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# Supermicro_SuperStorage_XCP_NG

Xen HVM domU 4.13 testing on Debian 10 via the Phoronix Test Suite.

**Automated Executive Summary**

*On Local Single NVME Storage had the most wins, coming in first place for 50% of the tests.*

*Based on the geometric mean of all complete results, the fastest (On Local Single NVME Storage) was 12.179x the speed of the slowest (running on TrueNAS). Another Local NVME Test was 0.971x the speed of On Local Single NVME Storage, XCP-NG Managed Local ZFS sync disabled was 0.403x the speed of Another Local NVME Test, XCP-NG Managed Local ZFS was 0.986x the speed of XCP-NG Managed Local ZFS sync disabled, running on TrueNAS test2 was 0.985x the speed of XCP-NG Managed Local ZFS, TrueNAS Core Test2 was 0.26x the speed of running on TrueNAS test2, running on TrueNAS was 0.832x the speed of TrueNAS Core Test2.*

## Test Systems:

### running on TrueNAS

## On Local Single NVME Storage

## XCP-NG Managed Local ZFS

## XCP-NG Managed Local ZFS sync disabled

## Another Local NVME Test

## running on TrueNAS test2

## TrueNAS Core Test2

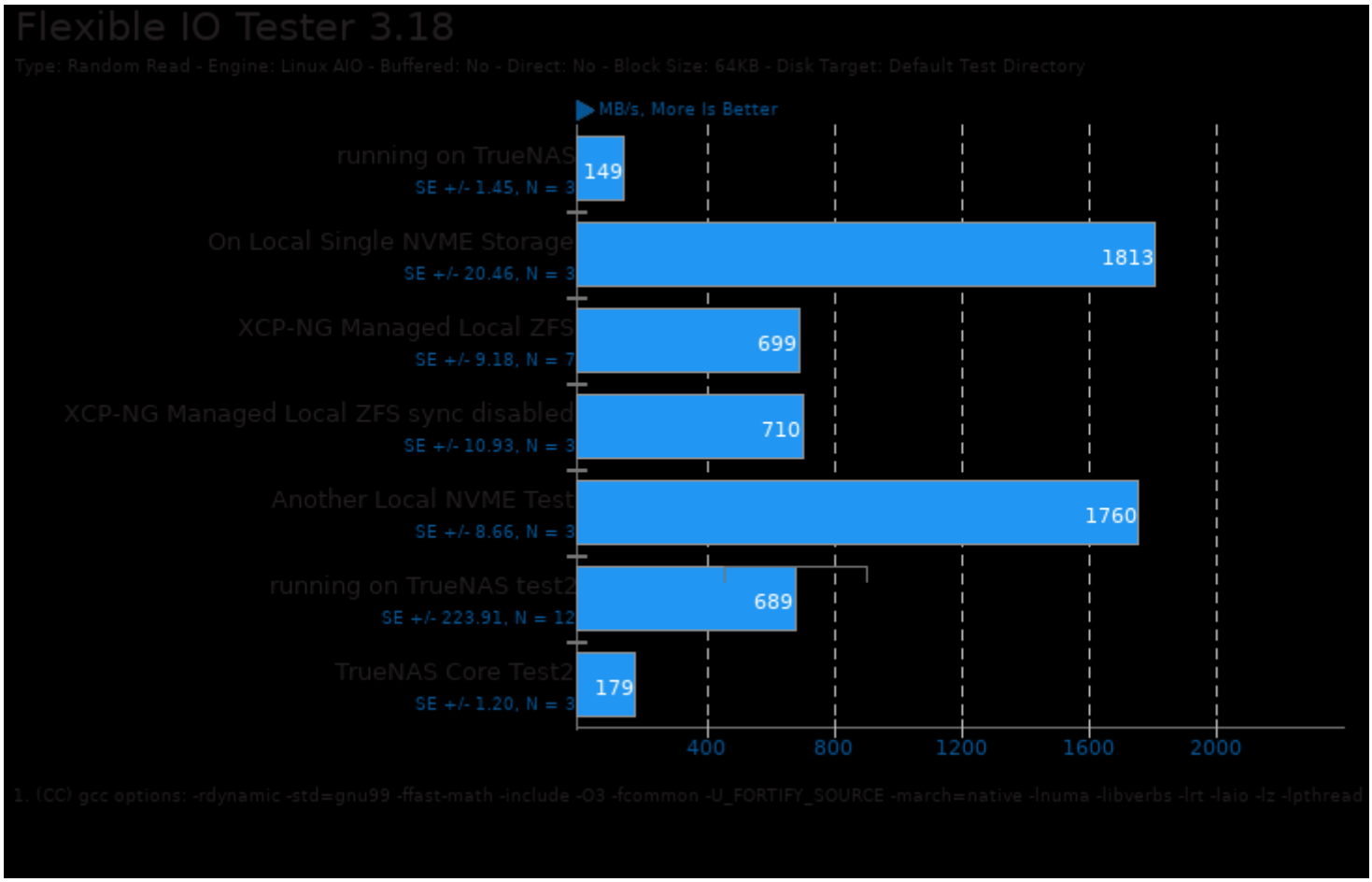
Processor: 4 x Intel Xeon Gold 6240 (4 Cores), Motherboard: Xen HVM domU v4.13, Chipset: Intel 440FX 82441FX PMC, Memory: 1 x 4088 MB RAM, Disk: 12GB, Graphics: bochsdrmfb

