

www.phoronix-test-suite.com

gce-vm-comparison

KVM testing on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

GCE VM comparison had the most wins, coming in first place for 91% of the tests.

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

PostgreSQL pgbench (Scaling Factor: 1000 - Clients: 1 - Mode: Read Write - Average Latency) at 1.296x
PostgreSQL pgbench (Scaling Factor: 1000 - Clients: 1 - Mode: Read Write) at 1.295x
LevelDB (Benchmark: Overwrite) at 1.256x
LevelDB (Benchmark: Overwrite) at 1.254x
PostgreSQL pgbench (Scaling Factor: 1 - Clients: 50 - Mode: Read Write) at 1.243x
PostgreSQL pgbench (Scaling Factor: 1 - Clients: 50 - Mode: Read Write - Average Latency) at 1.243x
LevelDB (Benchmark: Random Fill) at 1.235x
LevelDB (Benchmark: Random Fill) at 1.234x
PostgreSQL pgbench (Scaling Factor: 1 - Clients: 100 - Mode: Read Write - Average Latency) at 1.233x
PostgreSQL pgbench (Scaling Factor: 1 - Clients: 100 - Mode: Read Write) at 1.233x.

Test Systems:

GCE VM comparison

PersistentDisk

Processor: Intel Xeon (8 Cores / 16 Threads), Motherboard: Google Compute Engine c2-standard-16, Chipset: Intel 440FX 82441FX PMC, Memory: 64GB, Disk: 161GB PersistentDisk, Network: Red Hat Virtio device

OS: Ubuntu 20.04, Kernel: 5.4.0-1040-gcp (x86_64), Compiler: GCC 9.3.0, File-System: ext4, 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: NONE / relatime,rw / Block Size: 4096
Processor Notes: CPU Microcode: 0x1
Java Notes: OpenJDK Runtime Environment (build 11.0.10+9-Ubuntu-0ubuntu1.20.04)
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Mitigation of Clear buffers; SMT Host state unknown + 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 + srbds: Not affected + tsx_async_abort: Mitigation of Clear buffers; SMT Host state unknown

n2-standard-16

Processor: Intel Xeon (8 Cores / 16 Threads), Motherboard: Google Compute Engine n2-standard-16, Chipset: Intel 440FX 82441FX PMC, Memory: 64GB, Disk: 161GB PersistentDisk, Network: Red Hat Virtio device

OS: Ubuntu 20.04, Kernel: 5.4.0-1040-gcp (x86_64), Compiler: GCC 9.3.0, File-System: ext4, 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: NONE / relatime,rw / Block Size: 4096
Processor Notes: CPU Microcode: 0x1
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Mitigation of Clear buffers; SMT Host state unknown + 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 + srbds: Not affected + tsx_async_abort: Mitigation of Clear buffers; SMT Host state unknown

	GCE VM comparison	PersistentDisk	n2-standard-16
LevelDB - Fill Sync (MB/s)	**0.7**		**0.6**
Normalized	100%		85.71%
Standard Deviation	3.9%		0%
LevelDB - Overwrite (MB/s)	**15.8**		**12.6**
Normalized	100%		79.75%
Standard Deviation	0%		0.8%
LevelDB - Rand Fill (MB/s)	**15.8**		**12.8**
Normalized	100%		81.01%
Standard Deviation	0%		0.8%
LevelDB - Seq Fill (MB/s)	**15.8**		**13.2**
Normalized	100%		83.54%

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Standard Deviation	0%	0.4%
MariaDB - 1 (Queries/sec)	**2982**	**2451**
Normalized	100%	82.19%
Standard Deviation	0.5%	0.2%
MariaDB - 4 (Queries/sec)	**1934**	**1617**
Normalized	100%	83.61%
Standard Deviation	5.5%	1%
MariaDB - 8 (Queries/sec)	**1814**	**1528**
Normalized	100%	84.23%
Standard Deviation	0.8%	0.2%
MariaDB - 16 (Queries/sec)	**1675**	**1381**
Normalized	100%	82.45%
Standard Deviation	0.6%	0.6%
MariaDB - 32 (Queries/sec)	**1347**	**1163**
Normalized	100%	86.34%
Standard Deviation	0.4%	0.1%
MariaDB - 64 (Queries/sec)	**972**	**898**
Normalized	100%	92.39%
Standard Deviation	2%	0.8%
MariaDB - 128 (Queries/sec)	**352**	**345**
Normalized	100%	98.01%
Standard Deviation	2.2%	0.9%
MariaDB - 256 (Queries/sec)	**295**	**280**
Normalized	100%	94.92%
Standard Deviation	2.1%	0.2%
MariaDB - 512 (Queries/sec)	**261**	**247**
Normalized	100%	94.64%
Standard Deviation	1.5%	1.5%
PostgreSQL pgbench - 1 - 1 - Read Only	**22019**	**20338**
Normalized	100%	92.37%
Standard Deviation	0.8%	0.8%
PostgreSQL pgbench - 1 - 1 - Read Write	**1225**	**1014**
Normalized	100%	82.78%
Standard Deviation	0.8%	0.1%
PostgreSQL pgbench - 1 - 50 - Read Only (TPS)	**214289**	**194477**
Normalized	100%	90.75%
Standard Deviation	0.1%	0.2%
PostgreSQL pgbench - 1 - 100 - Read Only (TPS)	**226079**	**205787**
Normalized	100%	91.02%
Standard Deviation	0.9%	0.4%
PostgreSQL pgbench - 1 - 250 - Read Only (TPS)	**215591**	**191351**
Normalized	100%	88.76%
Standard Deviation	0.3%	1.1%
PostgreSQL pgbench - 1 - 50 - Read Write (TPS)	**1514**	**1218**
Normalized	100%	80.45%
Standard Deviation	1.8%	0.7%
PostgreSQL pgbench - 100 - 1 - Read Only (TPS)	**18754**	**16925**
Normalized	100%	90.25%
Standard Deviation	0.6%	1.6%

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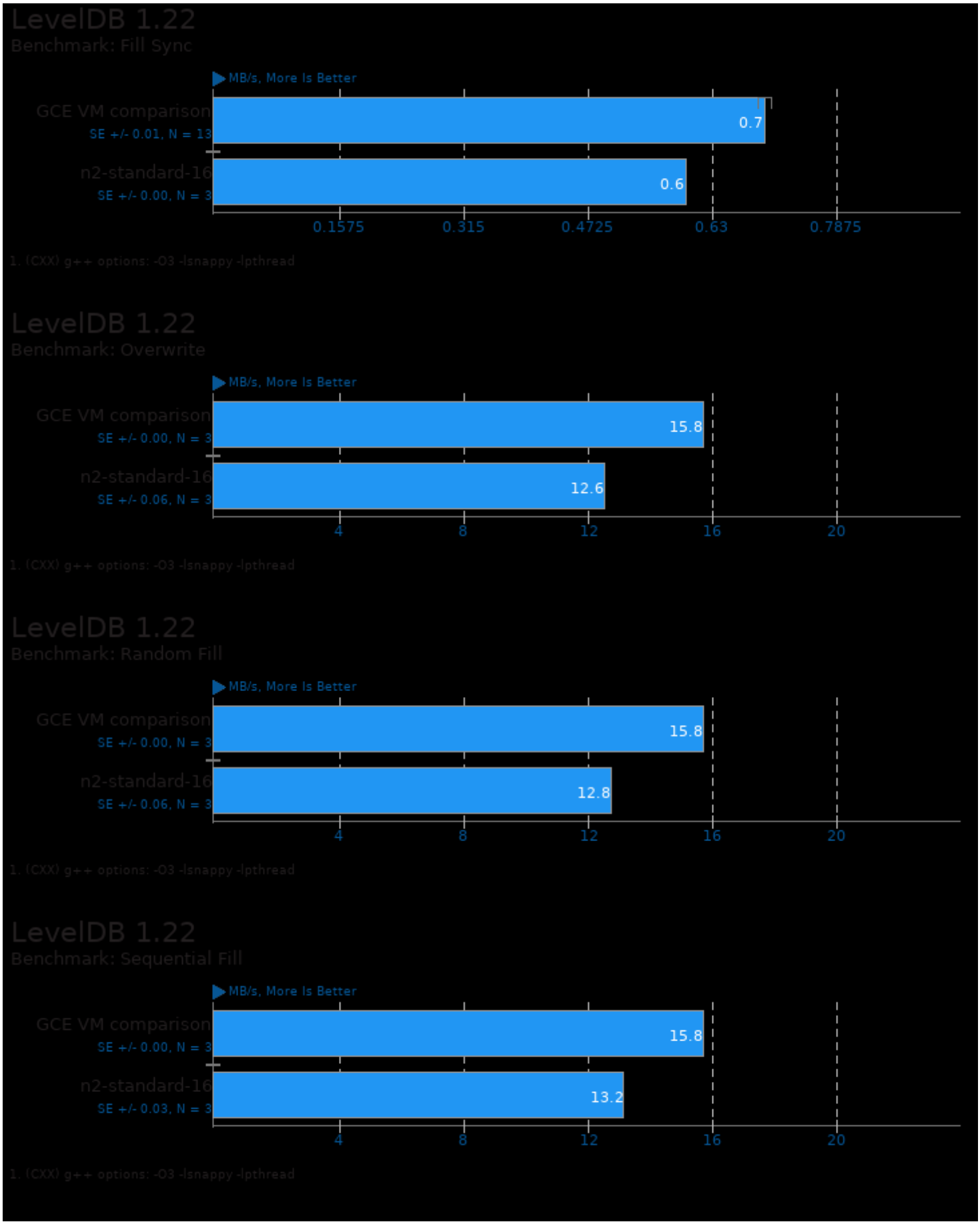
PostgreSQL pgbench - 1 - 100 - Read Write (TPS)	**1431**	**1161**
Normalized	100%	81.13%
Standard Deviation	1.1%	2.4%
PostgreSQL pgbench - 1 - 250 - Read Write (TPS)	**1229**	**1039**
Normalized	100%	84.54%
Standard Deviation	1.1%	3%
PostgreSQL pgbench - 100 - 1 - Read Write (TPS)	**878**	**678**
Normalized	100%	77.22%
Standard Deviation	16.9%	20.7%
PostgreSQL pgbench - 100 - 50 - Read Only (TPS)	**173439**	**155332**
Normalized	100%	89.56%
Standard Deviation	0.4%	0.2%
PostgreSQL pgbench - 1000 - 1 - Read Only (TPS)	**17252**	**16180**
Normalized	100%	93.79%
Standard Deviation	2.4%	1.6%
PostgreSQL pgbench - 100 - 100 - Read Only (TPS)	**182659**	**164164**
Normalized	100%	89.87%
Standard Deviation	0.2%	0.3%
PostgreSQL pgbench - 100 - 250 - Read Only (TPS)	**166151**	**152295**
Normalized	100%	91.66%
Standard Deviation	0.5%	0.5%
PostgreSQL pgbench - 100 - 50 - Read Write (TPS)	**3356**	**3420**
Normalized	98.13%	100%
Standard Deviation	2.4%	4.3%
PostgreSQL pgbench - 1000 - 1 - Read Write (TPS)	**1168**	**902**
Normalized	100%	77.23%
Standard Deviation	0.6%	2.1%
PostgreSQL pgbench - 1000 - 50 - Read Only (TPS)	**165375**	**149726**
Normalized	100%	90.54%
Standard Deviation	1.1%	0.5%
LevelDB - Hot Read (us/Op)	**15.083**	**13.281**
Normalized	88.05%	100%
Standard Deviation	2.8%	1.2%
LevelDB - Fill Sync (us/Op)	**2385**	**2919**
Normalized	100%	81.71%
Standard Deviation	1.4%	0.3%
LevelDB - Overwrite (us/Op)	**112.041**	**140.673**
Normalized	100%	79.65%
Standard Deviation	0.1%	0.9%
LevelDB - Rand Fill (us/Op)	**111.921**	**138.206**
Normalized	100%	80.98%
Standard Deviation	0.2%	0.6%
LevelDB - Rand Read (us/Op)	**15.450**	**13.696**
Normalized	88.65%	100%

