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benchmark-contabo

openvz testing on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

QEMU HDD - Intel Xeon E5-2630 v4 had the most wins, coming in first place for 56% of the tests.

Test Systems:

QEMU HDD - Intel Xeon E5-2630 v4

Processor: Intel Xeon E5-2630 v4 (4 Cores), Motherboard: QEMU Standard PC (i440FX + PIIX 1996) (rel-1.11.0-0-g63451fca13-prebuilt.qemu-project.org BIOS), Chipset: Intel 440FX 82441FX PMC, Memory: 8GB, Disk: 215GB QEMU HDD, Graphics: VMware SVGA II, Network: Red Hat Virtio device

OS: Fedora Linux 35, Kernel: 5.15.4-201.fc35.x86_64 (x86_64), Vulkan: 1.2.195, File-System: ext4, System Layer: KVM VMware

Kernel Notes: Transparent Huge Pages: madvise
Environment Notes: DEBUGINFOD_URLS=https://debuginfod.fedoraproject.org/
Disk Notes: BFQ / relatime,rw / Block Size: 4096
Processor Notes: CPU Microcode: 0x1
Security Notes: itlb_multihit: KVM: Mitigation of VMX unsupported + l1tf: Mitigation of PTE Inversion + mds: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown + meltdown: Mitigation of PTI + 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 generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Not affected + tsx_async_abort: Vulnerable: Clear buffers attempted no microcode; SMT Host state unknown

strato-v10-8-benchmark

Intel Xeon E5-2680 v3

Processor: Intel Xeon E5-2680 v3 (12 Cores), Memory: 8GB, Disk: 296GB

OS: Ubuntu 20.04, Kernel: 5.4.0 (x86_64), Vulkan: 1.1.182, Compiler: GCC 9.4.0, File-System: ext4, System Layer: openvz

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-Av3uEd/gcc-9-9.4.0/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
Processor Notes: CPU Microcode: 0x46
Disk Mount Options Notes: balloon_ino=12,data=ordered,grpjquota=aquota.group,jqfmt=vfsv1,lazytime,relatime,rw,stripe=4096,usrjquota=aquota.user
Disk Details Notes: Block Size: 4096

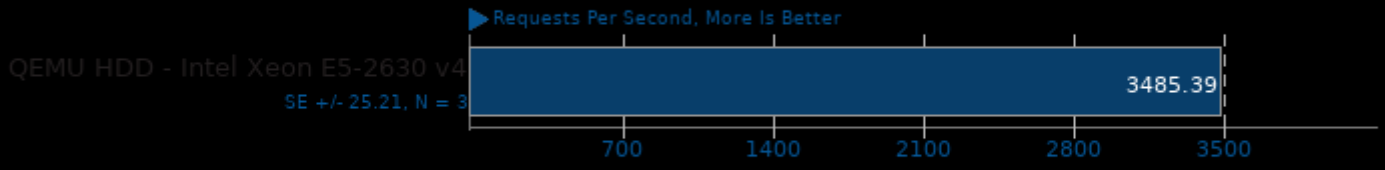
	QEMU HDD - Intel Xeon E5-2630 v4	strato-v10-8-benchmark	Intel Xeon E5-2680 v3
Apache HTTP Server - 1 (Reqs/sec)	3485		
Standard Deviation	1.3%		
Flexible IO Tester - Rand Read - IO_uring - No - No - 4KB (MB/s)	172		
Standard Deviation	13%		
Flexible IO Tester - Rand Read - IO_uring - No - No - 4KB (IOPS)	43892		
Standard Deviation	13%		
Flexible IO Tester - Rand Read - IO_uring - No - Yes - 4KB (MB/s)	179		
Standard Deviation	16.1%		
Flexible IO Tester - Rand Read - IO_uring - No - Yes - 4KB (IOPS)	45700		
Standard Deviation	16.2%		
Flexible IO Tester - Rand Read - IO_uring - Yes - No - 4KB (MB/s)	136		
Standard Deviation	11.1%		
Flexible IO Tester - Rand Read - IO_uring - Yes - No - 4KB (IOPS)	34773		
Standard Deviation	11.1%		
Flexible IO Tester - Rand Read - IO_uring - Yes - Yes - 4KB (MB/s)	132		
Standard Deviation	11.3%		

