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leveldb zen 4

AMD Ryzen 9 7950X 16-Core testing with a ASUS ROG STRIX X670E-E GAMING WIFI (1416 BIOS) and AMD Radeon RX 7700S/7600S 8GB on Ubuntu 23.04 via the Phoronix Test Suite.

Automated Executive Summary

c had the most wins, coming in first place for 41% of the tests.

Based on the geometric mean of all complete results, the fastest (c) was 1.001x the speed of the slowest (a). b was 0.999x the speed of c and a was 1x the speed of b.

Test Systems:

a

b

C

Processor: AMD Ryzen 9 7950X 16-Core @ 4.50GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG STRIX X670E-E GAMING WIFI (1416 BIOS), Chipset: AMD Device 14d8, Memory: 32GB, Disk: Western Digital WD_BLACK SN850X 1000GB + 2000GB, Graphics: AMD Radeon RX 7700S/7600S 8GB (2250/1124MHz), Audio: AMD Device ab30, Monitor: ASUS MG28U, Network: Intel I225-V + Intel Wi-Fi 6 AX210/AX211/AX411

OS: Ubuntu 23.04, Kernel: 6.3.2-060302-generic (x86_64), Desktop: GNOME Shell 44.0, Display Server: X Server 1.21.1.7 + Wayland, OpenGL: 4.6 Mesa 23.2.0-devel (git-f094c8a 2023-05-16 lunar-oibaf-ppa) (LLVM 15.0.7 DRM 3.52), Compiler: GCC 12.2.0, File-System: ext4, Screen Resolution: 3840x2160

Kernel Notes: Transparent Huge Pages: madvise

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-cet --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,objc++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-defaulted --enable-offload-targets=nvptx-none=/build/gcc-12-Pa930Z/gcc-12-12.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-12-Pa930Z/gcc-12-12.2.0/debian/tmp-gcn/usr --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 / relatime,rw / Block Size: 4096

Processor Notes: Scaling Governor: acpi-cpufreq schedutil (Boost: Enabled) - CPU Microcode: 0xa601203

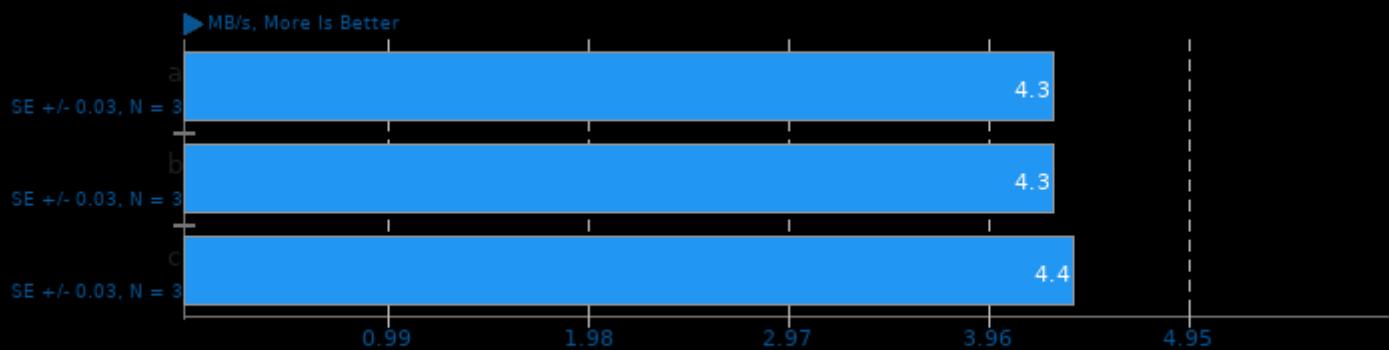
Security Notes: itlb_multithit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + rebleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapsgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced / Automatic IBRS IPB: conditional RSB filling PBRSB-eIBRS: Not affected + srbs: Not affected + tsx_async_abort: Not affected