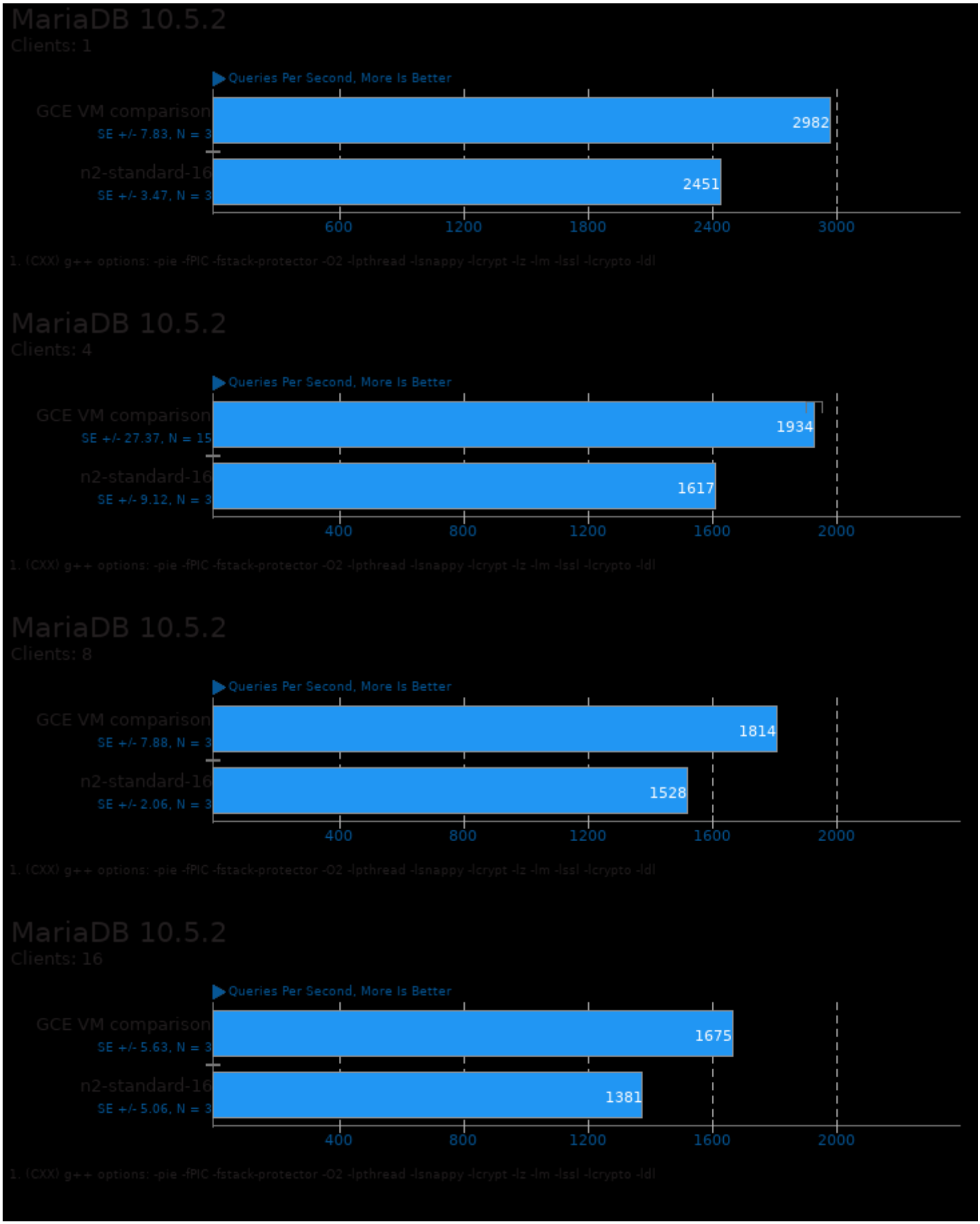
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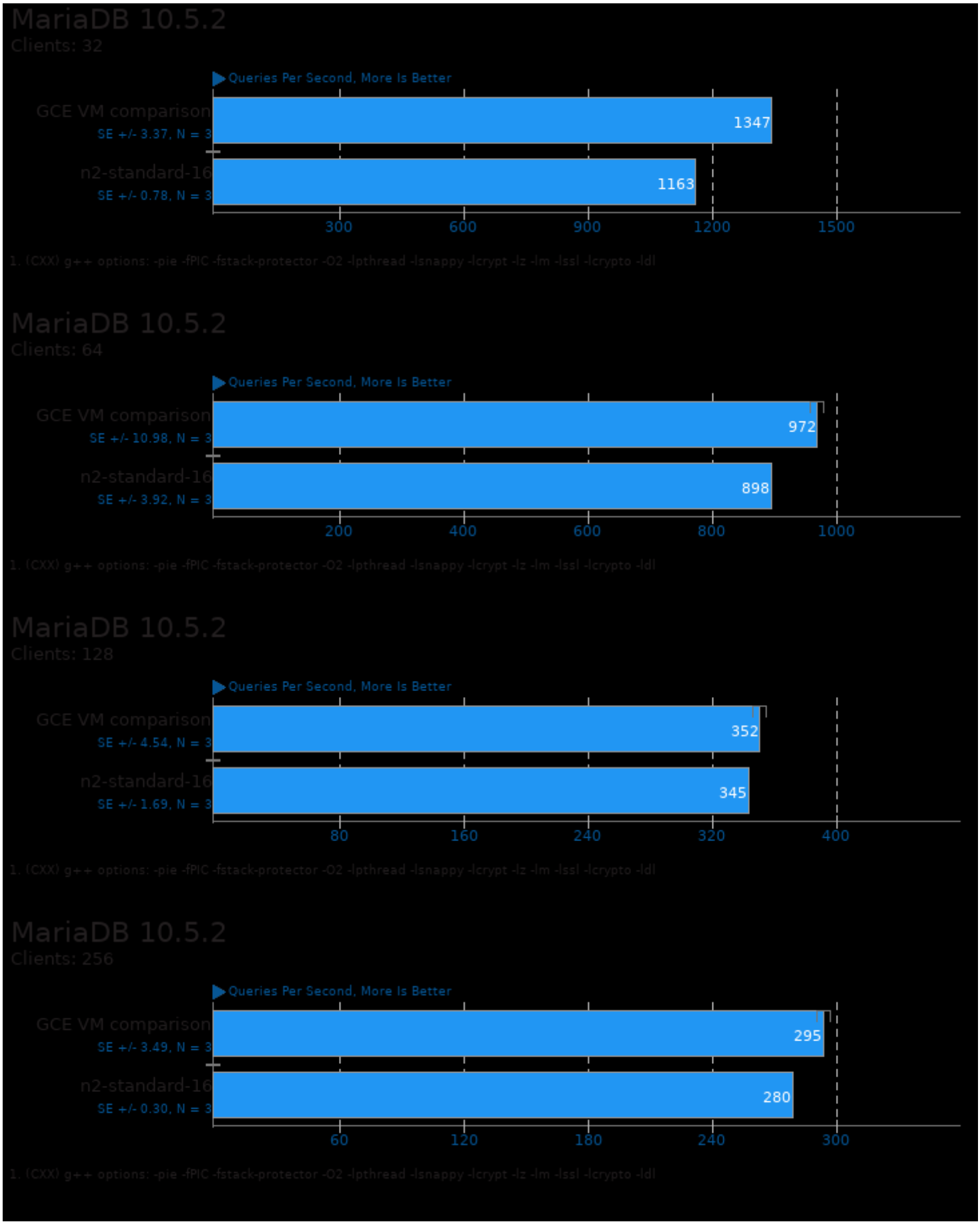
Standard Deviation	1.5%	2.3%
LevelDB - Seek Rand (us/Op)	**19.103**	**18.045**
Normalized	94.46%	100%
Standard Deviation	0.9%	0.6%
LevelDB - Rand Delete (us/Op)	**110.879**	**133.942**
Normalized	100%	82.78%
Standard Deviation	0.3%	0.4%
LevelDB - Seq Fill (us/Op)	**111.946**	**133.937**
Normalized	100%	83.58%
Standard Deviation	0.1%	0.4%
PostgreSQL pgbench - 1 - 1 - Read Only - Average Latency (ms)	**0.045**	**0.049**
Normalized	100%	91.84%
Standard Deviation	1.3%	1.2%
PostgreSQL pgbench - 1 - 1 - Read Write - Average Latency (ms)	**0.816**	**0.986**
Normalized	100%	82.76%
Standard Deviation	0.7%	0.1%
PostgreSQL pgbench - 1 - 50 - Read Only - Average Latency (ms)	**0.233**	**0.257**
Normalized	100%	90.66%
Standard Deviation	0.2%	0.2%
PostgreSQL pgbench - 1 - 100 - Read Only - Average Latency (ms)	**0.443**	**0.486**
Normalized	100%	91.15%
Standard Deviation	0.9%	0.4%
PostgreSQL pgbench - 1 - 250 - Read Only - Average Latency (ms)	**1.160**	**1.307**
Normalized	100%	88.75%
Standard Deviation	0.2%	1.1%
PostgreSQL pgbench - 1 - 50 - Read Write - Average Latency (ms)	**33.040**	**41.059**
Normalized	100%	80.47%
Standard Deviation	1.8%	0.7%
PostgreSQL pgbench - 100 - 1 - Read Only - Average Latency (ms)	**0.053**	**0.059**
Normalized	100%	89.83%
Standard Deviation	1.1%	1.7%
PostgreSQL pgbench - 1 - 100 - Read Write - Average Latency (ms)	**69.899**	**86.219**
Normalized	100%	81.07%
Standard Deviation	1.1%	2.4%
PostgreSQL pgbench - 1 - 250 - Read Write - Average Latency (ms)	**203.469**	**240.845**
Normalized	100%	84.48%
Standard Deviation	1.1%	3%
PostgreSQL pgbench - 100 - 1 - Read Write - Average Latency (ms)	**1.170**	**1.540**
Normalized	100%	75.97%
Standard Deviation	17.4%	22.4%
PostgreSQL pgbench - 100 - 50 - Read Only - Average Latency (ms)	**0.288**	**0.322**
Normalized	100%	89.44%
Standard Deviation	0.4%	0.2%

