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PostgreSQL 10 Beta Benchmarking

Some early benchmarks of PostgreSQL 10 Beta 1. Tests by Michael Larabel

Automated Executive Summary

PostgreSQL 10.0 Beta 1 had the most wins, coming in first place for 62% of the tests.

Based on the geometric mean of all complete results, the fastest (PostgreSQL 10.0 Beta 1) was 1.093x the speed of the slowest (PostgreSQL 9.6.3).

Test Systems:

PostgreSQL 9.6.3

PostgreSQL 10.0 Beta 1

Processor: Intel Xeon E3-1280 v5 @ 4.00GHz (8 Cores), Motherboard: MSI C236A WORKSTATION (MS-7998) v1.0, Chipset: Intel Sky Lake, Memory: 16384MB, Disk: 256GB TOSHIBA-RD400, Graphics: Sapphire AMD POLARIS10

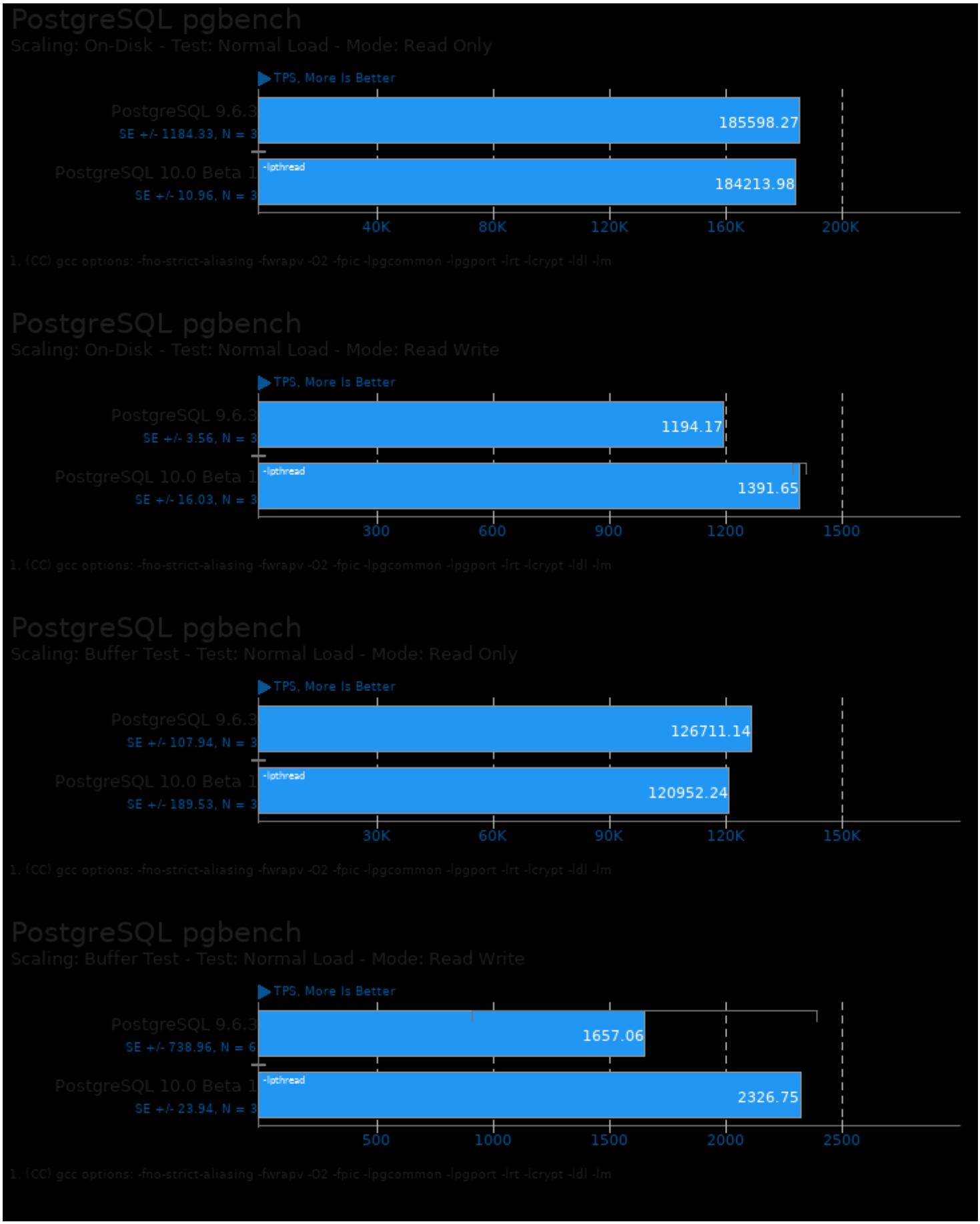
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4096MB, Audio: Realtek ALC1150, Monitor: DELL P2415Q, Network: Intel Connection

