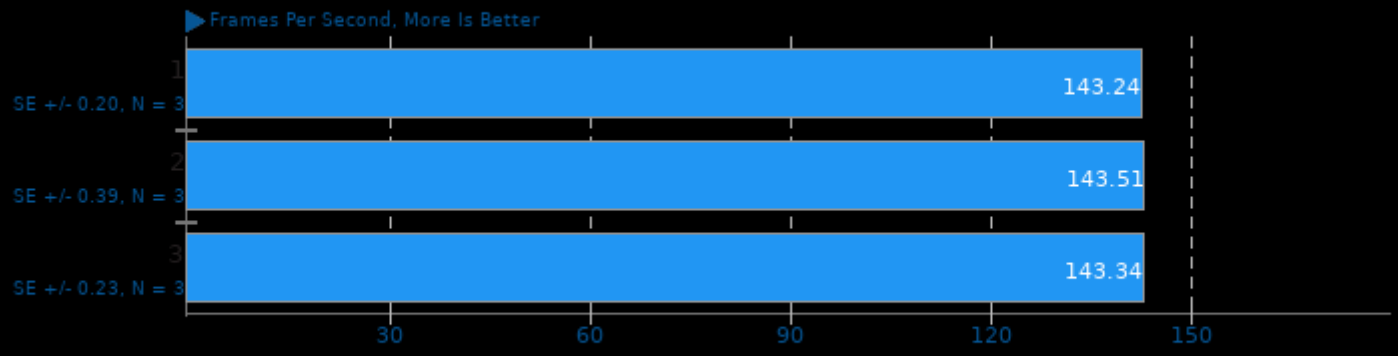

Xcompact3d Incompact3d 2021-03-11
Input: input.i3d 129 Cells Per Direction
Seconds, Fewer Is Better
1
SE +/- 0.04, N = 3
40.35
2
SE +/- 0.05, N = 3
40.48
3
SE +/- 0.22, N = 3
40.72
9
18
27
36
45
1. (F9X) gfortran options: -cpp -O2 -funroll-loops -floop-optimize -fcray-pointer -fbacktrace -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
Xcompact3d Incompact3d 2021-03-11
Input: input.i3d 192 Cells Per Direction
Seconds, Fewer Is Better
1
SE +/- 1.26, N = 3
318.21
2
SE +/- 0.22, N = 3
316.53
3
SE +/- 0.35, N = 3
317.01
70
140
210
280
350
1. (F9X) gfortran options: -cpp -O2 -funroll-loops -floop-optimize -fcray-pointer -fbacktrace -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
SVT-HEVC 1.5.0
Tuning: 1 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
1
SE +/- 0.02, N = 3
7.63
2
SE +/- 0.01, N = 3
7.59
3
SE +/- 0.03, N = 3
7.61
2
4
6
8
10
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt

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SVT-VP9 0.3

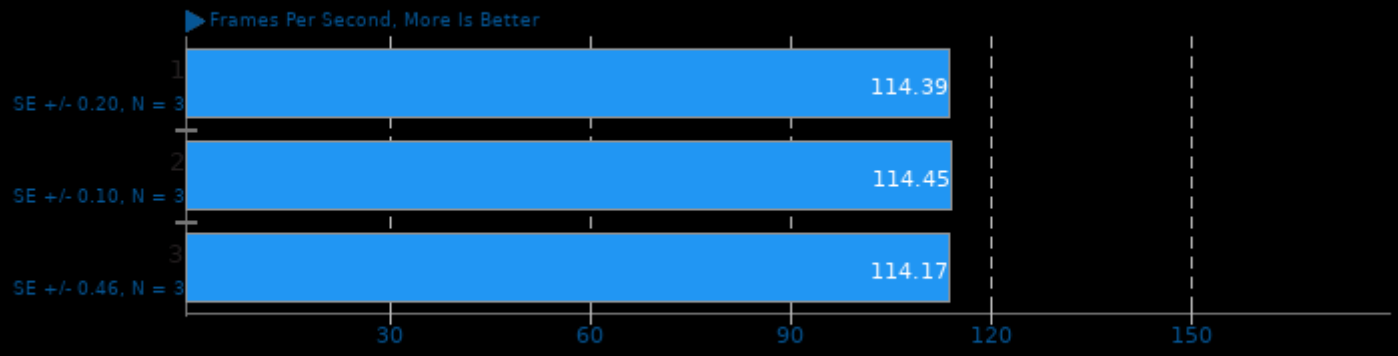
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



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

SVT-VP9 0.3

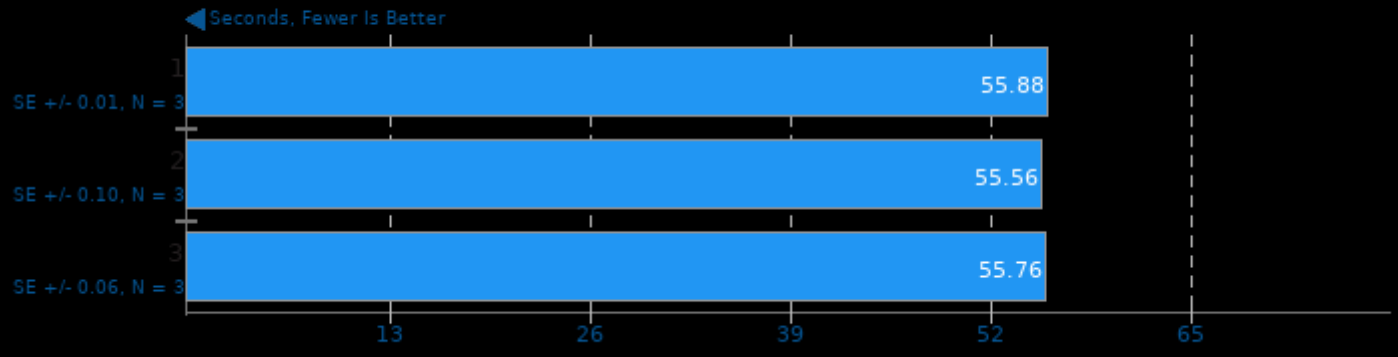
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p