	a	b	c
LevelDB - Fill Sync (MB/s)	4.3	4.3	4.4
Normalized	97.73%	97.73%	100%
Standard Deviation	1.3%	1.3%	1.3%
LevelDB - Overwrite (MB/s)	44.9	45.4	44.8
Normalized	98.9%	100%	98.68%
Standard Deviation	0.3%	0.6%	0.5%
LevelDB - Rand Fill (MB/s)	45.2	45.3	45.1
Normalized	99.78%	100%	99.56%
Standard Deviation	1.4%	0.6%	0.8%
LevelDB - Seq Fill (MB/s)	45.2	45.2	45.3
Normalized	99.78%	99.78%	100%
Standard Deviation	0.2%	0.3%	0.8%
LevelDB - Hot Read (us/Op)	11.373	11.475	11.415
Normalized	100%	99.11%	99.63%
Standard Deviation	2.4%	0.5%	1.6%
LevelDB - Fill Sync (us/Op)	804.979	809.803	804.844
Normalized	99.98%	99.39%	100%
Standard Deviation	1.1%	0.7%	0.5%
LevelDB - Overwrite (us/Op)	78.699	78.012	79.033
Normalized	99.13%	100%	98.71%
Standard Deviation	0.3%	0.5%	0.4%
LevelDB - Rand Fill (us/Op)	78.326	78.100	78.471
Normalized	99.71%	100%	99.53%
Standard Deviation	1.4%	0.6%	0.7%
LevelDB - Rand Read (us/Op)	11.381	11.564	11.458
Normalized	100%	98.42%	99.33%
Standard Deviation	1.9%	1.8%	2.2%
LevelDB - Seek Rand (us/Op)	18.955	18.908	19.010

	Normalized	99.75%	100%	99.46%
	Standard Deviation	1.3%	0.8%	0.4%
LevelDB - Rand Delete (us/Op)	74.146		73.548	73.283
	Normalized	98.84%	99.64%	100%
	Standard Deviation	0.1%	0.2%	1%
LevelDB - Seq Fill (us/Op)	78.294		78.318	78.186
	Normalized	99.86%	99.83%	100%
	Standard Deviation	0.2%	0.4%	0.8%

