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# Btrfs  LUKS HDD benchmarking under Debian Testing.

Btrfs + LUKS HDD benchmarking under Debian Testing.

**Automated Executive Summary**

*All 3 HDDs: LUKS, M RAID1C3, D RAID0 had the most wins, coming in first place for 41% of the tests.*

*Based on the geometric mean of all complete results, the fastest (All 3 HDDs: LUKS, M RAID1C3, D RAID0) was 2.18x the speed of the slowest (All 3 HDDs: LUKS, M RAID1C3, D RAID5). WDC WD10PURX-64E5EY0: LUKS, M Dup, D Single was 0.922x the speed of ST1000DM003-1CH162: LUKS, M Dup, D Single, WDC WD10EADS-00L5B1: LUKS, M Dup, D Single was 0.744x the speed of WDC WD10PURX-64E5EY0: LUKS, M Dup, D Single, All 3 HDDs: LUKS, M RAID1C3, D RAID1C3 was 1.013x the speed of WDC WD10EADS-00L5B1: LUKS, M Dup, D Single, All 3 HDDs: LUKS, M RAID1C3, D RAID5 was 0.75x the speed of All 3 HDDs: LUKS, M RAID1C3, D RAID1C3, All 3 HDDs: LUKS, M RAID1C3, D RAID0 was 2.18x the speed of All 3 HDDs: LUKS, M RAID1C3, D RAID5, All 3 HDDs: LUKS, M Dup, D Single was 0.895x the speed of All 3 HDDs: LUKS, M RAID1C3, D RAID0, All 3 HDDs: LUKS, M RAID1, D RAID1 was 0.826x the speed of All 3 HDDs: LUKS, M Dup, D Single, All 3 HDDs: LUKS, M Single, D Single was 1.236x the speed of All 3 HDDs: LUKS, M RAID1, D RAID1, All 3 HDDs: LUKS, M RAID1C3, D RAID1 was 0.812x the speed of All 3 HDDs: LUKS, M Single, D Single, All 3 HDDs: LUKS, M RAID1C3, D Single was 1.226x the speed of All 3 HDDs: LUKS, M RAID1C3, D RAID1.*

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

*Flexible IO Tester (Type: Sequential Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory) at 9.045x*
*Flexible IO Tester (Type: Sequential Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory) at 8.933x*
*Flexible IO Tester (Type: Sequential Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory) at 8.114x*
*Flexible IO Tester (Type: Sequential Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory) at 7.914x*
*Flexible IO Tester (Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory) at 3.18x*
*Flexible IO Tester (Type: Sequential Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory) at 3.092x*
*Flexible IO Tester (Type: Sequential Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory) at 3.087x*
*Flexible IO Tester (Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory) at 2.961x*
*Flexible IO Tester (Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory) at 2.933x*
*Flexible IO Tester (Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory) at 1.691x.*

# Test Systems:

### ST1000DM003-1CH162: LUKS, M Dup, D Single

### WDC WD10PURX-64E5EY0: LUKS, M Dup, D Single

### WDC WD10EADS-00L5B1: LUKS, M Dup, D Single

### All 3 HDDs: LUKS, M RAID1C3, D RAID1C3

### All 3 HDDs: LUKS, M RAID1C3, D RAID5

### All 3 HDDs: LUKS, M RAID1C3, D RAID0

### All 3 HDDs: LUKS, M Dup, D Single

### All 3 HDDs: LUKS, M RAID1, D RAID1

### All 3 HDDs: LUKS, M Single, D Single

### All 3 HDDs: LUKS, M RAID1C3, D RAID1

### All 3 HDDs: LUKS, M RAID1C3, D Single

Processor: Intel Xeon E5-2697 v2 @ 3.50GHz (12 Cores / 24 Threads), Motherboard: HP 1589 (J61 v03.96 BIOS), Chipset: Intel Xeon E7 v2/Xeon, Memory: 64GB, Disk: 512GB Sabrent + 3001GB Western Digital WD30PURX-64P + 14001GB TOSHIBA MG07ACA1 + 8002GB Seagate ST8000NM0055-1RM + 1000GB Western Digital WD10EADS-00L + 3001GB Western Digital WD30EURS-73T + 2 x 4001GB Western Digital WD40PURZ-85T + 1000GB Seagate ST1000DM003-1CH1 + 1000GB Western Digital WD10PURX-64E, Graphics: NVIDIA Quadro K2000 1GB, Audio: Realtek ALC262, Monitor: HP ZR2330w + SAMSUNG, Network: Intel 82579LM + Qualcomm Atheros AR93xx

OS: Debian testing, Kernel: 5.10.0-5-amd64 (x86_64), Desktop: KDE Plasma 5.20.5, Display Server: X Server 1.20.10, Display Driver: nouveau, OpenGL: 3.3 Mesa 20.3.4 (LLVM 11.0.1), Vulkan: 1.0.2, Compiler: GCC 10.2.1 20210110, File-System: btrfs, Screen Resolution: 3840x1080

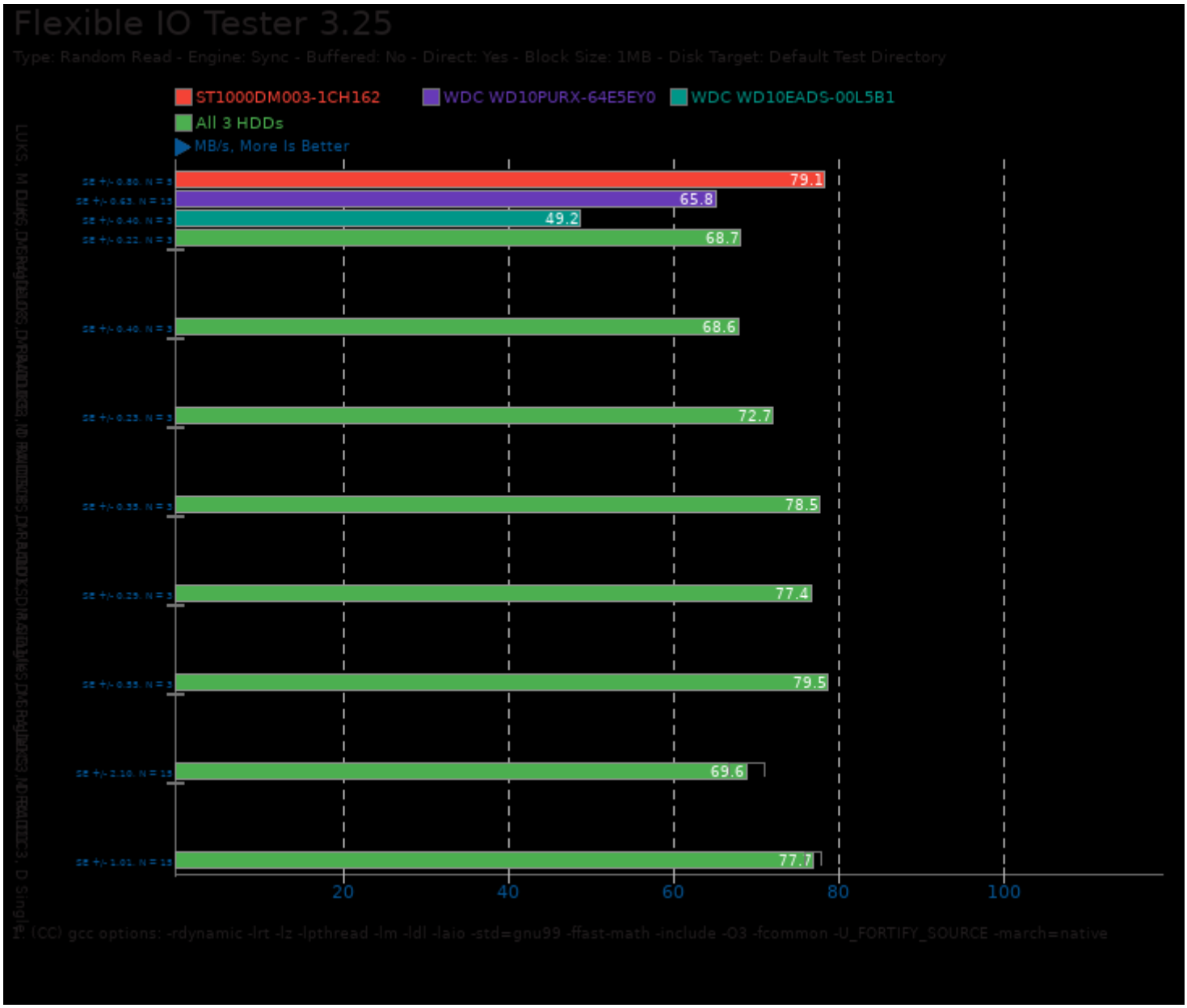
Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --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: NONE / relatime,rw,space_cache,subvol=/,subvolid=5 / Block Size: 4096
Processor Notes: Scaling Governor: intel_cpufreq schedutil - CPU Microcode: 0x42e
Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Mitigation of PTE Inversion; VMX: conditional cache flushes SMT vulnerable + mds: Mitigation of Clear buffers; SMT vulnerable + 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: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

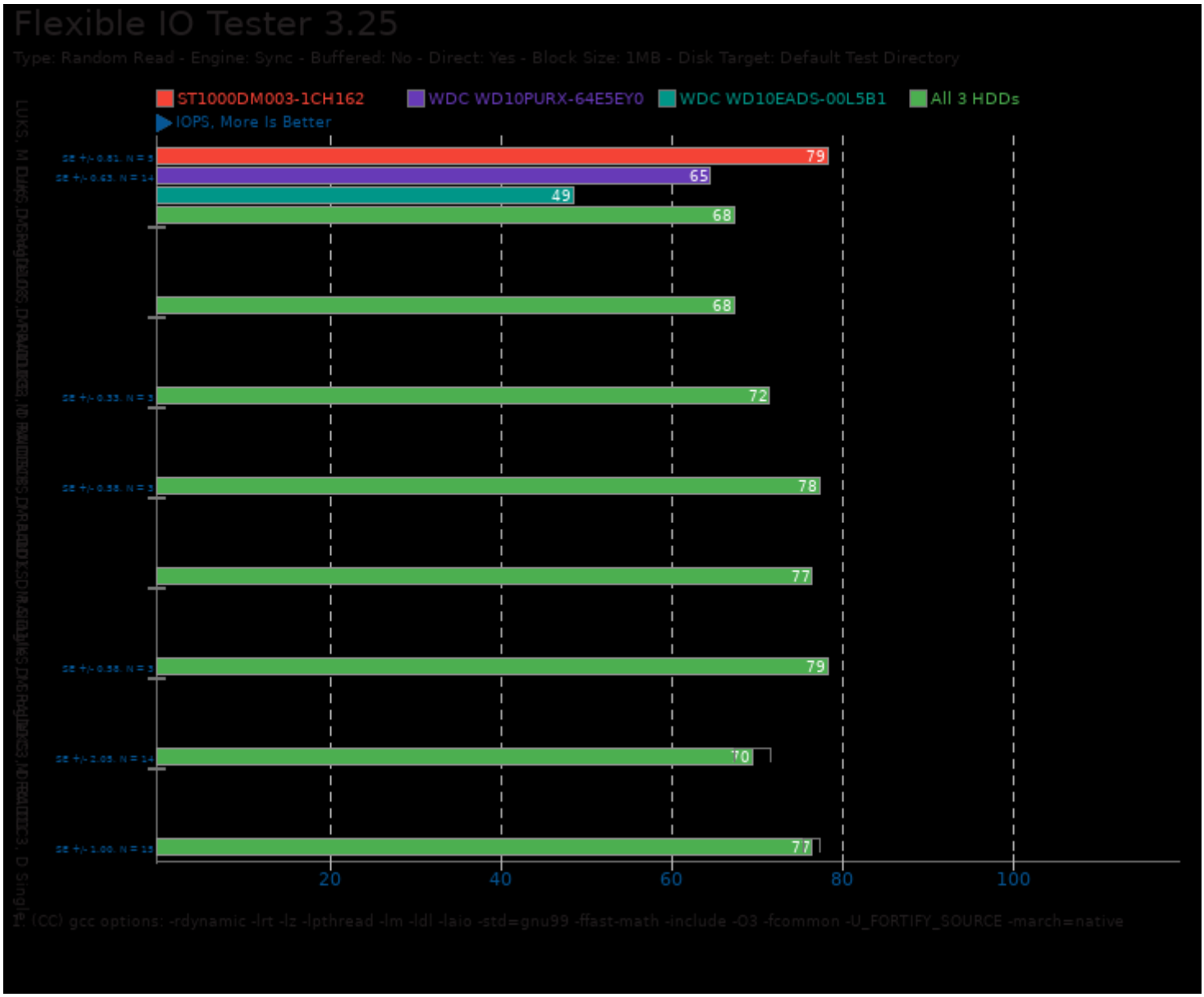
| | ST1000 DM003-1CH162: LUKS, M Dup, D Single | WDC WD10PURX-64E5EY0: LUKS, M Dup, D Single | WDC WD10EADS-00L5B1: LUKS, M Dup, D Single | All 3 HDDs: LUKS, M RAID1C3, D RAID1C | All 3 HDDs: LUKS, M RAID1C3, D RAID5 | All 3 HDDs: LUKS, M RAID1C3, D RAID0 | All 3 HDDs: LUKS, M Dup, D Single | All 3 HDDs: LUKS, M RAID1, D RAID1 | All 3 HDDs: LUKS, M Single, D Single | All 3 HDDs: LUKS, M RAID1C3, D RAID1 | All 3 HDDs: LUKS, M RAID1C3, D Single |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Flexible IO Tester - Rand Read - Sync - No - Yes - 1MB (MB/s)** | 79.1 | 65.8 | **49.2** | 68.6 | 72.7 | 78.5 | 68.7 | 77.4 | **79.5** | 69.6 | 77.7 |
| **Normalized** | 99.5% | 82.77% | 61.89% | 86.29% | 91.45% | 98.74% | 86.42% | 97.36% | 100% | 87.55% | 97.74% |
| **Standard Deviation** | 2.3% | 3.7% | 1.4% | 1% | 0.6% | 0.8% | 0.6% | 0.7% | 1.2% | 11.7% | 5% |
| **Flexible IO Tester - Rand Read - Sync - No - Yes - 1MB (IOPS)** | **79** | 65 | **49** | 68 | 72 | 78 | 68 | 77 | **79** | 70 | 77 |
| **Normalized** | 100% | 82.28% | 62.03% | 86.08% | 91.14% | 98.73% | 86.08% | 97.47% | 100% | 88.61% | 97.47% |
| **Standard Deviation** | 2.3% | 3.6% | | | 0.8% | 1.3% | | | 1.3% | 11% | 5% |

