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bench17lvmext4

Intel Core i7-1165G7 testing with a HP 8846 (T76 Ver. 01.01.04 BIOS) and NVIDIA T500 4GB on Ubuntu 20.04 via the Phoronix Test Suite.

Test Systems:

Kioxia KXG60ZNV512G

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: HP 8846 (T76 Ver. 01.01.04 BIOS), Chipset: Intel Device a0ef, Memory: 32GB, Disk: 512GB Kioxia KXG60ZNV512G, Graphics: NVIDIA T500 4GB, Audio: Realtek ALC285, Network: Intel Device a0f0

OS: Ubuntu 20.04, Kernel: 5.11.0-27-generic (x86_64), Desktop: MATE 1.24.0, Display Server: X Server 1.20.11, Display Driver: NVIDIA 470.57.02, OpenGL: 4.6.0, OpenCL: OpenCL 3.0 CUDA 11.4.94, Vulkan: 1.2.145, 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

bench17lvmext4

--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: NONE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x88 - Thermald 1.9.1
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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	Kioxia KXG60ZNV512G
PostMark - D.T.P (TPS)	7579
Standard Deviation	2.5%
Compile Bench - Read Compiled Tree (MB/s)	4085
Standard Deviation	0.8%
Compile Bench - Initial Create (MB/s)	837.64
Standard Deviation	2.5%
IOR - 1024MB (MB/s)	502.91
Standard Deviation	2.2%
IOR - 512MB (MB/s)	599.59
Standard Deviation	1.9%
IOR - 256MB (MB/s)	622.48
Standard Deviation	1.9%
IOR - 64MB (MB/s)	654.73
Standard Deviation	2.5%
IOR - 16MB (MB/s)	1332
Standard Deviation	1%
IOR - 8MB (MB/s)	1285
Standard Deviation	1.2%
IOR - 4MB (MB/s)	1104
Standard Deviation	0.7%
IOR - 2MB (MB/s)	887.99
Standard Deviation	1.5%
Dbench - 1 Clients (MB/s)	175.820
Standard Deviation	0.3%
Dbench - 12 Clients (MB/s)	902.304
Standard Deviation	1.5%
FS-Mark - 1.F.1.S.N.S.F (Files/s)	3105
Standard Deviation	0.3%
FS-Mark - 1.F.1.S (Files/s)	208.8
Standard Deviation	3.2%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (IOPS)	339167
Standard Deviation	3.8%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (MB/s)	1325
Standard Deviation	3.8%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 2MB (IOPS)	1390
Standard Deviation	0.1%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 2MB (MB/s)	2786
Standard Deviation	0.1%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (IOPS)	384333
Standard Deviation	1.5%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (MB/s)	1502

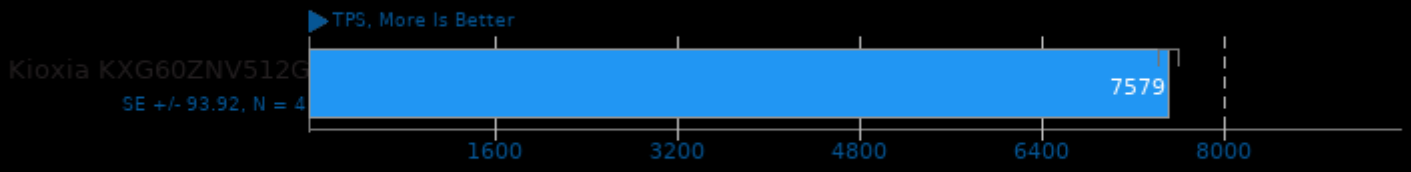
bench17lvmext4

Standard Deviation	1.6%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 2MB (IOPS)	1555
Standard Deviation	0.3%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 2MB (MB/s)	3117
Standard Deviation	0.3%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB (IOPS)	322538
Standard Deviation	3.8%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB (MB/s)	1260
Standard Deviation	3.8%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 2MB (IOPS)	1386
Standard Deviation	0.3%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 2MB (MB/s)	2780
Standard Deviation	0.3%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB (IOPS)	356600
Standard Deviation	4.6%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB (MB/s)	1393
Standard Deviation	4.5%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 2MB (IOPS)	1444
Standard Deviation	0.3%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 2MB (MB/s)	2895
Standard Deviation	0.3%
SQLite - 128 (sec)	259.416
Standard Deviation	1.2%
SQLite - 64 (sec)	185.660
Standard Deviation	1.7%
SQLite - 32 (sec)	134.375
Standard Deviation	1.6%
SQLite - 8 (sec)	75.364
Standard Deviation	0.8%
Compile Bench - Compile (MB/s)	2461
Standard Deviation	11.5%
IOR - 32MB (MB/s)	694.62
Standard Deviation	22.4%
FS-Mark - 4.F.3.S.D.1.S (Files/s)	162.3
Standard Deviation	18.4%
FS-Mark - 5.F.1.S.4.T (Files/s)	321.5
Standard Deviation	12.6%
SQLite - 1 (sec)	28.016
Standard Deviation	10.6%