LevelDB 1.23

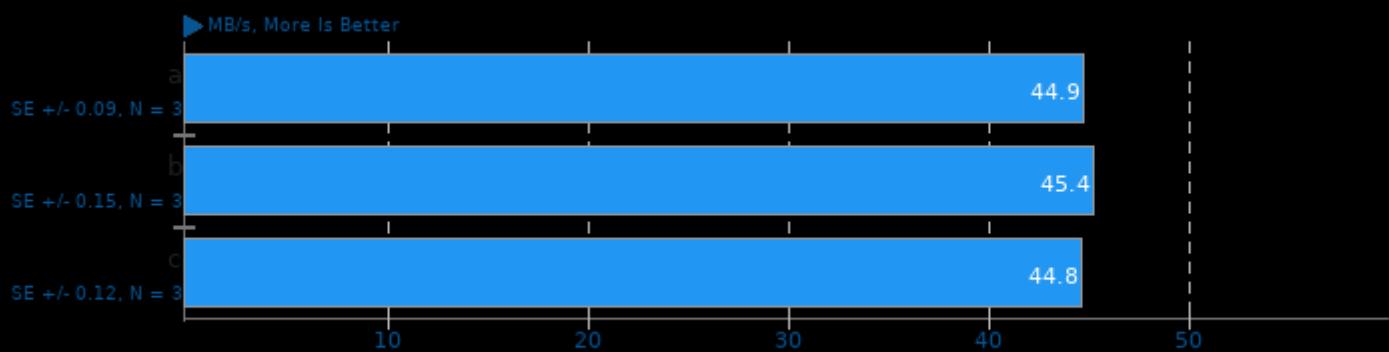
Benchmark: Fill Sync



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

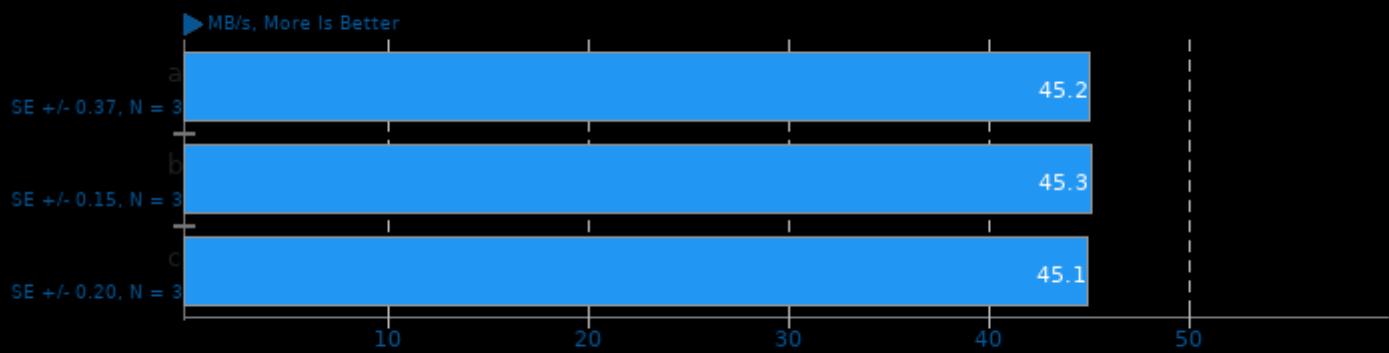
Benchmark: Overwrite



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

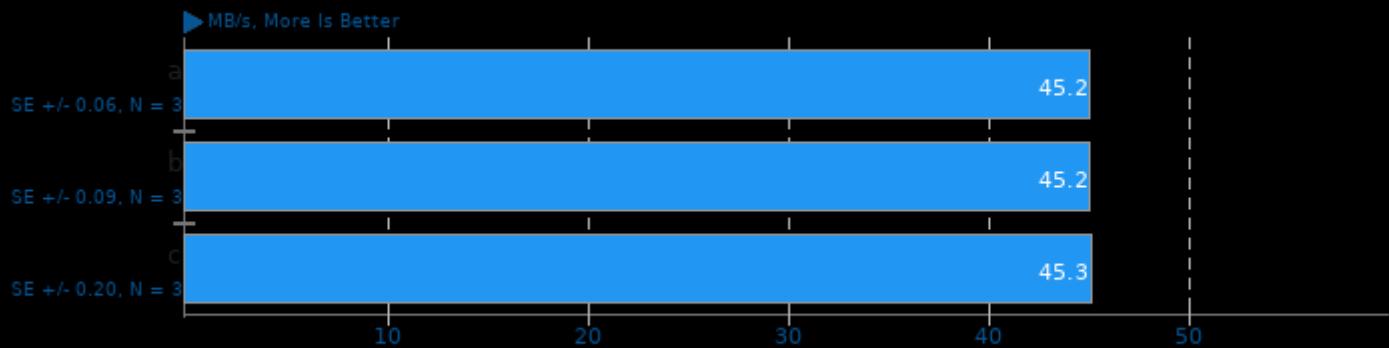
Benchmark: Random Fill



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

