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m750_samsung_mixed_use_ssd

Intel Xeon E-2286M testing with a HPE ProLiant m750 Server Blade (H09 BIOS) and Intel UHD 630 on CentOS Linux 8 via the Phoronix Test Suite.

Test Systems:

m750_samsung_mixed_use_ssd

Processor: Intel Xeon E-2286M (8 Cores / 16 Threads), Motherboard: HPE ProLiant m750 Server Blade (H09 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 32GB, Disk: 960GB SAMSUNG MZ1LB960HAJQ-00007, Graphics: Intel UHD 630, Network: 2 x Mellanox MT27710

OS: CentOS Linux 8, Kernel: 4.18.0-147.8.1.el8_1.x86_64 (x86_64), Compiler: GCC 8.3.1 20190507, File-System: xfs, Screen Resolution: 1024x768

Compiler Notes: --build=x86_64-redhat-linux --disable-libmpx --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,lto --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Disk Notes: NONE / attr2,inode64,noquota,relatime,rw,seclabel

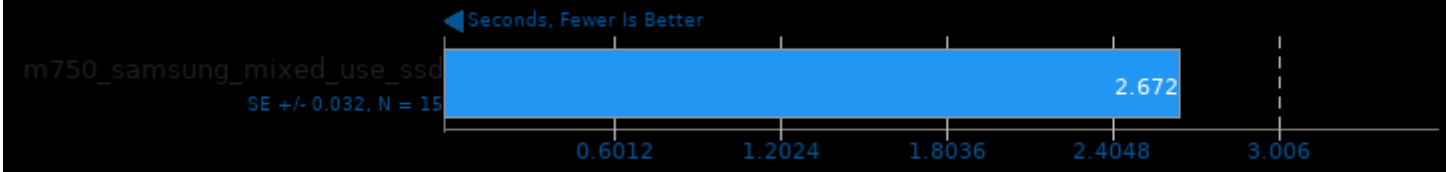
m750_samsung_mixed_use_ssd

Processor Notes: CPU Microcode: 0xca
Security Notes: SELinux + itlb_multihit: KVM: Mitigation of Split huge pages + 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 + tsx_async_abort: Mitigation of Clear buffers; SMT vulnerable

	m750_samsung_mixed_use_ssd
SQLite - 8 (sec)	2.672
Standard Deviation	4.7%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 4KB (MB/s)	1379
Standard Deviation	0.2%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 4KB (IOPS)	353000
Standard Deviation	0.3%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 64KB (MB/s)	1545
Standard Deviation	0.4%
Flexible IO Tester - Seq Read - Linux AIO - No - No - 64KB (IOPS)	24700
Standard Deviation	0.4%
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 4KB (MB/s)	1443
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 4KB (IOPS)	369333
Standard Deviation	0.2%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 4KB (MB/s)	1122
Standard Deviation	0.1%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 4KB (IOPS)	287000
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 64KB (MB/s)	1386
Standard Deviation	0.2%
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 64KB (IOPS)	22167
Standard Deviation	0.3%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 64KB (MB/s)	1199
Standard Deviation	1.3%
Flexible IO Tester - Seq Write - Linux AIO - No - No - 64KB (IOPS)	19167
Standard Deviation	1.5%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 4KB (MB/s)	1079
Standard Deviation	0.2%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 4KB (IOPS)	276333
Standard Deviation	0.2%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 64KB (MB/s)	2229
Standard Deviation	0.4%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 64KB (IOPS)	35633
Standard Deviation	0.4%
IOzone - 4Kb - 4GB - Read Performance (MB/s)	7268
Standard Deviation	0.5%
IOzone - 4Kb - 4GB - Write Performance (MB/s)	1022
Standard Deviation	0.2%
IOzone - 64Kb - 4GB - Read Performance (MB/s)	12565
Standard Deviation	1%
IOzone - 64Kb - 4GB - Write Performance (MB/s)	1076
Standard Deviation	0.4%
SciMark - F.F.T (Mflops)	363.19
Standard Deviation	2.3%
SciMark - S.M.M (Mflops)	844.29
Standard Deviation	0.1%