bench17lvmext4

PostMark 1.51

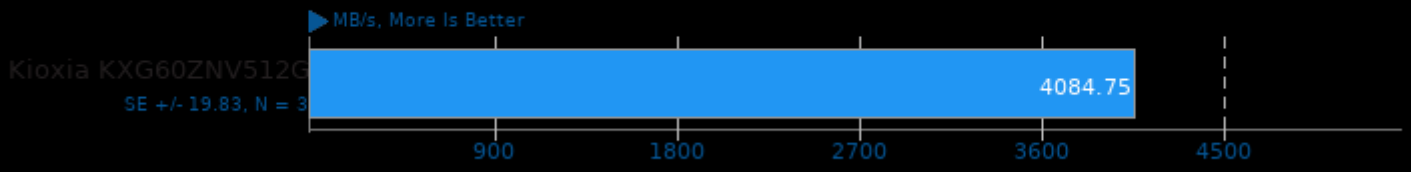
Disk Transaction Performance



1. (CC) gcc options: -O3

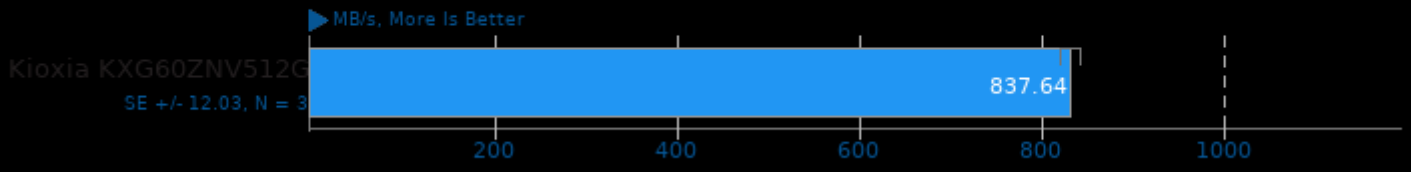
Compile Bench 0.6

Test: Read Compiled Tree



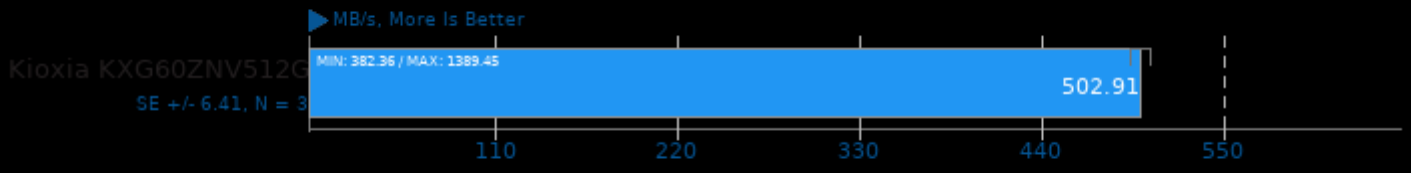
Compile Bench 0.6

Test: Initial Create



IOR 3.3.0

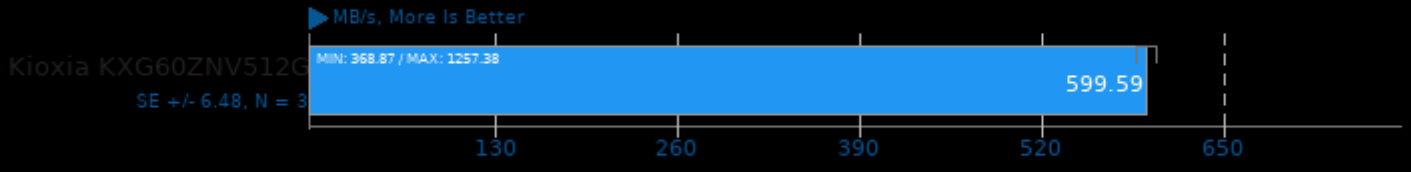
Block Size: 1024MB - Disk Target: Default Test Directory



