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2022-11-04

Intel Core i7-4790K testing with a ASRock H97 Anniversary (P1.10 BIOS) and eVGA NVIDIA NV136 6GB on Ubuntu 22.04 via the Phoronix Test Suite.

Automated Executive Summary

audio-encoding had the most wins, coming in first place for 82% of the tests.

Based on the geometric mean of all complete results, the fastest (audio-encoding) was 1.001x the speed of the slowest (python).

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

Mlpack Benchmark (Benchmark: scikit_ica) at 1.006x
PyPerformance (Benchmark: pathlib) at 1.005x
PyPerformance (Benchmark: django_template) at 1.005x
PyPerformance (Benchmark: json_loads) at 1.004x
Cython Benchmark (Test: N-Queens) at 1.004x
PyPerformance (Benchmark: pickle_pure_python) at 1.003x
PyBench (Total For Average Test Times) at 1.001x
Numpy Benchmark at 1.001x
PyPerformance (Benchmark: go) at 1x

PyPerformance (Benchmark: 2to3) at 1x.

Test Systems:

audio-encoding

python

Processor: Intel Core i7-4790K @ 4.40GHz (4 Cores / 8 Threads), Motherboard: ASRock H97 Anniversary (P1.10 BIOS), Chipset: Intel 4th Gen Core DRAM, Memory: 32GB, Disk: 1000GB Samsung SSD 870, Graphics: eVGA NVIDIA NV136 6GB, Audio: Intel Xeon E3-1200 v3/4th, Monitor: 27GL850, Network: Realtek RTL8111/8168/8411 + Broadcom BCM4360 802.11ac

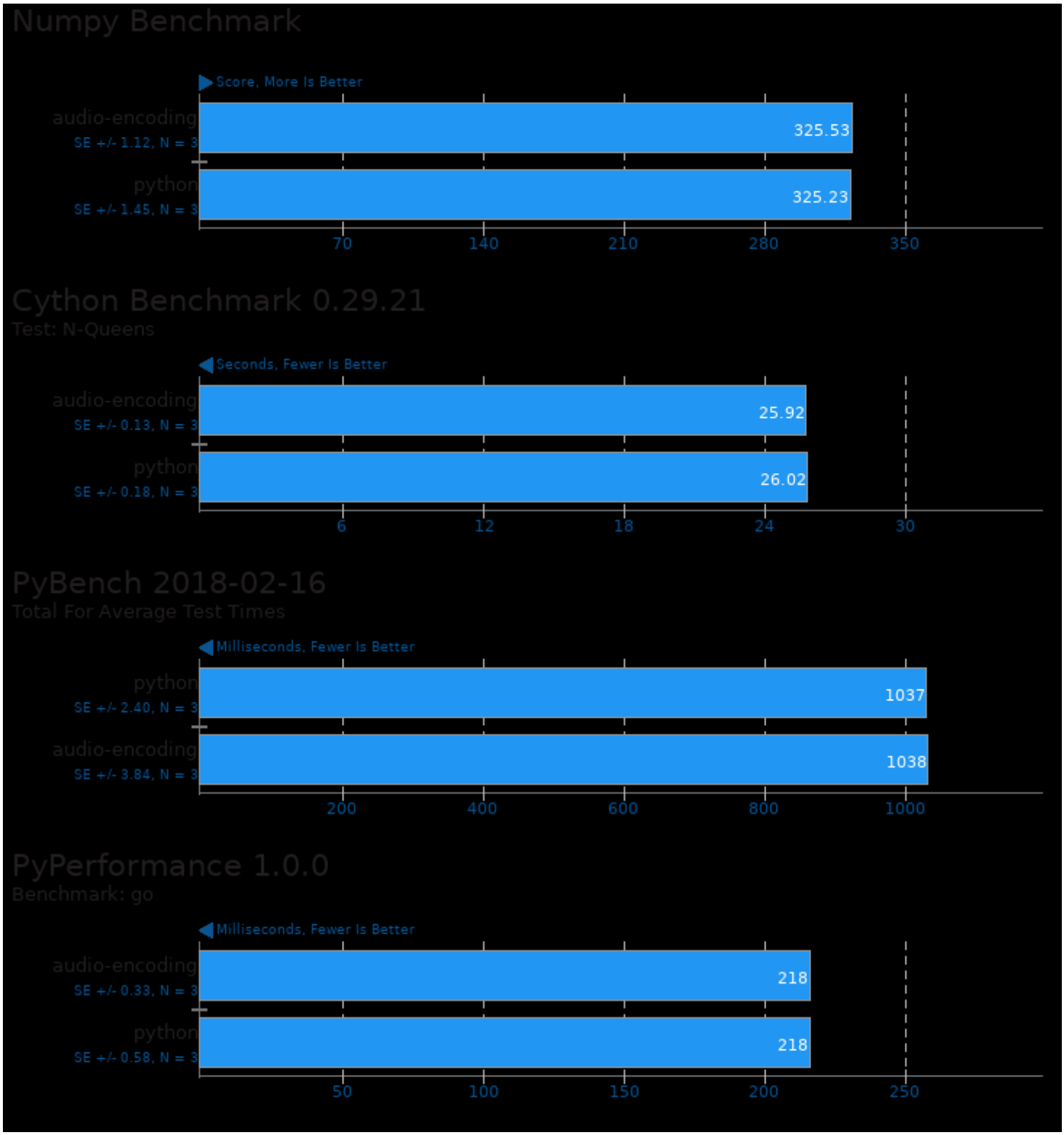
OS: Ubuntu 22.04, Kernel: 5.15.0-52-generic (x86_64), Desktop: GNOME Shell 42.5, Display Server: X Server 1.21.1.3, Display Driver: nouveau, OpenGL: 4.3 Mesa 22.0.5, Vulkan: 1.3.204, Compiler: GCC 11.3.0 + CUDA 11.5, File-System: ext4, Screen Resolution: 2560x1440

