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AMD EPYC 74F3 24-Core testing with a ASRockRack ROME2D16-2T (P3.10 BIOS) and ASPEED on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

74F3 had the most wins, coming in first place for 48% of the tests.

Based on the geometric mean of all complete results, the fastest (74F3) was 1.002x the speed of the slowest (AMD EPYC 74F3 24-Core). 74F3 EPYC was 0.999x the speed of 74F3 and AMD EPYC 74F3 24-Core was 1x the speed of 74F3 EPYC.

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

Timed Linux Kernel Compilation (Time To Compile) at 1.048x
Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Ultra Fast) at 1.028x
Kvazaar (Video Input: Bosphorus 4K - Video Preset: Very Fast) at 1.017x
Timed LLVM Compilation (Build System: Unix Makefiles) at 1.015x
Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Very Fast) at 1.014x
Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Medium) at 1.013x
Timed MPlayer Compilation (Time To Compile) at 1.011x
Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Slow) at 1.009x

Kvazaar (Video Input: Bosphorus 4K - Video Preset: Ultra Fast) at 1.007x
Timed Erlang/OTP Compilation (Time To Compile) at 1.007x.

Test Systems:

74F3

AMD EPYC 74F3 24-Core

74F3 EPYC

Processor: AMD EPYC 74F3 24-Core @ 3.20GHz (24 Cores / 48 Threads), Motherboard: ASRockRack ROME2D16-2T (P3.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 64GB, Disk: 1000GB Western Digital WD_BLACK SN850 1TB, Graphics: ASPEED, Audio: AMD Starship/Matisse, Monitor: VE228, Network: 2 x Intel 10G X550T

OS: Ubuntu 20.04, Kernel: 5.4.0-88-generic (x86_64), Vulkan: 1.0.2, 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: 0xa001114
Python Notes: Python 3.8.10
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

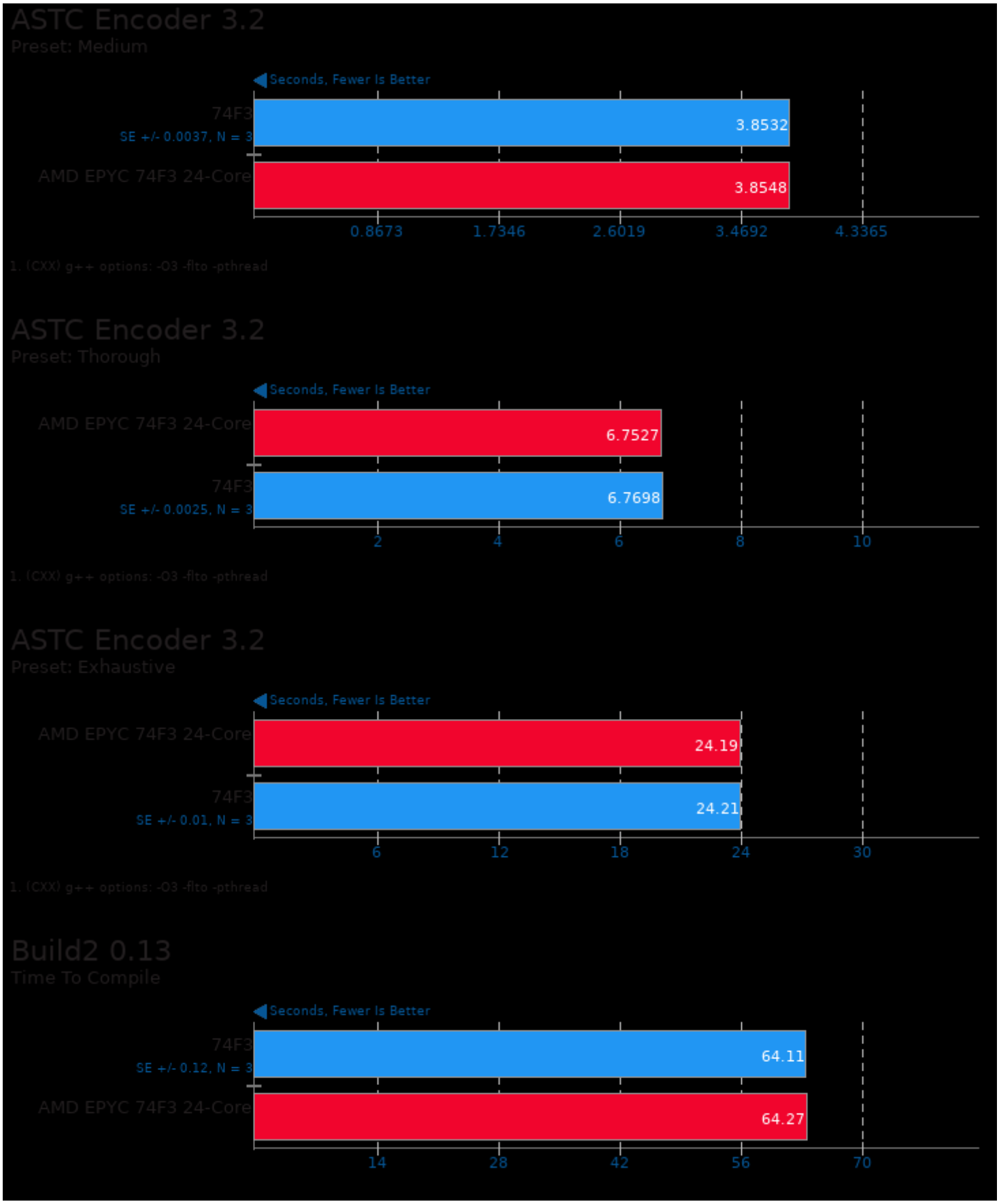
	74F3	AMD EPYC 74F3 24-Core	74F3 EPYC
ASTC Encoder - Medium (sec)	**3.8532**	**3.8548**	
Normalized	100%	99.96%	
Standard Deviation	0.2%		
ASTC Encoder - Thorough (sec)	**6.7698**	**6.7527**	
Normalized	99.75%	100%	
Standard Deviation	0.1%		
ASTC Encoder - Exhaustive (sec)	**24.2123**	**24.1915**	
Normalized	99.91%	100%	
Standard Deviation	0.1%		
Build2 - Time To Compile (sec)	**64.112**	**64.271**	
Normalized	100%	99.75%	
Standard Deviation	0.3%		
Kvazaar - Bosphorus 4K - Slow (FPS)	**13.82**	13.81	**13.77**
Normalized	100%	99.93%	99.64%
Standard Deviation	0.2%		

