



## dram-0611-mysql-vs

optane

### Automated Executive Summary

*no load had the most wins, coming in first place for 77% of the tests.*

*Based on the geometric mean of all complete results, the fastest (no load) was 1.024x the speed of the slowest (under load 90 optane 1st). under load 90 optane 2-2-2 1st was 0.985x the speed of no load, under load 90 was 0.999x the speed of under load 90 optane 2-2-2 1st, undr load 98 optane was 0.996x the speed of under load 90, under load 90 optane 1st was 0.997x the speed of undr load 98 optane.*

### Test Systems:

#### under load 90

Processor: 2 x Intel Xeon Gold 5220R (48 Cores / 96 Threads), Motherboard: HPE ProLiant DL360 Gen10 (U32 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16 x 32 GB DDR4-2666MT/s HPE, Disk: 3201GB



Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 16 x 32 GB DDR4-2666MT/s HPE, Disk: 3201GB MO003200KVVUV, Graphics: Matrox MGA G200eH3, Network: 2 x Intel 10G X550T

OS: Ubuntu 18.04, Kernel: 4.15.0-140-generic (x86\_64), Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 1024x768

Kernel Notes: nvme\_core.multipath=0 - Transparent Huge Pages: madvise  
 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  
 Processor Notes: CPU Microcode: 0x5003003  
 Security Notes: itlb\_multihit: KVM: Mitigation of Split huge pages + 11tf: Not affected + mds: Not affected + meltdown: Not affected + 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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx\_async\_abort: Mitigation of TSX disabled

## undr load 98 optane

Processor: 2 x Intel Xeon Gold 5220R (48 Cores / 96 Threads), Motherboard: HPE ProLiant DL360 Gen10 (U32 BIOS), Chipset: Intel Sky Lake-E DMI3 Registers, Memory: 129408 MB + 32 GB + 32 GB + 32 GB + 32 GB + 129408 MB + 129408 MB + 32 GB + 32 GB + 32 GB + 32 GB + 129408 MB DDR4-2666MT/s, Disk: 3201GB MO003200KVVUV, Graphics: Matrox MGA G200eH3, Network: 2 x Intel 10G X550T

OS: Ubuntu 18.04, Kernel: 4.15.0-140-generic (x86\_64), Compiler: GCC 7.5.0, File-System: ext4, Screen Resolution: 1024x768

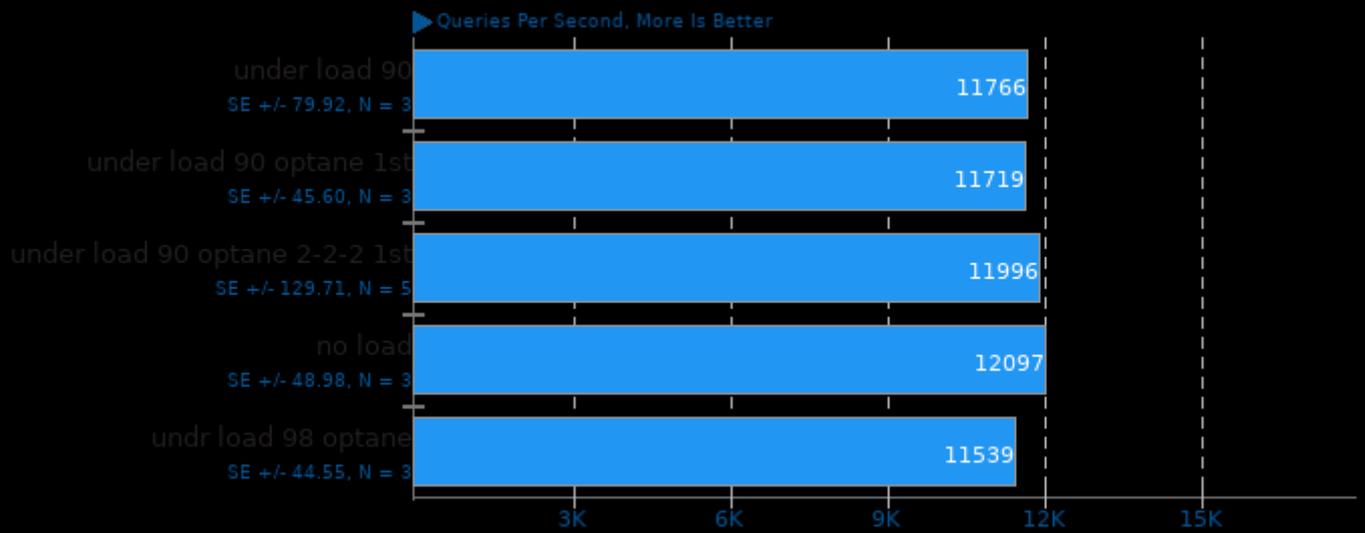
Kernel Notes: nvme\_core.multipath=0 - Transparent Huge Pages: madvise  
 Compiler Notes: --build=x86\_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++ --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  
 Processor Notes: CPU Microcode: 0x5003003  
 Security Notes: itlb\_multihit: KVM: Mitigation of Split huge pages + 11tf: Not affected + mds: Not affected + meltdown: Not affected + 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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx\_async\_abort: Mitigation of TSX disabled

