

www.phoronix-test-suite.com

fast-ryzen-linux

VMware testing on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

fast-ryzen-linux had the most wins, coming in first place for 66% of the tests.

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

PostMark (Disk Transaction Performance) at 2.345x
LAME MP3 Encoding (WAV To MP3) at 2.024x
Loopback TCP Network Performance (Time To Transfer 10GB Via Loopback) at 1.989x
CacheBench (Test: Read / Modify / Write) at 1.966x
John The Ripper (Test: MD5) at 1.9x
Stockfish (Total Time) at 1.889x
Smallpt (Global Illumination Renderer; 128 Samples) at 1.825x
CacheBench (Test: Write) at 1.808x
John The Ripper (Test: Blowfish) at 1.665x
C-Ray (Total Time - 4K, 16 Rays Per Pixel) at 1.577x.

Test Systems:

fast-ryzen-linux

Processor: AMD Ryzen 5 5600X 6-Core (6 Cores), Motherboard: Intel 440BX (VMW71.00V.17369862.B64.2012240522 BIOS), Chipset: Intel 440BX/ZX/DX, Memory: 24GB, Disk: 344GB Virtual disk, Graphics: NVIDIA A100-PCIE-40GB, Monitor: NVIDIA VGX, Network: VMware VMXNET3

OS: Ubuntu 20.04, Kernel: 5.11.0-43-generic (x86_64), Desktop: GNOME Shell 3.36.9, Display Server: X Server 1.20.13, Display Driver: NVIDIA 495.44, Vulkan: 1.2.186, Compiler: GCC 9.3.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1176x885, System Layer: VMware

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
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: CPU Microcode: 0xa201016
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: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

fast-dell-linux

fast-dell01-linux

Processor: 2 x Intel Xeon E5-2660 v3 (20 Cores), Motherboard: Intel 440BX (VMW71.00V.17369862.B64.2012240522 BIOS), Chipset: Intel 440BX/ZX/DX, Memory: 96GB, Disk: 268GB Virtual disk, Graphics: VMware SVGA II 40GB, Network: VMware VMXNET3

OS: Ubuntu 20.04, Kernel: 5.4.0-94-generic (x86_64), Display Driver: NVIDIA, Vulkan: 1.0.2, Compiler: GCC 9.3.0 + CUDA 10.1, File-System: ext4, Screen Resolution: 1176x885, System Layer: VMware

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
Disk Notes: MQ-DEADLINE / relatime,rw / Block Size: 4096
Processor Notes: CPU Microcode: 0x46
Security Notes: itlb_multihit: KVM: Vulnerable + l1tf: Mitigation of PTE Inversion + mds: Mitigation of Clear buffers; SMT Host state unknown + meltdown: Mitigation of PTI + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Not affected + tsx_async_abort: Not affected

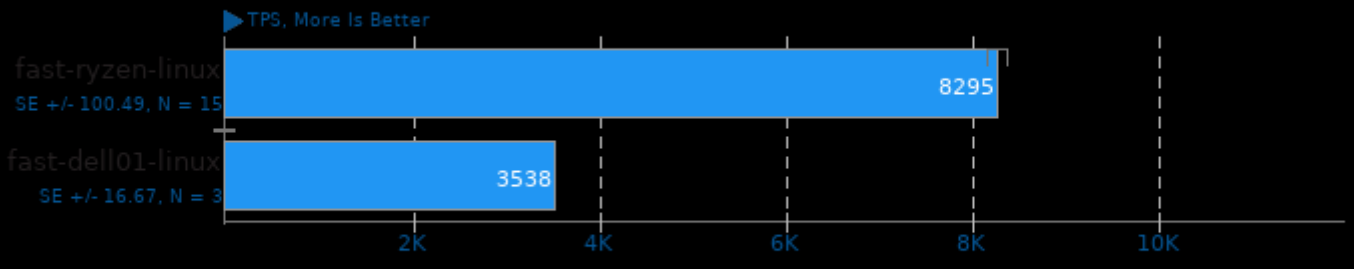
	fast-ryzen-linux	fast-dell-linux	fast-dell01-linux
PostMark - D.T.P (TPS)	**8295**		**3538**
Normalized	100%		42.65%
Standard Deviation	4.7%		0.8%
LAME MP3 Encoding - WAV To MP3 (sec)	**5.975**		**12.091**
Normalized	100%		49.42%
Standard Deviation	0.6%		0.9%

Loopback TCP Network Performance - T.T.T.1.V.L (sec)	**9.495**	**18.884**
Normalized	100%	50.28%
Standard Deviation	0.1%	0.4%
CacheBench - R.M.W (MB/s)	**66349**	**33748**
Normalized	100%	50.86%
Standard Deviation	1.9%	2.2%
John The Ripper - MD5 (Real C/S)	**640325**	**1216333**
Normalized	52.64%	100%
Standard Deviation	2.3%	1.2%
Stockfish - Total Time (Nodes/s)	**15196834**	**28709310**
Normalized	52.93%	100%
Standard Deviation	2.2%	0.3%
Smallpt - G.I.R.1.S (sec)	**18.261**	**10.004**
Normalized	54.78%	100%
Standard Deviation	0.2%	0.1%
CacheBench - Write (MB/s)	**33838**	**18718**
Normalized	100%	55.32%
Standard Deviation	0.5%	3.1%
John The Ripper - Blowfish (Real C/S)	**10338**	**17213**
Normalized	60.06%	100%
Standard Deviation	0.4%	2.5%
C-Ray - Total Time - 4.1.R.P.P (sec)	**86.493**	**54.854**
Normalized	63.42%	100%
Standard Deviation	0.3%	0.2%
SciMark - S.M.M (Mflops)	**799.18**	**516.00**
Normalized	100%	64.57%
Standard Deviation	2.7%	1.9%
FFTE - N.2.3.C.F.R (MFLOPS)	**35427**	**45456**
Normalized	77.94%	100%
Standard Deviation	1.6%	2.3%
Flexible IO Tester - Seq Read - POSIX AIO - Yes - No - 4KB (IOPS)	**304000**	**237600**
Normalized	100%	78.16%
Standard Deviation		3.4%
Flexible IO Tester - Seq Read - POSIX AIO - Yes - No - 4KB (MB/s)	**1186**	**928**
Normalized	100%	78.25%
Standard Deviation		3.4%
CacheBench - Read (MB/s)	**2925**	**2584**
Normalized	100%	88.34%
Standard Deviation	0.6%	0.8%
ebizzy (Records/s)	**506849**	**490556**
Normalized	100%	96.79%
Standard Deviation	0.4%	1.4%
Stream - Add (MB/s)		49836
Standard Deviation		0.1%
Stream - Triad (MB/s)		49988
Standard Deviation		0.1%
Stream - Scale (MB/s)		44245
Standard Deviation		0.1%
Stream - Copy (MB/s)		59405
Standard Deviation		0.2%
Hierarchical INTegration - FLOAT (QUIPs)	**460872358**	**287372052**