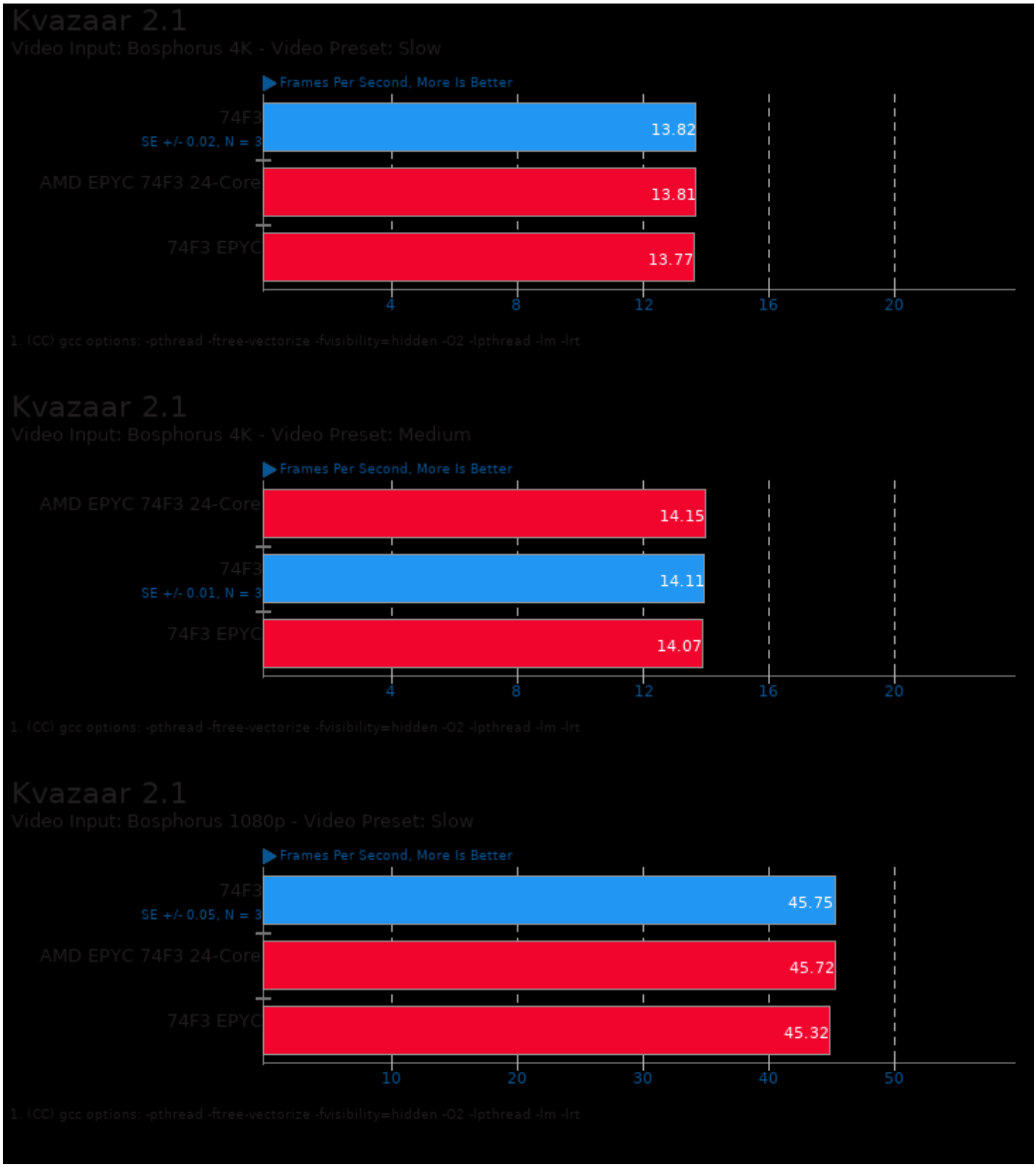
more tests

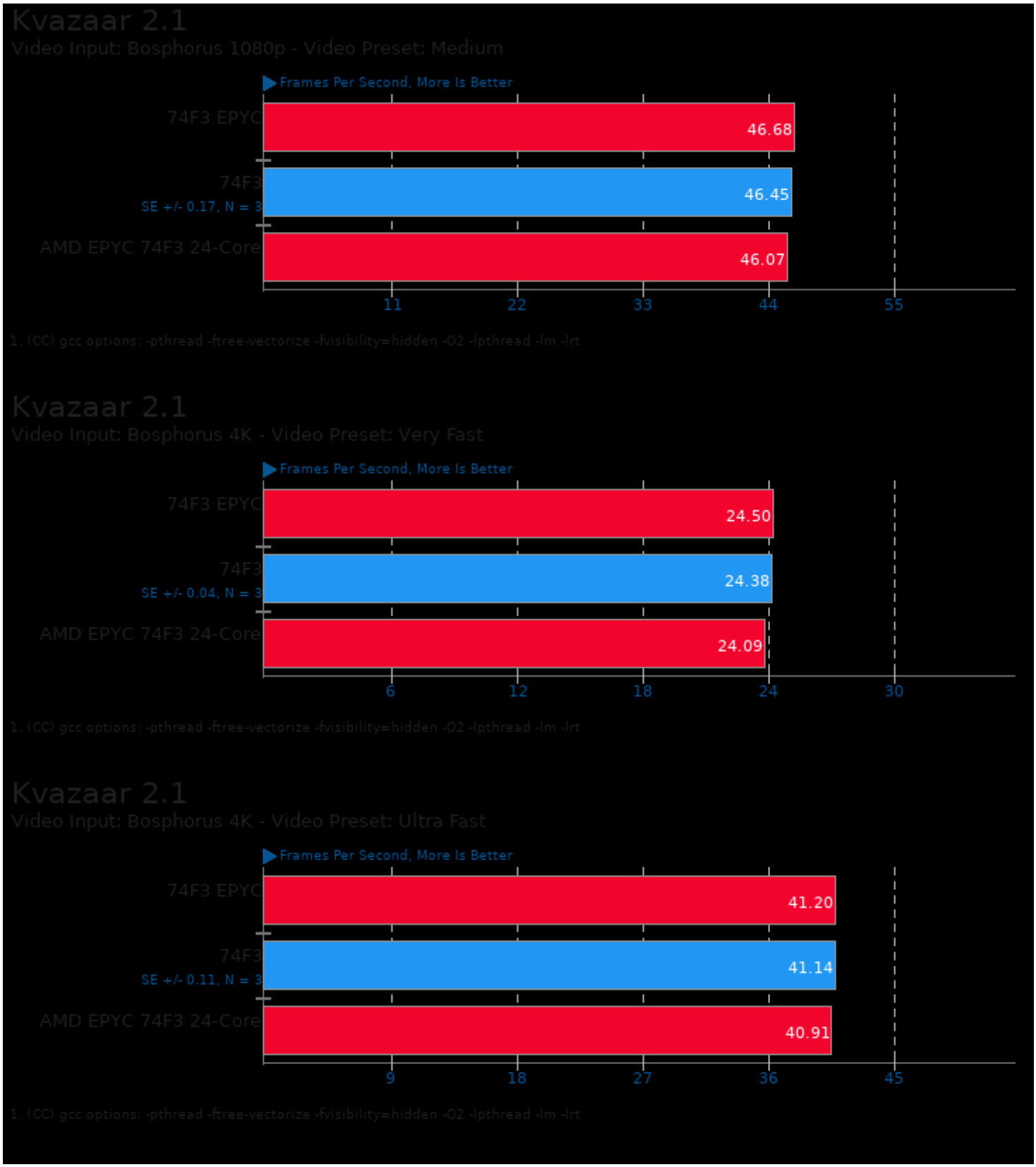
Kvazaar - Bosphorus 4K - Medium (FPS)	14.11	**14.15**	**14.07**
Normalized	99.72%	100%	99.43%
Standard Deviation	0.1%		
Kvazaar - Bosphorus 1080p - Slow (FPS)	**45.75**	45.72	**45.32**
Normalized	100%	99.93%	99.06%
Standard Deviation	0.2%		
Kvazaar - Bosphorus 1080p - Medium (FPS)	46.45	**46.07**	**46.68**
Normalized	99.51%	98.69%	100%
Standard Deviation	0.6%		
Kvazaar - Bosphorus 4K - Very Fast (FPS)	24.38	**24.09**	**24.5**
Normalized	99.51%	98.33%	100%
Standard Deviation	0.3%		
Kvazaar - Bosphorus 4K - Ultra Fast (FPS)	41.14	**40.91**	**41.2**
Normalized	99.85%	99.3%	100%
Standard Deviation	0.5%		
Kvazaar - Bosphorus 1080p - Very Fast (FPS)	85.54	**85.06**	**86.28**
Normalized	99.14%	98.59%	100%
Standard Deviation	0.7%		
Kvazaar - Bosphorus 1080p - Ultra Fast	151.28	**152.44**	**148.3**
Normalized	99.24%	100%	97.28%
Standard Deviation	0.7%		
Timed Apache Compilation - Time To Compile (sec)	21.018	**21.016**	**21.02**
Normalized	99.99%	100%	99.98%
Standard Deviation	0%		
Timed Eigen Compilation - Time To Compile (sec)	**72.645**	**72.722**	
Normalized	100%	99.89%	
Standard Deviation	0.1%		
Timed Erlang/OTP Compilation - Time To Compile (sec)	**109.669**	**110.412**	
Normalized	100%	99.33%	
Standard Deviation	0.6%		
Timed FFmpeg Compilation - Time To Compile (sec)	**26.880**	**26.745**	26.816
Normalized	99.5%	100%	99.74%
Standard Deviation	0.7%		
Timed GCC Compilation - Time To Compile (sec)	**799.980**	**799.925**	
Normalized	99.99%	100%	
Standard Deviation	0%		
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	**58.540**	**58.686**	
Normalized	100%	99.75%	
Standard Deviation	0.5%		
Timed Godot Game Engine Compilation - Time To Compile (sec)	**63.308**	**63.382**	
Normalized	100%	99.88%	
Standard Deviation	0.1%		
Timed ImageMagick Compilation - Time To Compile (sec)	**15.385**	**15.313**	
Normalized	99.53%	100%	
Standard Deviation	0.7%		