	under load 90	under load 90	under load 90	no load	undr load 98
		optane 1st	optane 2-2-2		optane
<b>MariaDB - 1 (Queries/sec)</b>	11766	11719	11996	<b>12097</b>	<b>11539</b>
Normalized	97.26%	96.88%	99.17%	100%	95.39%
Standard Deviation	1.2%	0.7%	2.4%	0.7%	0.7%
<b>MariaDB - 4 (Queries/sec)</b>	10034	<b>9805</b>	9869	<b>10239</b>	9869
Normalized	98%	95.76%	96.39%	100%	96.39%
Standard Deviation	0.6%	1%	1.1%	0.6%	0.6%
<b>MariaDB - 8 (Queries/sec)</b>	8955	9136	<b>8930</b>	9092	<b>9175</b>
Normalized	97.6%	99.57%	97.33%	99.1%	100%
Standard Deviation	0.5%	2.1%	1.6%	1.6%	0.9%
<b>MariaDB - 16 (Queries/sec)</b>	6727	<b>6698</b>	<b>7077</b>	6819	6752
Normalized	95.05%	94.64%	100%	96.35%	95.41%
Standard Deviation	1%	1.7%	1.5%	1%	2.7%
<b>MariaDB - 32 (Queries/sec)</b>	2885	2874	<b>2868</b>	<b>2941</b>	2885
Normalized	98.1%	97.72%	97.52%	100%	98.1%
Standard Deviation	0.6%	0.5%	0.7%	0.3%	0.4%

<b>MariaDB - 64 (Queries/sec)</b>	1272	<b>1262</b>	1271	<b>1294</b>	1274
<b>Normalized</b>	98.3%	97.53%	98.22%	100%	98.45%
<b>Standard Deviation</b>	0.1%	0.3%	0.1%	0.2%	0.4%
<b>MariaDB - 128 (Queries/sec)</b>	550	<b>540</b>	<b>540</b>	<b>556</b>	542
<b>Normalized</b>	98.92%	97.12%	97.12%	100%	97.48%
<b>Standard Deviation</b>	0.3%	0.4%	0.1%	0.3%	0.1%
<b>MariaDB - 256 (Queries/sec)</b>	456	<b>449</b>	455	<b>461</b>	454
<b>Normalized</b>	98.92%	97.4%	98.7%	100%	98.48%
<b>Standard Deviation</b>	0.1%	0.6%	0.2%	0.1%	0.6%
<b>MariaDB - 512 (Queries/sec)</b>	456	453	<b>450</b>	<b>461</b>	452
<b>Normalized</b>	98.92%	98.26%	97.61%	100%	98.05%
<b>Standard Deviation</b>	0.6%	0.5%	0.5%	0.3%	0.4%