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PostgreSQL pgbench - 1000 - 1 - Read Only - Average Latency (ms)	**0.058**	**0.062**
Normalized	100%	93.55%
Standard Deviation	1.7%	1.6%
PostgreSQL pgbench - 100 - 100 - Read Only - Average Latency (ms)	**0.548**	**0.610**
Normalized	100%	89.84%
Standard Deviation	0.2%	0.3%
PostgreSQL pgbench - 100 - 250 - Read Only - Average Latency (ms)	**1.505**	**1.642**
Normalized	100%	91.66%
Standard Deviation	0.5%	0.5%
PostgreSQL pgbench - 100 - 50 - Read Write - Average Latency (ms)	**14.905**	**14.649**
Normalized	98.28%	100%
Standard Deviation	2.4%	4.4%
PostgreSQL pgbench - 1000 - 1 - Read Write - Average Latency (ms)	**0.856**	**1.109**
Normalized	100%	77.19%
Standard Deviation	0.6%	2.1%
PostgreSQL pgbench - 1000 - 50 - Read Only - Average Latency (ms)	**0.302**	**0.334**
Normalized	100%	90.42%
Standard Deviation	1%	0.5%
SQLite - 1 (sec)	**16.724**	**19.770**
Normalized	100%	84.59%
Standard Deviation	0.9%	2.5%
Apache CouchDB - 100 - 1000 - 24 (sec)	**97.714**	**106.059**
Normalized	100%	92.13%
Standard Deviation	0.4%	0.3%

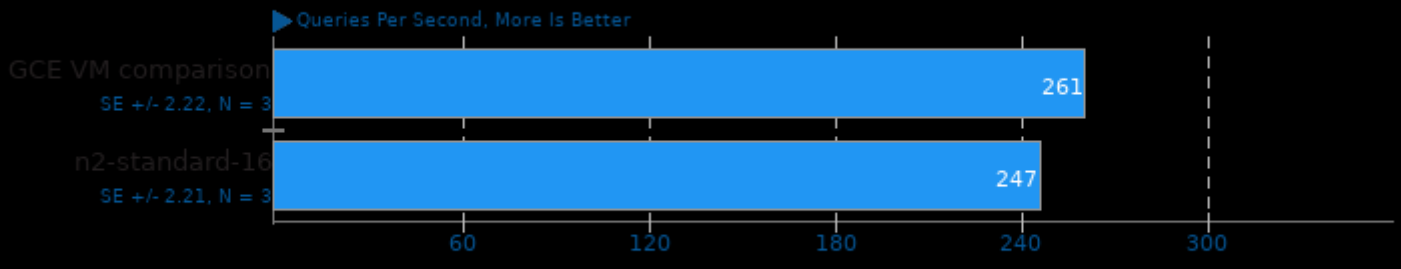

LevelDB 1.22
Benchmark: Fill Sync
MB/s, More Is Better
GCE VM comparison
SE +/- 0.01, N = 13
0.7
n2-standard-16
SE +/- 0.00, N = 3
0.6
0.1575
0.315
0.4725
0.63
0.7875
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Overwrite
MB/s, More Is Better
GCE VM comparison
SE +/- 0.00, N = 3
15.8
n2-standard-16
SE +/- 0.06, N = 3
12.6
4
8
12
16
20
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Random Fill
MB/s, More Is Better
GCE VM comparison
SE +/- 0.00, N = 3
15.8
n2-standard-16
SE +/- 0.06, N = 3
12.8
4
8
12
16
20
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Sequential Fill
MB/s, More Is Better
GCE VM comparison
SE +/- 0.00, N = 3
15.8
n2-standard-16
SE +/- 0.03, N = 3
13.2
4
8
12
16
20
1. (CXX) g++ options: -O3 -lsnappy -lpthread


MariaDB 10.5.2
Clients: 1
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 7.83, N = 3
2982
n2-standard-16
SE +/- 3.47, N = 3
2451
600
1200
1800
2400
3000
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl
MariaDB 10.5.2
Clients: 4
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 27.37, N = 15
1934
n2-standard-16
SE +/- 9.12, N = 3
1617
400
800
1200
1600
2000
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl
MariaDB 10.5.2
Clients: 8
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 7.88, N = 3
1814
n2-standard-16
SE +/- 2.06, N = 3
1528
400
800
1200
1600
2000
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl
MariaDB 10.5.2
Clients: 16
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 5.63, N = 3
1675
n2-standard-16
SE +/- 5.06, N = 3
1381
400
800
1200
1600
2000
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl


MariaDB 10.5.2
Clients: 32
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 3.37, N = 3
1347
n2-standard-16
SE +/- 0.78, N = 3
1163
300
600
900
1200
1500
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl
MariaDB 10.5.2
Clients: 64
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 10.98, N = 3
972
n2-standard-16
SE +/- 3.92, N = 3
898
200
400
600
800
1000
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl
MariaDB 10.5.2
Clients: 128
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 4.54, N = 3
352
n2-standard-16
SE +/- 1.69, N = 3
345
80
160
240
320
400
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl
MariaDB 10.5.2
Clients: 256
Queries Per Second, More Is Better
GCE VM comparison
SE +/- 3.49, N = 3
295
n2-standard-16
SE +/- 0.30, N = 3
280
60
120
180
240
300
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl

MariaDB 10.5.2

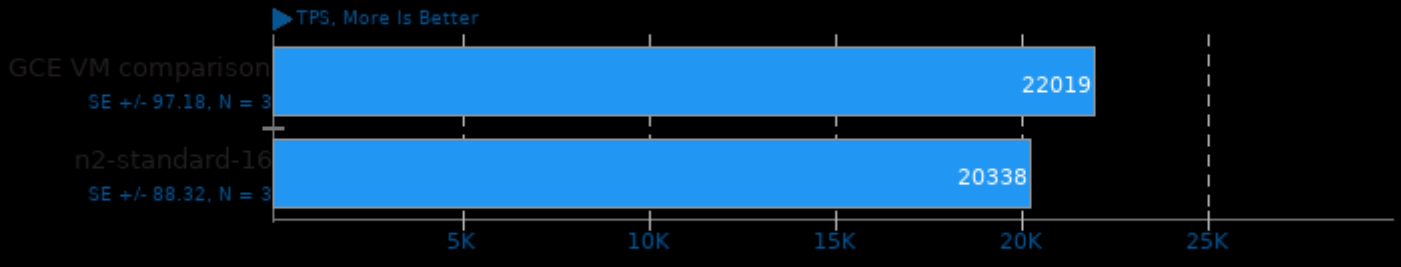
Clients: 512



1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -lsnappy -lcrypt -lz -lm -lssl -lcrypto -ldl

PostgreSQL pgbench 13.0

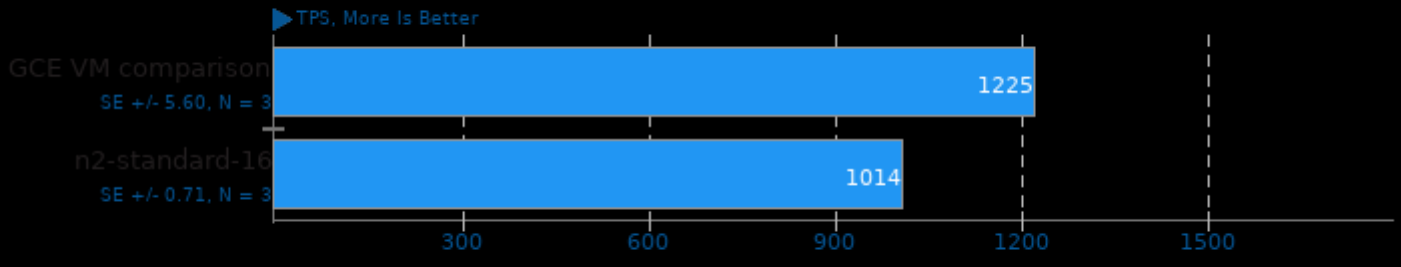
Scaling Factor: 1 - Clients: 1 - Mode: Read Only