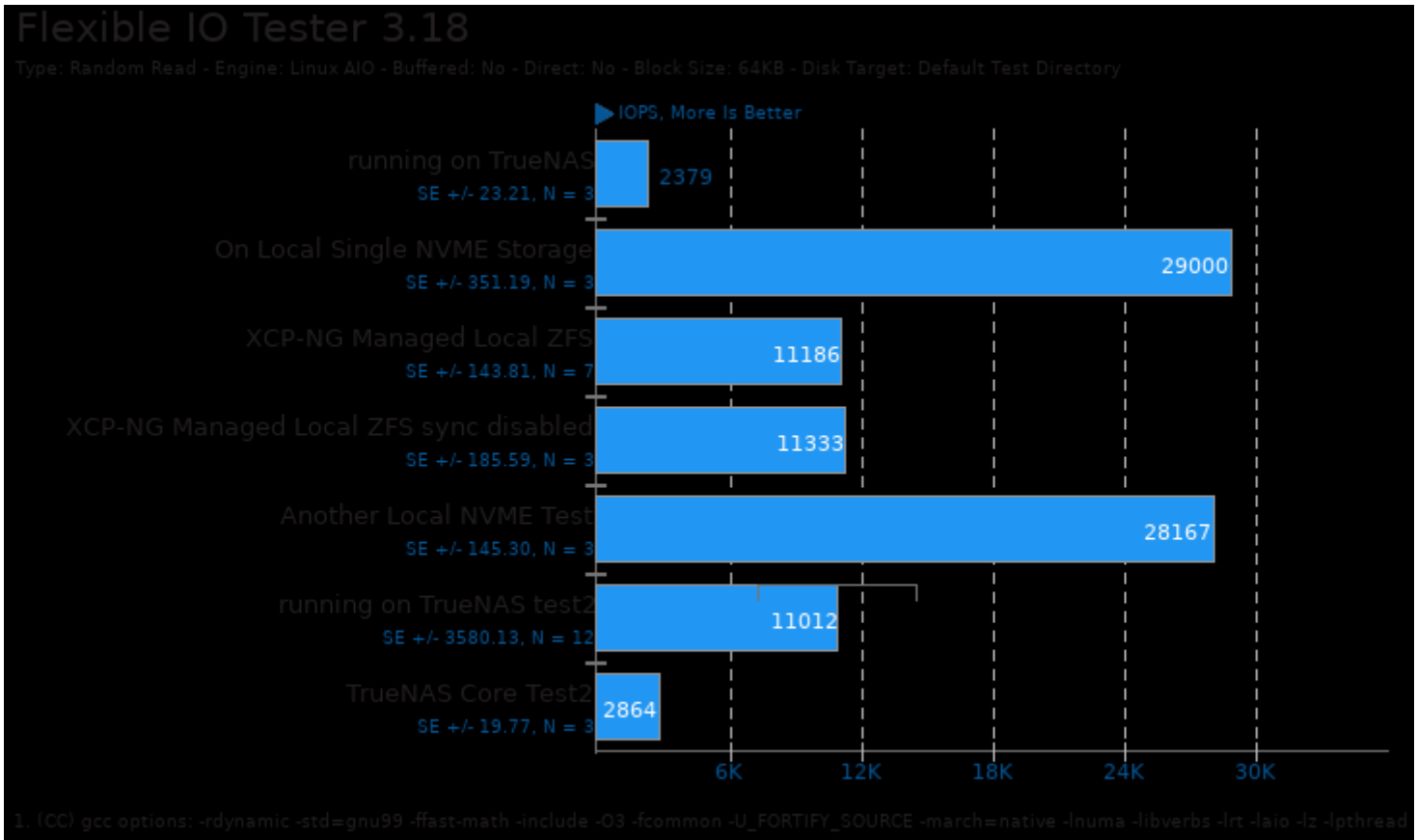
OS: Debian 10, Kernel: 4.19.0-9-amd64 (x86_64), Compiler: GCC 8.3.0, File-System: ext4, Screen Resolution: 1024x768, System Layer: Xen HVM domU 4.13