1. (CC) gcc options: -O2 -lm -pthread -lmpi

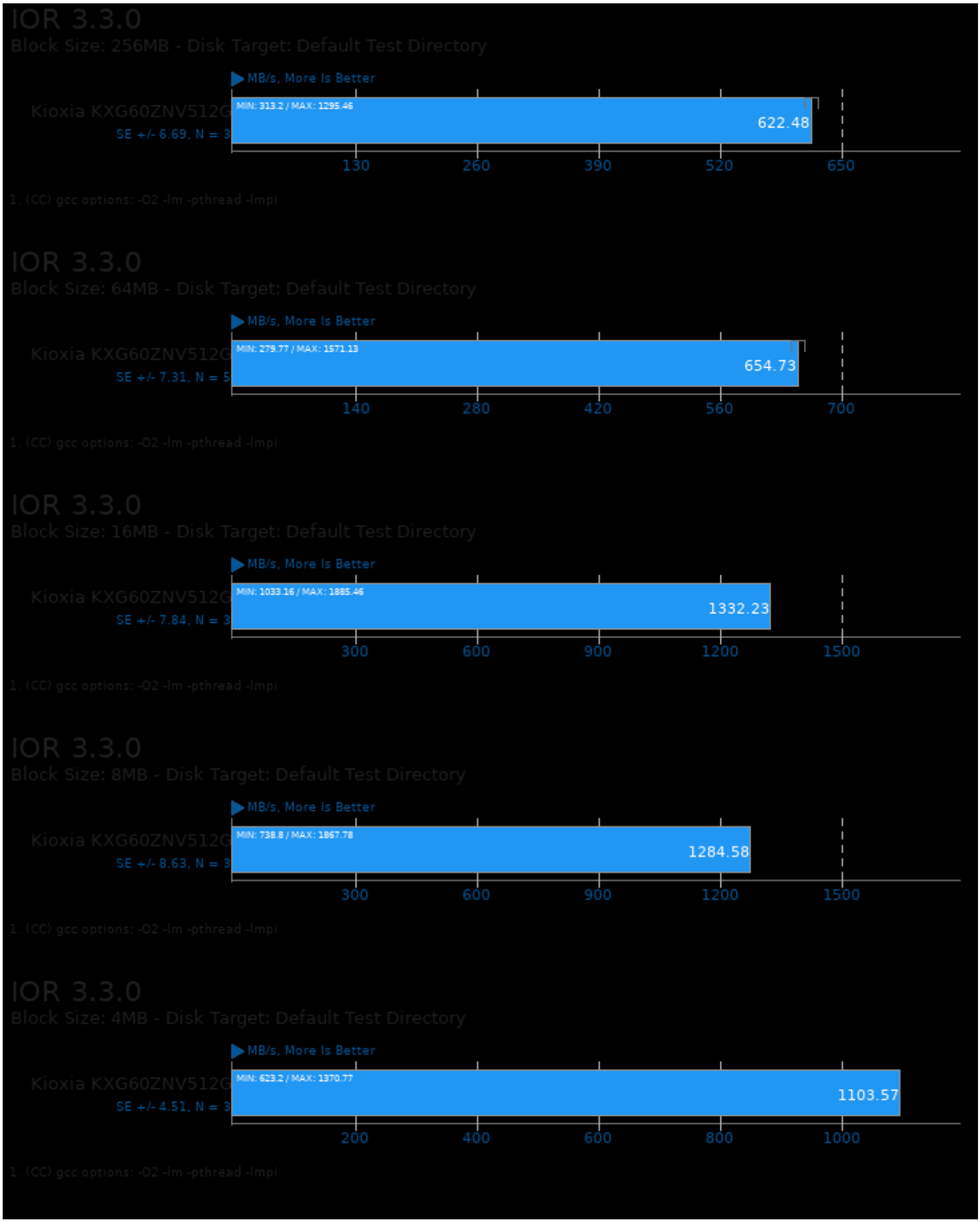
IOR 3.3.0

Block Size: 512MB - Disk Target: Default Test Directory



1. (CC) gcc options: -O2 -lm -pthread -lmpi

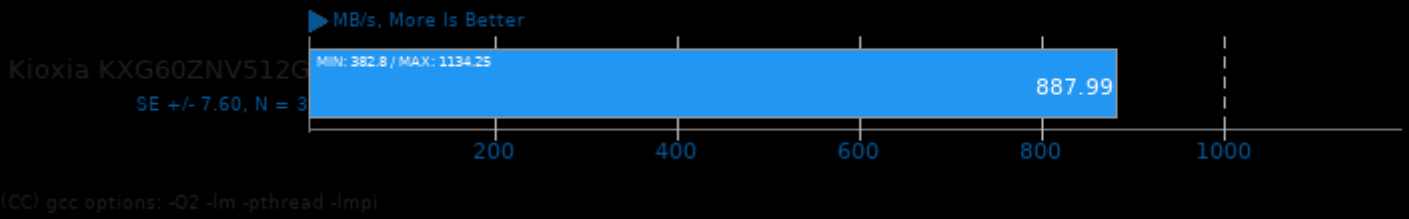
bench17lvmext4



bench17lvmext4

IOR 3.3.0

Block Size: 2MB - Disk Target: Default Test Directory

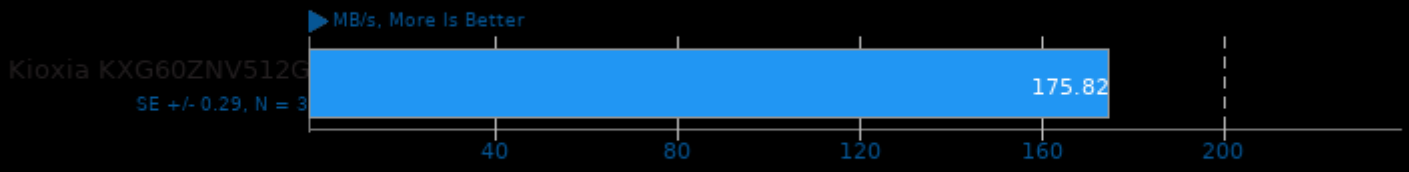


SE +/- 7.60, N = 3

1. (CC) gcc options: -O2 -lm -pthread -lmpi

Dbench 4.0

1 Clients

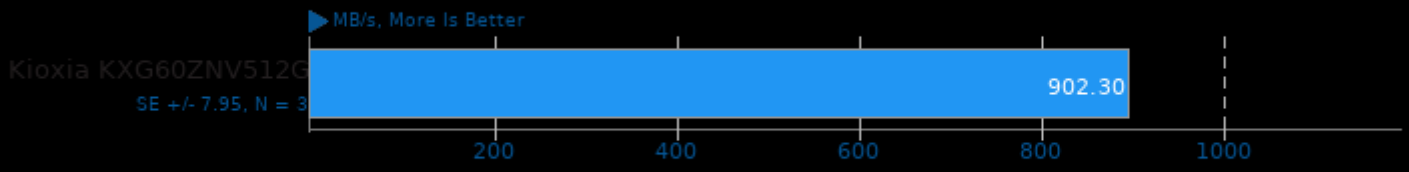


SE +/- 0.29, N = 3

1. (CC) gcc options: -lpopt -O2

Dbench 4.0

12 Clients

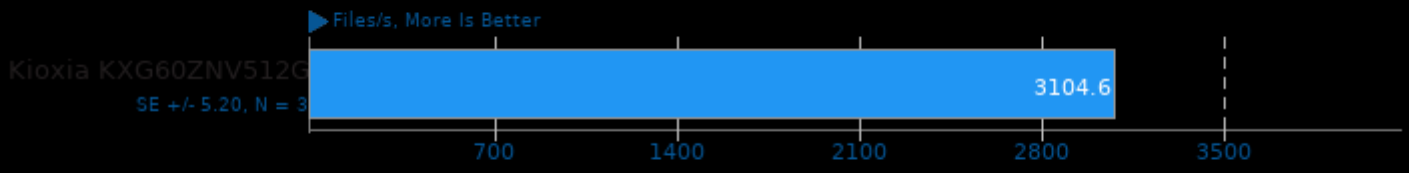


SE +/- 7.95, N = 3

1. (CC) gcc options: -lpopt -O2

FS-Mark 3.3

Test: 1000 Files, 1MB Size, No Sync/FSync