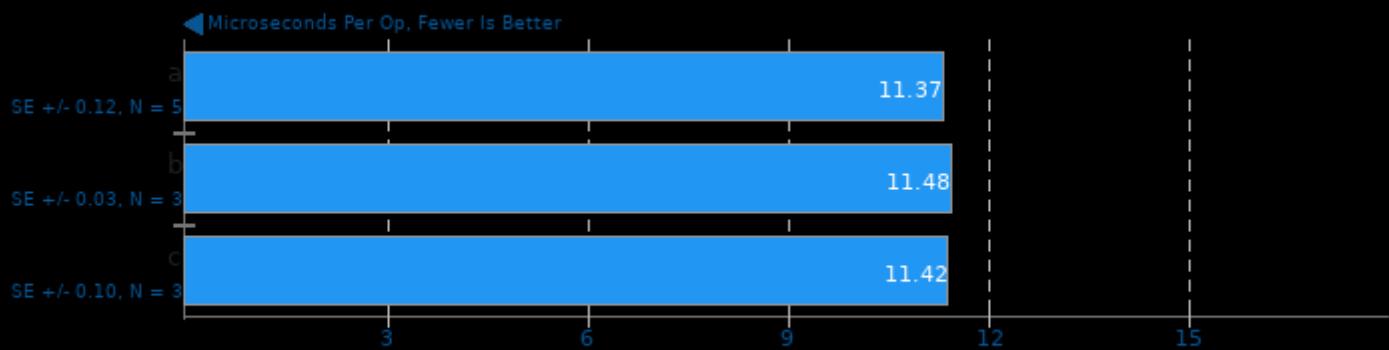
Benchmark: Sequential Fill



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

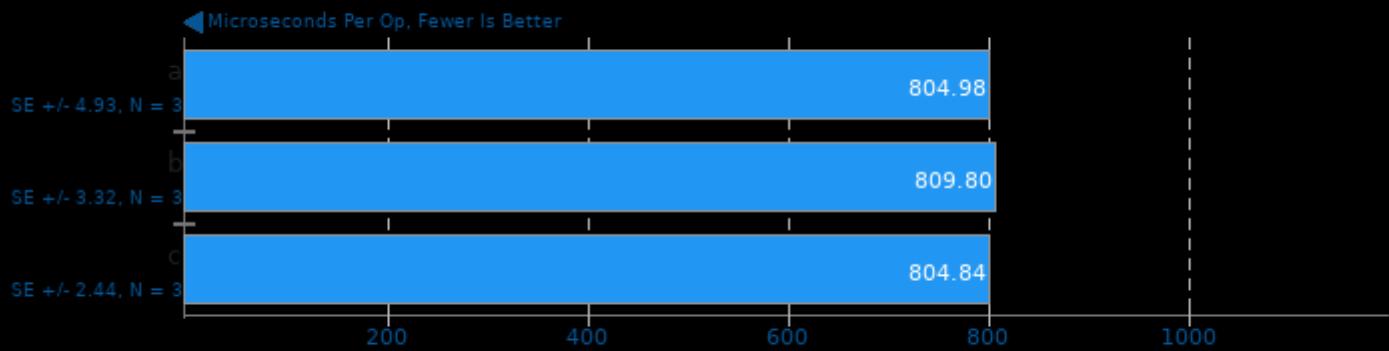
Benchmark: Hot Read



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

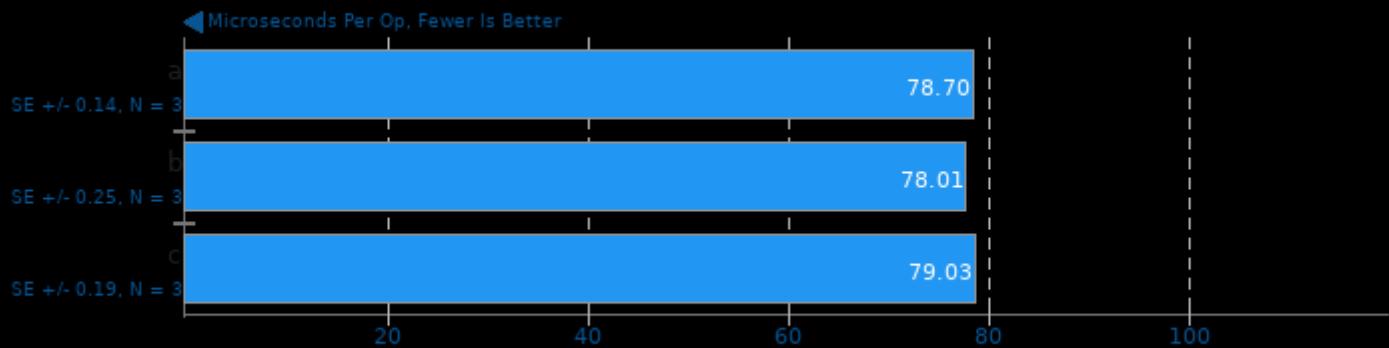
Benchmark: Fill Sync



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

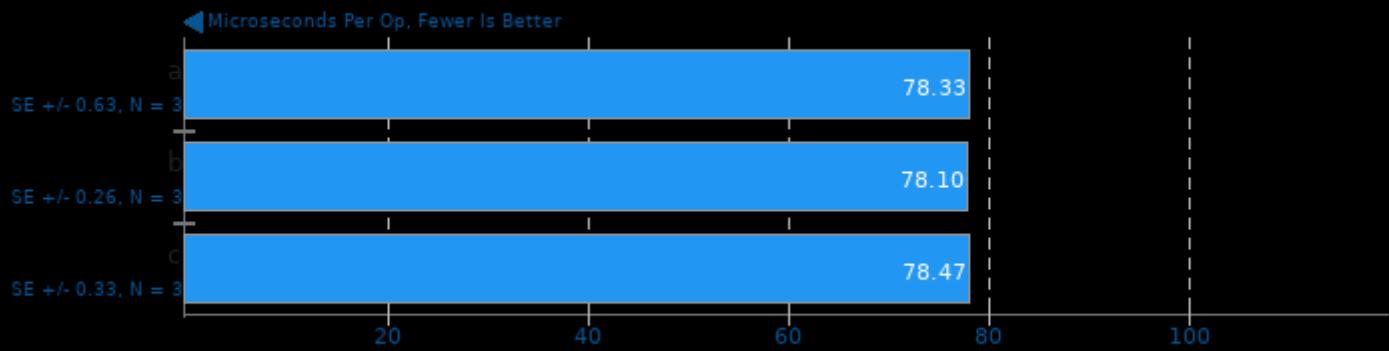
