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debian11-xcp-ng-truenas

Xen HVM domU 4.13 testing on Debian 11 via the Phoronix Test Suite.

Automated Executive Summary

TrueNAS Core iSCSI had the most wins, coming in first place for 60% of the tests.

Based on the geometric mean of all complete results, the fastest (TrueNAS Core iSCSI) was 1.105x the speed of the slowest (TrueNAS Core NFS). TrueNAS Core was 0.906x the speed of TrueNAS Core iSCSI and TrueNAS Core NFS was 0.999x the speed of TrueNAS Core.

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

Flexible IO Tester (Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory) at 1.928x
Flexible IO Tester (Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory) at 1.916x
Flexible IO Tester (Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory) at 1.491x
Flexible IO Tester (Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory) at 1.457x
Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk

Target: Default Test Directory) at 1.453x
Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory) at 1.452x
Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory) at 1.434x
Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory) at 1.434x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory) at 1.337x
Flexible IO Tester (Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory) at 1.326x.

Test Systems:

TrueNAS Core

TrueNAS Core NFS

TrueNAS Core iSCSI

Processor: 8 x Intel Core i7-4790 (15 Cores), Motherboard: Xen HVM domU v4.13, Chipset: Intel 440FX 82441FX PMC, Memory: 1 x 4088 MB RAM, Disk: 57GB, Graphics: bochs-drmdrmfb

OS: Debian 11, Kernel: 5.10.0-8-amd64 (x86_64), Compiler: GCC 10.2.1 20210110, File-System: ext4, Screen Resolution: 1024x768, System Layer: Xen HVM domU 4.13

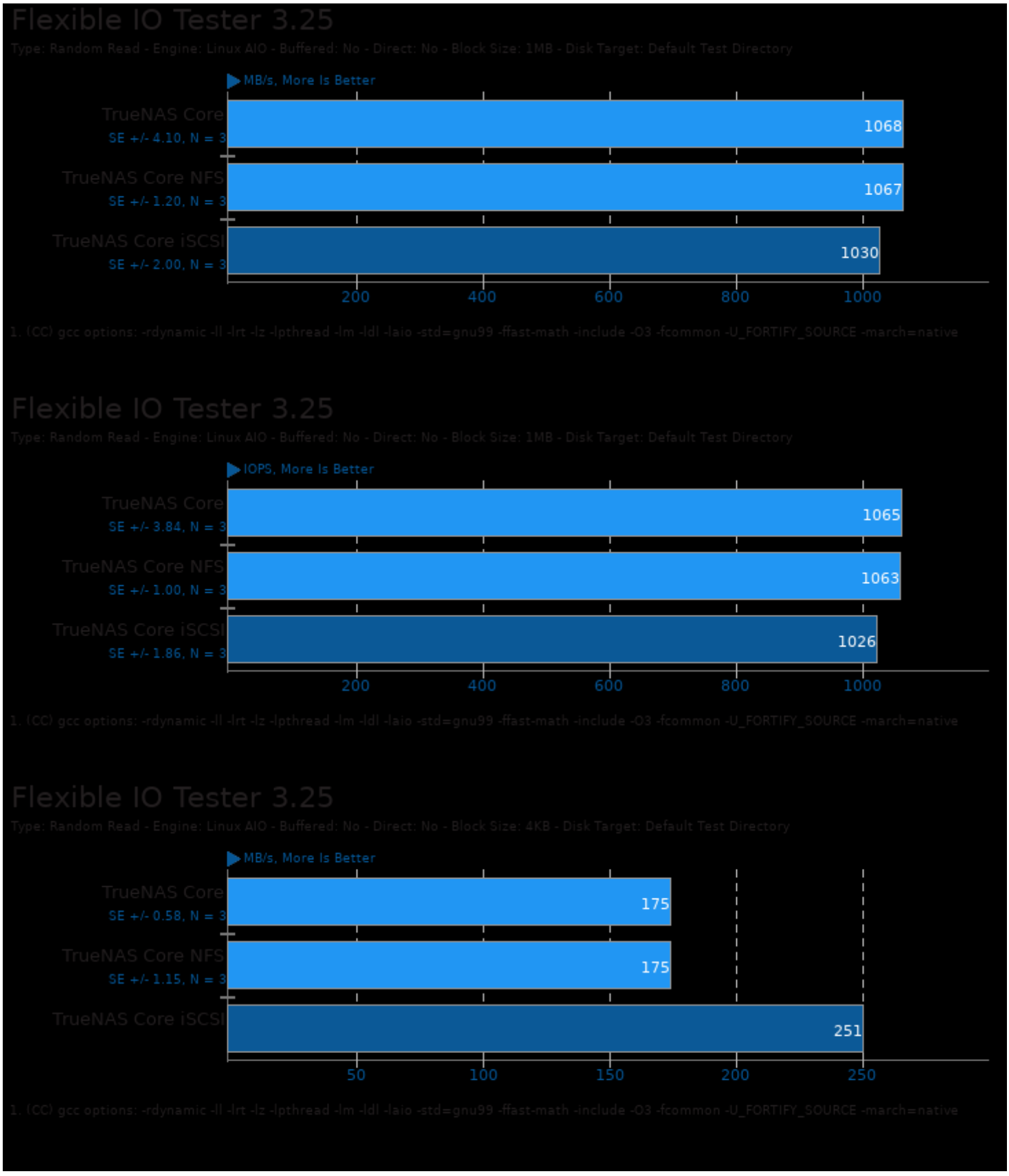
Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-Km9U7s/gcc-10-10.2.1/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-Km9U7s/gcc-10-10.2.1/debian/tmp-gcn/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-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
Disk Notes: MQ-DEADLINE / errors=remount-ro,relatime,rw / Block Size: 4096
Processor Notes: CPU Microcode: 0x28
Security Notes: itlb_multihit: KVM: Mitigation of VMX unsupported + 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: Unknown: Dependent on hypervisor status + tsx_async_abort: Not affected

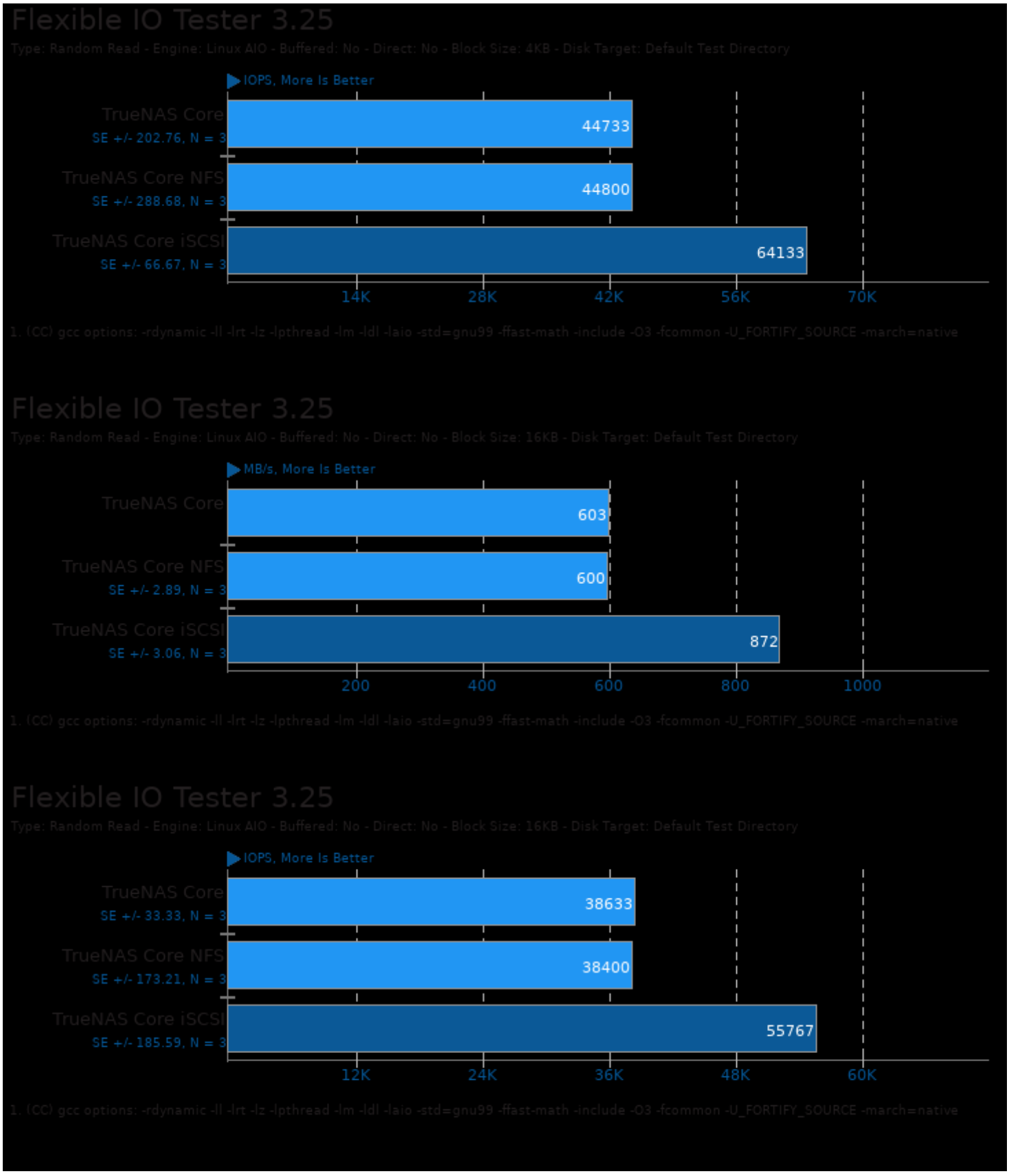
	TrueNAS Core	TrueNAS Core NFS	TrueNAS Core iSCSI
Flexible IO Tester - Rand Read - Linux AIO - No - No - 1MB (MB/s)	**1068**	1067	**1030**
Normalized	100%	99.91%	96.44%
Standard Deviation	0.7%	0.2%	0.3%