Normalized	100%	62.35%
Standard Deviation	10.2%	0.6%
FLAC Audio Encoding - WAV To FLAC (sec)	**12.597**	**27.206**
Normalized	100%	46.3%
Standard Deviation	1.1%	11.8%
Himeno Benchmark - P.P.S (MFLOPS)	**4779**	**2657**
Normalized	100%	55.59%
Standard Deviation	7.2%	0.9%
SciMark - J.S.O.R (Mflops)	**1195**	**917.86**
Normalized	100%	76.78%
Standard Deviation	9.3%	2.2%
SciMark - D.L.M.F (Mflops)	**774.31**	**675.57**
Normalized	100%	87.25%
Standard Deviation	76.4%	1.3%
SciMark - F.F.T (Mflops)	**348.18**	**173.80**
Normalized	100%	49.92%
Standard Deviation	31.9%	1.6%
SciMark - Monte Carlo (Mflops)	**133.92**	**100.70**
Normalized	100%	75.19%
Standard Deviation	34.3%	4.1%
SciMark - Composite (Mflops)	**791.43**	**476.78**
Normalized	100%	60.24%
Standard Deviation	13.1%	1.3%
BLAKE2 (Cycles/Byte)	**7.84**	**4.88**
Normalized	62.24%	100%
Standard Deviation	0%	15%
CLOMP - Static OMP Speedup (Speedup)	**4.9**	**15.8**
Normalized	31.01%	100%
Standard Deviation	26.8%	8.7%
Flexible IO Tester - Seq Write - POSIX AIO - Yes - No - 4KB (IOPS)	**148550**	**28570**
Normalized	100%	19.23%
Standard Deviation	52%	59%
Flexible IO Tester - Seq Write - POSIX AIO - Yes - No - 4KB (MB/s)	**580.4**	**111.53**
Normalized	100%	19.22%
Standard Deviation	51.9%	58.9%
Flexible IO Tester - Rand Write - POSIX AIO - Yes - No - 4KB (IOPS)	**156013**	**17741**
Normalized	100%	11.37%
Standard Deviation	52.4%	28.1%
Flexible IO Tester - Rand Write - POSIX AIO - Yes - No - 4KB (MB/s)	**609**	**69.346**
Normalized	100%	11.39%
Standard Deviation	52.4%	28%
Flexible IO Tester - Rand Read - POSIX AIO - Yes - No - 4KB (IOPS)	**14133**	**8163**
Normalized	100%	57.76%
Standard Deviation	5.6%	17.8%
Flexible IO Tester - Rand Read - POSIX AIO - Yes - No - 4KB (MB/s)	**55.2**	**31.9**
Normalized	100%	57.79%
Standard Deviation	5.7%	17.8%