SQLite 3.30.1

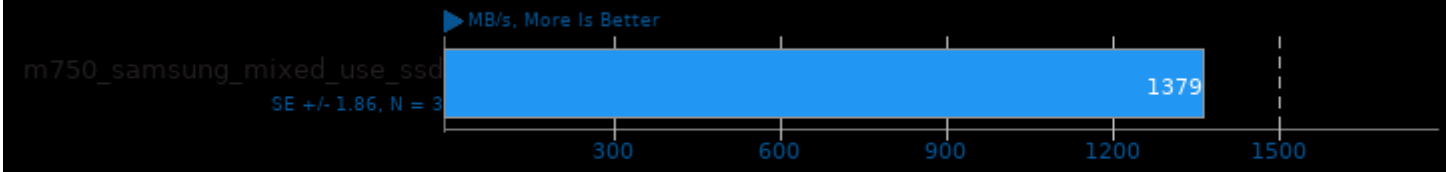
Threads / Copies: 8



1. (CC) gcc options: -O2 -lm -ldl -lpthread

Flexible IO Tester 3.18

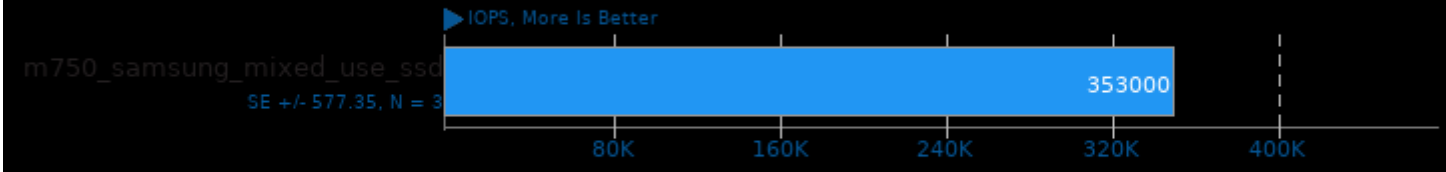
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory



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

Flexible IO Tester 3.18

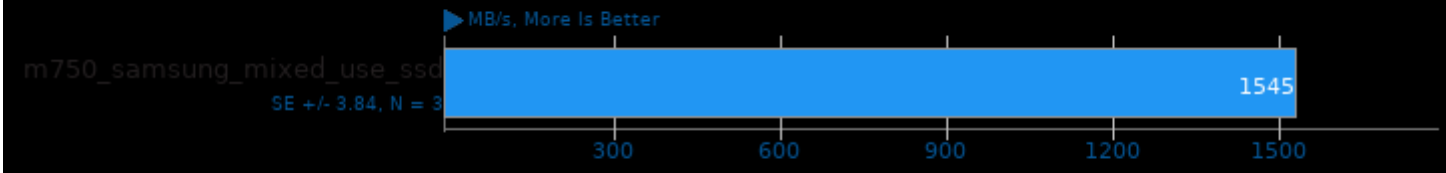
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory