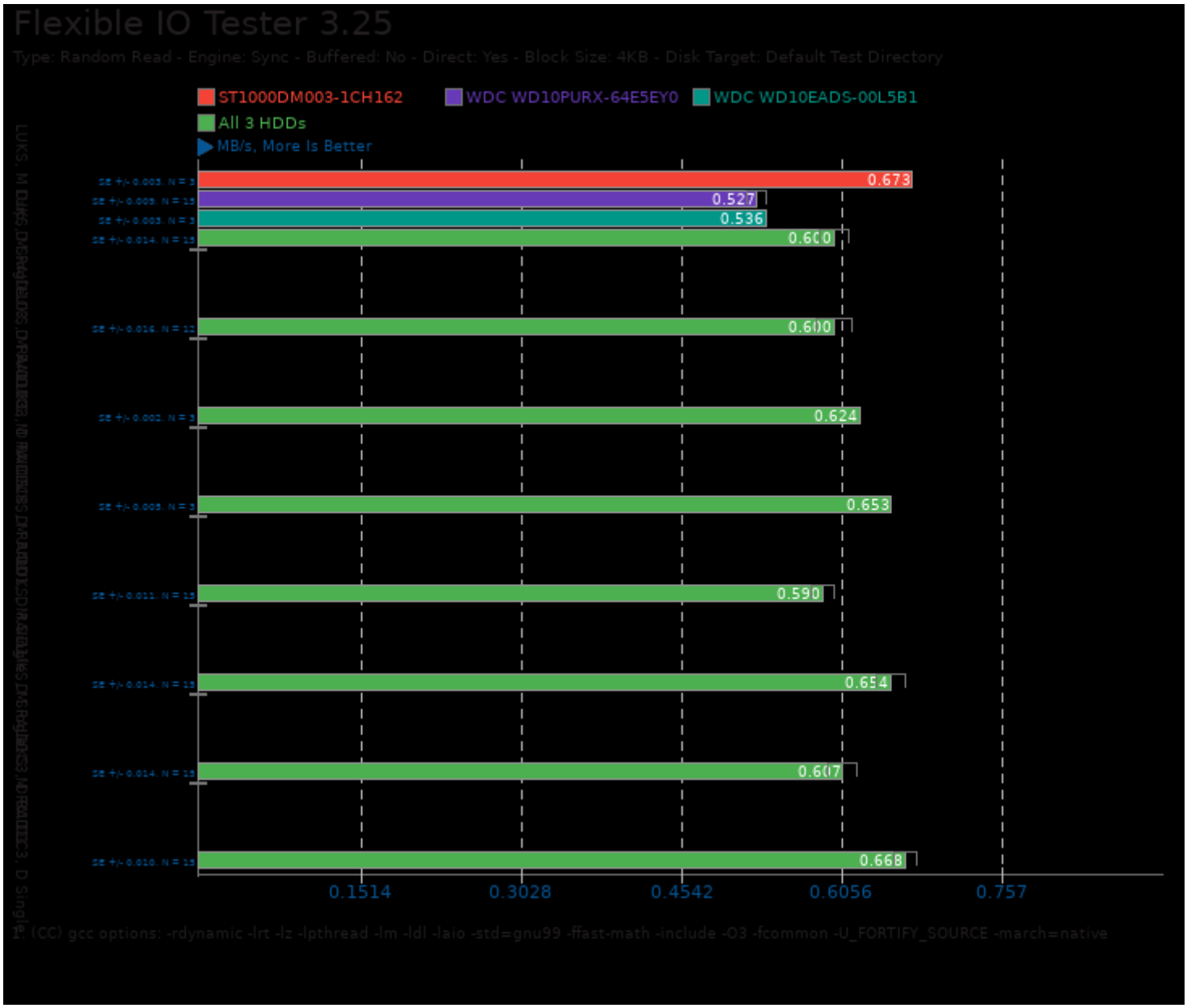
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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Flexible IO Tester - Rand Read - Sync - No - Yes - 4KB (MB/s)** | **0.673** | **0.527** | 0.536 | 0.600 | 0.624 | 0.653 | 0.600 | 0.590 | 0.654 | 0.607 | 0.668 |
| **Normalized** | 100% | 78.31% | 79.64% | 89.15% | 92.72% | 97.03% | 89.15% | 87.67% | 97.18% | 90.19% | 99.26% |
| **Standard Deviation** | 0.9% | 6.8% | 1.1% | 9.4% | 0.4% | 1.3% | 8.9% | 7% | 8.4% | 9% | 6% |
| **Flexible IO Tester - Rand Read - Sync - No - Yes - 4KB (IOPS)** | **168** | **131** | 134 | 149 | 156 | 163 | 149 | 147 | 163 | 151 | 166 |
| **Normalized** | 100% | 77.98% | 79.76% | 88.69% | 92.86% | 97.02% | 88.69% | 87.5% | 97.02% | 89.88% | 98.81% |
| **Standard Deviation** | 1% | 6.9% | | 9.4% | | 1.2% | 9.1% | 7.1% | 8.4% | 9.1% | 6% |
| **Flexible IO Tester - Rand Read - Sync - No - Yes - 64KB (MB/s)** | **9.865** | 7.877 | 7.786 | 8.724 | 9.081 | **7.548** | 8.531 | 8.762 | 9.860 | 9.407 | 9.505 |
| **Normalized** | 100% | 79.85% | 78.93% | 88.43% | 92.05% | 76.51% | 86.48% | 88.82% | 99.95% | 95.36% | 96.35% |
| **Standard Deviation** | 1.6% | 6.3% | 2.3% | 7.6% | 2.3% | 1.2% | 11.3% | 8.9% | 4.6% | 1.2% | 7.6% |
| **Flexible IO Tester - Rand Read - Sync - No - Yes - 64KB (IOPS)** | 155 | 122 | 121 | 136 | 141 | **117** | 133 | 136 | **156** | 146 | 150 |
| **Normalized** | 99.36% | 78.21% | 77.56% | 87.18% | 90.38% | 75% | 85.26% | 87.18% | 100% | 93.59% | 96.15% |
| **Standard Deviation** | 2.3% | 6.3% | 2.2% | 8.1% | 2.1% | 1.3% | 12% | 9% | 5.3% | | 8.5% |
| **Flexible IO Tester - Rand Write - Sync - No - Yes - 1MB (MB/s)** | 151 | 106 | 67.0 | **61.7** | 135 | **198** | 140 | 91.2 | 155 | 89.6 | 152 |
| **Normalized** | 76.26% | 53.54% | 33.84% | 31.16% | 68.18% | 100% | 70.71% | 46.06% | 78.28% | 45.25% | 76.77% |
| **Standard Deviation** | 4.3% | | 2.4% | 2.4% | 6.5% | 2.3% | 11.2% | 8.2% | 2.4% | 8.3% | 6.4% |
| **Flexible IO Tester - Rand Write - Sync - No - Yes - 1MB (IOPS)** | 152 | 105 | 67 | **61** | 142 | **194** | 139 | 90 | 155 | 90 | 157 |
| **Normalized** | 78.35% | 54.12% | 34.54% | 31.44% | 73.2% | 100% | 71.65% | 46.39% | 79.9% | 46.39% | 80.93% |
| **Standard Deviation** | 3.2% | | 2.6% | 2.1% | 0.9% | | 12.2% | 7.9% | 2.3% | 8.4% | 2.8% |
| **Flexible IO Tester - Rand Write - Sync - No - Yes - 4KB (MB/s)** | 1.373 | 1.895 | 1.253 | 0.555 | **0.311** | **2.851** | 2.533 | 1.345 | 2.030 | 1.328 | 1.436 |
| **Normalized** | 48.16% | 66.47% | 43.95% | 19.47% | 10.91% | 100% | 88.85% | 47.18% | 71.2% | 46.58% | 50.37% |
| **Standard Deviation** | 1.5% | 4.8% | 2.6% | 34.6% | 2.7% | 17% | 1.4% | 0.7% | 26.3% | 0.4% | 27% |
| **Flexible IO Tester - Rand Write - Sync - No - Yes - 4KB (IOPS)** | 343 | 473 | 313 | 138 | **77** | **712** | 633 | 336 | 507 | 331 | 358 |
| **Normalized** | 48.17% | 66.43% | 43.96% | 19.38% | 10.81% | 100% | 88.9% | 47.19% | 71.21% | 46.49% | 50.28% |
| **Standard Deviation** | 1.5% | 4.8% | 2.6% | 34.8% | 2.9% | 17% | 1.4% | | 26.3% | 0.5% | 27% |

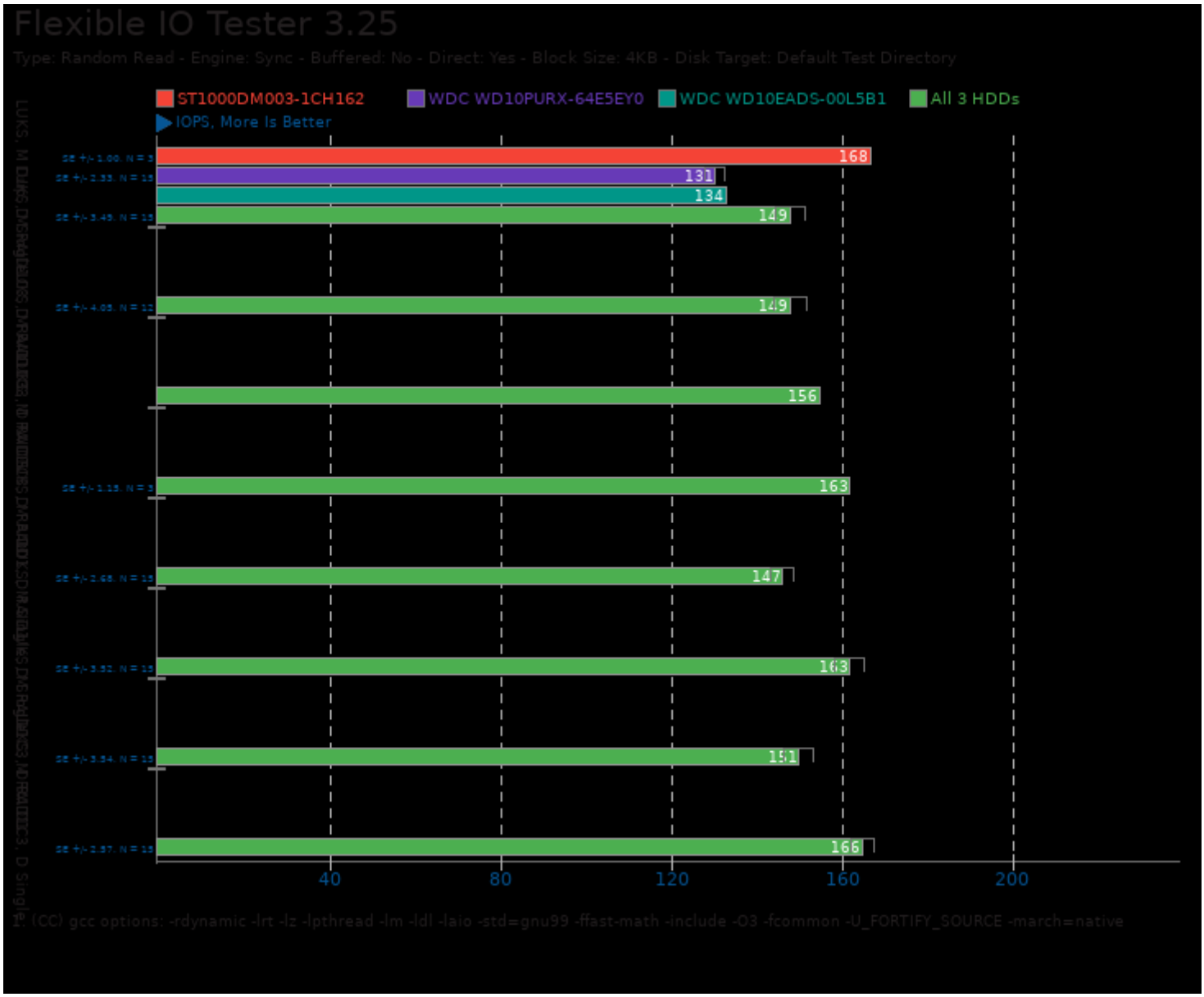
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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Flexible IO Tester - Rand Write - Sync - No - Yes - 64KB (MB/s)** | 19.8 | 25.2 | 16.4 | 14.390 | **6.512** | 21.2 | 26.4 | 19.0 | 18.0 | 18.7 | **26.5** |
| **Normalized** | 74.72% | 95.09% | 61.89% | 54.3% | 24.57% | 80% | 99.62% | 71.7% | 67.92% | 70.57% | 100% |
| **Standard Deviation** | 2% | 4.6% | 2.5% | 26.4% | 2.5% | 11.8% | 1.4% | 1.9% | 21.7% | 1.5% | 31.3% |
| **Flexible IO Tester - Rand Write - Sync - No - Yes - 64KB (IOPS)** | 316 | 405 | 262 | 229 | **101** | 338 | **428** | 304 | 290 | 299 | 424 |
| **Normalized** | 73.83% | 94.63% | 61.21% | 53.5% | 23.6% | 78.97% | 100% | 71.03% | 67.76% | 69.86% | 99.07% |
| **Standard Deviation** | 2.1% | 3.9% | 2.4% | 26.8% | 2.6% | 11.8% | 0.7% | 1.7% | 21.5% | 1.3% | 30.9% |
| **Flexible IO Tester - Seq Read - Sync - No - Yes - 1MB (MB/s)** | 177 | 153 | **89.5** | 133.5 | 181 | **265** | 154 | 144 | 169 | 146 | 161 |
| **Normalized** | 66.79% | 57.74% | 33.77% | 50.38% | 68.3% | 100% | 58.11% | 54.34% | 63.77% | 55.09% | 60.75% |
| **Standard Deviation** | 3.4% | 1% | 0.6% | 20.2% | 1% | 0.9% | 0.4% | 23% | 1.9% | 23.3% | 3.3% |
| **Flexible IO Tester - Seq Read - Sync - No - Yes - 1MB (IOPS)** | 173 | 153 | **89** | 138 | 181 | **261** | 153 | 153 | 167 | 146 | 162 |
| **Normalized** | 66.28% | 58.62% | 34.1% | 52.87% | 69.35% | 100% | 58.62% | 58.62% | 63.98% | 55.94% | 62.07% |
| **Standard Deviation** | 2.6% | 1.4% | 0.6% | 17.8% | | | | 20.4% | 2.5% | 22.6% | 2.8% |
| **Flexible IO Tester - Seq Read - Sync - No - Yes - 4KB (MB/s)** | **51.3** | 48.1 | 42.0 | 48.8 | **31.8** | 46.2 | 44.6 | 45.4 | 50.1 | 45.8 | 48.6 |
| **Normalized** | 100% | 93.76% | 81.87% | 95.13% | 61.99% | 90.06% | 86.94% | 88.5% | 97.66% | 89.28% | 94.74% |
| **Standard Deviation** | 2.4% | 2.2% | 1.6% | 4.8% | 2.4% | 1.9% | 10.7% | 9.5% | 1.2% | 9.5% | 7.6% |
| **Flexible IO Tester - Seq Read - Sync - No - Yes - 4KB (IOPS)** | **13133** | 12400 | 10467 | 12487 | **8218** | 11933 | 11448 | 11578 | 12833 | 11754 | 12420 |
| **Normalized** | 100% | 94.42% | 79.7% | 95.08% | 62.58% | 90.86% | 87.17% | 88.16% | 97.72% | 89.5% | 94.57% |
| **Standard Deviation** | 2.3% | 1.4% | 3.9% | 4.7% | 0.9% | 2.9% | 10.8% | 9.7% | 1.2% | 9.5% | 7.5% |
| **Flexible IO Tester - Seq Read - Sync - No - Yes - 64KB (MB/s)** | 134 | 133 | **89.3** | 120.3 | 94.5 | **151** | 132 | 127.5 | 136 | 137 | 133 |
| **Normalized** | 88.74% | 88.08% | 59.14% | 79.67% | 62.58% | 100% | 87.42% | 84.44% | 90.07% | 90.73% | 88.08% |
| **Standard Deviation** | | 2.4% | 0.8% | 13.5% | 1.3% | | 2.4% | 12.4% | 1.9% | 0.8% | 1.6% |
| **Flexible IO Tester - Seq Read - Sync - No - Yes - 64KB (IOPS)** | 2145 | 2130 | **1428** | 1924 | 1512 | **2405** | 2112 | 2040 | 2168 | 2183 | 2130 |
| **Normalized** | 89.19% | 88.57% | 59.38% | 80% | 62.87% | 100% | 87.82% | 84.82% | 90.15% | 90.77% | 88.57% |
| **Standard Deviation** | 0.8% | 2.3% | 0.8% | 13.6% | 1.4% | 1% | 2.5% | 12.4% | 1.7% | 0.9% | 1.5% |