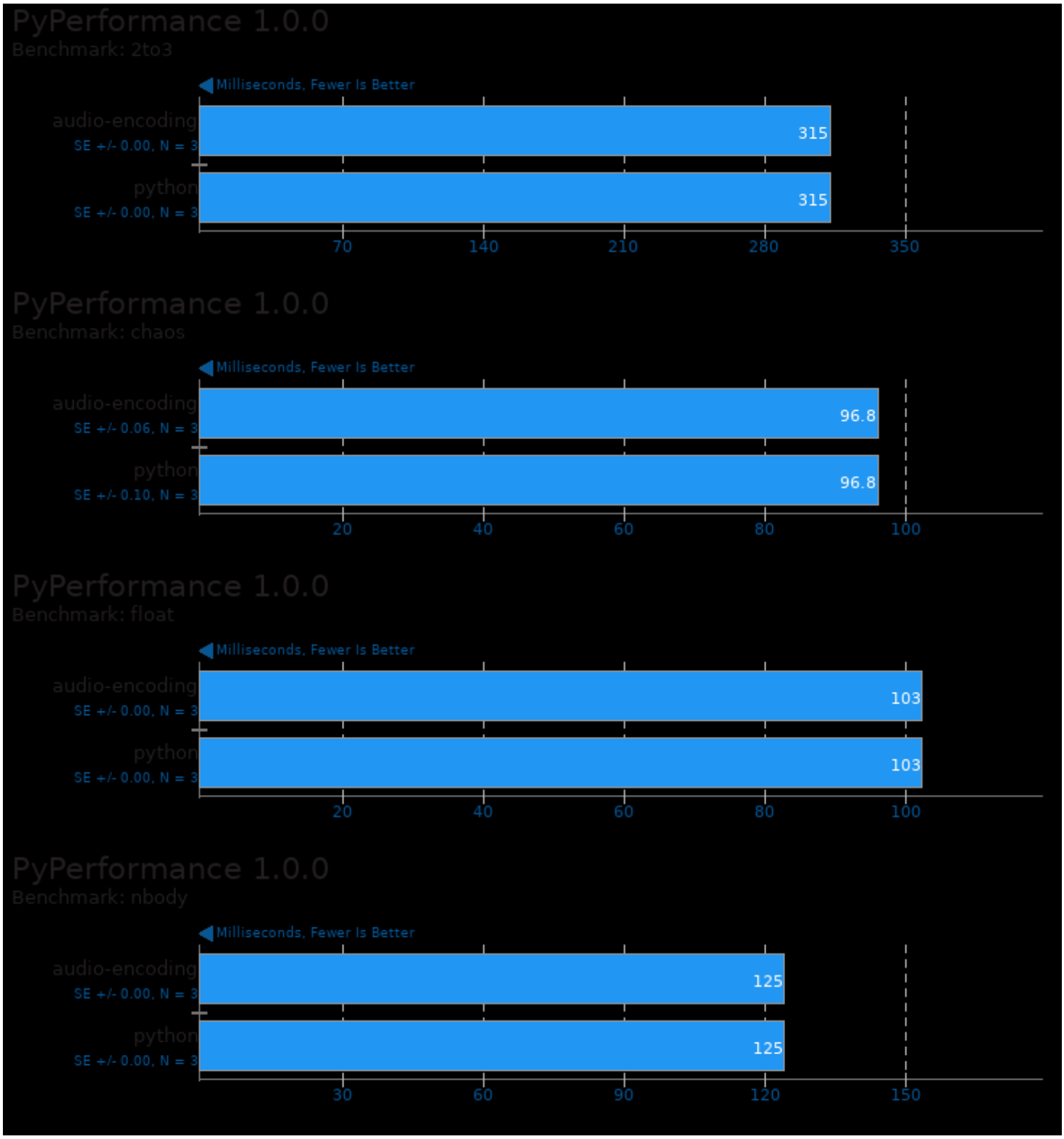
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-xKiWfi/gcc-11-11.3.0/debian/tmp-gcn/usr --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_cpufreq schedutil - CPU Microcode: 0x28 - Thermald 2.4.9
Python Notes: Python 3.10.6
Security Notes: itlb_multihit: KVM: Mitigation of VMX disabled + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + meltdown: Mitigation of PTI + mmio_stale_data: Not affected + retbleed: 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 Retpolines IBPB: conditional IBRS_FW STIBP: conditional RSB filling PBRSB-eIBRS: Not affected + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

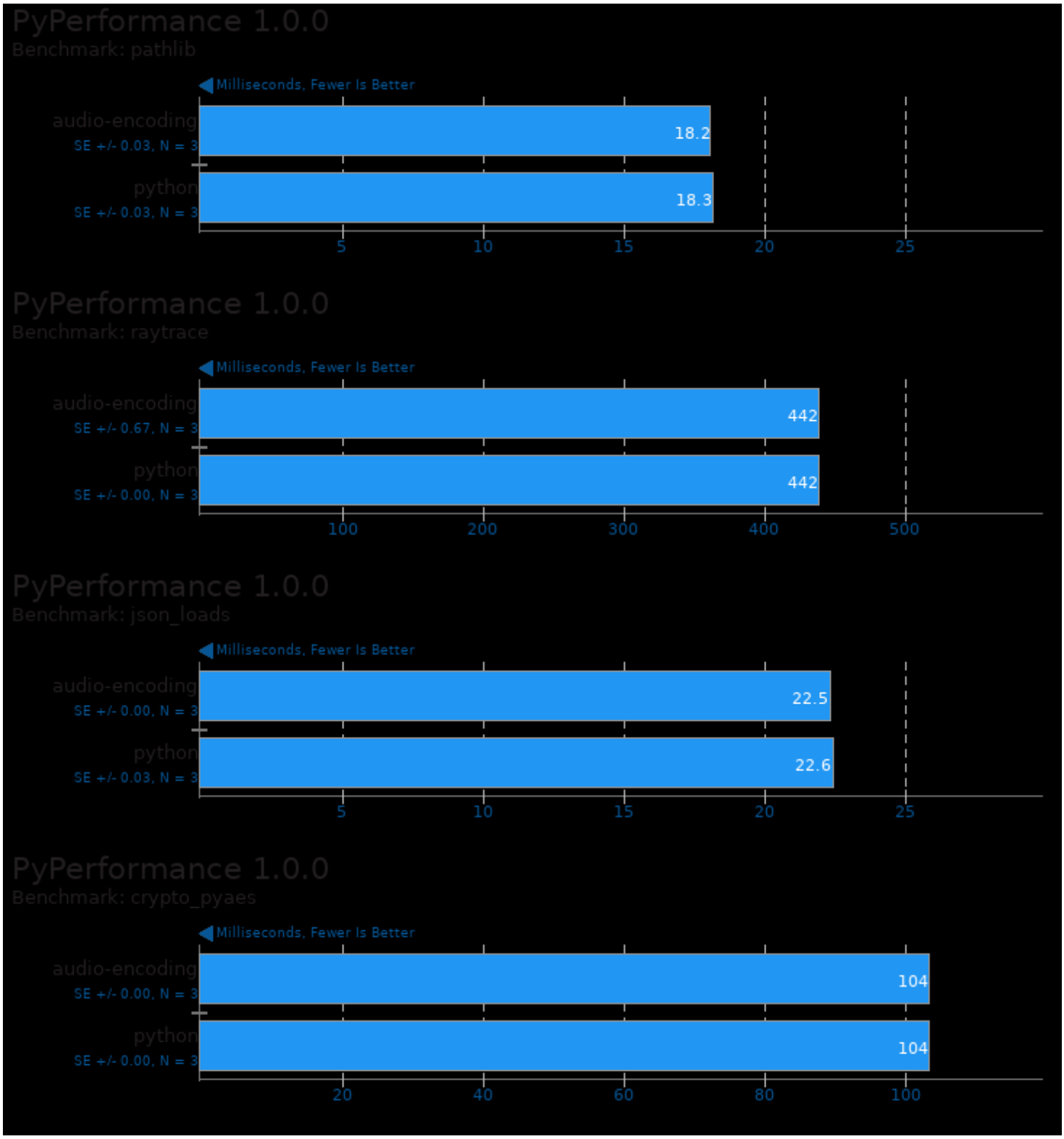
	audio-encoding	python
Numpy Benchmark (Score)	**325.53**	**325.23**
Normalized	100%	99.91%
Standard Deviation	0.6%	0.8%
Cython Benchmark - N-Queens (sec)	**25.923**	**26.020**
Normalized	100%	99.63%
Standard Deviation	0.9%	1.2%
PyBench - T.F.A.T.T (Milliseconds)	**1038**	**1037**
Normalized	99.9%	100%
Standard Deviation	0.6%	0.4%
PyPerformance - go (Milliseconds)	218	218
Standard Deviation	0.3%	0.5%
PyPerformance - 2to3 (Milliseconds)	315	315
Standard Deviation	0%	0%
PyPerformance - chaos (Milliseconds)	96.8	96.8
Standard Deviation	0.1%	0.2%