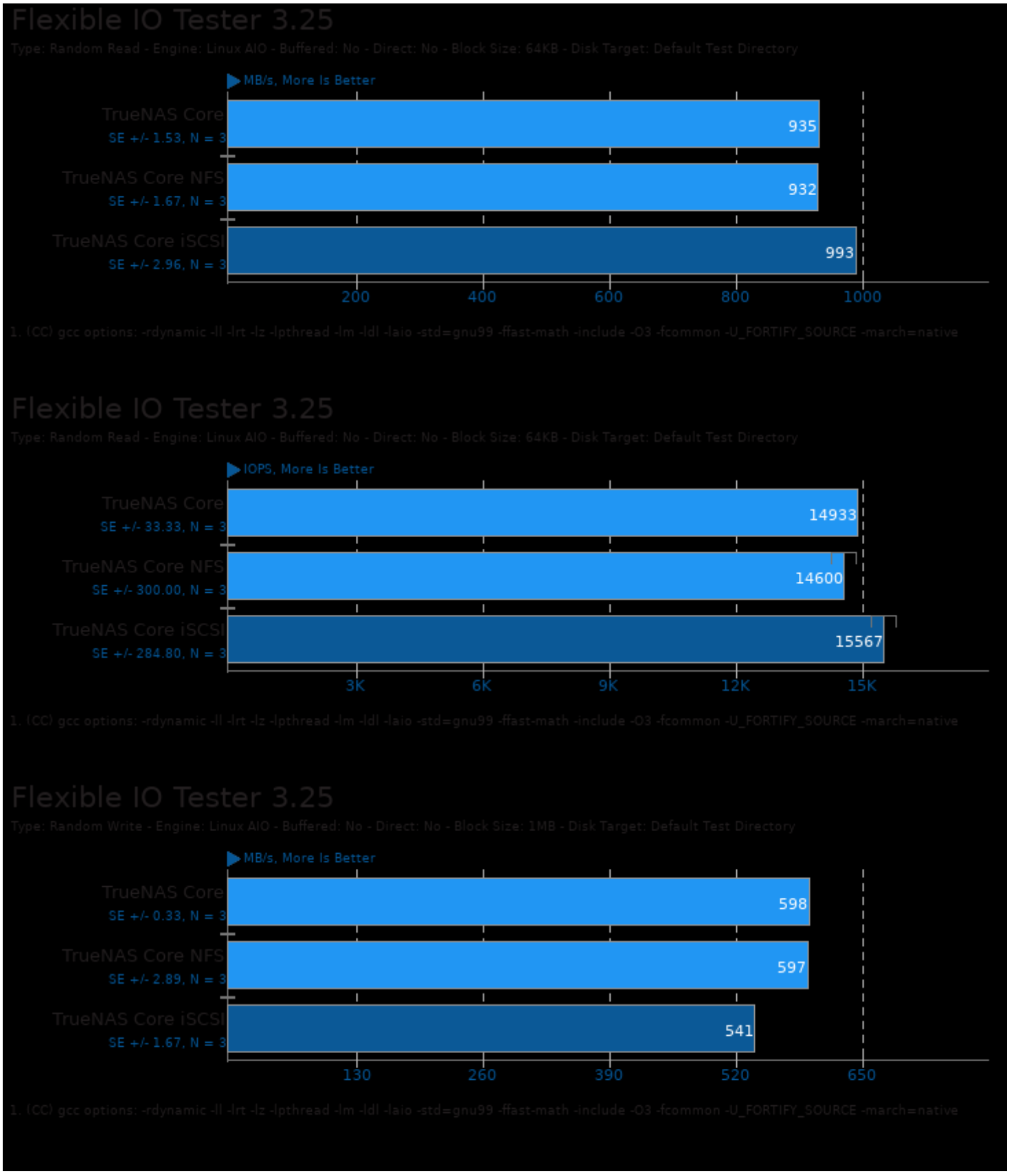
Flexible IO Tester - Rand Read - Linux AIO - No - No - 1MB (IOPS)	**1065**	1063	**1026**
Normalized	100%	99.81%	96.34%
Standard Deviation	0.6%	0.2%	0.3%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 4KB (MB/s)	**175**	**175**	**251**
Normalized	69.72%	69.72%	100%
Standard Deviation	0.6%	1.1%	
Flexible IO Tester - Rand Read - Linux AIO - No - No - 4KB (IOPS)	**44733**	44800	**64133**
Normalized	69.75%	69.85%	100%
Standard Deviation	0.8%	1.1%	0.2%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 16KB (MB/s)	603	**600**	**872**
Normalized	69.15%	68.81%	100%
Standard Deviation		0.8%	0.6%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 16KB (IOPS)	38633	**38400**	**55767**
Normalized	69.28%	68.86%	100%
Standard Deviation	0.1%	0.8%	0.6%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 64KB (MB/s)	935	**932**	**993**
Normalized	94.16%	93.86%	100%
Standard Deviation	0.3%	0.3%	0.5%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 64KB (IOPS)	14933	**14600**	**15567**
Normalized	95.93%	93.79%	100%
Standard Deviation	0.4%	3.6%	3.2%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 1MB (MB/s)	**598**	597	**541**
Normalized	100%	99.83%	90.47%
Standard Deviation	0.1%	0.8%	0.5%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 1MB (IOPS)	**594**	593	**537**
Normalized	100%	99.83%	90.4%
Standard Deviation	0.1%	0.8%	0.6%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 4KB (MB/s)	69.1	**68.9**	**132**
Normalized	52.35%	52.2%	100%
Standard Deviation	1.2%	0.6%	2.4%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 4KB (IOPS)	17700	**17600**	**33933**
Normalized	52.16%	51.87%	100%
Standard Deviation	1%	0.6%	2.5%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 256KB (MB/s)	1063	**1069**	**1023**
Normalized	99.44%	100%	95.7%
Standard Deviation	0.4%	0.2%	1%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 256KB (IOPS)	4251	**4271**	**4090**
Normalized	99.53%	100%	95.76%
Standard Deviation	0.4%	0.2%	1%

Flexible IO Tester - Rand Write - Linux AIO - No - No - 16KB (MB/s)	232	232	338
Normalized	68.64%	68.64%	100%
Standard Deviation	0.5%	0.9%	0.6%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 16KB (IOPS)	14833	14533	21667
Normalized	68.46%	67.07%	100%
Standard Deviation	0.4%	3.3%	0.7%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 64KB (MB/s)	465	465	515
Normalized	90.29%	90.29%	100%
Standard Deviation	0.8%	0.9%	1.6%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 64KB (IOPS)	7443	7442	8246
Normalized	90.26%	90.25%	100%
Standard Deviation	0.7%	0.8%	1.5%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 256KB (MB/s)	577	577	577
Standard Deviation		0.9%	0.6%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 256KB (IOPS)	2305	2303	2303
Normalized	100%	99.91%	99.91%
Standard Deviation	0.4%	0.8%	0.5%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 1MB (MB/s)	925	940	1022
Normalized	90.51%	91.98%	100%
Standard Deviation	1.7%	0.7%	1.3%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 1MB (IOPS)	921	936	1019
Normalized	90.38%	91.85%	100%
Standard Deviation	1.8%	0.6%	1.3%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 4KB (MB/s)	270	273	361
Normalized	74.79%	75.62%	100%
Standard Deviation	0.7%	0.4%	1.6%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 4KB (IOPS)	69133	69733	91700
Normalized	75.39%	76.04%	100%
Standard Deviation	0.9%	0.5%	1.2%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 16KB (MB/s)	830	829	1007
Normalized	82.42%	82.32%	100%
Standard Deviation	0.6%	0.2%	1.2%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 16KB (IOPS)	52733	53067	64467
Normalized	81.8%	82.32%	100%
Standard Deviation	1.3%	0.3%	1.2%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 64KB (MB/s)	947	930	1025
Normalized	92.39%	90.73%	100%
Standard Deviation	0.6%	0.5%	0.8%

