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PTS_fio_run1

AMD Ryzen 9 5950X 16-Core testing with a ASUS ROG CROSSHAIR VIII FORMULA (2702 BIOS) and NVIDIA GeForce RTX 3090 24GB on Pop 20.10 via the Phoronix Test Suite.

Test Systems:

runn1

Processor: AMD Ryzen 5 3600 6-Core @ 3.60GHz (6 Cores / 12 Threads), Motherboard: Gigabyte B550M AORUS PRO-P (F2 BIOS), Chipset: AMD Device 1480, Memory: 16GB, Disk: Samsung SSD 970 EVO Plus 500GB + 500GB CT500MX500SSD1 + 1000GB Seagate ST1000DM003-1CH1, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X 4GB (1303/1750MHz), Audio: AMD Ellesmere, Monitor: DELL U2515H, Network: Realtek Device 8125

OS: elementary 5.1.7, Kernel: 5.4.0-62-generic (x86_64), Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 20.3.3 kisak-mesa PPA (LLVM 11.0.1), Vulkan: 1.2.145, Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 2560x1440

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
Disk Notes: NONE / relatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8701021
Security Notes: itlb_multihit: Not affected + 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 Full AMD retpoline IBPB: conditional STIBP: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

fio1

Processor: AMD Ryzen 9 5950X 16-Core @ 3.40GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII FORMULA (2702 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: Samsung SSD 960 EVO 500GB + 1000GB Western Digital WDS100T3X0C-00SJG0 + 2 x 256GB Samsung SSD 840, Graphics: NVIDIA GeForce RTX 3090 24GB (240/405MHz), Audio: NVIDIA Device 1aef, Monitor: VG248 + LC27G7xT + SAMSUNG, Network: Aquantia AQC111 NBase-T/IEEE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Pop 20.10, Kernel: 5.8.0-7630-generic (x86_64), Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.9, Display Driver: NVIDIA 460.32.03, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.2.109, Vulkan: 1.2.155, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 4480x1440