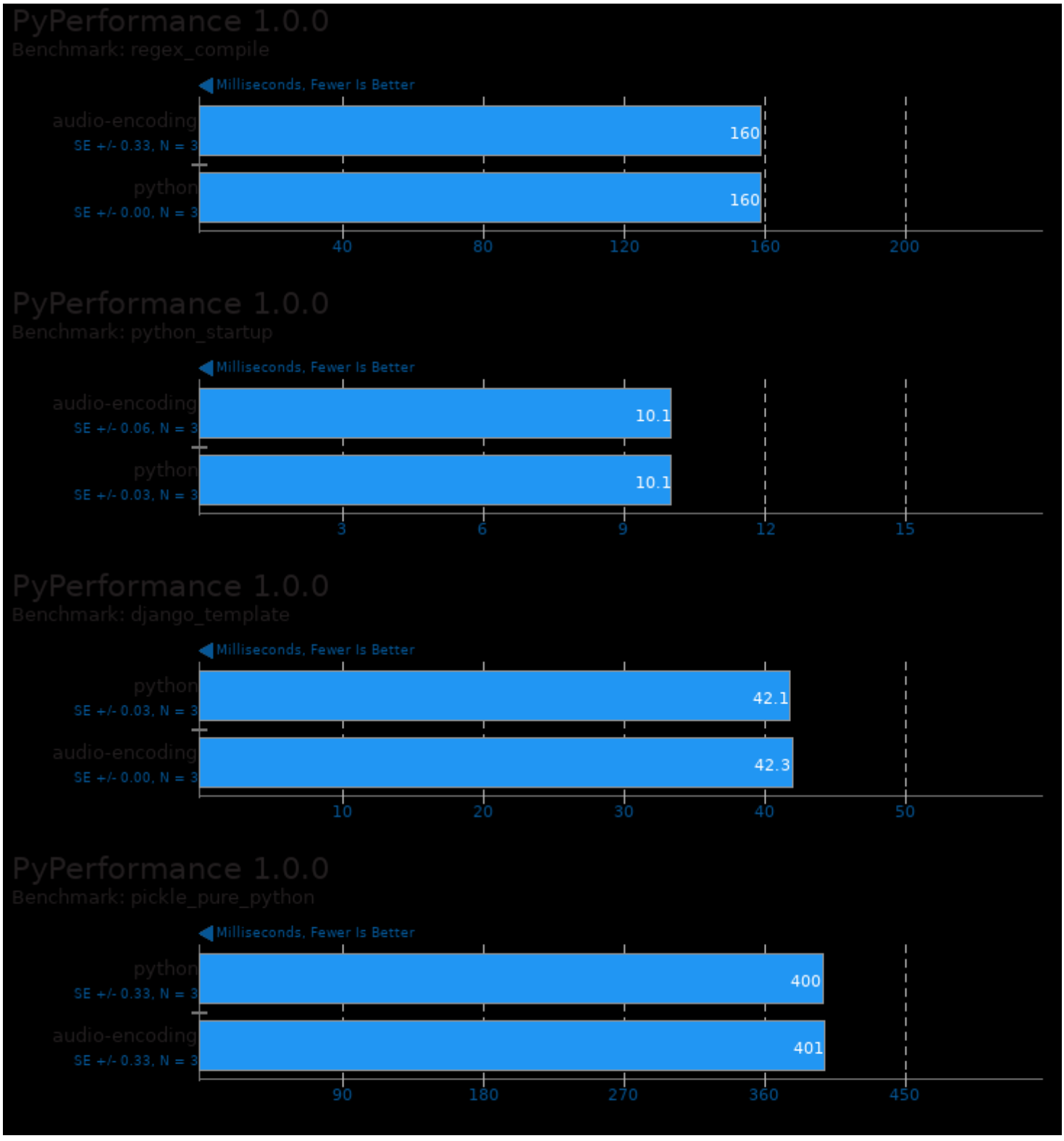
PyPerformance - float (Milliseconds)	103	103
Standard Deviation	0%	0%
PyPerformance - nbody (Milliseconds)	125	125
Standard Deviation	0%	0%
PyPerformance - pathlib (Milliseconds)	**18.2**	**18.3**
Normalized	100%	99.45%
Standard Deviation	0.3%	0.3%
PyPerformance - raytrace (Milliseconds)	442	442
Standard Deviation	0.3%	0%
PyPerformance - json_loads (Milliseconds)	**22.5**	**22.6**
Normalized	100%	99.56%
Standard Deviation	0%	0.3%
PyPerformance - crypto_pyaes (Milliseconds)	104	104
Standard Deviation	0%	0%
PyPerformance - regex_compile (Milliseconds)	160	160
Standard Deviation	0.4%	0%
PyPerformance - python_startup (Milliseconds)	10.1	10.1
Standard Deviation	1%	0.6%
PyPerformance - django_template (Milliseconds)	**42.3**	**42.1**
Normalized	99.53%	100%
Standard Deviation	0%	0.1%
PyPerformance - pickle_pure_python (Milliseconds)	**401**	**400**
Normalized	99.75%	100%
Standard Deviation	0.1%	0.1%
Mlpack Benchmark - scikit_ica (sec)	**54.68**	**54.99**
Normalized	100%	99.44%
Standard Deviation	0.6%	1.4%
Stargate Digital Audio Workstation - 44100 - 512 (Render Ratio)	1.270755	
Standard Deviation	2.5%	
Stargate Digital Audio Workstation - 96000 - 512 (Render Ratio)	0.944231	
Standard Deviation	1%	
Stargate Digital Audio Workstation - 192000 - 512 (Render Ratio)	0.655964	
Standard Deviation	0.6%	
Stargate Digital Audio Workstation - 44100 - 1024 (Render Ratio)	1.302031	
Standard Deviation	1.7%	
Stargate Digital Audio Workstation - 480000 - 512 (Render Ratio)	1.211917	
Standard Deviation	0.4%	
Stargate Digital Audio Workstation - 96000 - 1024 (Render Ratio)	0.964720	
Standard Deviation	0.5%	
Stargate Digital Audio Workstation - 192000 - 1024 (Render Ratio)	0.666308	
Standard Deviation	0.8%	
Stargate Digital Audio Workstation - 480000 - 1024 (Render Ratio)	1.261482	
Standard Deviation	1.6%	
FLAC Audio Encoding - WAV To FLAC (sec)	19.635	
Standard Deviation	0.3%	