PostMark 1.51

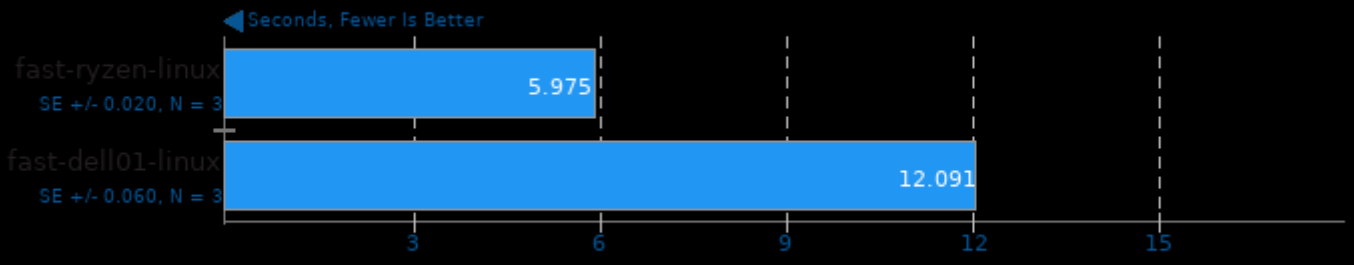
Disk Transaction Performance



1. (CC) gcc options: -O3

LAME MP3 Encoding 3.100

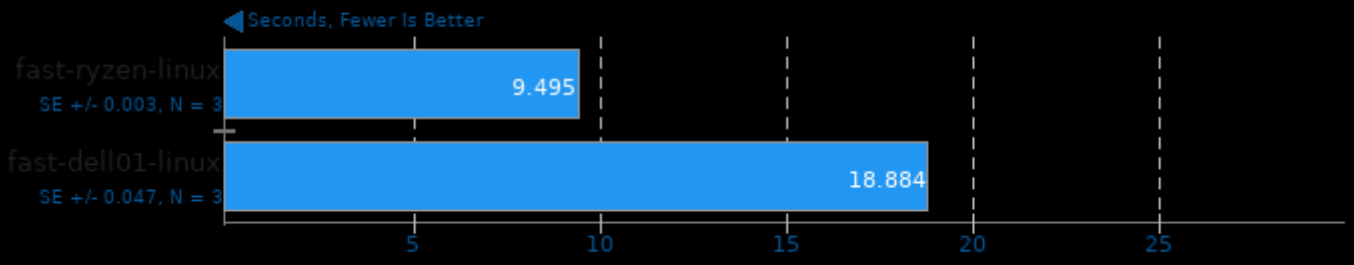
WAV To MP3



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

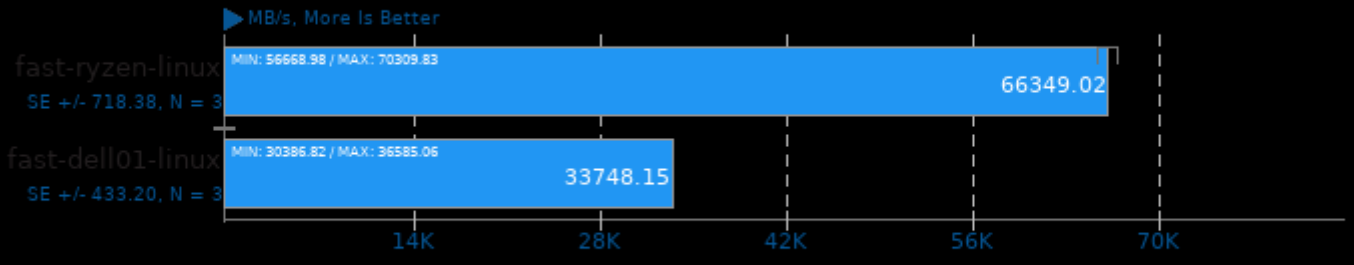
Loopback TCP Network Performance

Time To Transfer 10GB Via Loopback



CacheBench

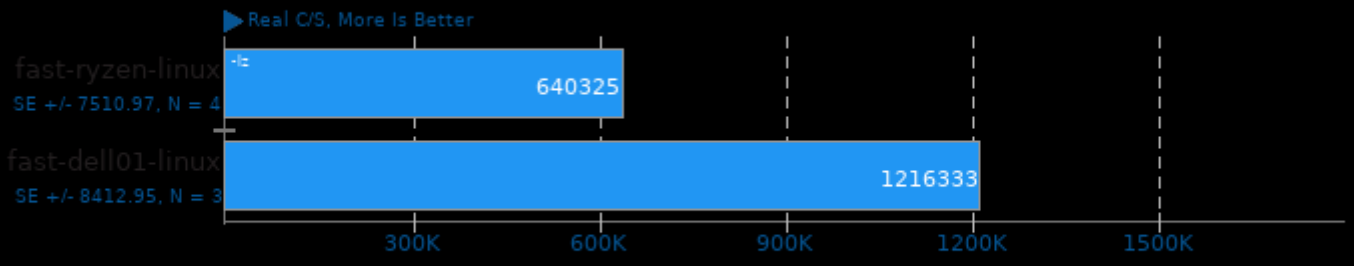
Test: Read / Modify / Write



1. (CC) gcc options: -lrt

John The Ripper 1.9.0-jumbo-1

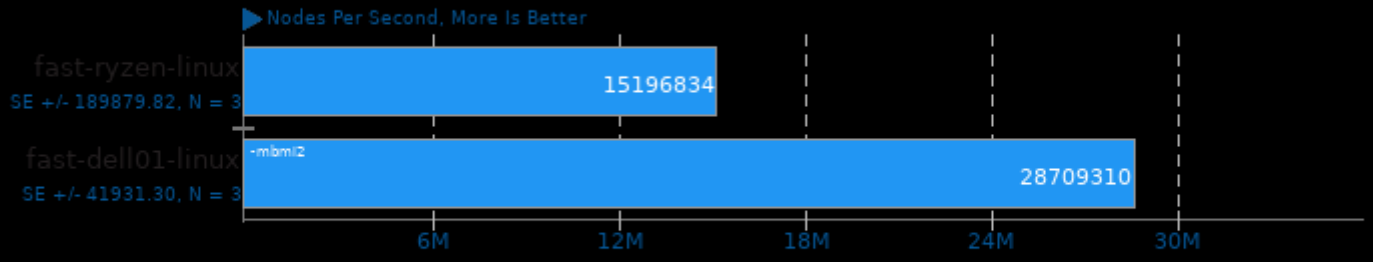
Test: MD5



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -pthread -lm -ldl -lcrypt

Stockfish 13

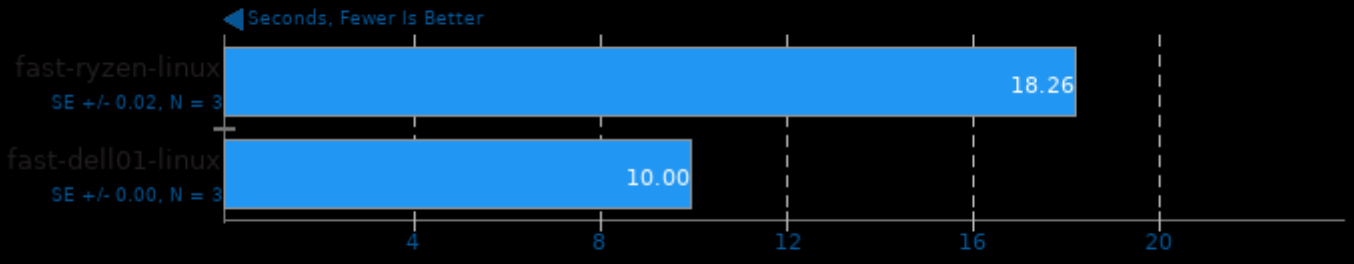
Total Time



1. (CXX) g++ options: -lgcov -m64 -lpthread -fno-exceptions -std=c++17 -fprofile-use -fno-peel-loops -fno-tracer -pedantic -O3 -msse -msse3 -mpopcnt

Smallpt 1.0

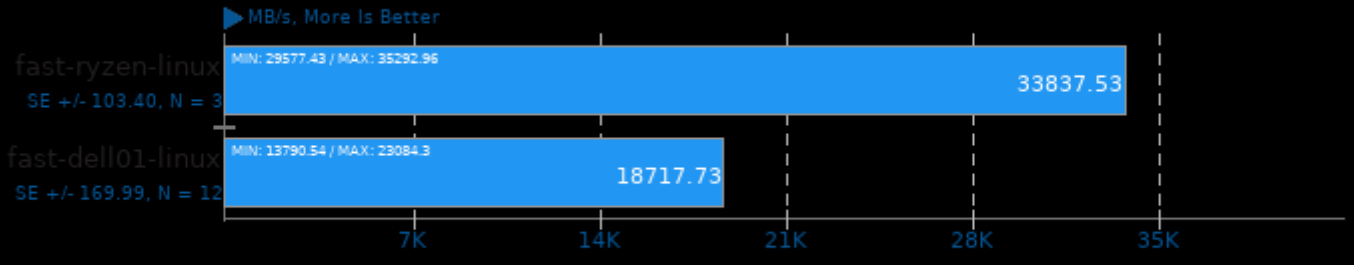
Global Illumination Renderer; 128 Samples



