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storage

2 x Intel Xeon E5-2403 v2 testing with a Dell 0JD6X3 (2.4.2 BIOS) and Matrox G200eR2 on CentOS Linux 7 via the Phoronix Test Suite.

Automated Executive Summary

freenas-96-mtu9000 had the most wins, coming in first place for 37% of the tests.

Based on the geometric mean of all complete results, the fastest (synology-mtu9000) was 1.267x the speed of the slowest (freenas-97). freenas-96-mtu9000 was 0.92x the speed of synology-mtu9000, synology was 0.954x the speed of freenas-96-mtu9000, freenas-96 was 0.989x the speed of synology, freenas-97-mtu9000 was 0.94x the speed of freenas-96, freenas-97 was 0.968x the speed of freenas-97-mtu9000.

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

Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /) at 2.441x
Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /) at 2.414x
Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /) at 2.41x
Flexible IO Tester (Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target:

/) at 2.384x
Flexible IO Tester (Type: Random Read - Engine: Sync - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /) at 2.364x
Flexible IO Tester (Type: Random Read - Engine: Sync - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /) at 2.359x
Flexible IO Tester (Type: Random Read - Engine: Sync - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /) at 2.245x
Flexible IO Tester (Type: Random Read - Engine: Sync - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /) at 2.244x
Flexible IO Tester (Type: Random Read - Engine: Sync - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /) at 2.209x
Flexible IO Tester (Type: Random Read - Engine: Sync - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /) at 2.207x.

Test Systems:

synology-mtu9000

freenas-96-mtu9000

freenas-97-mtu9000

Processor: 2 x Intel Xeon E5-2403 v2 @ 1.80GHz (8 Cores), Motherboard: Dell 0JD6X3 (2.4.2 BIOS), Chipset: Intel Xeon E7 v2/Xeon, Memory: 4 x 8192 MB DDR3-1333MT/s, Disk: 199GB PERC H310 + 21475GB iSCSI Storage, Graphics: Matrox G200eR2, Network: 2 x Broadcom NetXtreme BCM5720 2-port PCIe + 2 x Intel 82599ES 10-Gigabit SFI/SFP+

OS: CentOS Linux 7, Kernel: 3.10.0-1127.19.1.el7.x86_64 (x86_64), Compiler: GCC 4.8.5 20150623, File-System: xfs, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-redhat-linux --disable-libgcj --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,objc,obj-c++,java,fortran,ada,go,lto --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-linker-hash-style=gnu --with-tune=generic
Disk Notes: NOOP / attr2,inode64,noquota,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x42e
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of Load fences usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full retpoline IBPB + srbds: Not affected + tsx_async_abort: Not affected

freenas-96

freenas-97

synology

Processor: 2 x Intel Xeon E5-2403 v2 @ 1.80GHz (8 Cores), Motherboard: Dell 0JD6X3 (2.4.2 BIOS), Chipset: Intel Xeon E7 v2/Xeon, Memory: 4 x 8192 MB DDR3-1333MT/s, Disk: 199GB PERC H310 + 1000GB VTrak D5800, Graphics: Matrox G200eR2, Network: 2 x Broadcom NetXtreme BCM5720 2-port PCIe + 2 x Intel 82599ES 10-Gigabit

storage

SFI/SFP+

OS: CentOS Linux 7, Kernel: 3.10.0-1127.18.2.el7.x86_64 (x86_64), Compiler: GCC 4.8.5 20150623, File-System: xfs, Screen Resolution: 1024x768

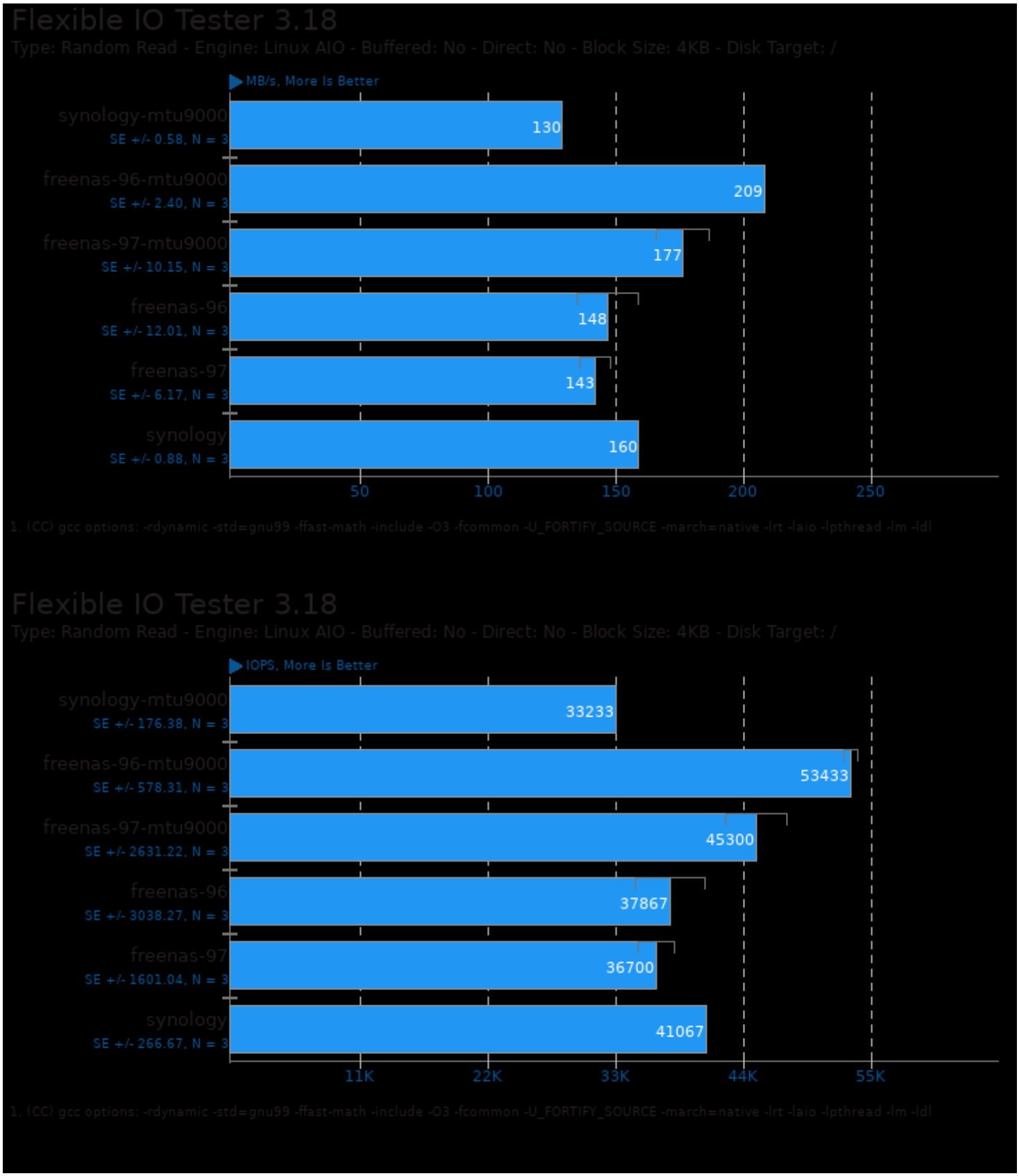
Compiler Notes: --build=x86_64-redhat-linux --disable-libgcj --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,objc,obj-c++,java,fortran,ada,go,lto --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-linker-hash-style=gnu --with-tune=generic
Disk Notes: NOOP / attr2,inode64,noquota,relatime,rw
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0x42e
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT disabled + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of Load fences usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full retpoline IBPB + srbds: Not affected + tsx_async_abort: Not affected

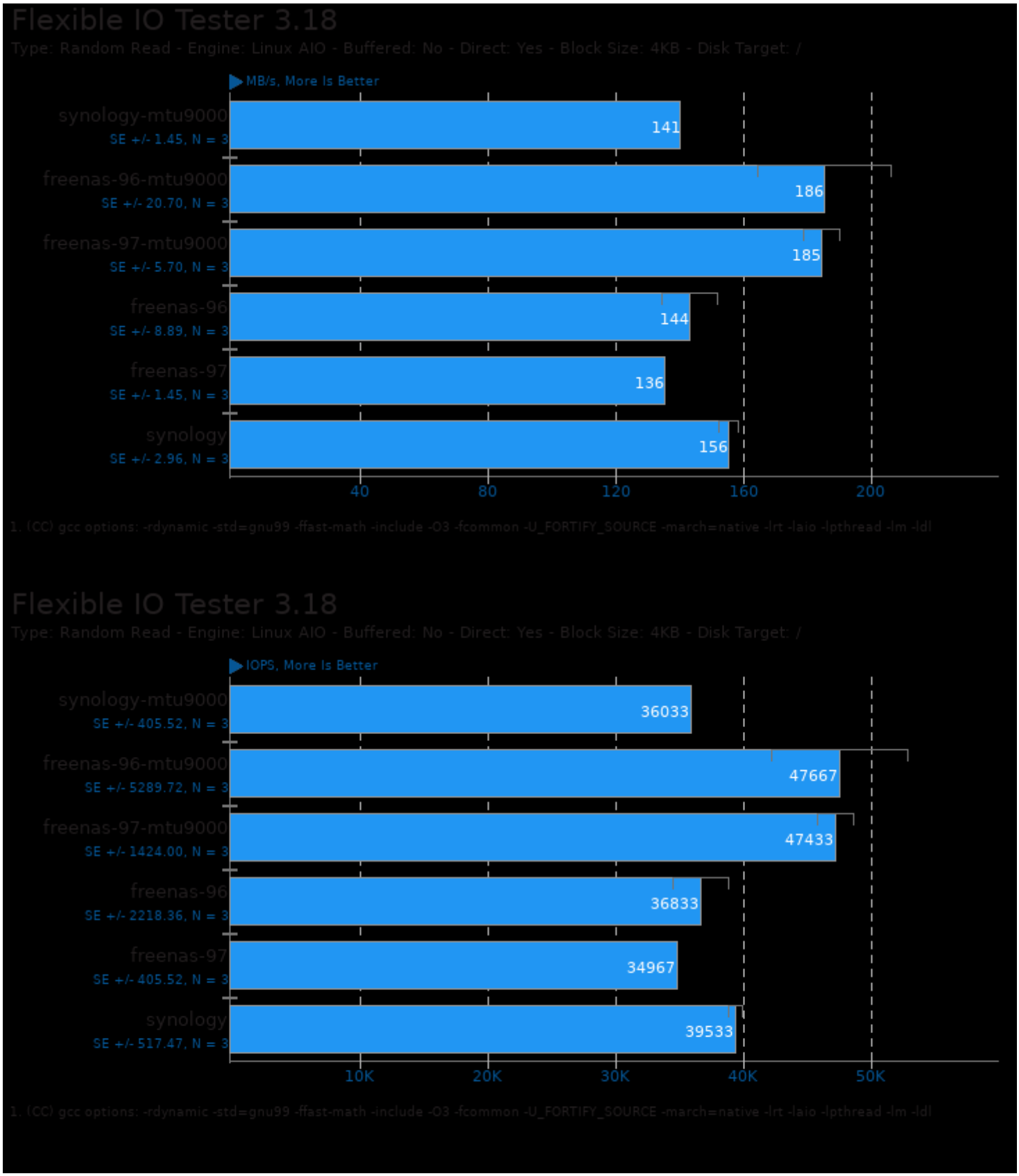
	synology-mtu 9000	freenas-96-mtu9000	freenas-97-mtu9000	freenas-96	freenas-97	synology
Flexible IO Tester - Rand Read - Linux AIO - No - No - 4KB - / (MB/s)	130	209	177	148	143	160
Normalized	62.2%	100%	84.69%	70.81%	68.42%	76.56%
Standard Deviation	0.8%	2%	9.9%	14.1%	7.5%	1%
Flexible IO Tester - Rand Read - Linux AIO - No - No - 4KB - / (IOPS)	33233	53433	45300	37867	36700	41067
Normalized	62.2%	100%	84.78%	70.87%	68.68%	76.86%
Standard Deviation	0.9%	1.9%	10.1%	13.9%	7.6%	1.1%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB - / (MB/s)	141	186	185	144	136	156
Normalized	75.81%	100%	99.46%	77.42%	73.12%	83.87%
Standard Deviation	1.8%	19.2%	5.3%	10.7%	1.8%	3.3%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB - / (IOPS)	36033	47667	47433	36833	34967	39533
Normalized	75.59%	100%	99.51%	77.27%	73.36%	82.94%
Standard Deviation	1.9%	19.2%	5.2%	10.4%	2%	2.3%
Flexible IO Tester - Rand Read - Linux AIO - Yes - No - 4KB - / (MB/s)	23.5	13.0	10.9	13.2	9.857	15.7
Normalized	100%	55.32%	46.38%	56.17%	41.94%	66.81%
Standard Deviation	2.3%	1.6%	1.1%	0%	0.7%	2.4%
Flexible IO Tester - Rand Read - Linux AIO - Yes - No - 4KB - / (IOPS)	6105	3312	2783	3373	2501	4003
Normalized	100%	54.25%	45.59%	55.25%	40.97%	65.57%
Standard Deviation	1.4%	1.7%	1%	0.3%	0.7%	2.5%