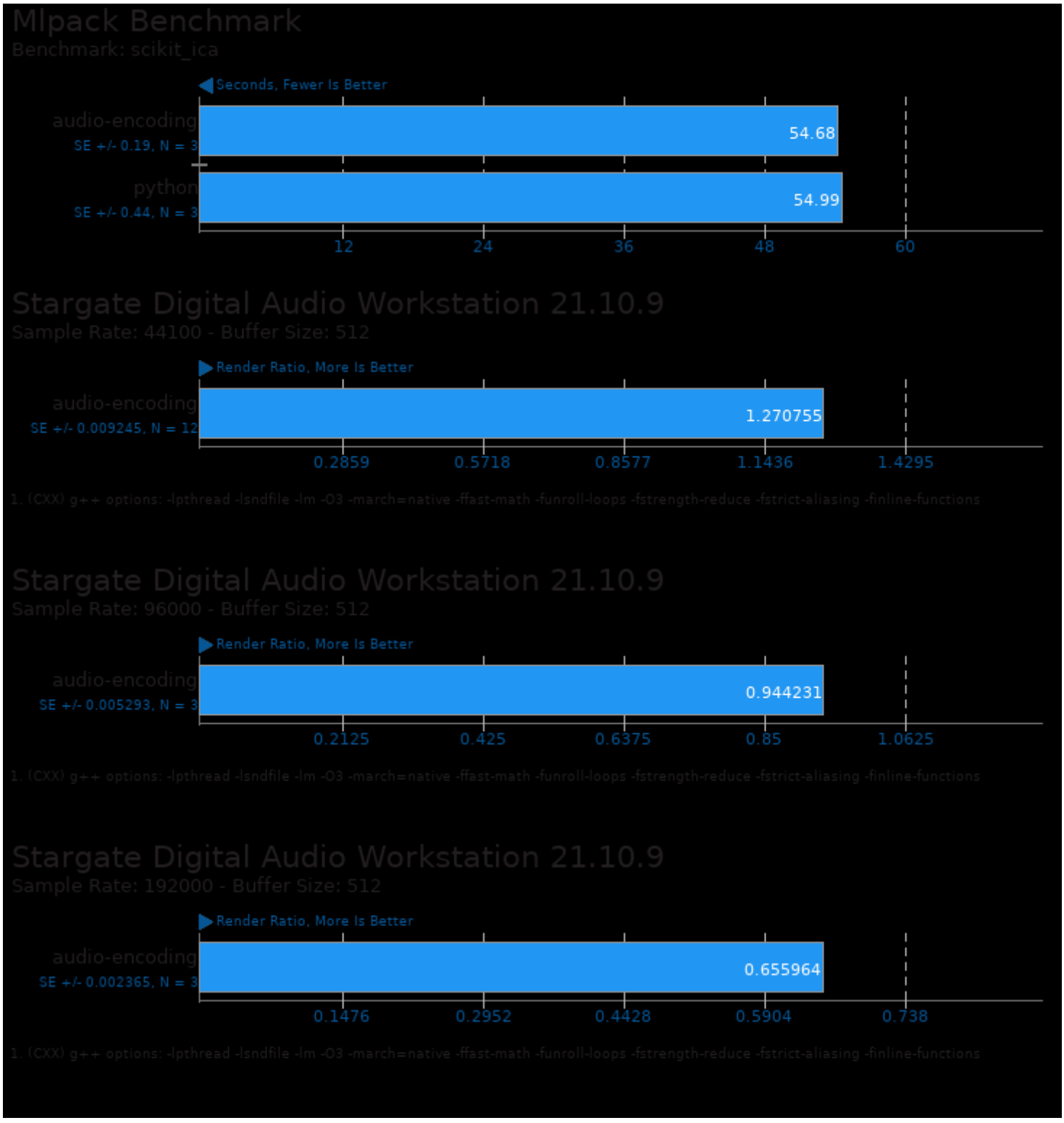
LAME MP3 Encoding - WAV To MP3 (sec)	8.800
Standard Deviation	0.1%
Ogg Audio Encoding - WAV To Ogg (sec)	21.031
Standard Deviation	0.2%
Opus Codec Encoding - WAV To Opus Encode (sec)	8.017
Standard Deviation	0.4%
WavPack Audio Encoding - WAV To WavPack (sec)	13.721
Standard Deviation	0.1%