### MariaDB 10.5.2

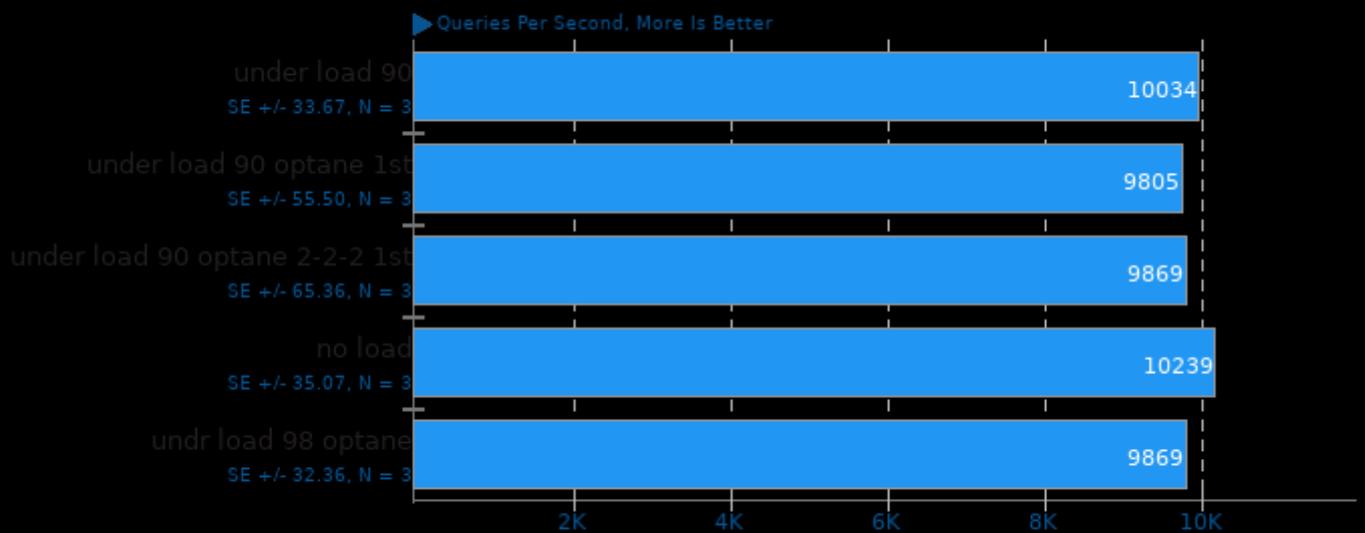
Clients: 1



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

### MariaDB 10.5.2

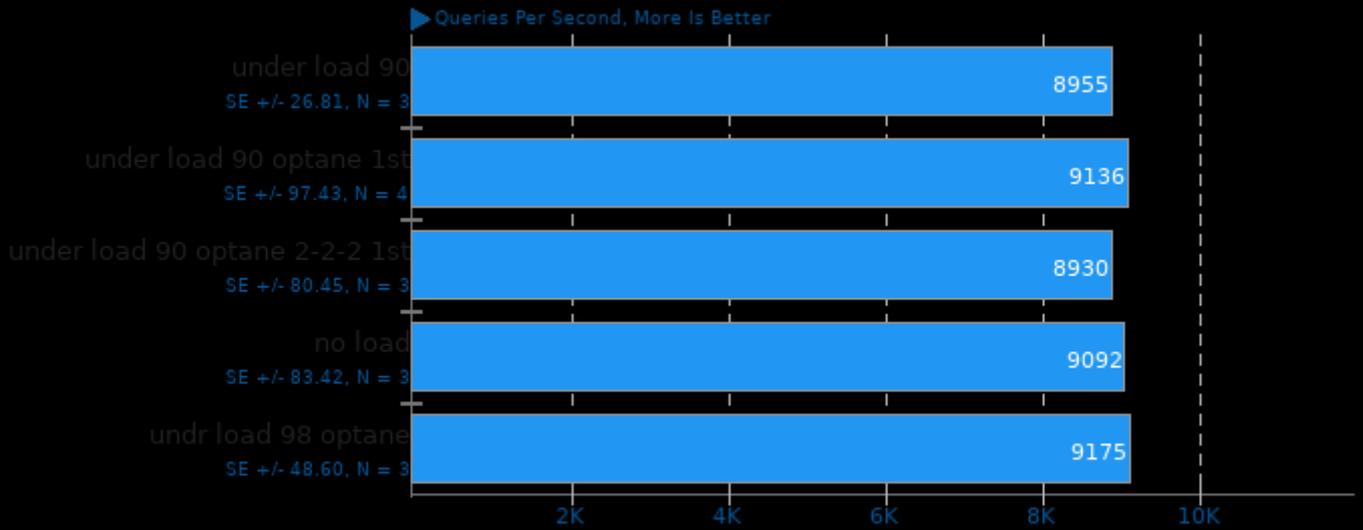
Clients: 4