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

CacheBench

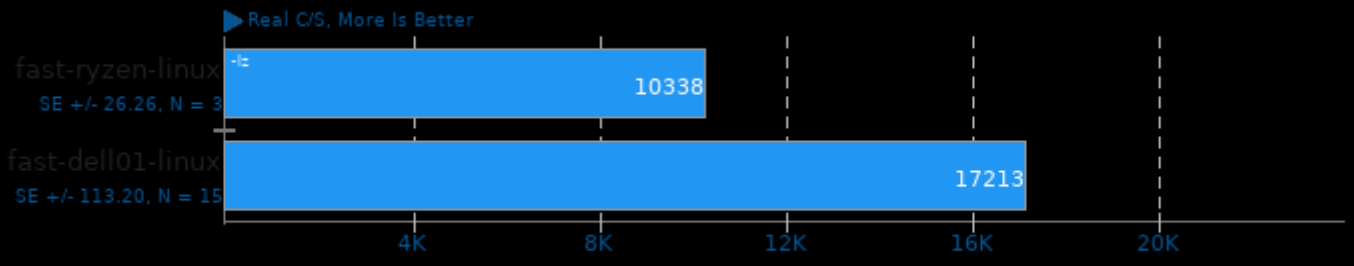
Test: Write



1. (CC) gcc options: -lrt

John The Ripper 1.9.0-jumbo-1

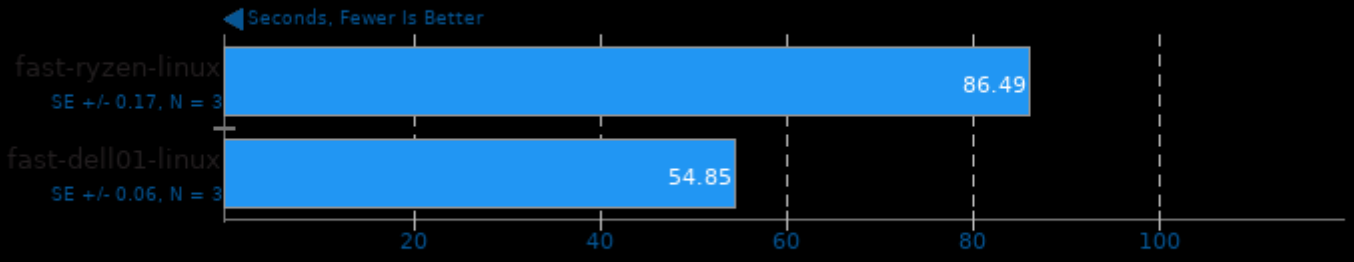
Test: Blowfish



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -pthread -lm -ldl -lcrypt

C-Ray 1.1

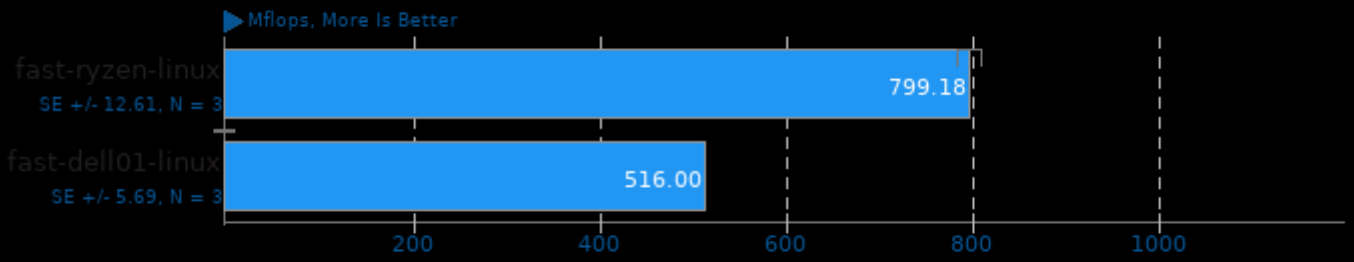
Total Time - 4K, 16 Rays Per Pixel



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

SciMark 2.0

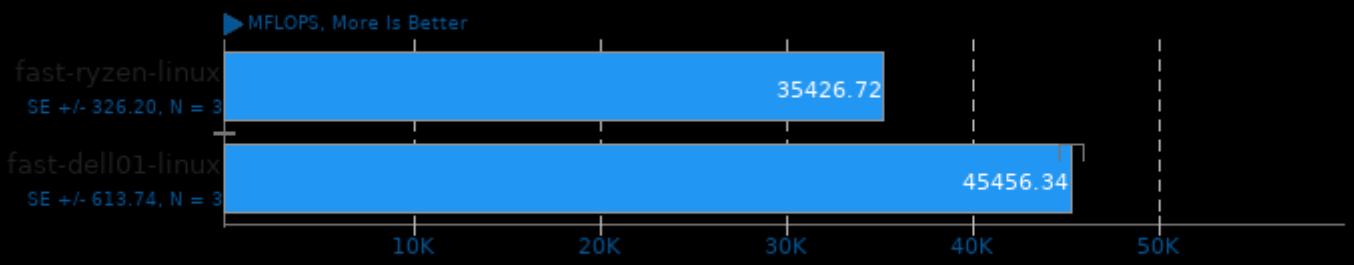
Computational Test: Sparse Matrix Multiply