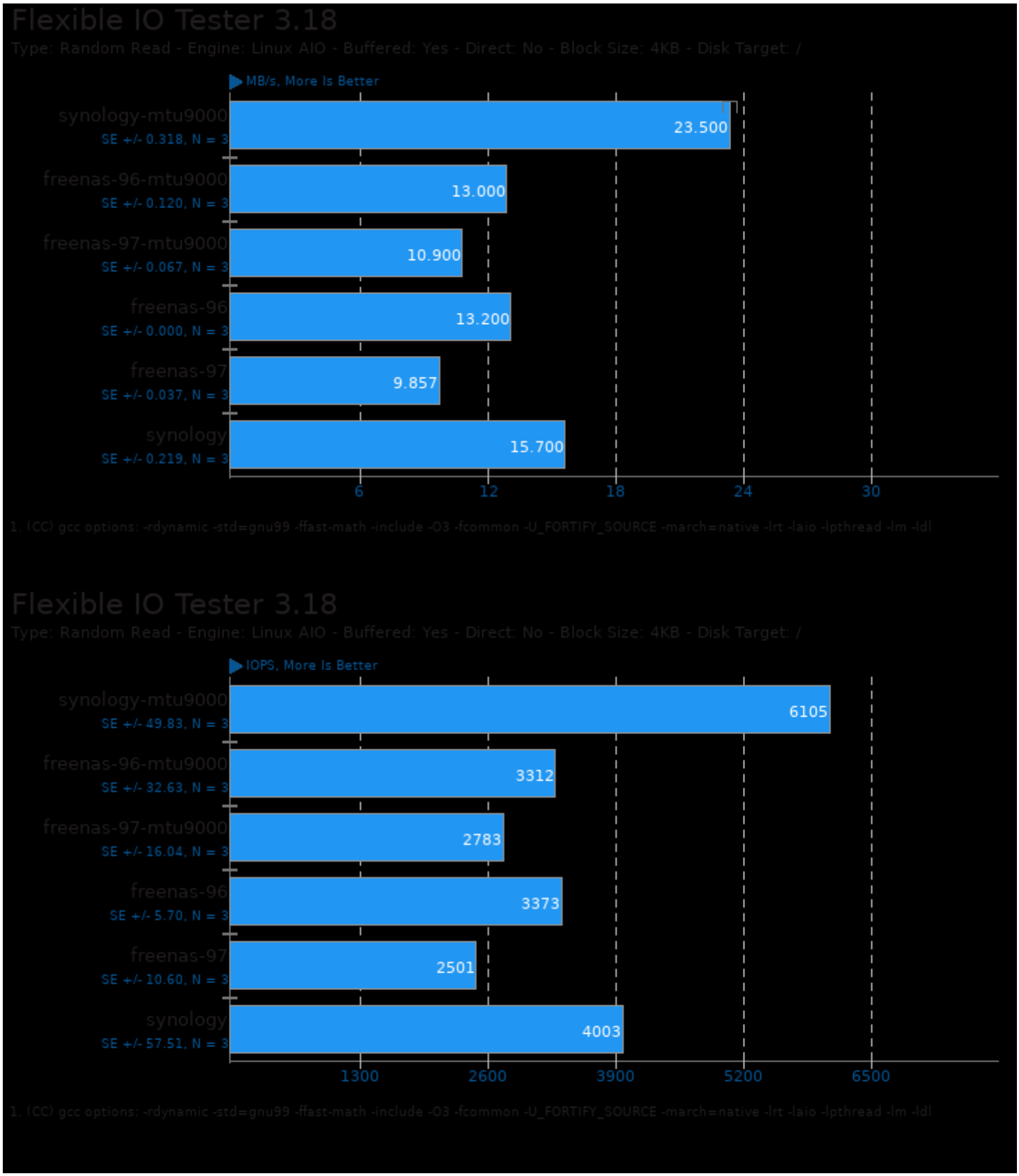
Flexible IO Tester - Rand Write - Linux AIO - No - No - 4KB - / (MB/s)	**96.8**	**207**	163	206	163	152
Normalized	46.76%	100%	78.74%	99.52%	78.74%	73.43%
Standard Deviation	58.4%	1.3%	13.1%	2.4%	13.6%	27.1%
Flexible IO Tester - Rand Write - Linux AIO - No - No - 4KB - / (IOPS)	**24767**	**53000**	41700	52467	41633	38867
Normalized	46.73%	100%	78.68%	98.99%	78.55%	73.33%
Standard Deviation	58.2%	1.5%	12.9%	2.4%	13.6%	27.2%
Flexible IO Tester - Rand Read - Linux AIO - Yes - Yes - 4KB - / (MB/s)	**24.0**	11.6	11.1	12.3	**9.96**	15.7
Normalized	100%	48.33%	46.25%	51.25%	41.5%	65.42%
Standard Deviation	0.9%	4.3%	1%	2.1%	0.4%	2.4%
Flexible IO Tester - Rand Read - Linux AIO - Yes - Yes - 4KB - / (IOPS)	**6154**	3042	2849	3133	**2549**	4005
Normalized	100%	49.43%	46.3%	50.91%	41.42%	65.08%
Standard Deviation	1%	0.6%	0.8%	1.8%	0.5%	2.6%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB - / (MB/s)	172	**209**	**148**	188	172	162
Normalized	82.3%	100%	70.81%	89.95%	82.3%	77.51%
Standard Deviation	24.2%	5.3%	9.3%	8%	8.5%	8.6%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB - / (IOPS)	44033	**53367**	**37533**	48133	43600	41433
Normalized	82.51%	100%	70.33%	90.19%	81.7%	77.64%
Standard Deviation	24.1%	5.1%	8.6%	8.2%	9.7%	8.4%
Flexible IO Tester - Rand Write - Linux AIO - Yes - No - 4KB - / (MB/s)	455	**497**	478	461	**442**	443
Normalized	91.55%	100%	96.18%	92.76%	88.93%	89.13%
Standard Deviation	1.6%	0.6%	5.6%	5.7%	5.5%	0.4%
Flexible IO Tester - Rand Write - Linux AIO - Yes - No - 4KB - / (IOPS)	116667	**127333**	122000	118000	**113000**	113333
Normalized	91.62%	100%	95.81%	92.67%	88.74%	89.01%
Standard Deviation	1.3%	0.5%	5.7%	5.9%	5.4%	0.5%
Flexible IO Tester - Rand Write - Linux AIO - Yes - Yes - 4KB - / (MB/s)	468	464	**474**	453	**436**	437
Normalized	98.73%	97.89%	100%	95.57%	91.98%	92.19%
Standard Deviation	1.8%	5.8%	7.5%	7.3%	6.4%	
Flexible IO Tester - Rand Write - Linux AIO - Yes - Yes - 4KB - / (IOPS)	119667	118667	**121333**	116000	**111667**	112000
Normalized	98.63%	97.8%	100%	95.6%	92.03%	92.31%
Standard Deviation	1.9%	5.9%	7.4%	7.1%	6.8%	