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

### MariaDB 10.5.2

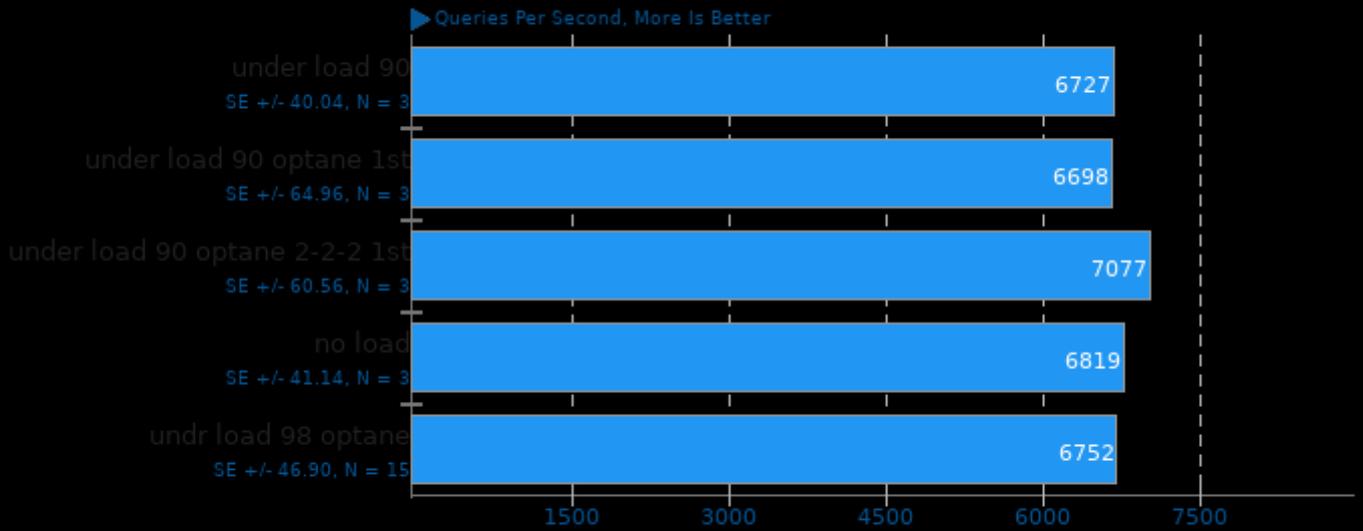
Clients: 8



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

### MariaDB 10.5.2

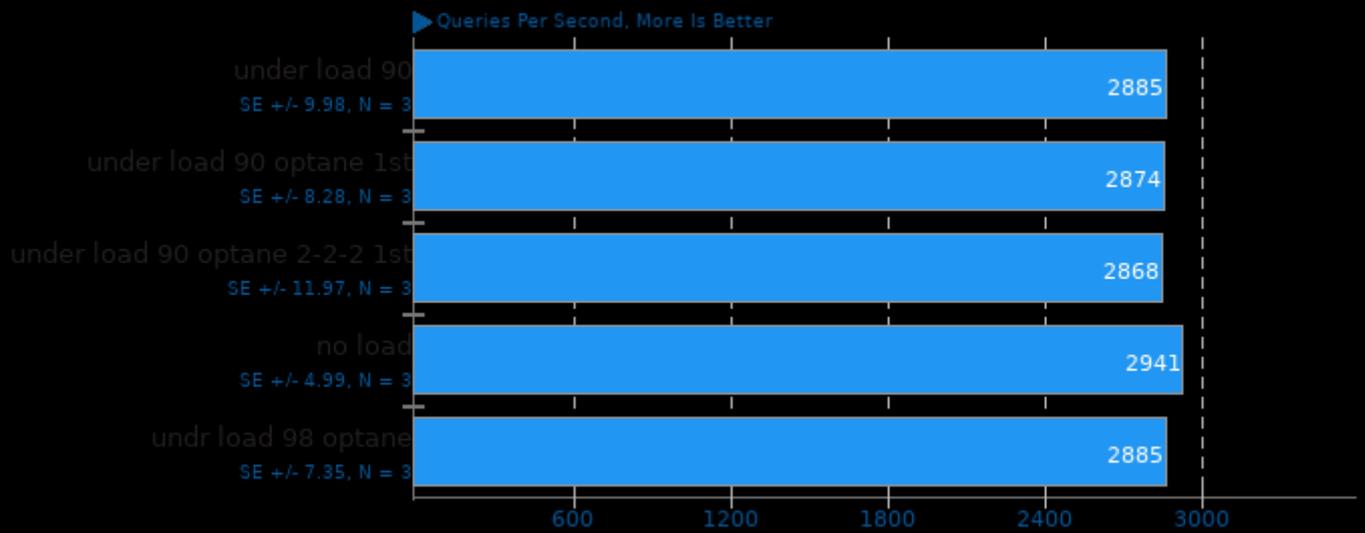
Clients: 16