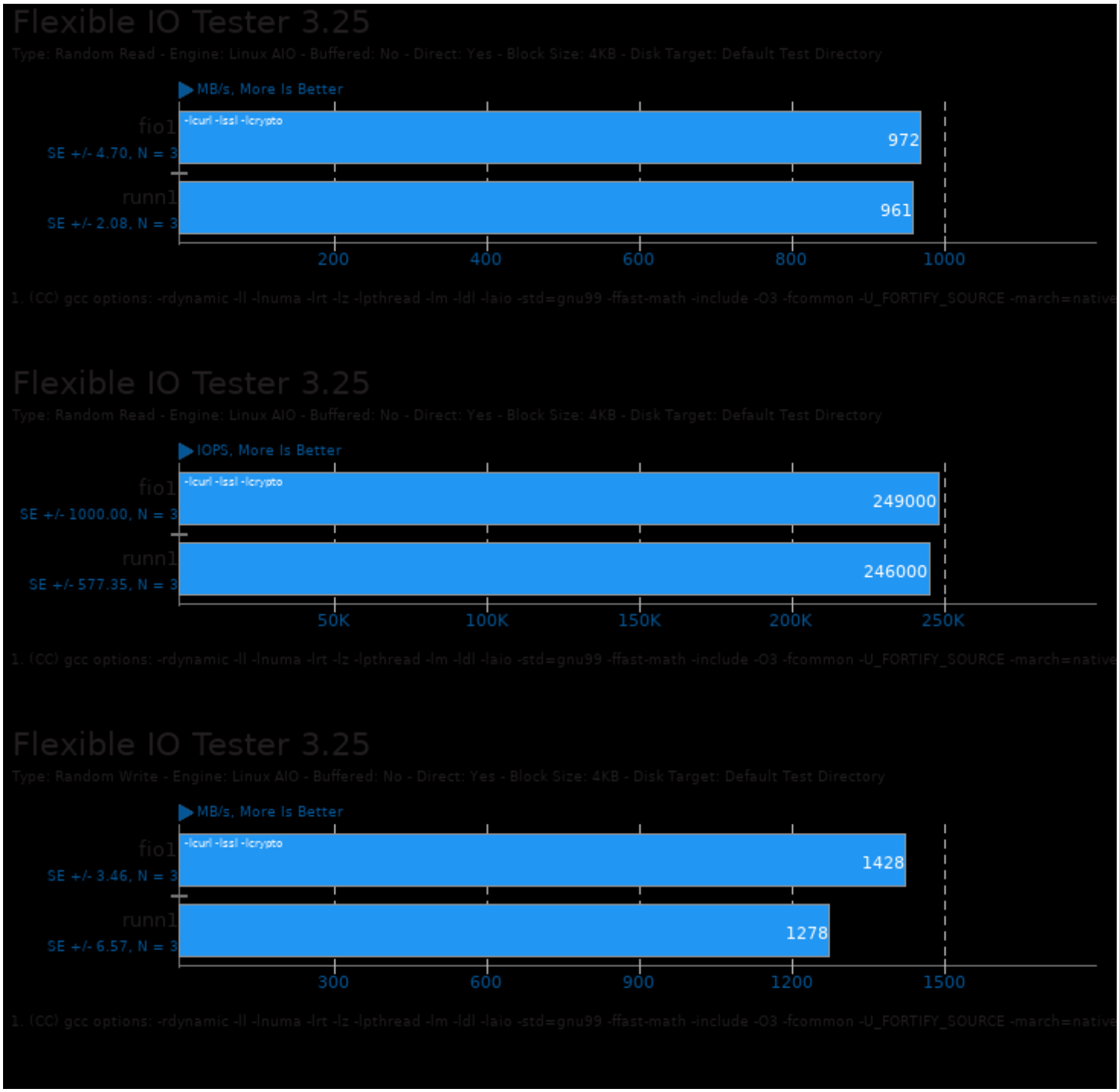
Environment Notes: NVM_CD_FLAGS=
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/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-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 / errors=remount-ro,noatime,rw / Block Size: 4096
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + 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 Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	runn1	fio1
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB (MB/s)	**961**	**972**
Normalized	98.87%	100%
Standard Deviation	0.4%	0.8%
Flexible IO Tester - Rand Read - Linux AIO - No - Yes - 4KB (IOPS)	**246000**	**249000**
Normalized	98.8%	100%
Standard Deviation	0.4%	0.7%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB (MB/s)	**1278**	**1428**
Normalized	89.5%	100%
Standard Deviation	0.9%	0.4%
Flexible IO Tester - Rand Write - Linux AIO - No - Yes - 4KB (IOPS)	**327000**	**365667**
Normalized	89.43%	100%
Standard Deviation	0.8%	0.4%