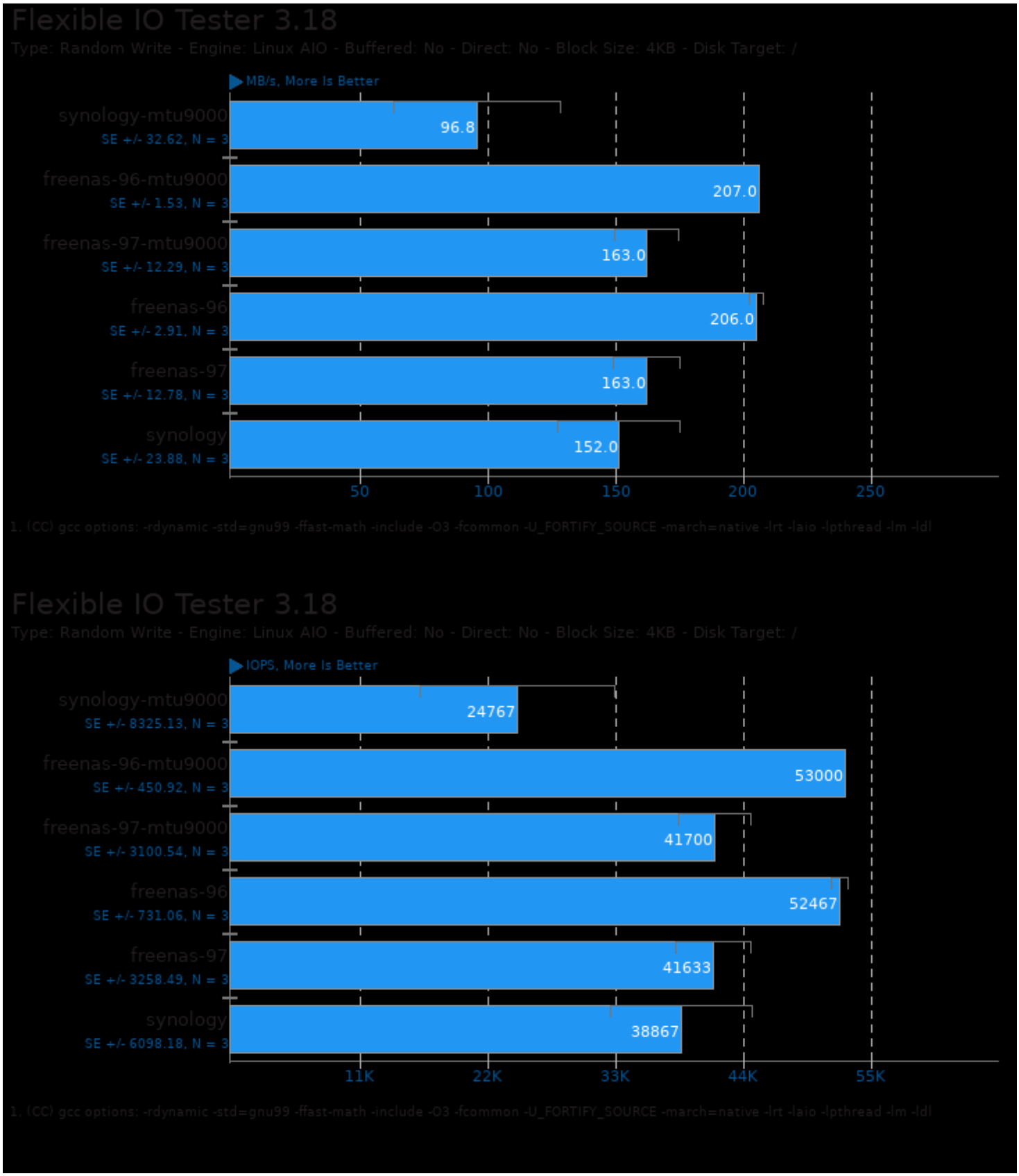
Flexible IO Tester - Rand Read - Sync - No - No - 4KB - / (MB/s)	**24.7**	13.5	**11**	12.3	11.9	15.9
Normalized	100%	54.66%	44.53%	49.8%	48.18%	64.37%
Standard Deviation	2.6%	0.7%		0.9%	4.6%	1.3%
Flexible IO Tester - Rand Read - Sync - No - No - 4KB - / (IOPS)	**6328**	3459	**2820**	3159	3047	4060
Normalized	100%	54.66%	44.56%	49.92%	48.15%	64.16%
Standard Deviation	2.7%	0.5%	0.1%	1.3%	4.6%	1.6%
Flexible IO Tester - Rand Read - Sync - No - Yes - 4KB - / (MB/s)	**24.2**	13.6	**11.1**	12.3	11.9	16.3
Normalized	100%	56.2%	45.87%	50.83%	49.17%	67.36%
Standard Deviation	2.5%	0.4%	2.4%	0.9%	0.8%	5.1%
Flexible IO Tester - Rand Read - Sync - No - Yes - 4KB - / (IOPS)	**6196**	3487	**2838**	3141	3045	4173
Normalized	100%	56.28%	45.8%	50.69%	49.14%	67.35%
Standard Deviation	2.4%	0.5%	2.5%	0.7%	1.1%	5.1%
Flexible IO Tester - Rand Read - Sync - Yes - No - 4KB - / (MB/s)	**24.3**	13.0	**11.0**	12.3	11.8	15.5
Normalized	100%	53.5%	45.27%	50.62%	48.56%	63.79%
Standard Deviation	1.1%	3.5%	3.8%	1.4%	0.5%	0.6%
Flexible IO Tester - Rand Read - Sync - Yes - No - 4KB - / (IOPS)	**6224**	3333	**2820**	3149	3017	3962
Normalized	100%	53.55%	45.31%	50.59%	48.47%	63.66%
Standard Deviation	1%	3.7%	3.6%	1.4%	0.7%	0.4%
Flexible IO Tester - Rand Write - Sync - No - No - 4KB - / (MB/s)	17.325	25.4	23.3	**25.5**	21.8	**16.964**
Normalized	67.94%	99.61%	91.37%	100%	85.49%	66.53%
Standard Deviation	50.2%	0.2%	4.2%	3.6%	1.9%	38.7%
Flexible IO Tester - Rand Write - Sync - No - No - 4KB - / (IOPS)	4422	6493	5953	**6526**	5588	**4324**
Normalized	67.76%	99.49%	91.22%	100%	85.63%	66.26%
Standard Deviation	51%	0.2%	4.3%	3.5%	2%	39.6%
Flexible IO Tester - Rand Read - Sync - Yes - Yes - 4KB - / (MB/s)	**23.5**	11.7	11.1	13.8	**9.96**	15.4
Normalized	100%	49.79%	47.23%	58.72%	42.38%	65.53%
Standard Deviation	1.5%	1%	2.3%	0%	1.5%	0.4%
Flexible IO Tester - Rand Read - Sync - Yes - Yes - 4KB - / (IOPS)	**6023**	2988	2857	3533	**2548**	3953
Normalized	100%	49.61%	47.43%	58.66%	42.3%	65.63%
Standard Deviation	1.6%	0.7%	2.5%	0.2%	1.4%	0.3%

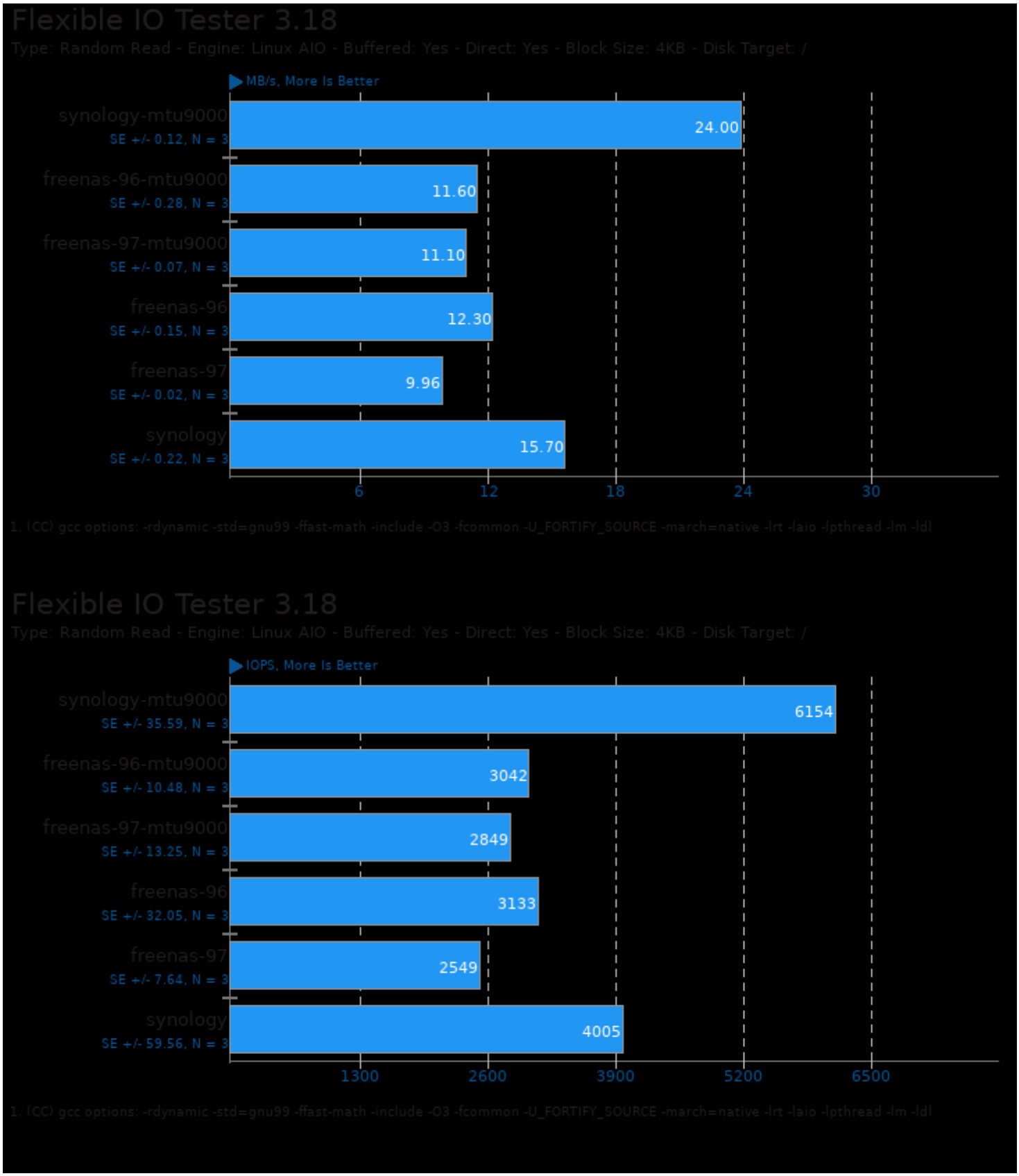
Flexible IO Tester - Rand Write - Sync - No - Yes - 4KB - / (MB/s)	20.6	24.7	21.1	**25.3**	24.6	**19.1**
Normalized	81.42%	97.63%	83.4%	100%	97.23%	75.49%
Standard Deviation	20.3%	6.1%	2.2%	1.3%	1.2%	26.8%
Flexible IO Tester - Rand Write - Sync - No - Yes - 4KB - / (IOPS)	5271	6325	5476	**6475**	6294	**4891**
Normalized	81.41%	97.68%	84.57%	100%	97.2%	75.54%
Standard Deviation	20.4%	6%	3.1%	1.3%	1.3%	26.9%
Flexible IO Tester - Rand Write - Sync - Yes - No - 4KB - / (MB/s)	501	**554**	538	504	530	**475**
Normalized	90.43%	100%	97.11%	90.97%	95.67%	85.74%
Standard Deviation	1%	0.4%	2.4%	7.4%	2.6%	13.4%
Flexible IO Tester - Rand Write - Sync - Yes - No - 4KB - / (IOPS)	128333	**141667**	137667	129000	135667	**121333**
Normalized	90.59%	100%	97.18%	91.06%	95.76%	85.65%
Standard Deviation	1.2%	0.4%	2.3%	7.5%	2.4%	13.2%
Flexible IO Tester - Rand Write - Sync - Yes - Yes - 4KB - / (MB/s)	**513**	530	515	515	**543**	516
Normalized	94.48%	97.61%	94.84%	94.84%	100%	95.03%
Standard Deviation	3%	7.8%	5.5%	8.1%	0.3%	5.1%
Flexible IO Tester - Rand Write - Sync - Yes - Yes - 4KB - / (IOPS)	**131333**	136000	131667	131667	**138667**	132333
Normalized	94.71%	98.08%	94.95%	94.95%	100%	95.43%
Standard Deviation	3.4%	7.6%	5.6%	8.4%	0.4%	5%

