



no-nested

KVM testing on Ubuntu 20.04 via the Phoronix Test Suite.

Test Systems:

vm-tests

Processor: Intel Xeon E5-2690 v4 (6 Cores), Motherboard: QEMU Standard PC (i440FX + PIIX 1996) (rel-1.14.0-0-g155821a1990b-prebuilt.qemu.org BIOS), Chipset: Intel 440FX 82441FX PMC, Memory: 1 x 1024 MB RAM QEMU, Disk: 21GB QEMU HDD + 54GB QEMU HDD, Graphics: bochs-drmdrmfb, Monitor: QEMU Monitor, Network: Red Hat Virtio device

OS: Ubuntu 20.04, Kernel: 5.4.0-88-generic (x86_64), Vulkan: 1.0.2, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1024x768, System Layer: KVM

Kernel Notes: Transparent Huge Pages: madvise

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/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: MQ-DEADLINE / relatime,rw / Block Size: 4096
 Processor Notes: CPU Microcode: 0xb00003e
 Security Notes: itlb_multihit: KVM: Vulnerable + 11tf: 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/swaps 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

vm-tests

OpenSSL - SHA256 (byte/s) 1577047493
 Standard Deviation 0%

simdjson - Kostya (GB/s) 1.84
 Standard Deviation 0.3%

simdjson - LargeRand (GB/s) 0.68
 Standard Deviation 0%

simdjson - PartialTweets (GB/s) 2.96
 Standard Deviation 0.3%

simdjson - DistinctUserID (GB/s) 3.34
 Standard Deviation 0.3%

LevelDB - Fill Sync (MB/s) 0.1
 Standard Deviation 0%

LevelDB - Overwrite (MB/s) 17.4
 Standard Deviation 1.8%

LevelDB - Rand Fill (MB/s) 17.6
 Standard Deviation 1.7%

LevelDB - Seq Fill (MB/s) 18.0
 Standard Deviation 1.4%

Memtier_benchmark - Redis (Ops/sec) 1885399
 Standard Deviation 2.5%

ebizzy (Records/s) 171472
 Standard Deviation 0.1%

Redis - LPOP (Reqs/sec) 1848888
 Standard Deviation 2.5%

Redis - SADD (Reqs/sec) 1469699
 Standard Deviation 1.3%

Redis - LPUSH (Reqs/sec) 1134689
 Standard Deviation 1.2%

Redis - GET (Reqs/sec) 1758251
 Standard Deviation 1.2%

Redis - SET (Reqs/sec) 1352264
 Standard Deviation 1.3%

nginx - 1 (Reqs/sec) 40613
 Standard Deviation 0.2%

nginx - 20 (Reqs/sec) 160424
 Standard Deviation 0.3%

nginx - 100 (Reqs/sec) 164564
 Standard Deviation 0.3%

nginx - 200 (Reqs/sec) 171372
 Standard Deviation 0.3%

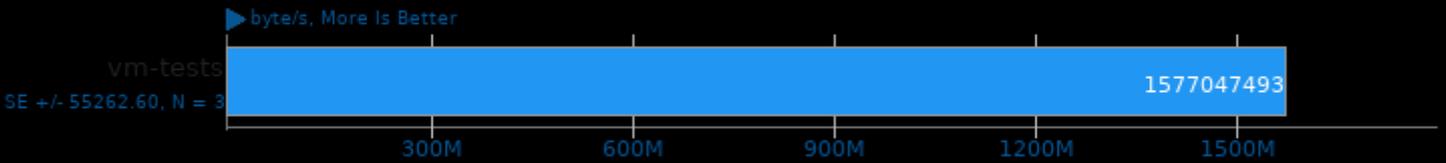
nginx - 500 (Reqs/sec) 172415
 Standard Deviation 0.5%