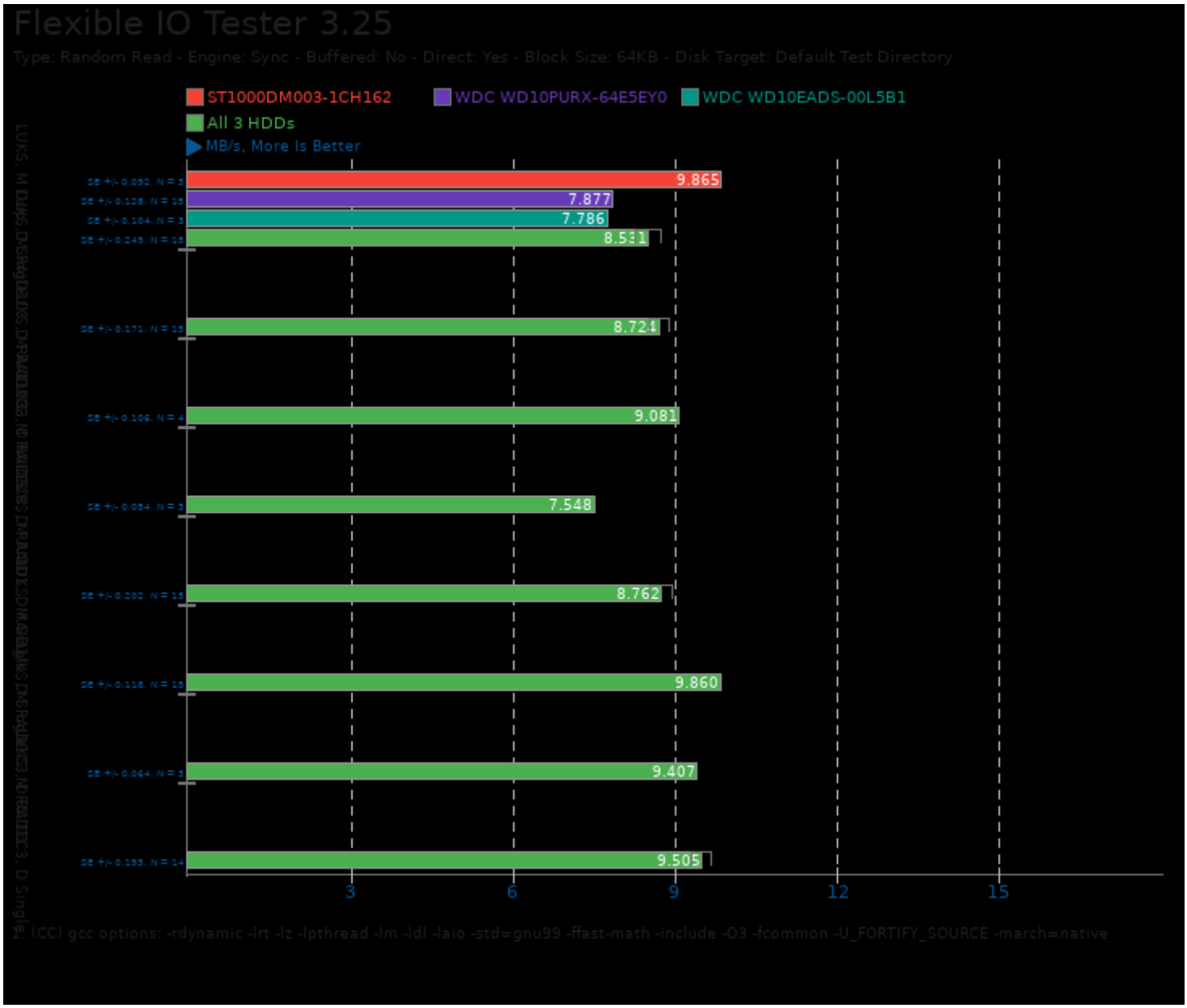
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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Flexible IO Tester - Seq Write - Sync - No - Yes - 1MB (MB/s)** | 165 | 144 | 87.3 | **69.2** | 153 | **214** | 155 | 89.5 | 161 | 90.2 | 159 |
| **Normalized** | 77.1% | 67.29% | 40.79% | 32.34% | 71.5% | 100% | 72.43% | 41.82% | 75.23% | 42.15% | 74.3% |
| **Standard Deviation** | 1.6% | 1.8% | 1.7% | 1.5% | 2.1% | 1.2% | 0.6% | 3.5% | | 1.4% | 2.3% |
| **Flexible IO Tester - Seq Write - Sync - No - Yes - 1MB (IOPS)** | 165 | 145 | 87 | **69** | 154 | **213** | 154 | 90 | 160 | 90 | 159 |
| **Normalized** | 77.46% | 68.08% | 40.85% | 32.39% | 72.3% | 100% | 72.3% | 42.25% | 75.12% | 42.25% | 74.65% |
| **Standard Deviation** | 1.7% | | 2.5% | 1.7% | 1.8% | 1.2% | | 3.1% | | 1.7% | |
| **Flexible IO Tester - Seq Write - Sync - No - Yes - 4KB (MB/s)** | 41.1 | 34.4 | 32.7 | 30.2 | **5.459** | 38.8 | 38.8 | 31.8 | 41.7 | 31.7 | **43.2** |
| **Normalized** | 95.14% | 79.63% | 75.69% | 69.91% | 12.64% | 89.81% | 89.81% | 73.61% | 96.53% | 73.38% | 100% |
| **Standard Deviation** | 0.7% | 2.4% | 0.6% | 2.3% | 2.4% | 2.2% | 2.4% | 7.1% | 4.8% | 7.7% | 2.2% |
| **Flexible IO Tester - Seq Write - Sync - No - Yes - 4KB (IOPS)** | 10500 | 8802 | 8372 | 7736 | **1364** | 9933 | 9935 | 8185 | 10623 | 8127 | **11067** |
| **Normalized** | 94.88% | 79.53% | 75.65% | 69.9% | 12.32% | 89.75% | 89.77% | 73.96% | 95.99% | 73.43% | 100% |
| **Standard Deviation** | 1% | 2.4% | 0.6% | 2.2% | 2.4% | 2.2% | 2.5% | 6.9% | 4.8% | 7.7% | 2.1% |
| **Flexible IO Tester - Seq Write - Sync - No - Yes - 64KB (MB/s)** | 114.2 | 114 | 82.0 | 87.3 | **15.7** | 134 | 137 | 108 | 139 | 110 | **142** |
| **Normalized** | 80.42% | 80.28% | 57.75% | 61.48% | 11.06% | 94.37% | 96.48% | 76.06% | 97.89% | 77.46% | 100% |
| **Standard Deviation** | 15.5% | 1.8% | 3.3% | 0.2% | 2.4% | | 1.9% | 6% | 4.5% | 5.1% | |
| **Flexible IO Tester - Seq Write - Sync - No - Yes - 64KB (IOPS)** | 1828 | 1817 | 1312 | 1397 | **254** | 2138 | 2193 | 1727 | 2216 | 1764 | **2269** |
| **Normalized** | 80.56% | 80.08% | 57.82% | 61.57% | 11.19% | 94.23% | 96.65% | 76.11% | 97.66% | 77.74% | 100% |
| **Standard Deviation** | 15.5% | 1.8% | 3.4% | 0.2% | 1.5% | 2.6% | 2.2% | 6% | 4.5% | 4.9% | 0.4% |

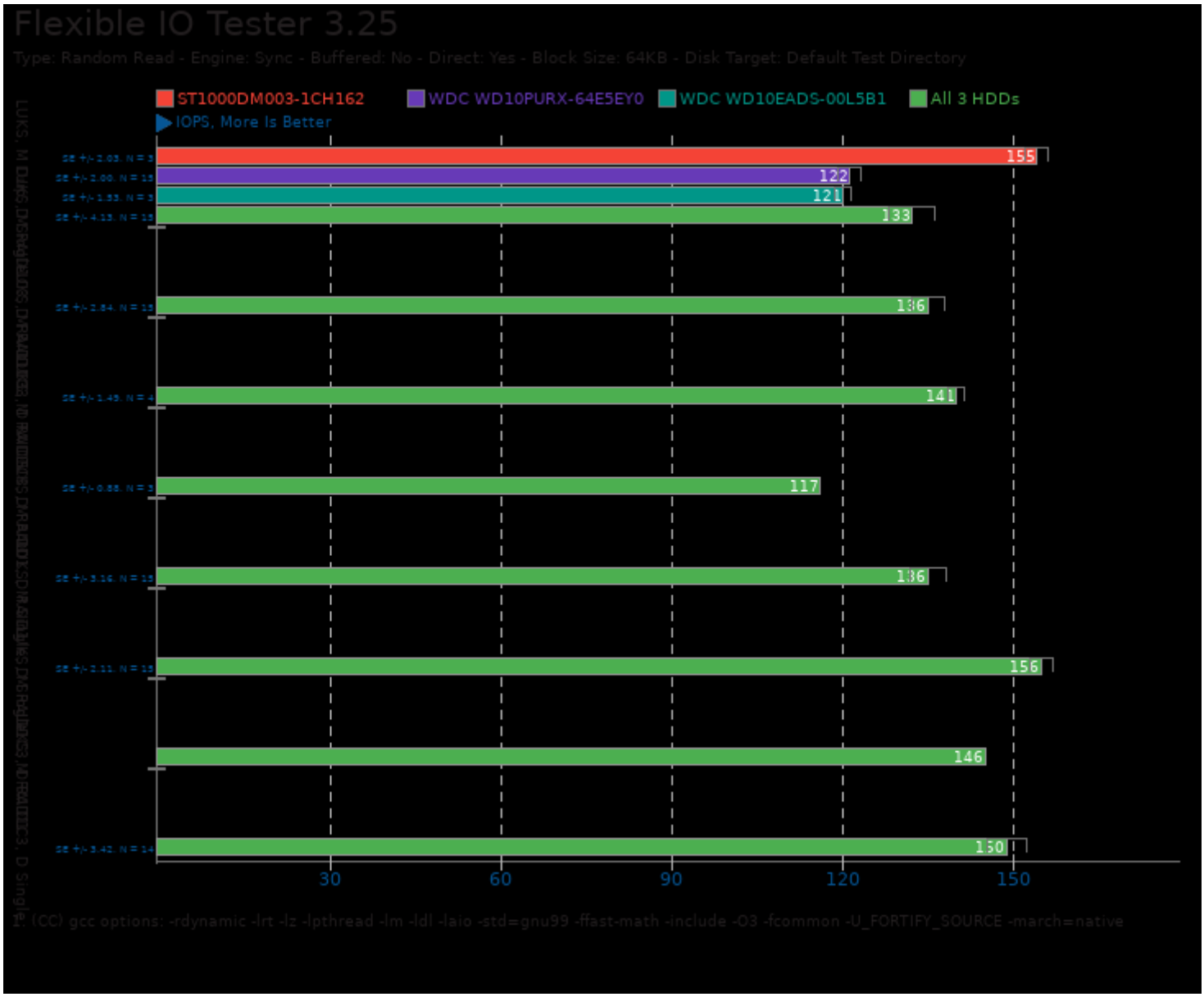

Flexible IO Tester 3.25
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
79.1
65.8
49.2
68.7
68.6
72.7
78.5
77.4
79.5
69.6
77.7
20
40
60
80
100
1: (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