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

## MariaDB 10.5.2

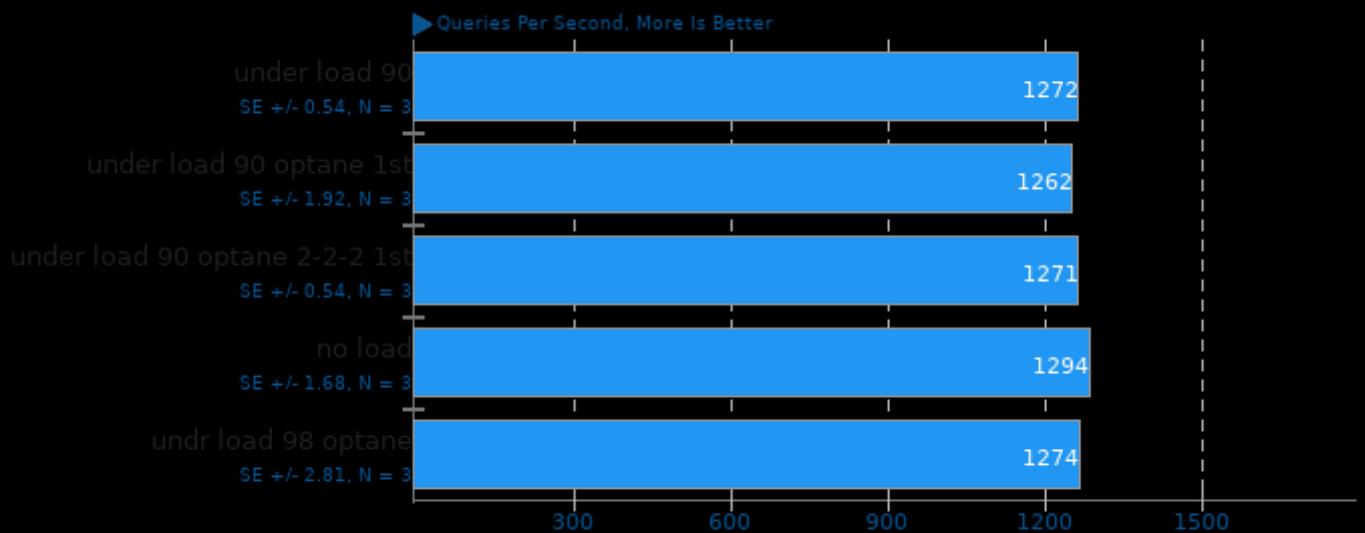
Clients: 32



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

## MariaDB 10.5.2

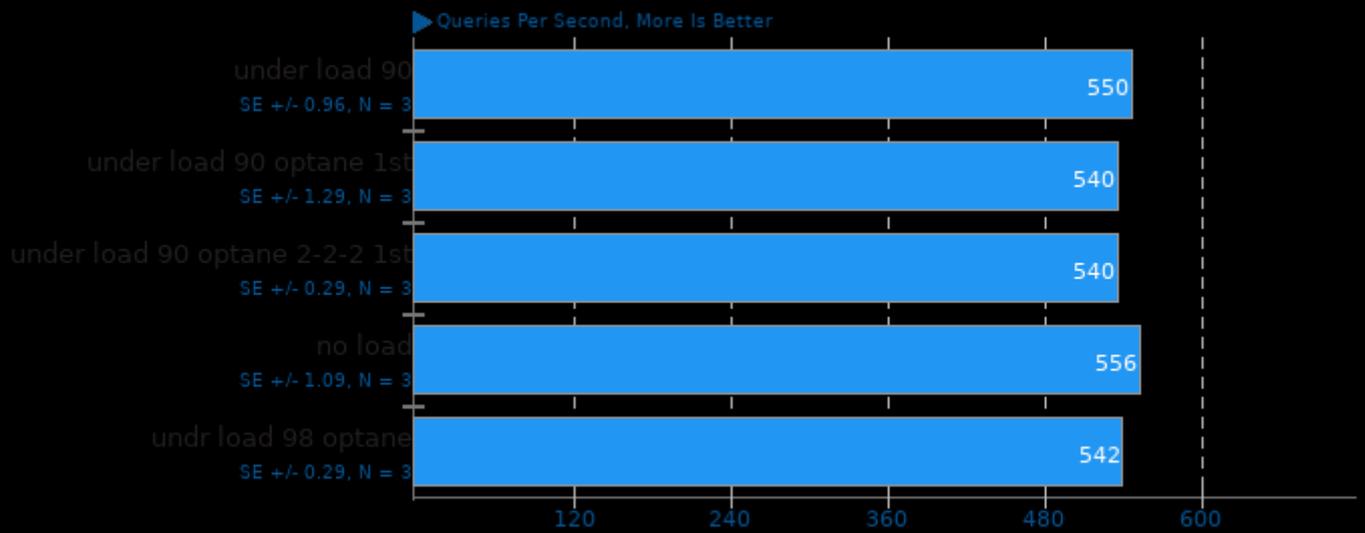