nginx - 1000 (Reqs/sec) 173190

	Standard Deviation	0.4%
Apache HTTP Server - 1 (Reqs/sec)		5140
	Standard Deviation	0.2%
Apache HTTP Server - 20 (Reqs/sec)		22797
	Standard Deviation	0.1%
Apache HTTP Server - 100 (Reqs/sec)		29128
	Standard Deviation	0.1%
Apache HTTP Server - 200 (Reqs/sec)		30874
	Standard Deviation	0.6%
Apache HTTP Server - 500 (Reqs/sec)		28700
	Standard Deviation	0.8%
Apache HTTP Server - 1000 (Reqs/sec)		28821
	Standard Deviation	0.3%
PHPBench - P.B.S (Score)		567168
	Standard Deviation	0.3%
OpenSSL - RSA4096 (sign/s)		1393
	Standard Deviation	2.3%
Apache Siege - 10 (Transactions/sec)		21946
	Standard Deviation	0.6%
Apache Siege - 50 (Transactions/sec)		25571
	Standard Deviation	0.4%
Apache Siege - 100 (Transactions/sec)		26389
	Standard Deviation	2.5%
Apache Siege - 200 (Transactions/sec)		26052
	Standard Deviation	0.8%
Apache Siege - 250 (Transactions/sec)		25113
	Standard Deviation	2.1%
Apache Siege - 500 (Transactions/sec)		24710
	Standard Deviation	0.8%
OpenSSL - RSA4096 (verify/s)		91873
	Standard Deviation	0.2%
LevelDB - Hot Read (us/Op)		3.607
	Standard Deviation	3.8%
LevelDB - Fill Sync (us/Op)		9590
	Standard Deviation	4.5%
LevelDB - Overwrite (us/Op)		37.793
	Standard Deviation	1.7%
LevelDB - Rand Fill (us/Op)		37.433
	Standard Deviation	2.1%
LevelDB - Rand Read (us/Op)		3.657
	Standard Deviation	2.5%
LevelDB - Seek Rand (us/Op)		4.489
	Standard Deviation	2.2%
LevelDB - Rand Delete (us/Op)		35.473
	Standard Deviation	0.2%
LevelDB - Seq Fill (us/Op)		36.658
	Standard Deviation	1.6%
SQLite Speedtest - Timed Time - Size 1,000 (sec)		88.292
	Standard Deviation	0.6%
PHP Micro Benchmarks - Zend bench (sec)		0.417
	Standard Deviation	0.6%
PHP Micro Benchmarks - Zend micro_bench (sec)		2.207
	Standard Deviation	1.1%