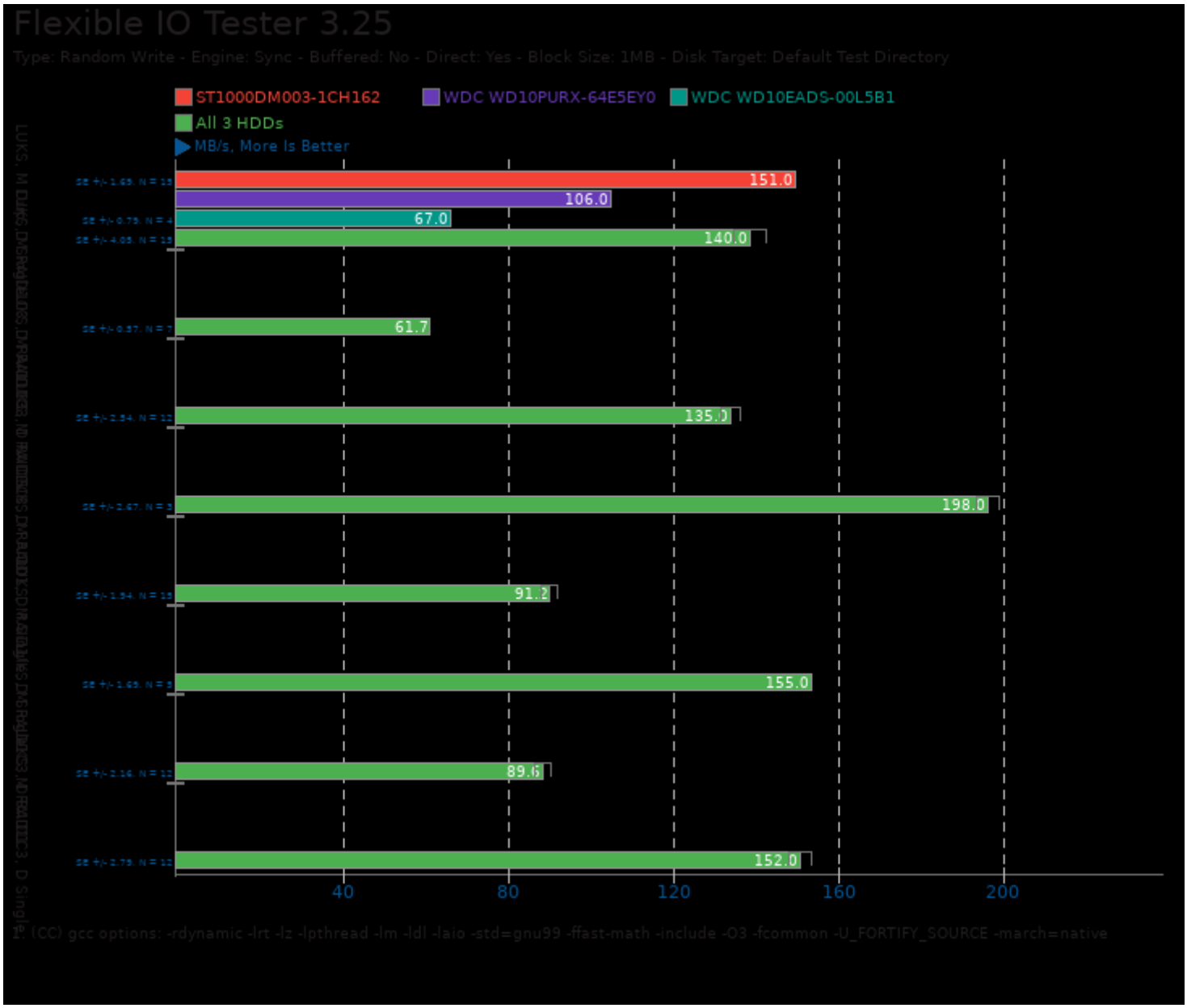

Flexible IO Tester 3.25
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
79
65
49
68
68
72
78
77
79
70
77
20
40
60
80
100
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

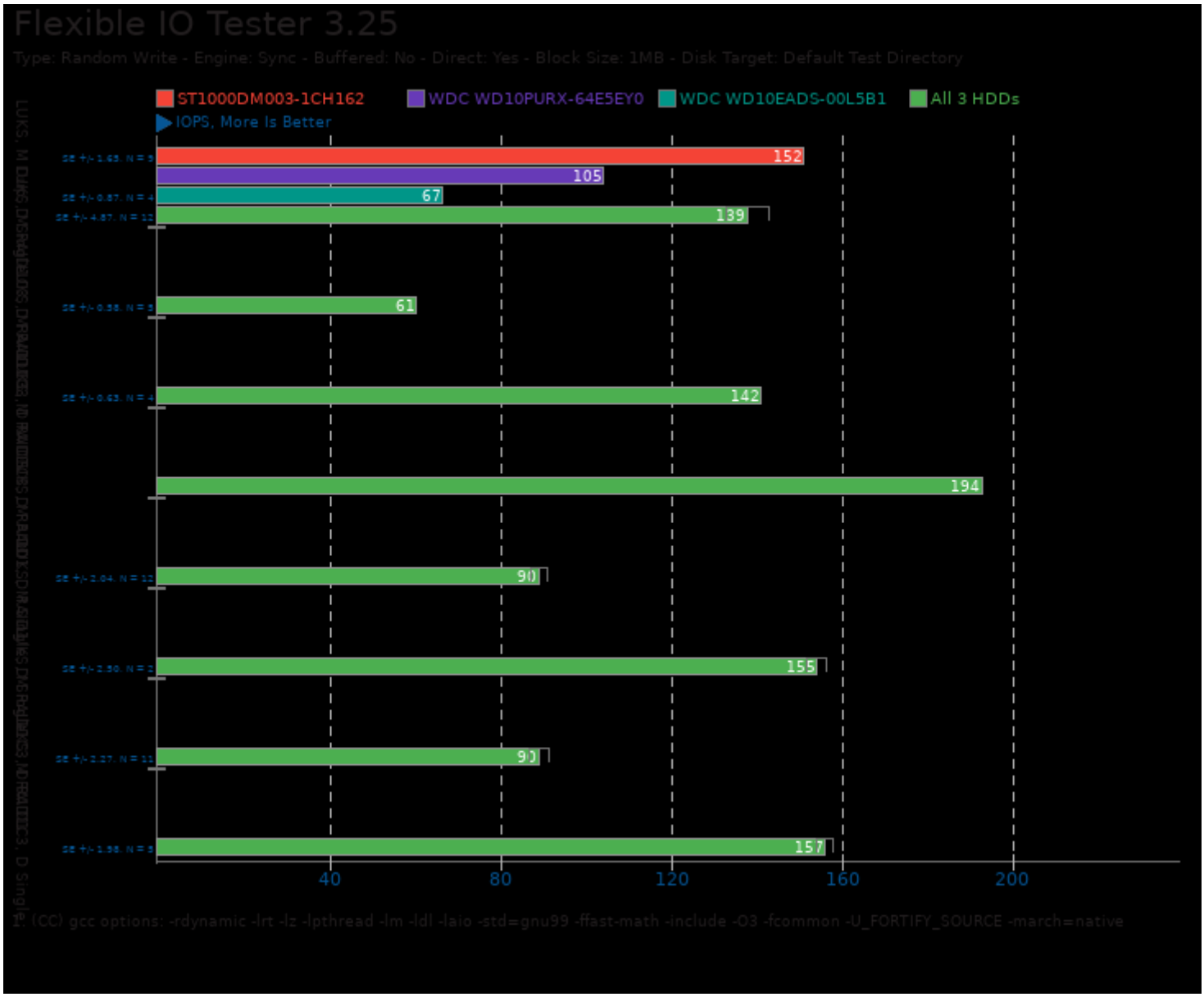

Flexible IO Tester 3.25
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
0.673
0.527
0.536
0.600
0.600
0.624
0.653
0.590
0.654
0.607
0.668
0.1514
0.3028
0.4542
0.6056
0.757
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

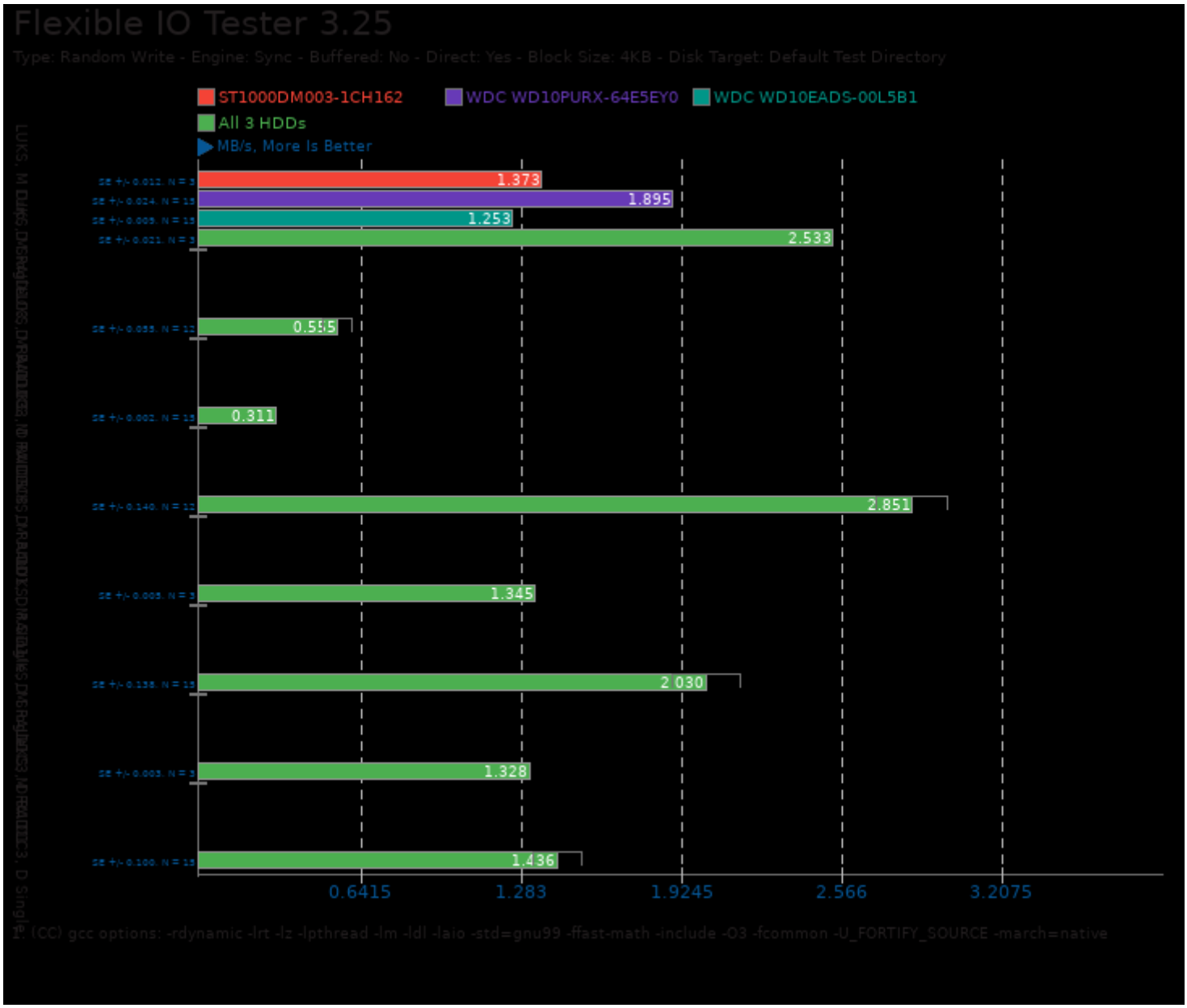

Flexible IO Tester 3.25
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
168
131
134
149
149
156
163
147
163
151
166
40
80
120
160
200
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

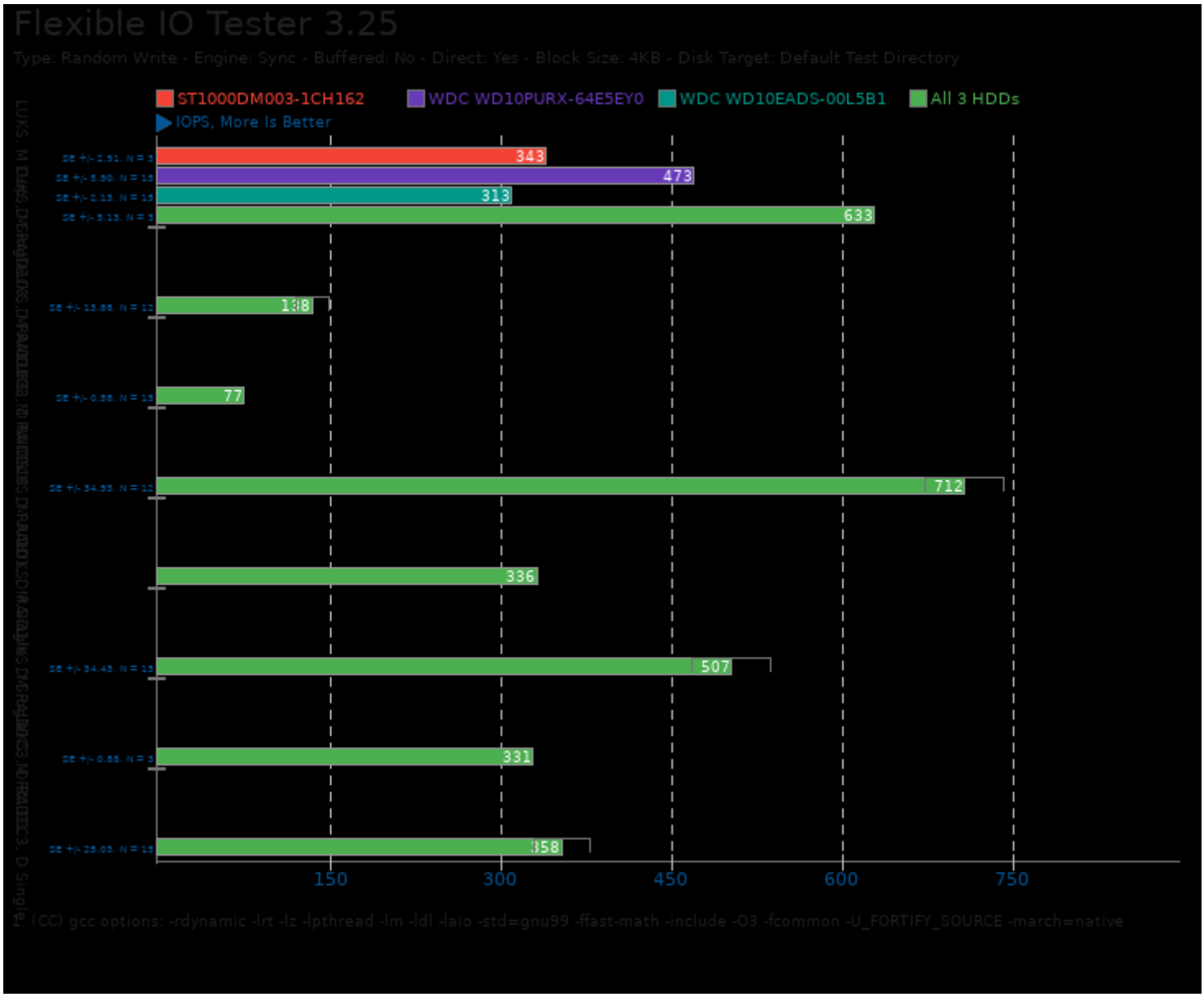

Flexible IO Tester 3.25
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
9.865
7.877
7.786
8.531
8.724
9.081
7.548
8.762
9.860
9.407
9.505
3
6
9
12
15
1: (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