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 13.0

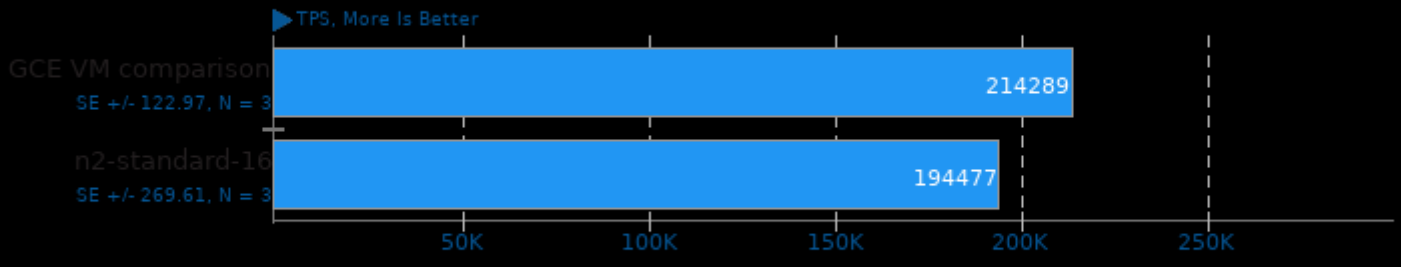
Scaling Factor: 1 - Clients: 1 - Mode: Read Write



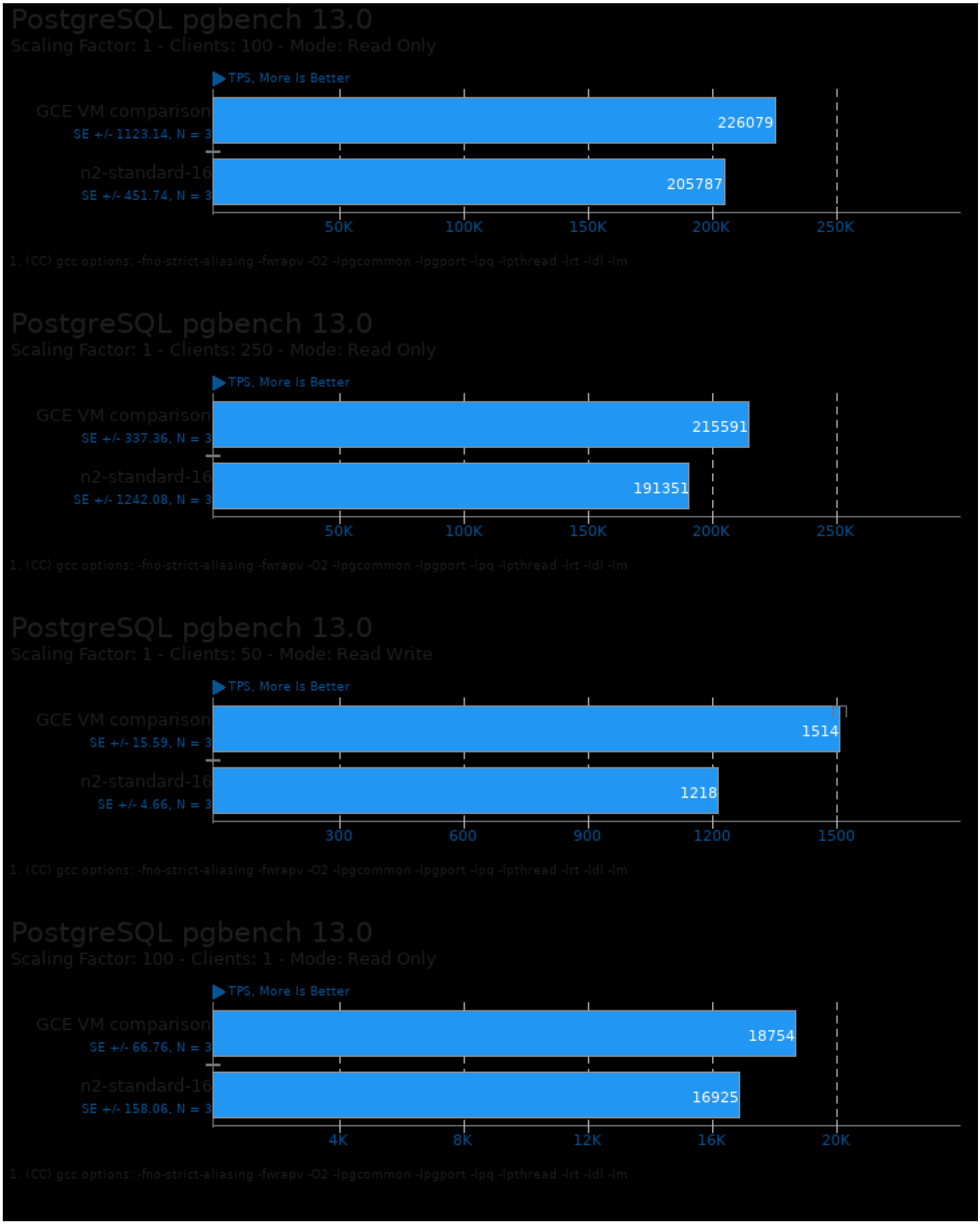
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