OpenSSL 3.0

Algorithm: SHA256



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ld

simdjson 1.0

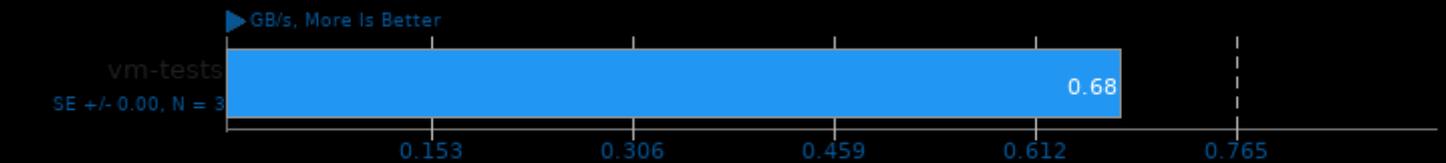
Throughput Test: Kostya



1. (CXX) g++ options: -O3 -pthread

simdjson 1.0

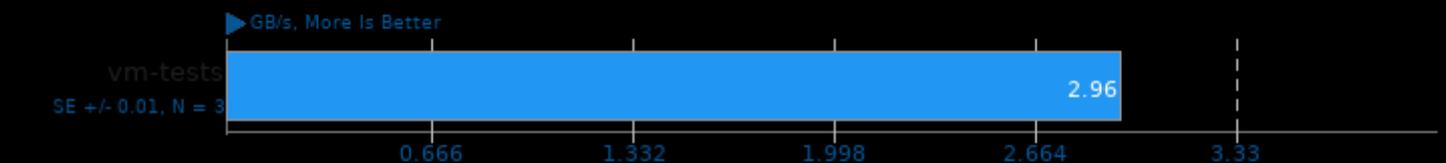
Throughput Test: LargeRandom



1. (CXX) g++ options: -O3 -pthread

simdjson 1.0

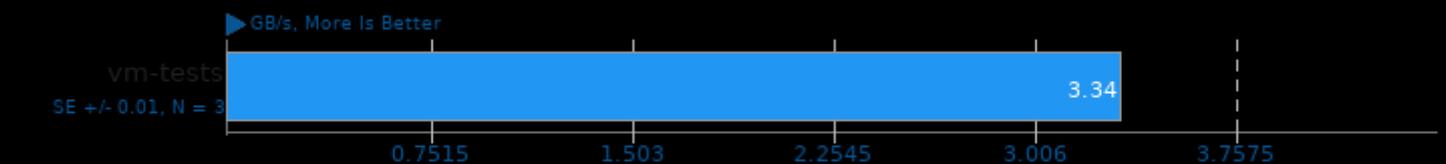
Throughput Test: PartialTweets



1. (CXX) g++ options: -O3 -pthread

simdjson 1.0

Throughput Test: DistinctUserID



1. (CXX) g++ options: -O3 -pthread

LevelDB 1.22

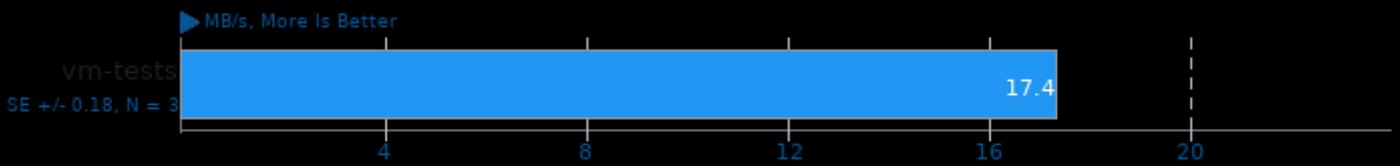
Benchmark: Fill Sync



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

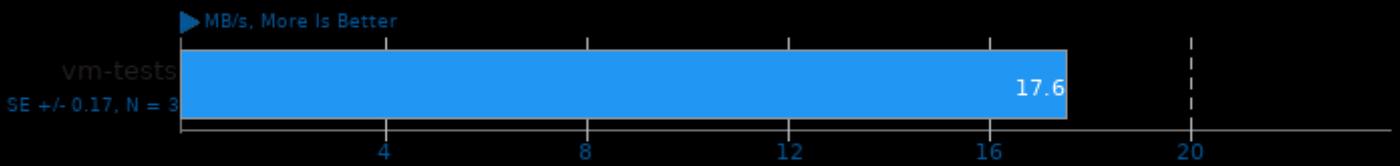
Benchmark: Overwrite



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

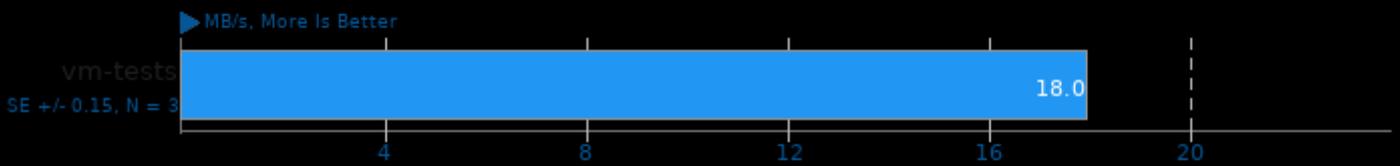
Benchmark: Random Fill