Flexible IO Tester - Seq Read - Linux AIO - No - No - 64KB (IOPS)	15133	**14867**	**16400**
Normalized	92.27%	90.65%	100%
Standard Deviation	0.4%	0.4%	0.6%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 1MB (MB/s)	559	**561**	**475**
Normalized	99.64%	100%	84.67%
Standard Deviation		0.6%	0.6%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 1MB (IOPS)	555	**558**	**471**
Normalized	99.46%	100%	84.41%
Standard Deviation		0.5%	
Flexible IO Tester - Seq Write - Linux AIO - No - No - 4KB (MB/s)	**252**	**252**	**289**
Normalized	87.2%	87.2%	100%
Standard Deviation	1.8%	0.6%	
Flexible IO Tester - Seq Write - Linux AIO - No - No - 4KB (IOPS)	**64433**	**64433**	**73633**
Normalized	87.51%	87.51%	100%
Standard Deviation	1.9%	0.5%	1.3%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 256KB (MB/s)	962	**957**	**1031**
Normalized	93.31%	92.82%	100%
Standard Deviation	1.3%	0.7%	
Flexible IO Tester - Seq Read - Linux AIO - No - No - 256KB (IOPS)	3844	**3823**	**4119**
Normalized	93.32%	92.81%	100%
Standard Deviation	1.3%	0.7%	0.3%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 16KB (MB/s)	**550**	548	**492**
Normalized	100%	99.64%	89.45%
Standard Deviation	1.2%	0.7%	3.1%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 16KB (IOPS)	**35200**	35067	**31427**
Normalized	100%	99.62%	89.28%
Standard Deviation	1.2%	0.7%	3.2%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 64KB (MB/s)	**543**	**543**	**451**
Normalized	100%	100%	83.06%
Standard Deviation	1.2%	0.9%	0.7%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 64KB (IOPS)	8683	**8695**	**7216**
Normalized	99.86%	100%	82.99%
Standard Deviation	1.1%	1%	0.6%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 256KB (MB/s)	**566**	565	**477**
Normalized	100%	99.82%	84.28%
Standard Deviation	0.5%	1%	1%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 256KB (IOPS)	**2260**	2258	**1903**
Normalized	100%	99.91%	84.2%
Standard Deviation	0.5%	0.9%	0.9%

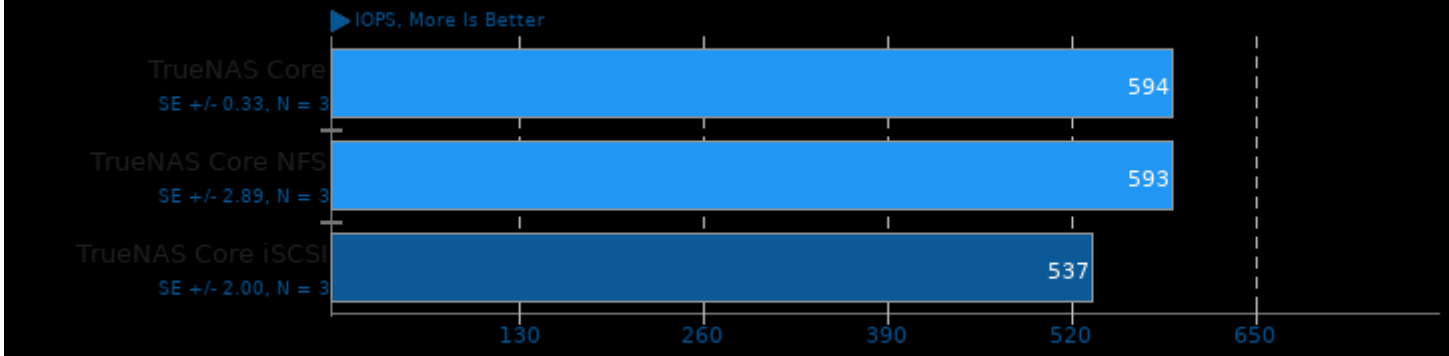

Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 4.10, N = 3
1068
TrueNAS Core NFS
SE +/- 1.20, N = 3
1067
TrueNAS Core iSCSI
SE +/- 2.00, N = 3
1030
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 3.84, N = 3
1065
TrueNAS Core NFS
SE +/- 1.00, N = 3
1063
TrueNAS Core iSCSI
SE +/- 1.86, N = 3
1026
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 0.58, N = 3
175
TrueNAS Core NFS
SE +/- 1.15, N = 3
175
TrueNAS Core iSCSI
251
50
100
150
200
250
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 202.76, N = 3
44733
TrueNAS Core NFS
SE +/- 288.68, N = 3
44800
TrueNAS Core iSCSI
SE +/- 66.67, N = 3
64133
14K
28K
42K
56K
70K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
603
TrueNAS Core NFS
SE +/- 2.89, N = 3
600
TrueNAS Core iSCSI
SE +/- 3.06, N = 3
872
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 33.33, N = 3
38633
TrueNAS Core NFS
SE +/- 173.21, N = 3
38400
TrueNAS Core iSCSI
SE +/- 185.59, N = 3
55767
12K
24K
36K
48K
60K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 1.53, N = 3
935
TrueNAS Core NFS
SE +/- 1.67, N = 3
932
TrueNAS Core iSCSI
SE +/- 2.96, N = 3
993
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 33.33, N = 3
14933
TrueNAS Core NFS
SE +/- 300.00, N = 3
14600
TrueNAS Core iSCSI
SE +/- 284.80, N = 3
15567
3K
6K
9K
12K
15K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 0.33, N = 3
598
TrueNAS Core NFS
SE +/- 2.89, N = 3
597
TrueNAS Core iSCSI
SE +/- 1.67, N = 3
541
130
260
390
520
650
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.25

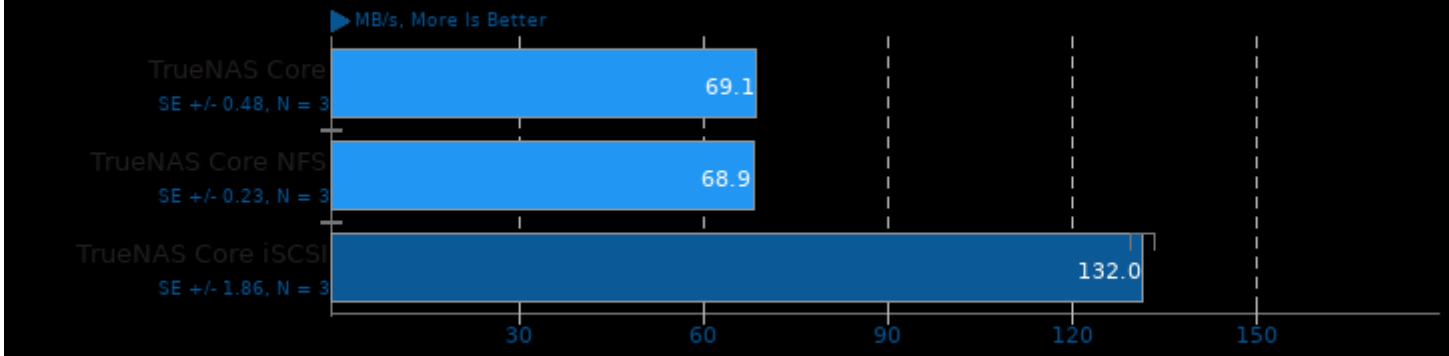
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.25

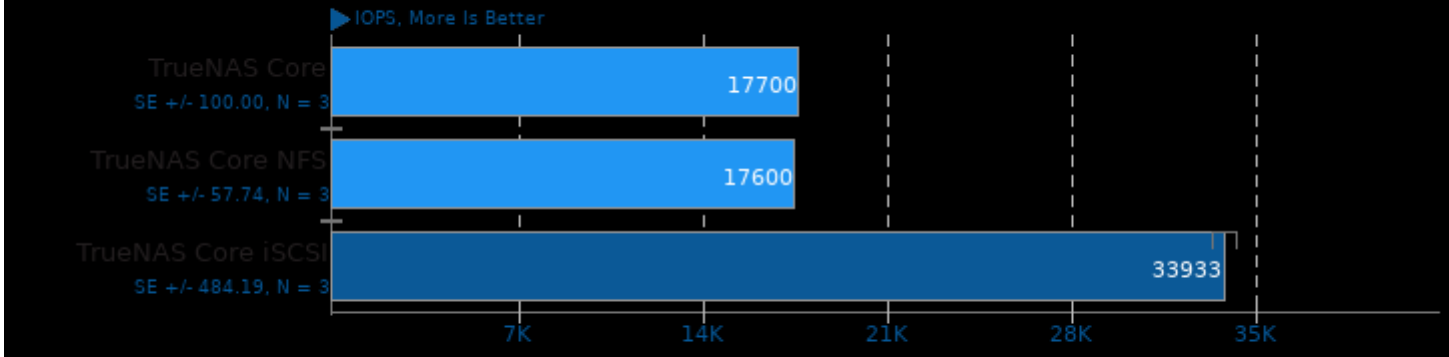
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.25