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

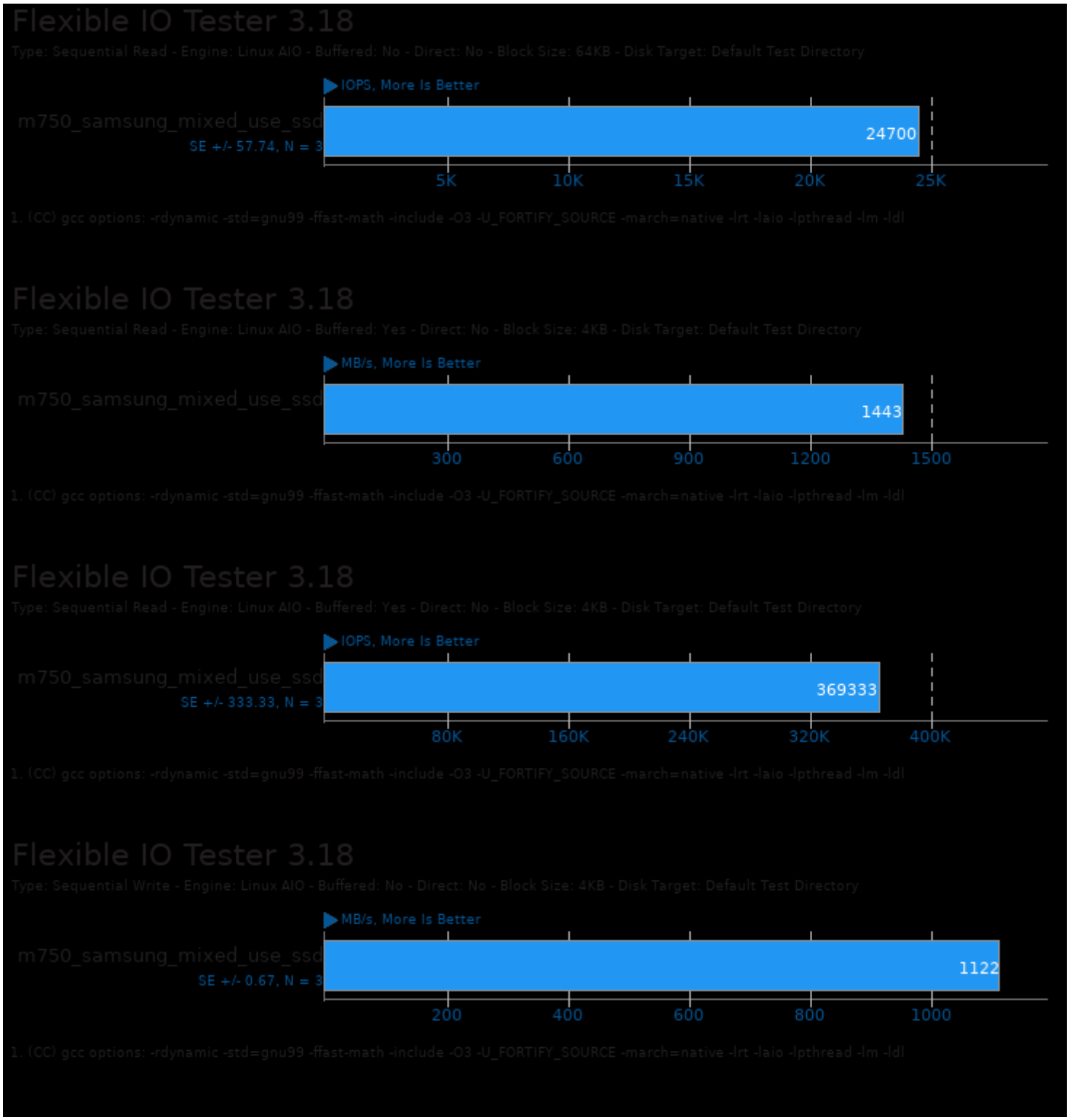
Flexible IO Tester 3.18