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

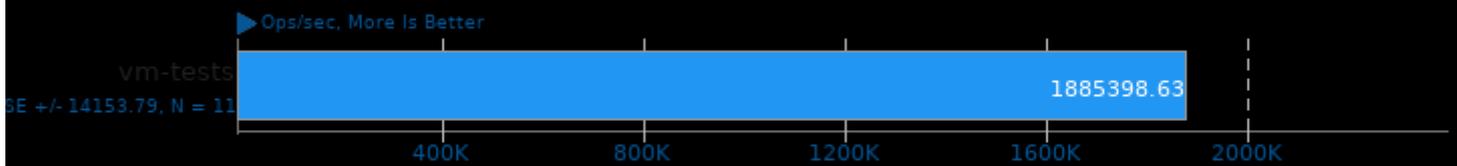
Benchmark: Sequential Fill



1. (CXX) g++ options: -O3 -lsnappy -lpthread

Memtier_benchmark 1.2.17

Protocol: Redis



1. (CXX) g++ options: -O2 -levent -lpthread -lz -lpcrc

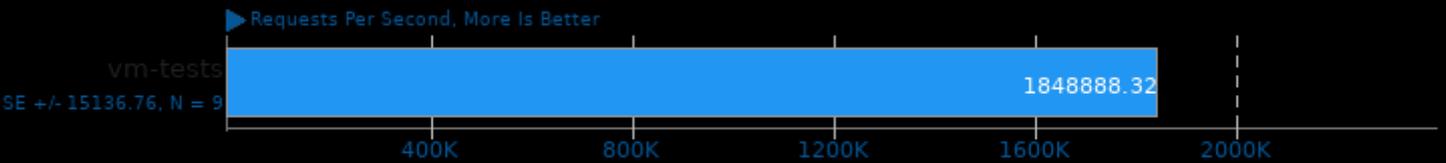
ebizzy 0.3



1. (CC) gcc options: -pthread -lpthread -O3 -march=native

Redis 6.0.9

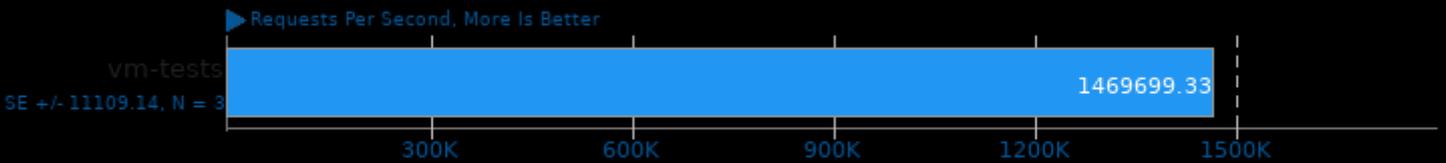
Test: LPOP



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 6.0.9

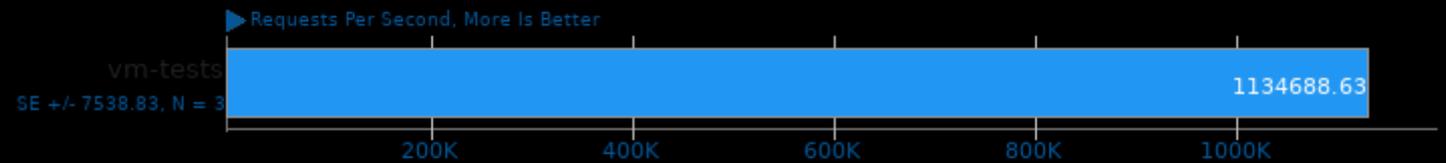
Test: SADD



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 6.0.9

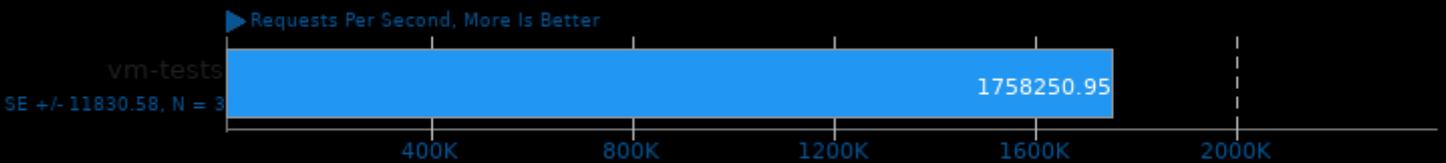
Test: LPUSH



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 6.0.9

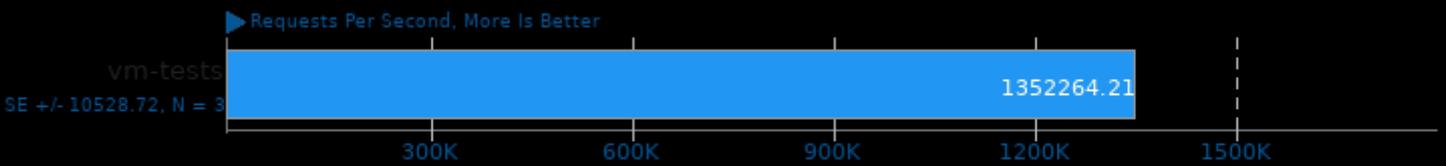
Test: GET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 6.0.9