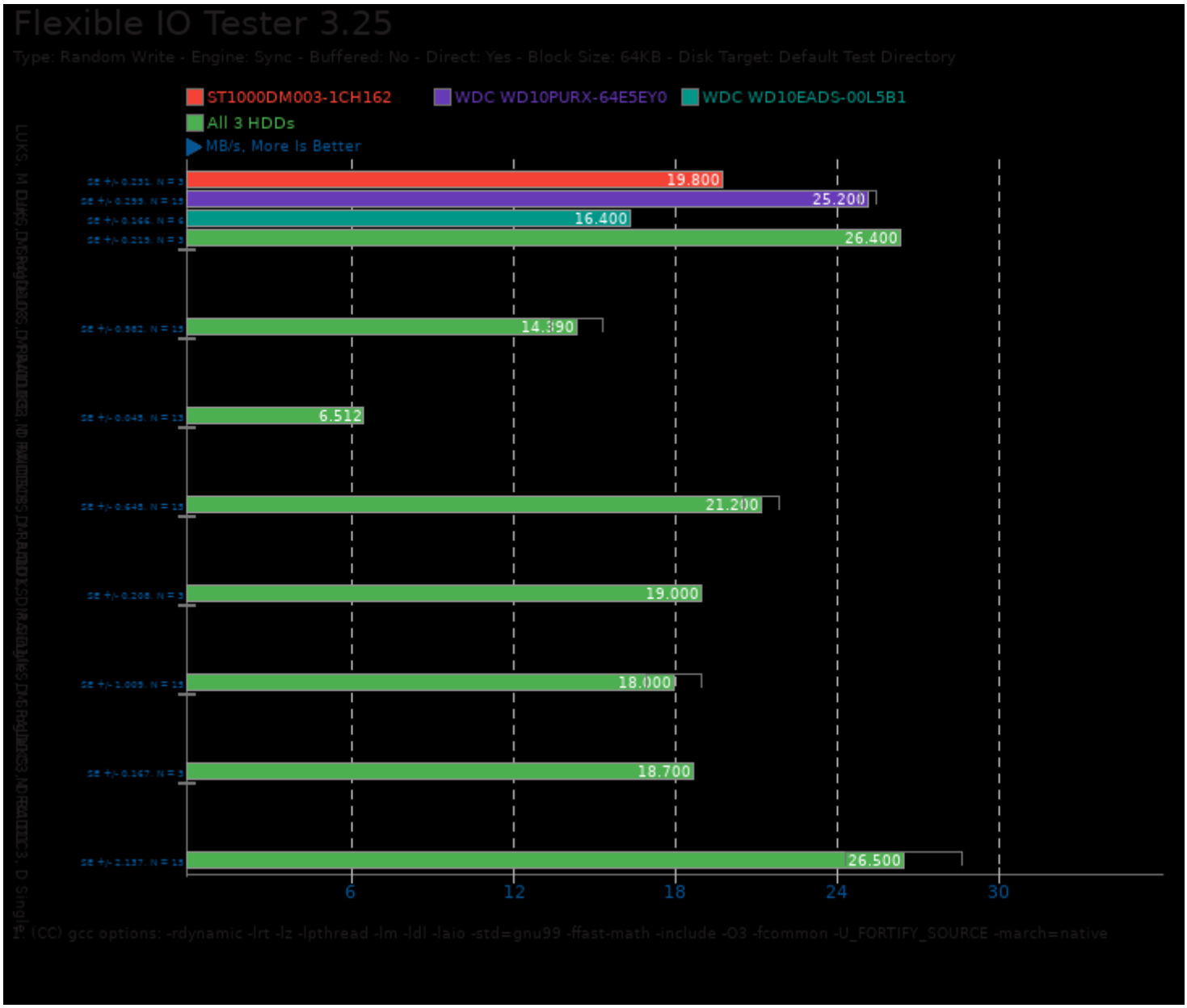

Flexible IO Tester 3.25
Type: Random Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
155
122
121
133
136
141
117
136
156
146
150
30
60
90
120
150
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

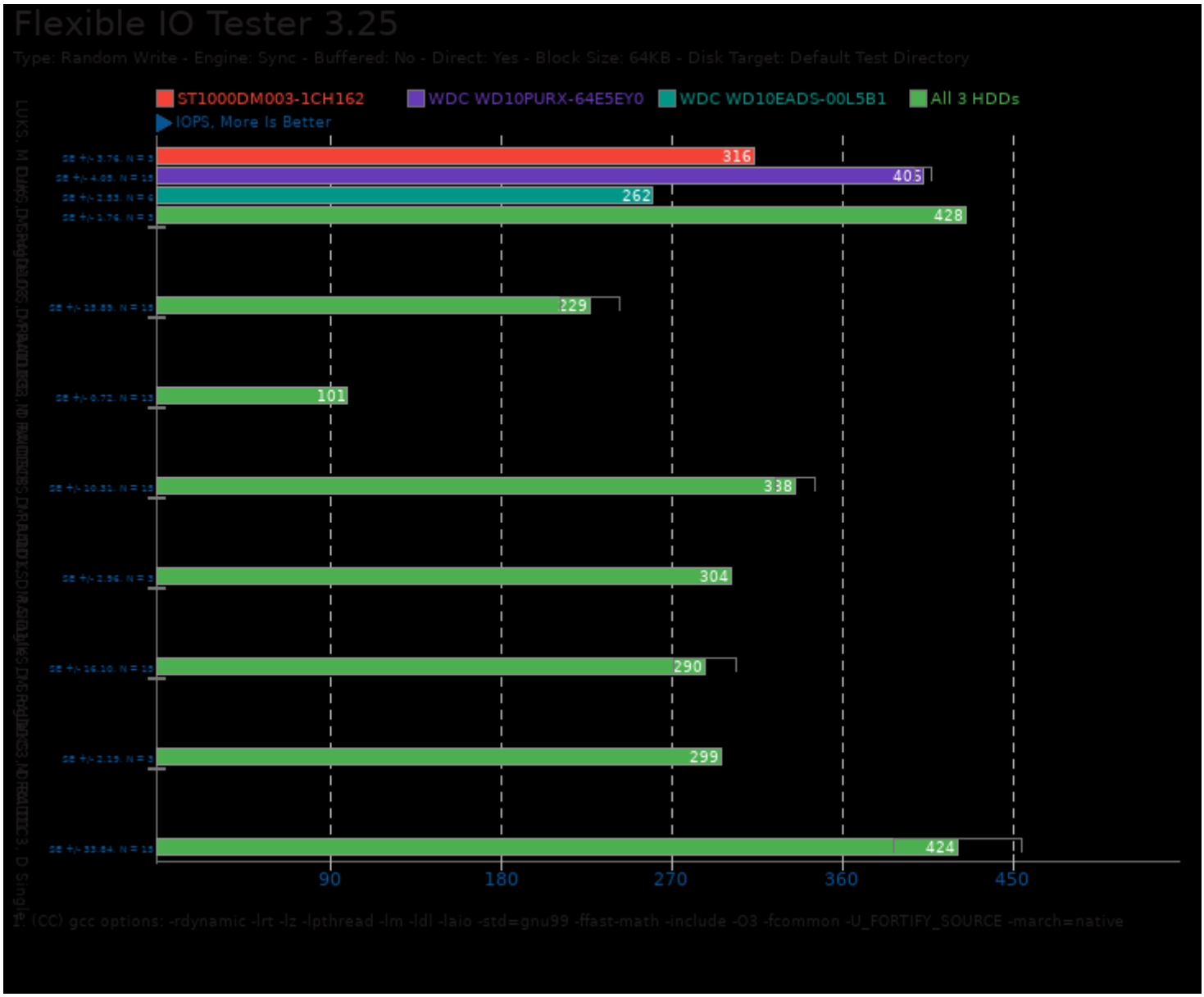

Flexible IO Tester 3.25
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
151.0
106.0
67.0
140.0
61.7
135.0
198.0
91.2
155.0
89.6
152.0
40
80
120
160
200
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

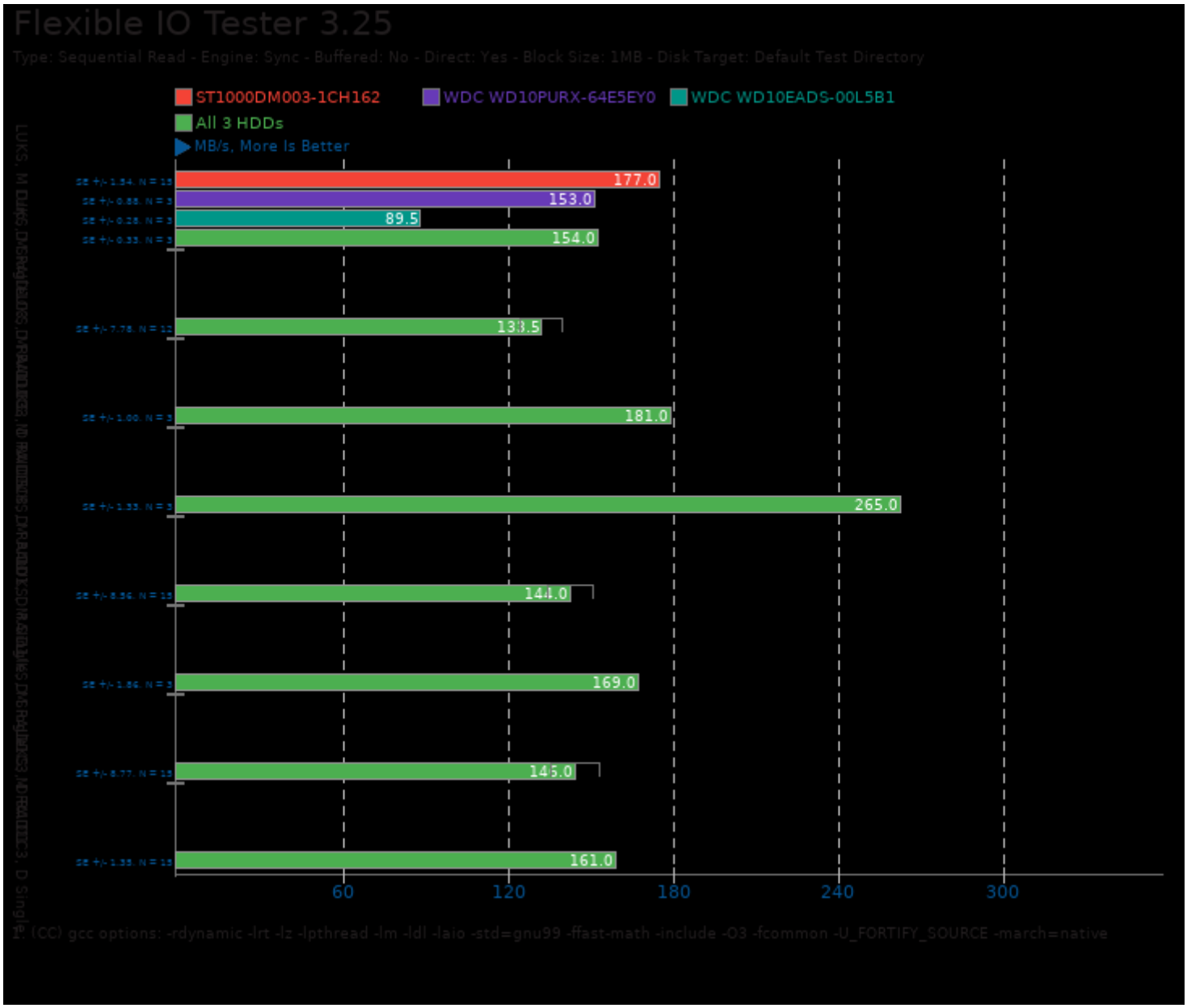

Flexible IO Tester 3.25
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
152
105
67
139
61
142
194
90
155
90
157
40
80
120
160
200
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