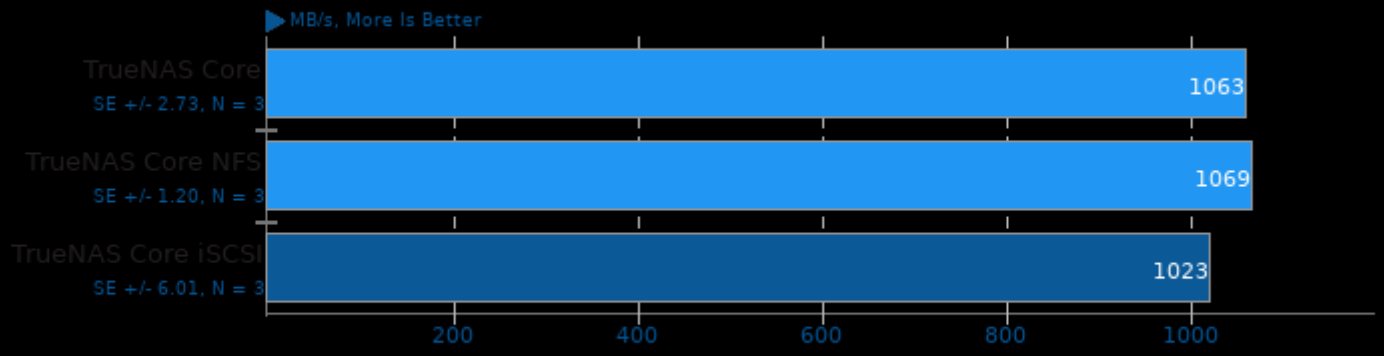
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.25

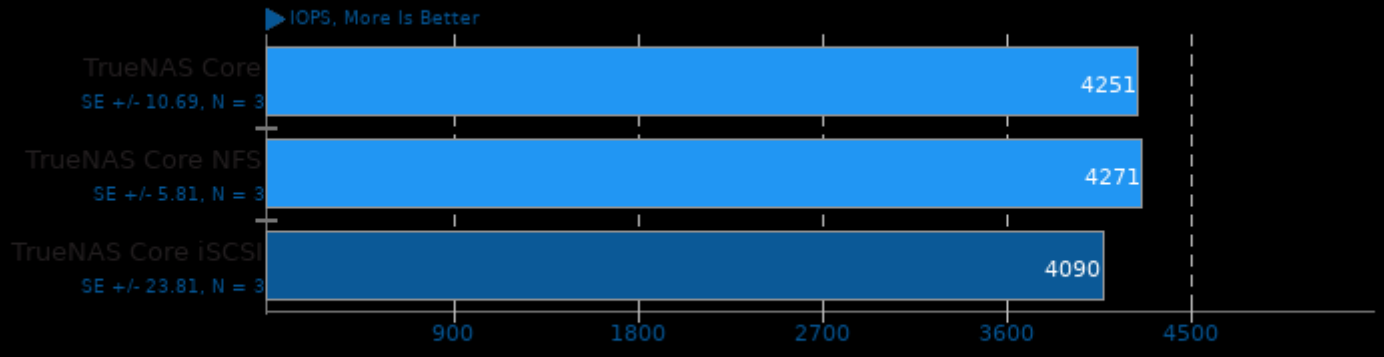
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 256KB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.25

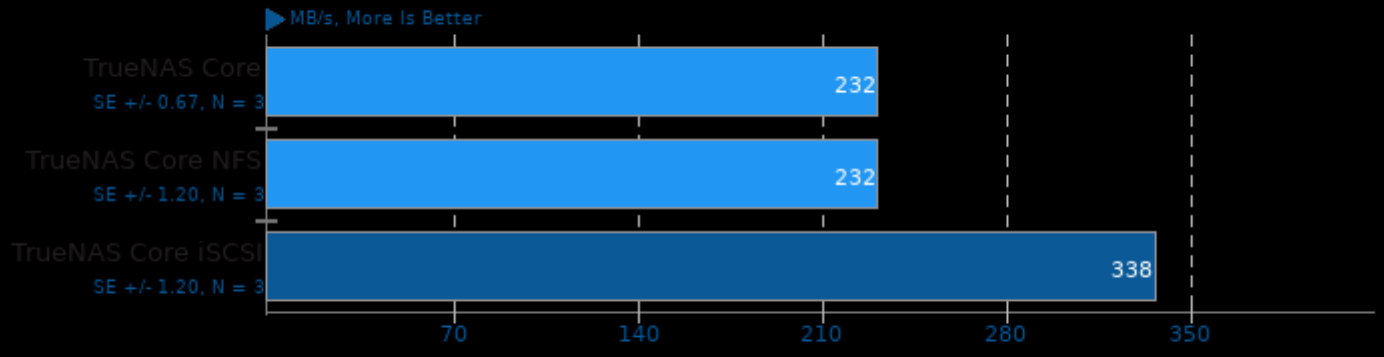
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 256KB - Disk Target: Default Test Directory



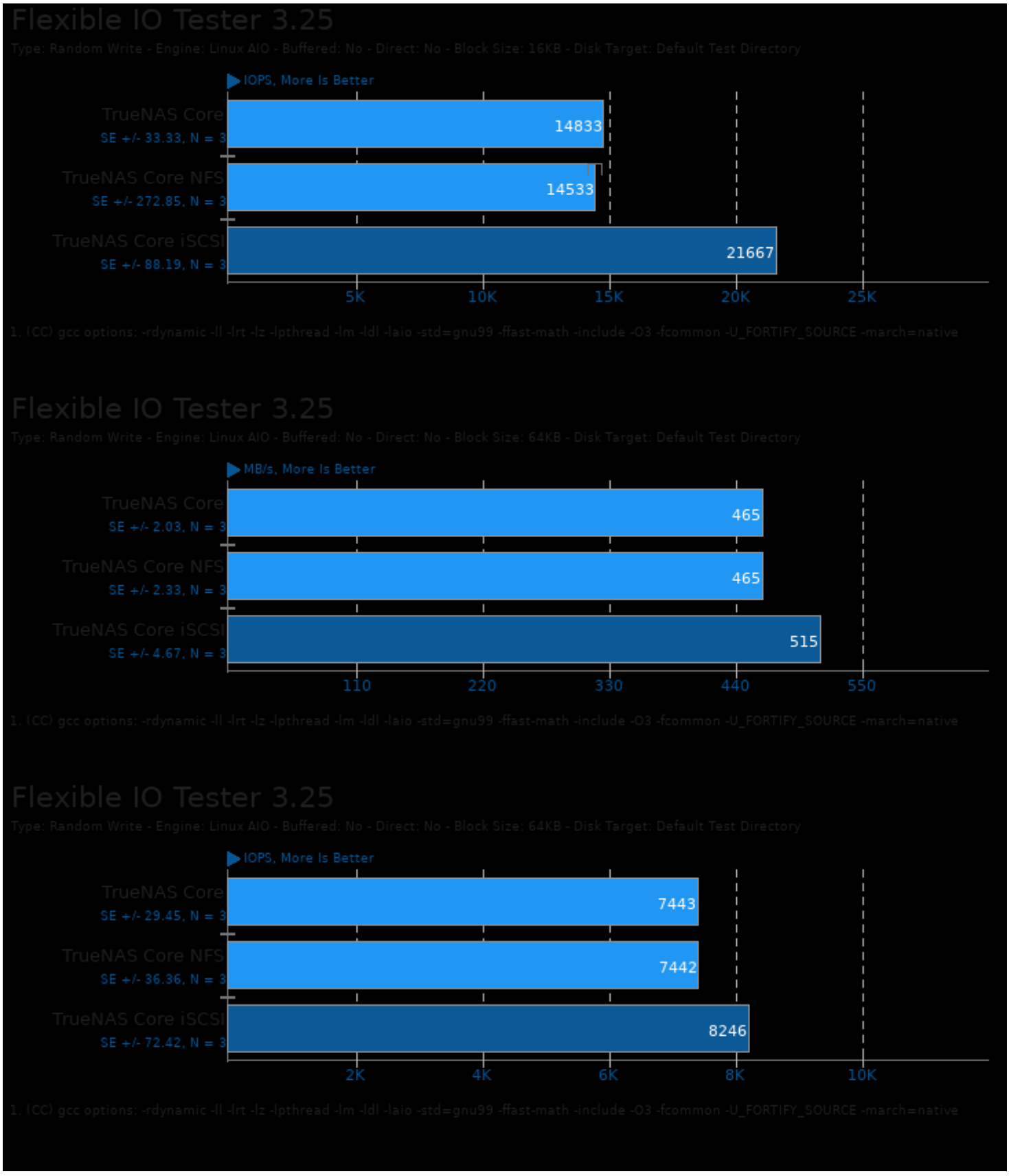
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.25

Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory

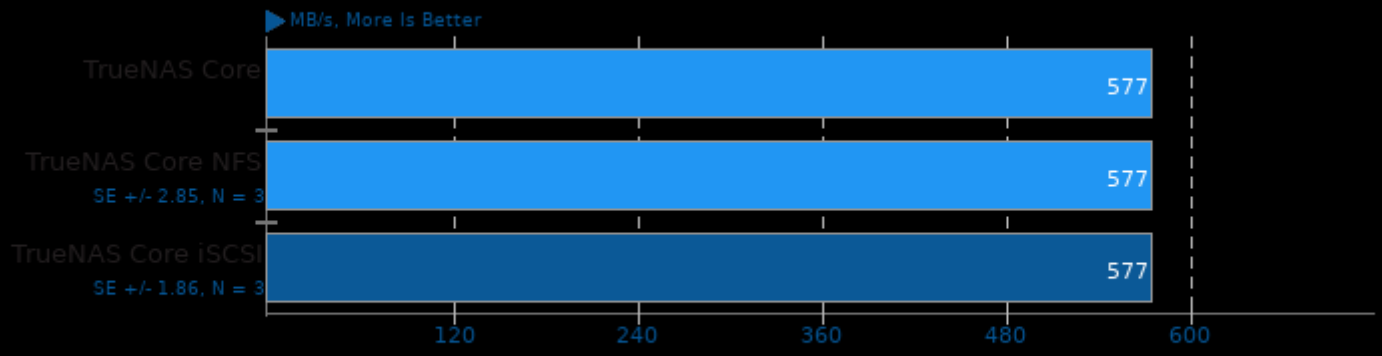


1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 33.33, N = 3
14833
TrueNAS Core NFS
SE +/- 272.85, N = 3
14533
TrueNAS Core iSCSI
SE +/- 88.19, N = 3
21667
5K
10K
15K
20K
25K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 2.03, N = 3
465
TrueNAS Core NFS
SE +/- 2.33, N = 3
465
TrueNAS Core iSCSI
SE +/- 4.67, N = 3
515
110
220
330
440
550
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 29.45, N = 3
7443
TrueNAS Core NFS
SE +/- 36.36, N = 3
7442
TrueNAS Core iSCSI
SE +/- 72.42, N = 3
8246
2K
4K
6K
8K
10K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.25

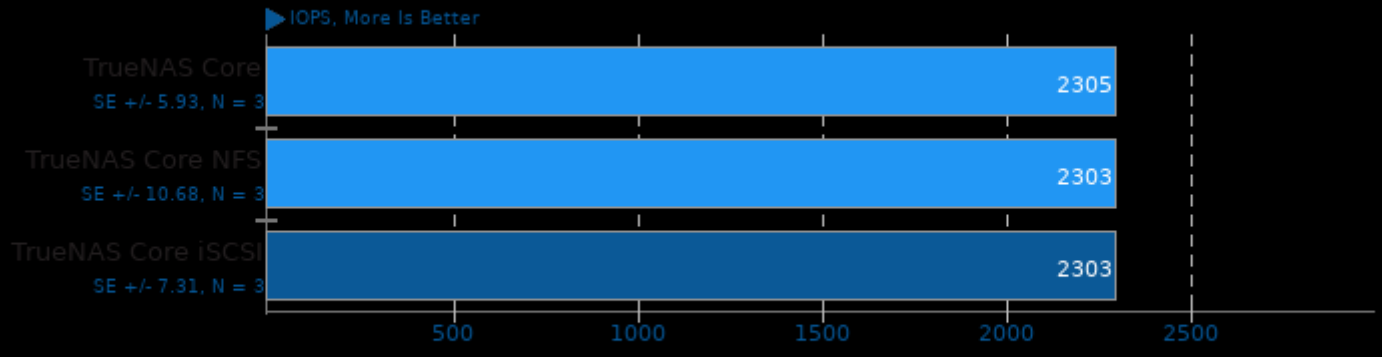
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 256KB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.25

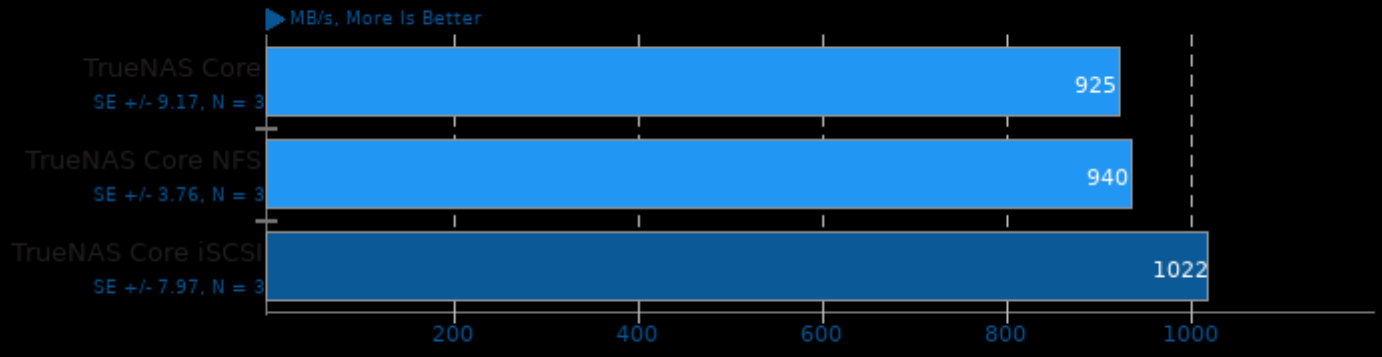
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 256KB - Disk Target: Default Test Directory



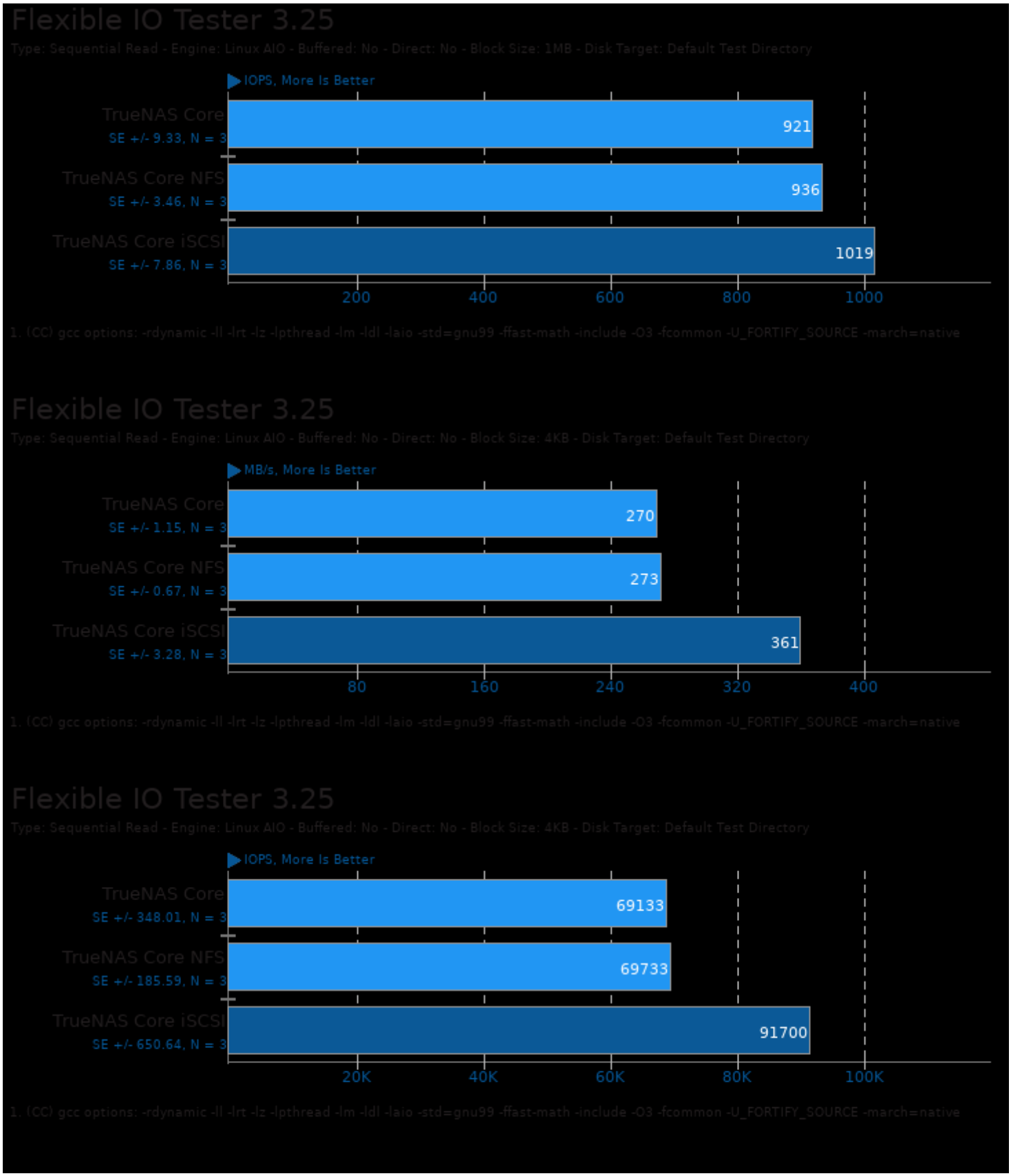
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