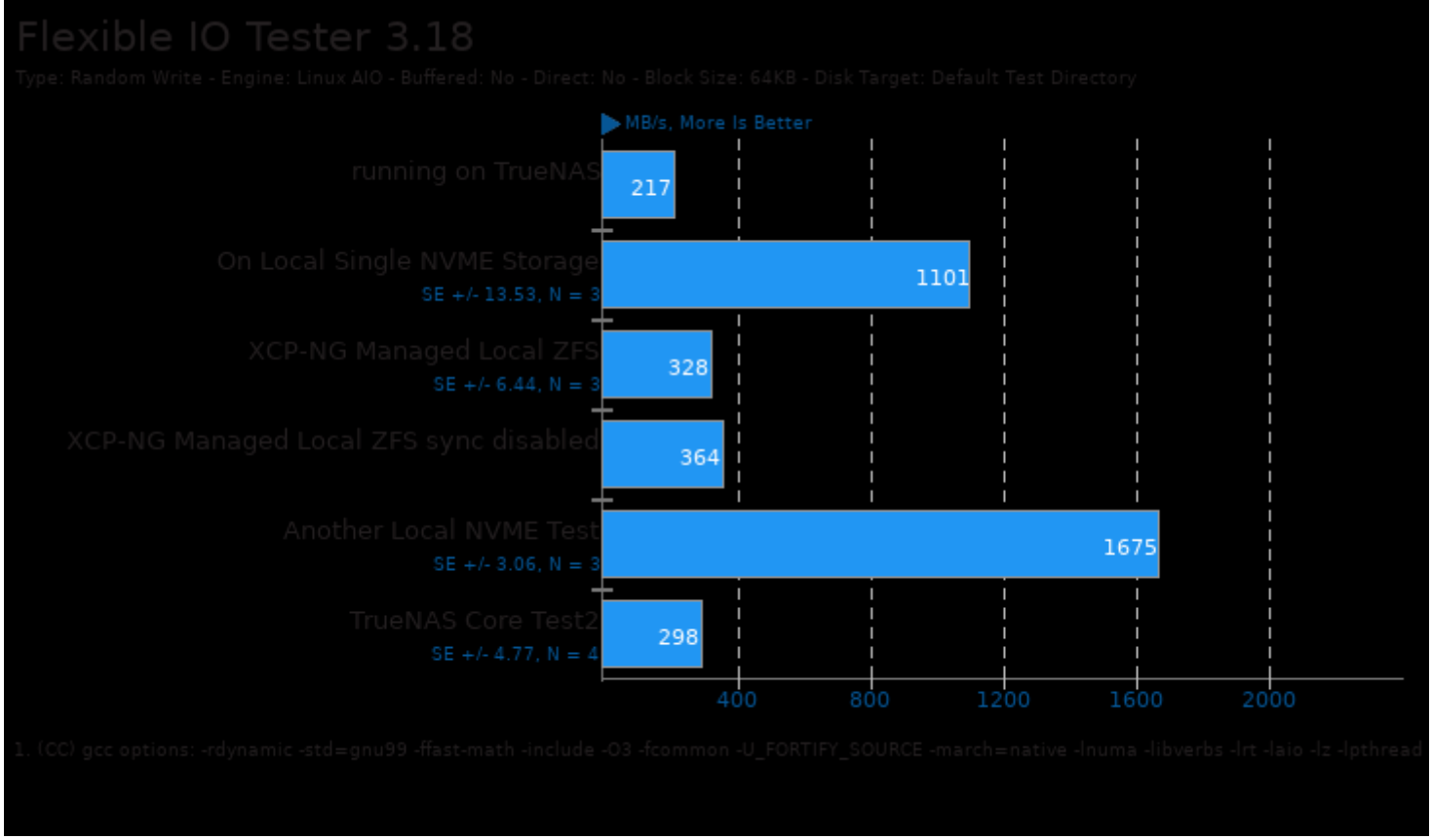
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none --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 --with-tune=generic --without-cuda-driver -v
Processor Notes: CPU Microcode: 0x5002f01
Disk Mount Options Notes: errors=remount-ro,relatime,rw
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