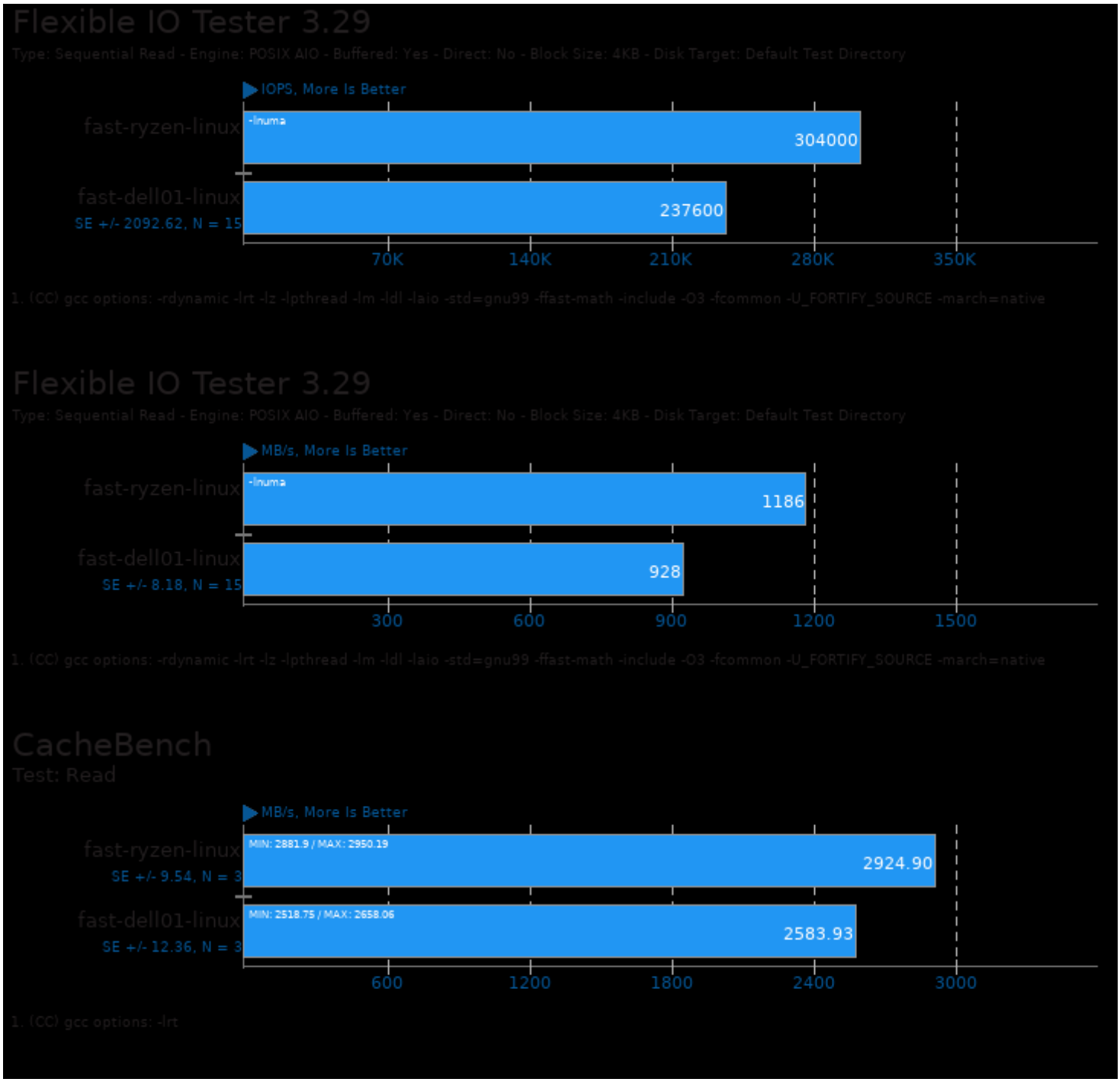
1. (CC) gcc options: -lm

FFTE 7.0

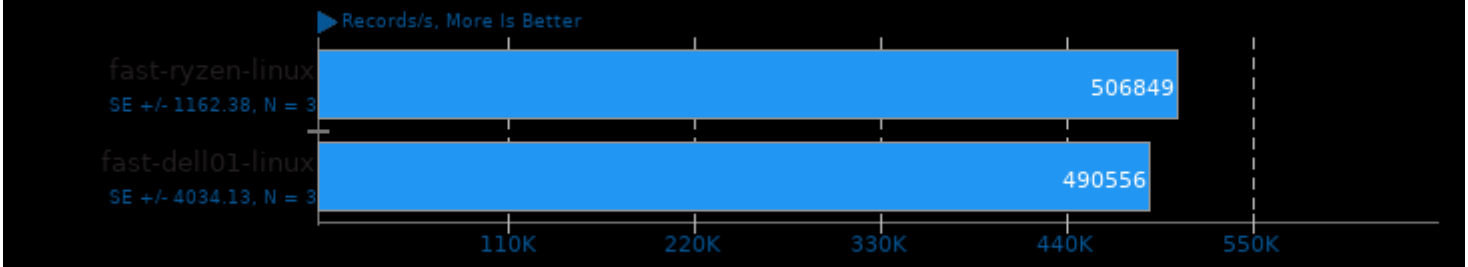
N=256, 3D Complex FFT Routine



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


Flexible IO Tester 3.29
Type: Sequential Read - Engine: POSIX AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
fast-ryzen-linux
-lnuma
304000
fast-dell01-linux
237600
SE +/- 2092.62, N = 15
70K
140K
210K
280K
350K
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.29
Type: Sequential Read - Engine: POSIX AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
fast-ryzen-linux
-lnuma
1186
fast-dell01-linux
928
SE +/- 8.18, N = 15
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
CacheBench
Test: Read
MB/s, More Is Better
fast-ryzen-linux
MIN: 2881.9 / MAX: 2950.19
2924.90
SE +/- 9.54, N = 3
fast-dell01-linux
MIN: 2518.75 / MAX: 2658.06
2583.93
SE +/- 12.36, N = 3
600
1200
1800
2400
3000
1. (CC) gcc options: -lrt