benchmark-contabo

Flexible IO Tester - Rand Read - IO_uring - Yes - Yes - 4KB (IOPS)	33817	
Standard Deviation	11.2%	
FS-Mark - 1.F.1.S (Files/s)	**158.8**	**458.2**
Normalized	34.66%	100%
Standard Deviation	17%	77.5%
PostgreSQL pgbench - 1 - 1 - Read Only	**9390**	**10958**
Normalized	85.69%	100%
Standard Deviation	2.4%	4.6%
PostgreSQL pgbench - 1 - 1 - Read Only - Average Latency (ms)	**0.107**	**0.091**
Normalized	85.05%	100%
Standard Deviation	2.5%	4.7%
PostgreSQL pgbench - 1 - 1 - Read Write	**959**	**1884**
Normalized	50.9%	100%
Standard Deviation	7.9%	1.1%
PostgreSQL pgbench - 1 - 1 - Read Write - Average Latency (ms)	**1.048**	**0.531**
Normalized	50.67%	100%
Standard Deviation	7.9%	1.2%
Timed Linux Kernel Compilation - defconfig (sec)	**781.052**	**677.313**
Normalized	86.72%	100%
Standard Deviation	2.5%	2.3%
Timed Linux Kernel Compilation - allmodconfig (sec)	**10344**	**9854**
Normalized	95.26%	100%
Standard Deviation	5.1%	8.1%

Apache HTTP Server 2.4.48

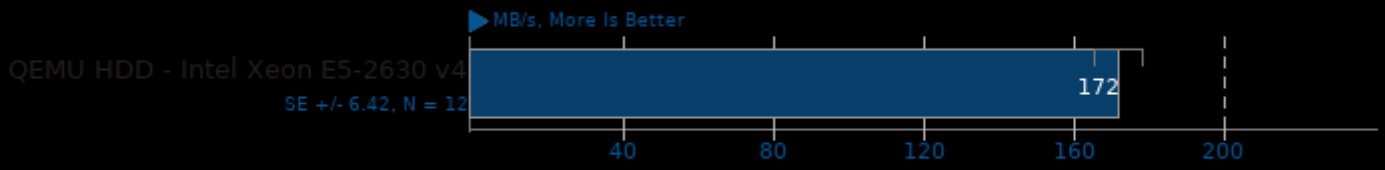
Concurrent Requests: 1



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

Flexible IO Tester 3.29

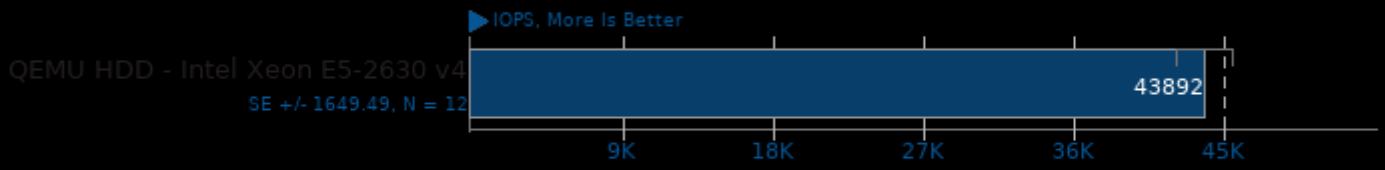
Type: Random Read - Engine: IO_uring - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory



1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.29

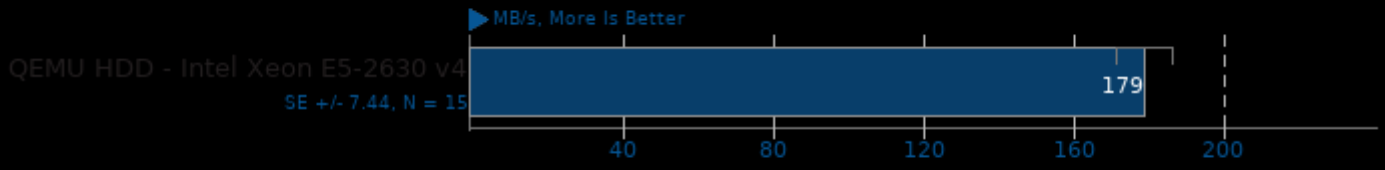
Type: Random Read - Engine: IO_uring - Buffered: No - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory



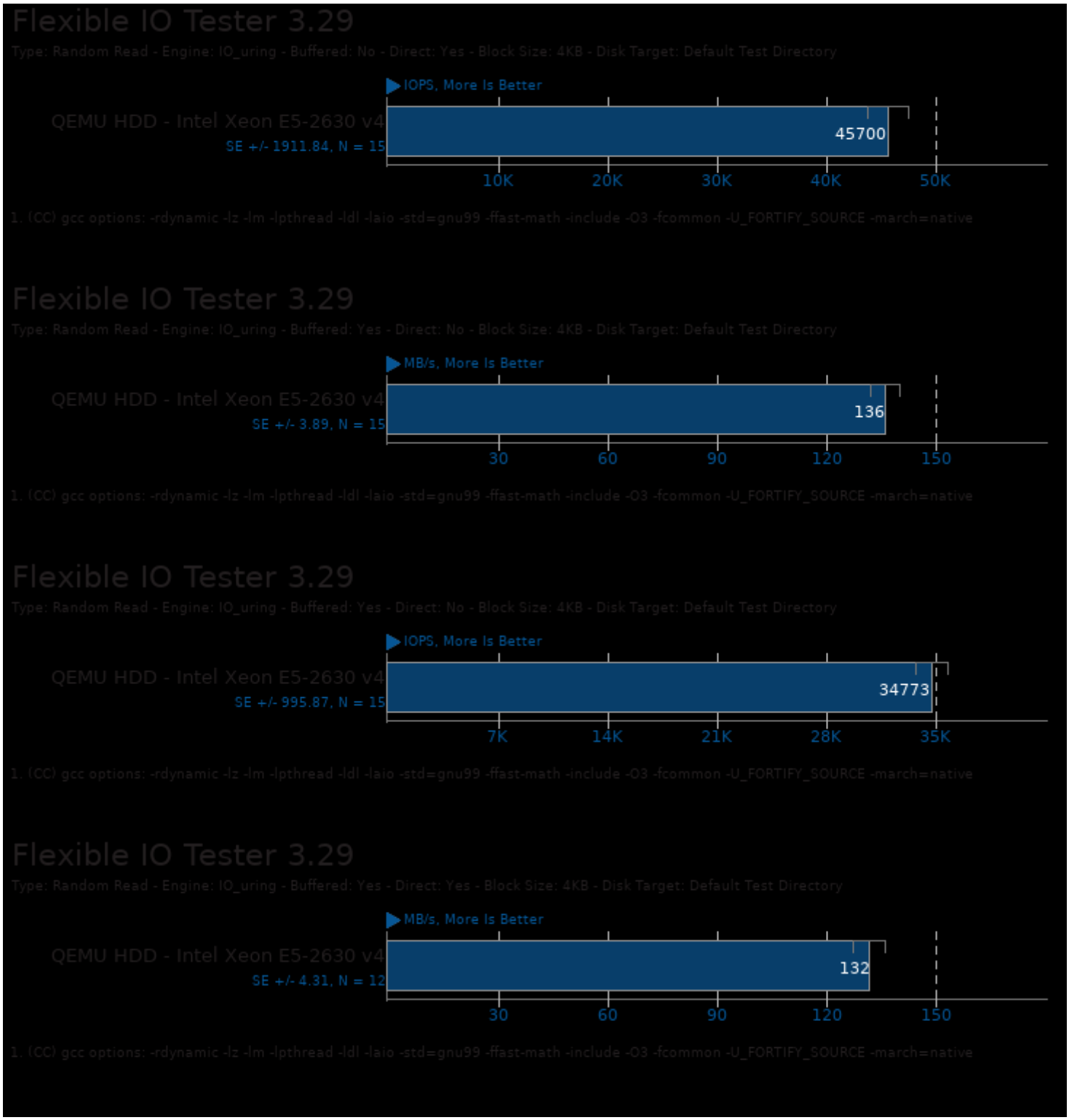
1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.29