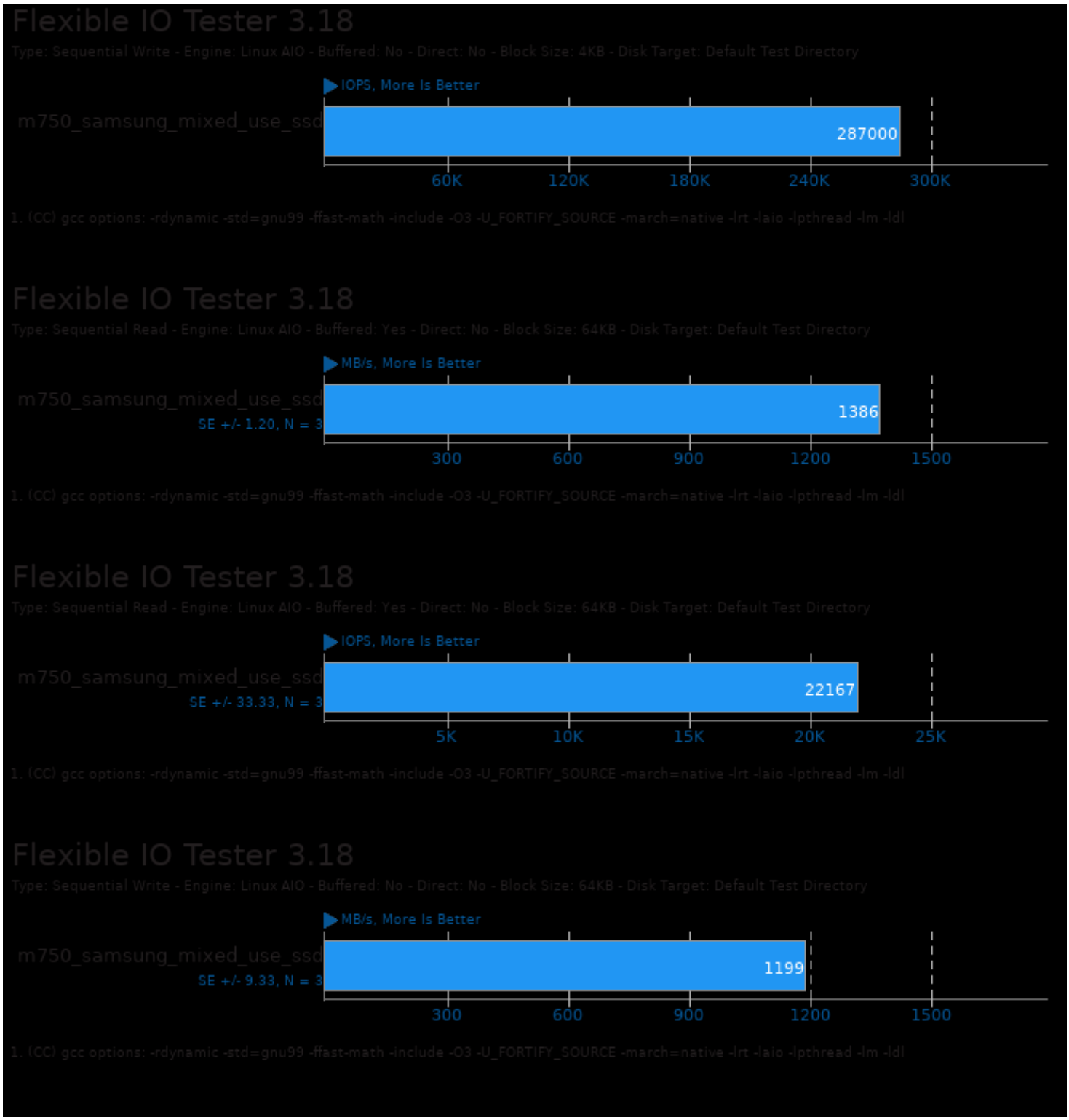
Type: Sequential Read - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory