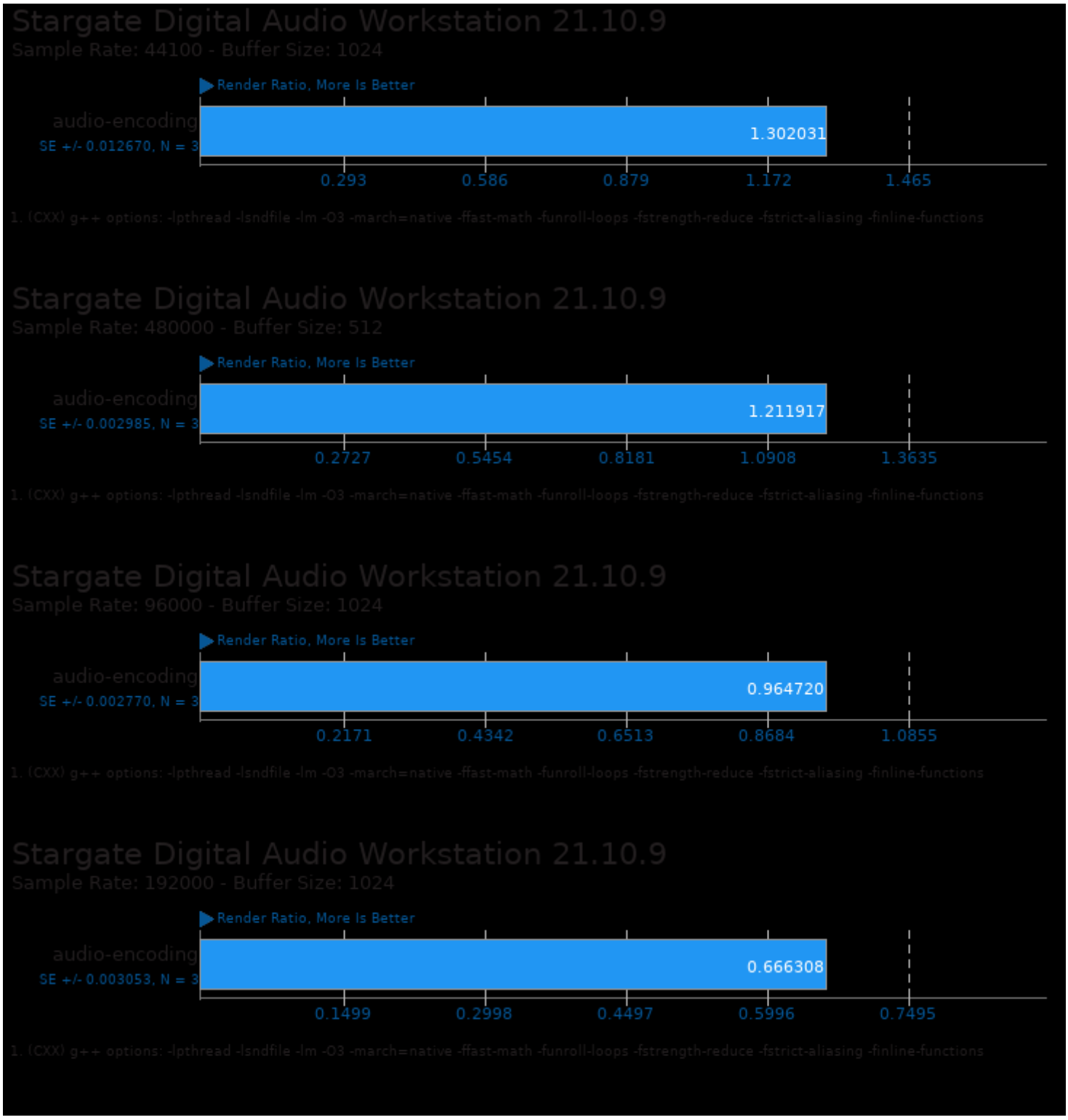

Numpy Benchmark
Score, More Is Better
audio-encoding
SE +/- 1.12, N = 3
325.53
python
SE +/- 1.45, N = 3
325.23
70
140
210
280
350
Cython Benchmark 0.29.21
Test: N-Queens
Seconds, Fewer Is Better
audio-encoding
SE +/- 0.13, N = 3
25.92
python
SE +/- 0.18, N = 3
26.02
6
12
18
24
30
PyBench 2018-02-16
Total For Average Test Times
Milliseconds, Fewer Is Better
python
SE +/- 2.40, N = 3
1037
audio-encoding
SE +/- 3.84, N = 3
1038
200
400
600
800
1000
PyPerformance 1.0.0
Benchmark: go
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.33, N = 3
218
python
SE +/- 0.58, N = 3
218
50
100
150
200
250


PyPerformance 1.0.0
Benchmark: 2to3
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.00, N = 3
315
python
SE +/- 0.00, N = 3
315
70
140
210
280
350
PyPerformance 1.0.0
Benchmark: chaos
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.06, N = 3
96.8
python
SE +/- 0.10, N = 3
96.8
20
40
60
80
100
PyPerformance 1.0.0
Benchmark: float
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.00, N = 3
103
python
SE +/- 0.00, N = 3
103
20
40
60
80
100
PyPerformance 1.0.0
Benchmark: nbody
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.00, N = 3
125
python
SE +/- 0.00, N = 3
125
30
60
90
120
150


PyPerformance 1.0.0
Benchmark: pathlib
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.03, N = 3
18.2
python
SE +/- 0.03, N = 3
18.3
5
10
15
20
25
PyPerformance 1.0.0
Benchmark: raytrace
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.67, N = 3
442
python
SE +/- 0.00, N = 3
442
100
200
300
400
500
PyPerformance 1.0.0
Benchmark: json_loads
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.00, N = 3
22.5
python
SE +/- 0.03, N = 3
22.6
5
10
15
20
25
PyPerformance 1.0.0
Benchmark: crypto_pyaes
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.00, N = 3
104
python
SE +/- 0.00, N = 3
104
20
40
60
80
100

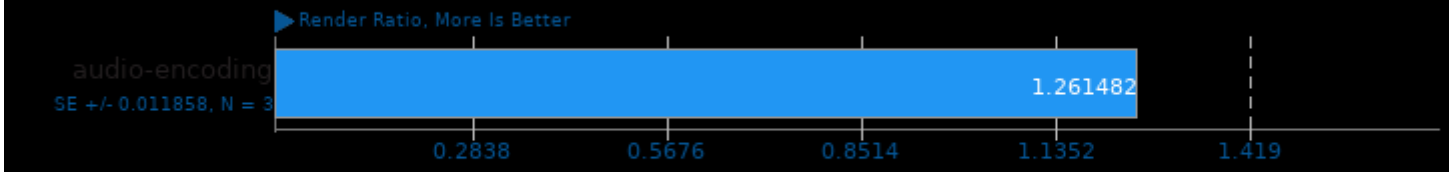

PyPerformance 1.0.0
Benchmark: regex_compile
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.33, N = 3
160
python
SE +/- 0.00, N = 3
160
40
80
120
160
200
PyPerformance 1.0.0
Benchmark: python_startup
Milliseconds, Fewer Is Better
audio-encoding
SE +/- 0.06, N = 3
10.1
python
SE +/- 0.03, N = 3
10.1
3
6
9
12
15
PyPerformance 1.0.0
Benchmark: django_template
Milliseconds, Fewer Is Better
python
SE +/- 0.03, N = 3
42.1
audio-encoding
SE +/- 0.00, N = 3
42.3
10
20
30
40
50
PyPerformance 1.0.0
Benchmark: pickle_pure_python
Milliseconds, Fewer Is Better
python
SE +/- 0.33, N = 3
400
audio-encoding
SE +/- 0.33, N = 3
401
90
180
270
360
450


Mlpack Benchmark
Benchmark: scikit_ica
Seconds, Fewer Is Better
audio-encoding
SE +/- 0.19, N = 3
54.68
python
SE +/- 0.44, N = 3
54.99
12
24
36
48
60
Stargate Digital Audio Workstation 21.10.9
Sample Rate: 44100 - Buffer Size: 512
Render Ratio, More Is Better
audio-encoding
SE +/- 0.009245, N = 12
1.270755
0.2859
0.5718
0.8577
1.1436
1.4295
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 21.10.9
Sample Rate: 96000 - Buffer Size: 512
Render Ratio, More Is Better
audio-encoding
SE +/- 0.005293, N = 3
0.944231
0.2125
0.425
0.6375
0.85
1.0625
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 21.10.9
Sample Rate: 192000 - Buffer Size: 512
Render Ratio, More Is Better
audio-encoding
SE +/- 0.002365, N = 3
0.655964
0.1476
0.2952
0.4428
0.5904
0.738
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions


Stargate Digital Audio Workstation 21.10.9
Sample Rate: 44100 - Buffer Size: 1024
Render Ratio, More Is Better
audio-encoding
SE +/- 0.012670, N = 3
1.302031
0.293
0.586
0.879
1.172
1.465
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 21.10.9
Sample Rate: 480000 - Buffer Size: 512
Render Ratio, More Is Better
audio-encoding
SE +/- 0.002985, N = 3
1.211917
0.2727
0.5454
0.8181
1.0908
1.3635
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 21.10.9
Sample Rate: 96000 - Buffer Size: 1024
Render Ratio, More Is Better
audio-encoding
SE +/- 0.002770, N = 3
0.964720
0.2171
0.4342
0.6513
0.8684
1.0855
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions
Stargate Digital Audio Workstation 21.10.9
Sample Rate: 192000 - Buffer Size: 1024
Render Ratio, More Is Better
audio-encoding
SE +/- 0.003053, N = 3
0.666308
0.1499
0.2998
0.4497
0.5996
0.7495
1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions

Stargate Digital Audio Workstation 21.10.9

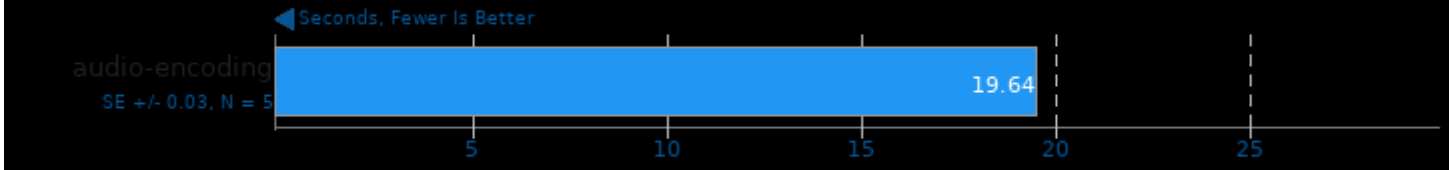
Sample Rate: 480000 - Buffer Size: 1024



1. (CXX) g++ options: -lpthread -lsndfile -lm -O3 -march=native -ffast-math -funroll-loops -fstrength-reduce -fstrict-aliasing -finline-functions

FLAC Audio Encoding 1.4

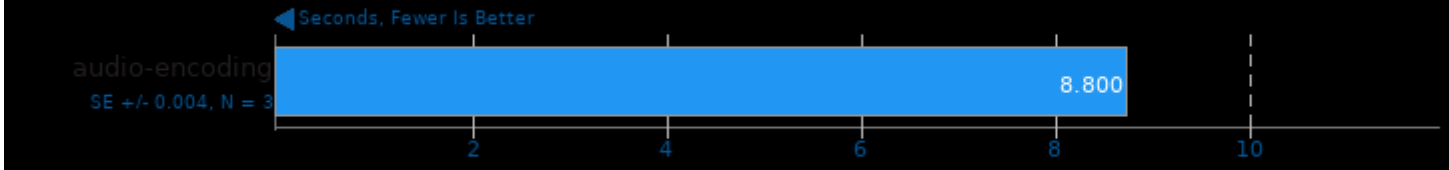
WAV To FLAC



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

LAME MP3 Encoding 3.100

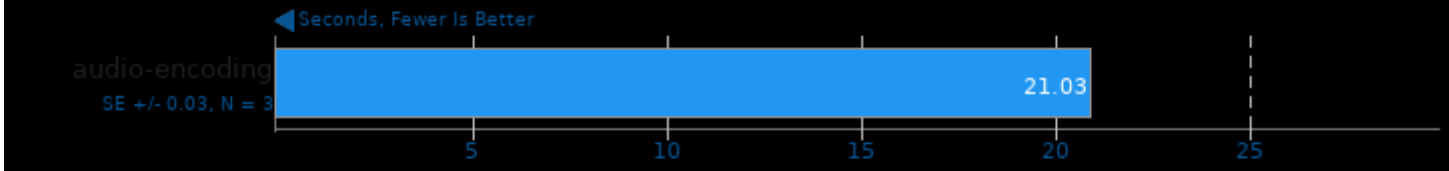
WAV To MP3



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

Ogg Audio Encoding 1.3.4

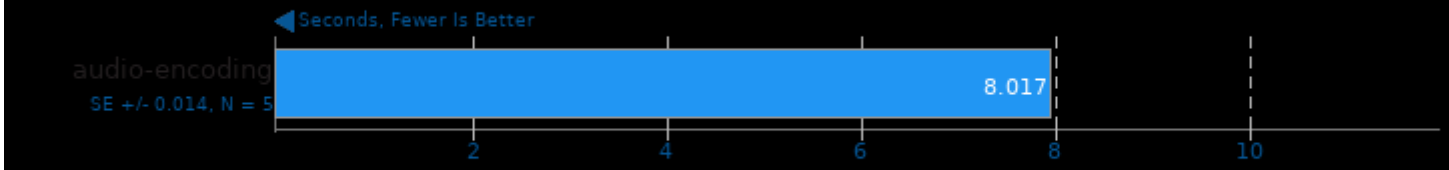
WAV To Ogg



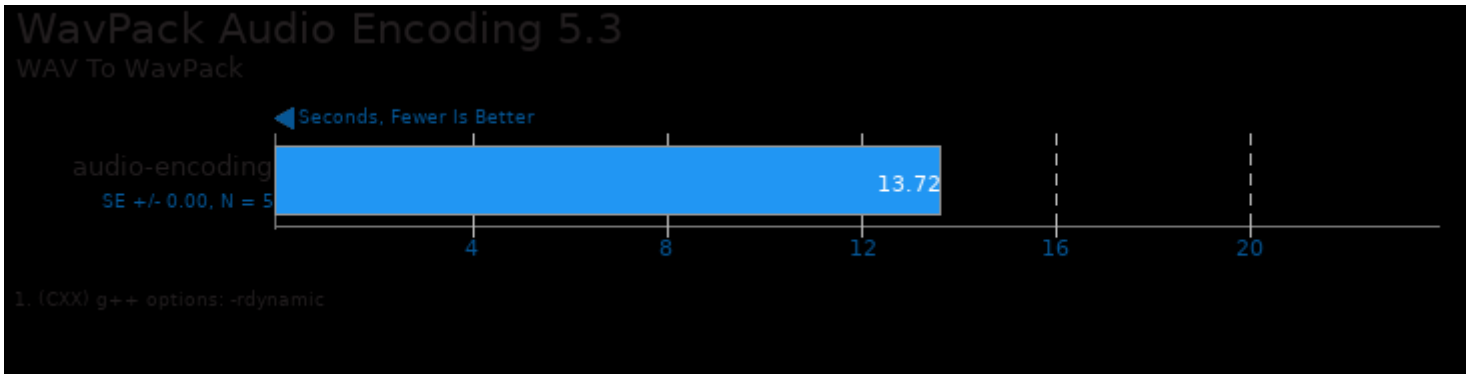
1. (CC) gcc options: -O2 -ffast-math -fsigned-char