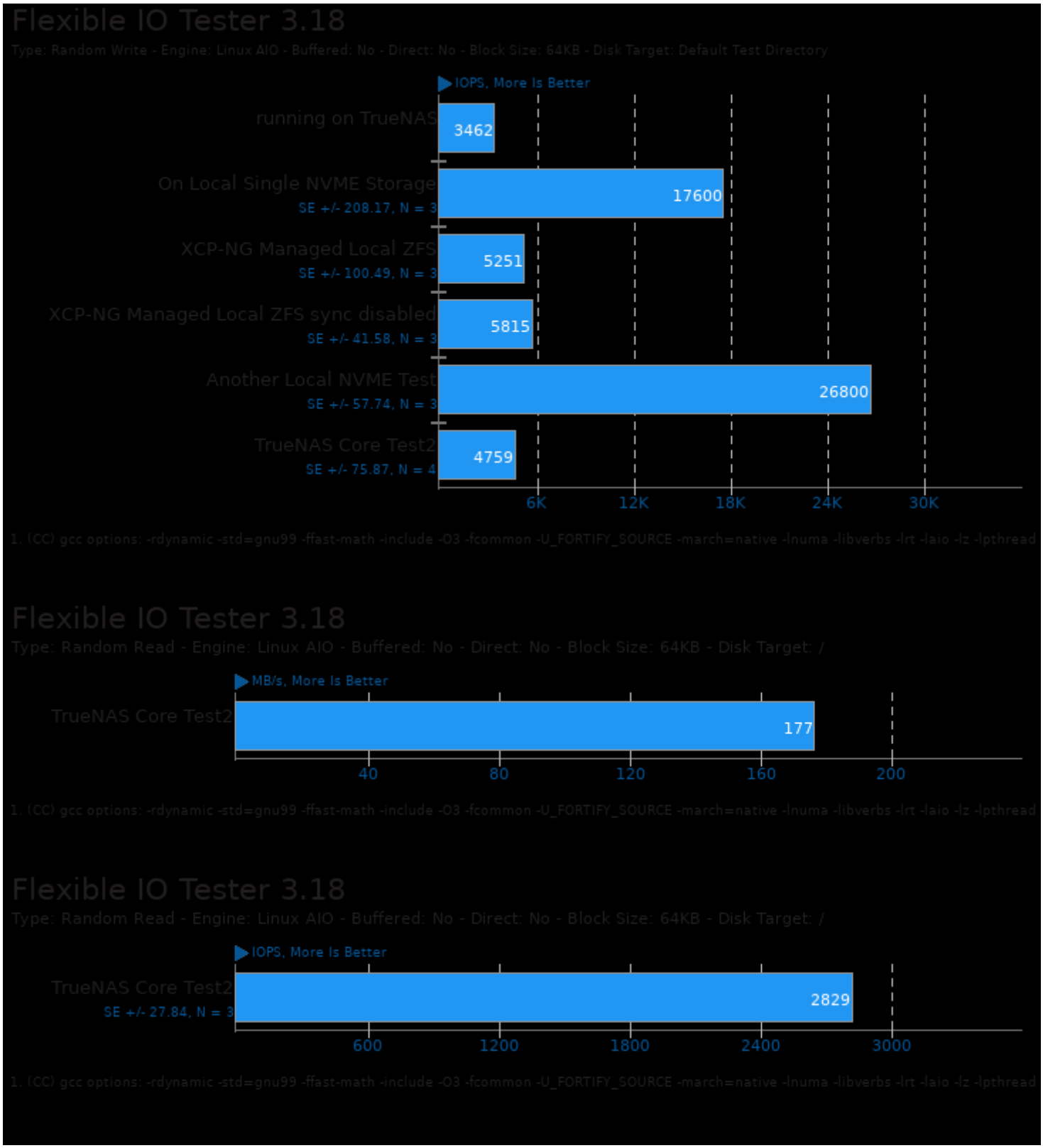
| | running on TrueNAS | On Local Single NVME Storage | XCP-NG Managed Local ZFS | XCP-NG Managed Local ZFS sync disabled | Another Local NVME Test | running on TrueNAS test2 | TrueNAS Core Test2 |
|---|---|---|---|---|---|---|---|
| **Flexible IO Tester - Rand Read - Linux AIO - No - No - 64KB (MB/s)** | 149 | 1813 | 699 | 710 | 1760 | 689 | 179 |
| **Normalized** | 8.22% | 100% | 38.55% | 39.16% | 97.08% | 38% | 9.87% |
| **Standard Deviation** | 1.7% | 2% | 3.5% | 2.7% | 0.9% | 112.6% | 1.2% |
| **Flexible IO Tester - Rand Read - Linux AIO - No - No - 64KB (IOPS)** | 2379 | 29000 | 11186 | 11333 | 28167 | 11012 | 2864 |
| **Normalized** | 8.2% | 100% | 38.57% | 39.08% | 97.13% | 37.97% | 9.88% |
| **Standard Deviation** | 1.7% | 2.1% | 3.4% | 2.8% | 0.9% | 112.6% | 1.2% |
| **Flexible IO Tester - Rand Write - Linux AIO - No - No - 64KB (MB/s)** | 217 | 1101 | 328 | 364 | 1675 | | 298 |
| **Normalized** | 12.96% | 65.73% | 19.58% | 21.73% | 100% | | 17.79% |
| **Standard Deviation** | | 2.1% | 3.4% | | 0.3% | | 3.2% |