Clients: 64



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

## MariaDB 10.5.2

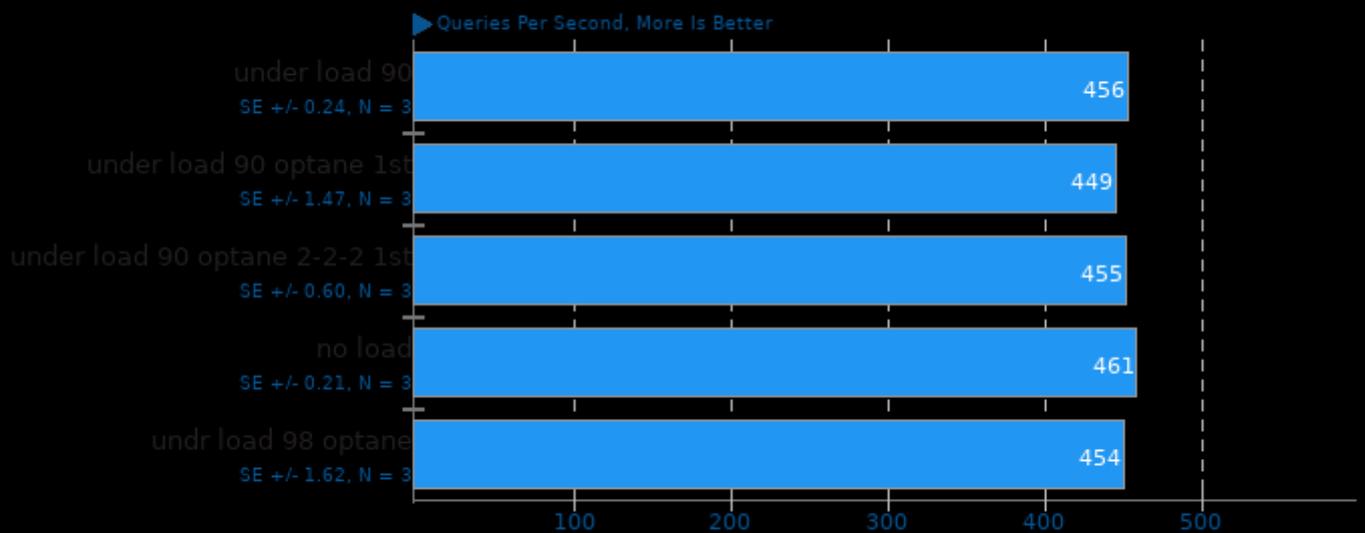
Clients: 128



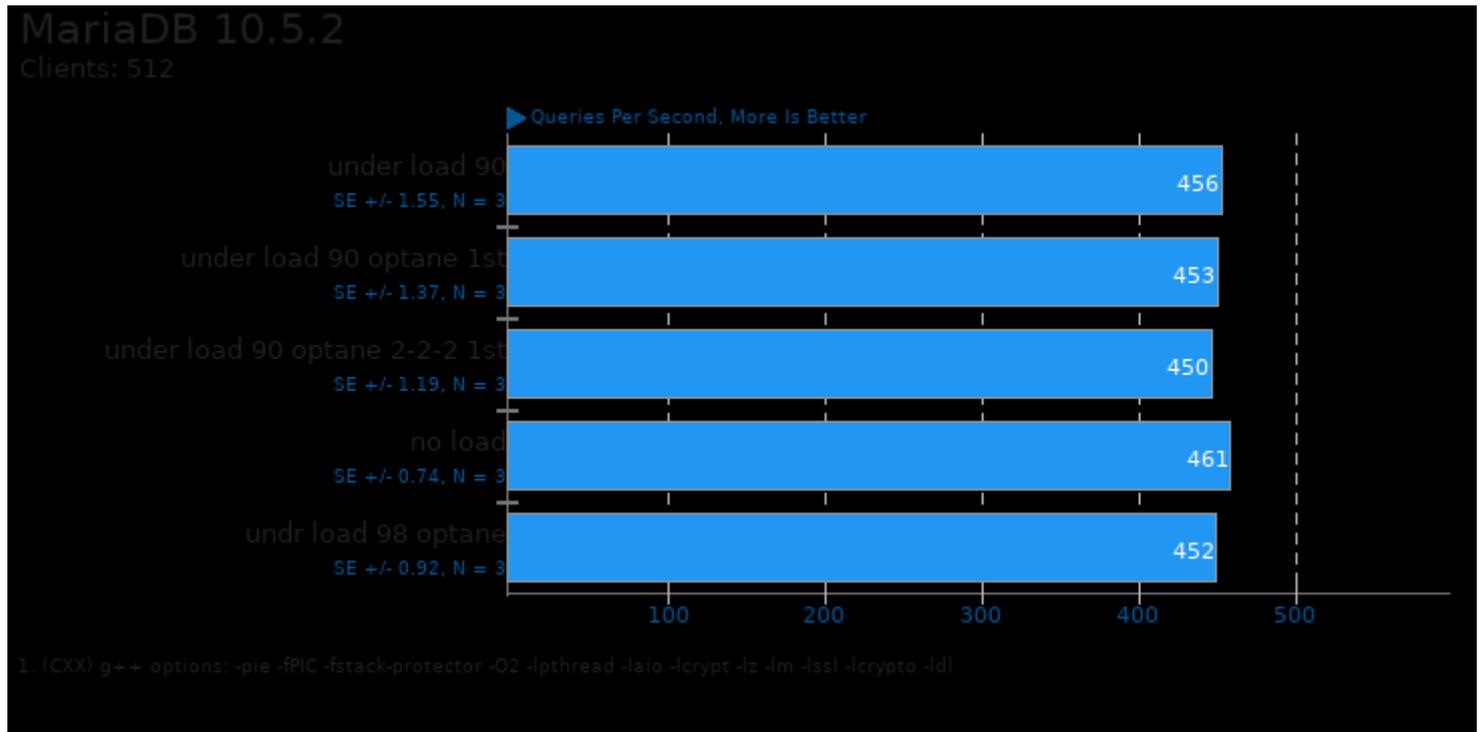
1. (CXX) g++ options: -pie -fPIC -fstack-protector -O2 -lpthread -laio -lcrypt -lz -lm -lssl -lcrypto -ldl

## MariaDB 10.5.2

Clients: 256



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



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