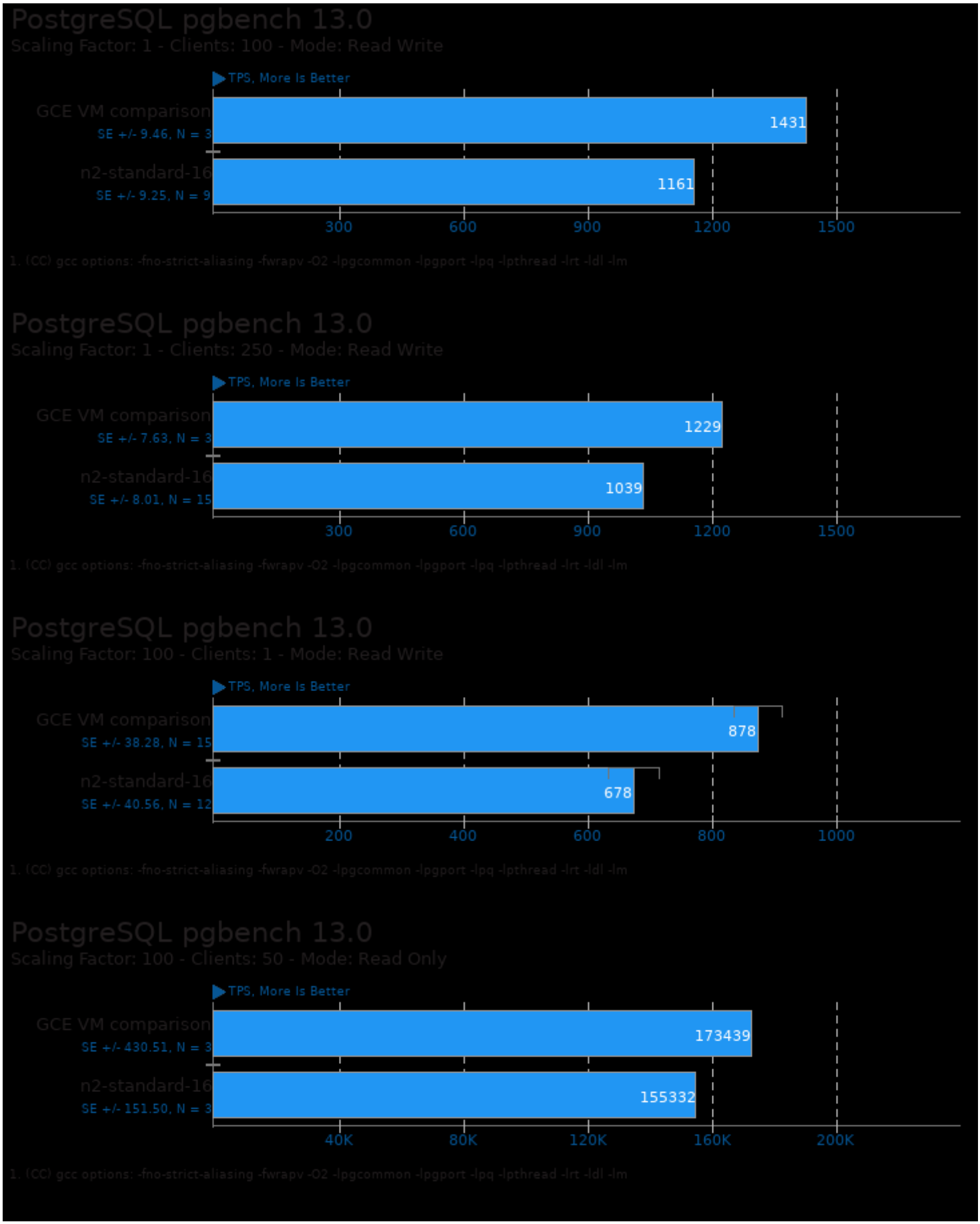
PostgreSQL pgbench 13.0

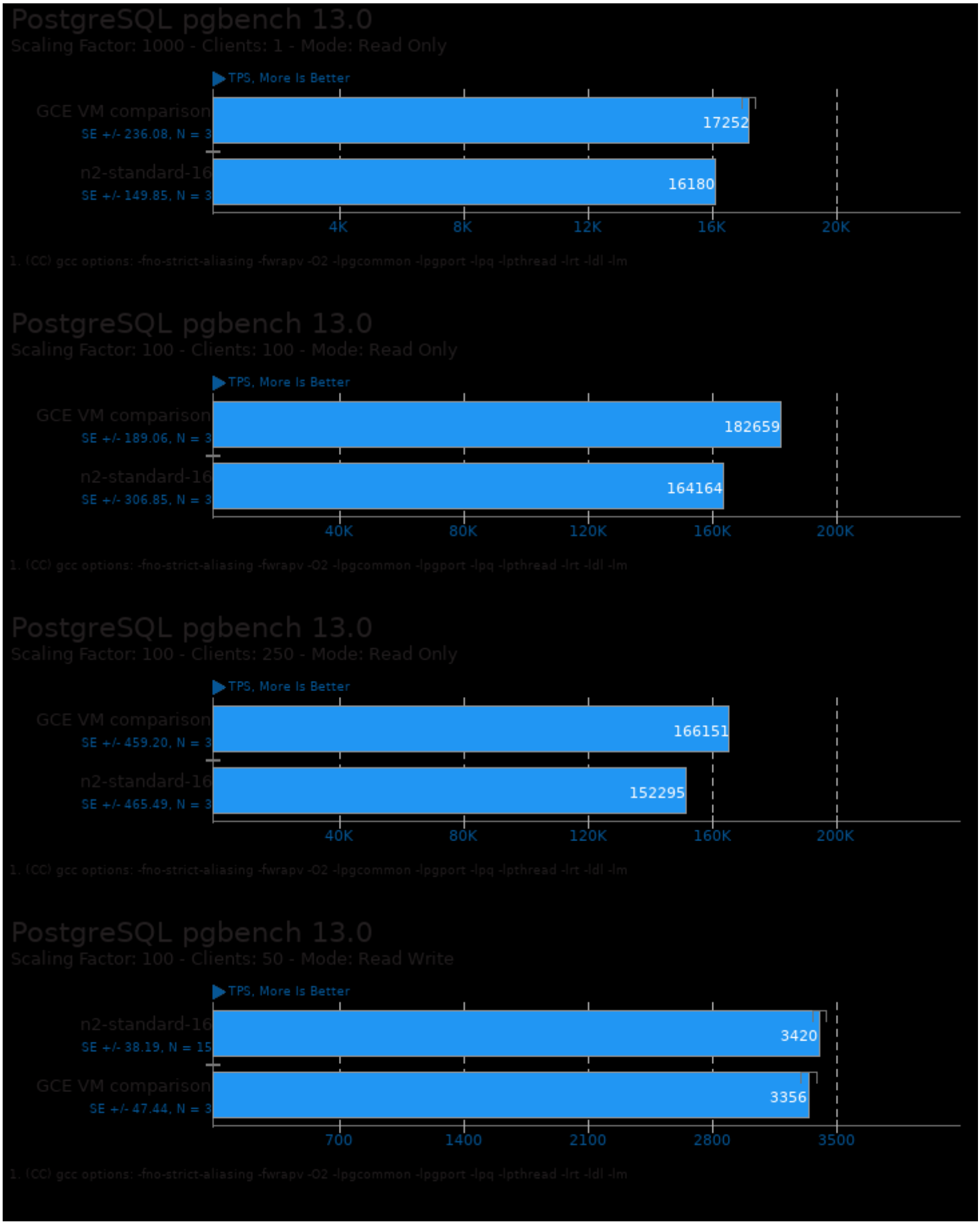
Scaling Factor: 1 - Clients: 50 - Mode: Read Only



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

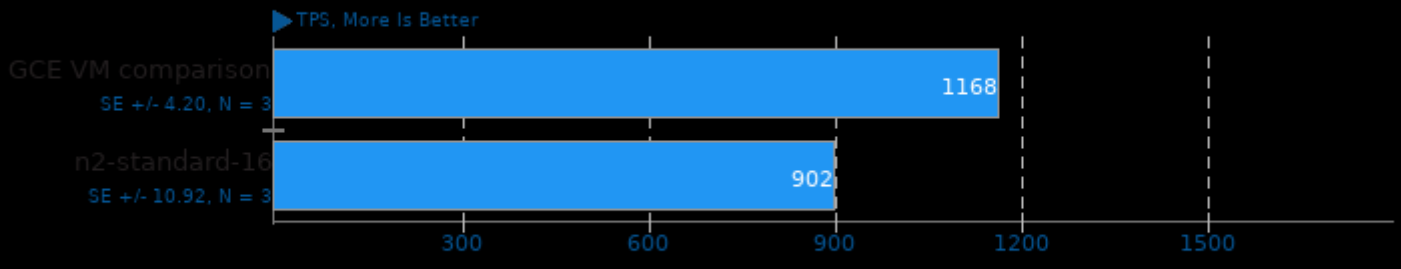

PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 100 - Mode: Read Only
TPS, More Is Better
GCE VM comparison
SE +/- 1123.14, N = 3
226079
n2-standard-16
SE +/- 451.74, N = 3
205787
50K
100K
150K
200K
250K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 250 - Mode: Read Only
TPS, More Is Better
GCE VM comparison
SE +/- 337.36, N = 3
215591
n2-standard-16
SE +/- 1242.08, N = 3
191351
50K
100K
150K
200K
250K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 50 - Mode: Read Write
TPS, More Is Better
GCE VM comparison
SE +/- 15.59, N = 3
1514
n2-standard-16
SE +/- 4.66, N = 3
1218
300
600
900
1200
1500
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 1 - Mode: Read Only
TPS, More Is Better
GCE VM comparison
SE +/- 66.76, N = 3
18754
n2-standard-16
SE +/- 158.06, N = 3
16925
4K
8K
12K
16K
20K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 100 - Mode: Read Write
TPS, More Is Better
GCE VM comparison
SE +/- 9.46, N = 3
1431
n2-standard-16
SE +/- 9.25, N = 9
1161
300
600
900
1200
1500
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 250 - Mode: Read Write
TPS, More Is Better
GCE VM comparison
SE +/- 7.63, N = 3
1229
n2-standard-16
SE +/- 8.01, N = 15
1039
300
600
900
1200
1500
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 1 - Mode: Read Write
TPS, More Is Better
GCE VM comparison
SE +/- 38.28, N = 15
878
n2-standard-16
SE +/- 40.56, N = 12
678
200
400
600
800
1000
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 50 - Mode: Read Only
TPS, More Is Better
GCE VM comparison
SE +/- 430.51, N = 3
173439
n2-standard-16
SE +/- 151.50, N = 3
155332
40K
80K
120K
160K
200K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 13.0
Scaling Factor: 1000 - Clients: 1 - Mode: Read Only
TPS, More Is Better
GCE VM comparison
SE +/- 236.08, N = 3
17252
n2-standard-16
SE +/- 149.85, N = 3
16180
4K
8K
12K
16K
20K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 100 - Mode: Read Only
TPS, More Is Better
GCE VM comparison
SE +/- 189.06, N = 3
182659
n2-standard-16
SE +/- 306.85, N = 3
164164
40K
80K
120K
160K
200K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only
TPS, More Is Better
GCE VM comparison
SE +/- 459.20, N = 3
166151
n2-standard-16
SE +/- 465.49, N = 3
152295
40K
80K
120K
160K
200K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 50 - Mode: Read Write
TPS, More Is Better
n2-standard-16
SE +/- 38.19, N = 15
3420
GCE VM comparison
SE +/- 47.44, N = 3
3356
700
1400
2100
2800
3500
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 13.0

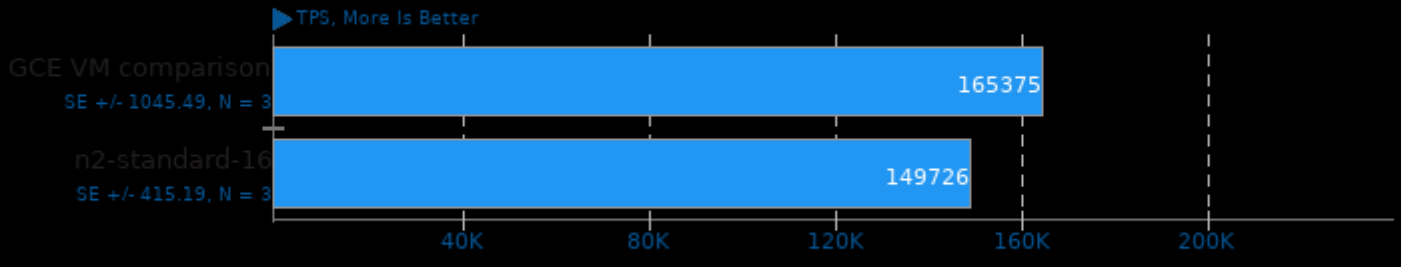
Scaling Factor: 1000 - Clients: 1 - Mode: Read Write



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

PostgreSQL pgbench 13.0

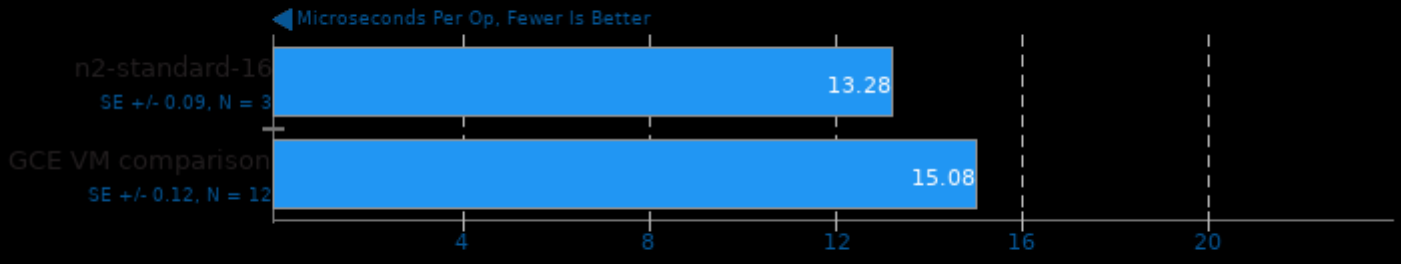
Scaling Factor: 1000 - Clients: 50 - Mode: Read Only