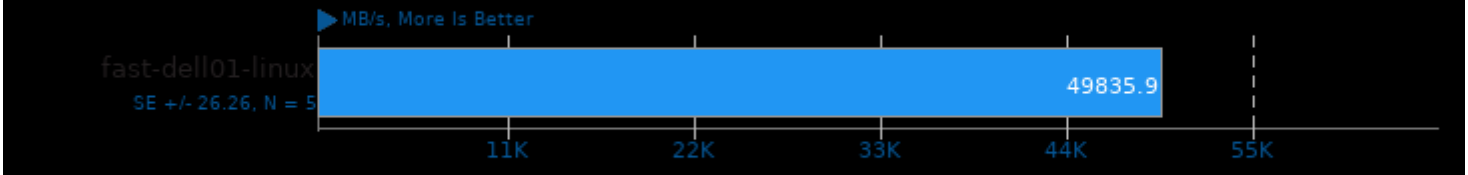
ebizzy 0.3



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

Stream 2013-01-17

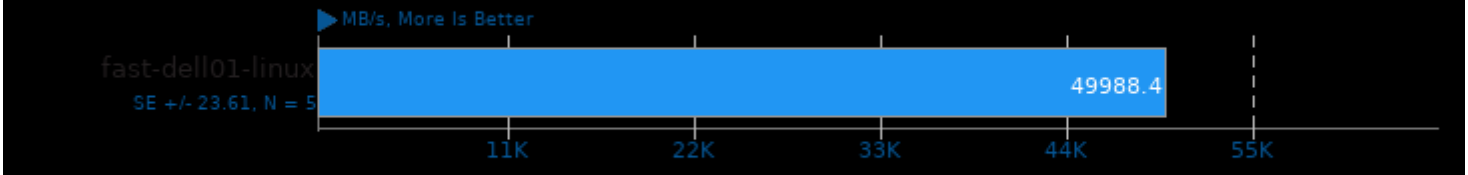
Type: Add



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

Stream 2013-01-17

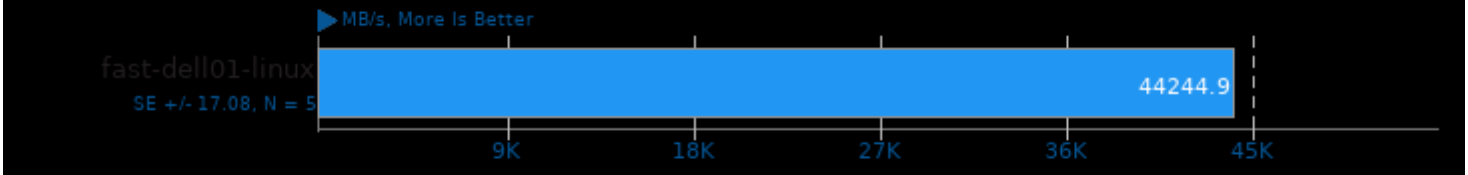
Type: Triad



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

Stream 2013-01-17

Type: Scale

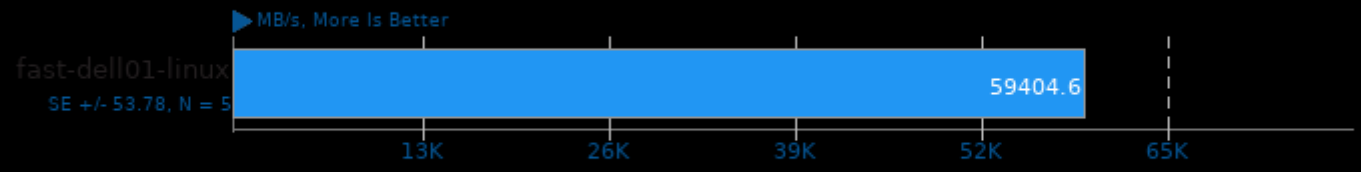


1. (CC) gcc options: -O3 -march=native -fopenmp

fast-ryzen-linux

Stream 2013-01-17

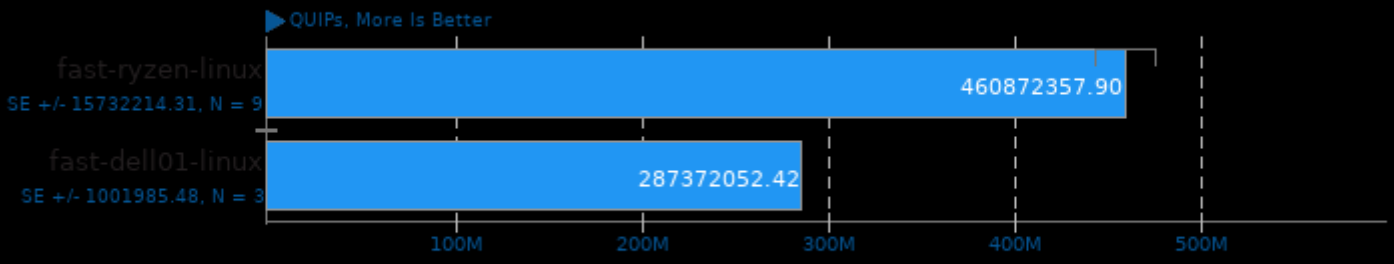
Type: Copy



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

Hierarchical INTegration 1.0

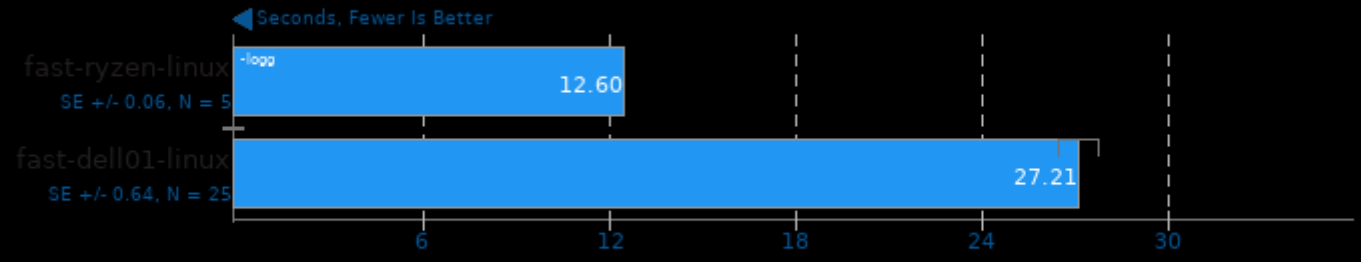
Test: FLOAT



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

FLAC Audio Encoding 1.3.3

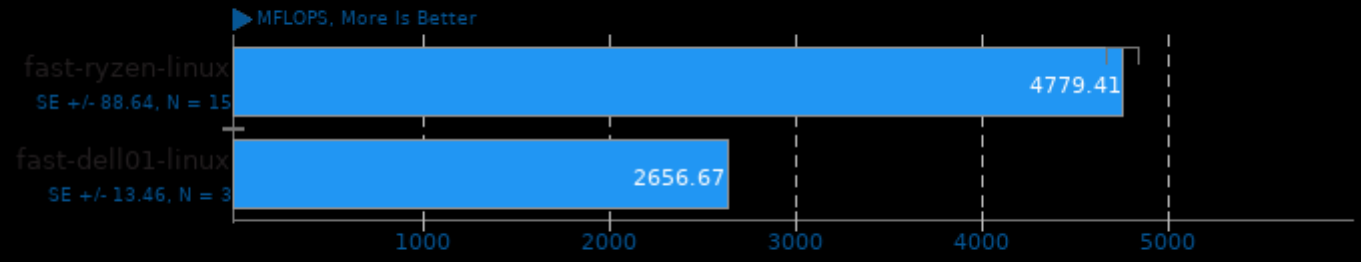
WAV To FLAC



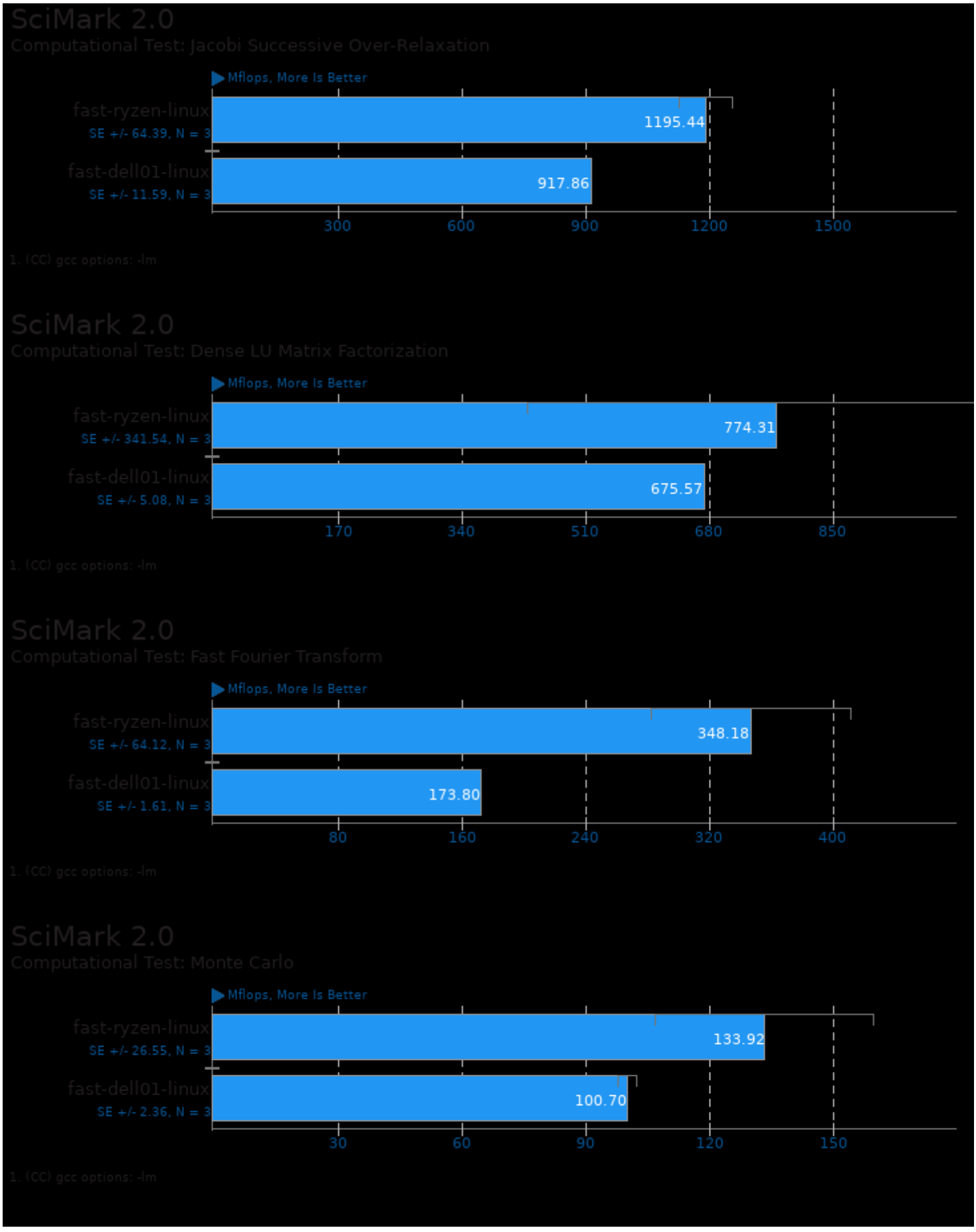
1. (CXX) g++ options: -fvisibility=hidden -lm