Type: Random Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory

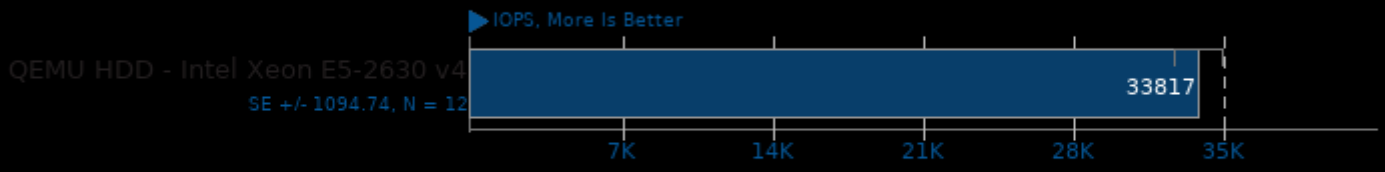


1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native


Flexible IO Tester 3.29
Type: Random Read - Engine: IO_uring - Buffered: No - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
QEMU HDD - Intel Xeon E5-2630 v4
SE +/- 1911.84, N = 15
45700
10K
20K
30K
40K
50K
1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.29
Type: Random Read - Engine: IO_uring - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
QEMU HDD - Intel Xeon E5-2630 v4
SE +/- 3.89, N = 15
136
30
60
90
120
150
1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.29
Type: Random Read - Engine: IO_uring - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
QEMU HDD - Intel Xeon E5-2630 v4
SE +/- 995.87, N = 15
34773
7K
14K
21K
28K
35K
1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native
Flexible IO Tester 3.29
Type: Random Read - Engine: IO_uring - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory
MB/s, More Is Better
QEMU HDD - Intel Xeon E5-2630 v4
SE +/- 4.31, N = 12
132
30
60
90
120
150
1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

Flexible IO Tester 3.29

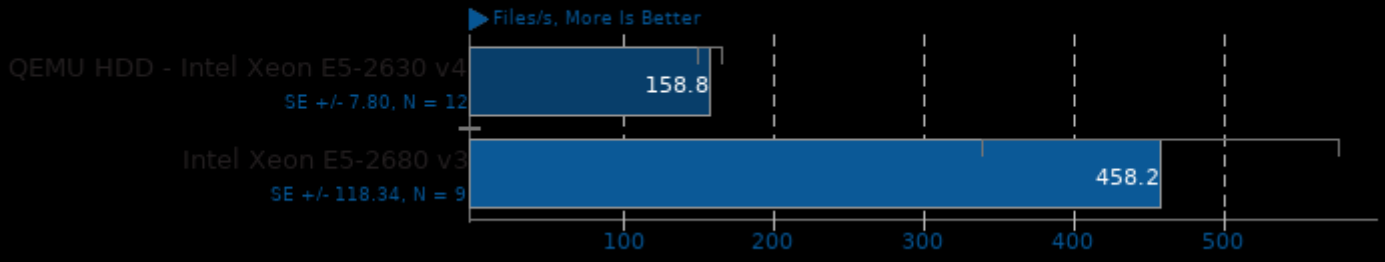
Type: Random Read - Engine: IO_uring - Buffered: Yes - Direct: Yes - Block Size: 4KB - Disk Target: Default Test Directory



1. (CC) gcc options: -rdynamic -lz -lm -lpthread -ldl -laio -std=gnu99 -ffast-math -include -O3 -fcommon -U_FORTIFY_SOURCE -march=native

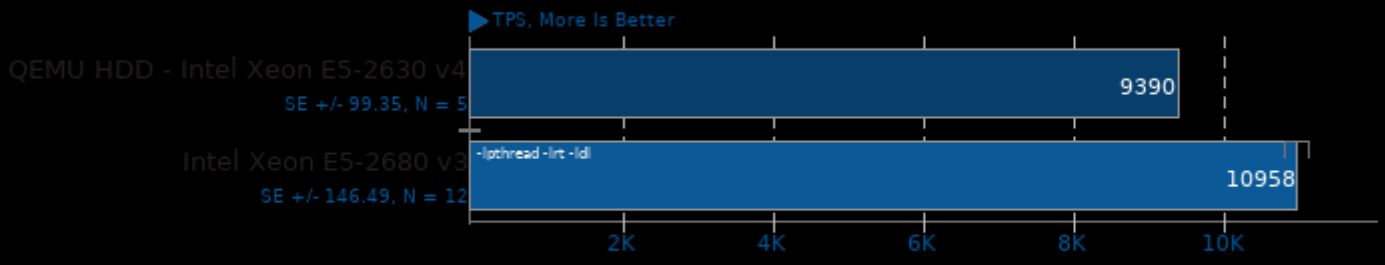
FS-Mark 3.3

Test: 1000 Files, 1MB Size



PostgreSQL pgbench 14.0

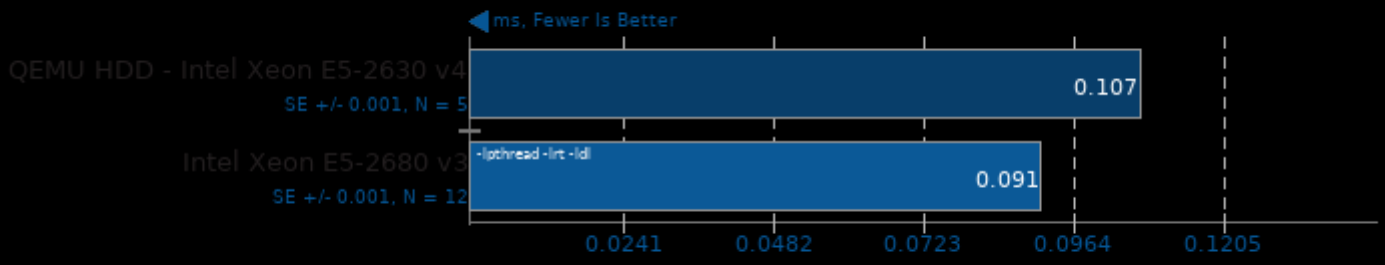
Scaling Factor: 1 - Clients: 1 - Mode: Read Only