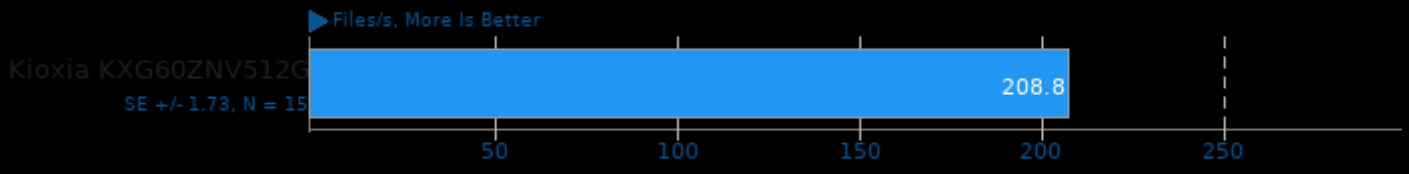


SE +/- 5.20, N = 3

1. (CC) gcc options: -static

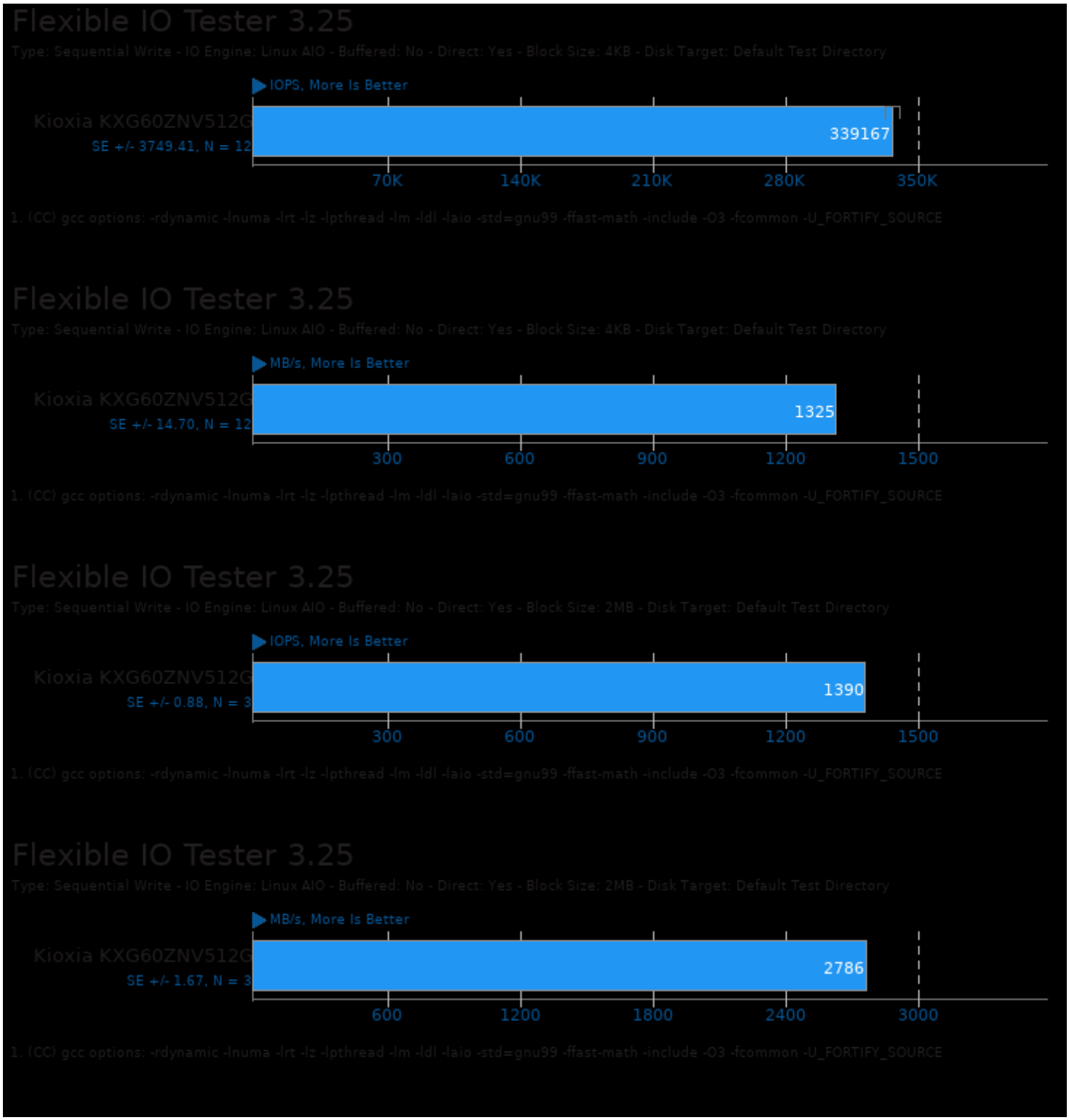
FS-Mark 3.3

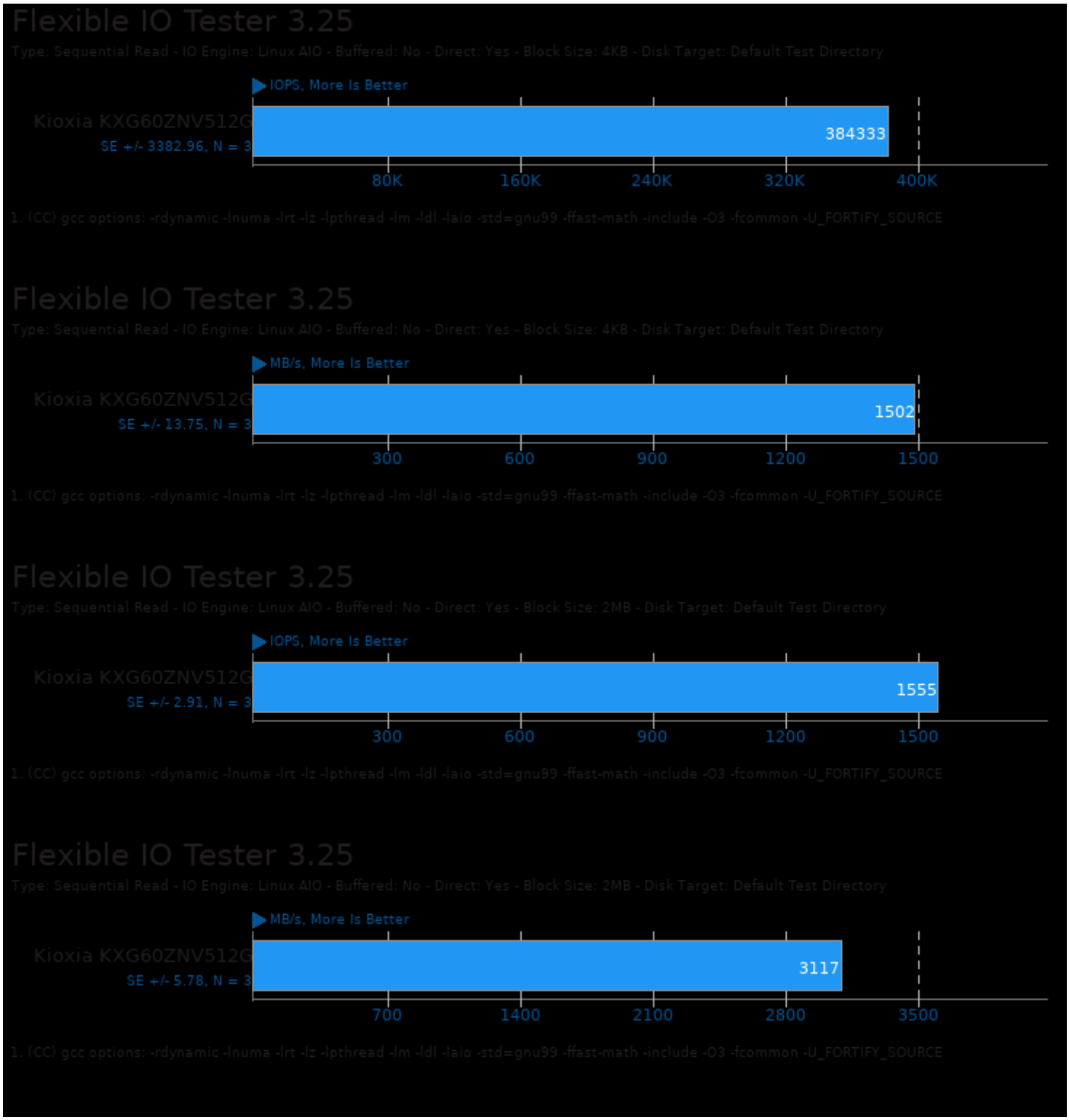
Test: 1000 Files, 1MB Size

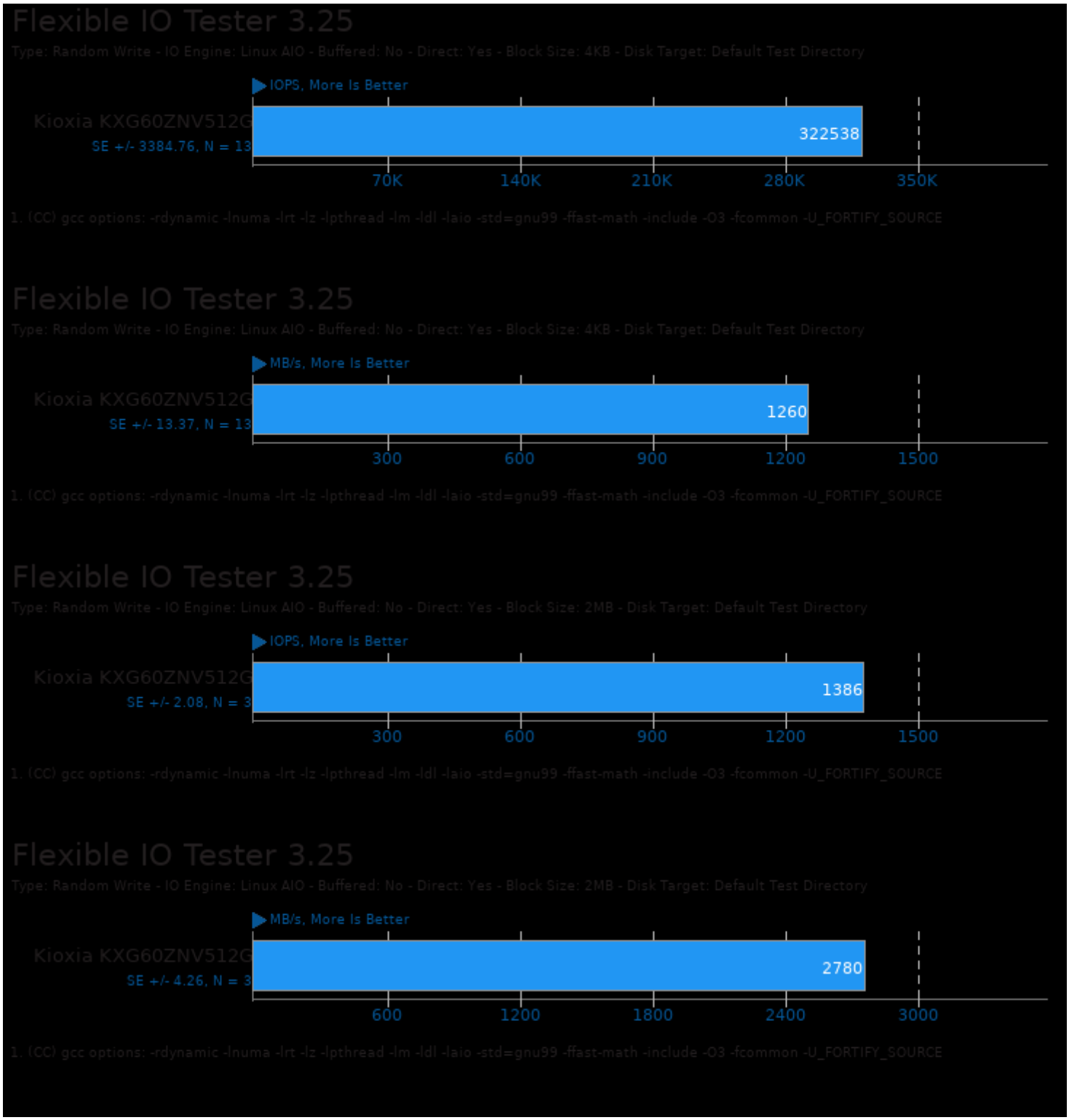


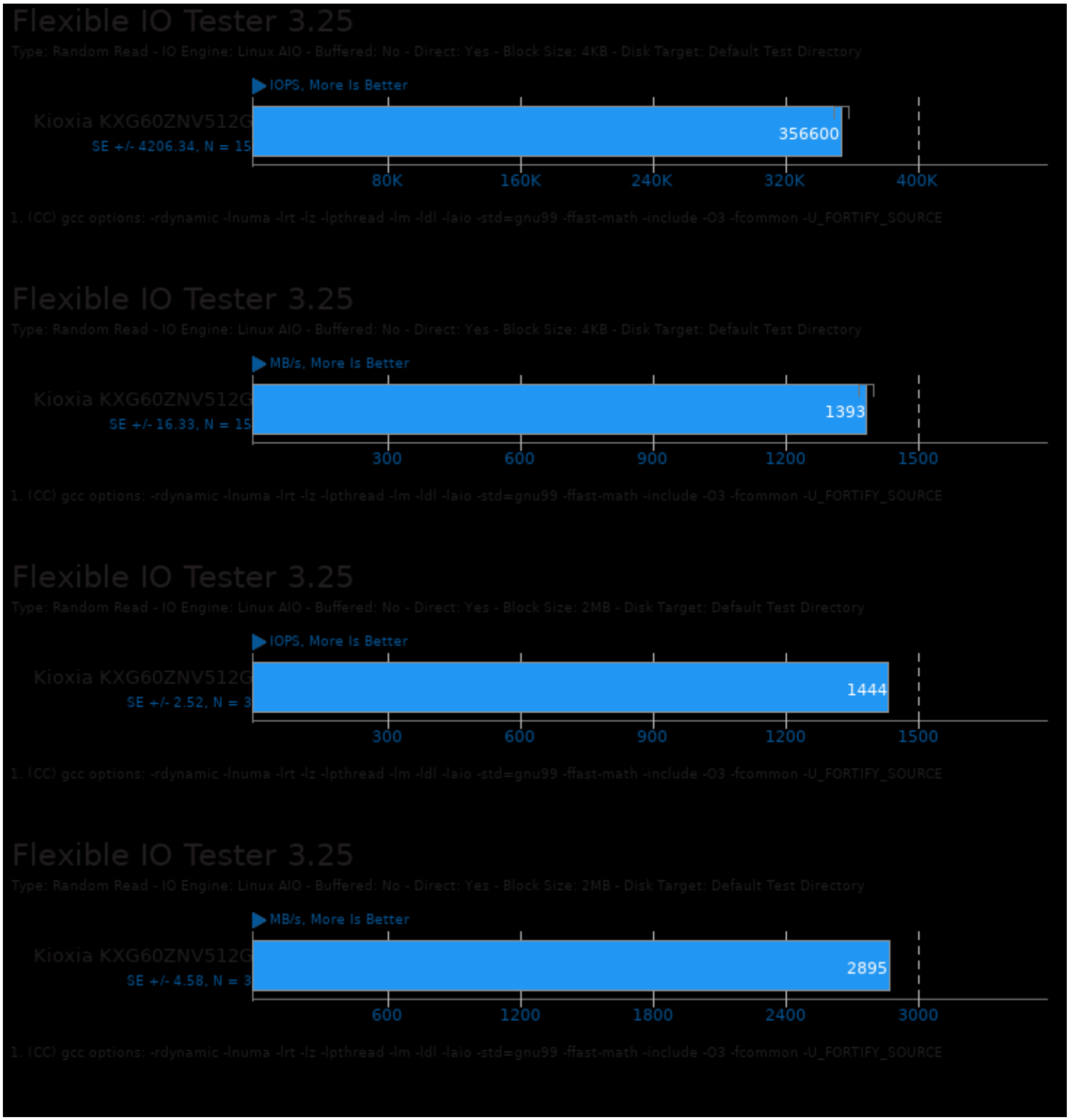
SE +/- 1.73, N = 15

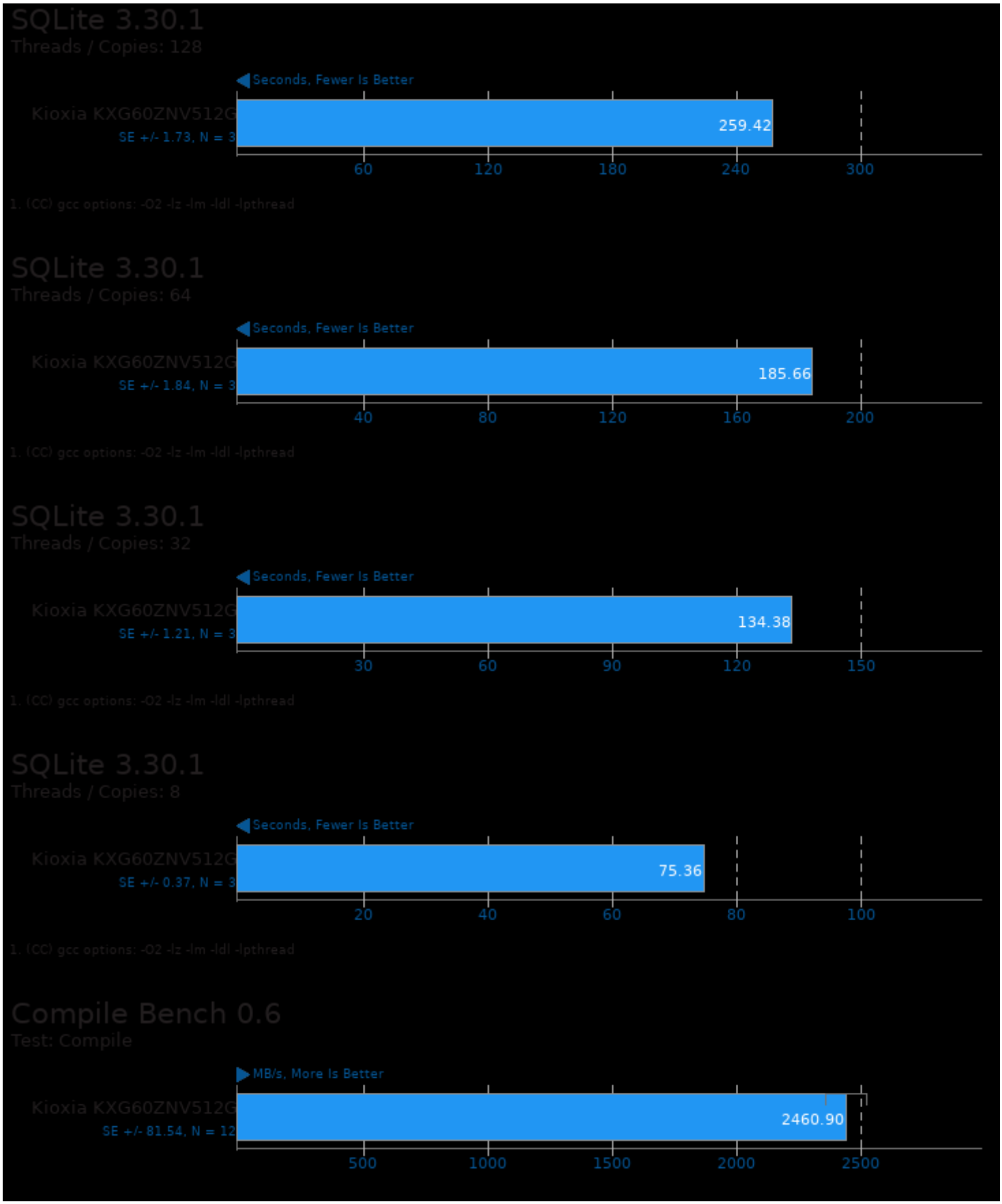
1. (CC) gcc options: -static

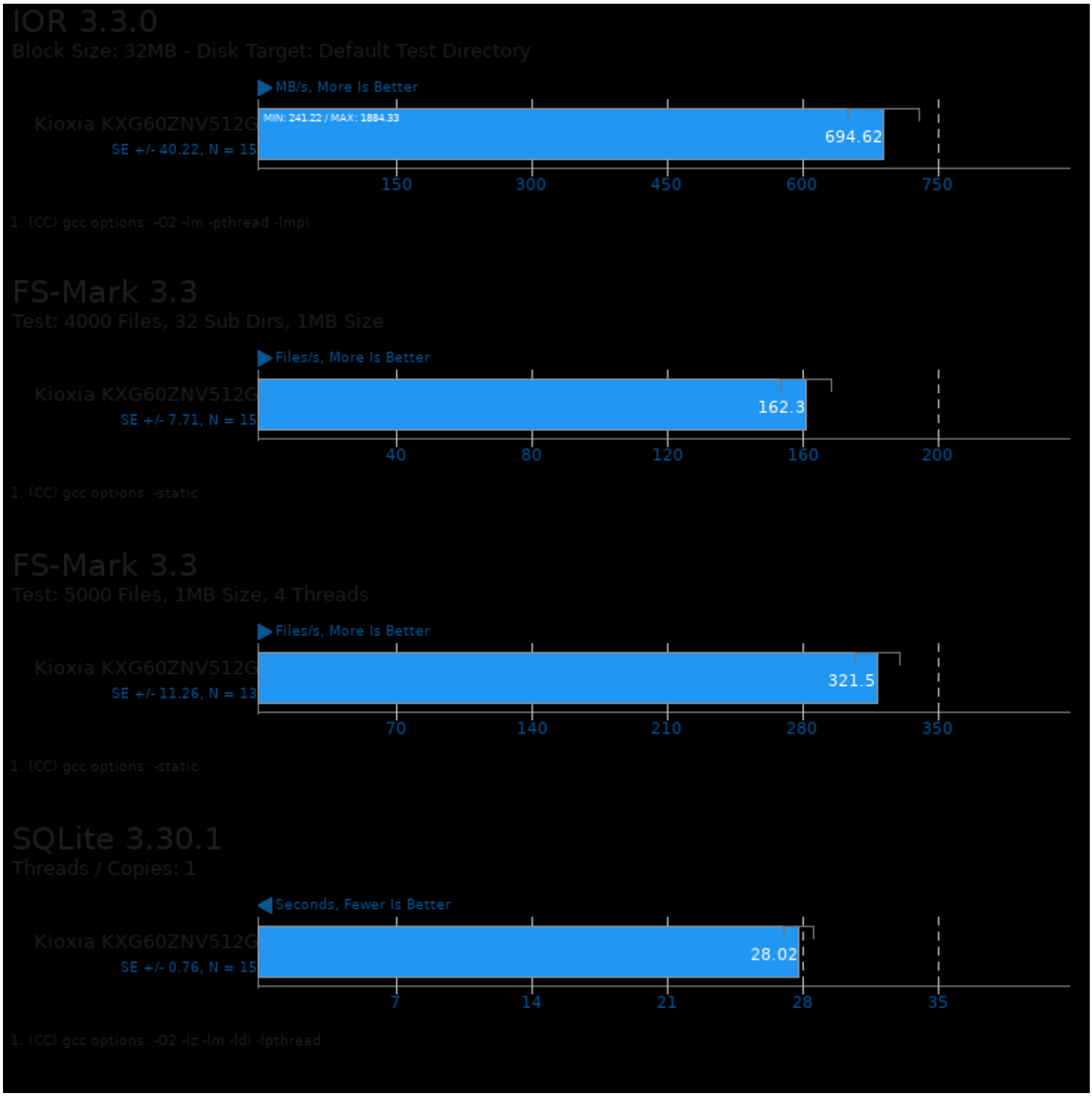

Flexible IO Tester 3.25
Type: Sequential Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 3749.41, N = 12
339167
70K
140K
210K
280K
350K
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Sequential Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 14.70, N = 12
1325