1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

LevelDB 1.22

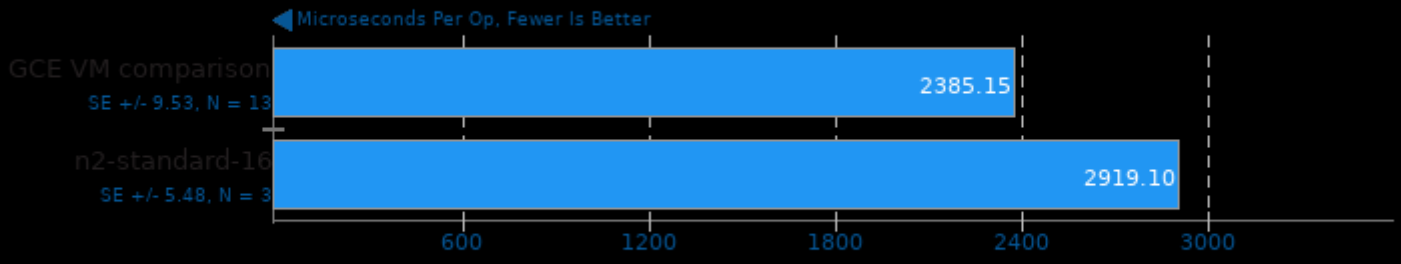
Benchmark: Hot Read



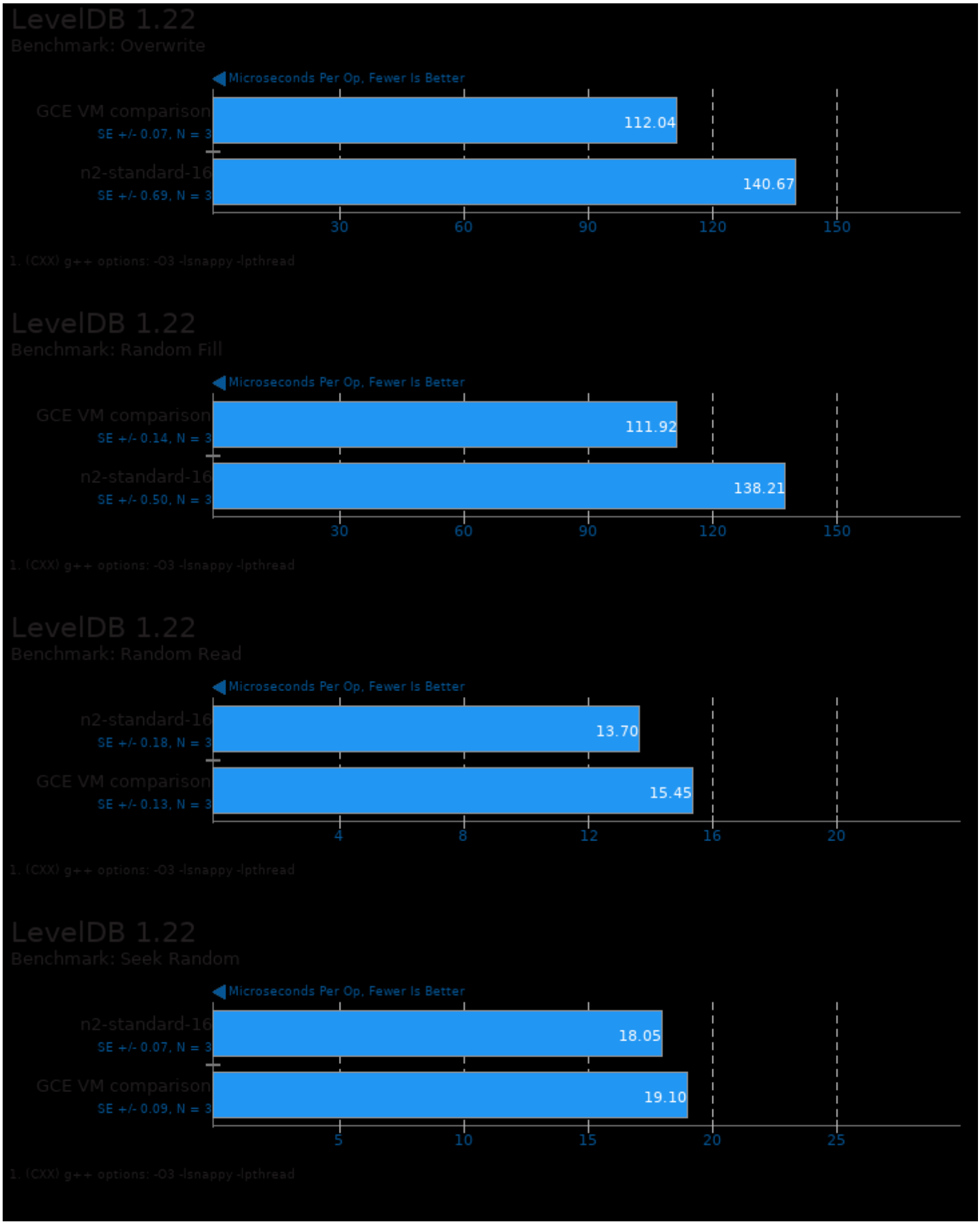
1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

Benchmark: Fill Sync

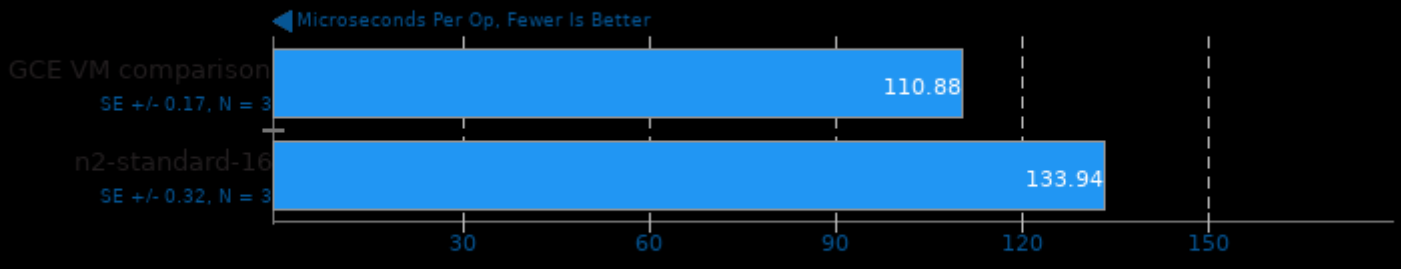


1. (CXX) g++ options: -O3 -lsnappy -lpthread


LevelDB 1.22
Benchmark: Overwrite
Microseconds Per Op, Fewer Is Better
GCE VM comparison
SE +/- 0.07, N = 3
112.04
n2-standard-16
SE +/- 0.69, N = 3
140.67
30
60
90
120
150
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Random Fill
Microseconds Per Op, Fewer Is Better
GCE VM comparison
SE +/- 0.14, N = 3
111.92
n2-standard-16
SE +/- 0.50, N = 3
138.21
30
60
90
120
150
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Random Read
Microseconds Per Op, Fewer Is Better
n2-standard-16
SE +/- 0.18, N = 3
13.70
GCE VM comparison
SE +/- 0.13, N = 3
15.45
4
8
12
16
20
1. (CXX) g++ options: -O3 -lsnappy -lpthread
LevelDB 1.22
Benchmark: Seek Random
Microseconds Per Op, Fewer Is Better
n2-standard-16
SE +/- 0.07, N = 3
18.05
GCE VM comparison
SE +/- 0.09, N = 3
19.10
5
10
15
20
25
1. (CXX) g++ options: -O3 -lsnappy -lpthread

LevelDB 1.22

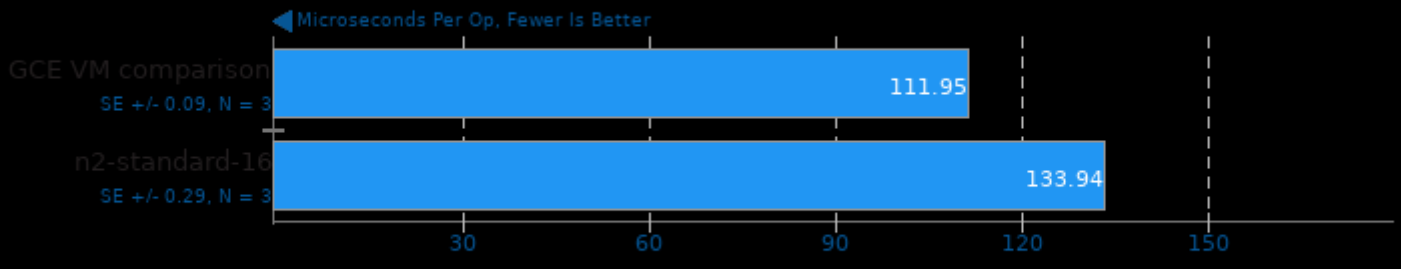
Benchmark: Random Delete



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

LevelDB 1.22

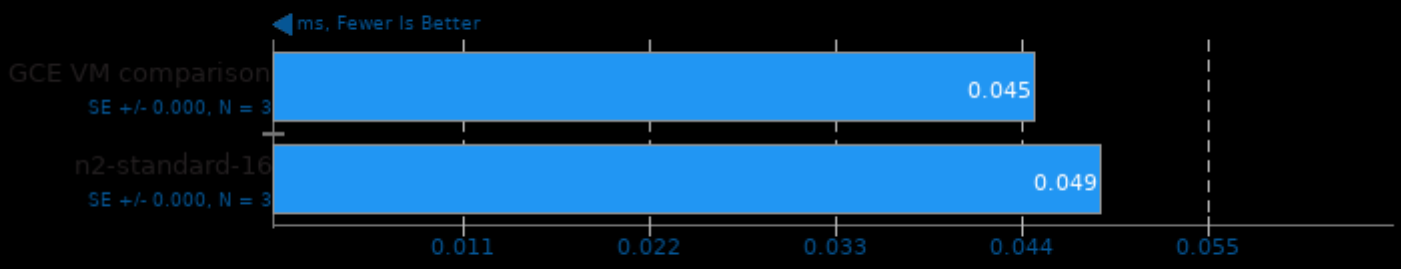
Benchmark: Sequential Fill



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

PostgreSQL pgbench 13.0

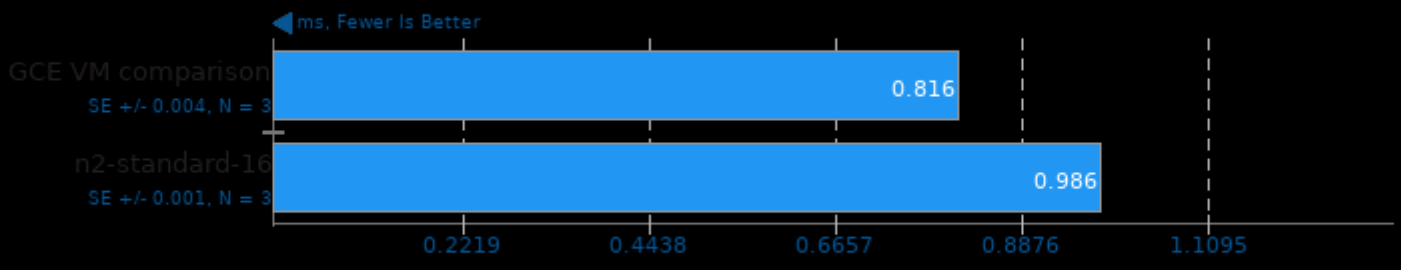
Scaling Factor: 1 - Clients: 1 - Mode: Read Only - Average Latency