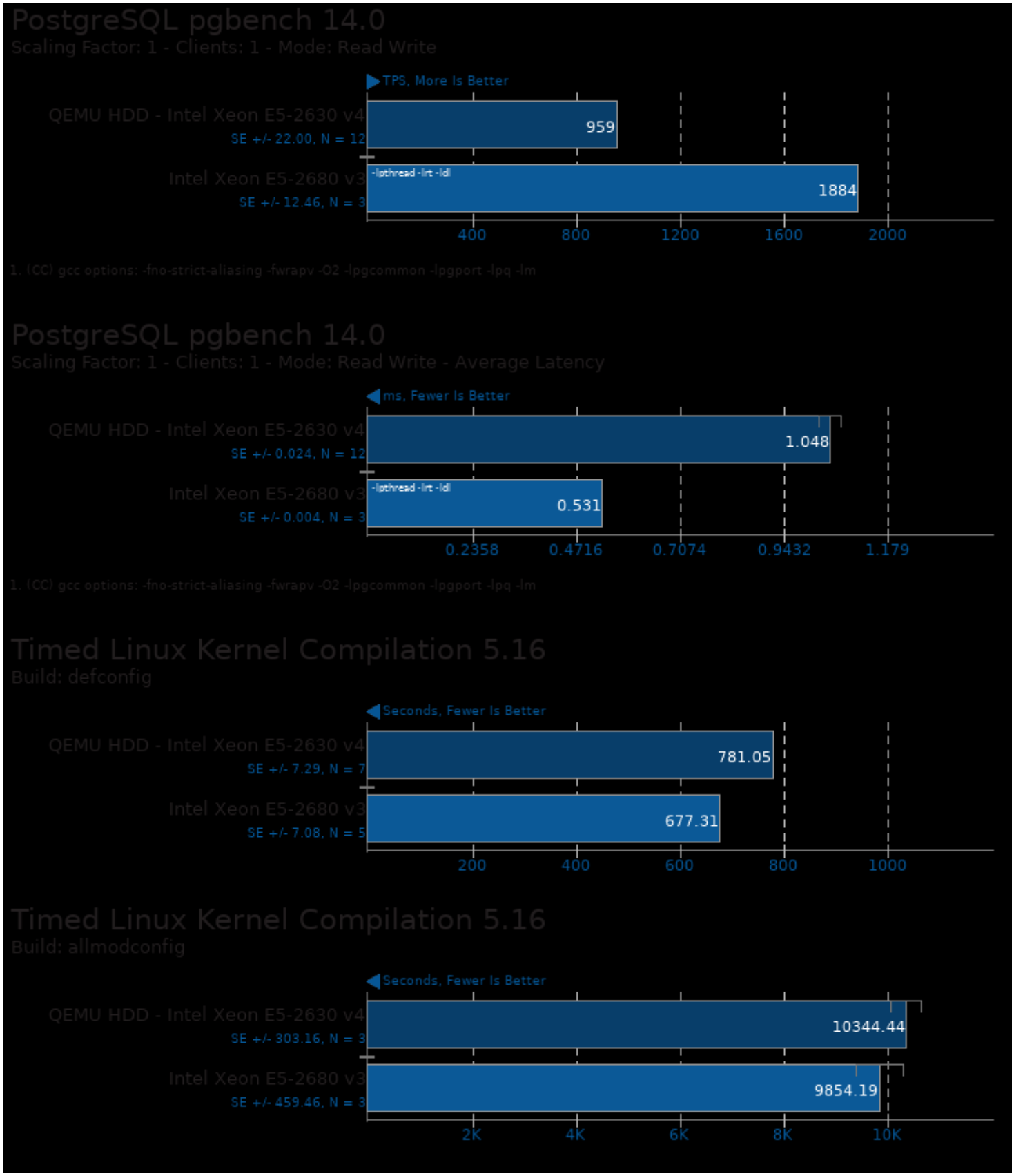
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

PostgreSQL pgbench 14.0

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



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



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