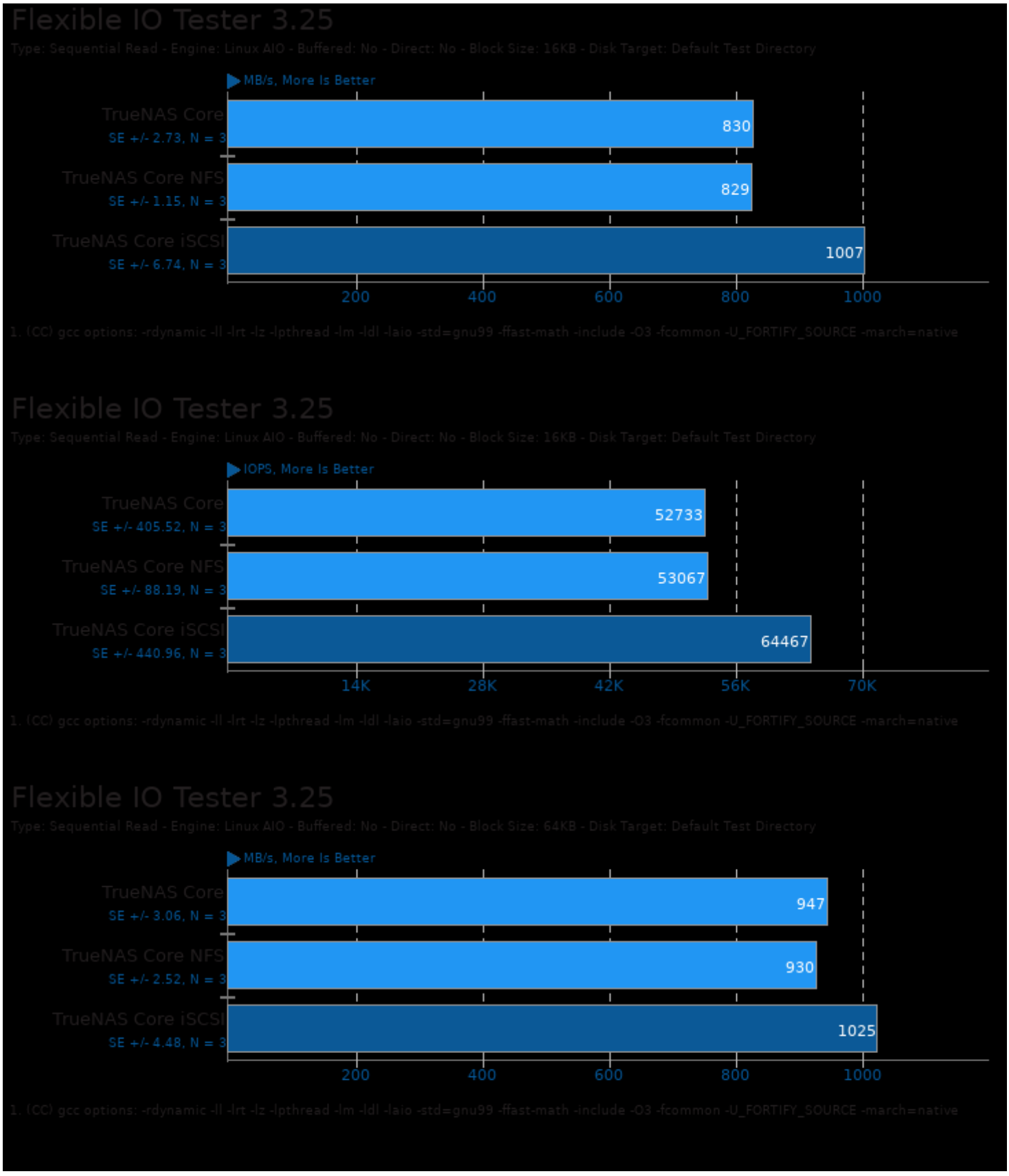
Flexible IO Tester 3.25

Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory



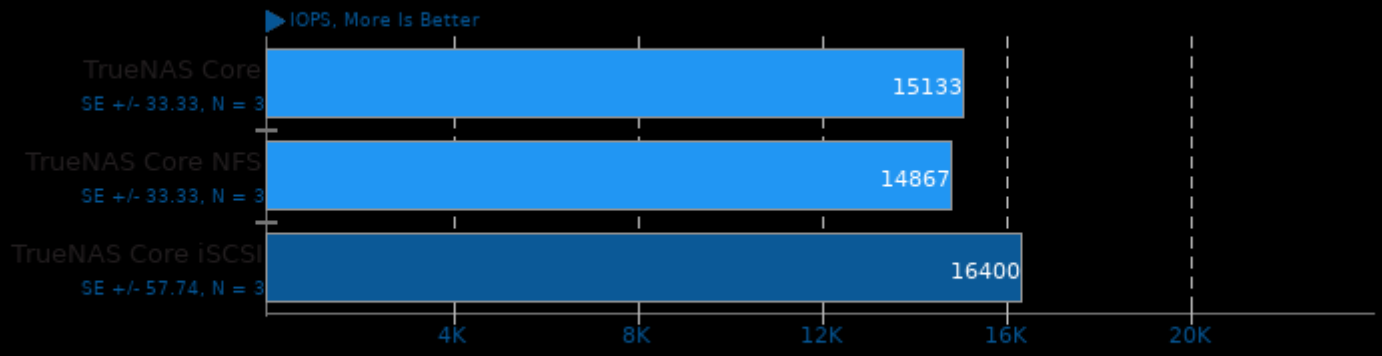
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 9.33, N = 3
921
TrueNAS Core NFS
SE +/- 3.46, N = 3
936
TrueNAS Core iSCSI
SE +/- 7.86, N = 3
1019
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 1.15, N = 3
270
TrueNAS Core NFS
SE +/- 0.67, N = 3
273
TrueNAS Core iSCSI
SE +/- 3.28, N = 3
361
80
160
240
320
400
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 348.01, N = 3
69133
TrueNAS Core NFS
SE +/- 185.59, N = 3
69733
TrueNAS Core iSCSI
SE +/- 650.64, N = 3
91700
20K
40K
60K
80K
100K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 2.73, N = 3
830
TrueNAS Core NFS
SE +/- 1.15, N = 3
829
TrueNAS Core iSCSI
SE +/- 6.74, N = 3
1007
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 405.52, N = 3
52733
TrueNAS Core NFS
SE +/- 88.19, N = 3
53067
TrueNAS Core iSCSI
SE +/- 440.96, N = 3
64467
14K
28K
42K
56K
70K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 3.06, N = 3
947
TrueNAS Core NFS
SE +/- 2.52, N = 3
930
TrueNAS Core iSCSI
SE +/- 4.48, N = 3
1025
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.25

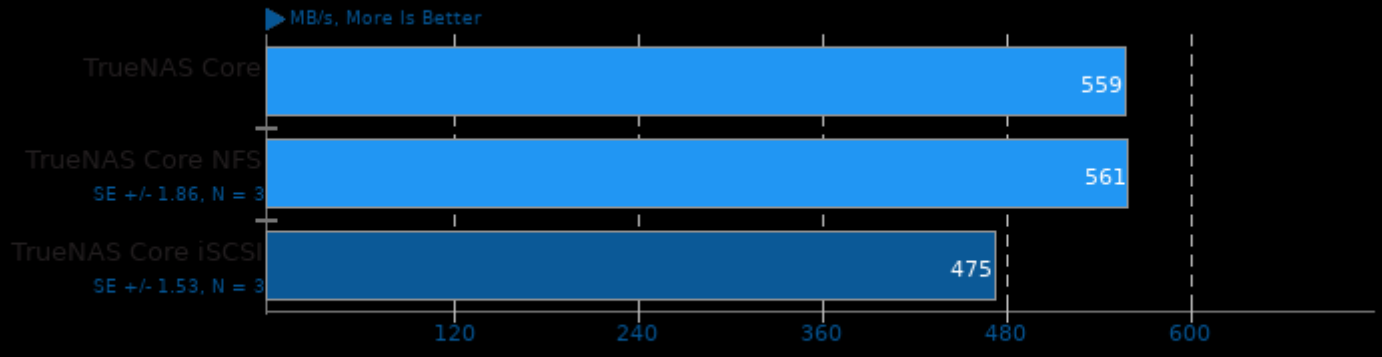
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.25