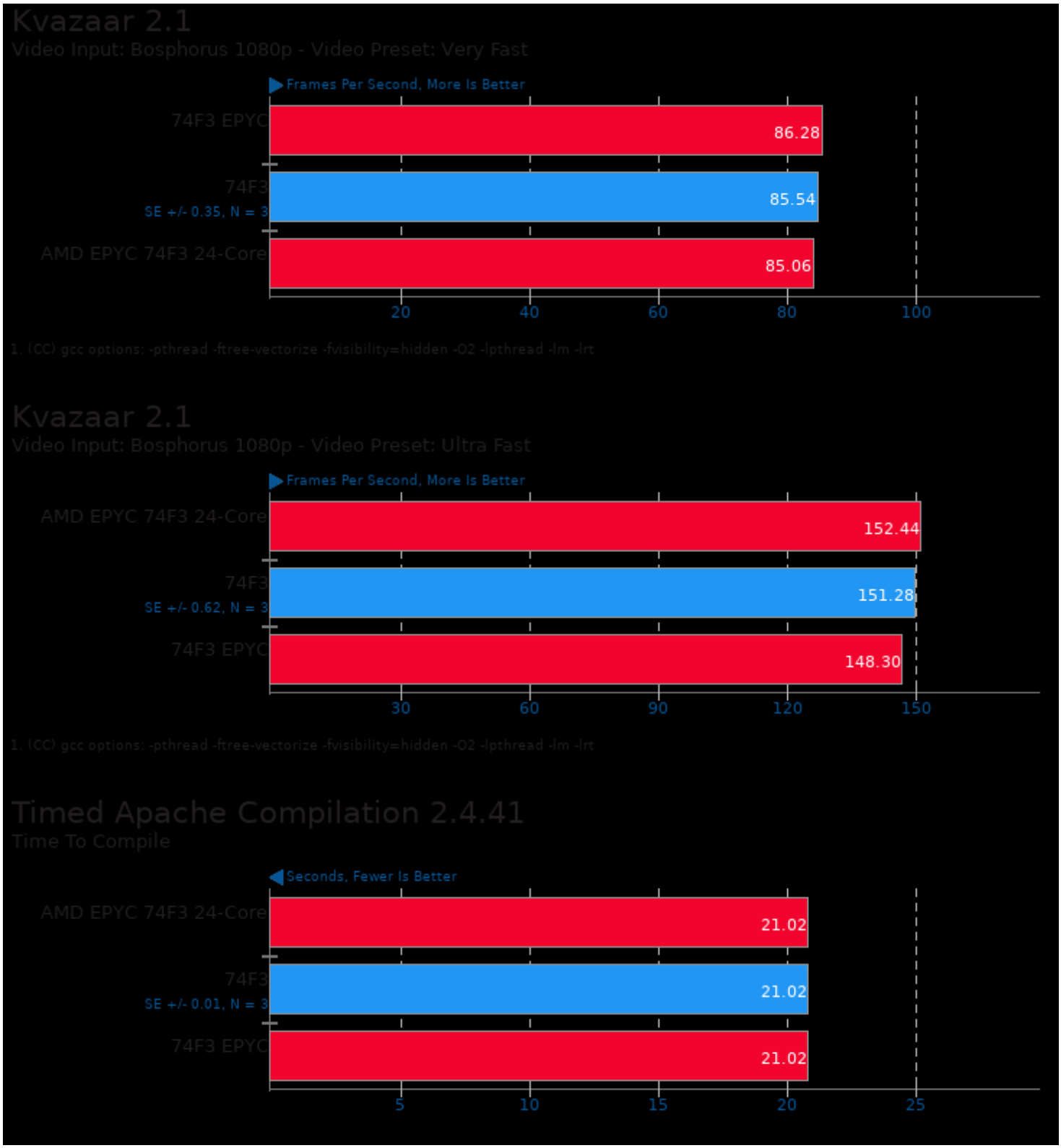
more tests

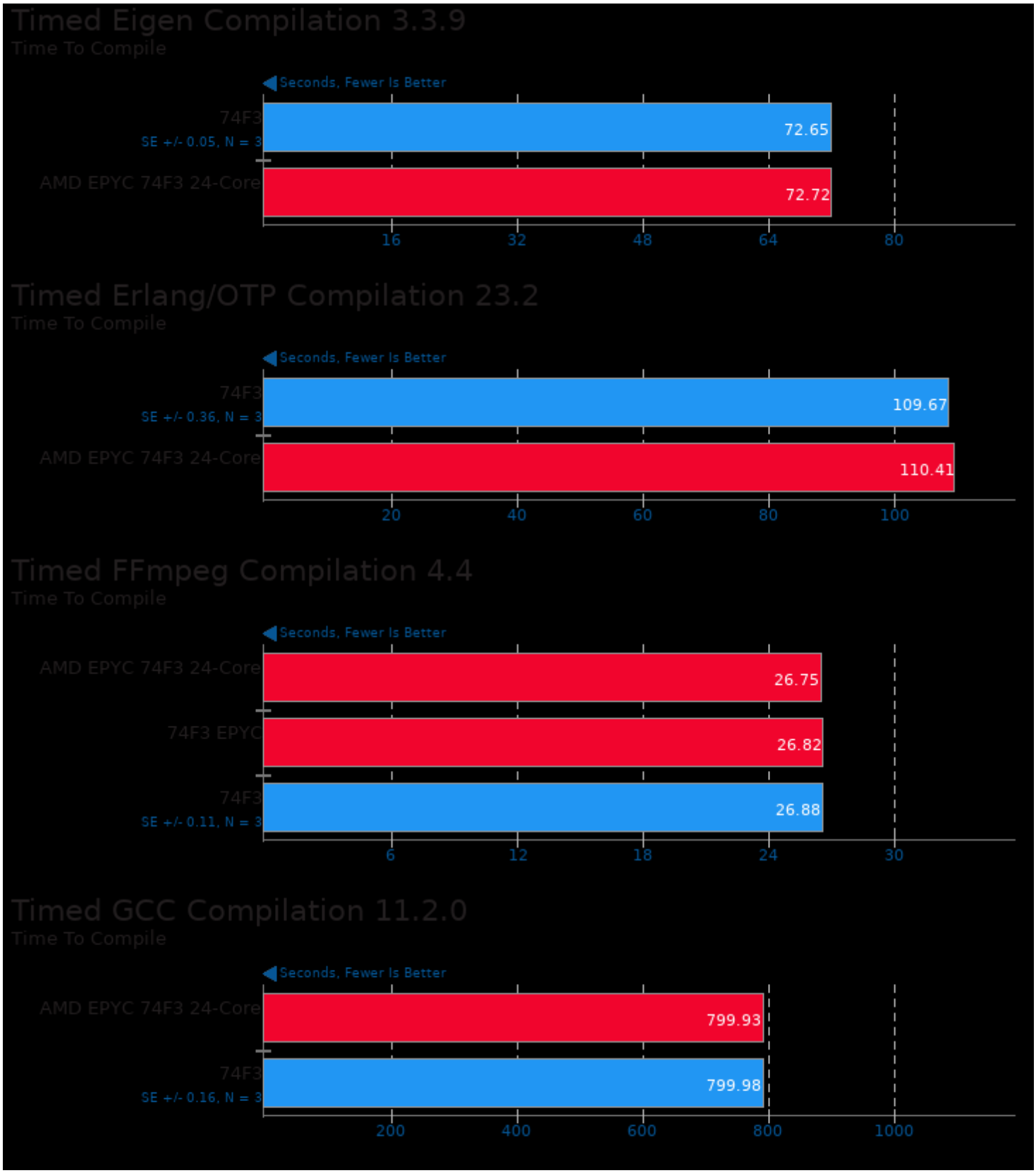
Timed Linux Kernel Compilation - Time To Compile (sec)	**40.405**	**42.338**
Normalized	100%	95.43%
Standard Deviation	2.4%	
Timed LLVM Compilation - Ninja (sec)	**266.786**	**266.85**
Normalized	100%	99.98%
Standard Deviation	0.1%	
Timed LLVM Compilation - Unix Makefiles	**324.080**	**319.146**
Normalized	98.48%	100%
Standard Deviation	0.5%	
Timed MPlayer Compilation - Time To Compile (sec)	**15.145**	**15.308**
Normalized	100%	98.94%
Standard Deviation	0.4%	
Timed Node.js Compilation - Time To Compile (sec)	**171.832**	**171.019**
Normalized	99.53%	100%
Standard Deviation	0.2%	
Timed PHP Compilation - Time To Compile (sec)	**38.182**	**38.255**
Normalized	100%	99.81%
Standard Deviation	0.1%	
Timed Wasmer Compilation - Time To Compile (sec)	**47.143**	**47.166**
Normalized	100%	99.95%
Standard Deviation	0.3%	


ASTC Encoder 3.2
Preset: Medium
Seconds, Fewer Is Better
74F3
SE +/- 0.0037, N = 3
3.8532
AMD EPYC 74F3 24-Core
3.8548
0.8673
1.7346
2.6019
3.4692
4.3365
1. (CXX) g++ options: -O3 -flto -pthread
ASTC Encoder 3.2
Preset: Thorough
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
6.7527
74F3
SE +/- 0.0025, N = 3
6.7698
2
4
6
8
10
1. (CXX) g++ options: -O3 -flto -pthread
ASTC Encoder 3.2
Preset: Exhaustive
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
24.19
74F3
SE +/- 0.01, N = 3
24.21
6
12
18
24
30
1. (CXX) g++ options: -O3 -flto -pthread
Build2 0.13
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.12, N = 3
64.11
AMD EPYC 74F3 24-Core
64.27
14
28
42
56
70