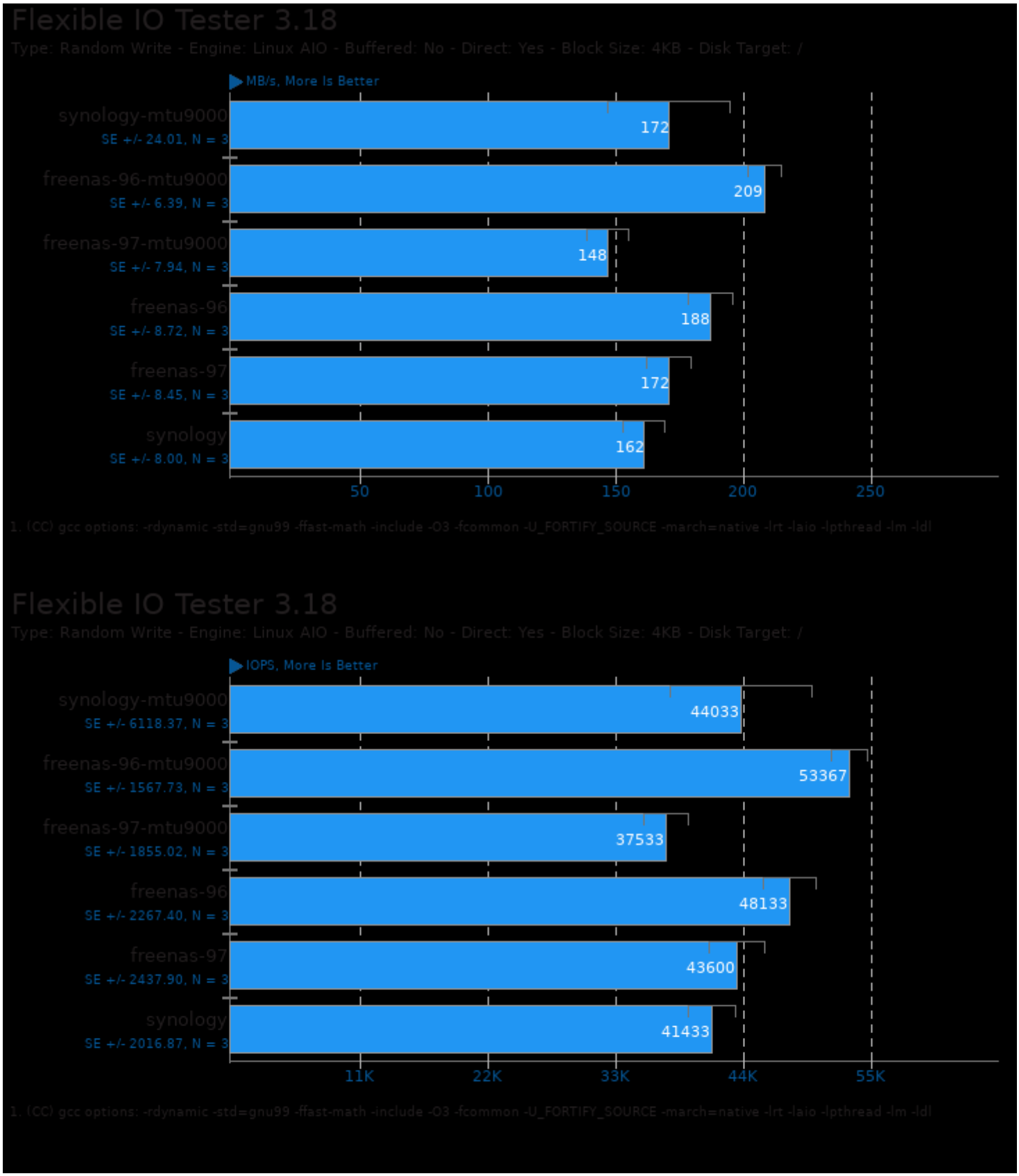

Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 0.58, N = 3
130
freenas-96-mtu9000
SE +/- 2.40, N = 3
209
freenas-97-mtu9000
SE +/- 10.15, N = 3
177
freenas-96
SE +/- 12.01, N = 3
148
freenas-97
SE +/- 6.17, N = 3
143
synology
SE +/- 0.88, N = 3
160
50
100
150
200
250
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 176.38, N = 3
33233
freenas-96-mtu9000
SE +/- 578.31, N = 3
53433
freenas-97-mtu9000
SE +/- 2631.22, N = 3
45300
freenas-96
SE +/- 3038.27, N = 3
37867
freenas-97
SE +/- 1601.04, N = 3
36700
synology
SE +/- 266.67, N = 3
41067
11K
22K
33K
44K
55K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

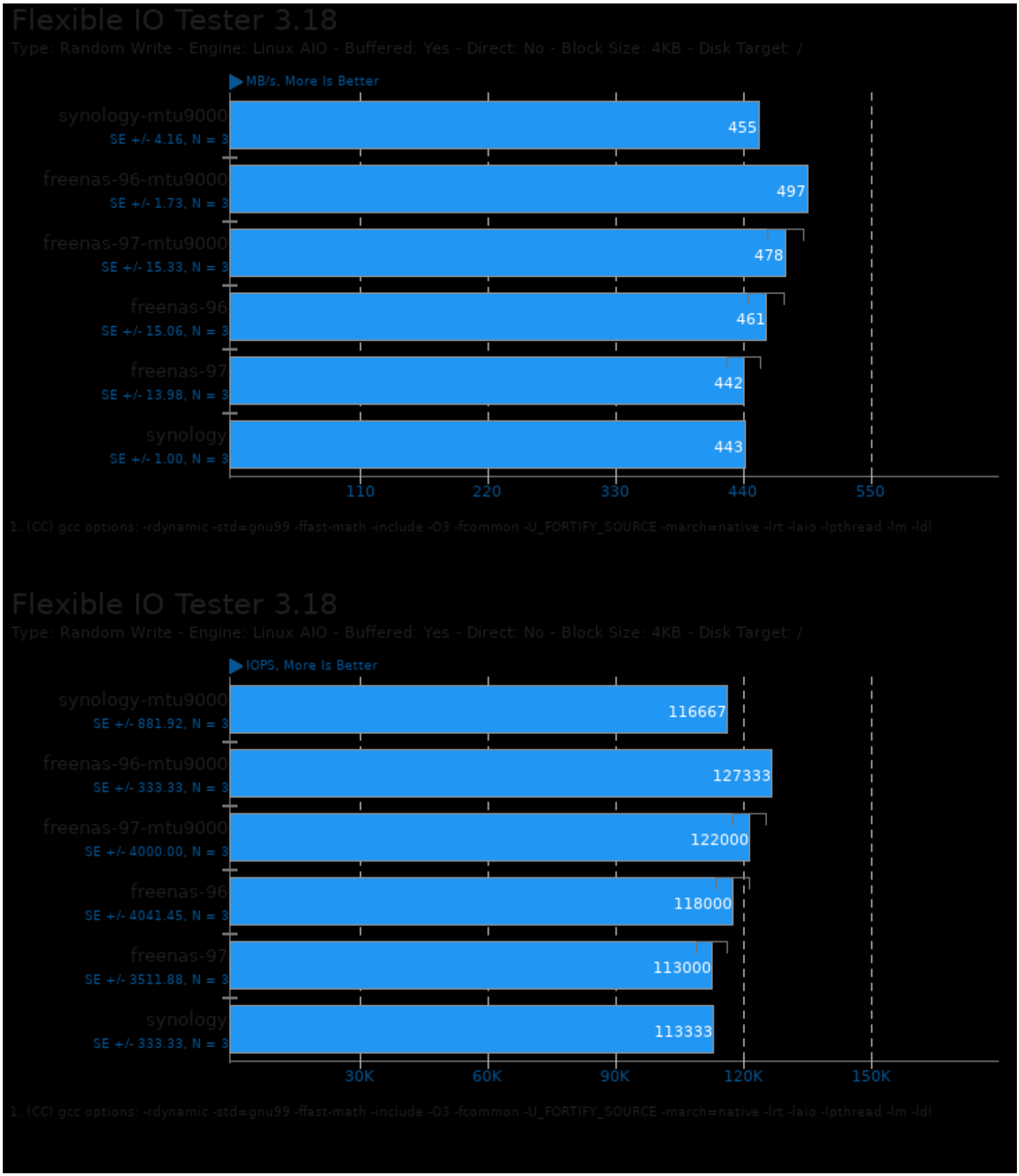

Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 1.45, N = 3
141
freenas-96-mtu9000
SE +/- 20.70, N = 3
186
freenas-97-mtu9000
SE +/- 5.70, N = 3
185
freenas-96
SE +/- 8.89, N = 3
144
freenas-97
SE +/- 1.45, N = 3
136
synology
SE +/- 2.96, N = 3
156
40
80
120
160
200
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 405.52, N = 3
36033
freenas-96-mtu9000
SE +/- 5289.72, N = 3
47667
freenas-97-mtu9000
SE +/- 1424.00, N = 3
47433
freenas-96
SE +/- 2218.36, N = 3
36833
freenas-97
SE +/- 405.52, N = 3
34967
synology
SE +/- 517.47, N = 3
39533
10K
20K
30K
40K
50K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