Benchmark: Overwrite



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

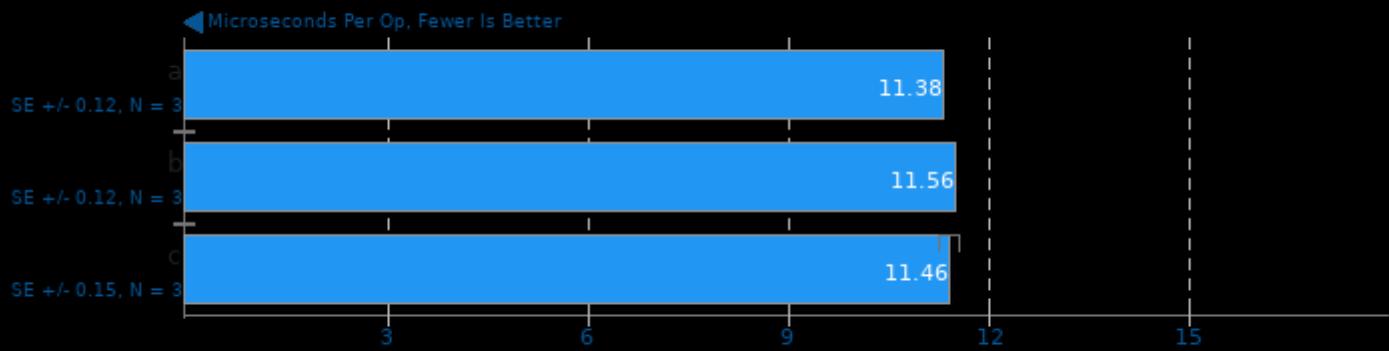
Benchmark: Random Fill



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

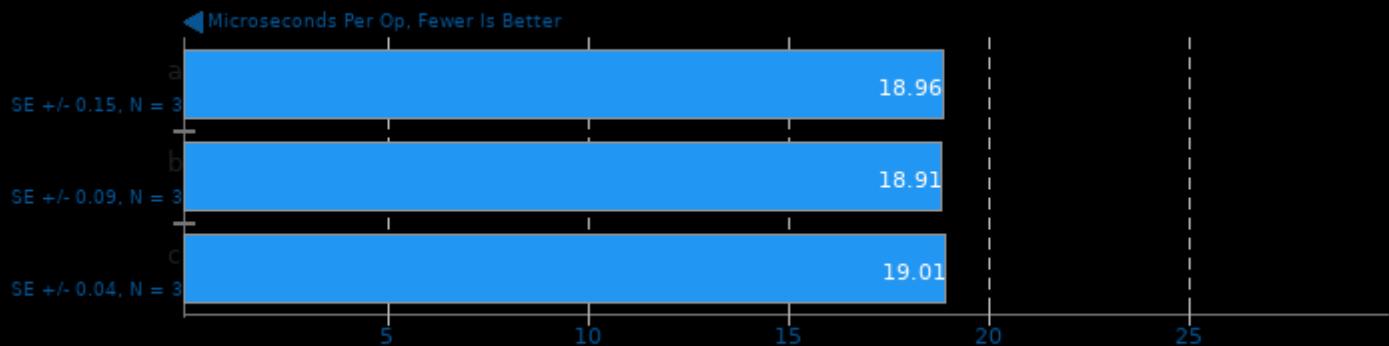
Benchmark: Random Read



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

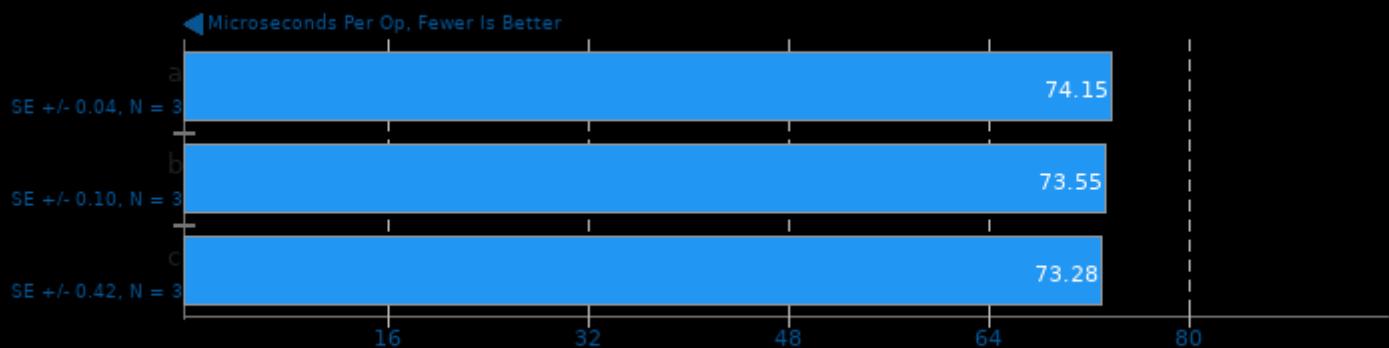