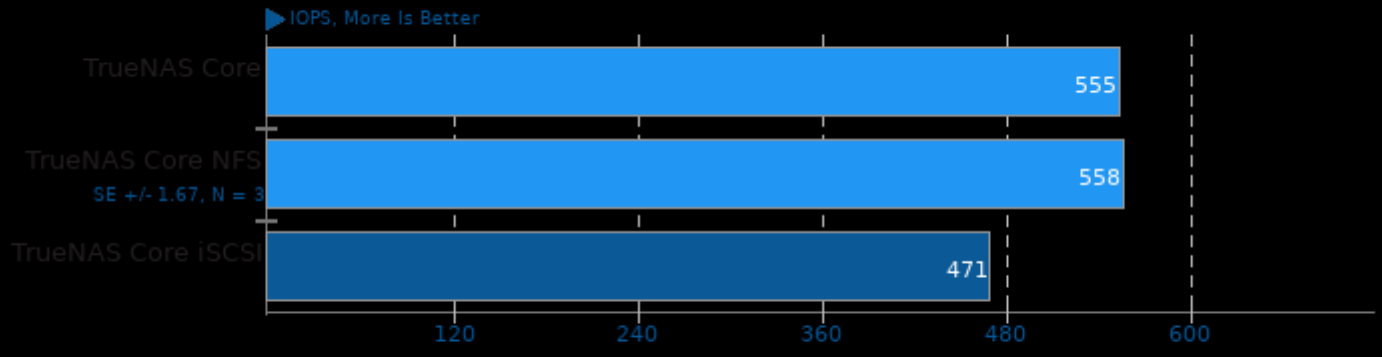
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory



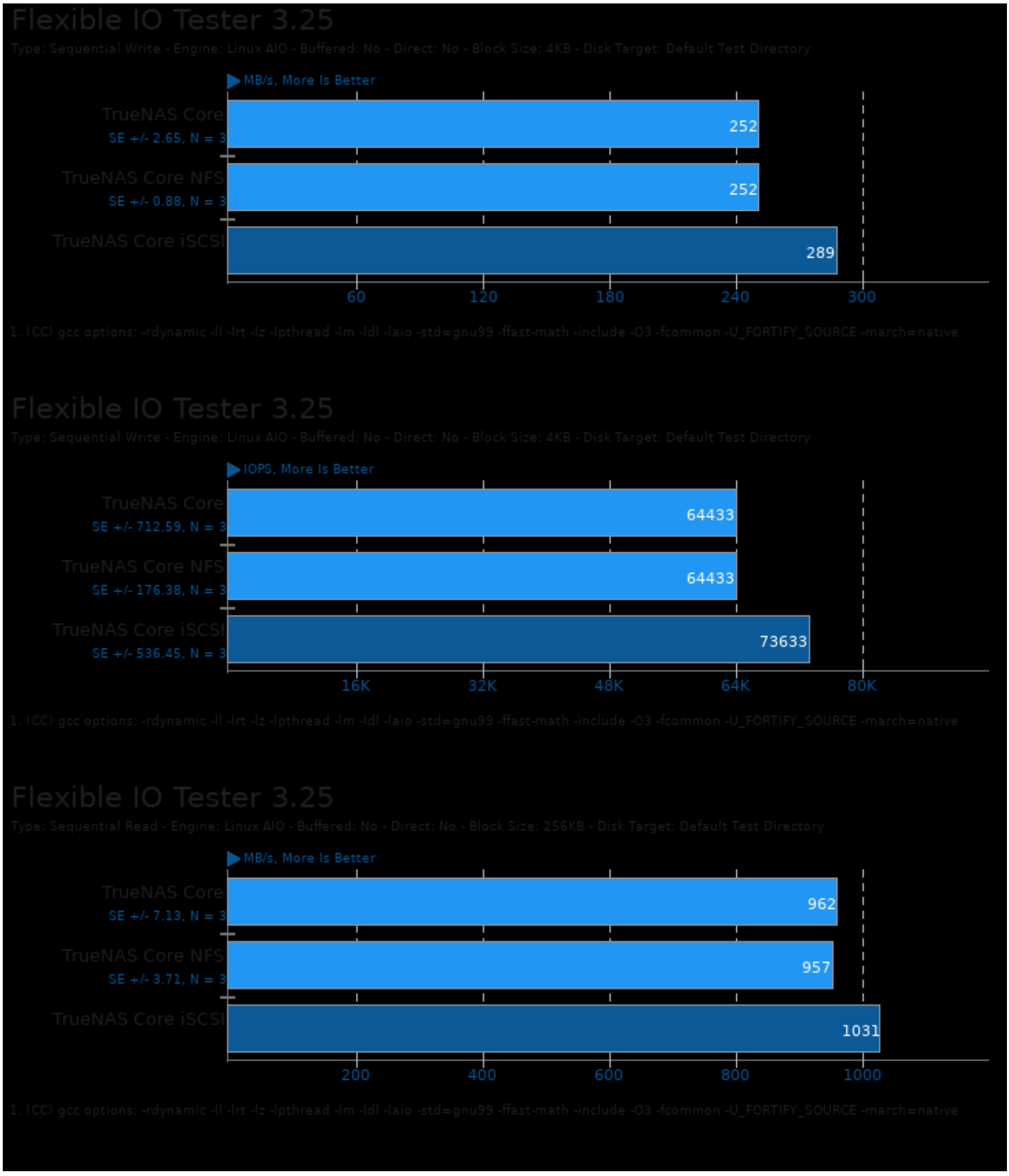
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.25

Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 1MB - Disk Target: Default Test Directory

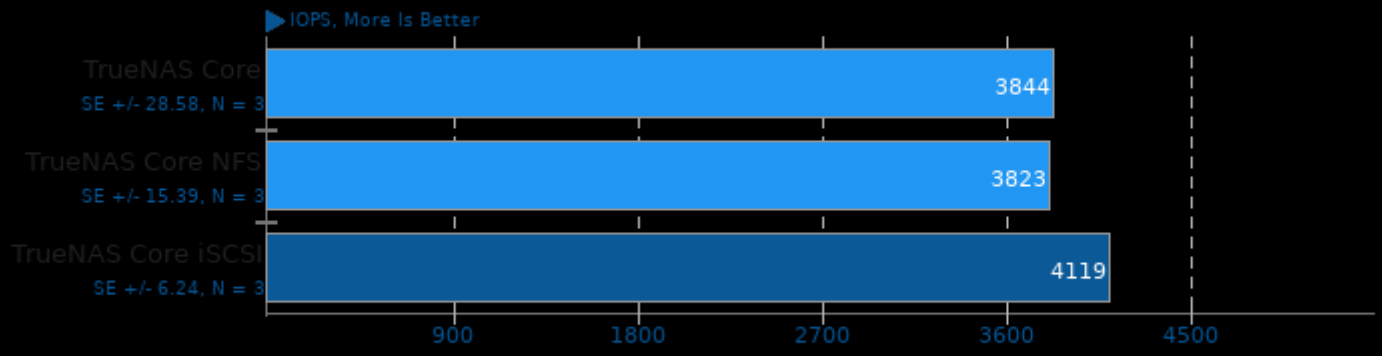


1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 2.65, N = 3
252
TrueNAS Core NFS
SE +/- 0.88, N = 3
252
TrueNAS Core iSCSI
289
60
120
180
240
300
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 712.59, N = 3
64433
TrueNAS Core NFS
SE +/- 176.38, N = 3
64433
TrueNAS Core iSCSI
SE +/- 536.45, N = 3
73633
16K
32K
48K
64K
80K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 256KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 7.13, N = 3
962
TrueNAS Core NFS
SE +/- 3.71, N = 3
957
TrueNAS Core iSCSI
1031
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.25

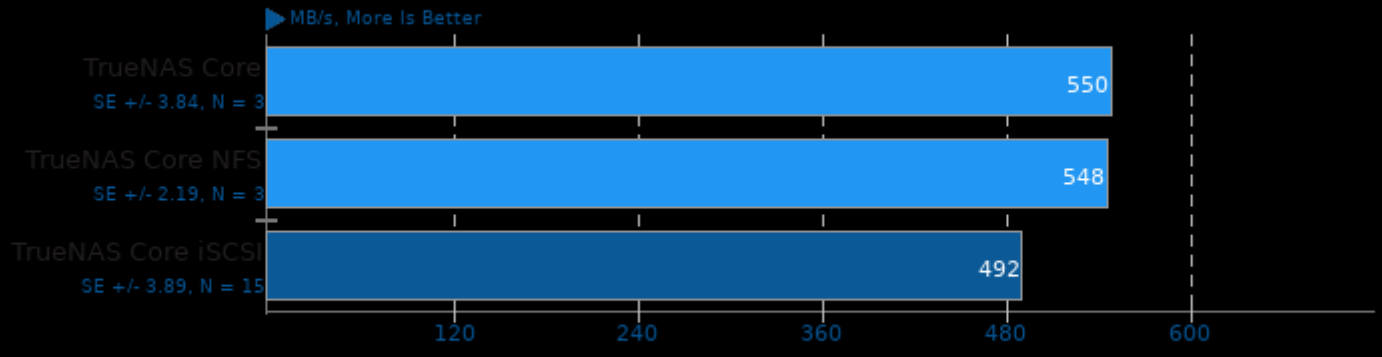
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 256KB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.25