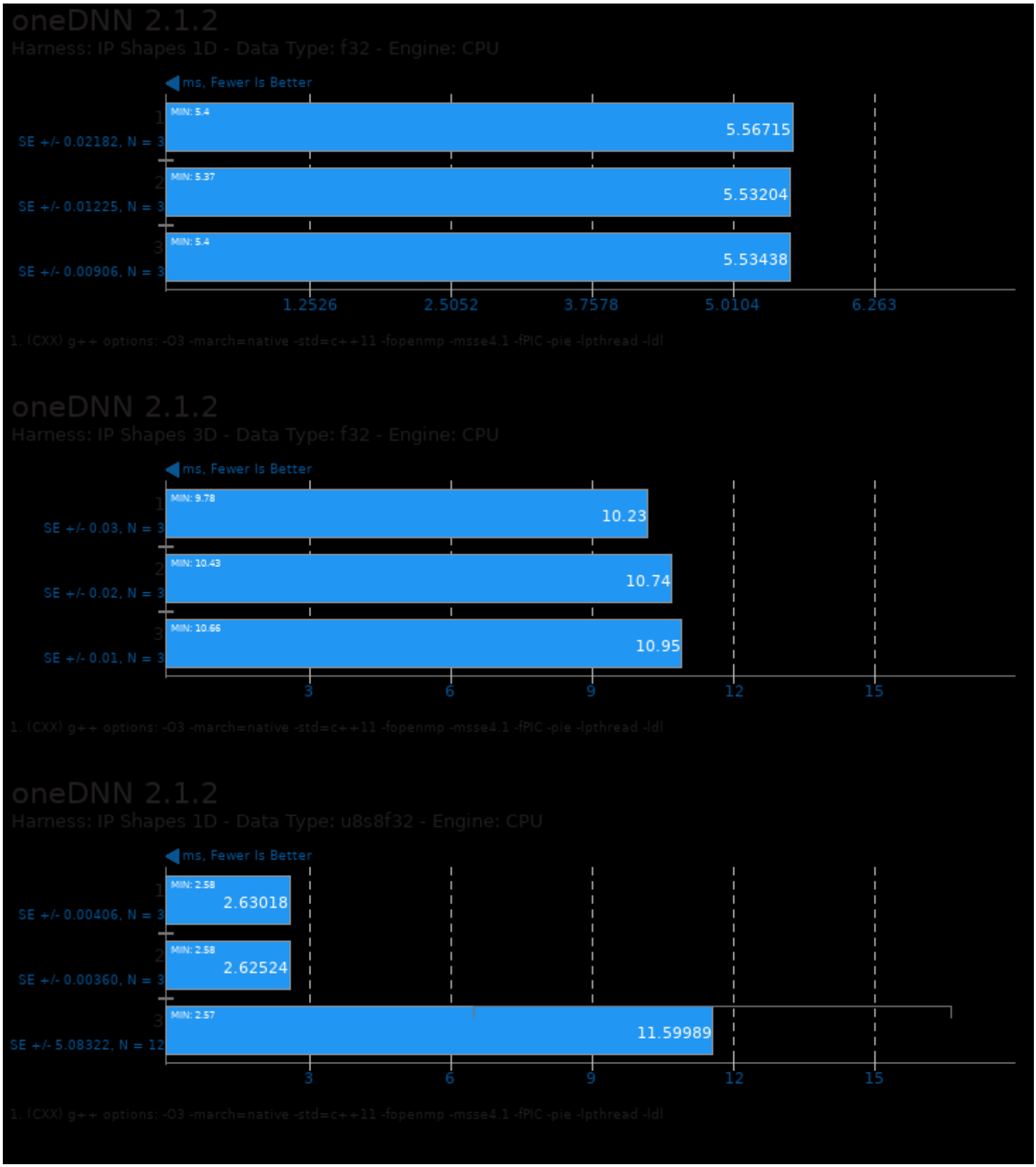


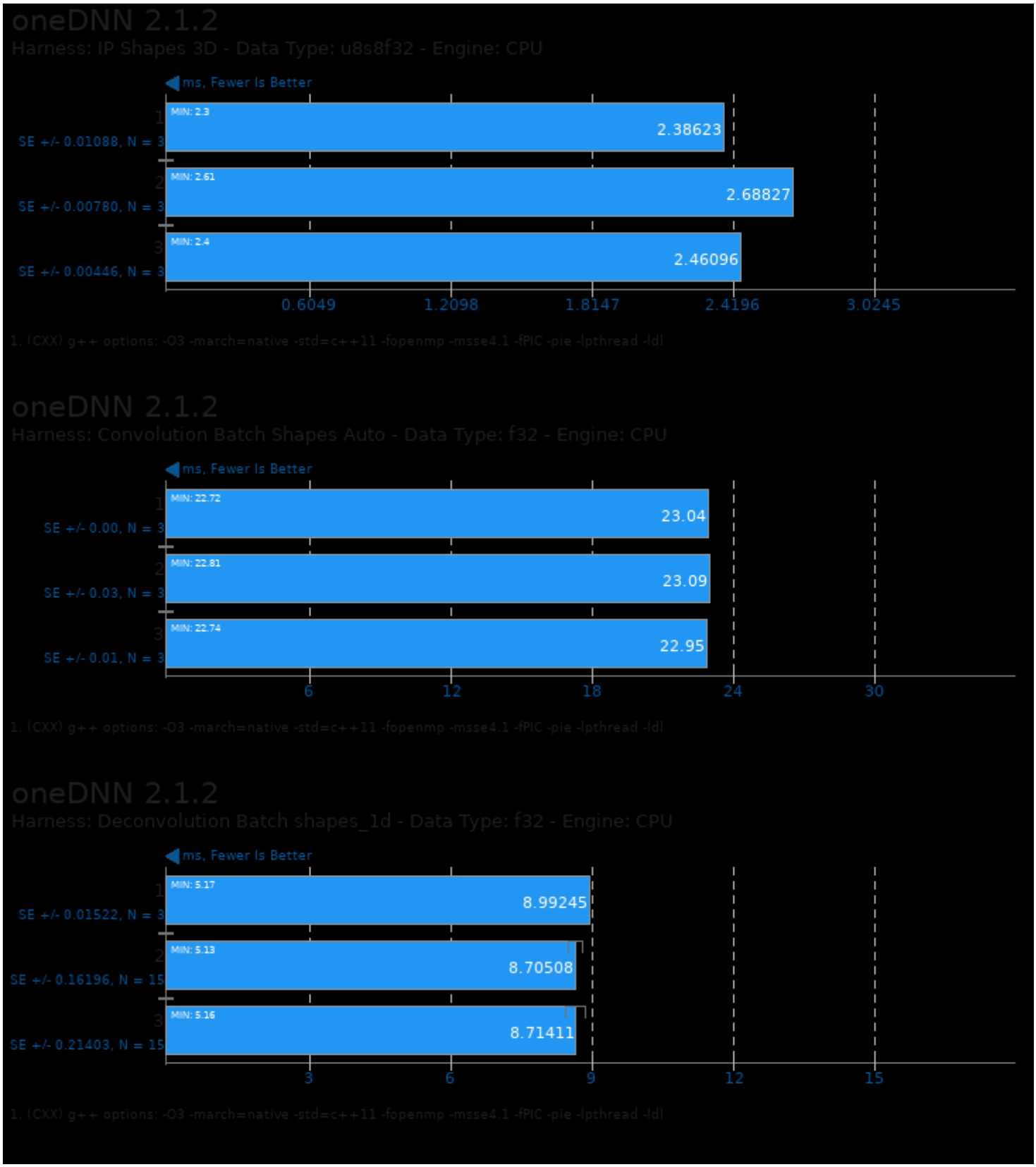
1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