Himeno Benchmark 3.0

Poisson Pressure Solver

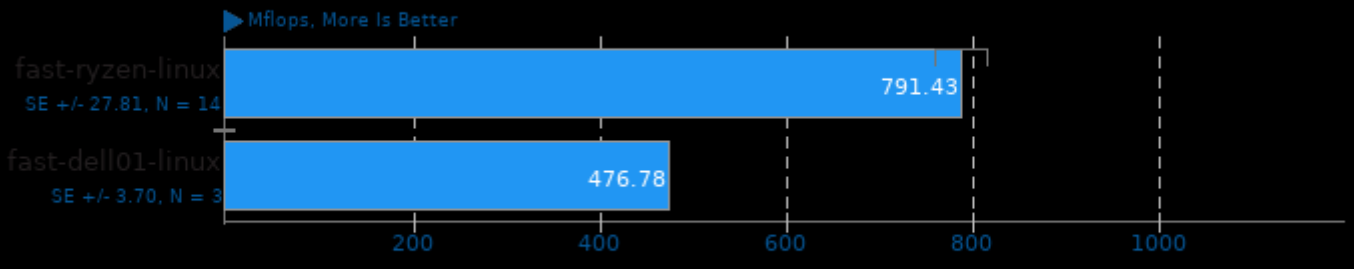


1. (CC) gcc options: -O3 -mavx2


SciMark 2.0
Computational Test: Jacobi Successive Over-Relaxation
Mflops, More Is Better
fast-ryzen-linux
SE +/- 64.39, N = 3
1195.44
fast-dell01-linux
SE +/- 11.59, N = 3
917.86
300
600
900
1200
1500
1. (CC) gcc options: -lm
SciMark 2.0
Computational Test: Dense LU Matrix Factorization
Mflops, More Is Better
fast-ryzen-linux
SE +/- 341.54, N = 3
774.31
fast-dell01-linux
SE +/- 5.08, N = 3
675.57
170
340
510
680
850
1. (CC) gcc options: -lm
SciMark 2.0
Computational Test: Fast Fourier Transform
Mflops, More Is Better
fast-ryzen-linux
SE +/- 64.12, N = 3
348.18
fast-dell01-linux
SE +/- 1.61, N = 3
173.80
80
160
240
320
400
1. (CC) gcc options: -lm
SciMark 2.0
Computational Test: Monte Carlo
Mflops, More Is Better
fast-ryzen-linux
SE +/- 26.55, N = 3
133.92
fast-dell01-linux
SE +/- 2.36, N = 3
100.70
30
60
90
120
150
1. (CC) gcc options: -lm