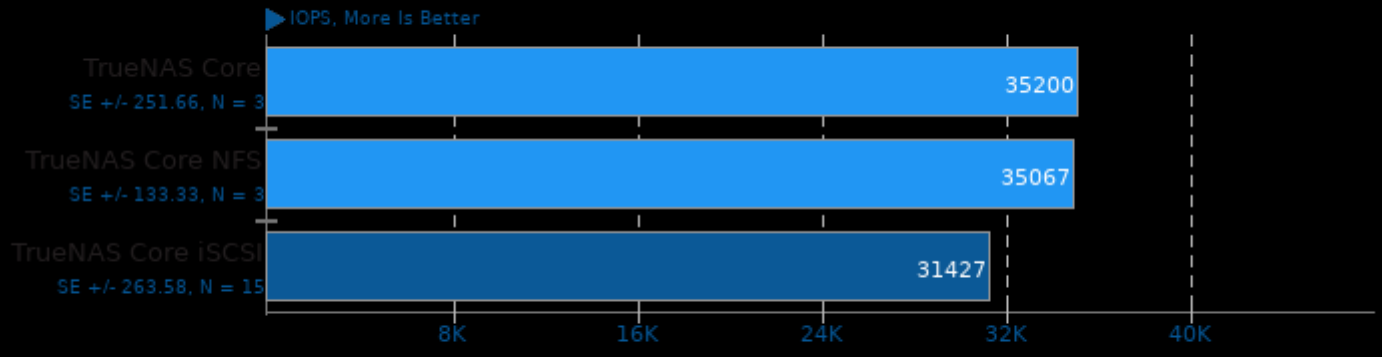
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory



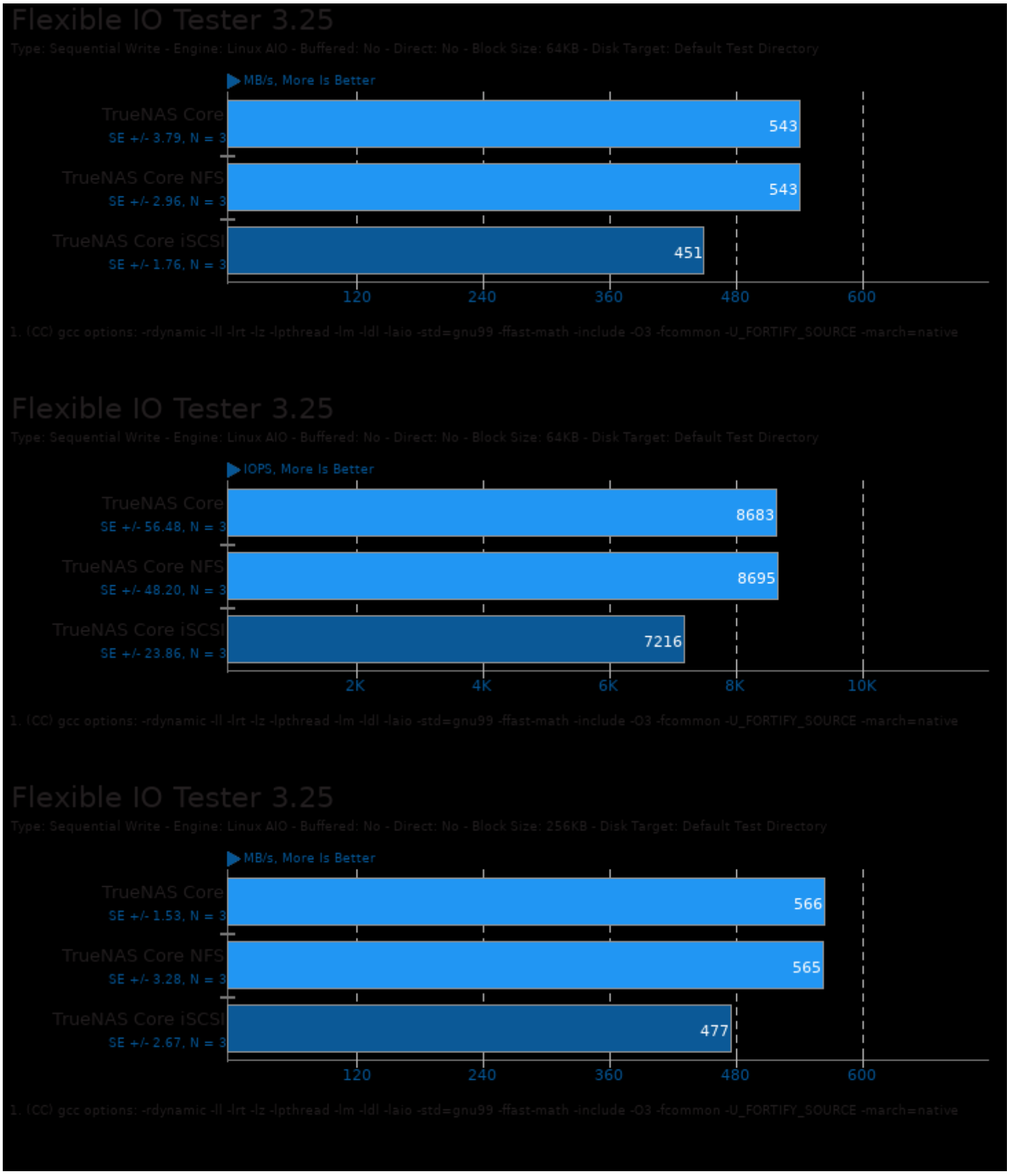
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

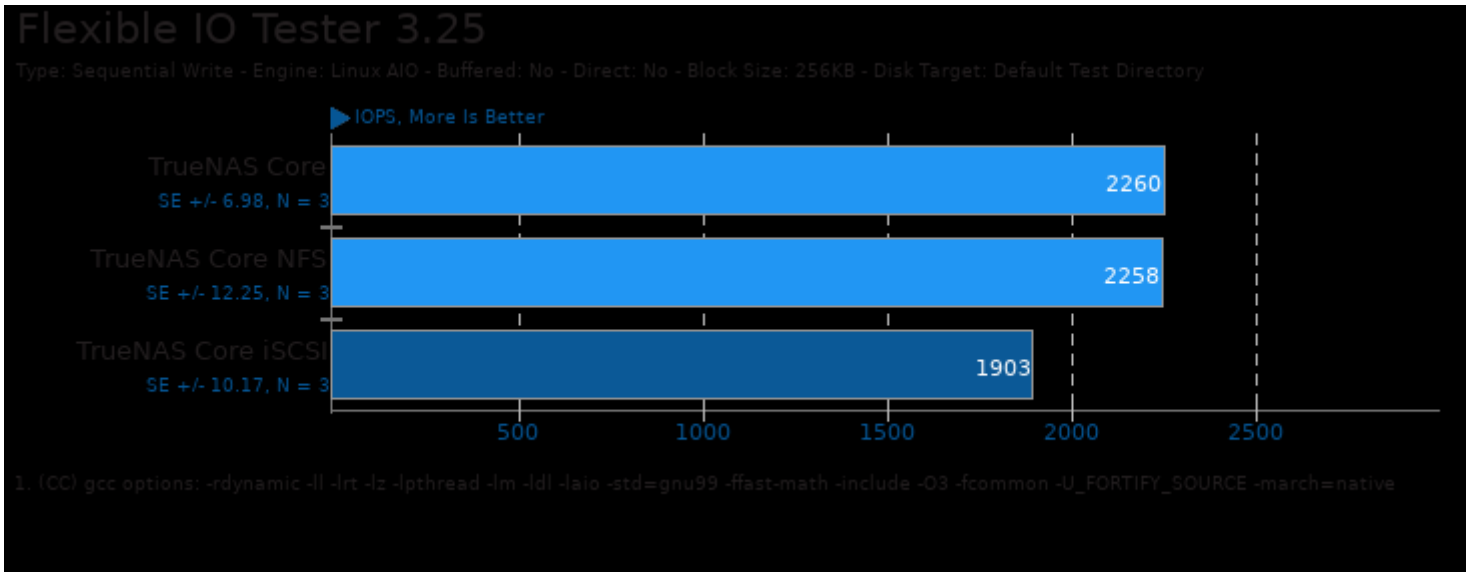
Flexible IO Tester 3.25

Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 16KB - Disk Target: Default Test Directory



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


Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 3.79, N = 3
543
TrueNAS Core NFS
SE +/- 2.96, N = 3
543
TrueNAS Core iSCSI
SE +/- 1.76, N = 3
451
120
240
360
480
600
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
IOPS, More Is Better
TrueNAS Core
SE +/- 56.48, N = 3
8683
TrueNAS Core NFS
SE +/- 48.20, N = 3
8695
TrueNAS Core iSCSI
SE +/- 23.86, N = 3
7216
2K
4K
6K
8K
10K
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.25
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 256KB - Disk Target: Default Test Directory
MB/s, More Is Better
TrueNAS Core
SE +/- 1.53, N = 3
566
TrueNAS Core NFS
SE +/- 3.28, N = 3
565
TrueNAS Core iSCSI
SE +/- 2.67, N = 3
477
120
240
360
480
600
1. (CC) gcc options: -rdynamic -ll -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native



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