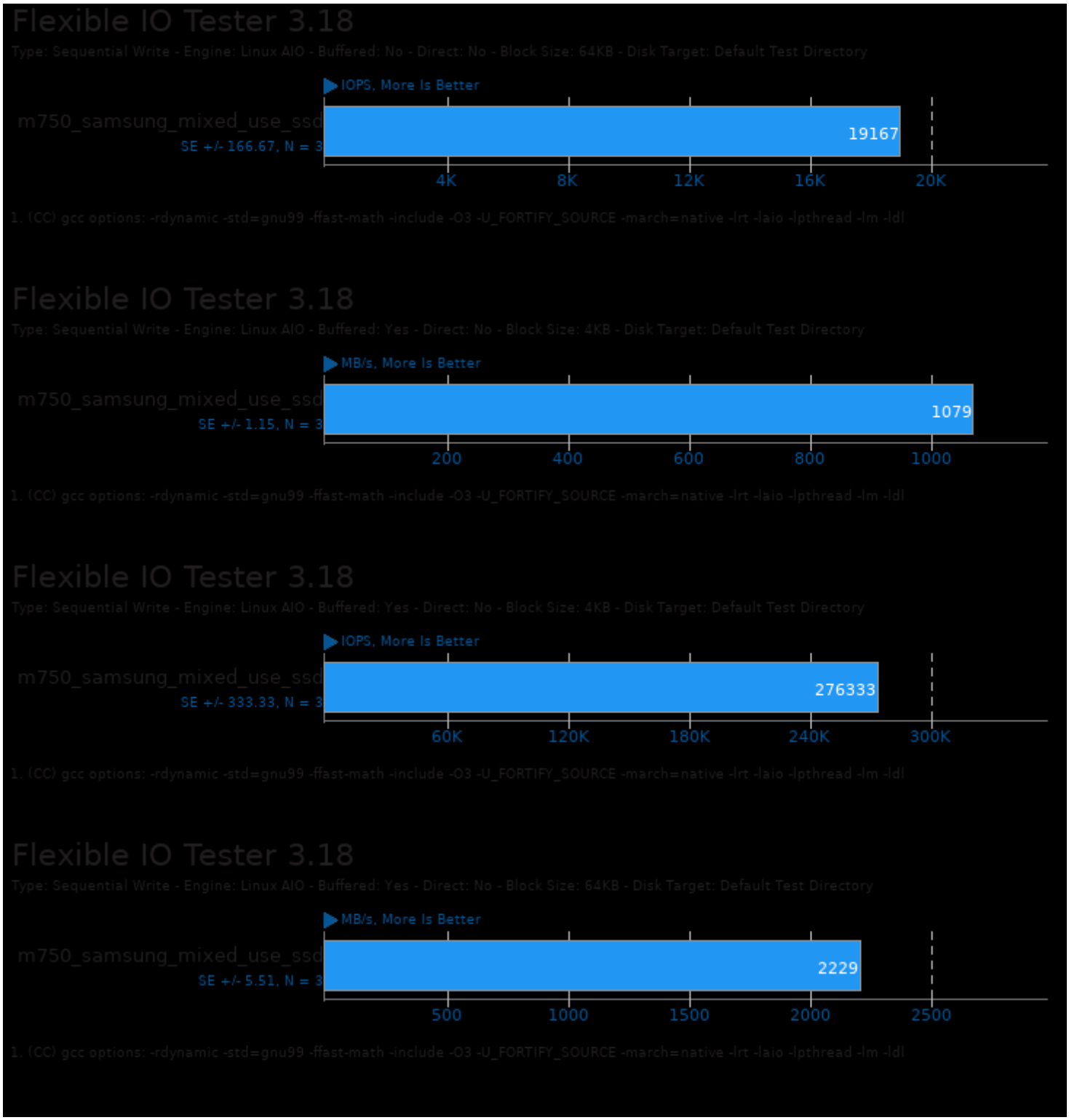


1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

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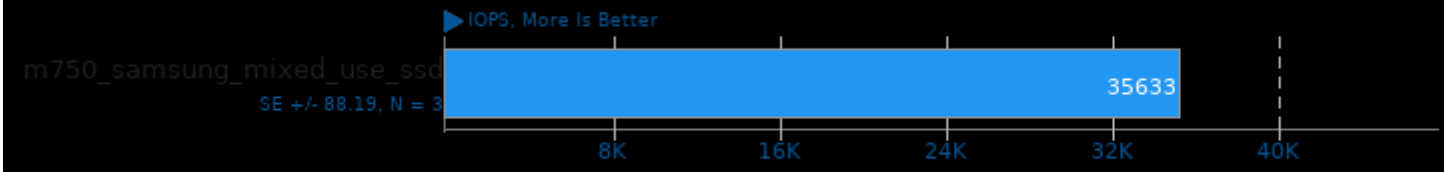

Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
m750_samsung_mixed_use_ssd
287000
60K
120K
180K
240K
300K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
m750_samsung_mixed_use_ssd
SE +/- 1.20, N = 3
1386
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Sequential Read - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
IOPS, More Is Better
m750_samsung_mixed_use_ssd
SE +/- 33.33, N = 3
22167
5K
10K
15K
20K
25K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
m750_samsung_mixed_use_ssd
SE +/- 9.33, N = 3
1199
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl


Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: No - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
IOPS, More Is Better
m750_samsung_mixed_use_ssd
SE +/- 166.67, N = 3
19167
4K
8K
12K
16K
20K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
m750_samsung_mixed_use_ssd
SE +/- 1.15, N = 3
1079
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
m750_samsung_mixed_use_ssd
SE +/- 333.33, N = 3
276333
60K
120K
180K
240K
300K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl
Flexible IO Tester 3.18
Type: Sequential Write - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory
MB/s, More Is Better
m750_samsung_mixed_use_ssd
SE +/- 5.51, N = 3
2229
500
1000
1500
2000
2500
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -lrt -laio -lpthread -lm -ldl

m750_samsung_mixed_use_ssd

Flexible IO Tester 3.18

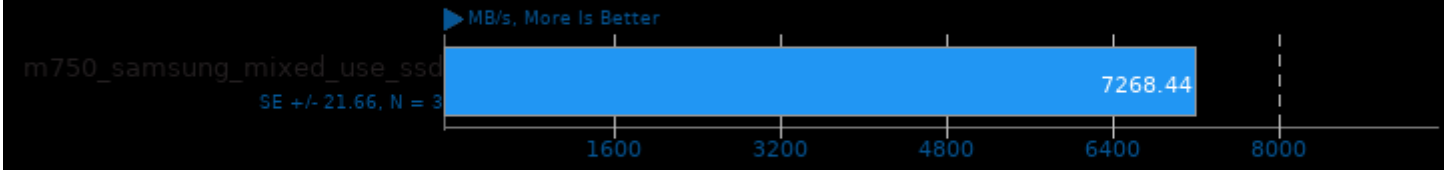
Type: Sequential Write - Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 64KB - Disk Target: Default Test Directory



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

IOzone 3.465

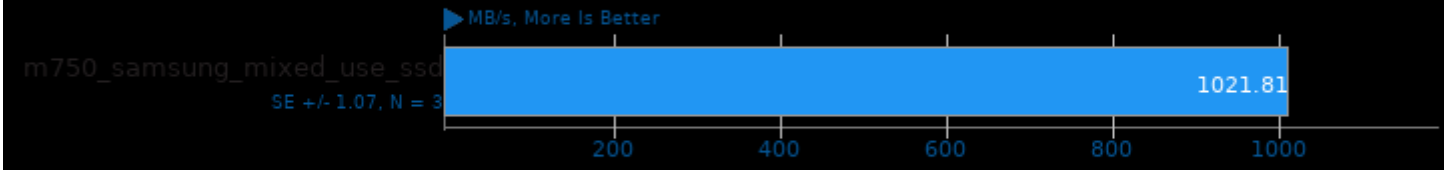
Record Size: 4Kb - File Size: 4GB - Disk Test: Read Performance



1. (CC) gcc options: -O3

IOzone 3.465

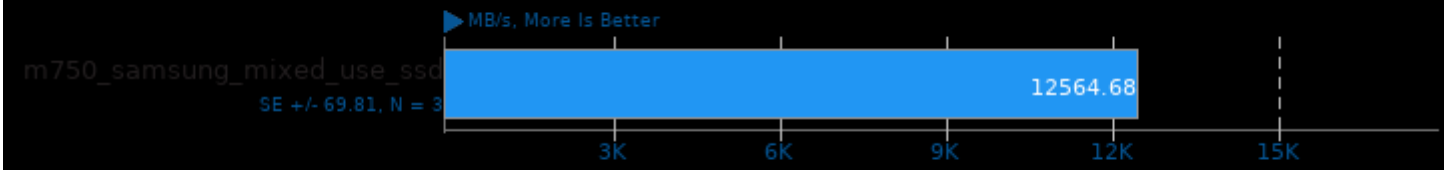
Record Size: 4Kb - File Size: 4GB - Disk Test: Write Performance



1. (CC) gcc options: -O3

IOzone 3.465

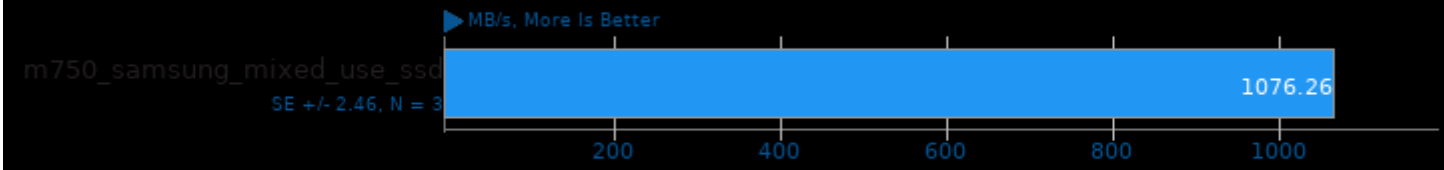
Record Size: 64Kb - File Size: 4GB - Disk Test: Read Performance