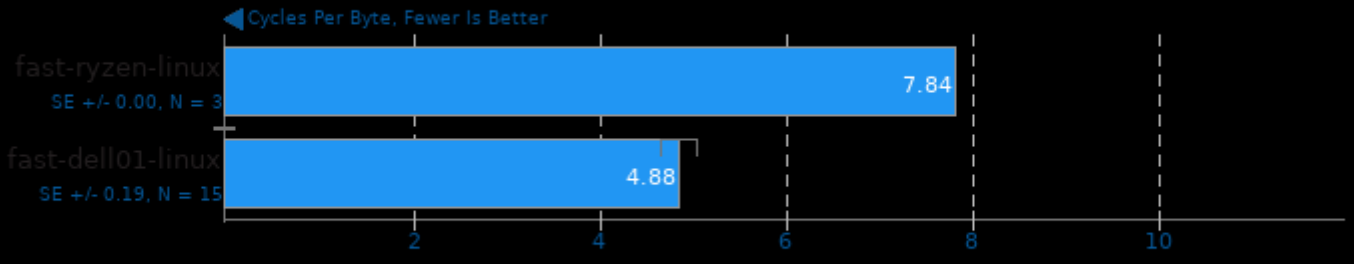
SciMark 2.0

Computational Test: Composite



1. (CC) gcc options: -lm

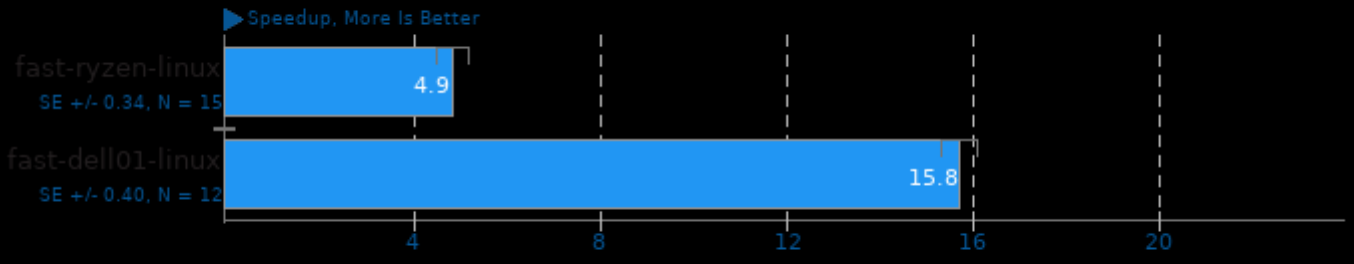
BLAKE2 20170307



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

CLOMP 1.2

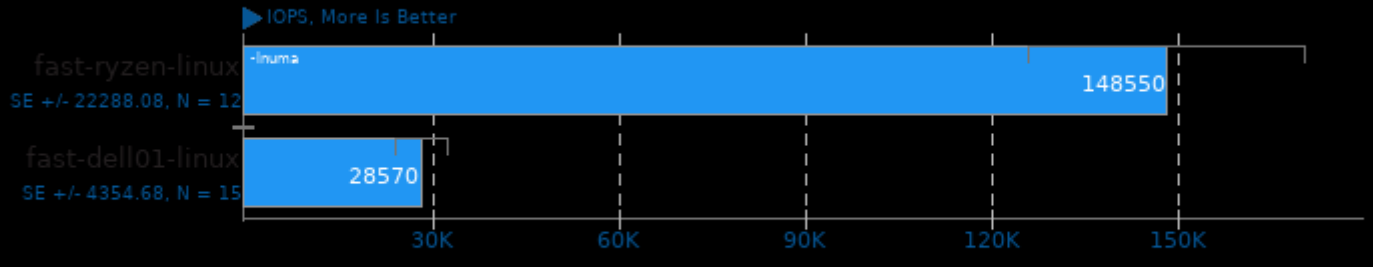
Static OMP Speedup



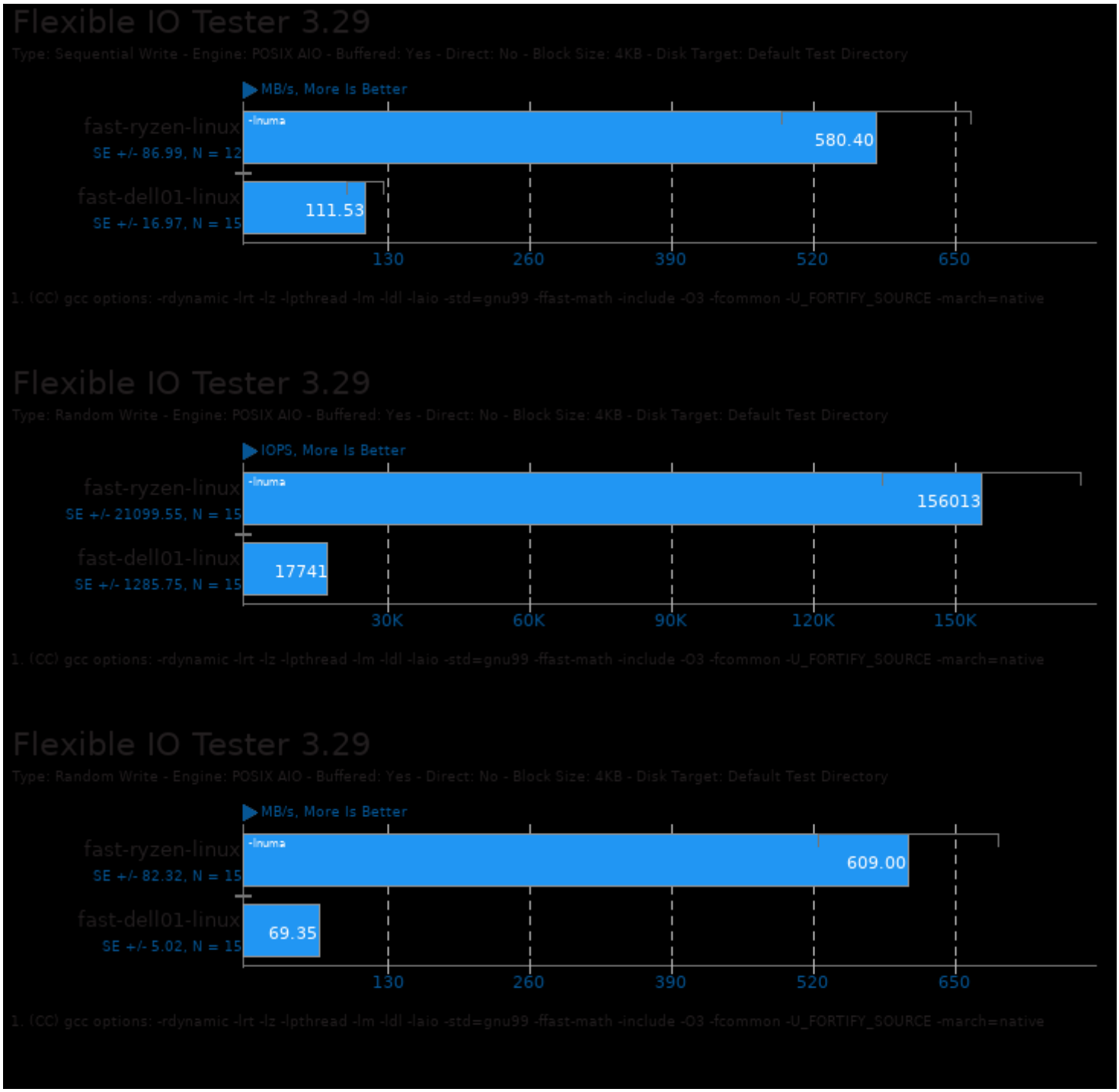
1. (CC) gcc options: -fopenmp -O3 -lm

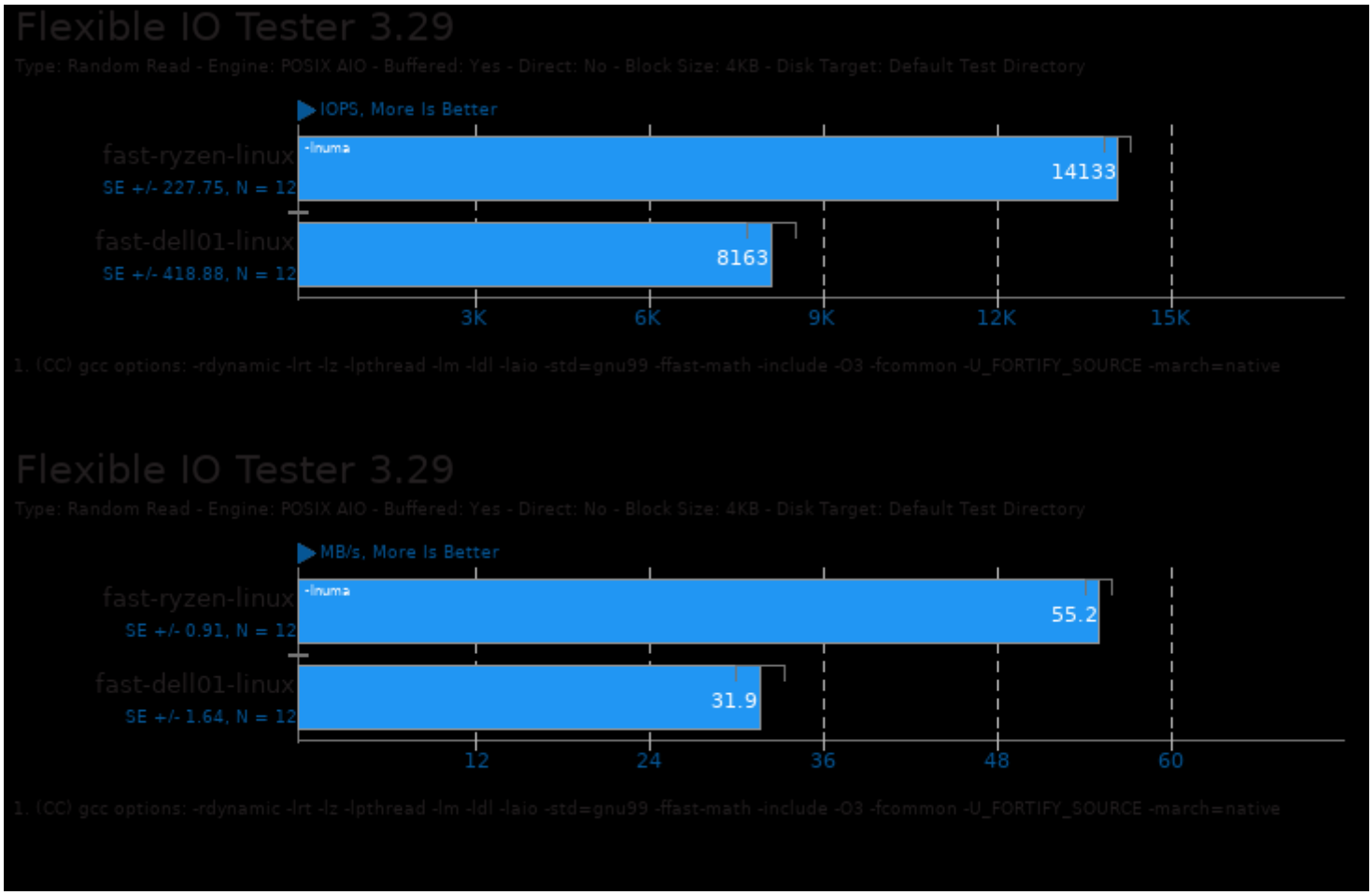
Flexible IO Tester 3.29

Type: Sequential Write - Engine: POSIX AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory



1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.29
Type: Sequential Write - Engine: POSIX AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
fast-ryzen-linux
SE +/- 86.99, N = 12
-lnuma
580.40
fast-dell01-linux
SE +/- 16.97, N = 15
111.53
130
260
390
520
650
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.29
Type: Random Write - Engine: POSIX AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
fast-ryzen-linux
SE +/- 21099.55, N = 15
-lnuma
156013
fast-dell01-linux
SE +/- 1285.75, N = 15
17741
30K
60K
90K
120K
150K
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.29
Type: Random Write - Engine: POSIX AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
fast-ryzen-linux
SE +/- 82.32, N = 15
-lnuma
609.00
fast-dell01-linux
SE +/- 5.02, N = 15
69.35
130
260
390
520
650
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native



This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 07:42.