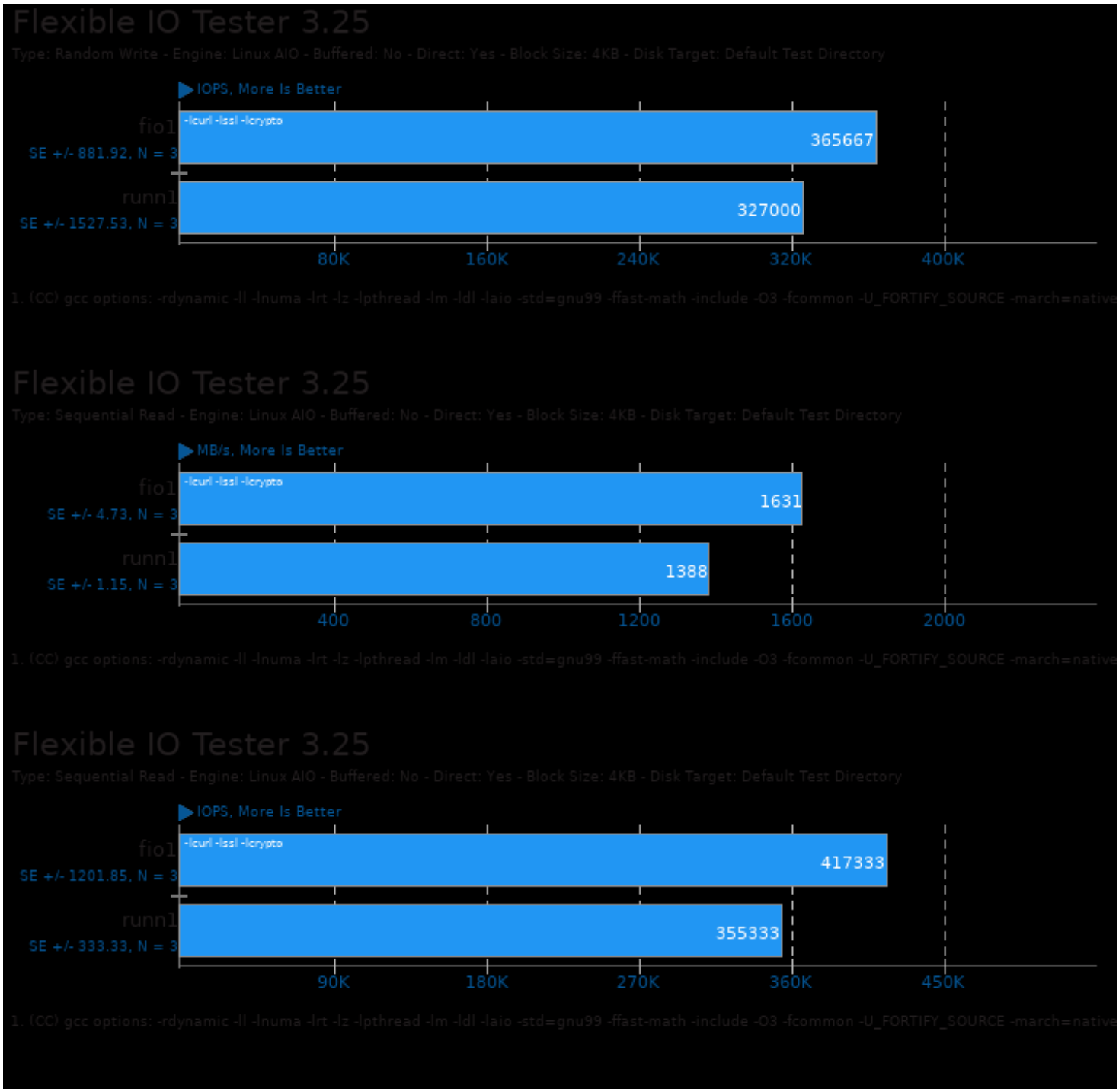
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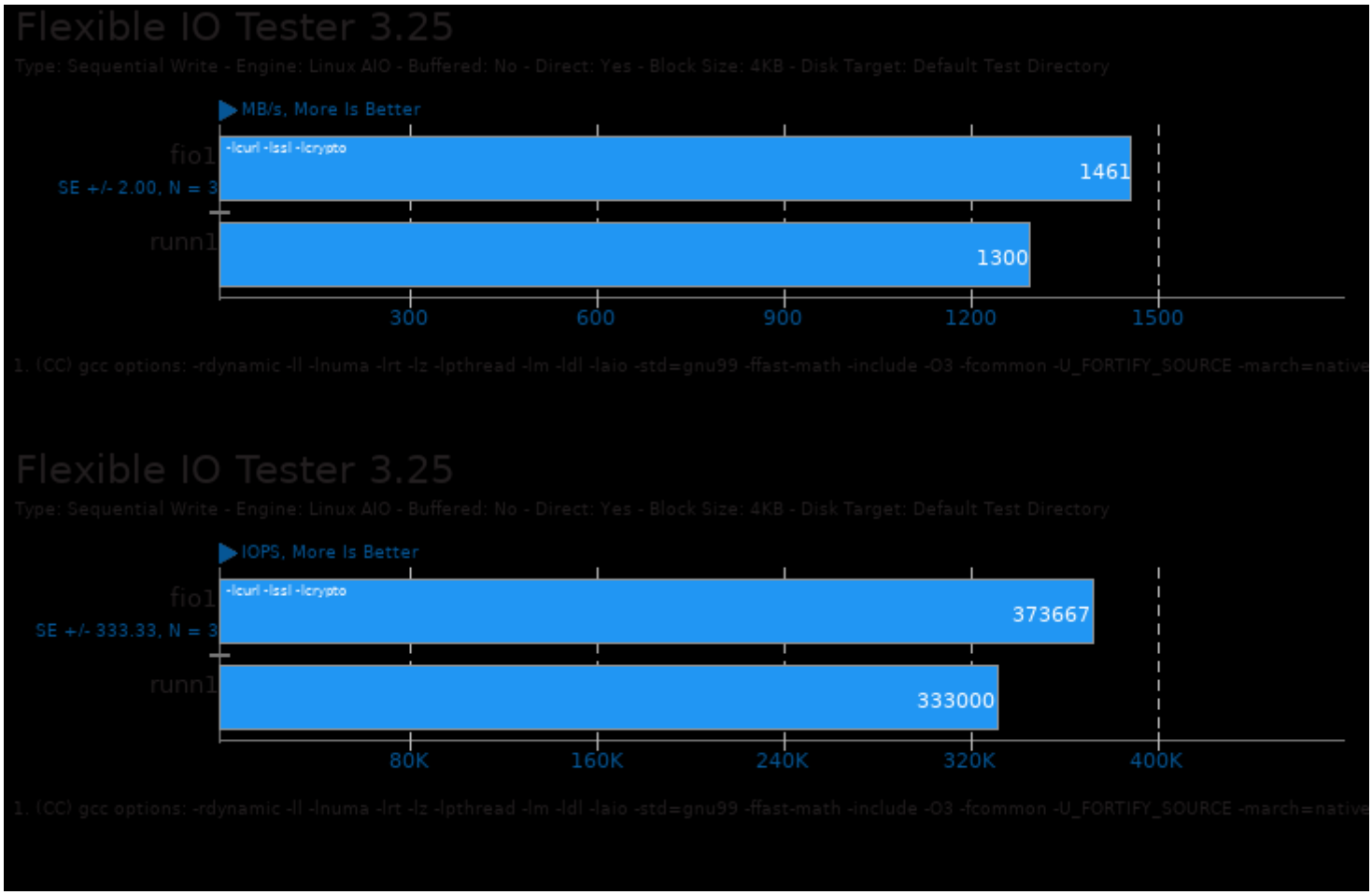
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (MB/s)	**1388**	**1631**
Normalized	85.1%	100%
Standard Deviation	0.1%	0.5%
Flexible IO Tester - Seq Read - Linux AIO - No - Yes - 4KB (IOPS)	**355333**	**417333**
Normalized	85.14%	100%
Standard Deviation	0.2%	0.5%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (MB/s)	**1300**	**1461**
Normalized	88.98%	100%
Standard Deviation		0.2%
Flexible IO Tester - Seq Write - Linux AIO - No - Yes - 4KB (IOPS)	**333000**	**373667**
Normalized	89.12%	100%
Standard Deviation		0.2%