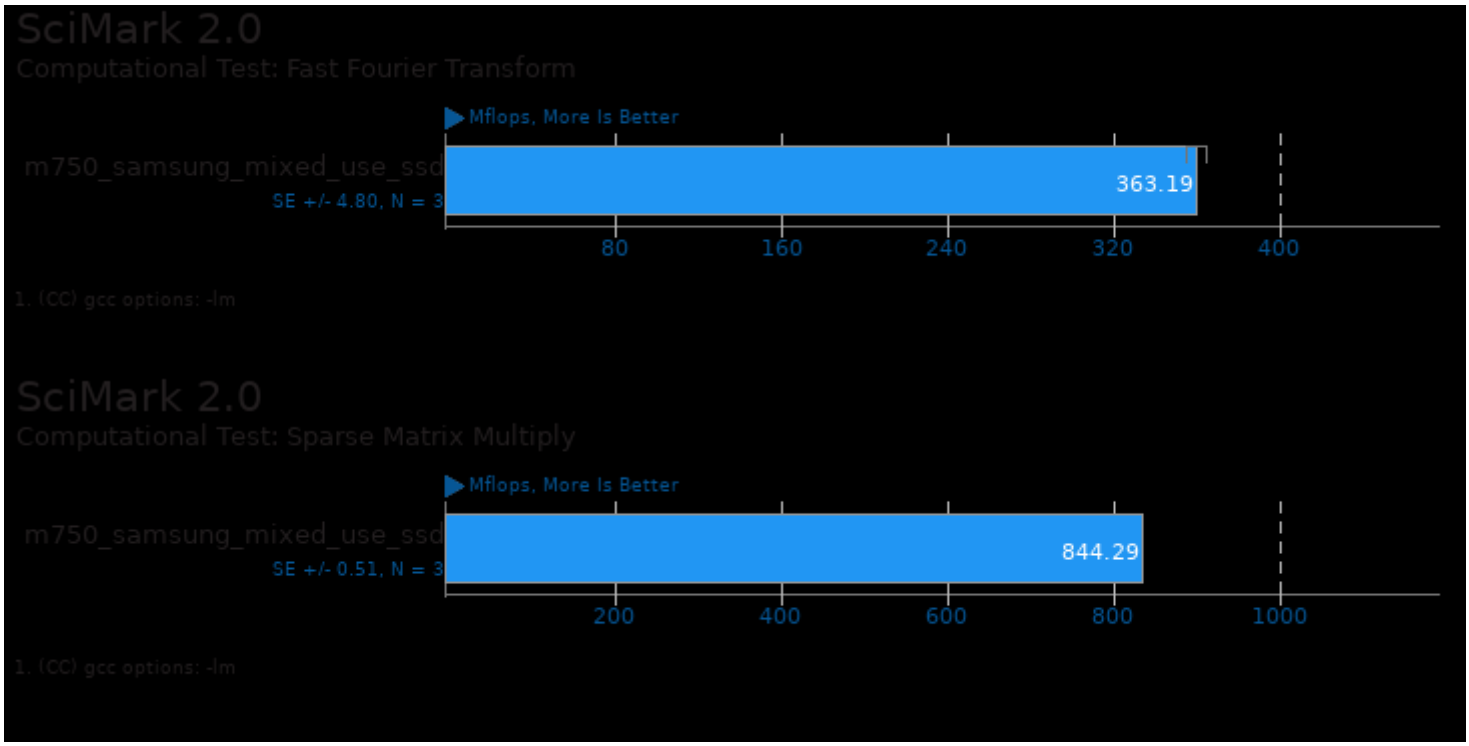
1. (CC) gcc options: -O3

IOzone 3.465

Record Size: 64Kb - File Size: 4GB - Disk Test: Write Performance



1. (CC) gcc options: -O3



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