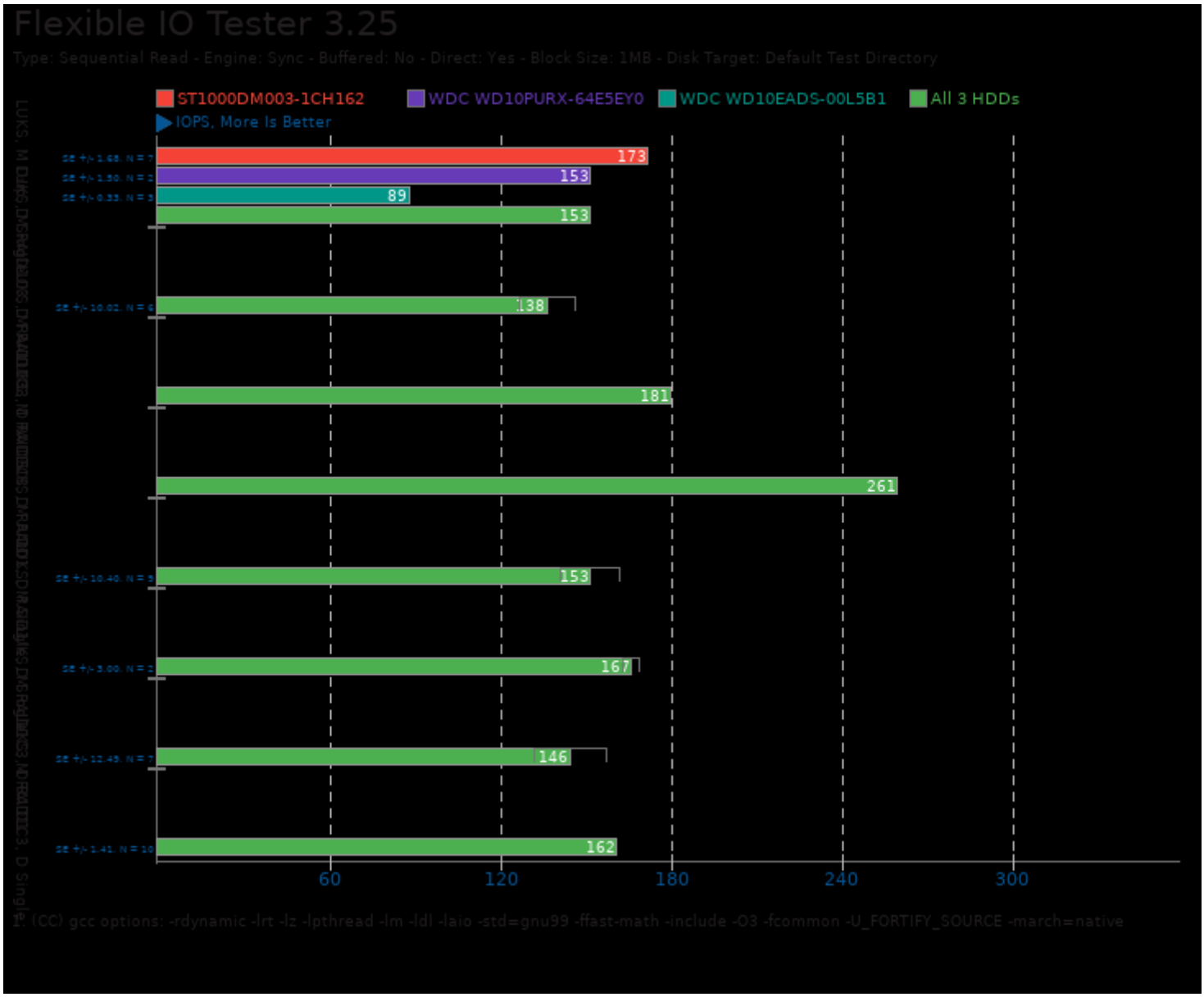

Flexible IO Tester 3.25
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
1.373
1.895
1.253
2.533
0.555
0.311
2.851
1.345
2.030
1.328
1.436
0.6415
1.283
1.9245
2.566
3.2075
1: (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

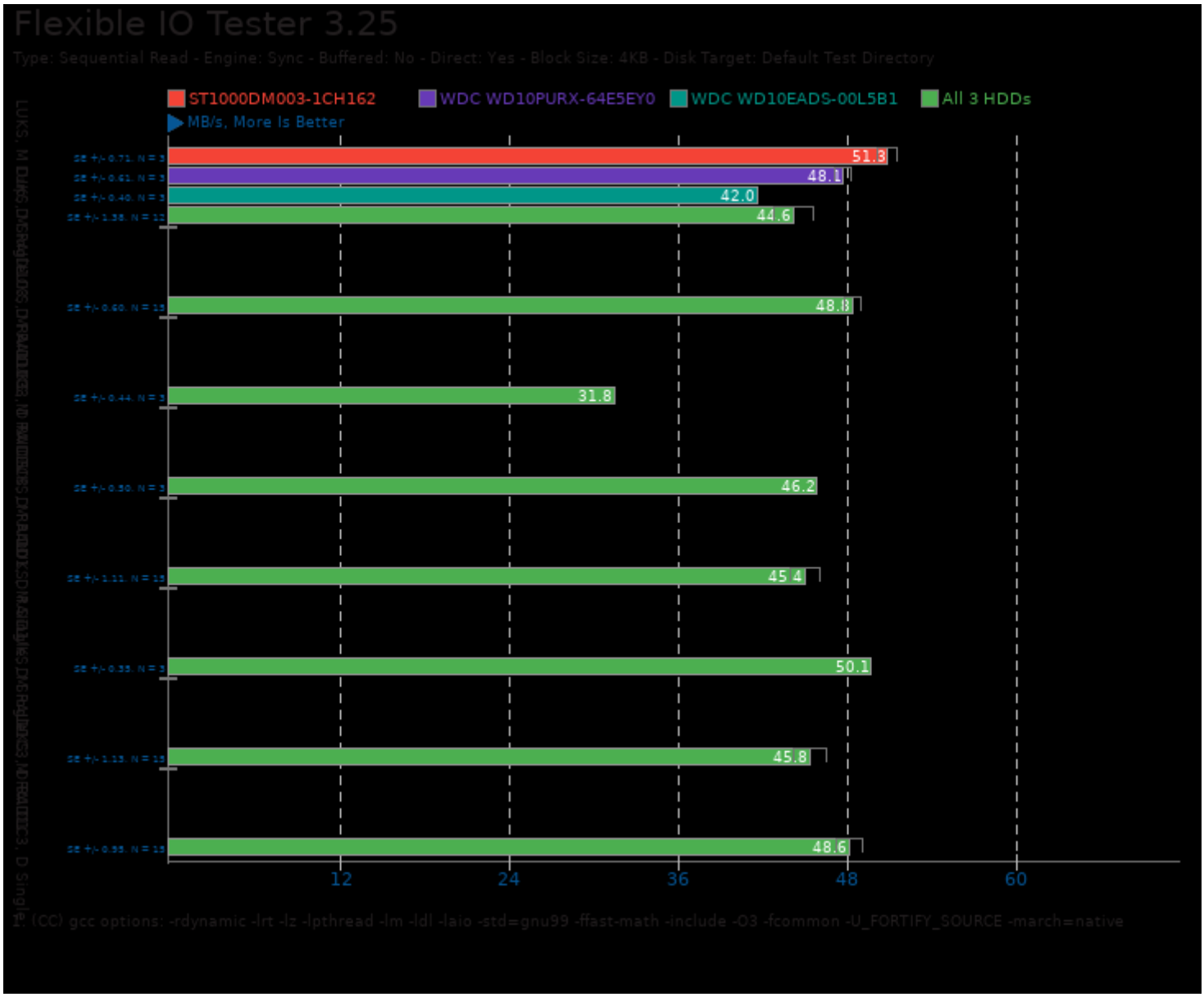

Flexible IO Tester 3.25
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
343
473
313
633
138
77
712
336
507
331
358
150
300
450
600
750
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

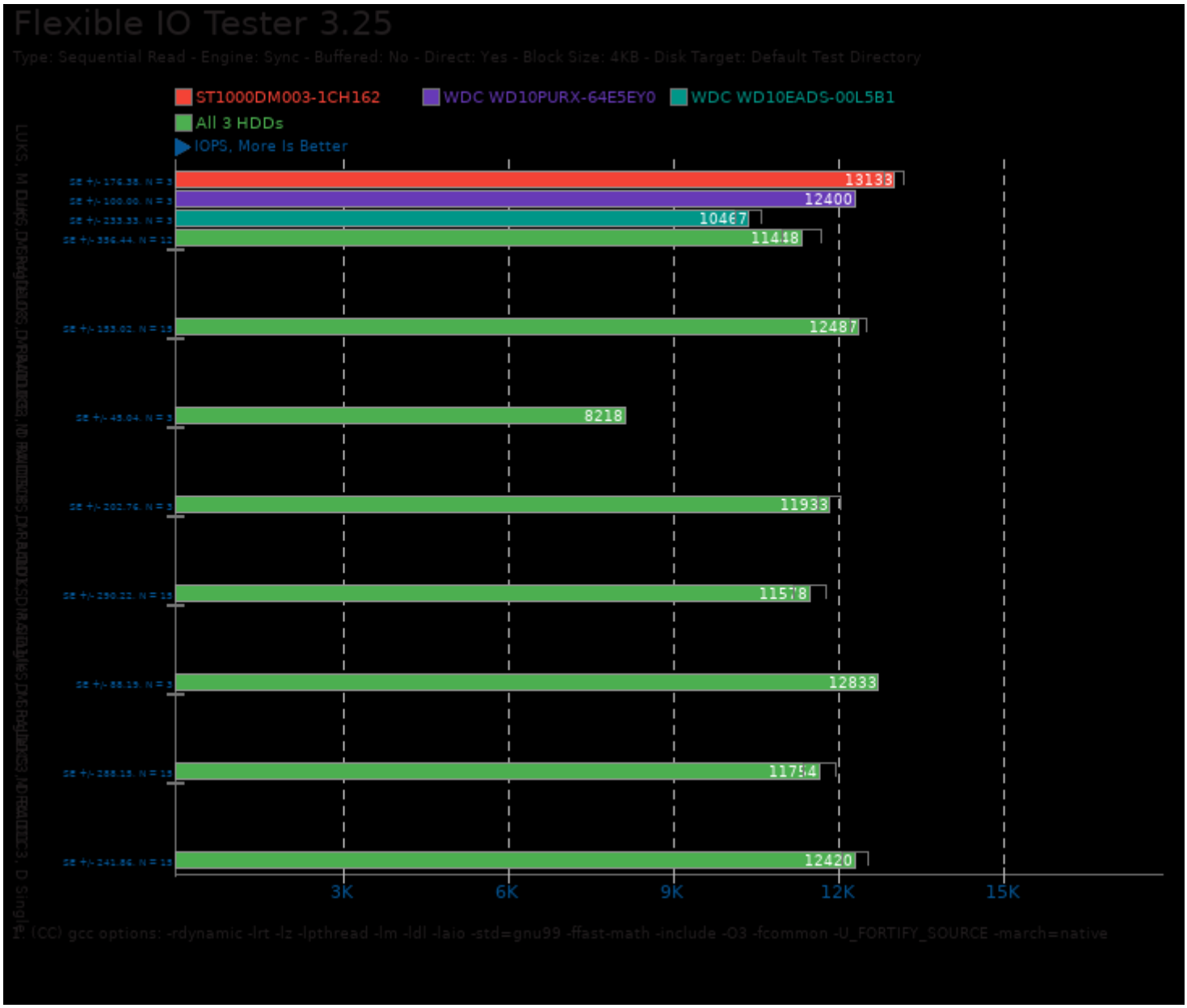

Flexible IO Tester 3.25
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
19.800
25.200
16.400
26.400
14.390
6.512
21.200
19.000
18.000
18.700
26.500
6
12
18
24
30
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

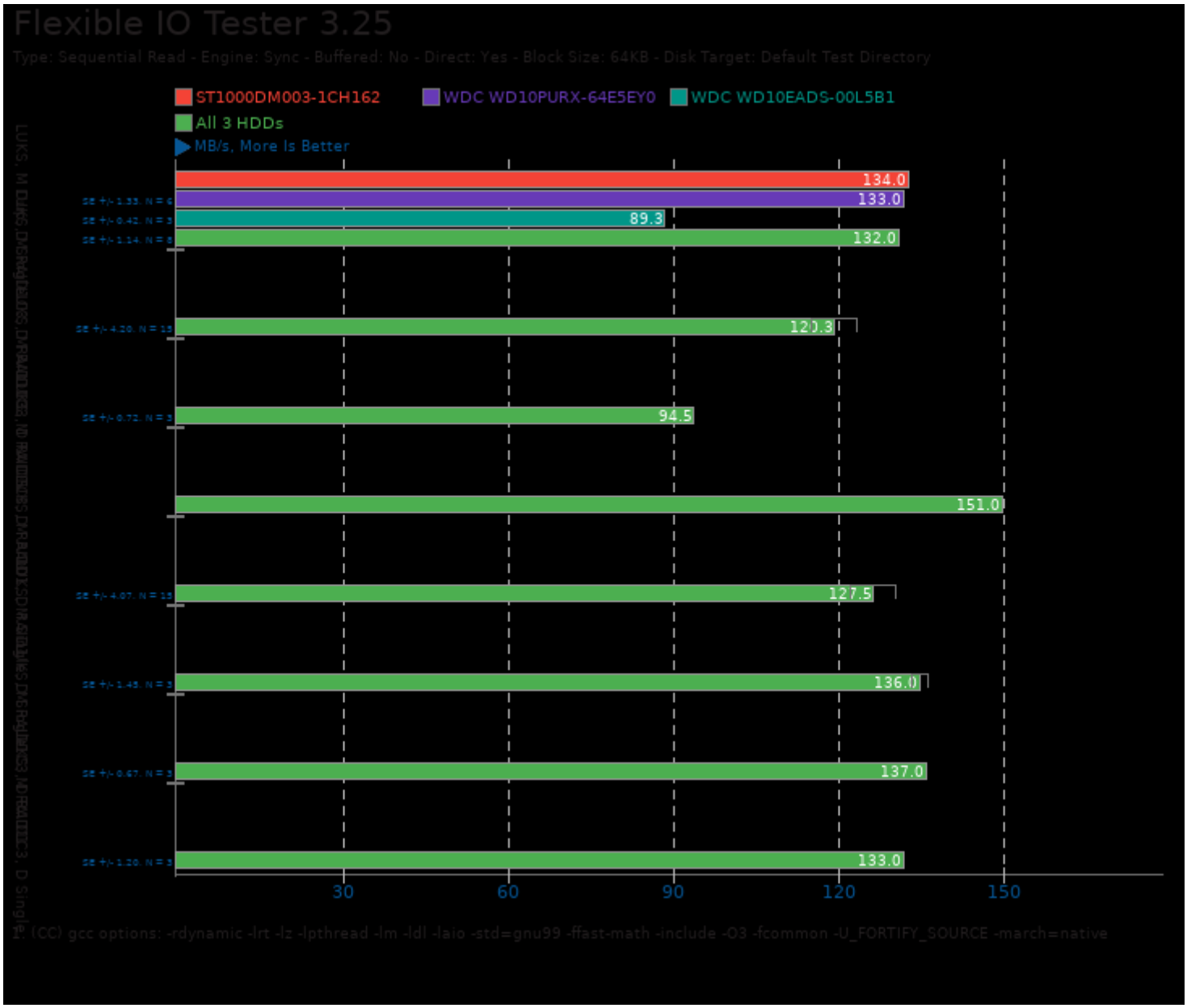

Flexible IO Tester 3.25
Type: Random Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
316
405
262
428
229
101
338
304
290
299
424
90
180
270
360
450
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