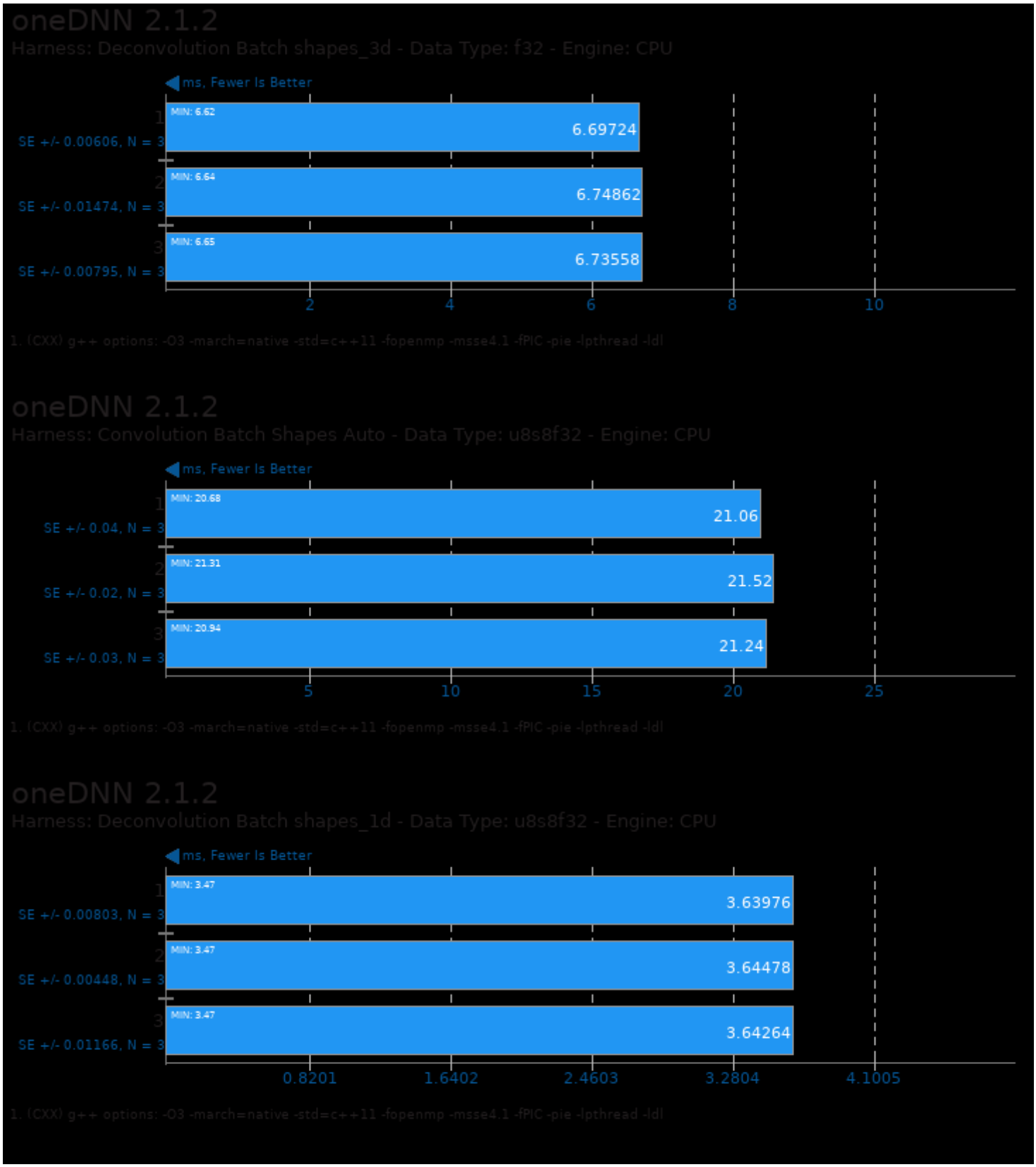
Timed Mesa Compilation 21.0

Time To Compile

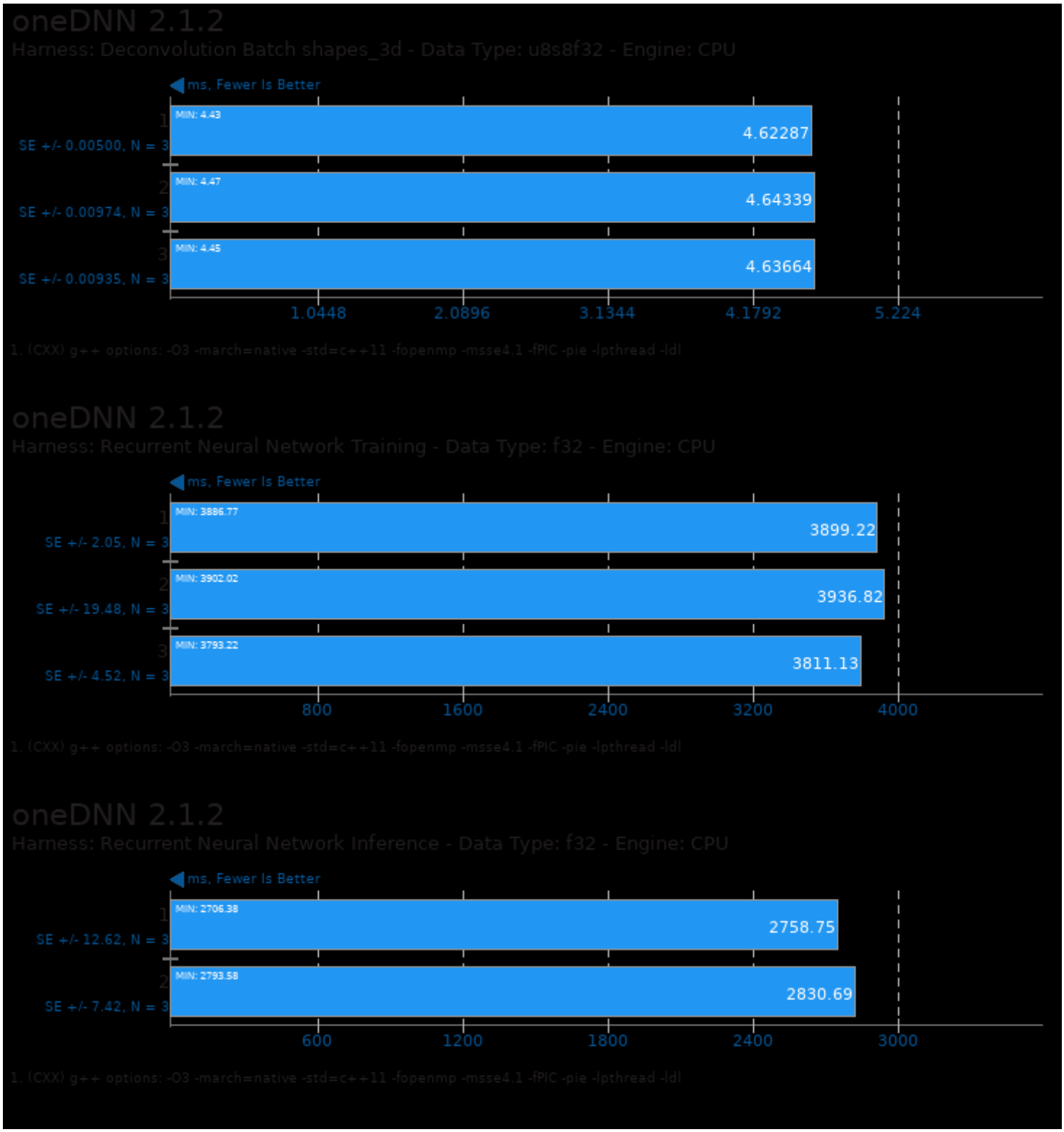


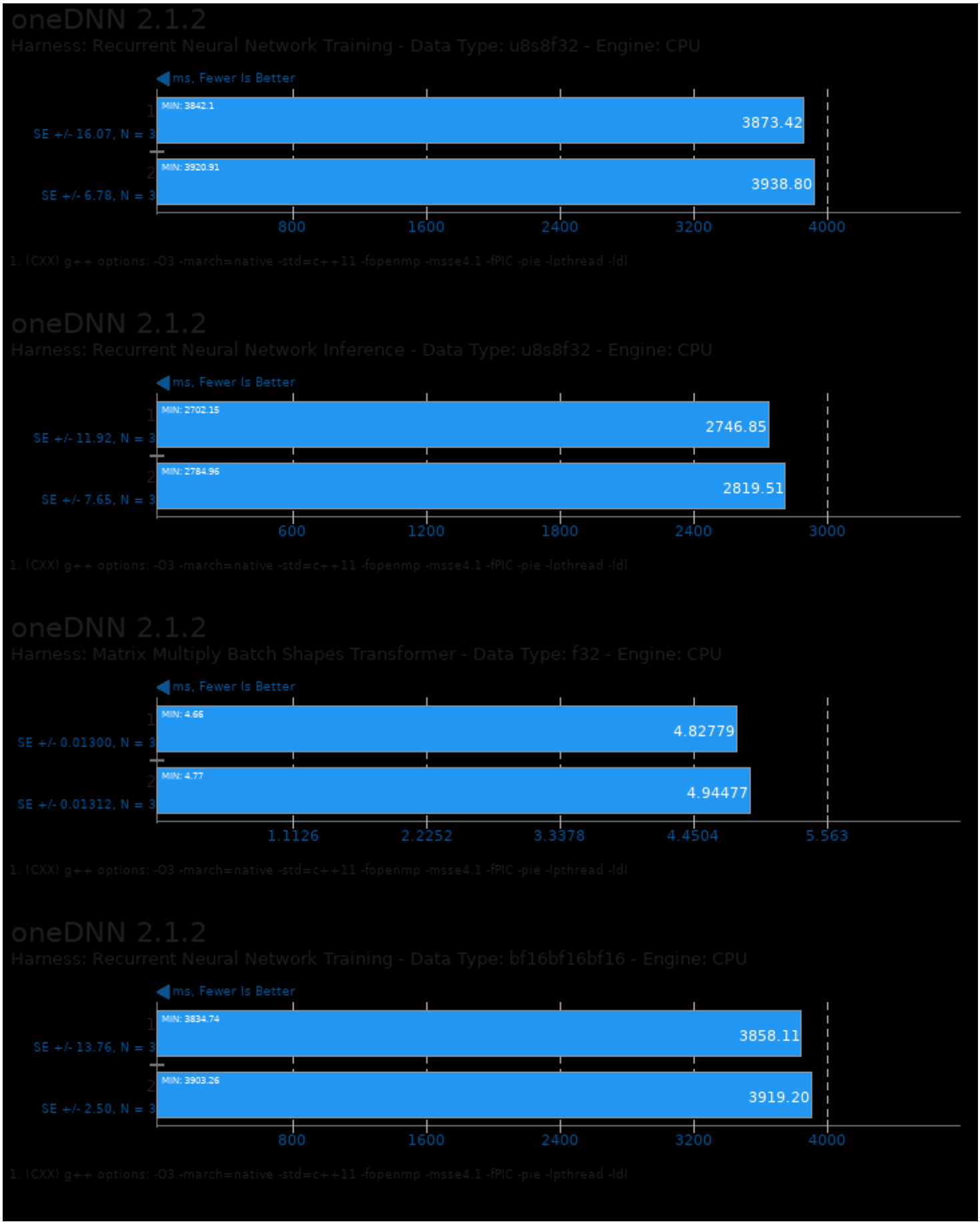

oneDNN 2.1.2
Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 5.4
5.56715
SE +/- 0.02182, N = 3
2
MIN: 5.37
5.53204
SE +/- 0.01225, N = 3
3
MIN: 5.4
5.53438
SE +/- 0.00906, N = 3
1.2526
2.5052
3.7578
5.0104
6.263
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 9.78
10.23
SE +/- 0.03, N = 3
2
MIN: 10.43
10.74
SE +/- 0.02, N = 3
3
MIN: 10.66
10.95
SE +/- 0.01, N = 3
3
6
9
12
15
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: IP Shapes 1D - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 2.58
2.63018
SE +/- 0.00406, N = 3
2
MIN: 2.58
2.62524
SE +/- 0.00360, N = 3
3
MIN: 2.57
11.59989
SE +/- 5.08322, N = 12
3
6
9
12
15