Test: SET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

nginx 1.21.1

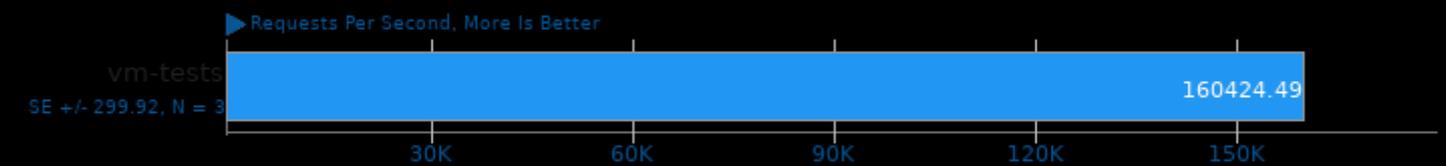
Concurrent Requests: 1



1. (C) gcc options: -ldl -lpthread -lcrypt -lz -O3 -march=native

nginx 1.21.1

Concurrent Requests: 20



1. (C) gcc options: -ldl -lpthread -lcrypt -lz -O3 -march=native

nginx 1.21.1

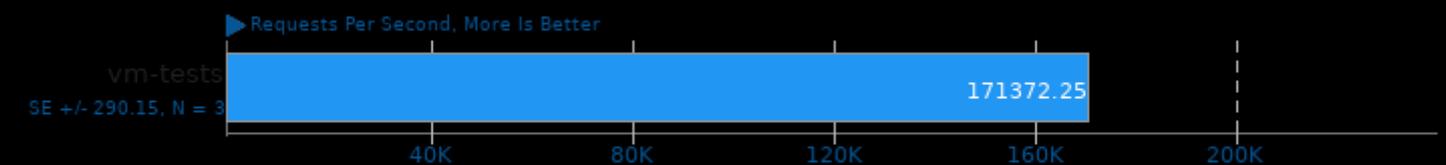
Concurrent Requests: 100



1. (C) gcc options: -ldl -lpthread -lcrypt -lz -O3 -march=native

nginx 1.21.1

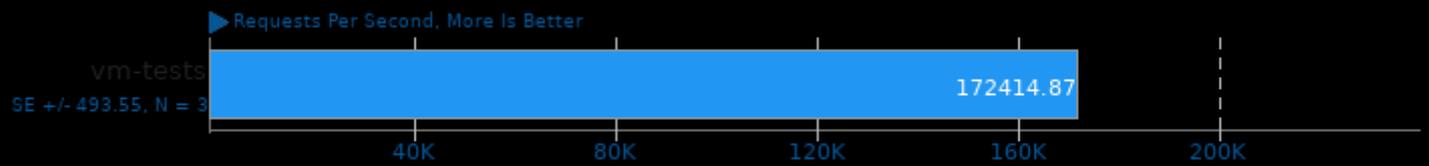
Concurrent Requests: 200



1. (C) gcc options: -ldl -lpthread -lcrypt -lz -O3 -march=native

nginx 1.21.1

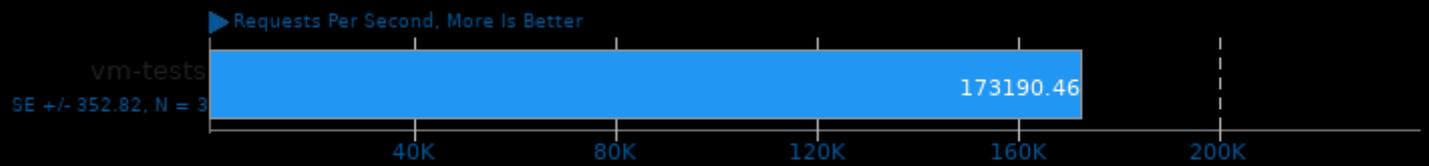
Concurrent Requests: 500



1. (CC) gcc options: -ld -pthread -lcrypt -lz -O3 -march=native

nginx 1.21.1

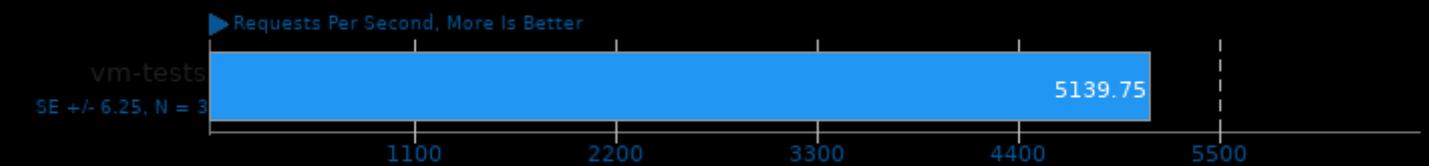
Concurrent Requests: 1000



1. (CC) gcc options: -ld -pthread -lcrypt -lz -O3 -march=native