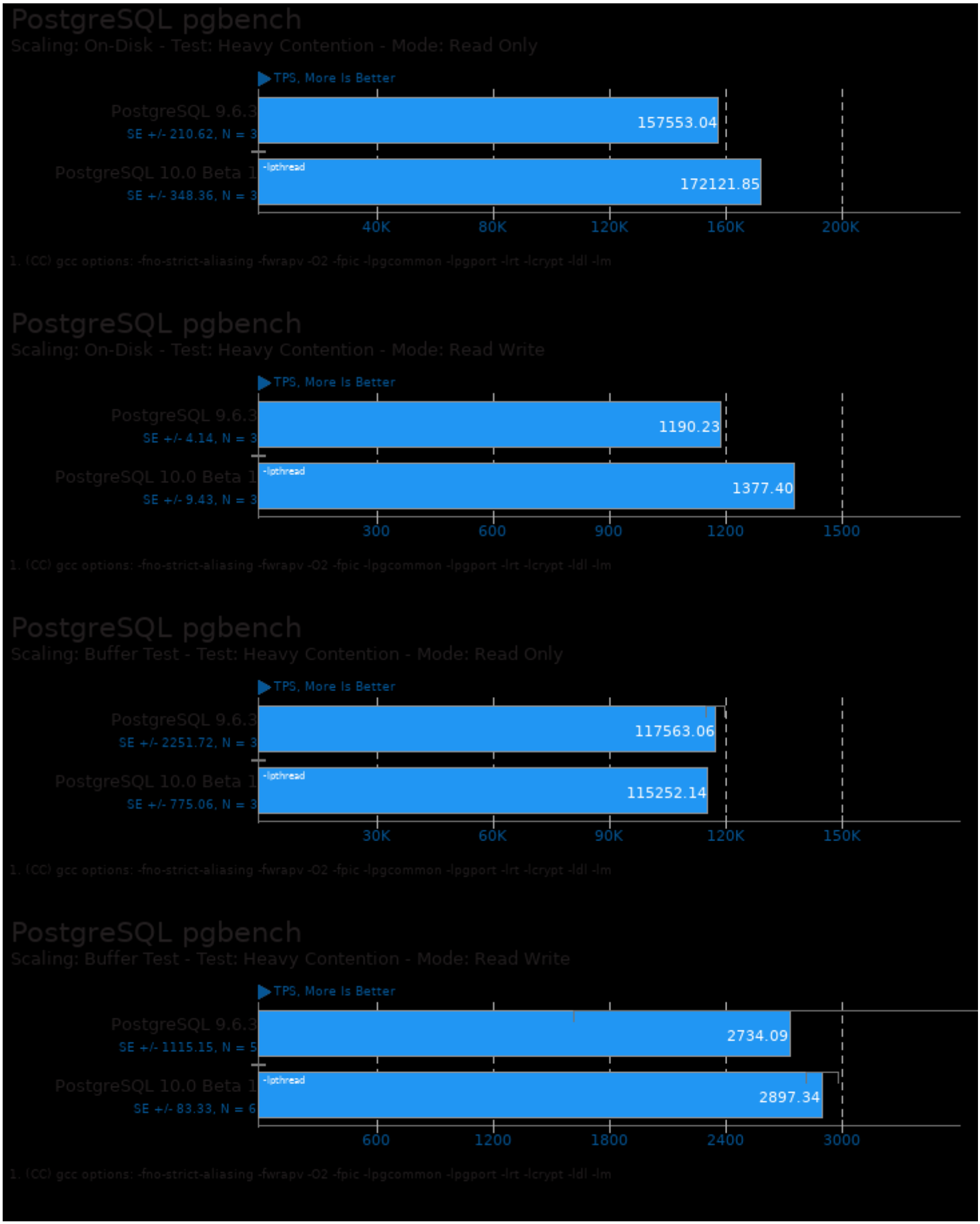
OS: Ubuntu 16.04, Kernel: 4.12.0-999-generic (x86_64) 20170517, Desktop: Unity 7.4.0, Display Server: X Server 1.18.4, Display Driver: modesetting 1.18.4, OpenGL: 4.5 Mesa 17.2.0-devel- padoka PPA Gallium 0.4 (LLVM 5.0.0), Vulkan: 1.0.21, Compiler: GCC 5.4.0 20160609, File-System: ext4, Screen Resolution: 3840x2160