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl


oneDNN 2.1.2
Harness: IP Shapes 3D - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 2.3
2.38623
SE +/- 0.01088, N = 3
2
MIN: 2.61
2.68827
SE +/- 0.00780, N = 3
3
MIN: 2.4
2.46096
SE +/- 0.00446, N = 3
0.6049
1.2098
1.8147
2.4196
3.0245
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 22.72
23.04
SE +/- 0.00, N = 3
2
MIN: 22.81
23.09
SE +/- 0.03, N = 3
3
MIN: 22.74
22.95
SE +/- 0.01, N = 3
6
12
18
24
30
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Deconvolution Batch shapes_1d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 5.17
8.99245
SE +/- 0.01522, N = 3
2
MIN: 5.13
8.70508
SE +/- 0.16196, N = 15
3
MIN: 5.16
8.71411
SE +/- 0.21403, N = 15
3
6
9
12
15
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl


oneDNN 2.1.2
Harness: Deconvolution Batch shapes_3d - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 6.62
6.69724
SE +/- 0.00606, N = 3
2
MIN: 6.64
6.74862
SE +/- 0.01474, N = 3
3
MIN: 6.65
6.73558
SE +/- 0.00795, N = 3
2
4
6
8
10
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Convolution Batch Shapes Auto - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 20.68
21.06
SE +/- 0.04, N = 3
2
MIN: 21.31
21.52
SE +/- 0.02, N = 3
3
MIN: 20.94
21.24
SE +/- 0.03, N = 3
5
10
15
20
25
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Deconvolution Batch shapes_1d - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
1
MIN: 3.47
3.63976
SE +/- 0.00803, N = 3
2
MIN: 3.47
3.64478
SE +/- 0.00448, N = 3
3
MIN: 3.47
3.64264
SE +/- 0.01166, N = 3
0.8201
1.6402
2.4603
3.2804
4.1005
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