Apache HTTP Server 2.4.48

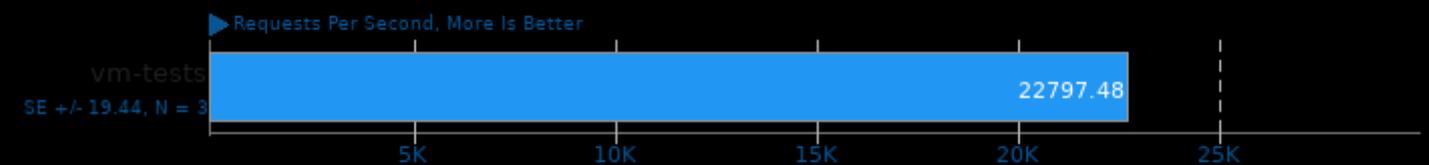
Concurrent Requests: 1



1. (CC) gcc options: -shared -fPIC -O2 -pthread

Apache HTTP Server 2.4.48

Concurrent Requests: 20



1. (CC) gcc options: -shared -fPIC -O2 -pthread

Apache HTTP Server 2.4.48

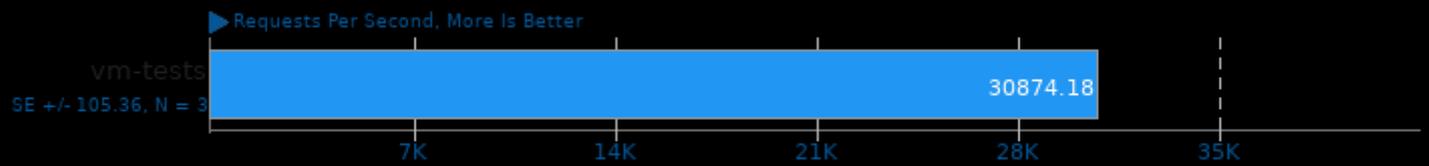
Concurrent Requests: 100



1. (CC) gcc options: -shared -fPIC -O2 -pthread

Apache HTTP Server 2.4.48

Concurrent Requests: 200



1. (CC) gcc options: -shared -fPIC -O2 -pthread

Apache HTTP Server 2.4.48

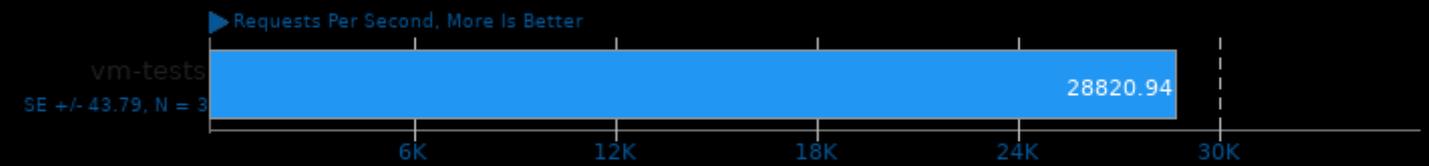
Concurrent Requests: 500



1. (CC) gcc options: -shared -fPIC -O2 -pthread

Apache HTTP Server 2.4.48

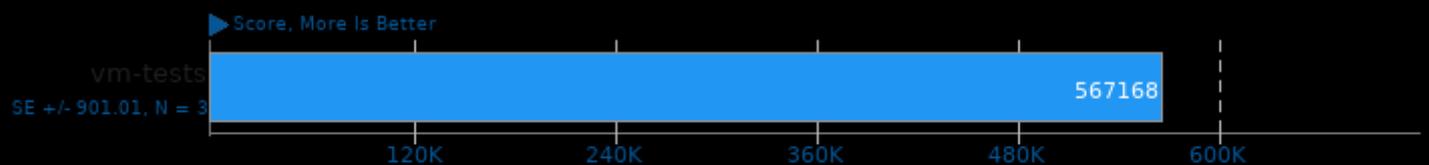
Concurrent Requests: 1000



1. (CC) gcc options: -shared -fPIC -O2 -pthread

PHPBench 0.8.1

PHP Benchmark Suite



OpenSSL 3.0

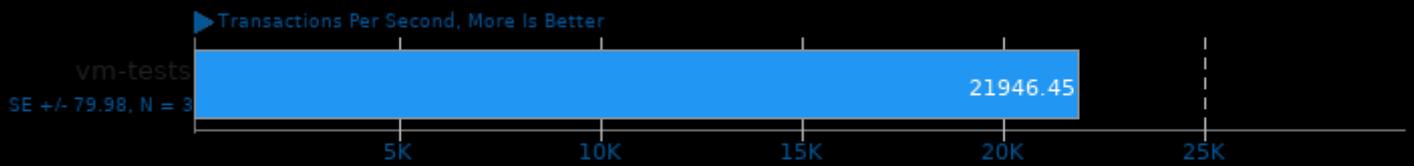
Algorithm: RSA4096