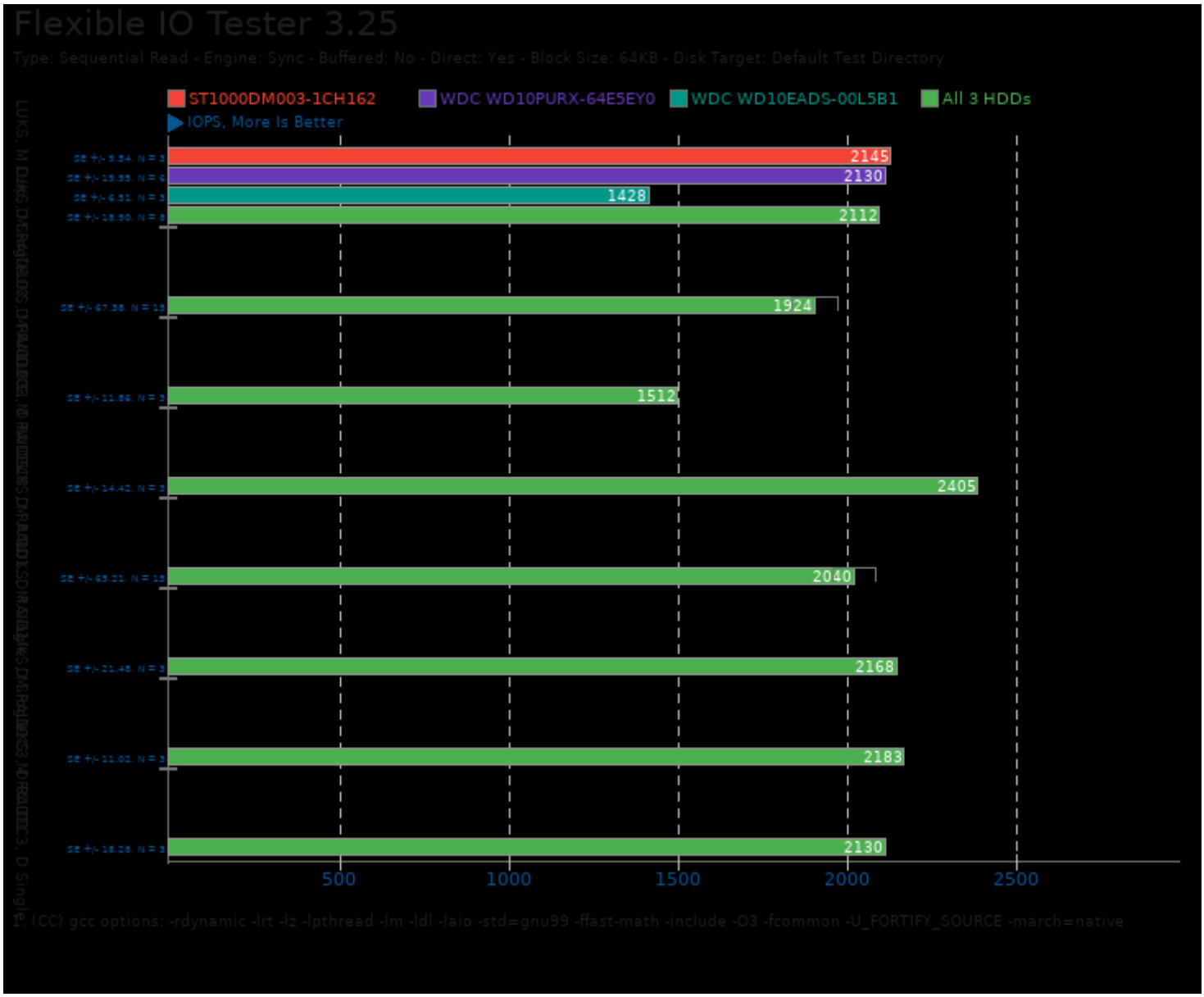

Flexible IO Tester 3.25
Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
177.0
153.0
89.5
154.0
133.5
181.0
265.0
144.0
169.0
145.0
161.0
60
120
180
240
300
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

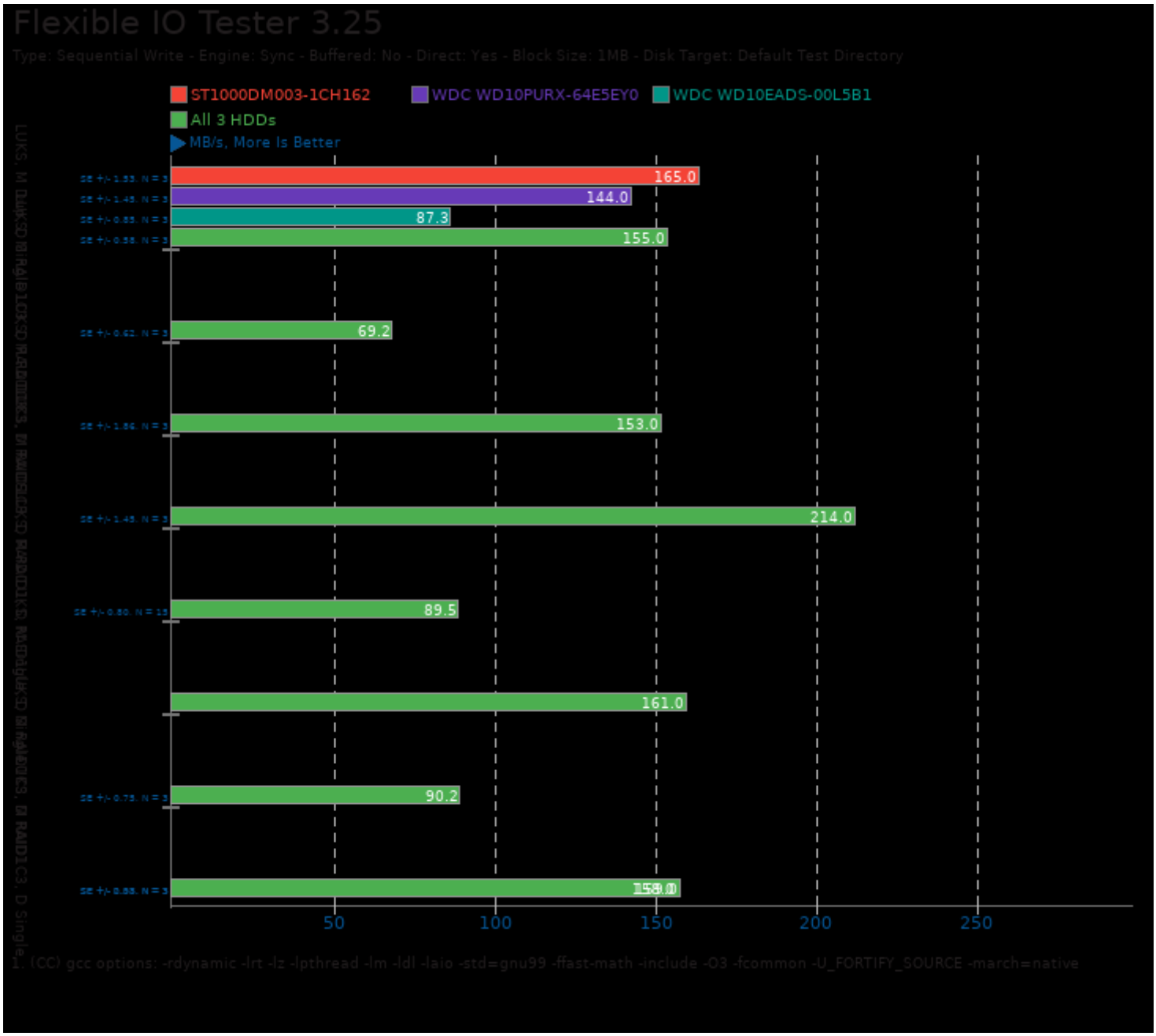

Flexible IO Tester 3.25
Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
173
153
89
153
138
181
261
153
167
146
162
60
120
180
240
300
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

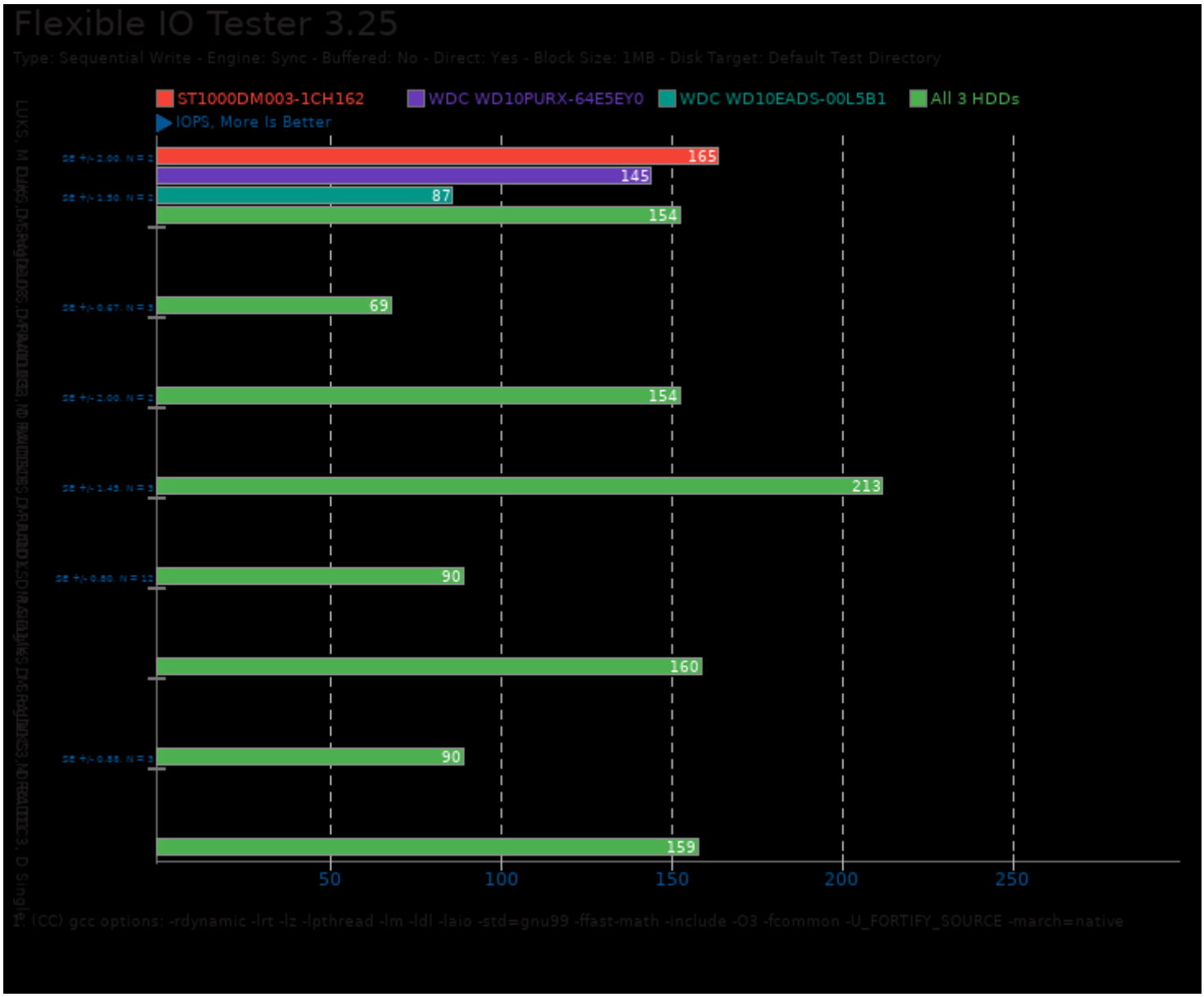

Flexible IO Tester 3.25
Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
51.3
48.1
42.0
44.6
48.8
31.8
46.2
45.4
50.1
45.8
48.6
12
24
36
48
60
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

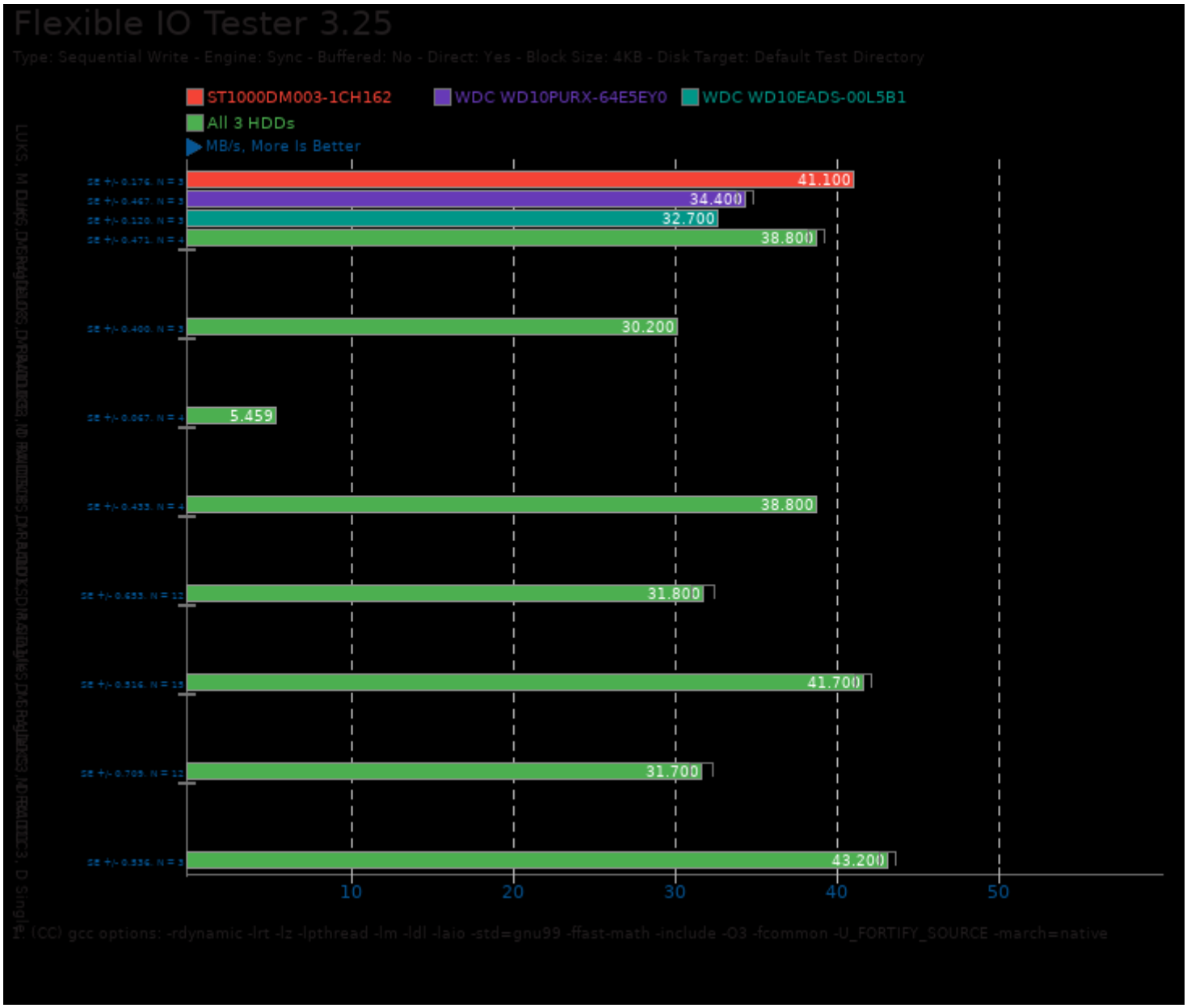

Flexible IO Tester 3.25
Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
13133
12400
10467
11448
12487
8218
11933
11578
12833
11754
12420
3K
6K
9K
12K
15K
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