Opus Codec Encoding 1.3.1

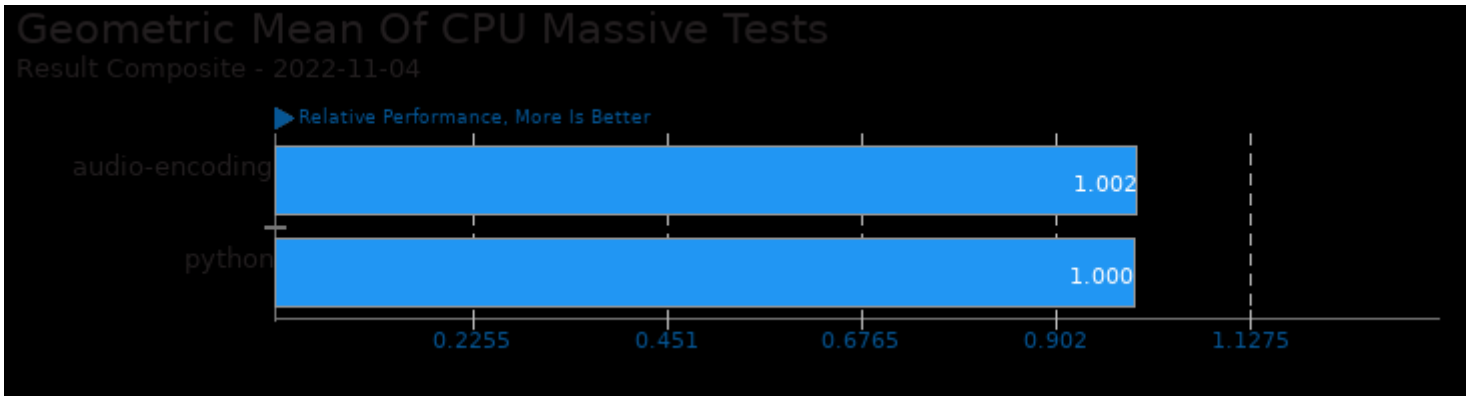
WAV To Opus Encode



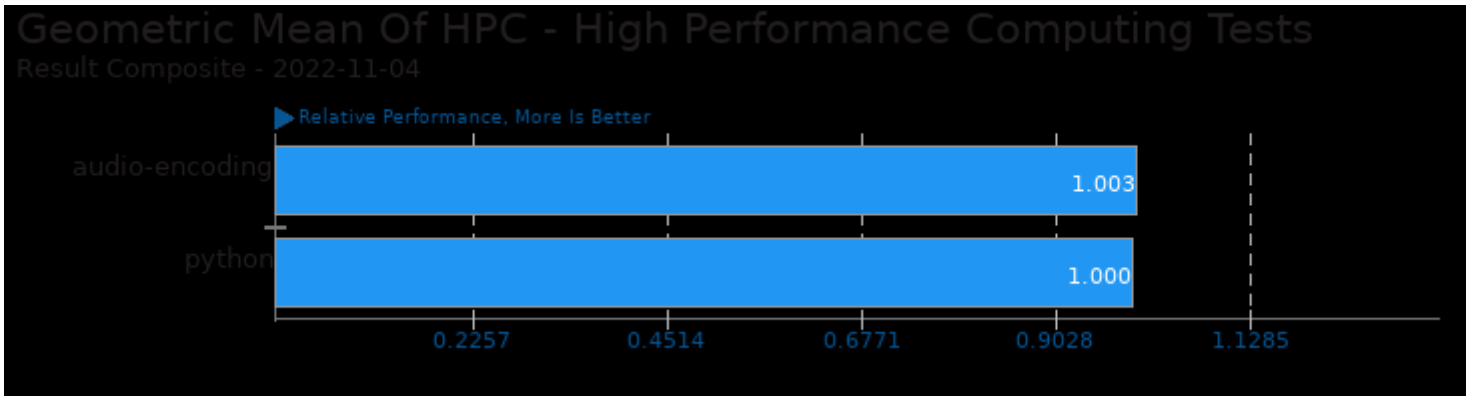
1. (CXX) g++ options: -fvisibility=hidden -logg -lm


WavPack Audio Encoding 5.3
WAV To WavPack
Seconds, Fewer Is Better
audio-encoding
SE +/- 0.00, N = 5
13.72
4
8
12
16
20
1. (CXX) g++ options: -rdynamic

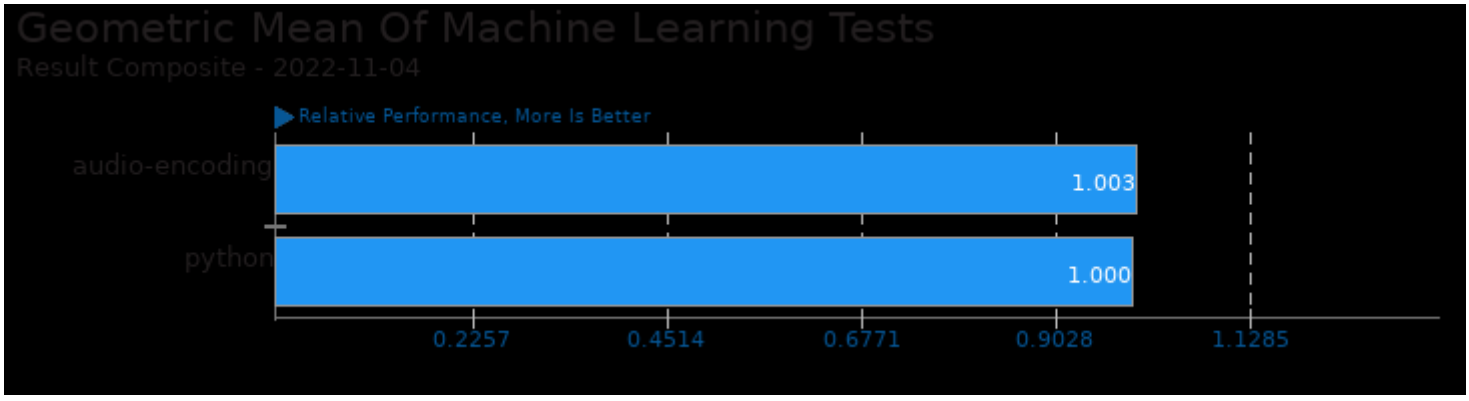
These geometric means are based upon test groupings / test suites for this result file.



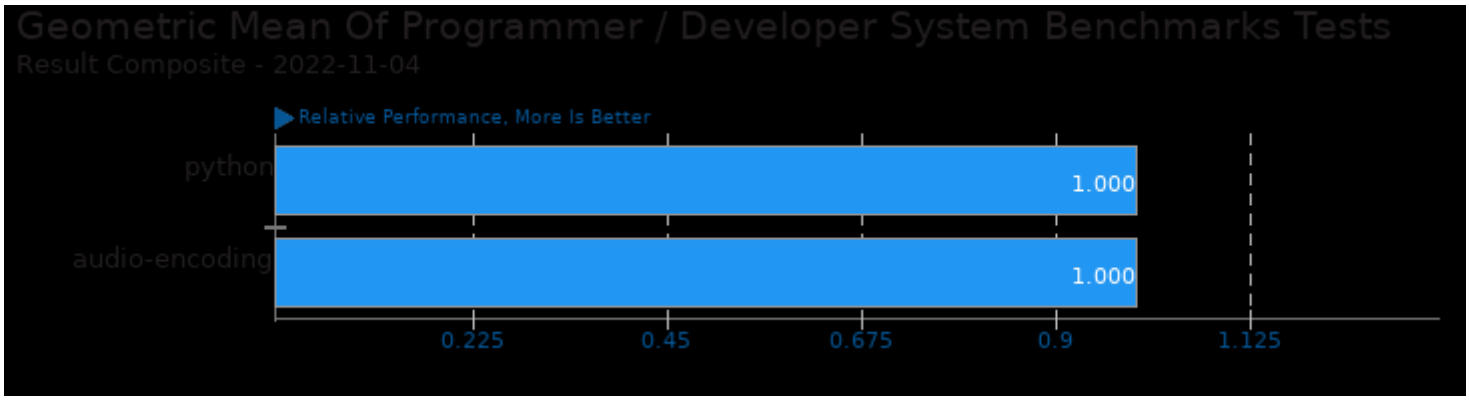
Geometric mean based upon tests: pts/cython-bench, pts/encode-flac, pts/encode-mp3, pts/numenta-nab and pts/numpy