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Flexible IO Tester 3.25
Type: Random Read - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
fio1
-lcurl -lssl -lcrypto
SE +/- 4.70, N = 3
972
runn1
SE +/- 2.08, N = 3
961
200
400
600
800
1000
1. (CC) gcc options: -rdynamic -ll -lnuma -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: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
fio1
-lcurl -lssl -lcrypto
SE +/- 1000.00, N = 3
249000
runn1
SE +/- 577.35, N = 3
246000
50K
100K
150K
200K
250K
1. (CC) gcc options: -rdynamic -ll -lnuma -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: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
fio1
-lcurl -lssl -lcrypto
SE +/- 3.46, N = 3
1428
runn1
SE +/- 6.57, N = 3
1278
300
600
900
1200
1500
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

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Flexible IO Tester 3.25
Type: Random Write - Engine: Linux AIO - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
fio1
-lcurl -lssl -lcrypto
365667
SE +/- 881.92, N = 3
runn1
327000
SE +/- 1527.53, N = 3
80K
160K
240K
320K
400K
1. (CC) gcc options: -rdynamic -ll -lnuma -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: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
fio1
-lcurl -lssl -lcrypto
1631
SE +/- 4.73, N = 3
runn1
1388
SE +/- 1.15, N = 3
400
800
1200
1600
2000
1. (CC) gcc options: -rdynamic -ll -lnuma -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: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
fio1
-lcurl -lssl -lcrypto
417333
SE +/- 1201.85, N = 3
runn1
355333
SE +/- 333.33, N = 3
90K
180K
270K
360K
450K
1. (CC) gcc options: -rdynamic -ll -lnuma -lrt -lz -lpthread -lm -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native



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