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Sequential Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 0.88, N = 3
1390
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Sequential Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 1.67, N = 3
2786
600
1200
1800
2400
3000
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE


Flexible IO Tester 3.25
Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 3382.96, N = 3
384333
80K
160K
240K
320K
400K
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 13.75, N = 3
1502
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 2.91, N = 3
1555
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Sequential Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 5.78, N = 3
3117
700
1400
2100
2800
3500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE


Flexible IO Tester 3.25
Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 3384.76, N = 13
322538
70K
140K
210K
280K
350K
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 13.37, N = 13
1260
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 2.08, N = 3
1386
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Random Write - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 4.26, N = 3
2780
600
1200
1800
2400
3000
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE


Flexible IO Tester 3.25
Type: Random Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 4206.34, N = 15
356600
80K
160K
240K
320K
400K
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Random Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 16.33, N = 15
1393
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Random Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
IOPS, More Is Better
Kioxia KXG60ZNV512G
SE +/- 2.52, N = 3
1444
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE
Flexible IO Tester 3.25
Type: Random Read - IO Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 2MB - Disk Target: Default Test Directory
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 4.58, N = 3
2895
600
1200
1800
2400
3000
1. (CC) gcc options: -rdynamic -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE


SQLite 3.30.1
Threads / Copies: 128
Seconds, Fewer Is Better
Kioxia KXG60ZNV512G
SE +/- 1.73, N = 3
259.42
60
120
180
240
300
1. (CC) gcc options: -O2 -lz -lm -ldl -lpthread
SQLite 3.30.1
Threads / Copies: 64
Seconds, Fewer Is Better
Kioxia KXG60ZNV512G
SE +/- 1.84, N = 3
185.66
40
80
120
160
200
1. (CC) gcc options: -O2 -lz -lm -ldl -lpthread
SQLite 3.30.1
Threads / Copies: 32
Seconds, Fewer Is Better
Kioxia KXG60ZNV512G
SE +/- 1.21, N = 3
134.38
30
60
90
120
150
1. (CC) gcc options: -O2 -lz -lm -ldl -lpthread
SQLite 3.30.1
Threads / Copies: 8
Seconds, Fewer Is Better
Kioxia KXG60ZNV512G
SE +/- 0.37, N = 3
75.36
20
40
60
80
100
1. (CC) gcc options: -O2 -lz -lm -ldl -lpthread
Compile Bench 0.6
Test: Compile
MB/s, More Is Better
Kioxia KXG60ZNV512G
SE +/- 81.54, N = 12
2460.90
500
1000
1500
2000
2500



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