Benchmark: Seek Random



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

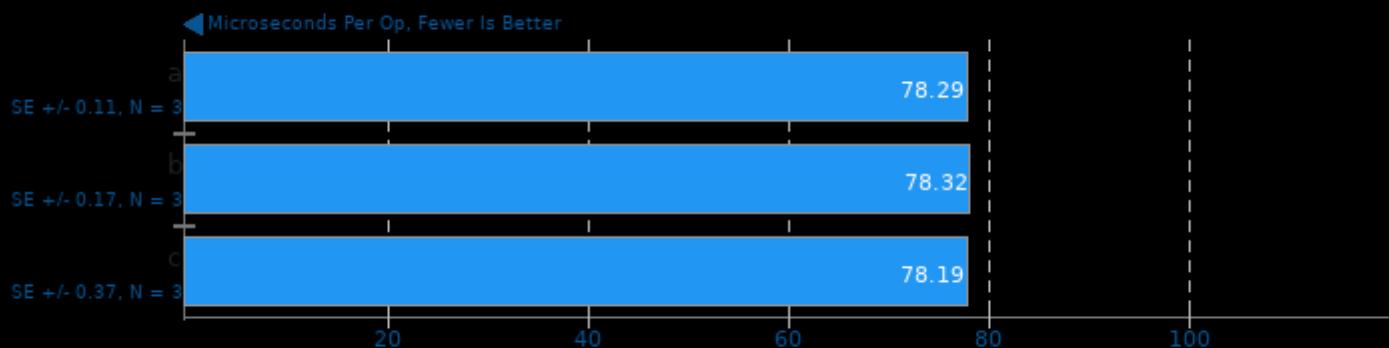
Benchmark: Random Delete



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

LevelDB 1.23

Benchmark: Sequential Fill



1. (CXX) g++ options: -fno-exceptions -fno-rtti -O3 -lgmock -lgtest -lsnappy

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