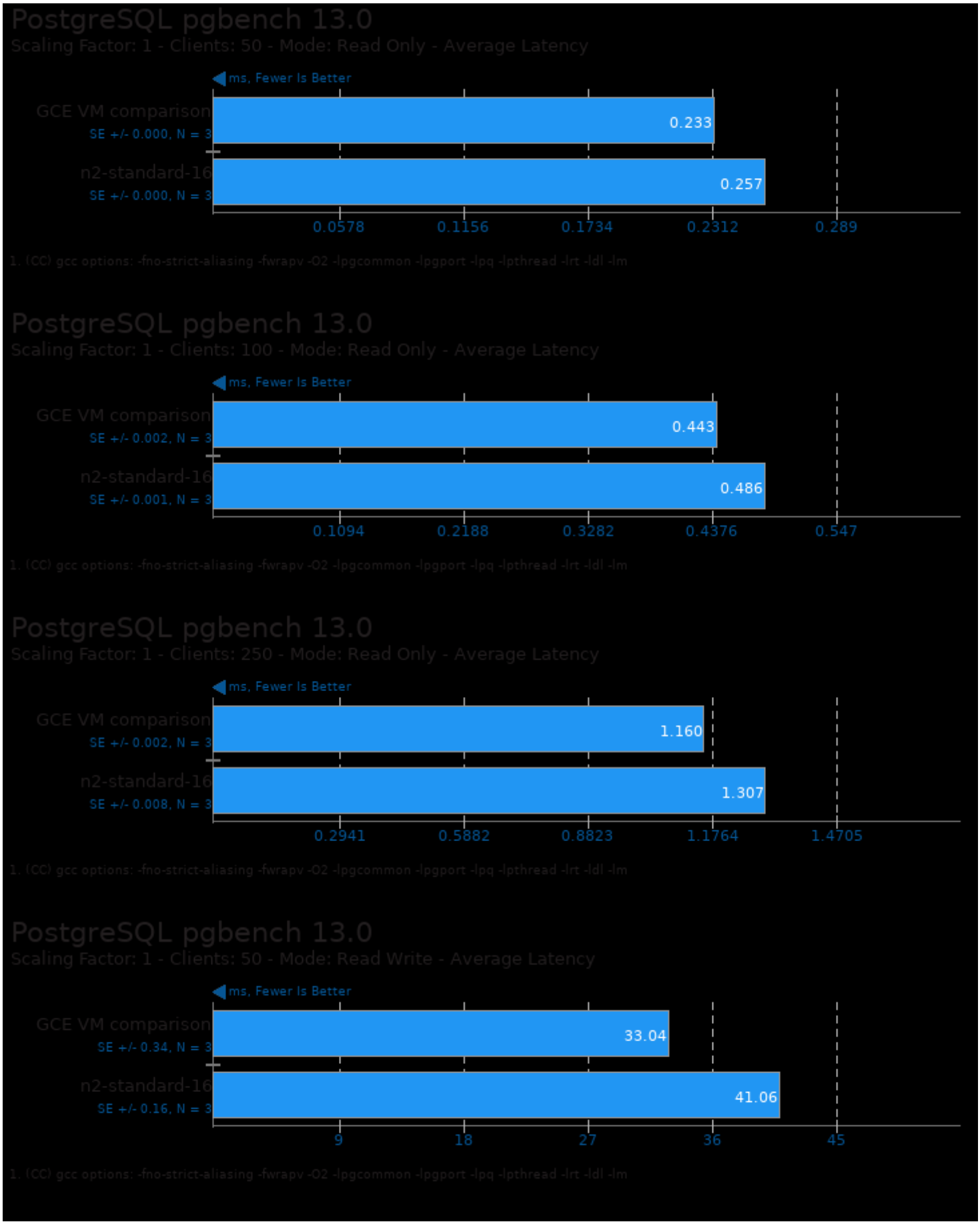
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm

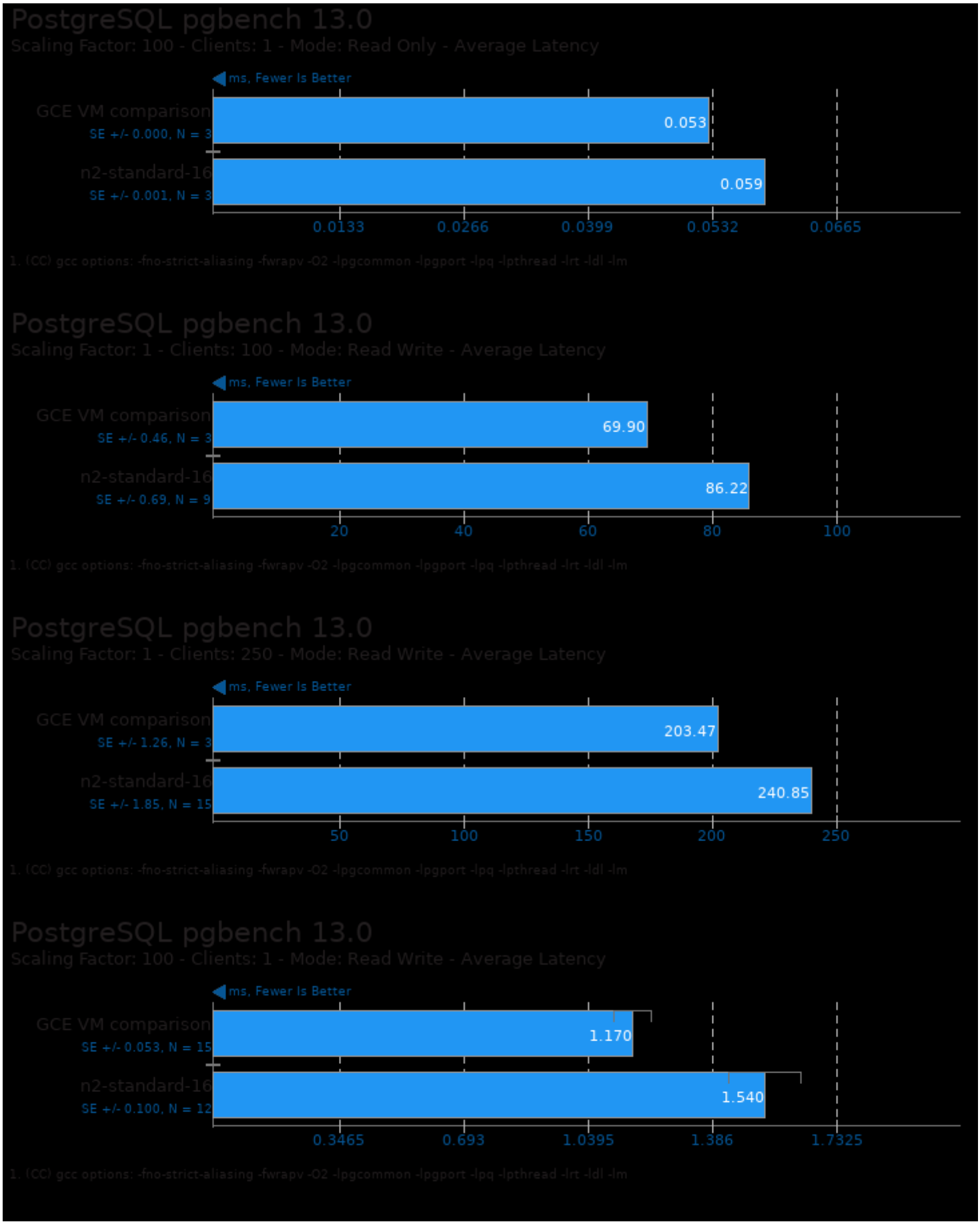
PostgreSQL pgbench 13.0

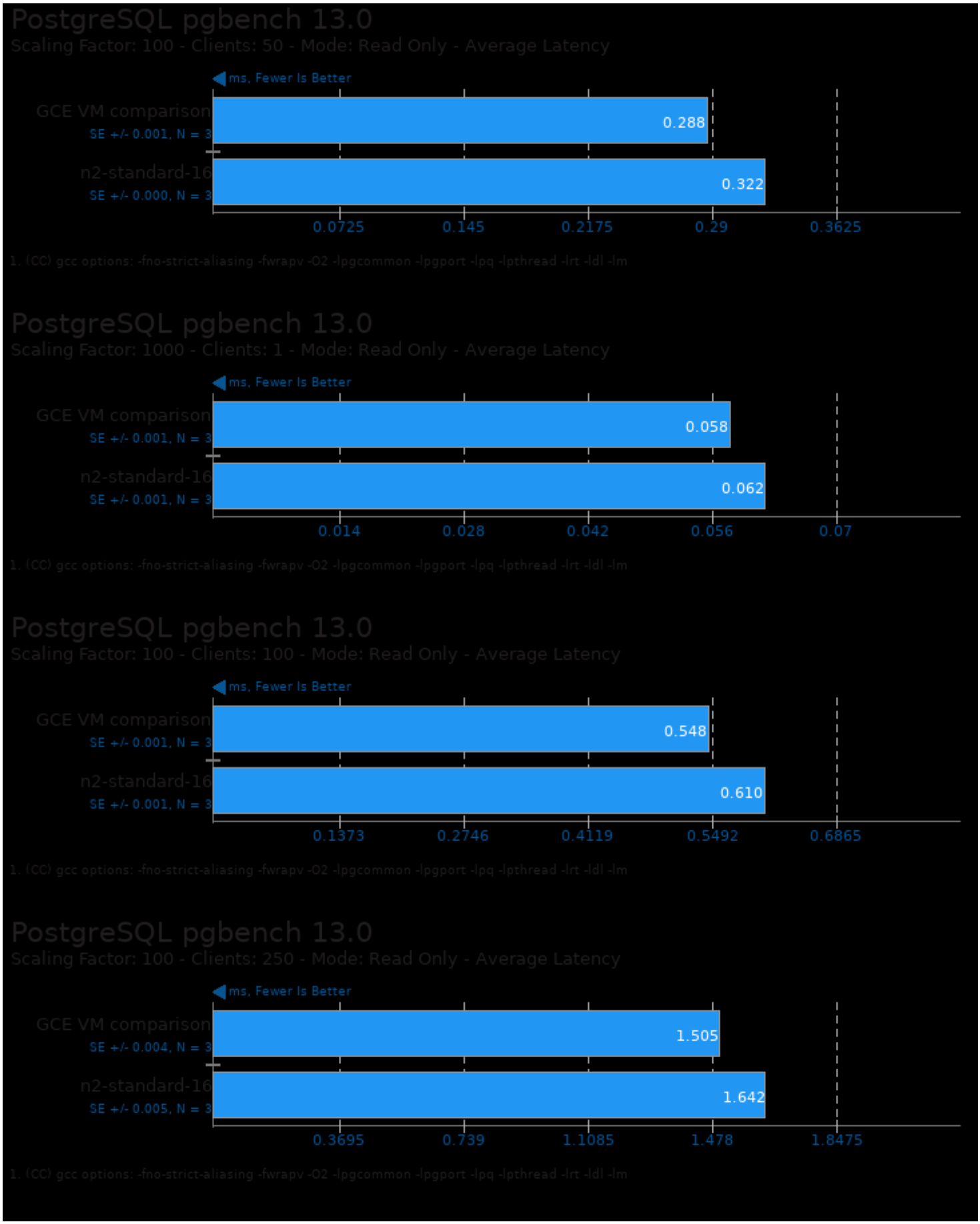
Scaling Factor: 1 - Clients: 1 - Mode: Read Write - Average Latency