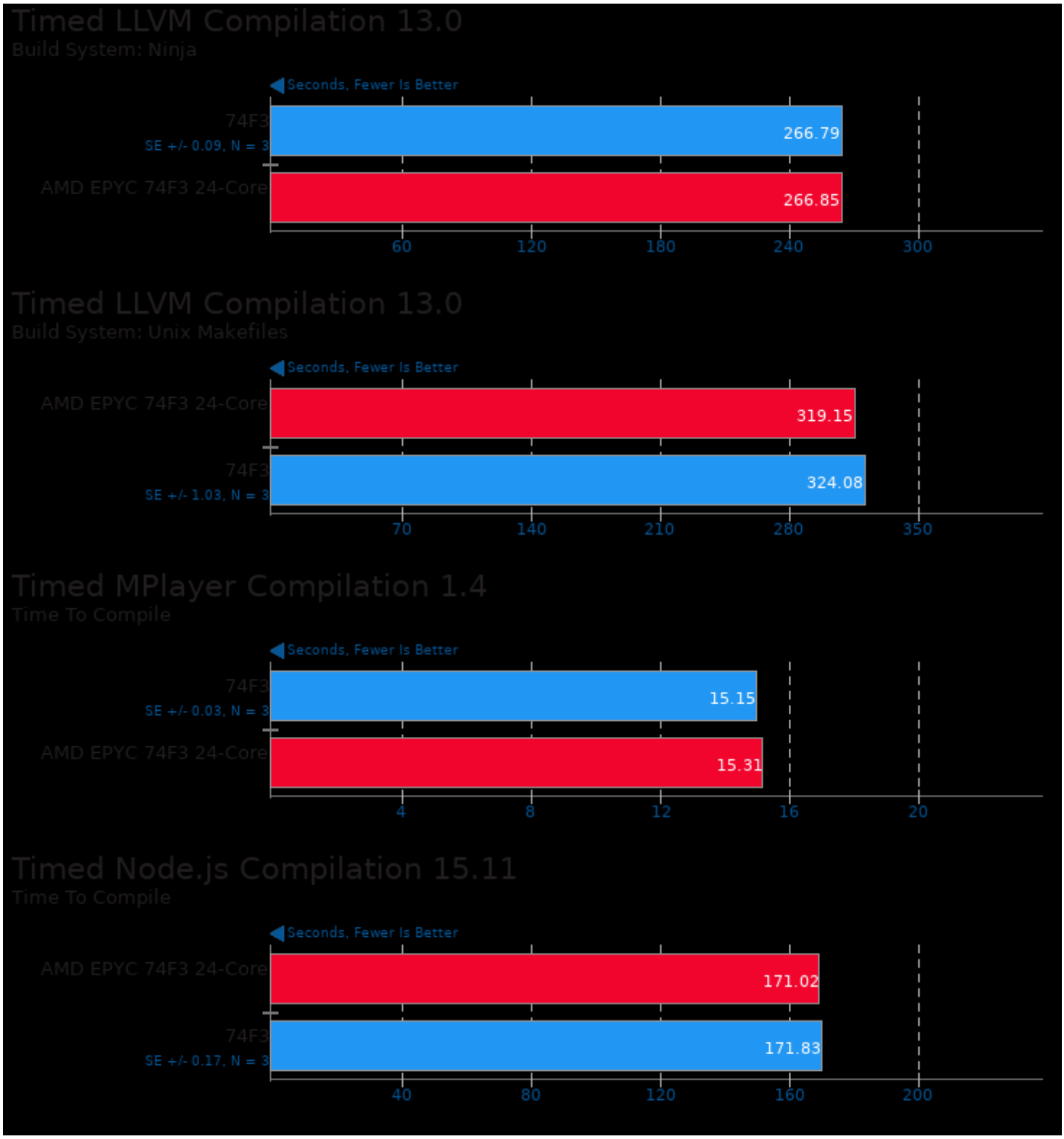

Kvazaar 2.1
Video Input: Bosphorus 4K - Video Preset: Slow
Frames Per Second, More Is Better
74F3
SE +/- 0.02, N = 3
13.82
AMD EPYC 74F3 24-Core
13.81
74F3 EPYC
13.77
4
8
12
16
20
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.1
Video Input: Bosphorus 4K - Video Preset: Medium
Frames Per Second, More Is Better
AMD EPYC 74F3 24-Core
14.15
74F3
SE +/- 0.01, N = 3
14.11
74F3 EPYC
14.07
4
8
12
16
20
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.1
Video Input: Bosphorus 1080p - Video Preset: Slow
Frames Per Second, More Is Better
74F3
SE +/- 0.05, N = 3
45.75
AMD EPYC 74F3 24-Core
45.72
74F3 EPYC
45.32
10
20
30
40
50
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