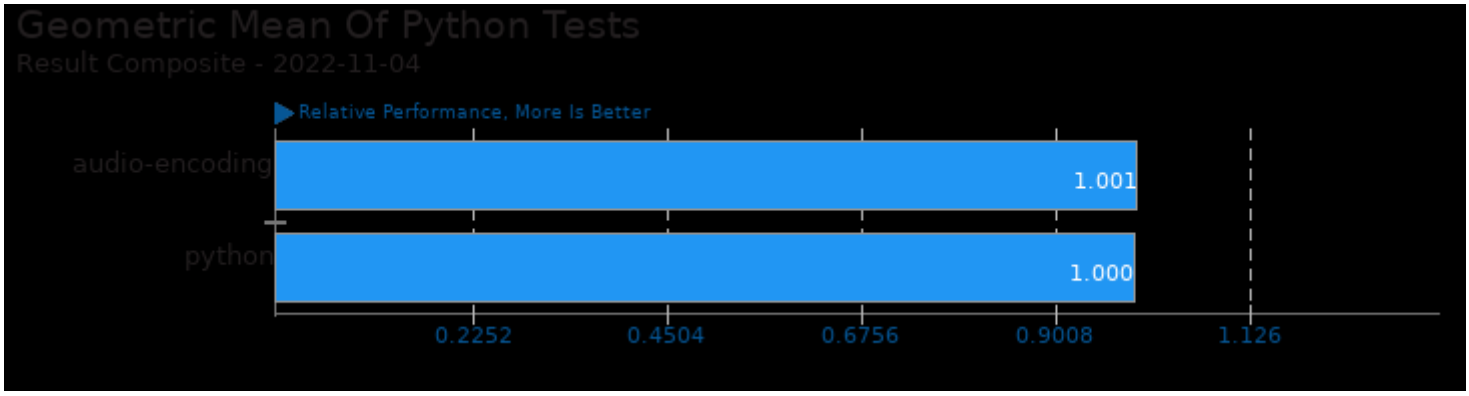
Geometric mean based upon tests: pts/numpy, pts/mlpack and pts/numenta-nab



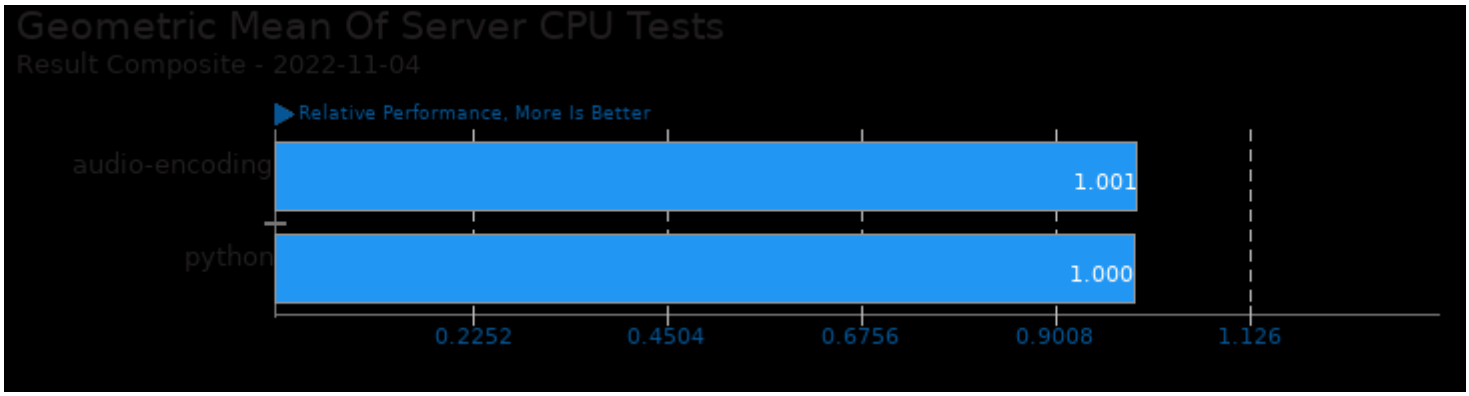
Geometric mean based upon tests: pts/numpy, pts/mlpack and pts/numenta-nab



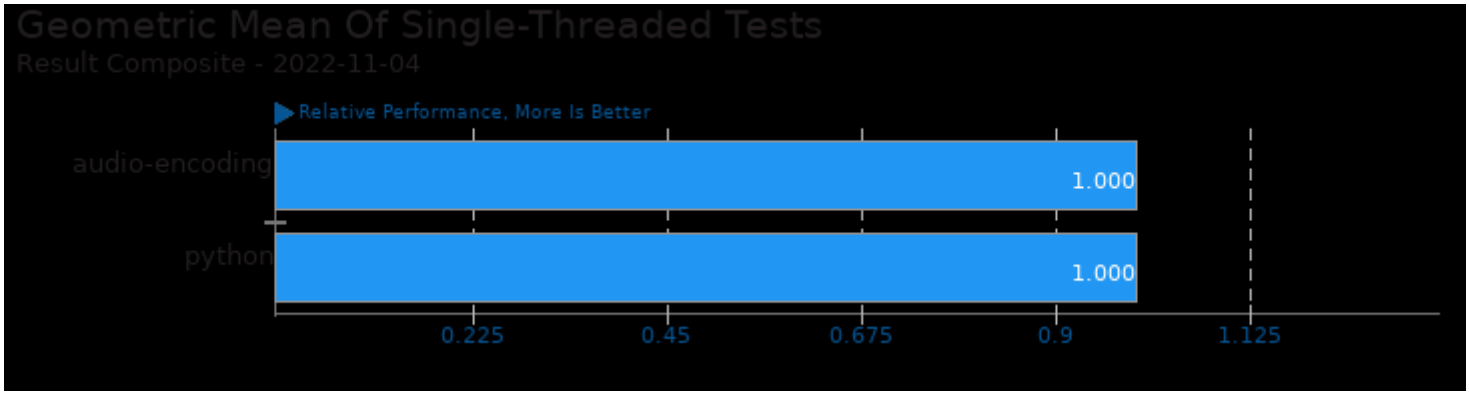
Geometric mean based upon tests: pts/pyperformance and pts/pybench



Geometric mean based upon tests: pts/pybench, pts/numenta-nab, pts/cython-bench, pts/numpy, pts/mlpack and pts/pyperformance



Geometric mean based upon tests: pts/pybench, pts/numpy, pts/cython-bench and pts/numenta-nab



Geometric mean based upon tests: pts/numpy, pts/encode-flac, pts/encode-mp3, pts/encode-ogg and pts/pybench

2022-11-04

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 21:39.