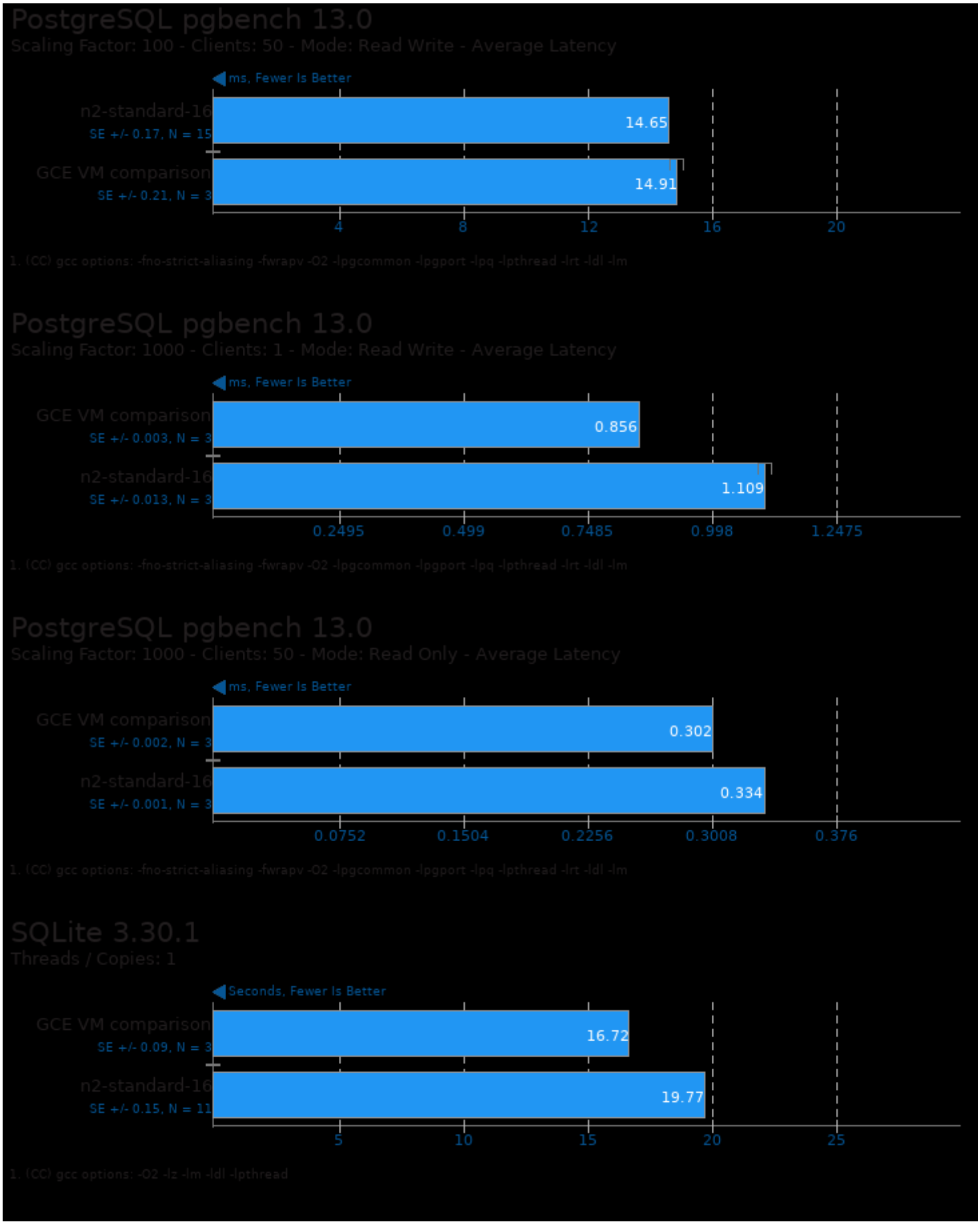


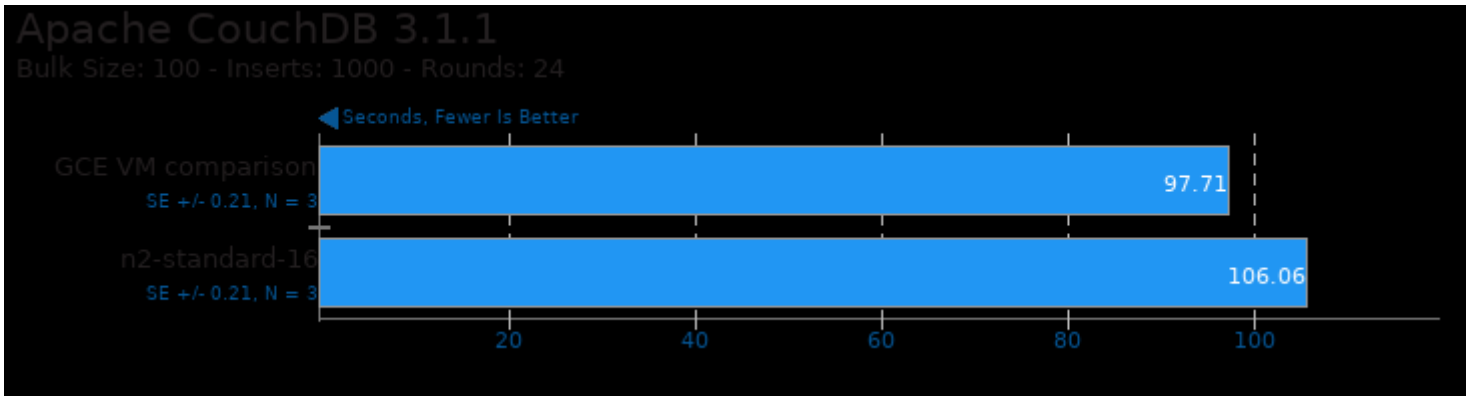
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 50 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.000, N = 3
0.233
n2-standard-16
SE +/- 0.000, N = 3
0.257
0.0578
0.1156
0.1734
0.2312
0.289
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 100 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.002, N = 3
0.443
n2-standard-16
SE +/- 0.001, N = 3
0.486
0.1094
0.2188
0.3282
0.4376
0.547
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 250 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.002, N = 3
1.160
n2-standard-16
SE +/- 0.008, N = 3
1.307
0.2941
0.5882
0.8823
1.1764
1.4705
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 50 - Mode: Read Write - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.34, N = 3
33.04
n2-standard-16
SE +/- 0.16, N = 3
41.06
9
18
27
36
45
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 1 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.000, N = 3
0.053
n2-standard-16
SE +/- 0.001, N = 3
0.059
0.0133
0.0266
0.0399
0.0532
0.0665
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 100 - Mode: Read Write - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.46, N = 3
69.90
n2-standard-16
SE +/- 0.69, N = 9
86.22
20
40
60
80
100
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1 - Clients: 250 - Mode: Read Write - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 1.26, N = 3
203.47
n2-standard-16
SE +/- 1.85, N = 15
240.85
50
100
150
200
250
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 1 - Mode: Read Write - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.053, N = 15
1.170
n2-standard-16
SE +/- 0.100, N = 12
1.540
0.3465
0.693
1.0395
1.386
1.7325
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 50 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.001, N = 3
0.288
n2-standard-16
SE +/- 0.000, N = 3
0.322
0.0725
0.145
0.2175
0.29
0.3625
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1000 - Clients: 1 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.001, N = 3
0.058
n2-standard-16
SE +/- 0.001, N = 3
0.062
0.014
0.028
0.042
0.056
0.07
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 100 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.001, N = 3
0.548
n2-standard-16
SE +/- 0.001, N = 3
0.610
0.1373
0.2746
0.4119
0.5492
0.6865
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.004, N = 3
1.505
n2-standard-16
SE +/- 0.005, N = 3
1.642
0.3695
0.739
1.1085
1.478
1.8475
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm


PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 50 - Mode: Read Write - Average Latency
ms, Fewer Is Better
n2-standard-16
SE +/- 0.17, N = 15
14.65
GCE VM comparison
SE +/- 0.21, N = 3
14.91
4
8
12
16
20
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1000 - Clients: 1 - Mode: Read Write - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.003, N = 3
0.856
n2-standard-16
SE +/- 0.013, N = 3
1.109
0.2495
0.499
0.7485
0.998
1.2475
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
PostgreSQL pgbench 13.0
Scaling Factor: 1000 - Clients: 50 - Mode: Read Only - Average Latency
ms, Fewer Is Better
GCE VM comparison
SE +/- 0.002, N = 3
0.302
n2-standard-16
SE +/- 0.001, N = 3
0.334
0.0752
0.1504
0.2256
0.3008
0.376
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -ldl -lm
SQLite 3.30.1
Threads / Copies: 1
Seconds, Fewer Is Better
GCE VM comparison
SE +/- 0.09, N = 3
16.72
n2-standard-16
SE +/- 0.15, N = 11
19.77
5
10
15
20
25
1. (CC) gcc options: -O2 -lz -lm -ldl -lpthread



This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 04:13.