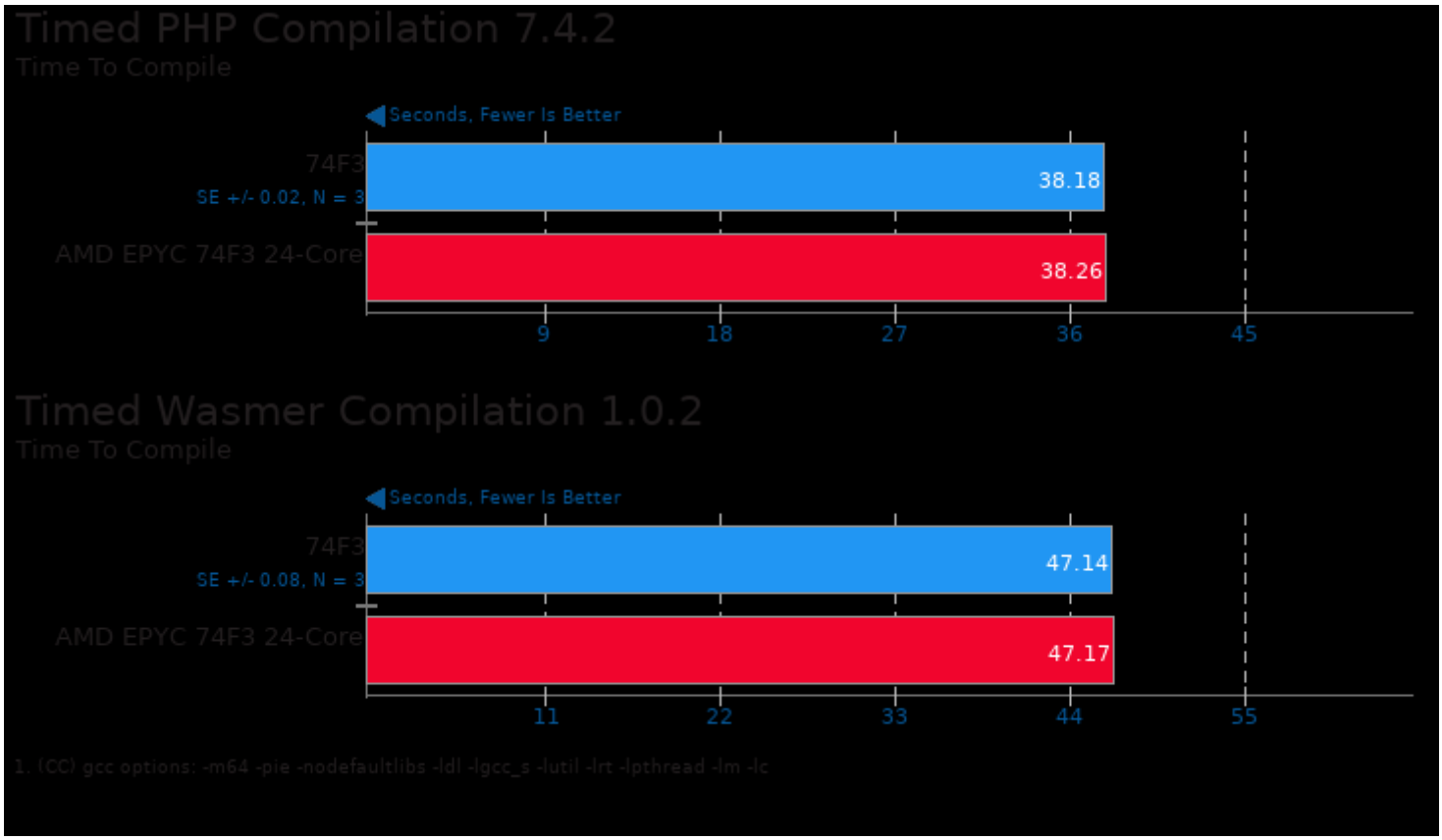

Kvazaar 2.1
Video Input: Bosphorus 1080p - Video Preset: Medium
Frames Per Second, More Is Better
74F3 EPYC
46.68
74F3
SE +/- 0.17, N = 3
46.45
AMD EPYC 74F3 24-Core
46.07
11
22
33
44
55
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.1
Video Input: Bosphorus 4K - Video Preset: Very Fast
Frames Per Second, More Is Better
74F3 EPYC
24.50
74F3
SE +/- 0.04, N = 3
24.38
AMD EPYC 74F3 24-Core
24.09
6
12
18
24
30
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.1
Video Input: Bosphorus 4K - Video Preset: Ultra Fast
Frames Per Second, More Is Better
74F3 EPYC
41.20
74F3
SE +/- 0.11, N = 3
41.14
AMD EPYC 74F3 24-Core
40.91
9
18
27
36
45
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt


Kvazaar 2.1
Video Input: Bosphorus 1080p - Video Preset: Very Fast
Frames Per Second, More Is Better
74F3 EPYC
86.28
74F3
SE +/- 0.35, N = 3
85.54
AMD EPYC 74F3 24-Core
85.06
20
40
60
80
100
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Kvazaar 2.1
Video Input: Bosphorus 1080p - Video Preset: Ultra Fast
Frames Per Second, More Is Better
AMD EPYC 74F3 24-Core
152.44
74F3
SE +/- 0.62, N = 3
151.28
74F3 EPYC
148.30
30
60
90
120
150
1. (CC) gcc options: -pthread -ftree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt
Timed Apache Compilation 2.4.41
Time To Compile
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
21.02
74F3
SE +/- 0.01, N = 3
21.02
74F3 EPYC
21.02
5
10
15
20
25


Timed Eigen Compilation 3.3.9
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.05, N = 3
72.65
AMD EPYC 74F3 24-Core
72.72
16
32
48
64
80
Timed Erlang/OTP Compilation 23.2
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.36, N = 3
109.67
AMD EPYC 74F3 24-Core
110.41
20
40
60
80
100
Timed FFmpeg Compilation 4.4
Time To Compile
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
26.75
74F3 EPYC
26.82
74F3
SE +/- 0.11, N = 3
26.88
6
12
18
24
30
Timed GCC Compilation 11.2.0
Time To Compile
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
799.93
74F3
SE +/- 0.16, N = 3
799.98
200
400
600
800
1000


Timed GDB GNU Debugger Compilation 10.2
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.17, N = 3
58.54
AMD EPYC 74F3 24-Core
58.69
13
26
39
52
65
Timed Godot Game Engine Compilation 3.2.3
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.03, N = 3
63.31
AMD EPYC 74F3 24-Core
63.38
14
28
42
56
70
Timed ImageMagick Compilation 6.9.0
Time To Compile
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
15.31
74F3
SE +/- 0.06, N = 3
15.39
4
8
12
16
20
Timed Linux Kernel Compilation 5.14
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.39, N = 6
40.41
AMD EPYC 74F3 24-Core
42.34
10
20
30
40
50


Timed LLVM Compilation 13.0
Build System: Ninja
Seconds, Fewer Is Better
74F3
SE +/- 0.09, N = 3
266.79
AMD EPYC 74F3 24-Core
266.85
60
120
180
240
300
Timed LLVM Compilation 13.0
Build System: Unix Makefiles
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
319.15
74F3
SE +/- 1.03, N = 3
324.08
70
140
210
280
350
Timed MPlayer Compilation 1.4
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.03, N = 3
15.15
AMD EPYC 74F3 24-Core
15.31
4
8
12
16
20
Timed Node.js Compilation 15.11
Time To Compile
Seconds, Fewer Is Better
AMD EPYC 74F3 24-Core
171.02
74F3
SE +/- 0.17, N = 3
171.83
40
80
120
160
200


Timed PHP Compilation 7.4.2
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.02, N = 3
38.18
AMD EPYC 74F3 24-Core
38.26
9
18
27
36
45
Timed Wasmer Compilation 1.0.2
Time To Compile
Seconds, Fewer Is Better
74F3
SE +/- 0.08, N = 3
47.14
AMD EPYC 74F3 24-Core
47.17
11
22
33
44
55
1. (CC) gcc options: -m64 -pie -nodefaultlibs -ldl -lgcc_s -lutil -lrt -lpthread -lm -lc