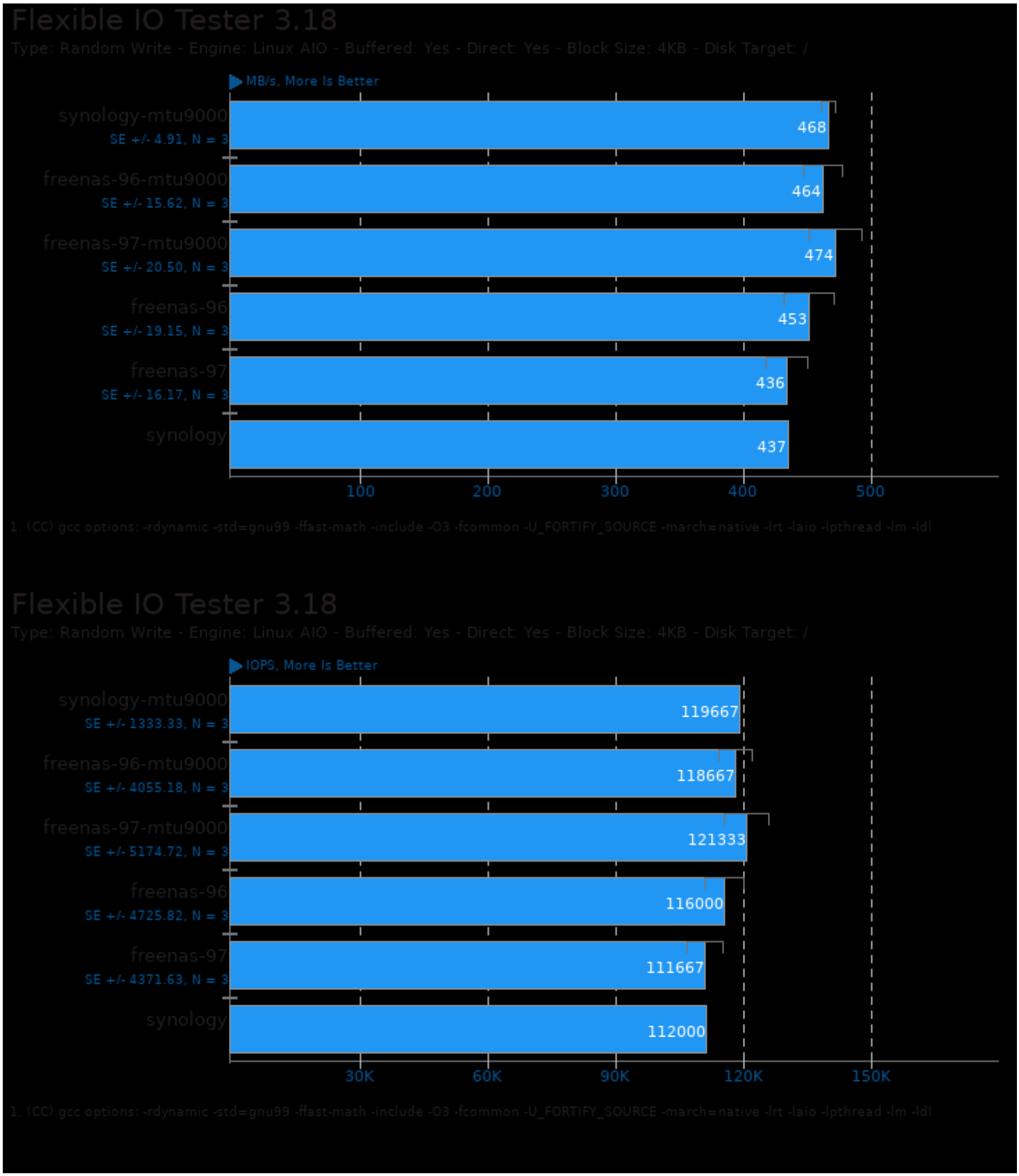

Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 0.318, N = 3
23.500
freenas-96-mtu9000
SE +/- 0.120, N = 3
13.000
freenas-97-mtu9000
SE +/- 0.067, N = 3
10.900
freenas-96
SE +/- 0.000, N = 3
13.200
freenas-97
SE +/- 0.037, N = 3
9.857
synology
SE +/- 0.219, N = 3
15.700
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 49.83, N = 3
6105
freenas-96-mtu9000
SE +/- 32.63, N = 3
3312
freenas-97-mtu9000
SE +/- 16.04, N = 3
2783
freenas-96
SE +/- 5.70, N = 3
3373
freenas-97
SE +/- 10.60, N = 3
2501
synology
SE +/- 57.51, N = 3
4003
1300
2600
3900
5200
6500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

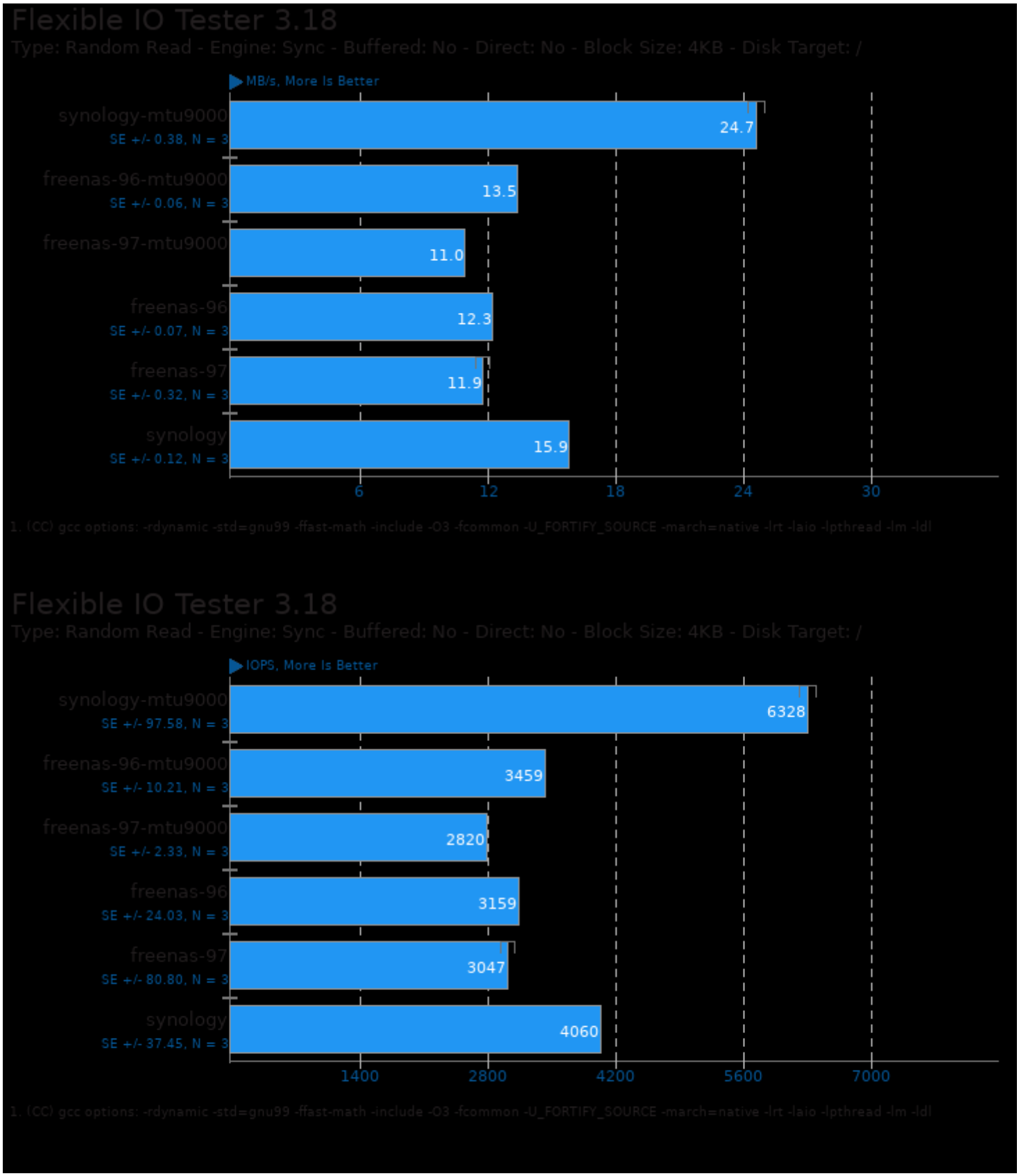

Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 32.62, N = 3
96.8
freenas-96-mtu9000
SE +/- 1.53, N = 3
207.0
freenas-97-mtu9000
SE +/- 12.29, N = 3
163.0
freenas-96
SE +/- 2.91, N = 3
206.0
freenas-97
SE +/- 12.78, N = 3
163.0
synology
SE +/- 23.88, N = 3
152.0
50
100
150
200
250
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 8325.13, N = 3
24767
freenas-96-mtu9000
SE +/- 450.92, N = 3
53000
freenas-97-mtu9000
SE +/- 3100.54, N = 3
41700
freenas-96
SE +/- 731.06, N = 3
52467
freenas-97
SE +/- 3258.49, N = 3
41633
synology
SE +/- 6098.18, N = 3
38867
11K
22K
33K
44K
55K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