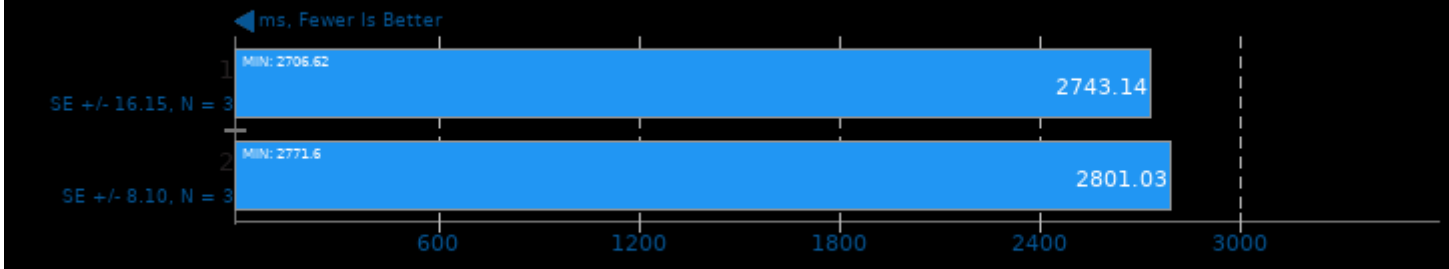
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oneDNN 2.1.2
Harness: Recurrent Neural Network Training - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
MIN: 3842.1
3873.42
SE +/- 16.07, N = 3
MIN: 3920.91
3938.80
SE +/- 6.78, N = 3
800
1600
2400
3200
4000
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Recurrent Neural Network Inference - Data Type: u8s8f32 - Engine: CPU
ms, Fewer Is Better
MIN: 2702.15
2746.85
SE +/- 11.92, N = 3
MIN: 2784.96
2819.51
SE +/- 7.65, N = 3
600
1200
1800
2400
3000
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU
ms, Fewer Is Better
MIN: 4.66
4.82779
SE +/- 0.01300, N = 3
MIN: 4.77
4.94477
SE +/- 0.01312, N = 3
1.1126
2.2252
3.3378
4.4504
5.563
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Recurrent Neural Network Training - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
MIN: 3834.74
3858.11
SE +/- 13.76, N = 3
MIN: 3903.26
3919.20
SE +/- 2.50, N = 3
800
1600
2400
3200
4000
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

oneDNN 2.1.2

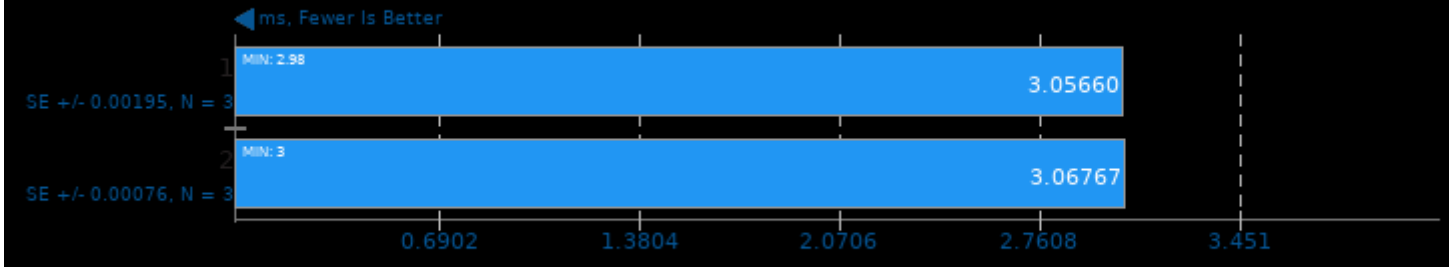
Harness: Recurrent Neural Network Inference - Data Type: bf16bf16bf16 - Engine: CPU



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

oneDNN 2.1.2

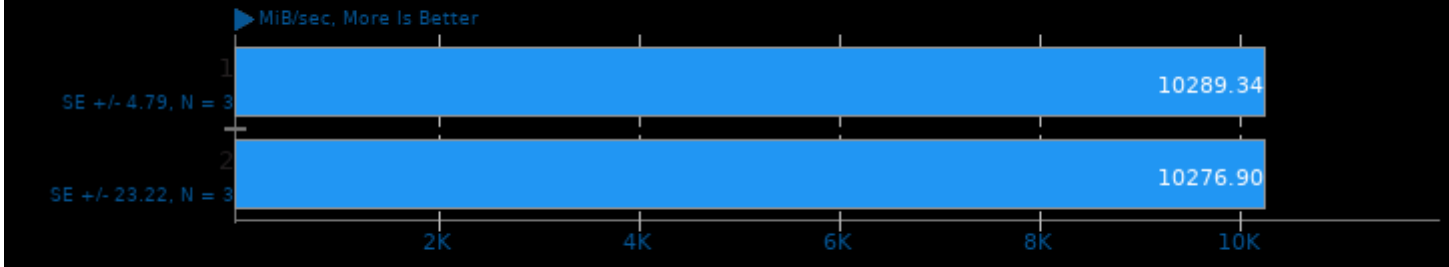
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