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

Apache Siege 2.4.29

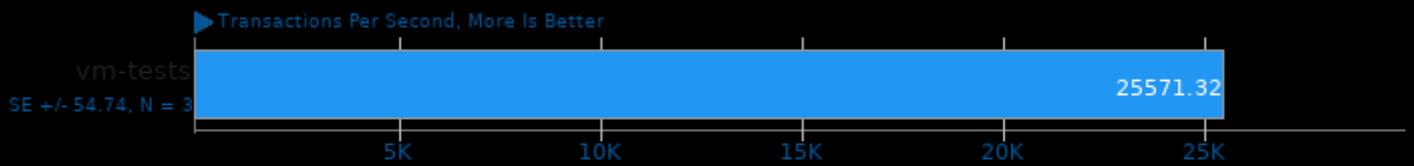
Concurrent Users: 10



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

Apache Siege 2.4.29

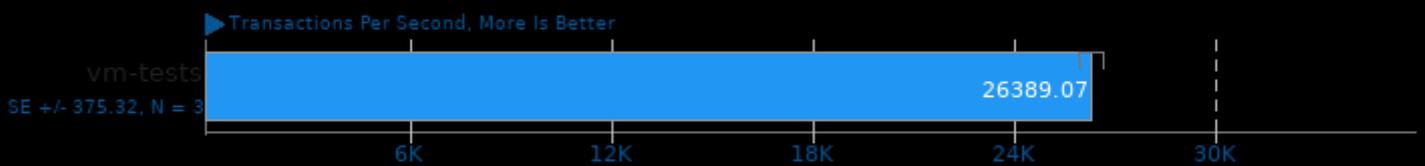
Concurrent Users: 50



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

Apache Siege 2.4.29

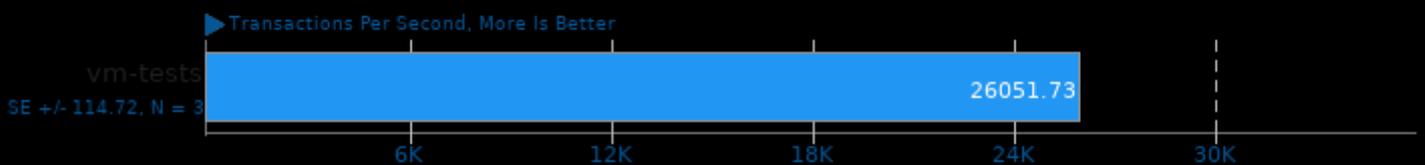
Concurrent Users: 100



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

Apache Siege 2.4.29

Concurrent Users: 200



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

Apache Siege 2.4.29

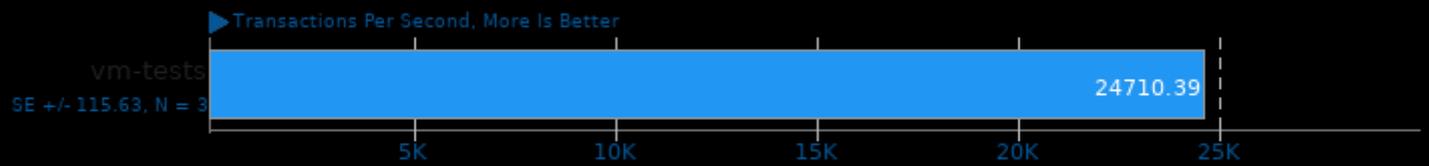
Concurrent Users: 250



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

Apache Siege 2.4.29

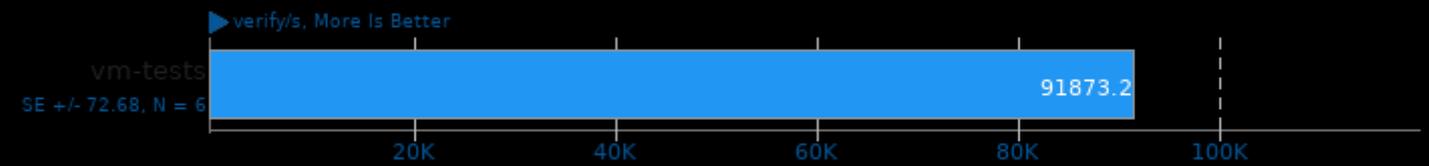
Concurrent Users: 500



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

OpenSSL 3.0

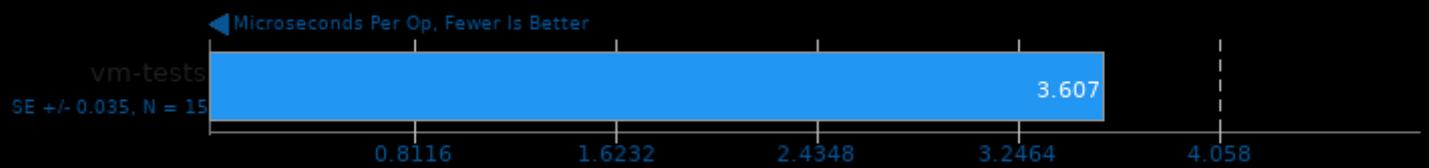