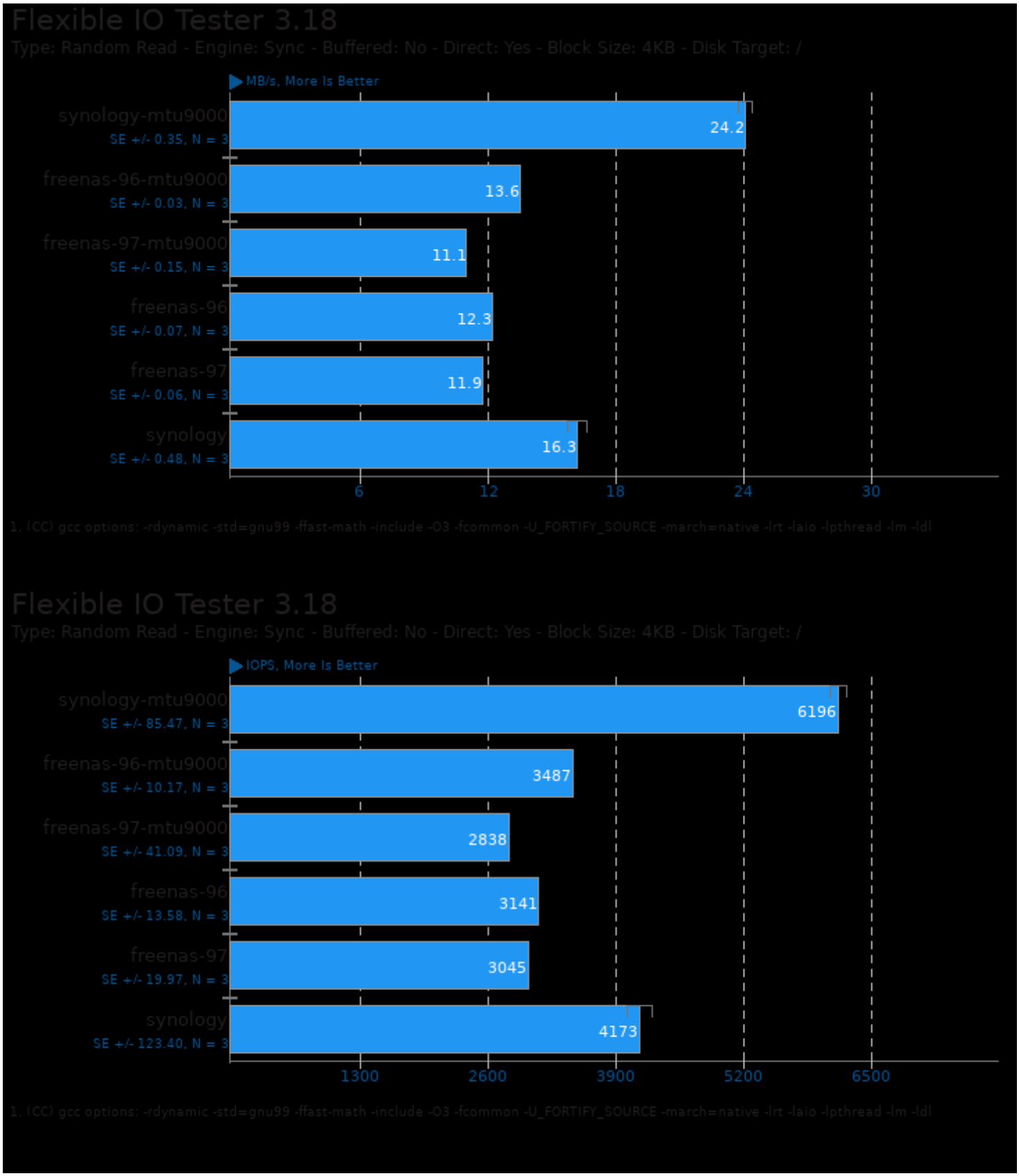

Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 0.12, N = 3
24.00
freenas-96-mtu9000
SE +/- 0.28, N = 3
11.60
freenas-97-mtu9000
SE +/- 0.07, N = 3
11.10
freenas-96
SE +/- 0.15, N = 3
12.30
freenas-97
SE +/- 0.02, N = 3
9.96
synology
SE +/- 0.22, N = 3
15.70
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 35.59, N = 3
6154
freenas-96-mtu9000
SE +/- 10.48, N = 3
3042
freenas-97-mtu9000
SE +/- 13.25, N = 3
2849
freenas-96
SE +/- 32.05, N = 3
3133
freenas-97
SE +/- 7.64, N = 3
2549
synology
SE +/- 59.56, N = 3
4005
1300
2600
3900
5200
6500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

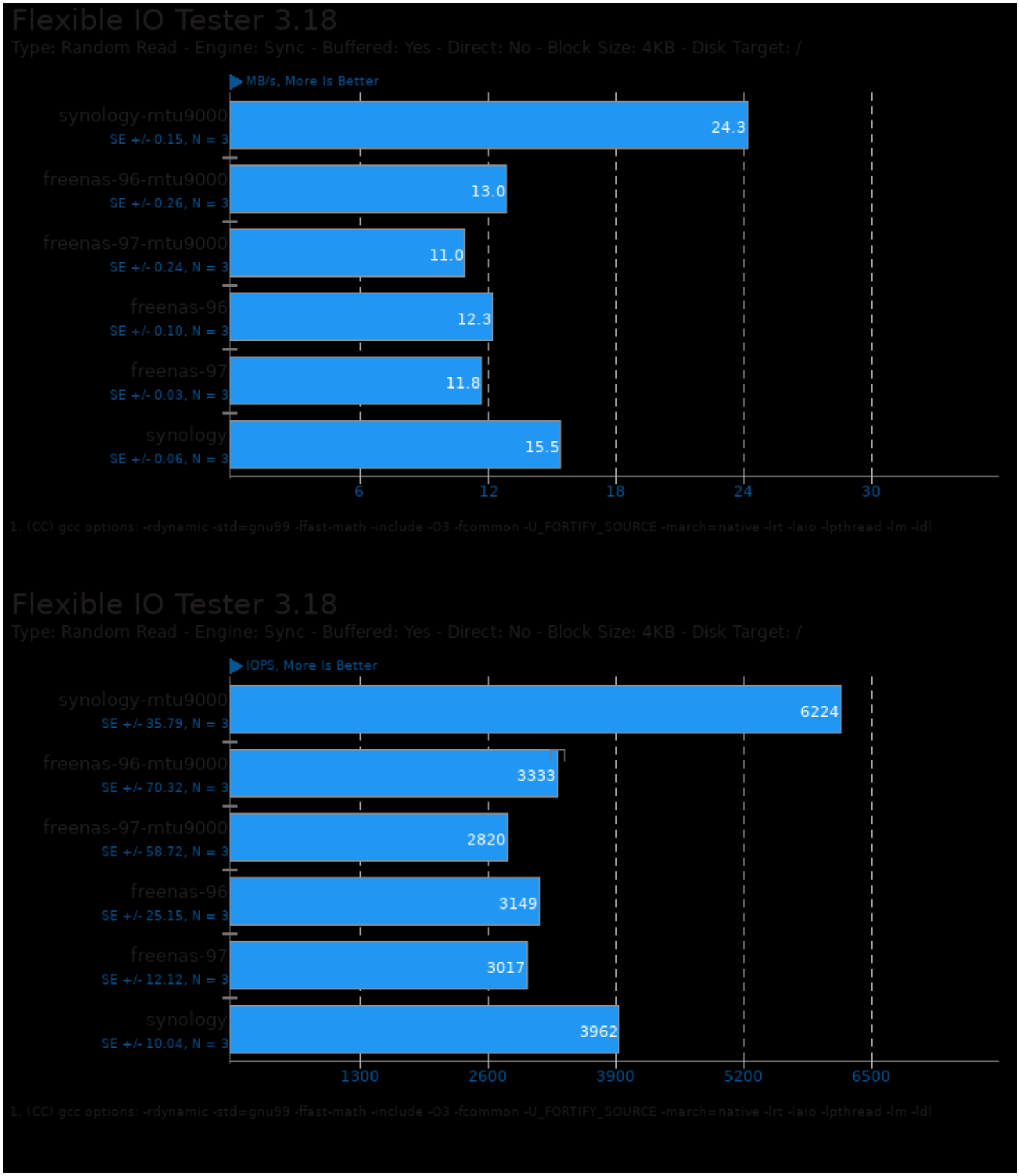

Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 24.01, N = 3
172
freenas-96-mtu9000
SE +/- 6.39, N = 3
209
freenas-97-mtu9000
SE +/- 7.94, N = 3
148
freenas-96
SE +/- 8.72, N = 3
188
freenas-97
SE +/- 8.45, N = 3
172
synology
SE +/- 8.00, N = 3
162
50
100
150
200
250
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 6118.37, N = 3
44033
freenas-96-mtu9000
SE +/- 1567.73, N = 3
53367
freenas-97-mtu9000
SE +/- 1855.02, N = 3
37533
freenas-96
SE +/- 2267.40, N = 3
48133
freenas-97
SE +/- 2437.90, N = 3
43600
synology
SE +/- 2016.87, N = 3
41433
11K
22K
33K
44K
55K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

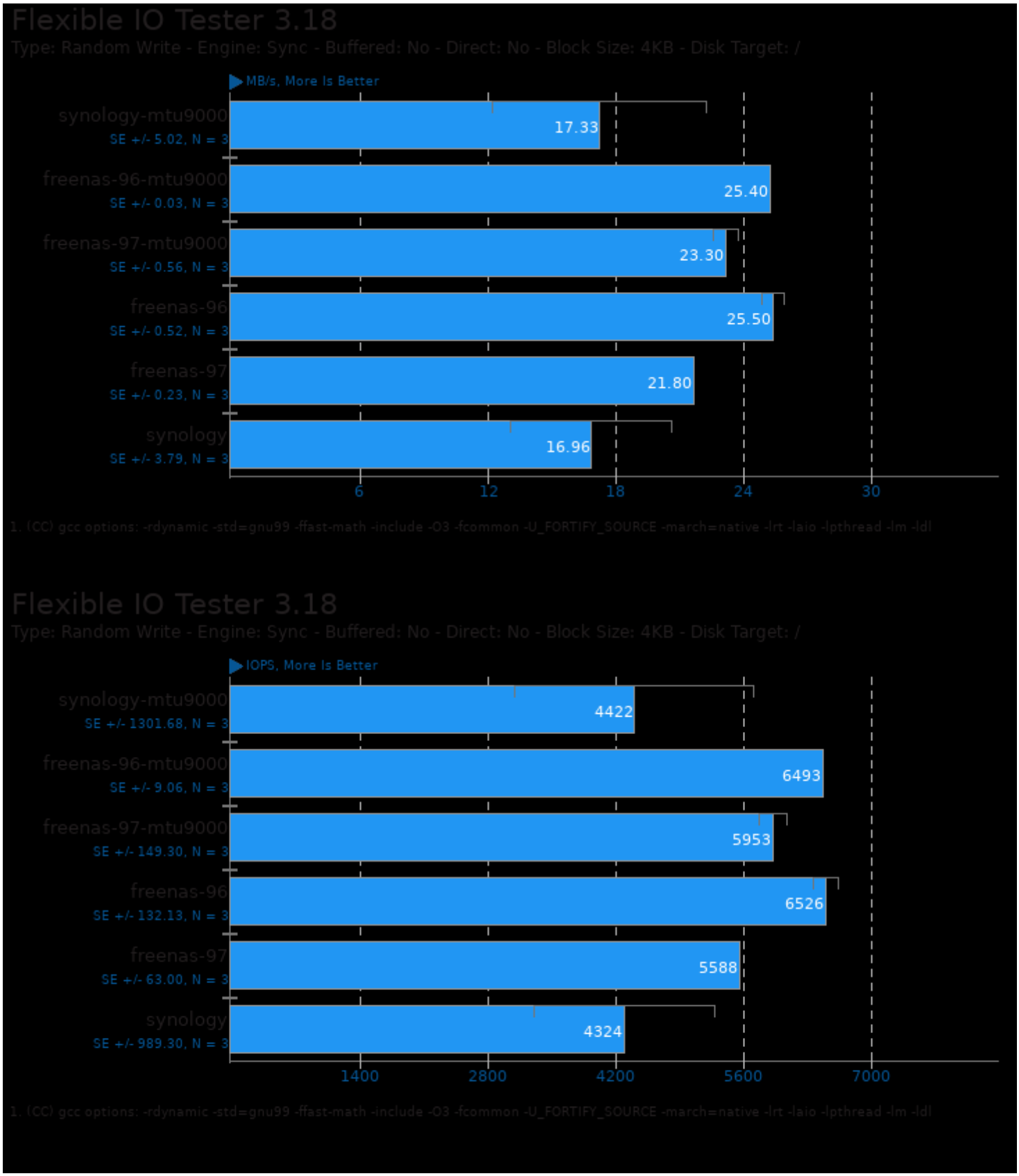

Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 4.16, N = 3
455
freenas-96-mtu9000
SE +/- 1.73, N = 3
497
freenas-97-mtu9000
SE +/- 15.33, N = 3
478
freenas-96
SE +/- 15.06, N = 3
461
freenas-97
SE +/- 13.98, N = 3
442
synology
SE +/- 1.00, N = 3
443
110
220
330
440
550
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 881.92, N = 3
116667
freenas-96-mtu9000
SE +/- 333.33, N = 3
127333
freenas-97-mtu9000
SE +/- 4000.00, N = 3
122000
freenas-96
SE +/- 4041.45, N = 3
118000
freenas-97
SE +/- 3511.88, N = 3
113000
synology
SE +/- 333.33, N = 3
113333
30K
60K
90K
120K
150K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