Sysbench 1.0.20

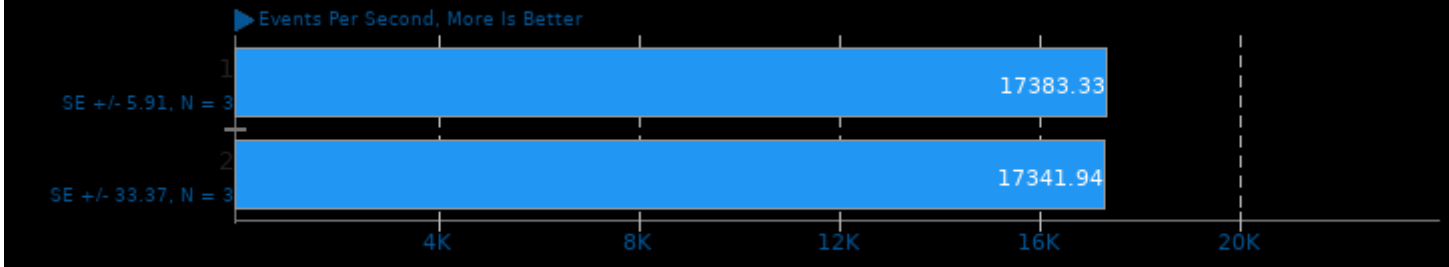
Test: RAM / Memory



1. (CC) gcc options: -pthread -O2 -funroll-loops -rdynamic -ldl -laio -lm

Sysbench 1.0.20

Test: CPU



1. (CC) gcc options: -pthread -O2 -funroll-loops -rdynamic -ldl -laio -lm

3700X More march

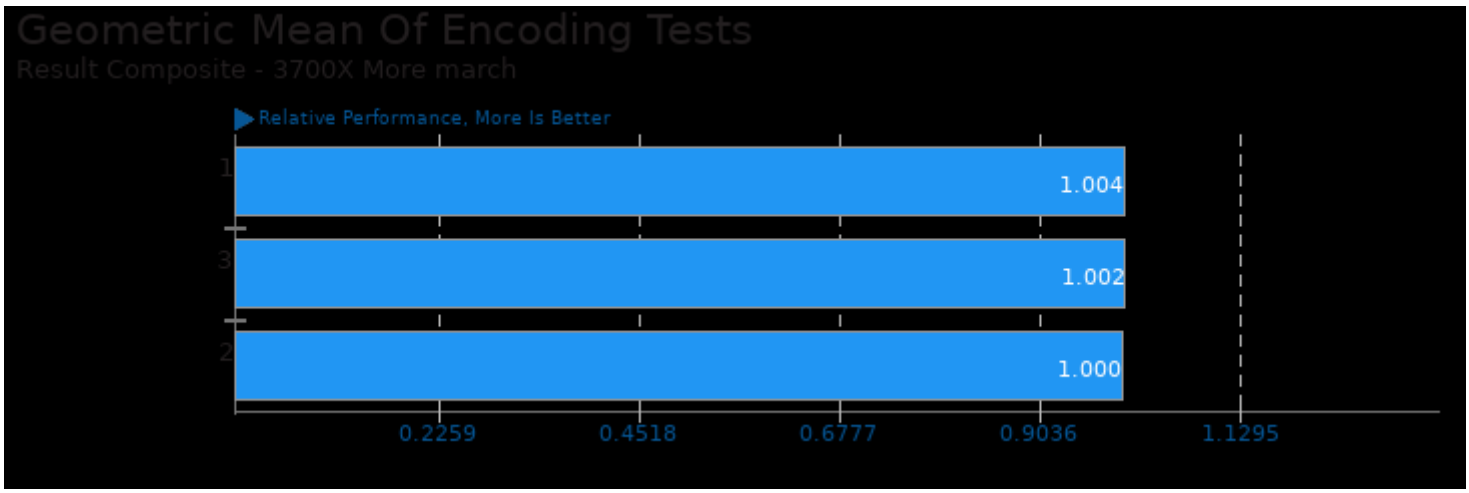
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/svt-hevc, pts/svt-vp9, pts/onednn and pts/sysbench