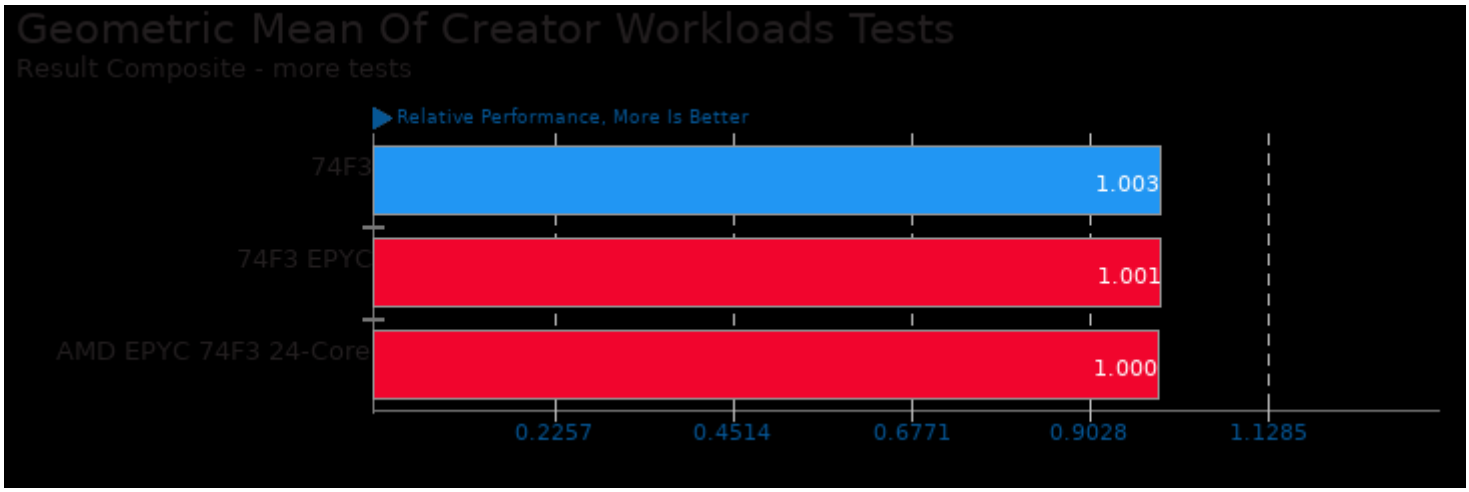
These geometric means are based upon test groupings / test suites for this result file.



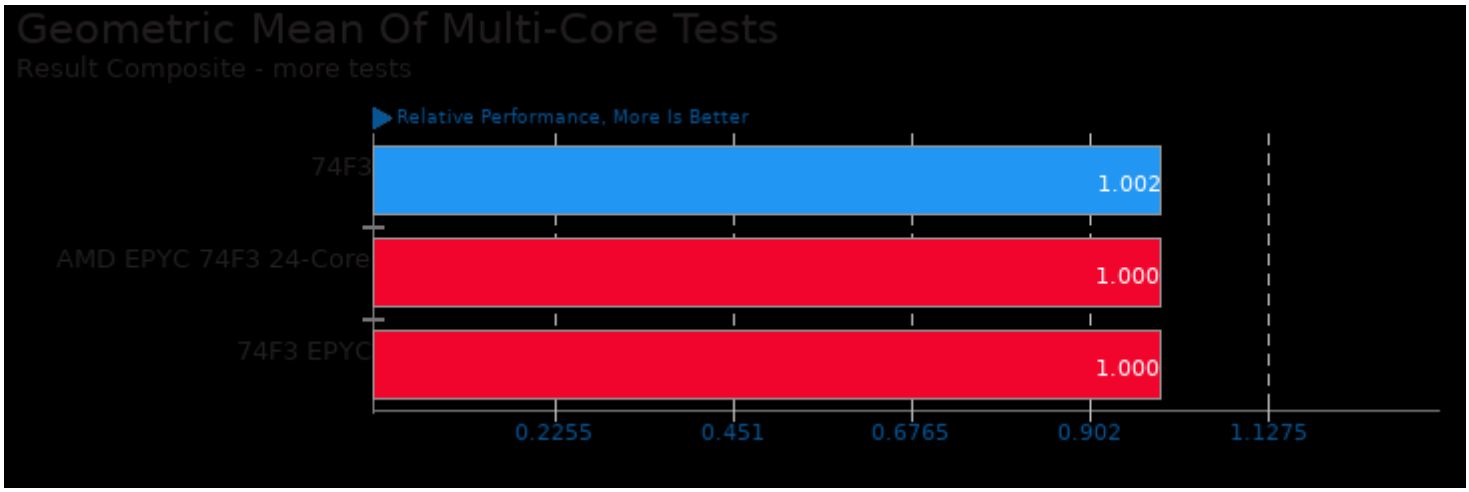
Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-eigen, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa



Geometric mean based upon tests: pts/build-php, pts/build-imagemagick, pts/build-llvm, pts/kvazaar, pts/build-gdb, pts/build-ffmpeg, pts/build-apache and pts/build-mplayer



Geometric mean based upon tests: pts/kvazaar, pts/astcenc and pts/build-godot



Geometric mean based upon tests: pts/kvazaar, pts/build-apache, pts/build-php, pts/build-eigen, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa



Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-eigen, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/build-godot, pts/build-erlang, pts/build-wasmer, pts/build-nodejs and pts/build-mesa

This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 01:09.