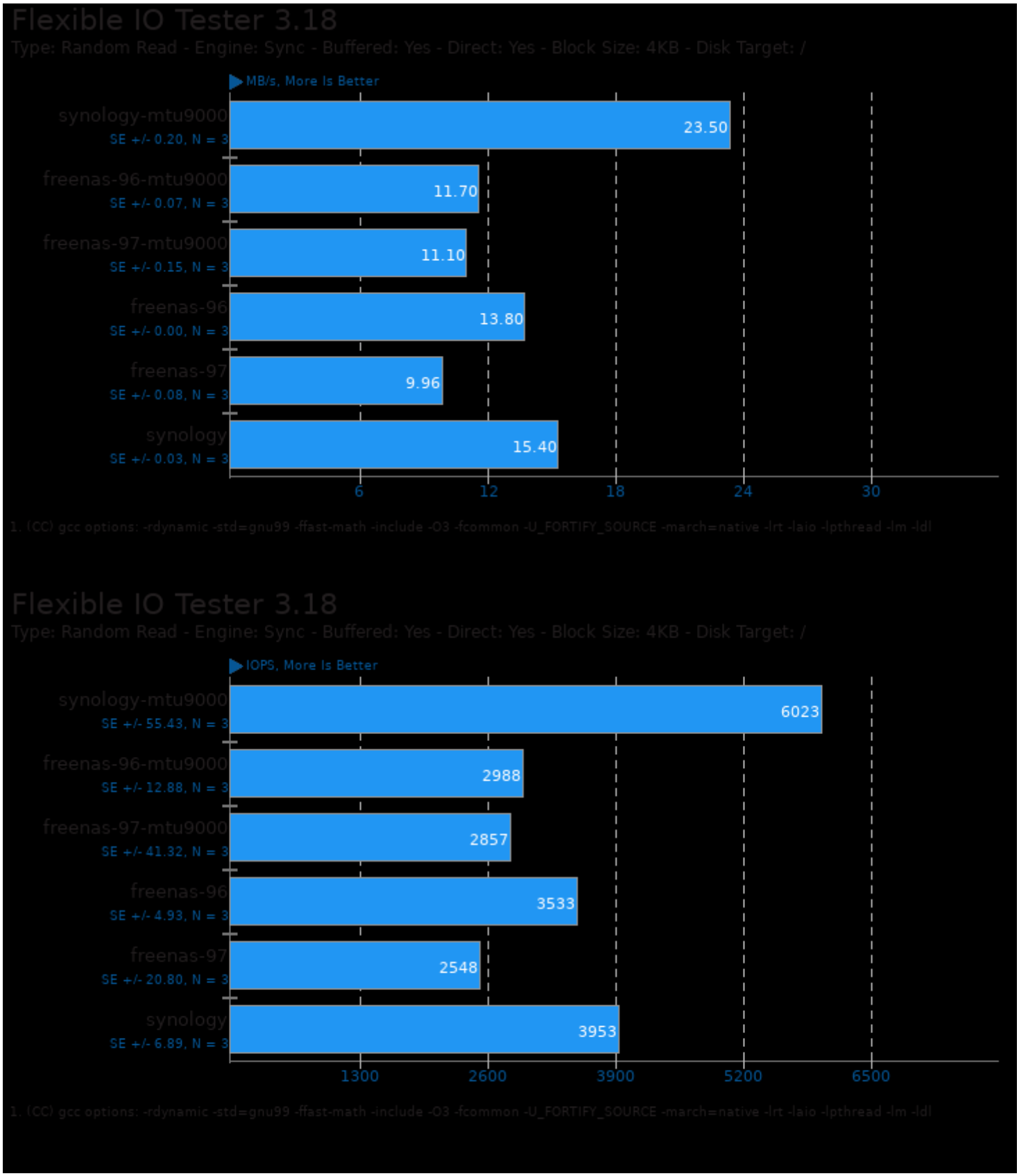

Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 4.91, N = 3
468
freenas-96-mtu9000
SE +/- 15.62, N = 3
464
freenas-97-mtu9000
SE +/- 20.50, N = 3
474
freenas-96
SE +/- 19.15, N = 3
453
freenas-97
SE +/- 16.17, N = 3
436
synology
437
100
200
300
400
500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 1333.33, N = 3
119667
freenas-96-mtu9000
SE +/- 4055.18, N = 3
118667
freenas-97-mtu9000
SE +/- 5174.72, N = 3
121333
freenas-96
SE +/- 4725.82, N = 3
116000
freenas-97
SE +/- 4371.63, N = 3
111667
synology
112000
30K
60K
90K
120K
150K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

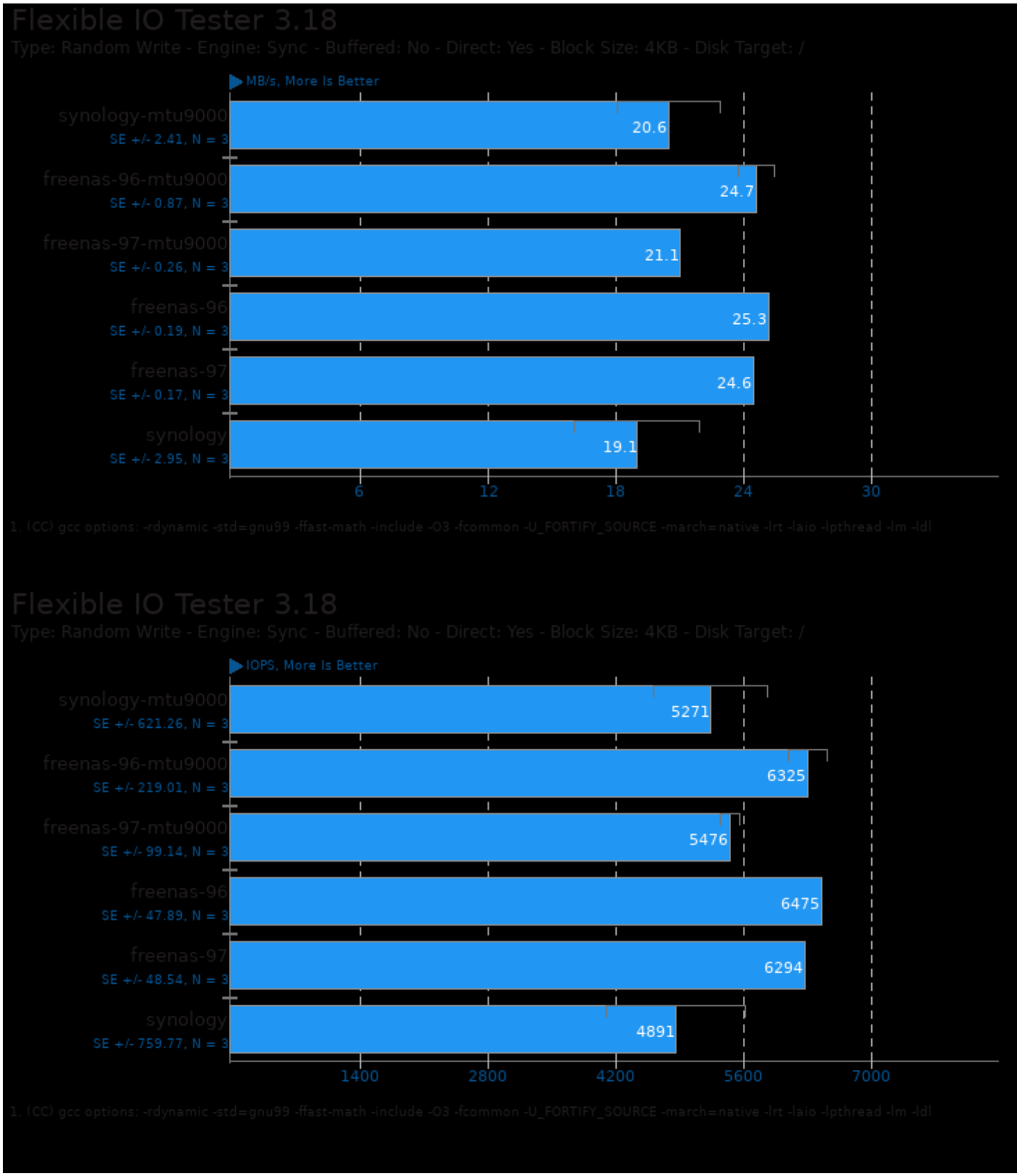

Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 0.38, N = 3
24.7
freenas-96-mtu9000
SE +/- 0.06, N = 3
13.5
freenas-97-mtu9000
11.0
freenas-96
SE +/- 0.07, N = 3
12.3
freenas-97
SE +/- 0.32, N = 3
11.9
synology
SE +/- 0.12, N = 3
15.9
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 97.58, N = 3
6328
freenas-96-mtu9000
SE +/- 10.21, N = 3
3459
freenas-97-mtu9000
SE +/- 2.33, N = 3
2820
freenas-96
SE +/- 24.03, N = 3
3159
freenas-97
SE +/- 80.80, N = 3
3047
synology
SE +/- 37.45, N = 3
4060
1400
2800
4200
5600
7000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