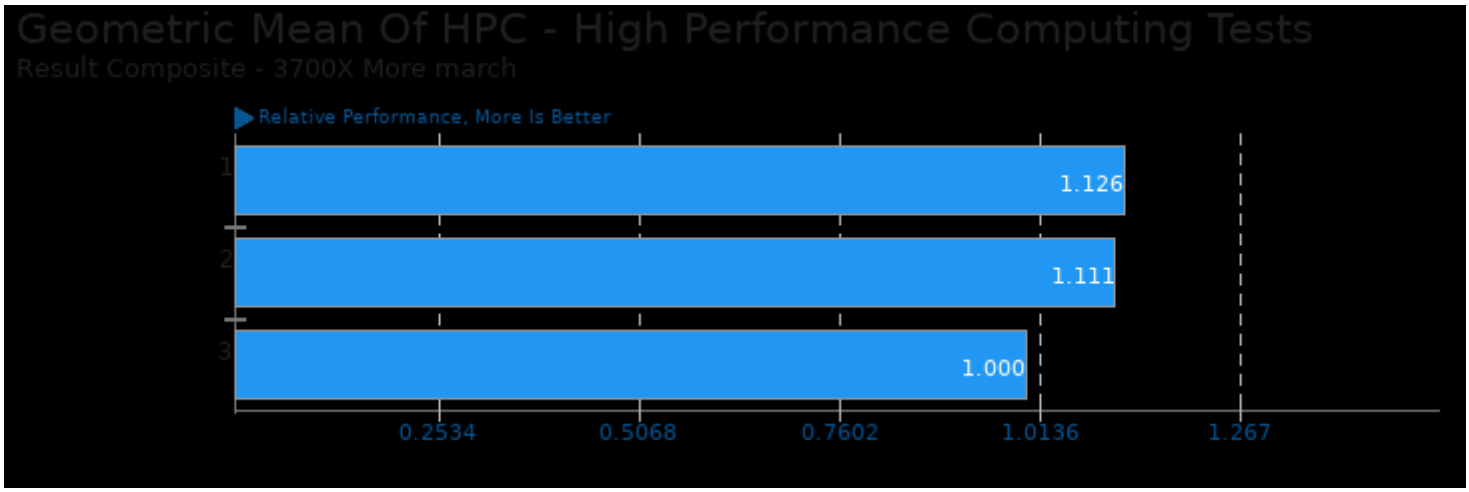


Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc and pts/onednn



Geometric mean based upon tests: pts/svt-vp9 and pts/svt-hevc

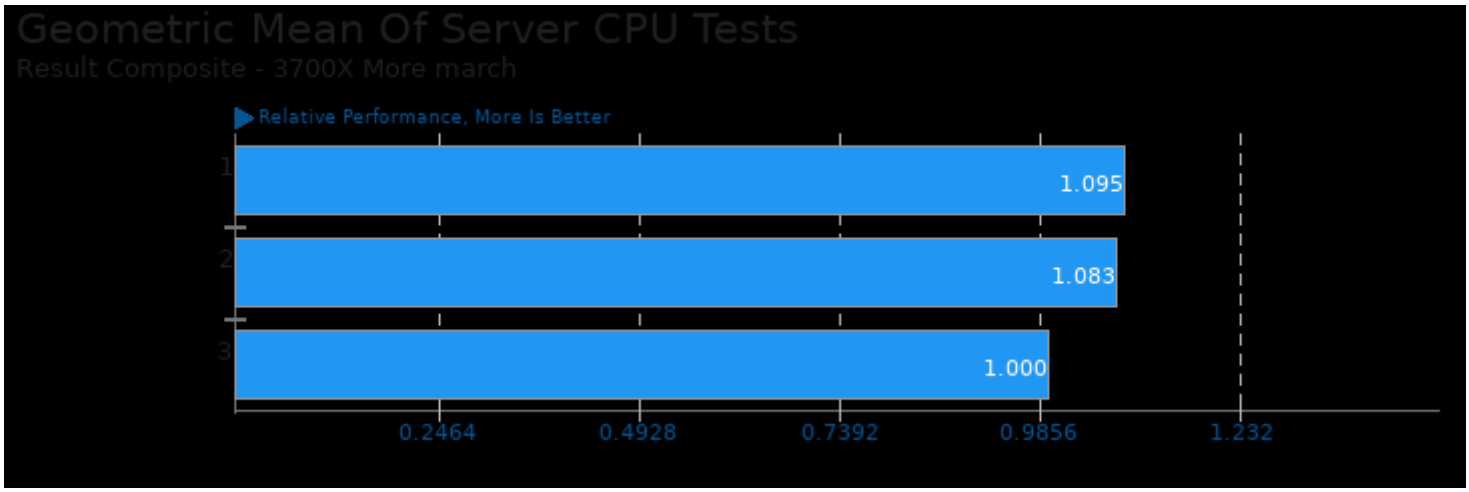
3700X More march



Geometric mean based upon tests: pts/incompact3d and pts/onednn

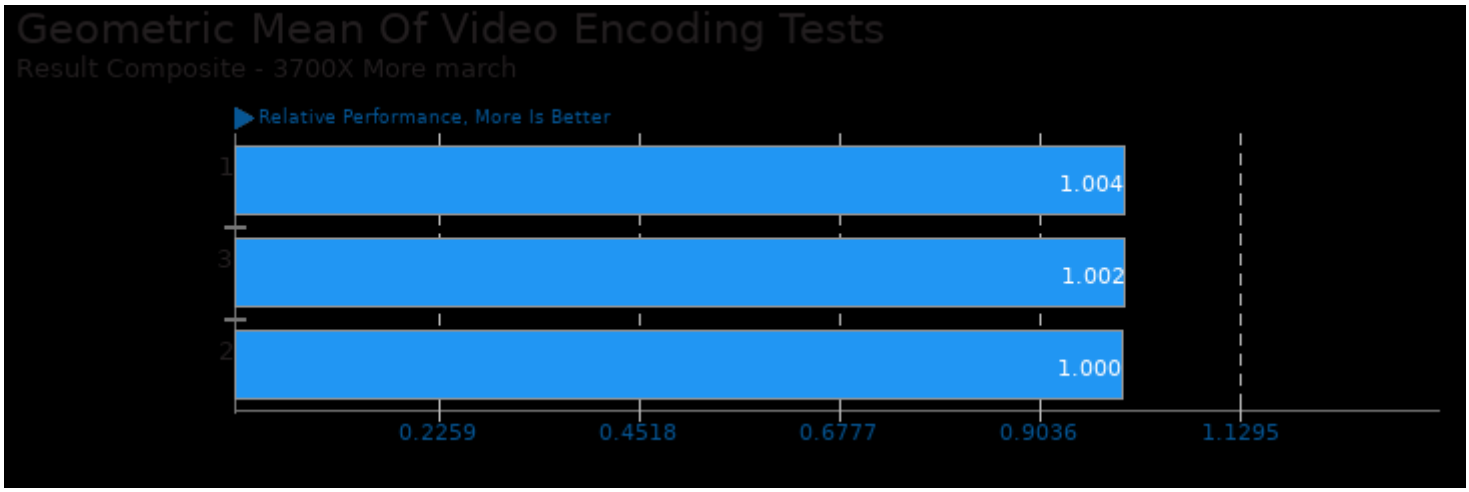


Geometric mean based upon tests: pts/sysbench, pts/svt-vp9, pts/svt-hevc, pts/onednn and pts/build-mesa



Geometric mean based upon tests: pts/onednn, pts/svt-hevc, pts/svt-vp9 and pts/sysbench

3700X More march



Geometric mean based upon tests: pts/svt-vp9 and pts/svt-hevc

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 05:59.