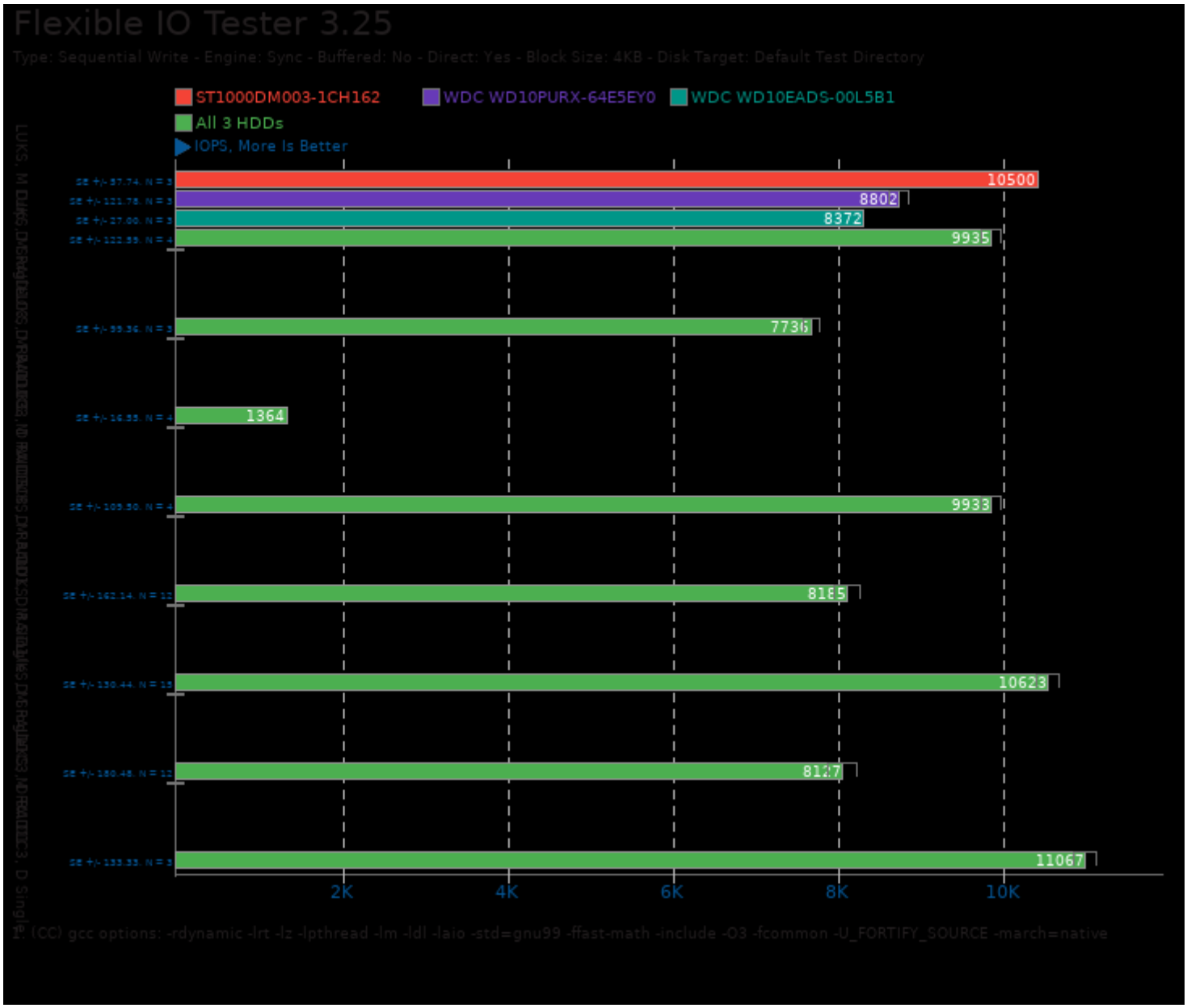

Flexible IO Tester 3.25
Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
134.0
133.0
89.3
132.0
120.3
94.5
151.0
127.5
136.0
137.0
133.0
30
60
90
120
150
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

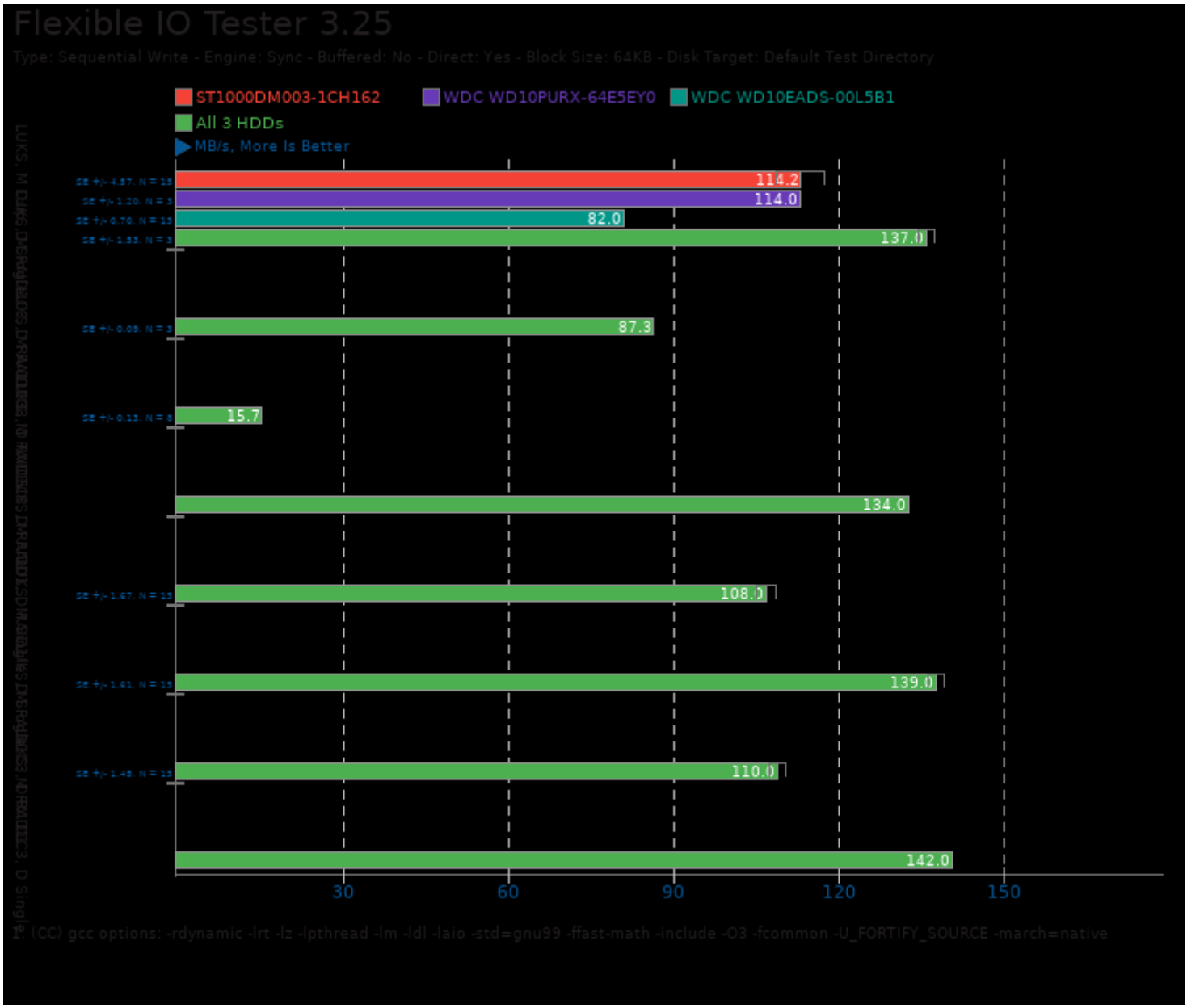

Flexible IO Tester 3.25
Type: Sequential Read - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
2145
2130
1428
2112
1924
1512
2405
2040
2168
2183
2130
500
1000
1500
2000
2500
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

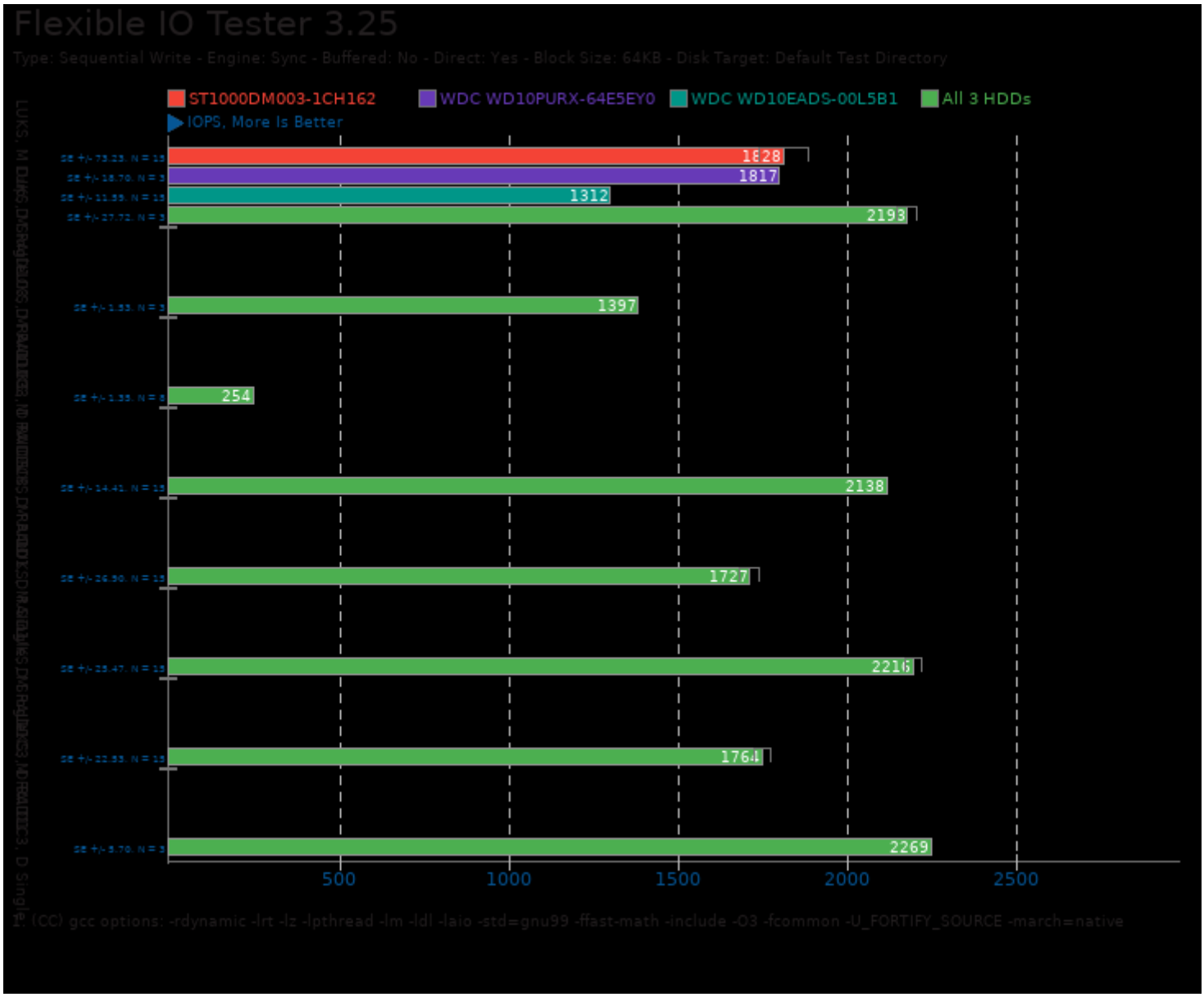

Flexible IO Tester 3.25
Type: Sequential Write - Engine: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
165.0
144.0
87.3
155.0
69.2
153.0
214.0
89.5
161.0
90.2
50
100
150
200
250
1. (CC) gcc options: -rdynamic -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: Sync - Buffered: No - Direct: Yes - Block Size: 1MB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
165
145
87
154
69
154
213
90
160
90
159
50
100
150
200
250
1. (CC) gcc options: -rdynamic -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: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
41.100
34.400
32.700
38.800
30.200
5.459
38.800
31.800
41.700
31.700
43.200
10
20
30
40
50
1. (CC) gcc options: -rdynamic -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: Sync - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
IOPS, More Is Better
10500
8802
8372
9935
7736
1364
9933
8185
10623
8117
11067
2K
4K
6K
8K
10K
1. (CC) gcc options: -rdynamic -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: Sync - Buffered: No - Direct: Yes - Block Size: 64KB - Disk Target: Default Test Directory
ST1000DM003-1CH162
WDC WD10PURX-64E5EY0
WDC WD10EADS-00L5B1
All 3 HDDs
MB/s, More Is Better
114.2
114.0
82.0
137.0
87.3
15.7
134.0
108.0
139.0
110.0
142.0
30
60
90
120
150
1. (CC) gcc options: -rdynamic -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native




*This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 07:48.*