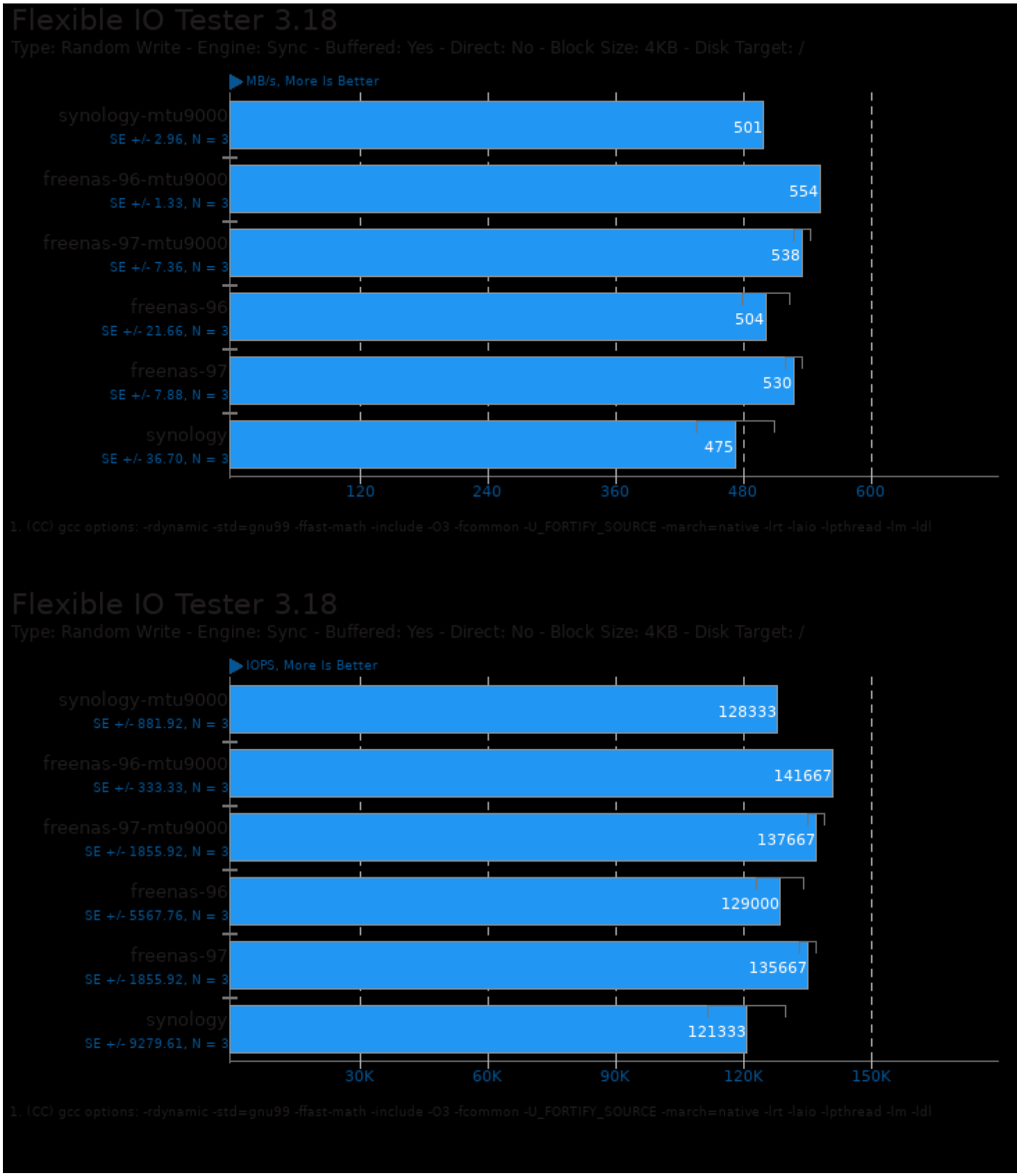

Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 0.35, N = 3
24.2
freenas-96-mtu9000
SE +/- 0.03, N = 3
13.6
freenas-97-mtu9000
SE +/- 0.15, N = 3
11.1
freenas-96
SE +/- 0.07, N = 3
12.3
freenas-97
SE +/- 0.06, N = 3
11.9
synology
SE +/- 0.48, N = 3
16.3
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 85.47, N = 3
6196
freenas-96-mtu9000
SE +/- 10.17, N = 3
3487
freenas-97-mtu9000
SE +/- 41.09, N = 3
2838
freenas-96
SE +/- 13.58, N = 3
3141
freenas-97
SE +/- 19.97, N = 3
3045
synology
SE +/- 123.40, N = 3
4173
1300
2600
3900
5200
6500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

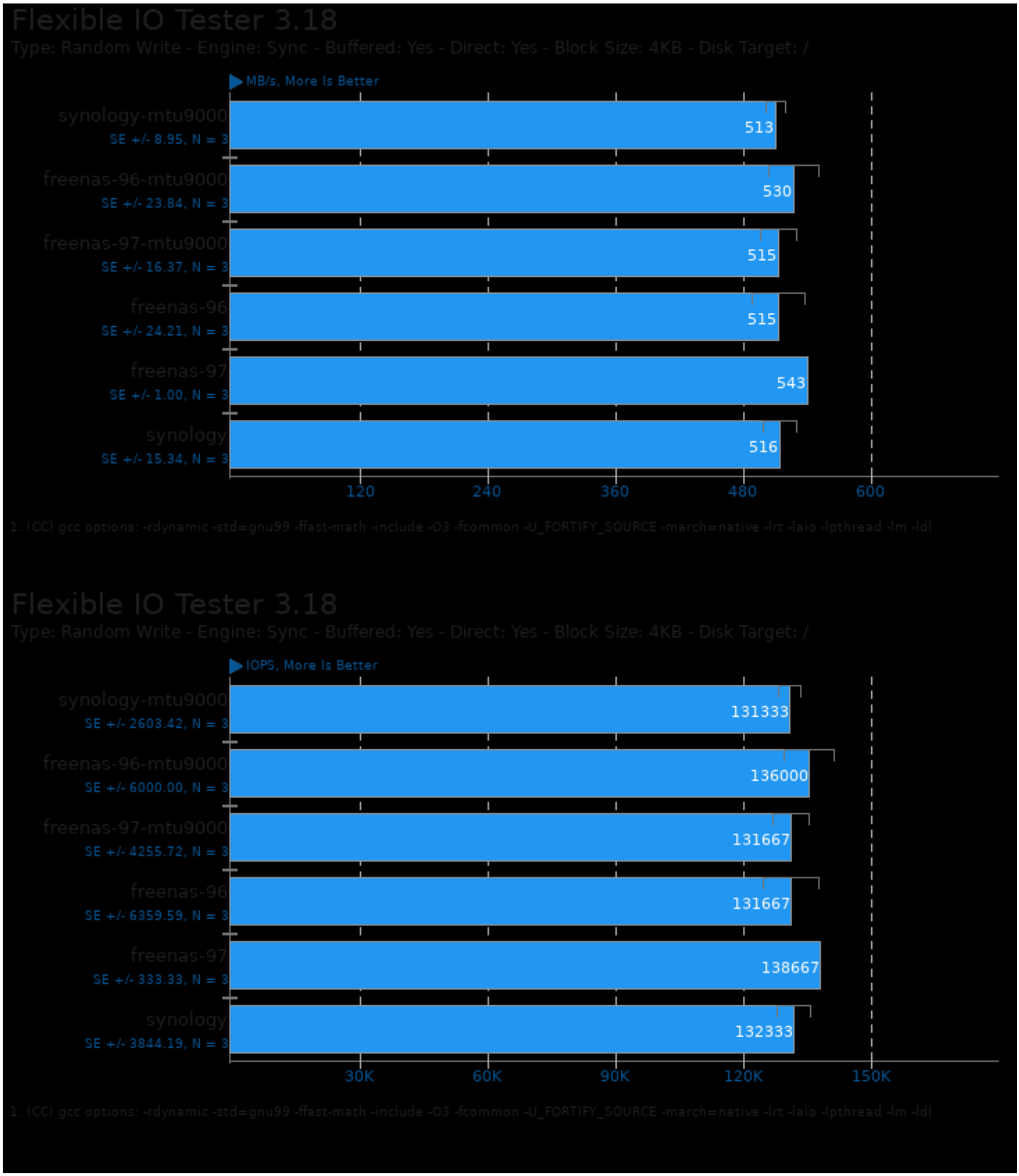

Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 0.15, N = 3
24.3
freenas-96-mtu9000
SE +/- 0.26, N = 3
13.0
freenas-97-mtu9000
SE +/- 0.24, N = 3
11.0
freenas-96
SE +/- 0.10, N = 3
12.3
freenas-97
SE +/- 0.03, N = 3
11.8
synology
SE +/- 0.06, N = 3
15.5
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 35.79, N = 3
6224
freenas-96-mtu9000
SE +/- 70.32, N = 3
3333
freenas-97-mtu9000
SE +/- 58.72, N = 3
2820
freenas-96
SE +/- 25.15, N = 3
3149
freenas-97
SE +/- 12.12, N = 3
3017
synology
SE +/- 10.04, N = 3
3962
1300
2600
3900
5200
6500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Random Write - Engine: Sync - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 5.02, N = 3
17.33
freenas-96-mtu9000
SE +/- 0.03, N = 3
25.40
freenas-97-mtu9000
SE +/- 0.56, N = 3
23.30
freenas-96
SE +/- 0.52, N = 3
25.50
freenas-97
SE +/- 0.23, N = 3
21.80
synology
SE +/- 3.79, N = 3
16.96
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Write - Engine: Sync - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 1301.68, N = 3
4422
freenas-96-mtu9000
SE +/- 9.06, N = 3
6493
freenas-97-mtu9000
SE +/- 149.30, N = 3
5953
freenas-96
SE +/- 132.13, N = 3
6526
freenas-97
SE +/- 63.00, N = 3
5588
synology
SE +/- 989.30, N = 3
4324
1400
2800
4200
5600
7000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 0.20, N = 3
23.50
freenas-96-mtu9000
SE +/- 0.07, N = 3
11.70
freenas-97-mtu9000
SE +/- 0.15, N = 3
11.10
freenas-96
SE +/- 0.00, N = 3
13.80
freenas-97
SE +/- 0.08, N = 3
9.96
synology
SE +/- 0.03, N = 3
15.40
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Read - Engine: Sync - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 55.43, N = 3
6023
freenas-96-mtu9000
SE +/- 12.88, N = 3
2988
freenas-97-mtu9000
SE +/- 41.32, N = 3
2857
freenas-96
SE +/- 4.93, N = 3
3533
freenas-97
SE +/- 20.80, N = 3
2548
synology
SE +/- 6.89, N = 3
3953
1300
2600
3900
5200
6500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 2.41, N = 3
20.6
freenas-96-mtu9000
SE +/- 0.87, N = 3
24.7
freenas-97-mtu9000
SE +/- 0.26, N = 3
21.1
freenas-96
SE +/- 0.19, N = 3
25.3
freenas-97
SE +/- 0.17, N = 3
24.6
synology
SE +/- 2.95, N = 3
19.1
6
12
18
24
30
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 621.26, N = 3
5271
freenas-96-mtu9000
SE +/- 219.01, N = 3
6325
freenas-97-mtu9000
SE +/- 99.14, N = 3
5476
freenas-96
SE +/- 47.89, N = 3
6475
freenas-97
SE +/- 48.54, N = 3
6294
synology
SE +/- 759.77, N = 3
4891
1400
2800
4200
5600
7000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Random Write - Engine: Sync - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
MB/s, More Is Better
synology-mtu9000
SE +/- 2.96, N = 3
501
freenas-96-mtu9000
SE +/- 1.33, N = 3
554
freenas-97-mtu9000
SE +/- 7.36, N = 3
538
freenas-96
SE +/- 21.66, N = 3
504
freenas-97
SE +/- 7.88, N = 3
530
synology
SE +/- 36.70, N = 3
475
120
240
360
480
600
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Random Write - Engine: Sync - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: /
IOPS, More Is Better
synology-mtu9000
SE +/- 881.92, N = 3
128333
freenas-96-mtu9000
SE +/- 333.33, N = 3
141667
freenas-97-mtu9000
SE +/- 1855.92, N = 3
137667
freenas-96
SE +/- 5567.76, N = 3
129000
freenas-97
SE +/- 1855.92, N = 3
135667
synology
SE +/- 9279.61, N = 3
121333
30K
60K
90K
120K
150K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl



This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 07:40.