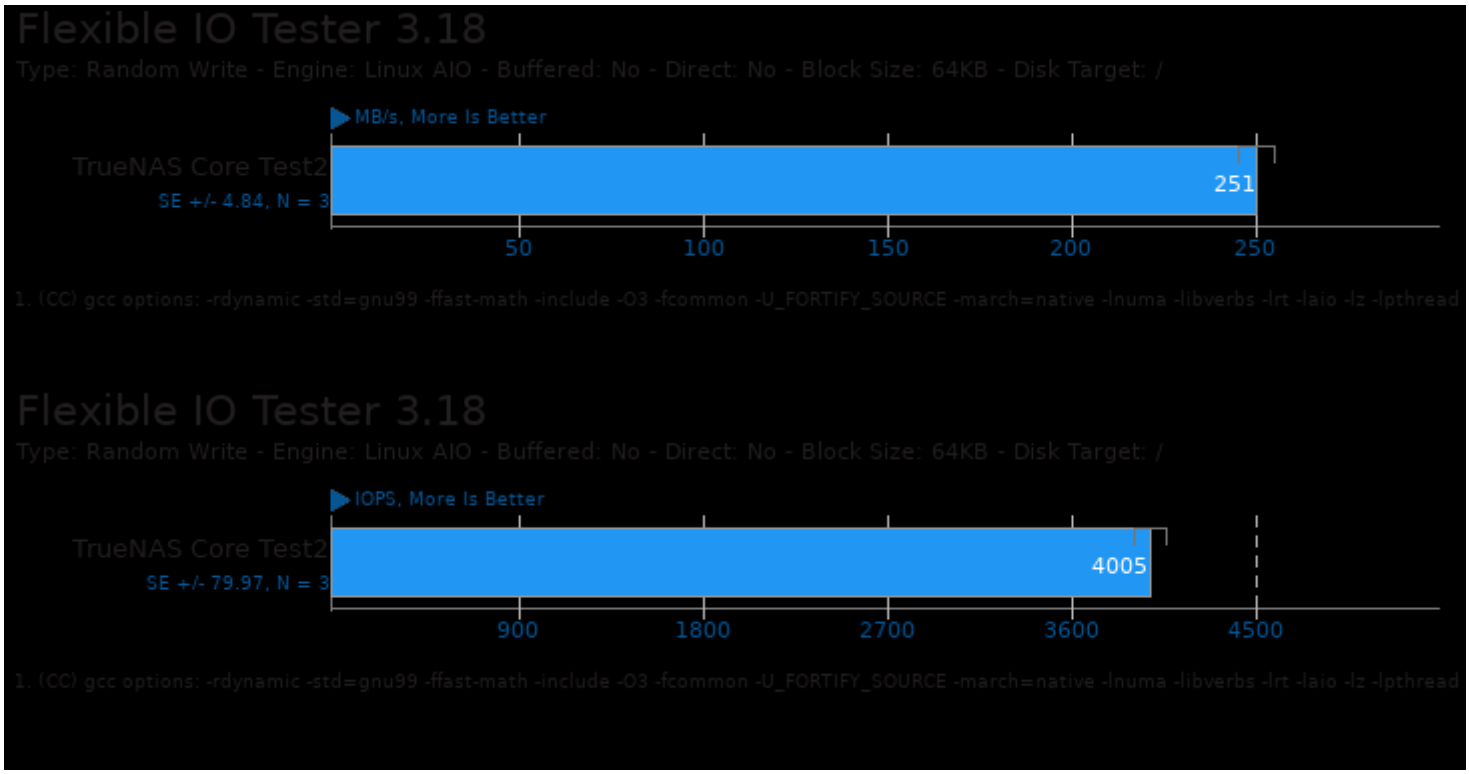
| | | | | | | |
|---|---|---|---|---|---|---|
| **Flexible IO Tester - Rand Write - Linux AIO - No - No - 64KB (IOPS)** | **3462** | 17600 | 5251 | 5815 | **26800** | 4759 |
| **Normalized** | 12.92% | 65.67% | 19.59% | 21.7% | 100% | 17.76% |
| **Standard Deviation** | | 2% | 3.3% | 1.2% | 0.4% | 3.2% |
| **Flexible IO Tester - Rand Read - Linux AIO - No - No - 64KB - / (MB/s)** | | | | | | 177 |
| **Flexible IO Tester - Rand Read - Linux AIO - No - No - 64KB - / (IOPS)** | | | | | | 2829 |
| **Standard Deviation** | | | | | | 1.7% |
| **Flexible IO Tester - Rand Write - Linux AIO - No - No - 64KB - / (MB/s)** | | | | | | 251 |
| **Standard Deviation** | | | | | | 3.3% |
| **Flexible IO Tester - Rand Write - Linux AIO - No - No - 64KB - / (IOPS)** | | | | | | 4005 |
| **Standard Deviation** | | | | | | 3.5% |


Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
running on TrueNAS
SE +/- 1.45, N = 3
149
On Local Single NVME Storage
SE +/- 20.46, N = 3
1813
XCP-NG Managed Local ZFS
SE +/- 9.18, N = 7
699
XCP-NG Managed Local ZFS sync disabled
SE +/- 10.93, N = 3
710
Another Local NVME Test
SE +/- 8.66, N = 3
1760
running on TrueNAS test2
SE +/- 223.91, N = 12
689
TrueNAS Core Test2
SE +/- 1.20, N = 3
179
400
800
1200
1600
2000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lnuma -libverbs -lrt -laio -lz -lpthread


Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
IOPS, More Is Better
running on TrueNAS
SE +/- 23.21, N = 3
2379
On Local Single NVME Storage
SE +/- 351.19, N = 3
29000
XCP-NG Managed Local ZFS
SE +/- 143.81, N = 7
11186
XCP-NG Managed Local ZFS sync disabled
SE +/- 185.59, N = 3
11333
Another Local NVME Test
SE +/- 145.30, N = 3
28167
running on TrueNAS test2
SE +/- 3580.13, N = 12
11012
TrueNAS Core Test2
SE +/- 19.77, N = 3
2864
6K
12K
18K
24K
30K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lnuma -libverbs -lrt -laio -lz -lpthread


Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
running on TrueNAS
217
On Local Single NVME Storage
SE +/- 13.53, N = 3
1101
XCP-NG Managed Local ZFS
SE +/- 6.44, N = 3
328
XCP-NG Managed Local ZFS sync disabled
364
Another Local NVME Test
SE +/- 3.06, N = 3
1675
TrueNAS Core Test2
SE +/- 4.77, N = 4
298
400
800
1200
1600
2000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lnuma -libverbs -lrt -laio -lz -lpthread


Flexible IO Tester 3.18
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
IOPS, More Is Better
running on TrueNAS
3462
On Local Single NVME Storage
SE +/- 208.17, N = 3
17600
XCP-NG Managed Local ZFS
SE +/- 100.49, N = 3
5251
XCP-NG Managed Local ZFS sync disabled
SE +/- 41.58, N = 3
5815
Another Local NVME Test
SE +/- 57.74, N = 3
26800
TrueNAS Core Test2
SE +/- 75.87, N = 4
4759
6K
12K
18K
24K
30K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lnuma -libverbs -lrt -laio -lz -lpthread
Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: /
MB/s, More Is Better
TrueNAS Core Test2
177
40
80
120
160
200
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lnuma -libverbs -lrt -laio -lz -lpthread
Flexible IO Tester 3.18
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: /
IOPS, More Is Better
TrueNAS Core Test2
SE +/- 27.84, N = 3
2829
600
1200
1800
2400
3000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native -lnuma -libverbs -lrt -laio -lz -lpthread




*This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 18:34.*