Algorithm: RSA4096



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

LevelDB 1.22

Benchmark: Hot Read



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

Benchmark: Fill Sync



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

Benchmark: Overwrite



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

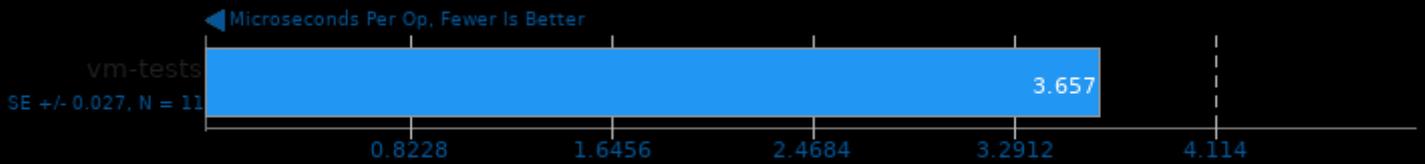
Benchmark: Random Fill



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

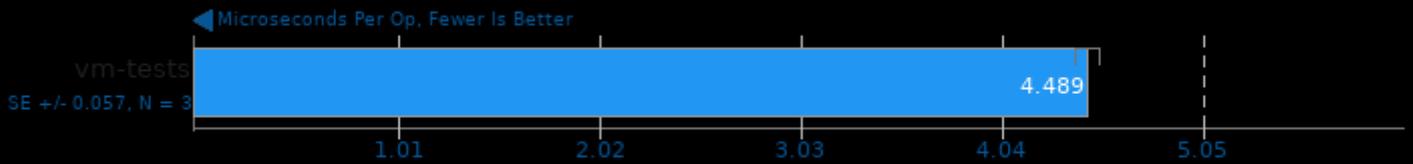
Benchmark: Random Read



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

Benchmark: Seek Random



1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

Benchmark: Random Delete



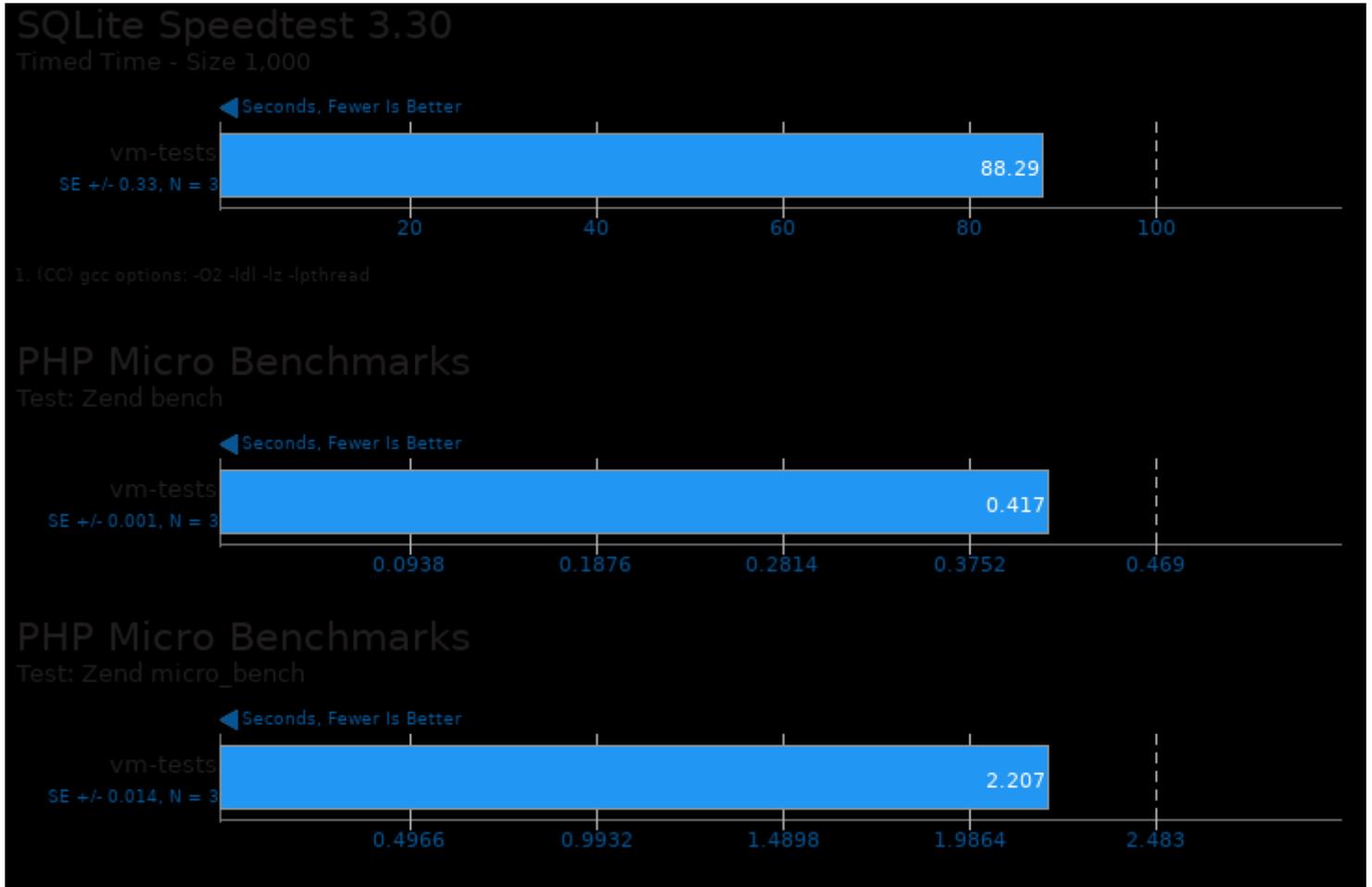
1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

Benchmark: Sequential Fill



1. (CXX) g++ options: -O3 -lsnappy -lpthread



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