Compiler Notes: --build=x86_64-linux-gnu --disable-browser-plugin --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-gnu-unique-object --enable-gtk-cairo --enable-java-awt=gtk --enable-java-home --enable-languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --enable-libmpx --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-arch-directory=amd64 --with-default-libstdcxx-abi=new --with-multilib-list=m32,m64,mx32 --with-tune=generic -v
Processor Notes: Scaling Governor: intel_pstate performance

	PostgreSQL 9.6.3	PostgreSQL 10.0 Beta 1
PostgreSQL pgbench - On-Disk - Normal Load - Read Only (TPS)	**185598**	**184214**
Normalized	100%	99.25%
Standard Deviation	1.1%	0%
PostgreSQL pgbench - On-Disk - Normal Load - Read Write (TPS)	**1194**	**1392**
Normalized	85.81%	100%
Standard Deviation	0.5%	2%
PostgreSQL pgbench - Buffer Test - Normal Load - Read Only (TPS)	**126711**	**120952**
Normalized	100%	95.46%
Standard Deviation	0.1%	0.3%
PostgreSQL pgbench - Buffer Test - Normal Load - Read Write (TPS)	**1657**	**2327**
Normalized	71.22%	100%
Standard Deviation	109.2%	1.8%
PostgreSQL pgbench - On-Disk - Heavy Contention - Read Only (TPS)	**157553**	**172122**
Normalized	91.54%	100%
Standard Deviation	0.2%	0.4%
PostgreSQL pgbench - On-Disk - Heavy Contention - Read Write (TPS)	**1190**	**1377**
Normalized	86.41%	100%
Standard Deviation	0.6%	1.2%
PostgreSQL pgbench - Buffer Test - Heavy Contention - Read Only (TPS)	**117563**	**115252**
Normalized	100%	98.03%
Standard Deviation	3.3%	1.2%
PostgreSQL pgbench - Buffer Test - Heavy Contention - Read Write (TPS)	**2734**	**2897**
Normalized	94.37%	100%
Standard Deviation	91.2%	7%


PostgreSQL pgbench
Scaling: On-Disk - Test: Normal Load - Mode: Read Only
TPS, More Is Better
PostgreSQL 9.6.3
SE +/- 1184.33, N = 3
185598.27
PostgreSQL 10.0 Beta 1
SE +/- 10.96, N = 3
-lpthread
184213.98
40K
80K
120K
160K
200K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -fpic -lpgcommon -lpgport -lrt -lcrypt -ldl -lm
PostgreSQL pgbench
Scaling: On-Disk - Test: Normal Load - Mode: Read Write
TPS, More Is Better
PostgreSQL 9.6.3
SE +/- 3.56, N = 3
1194.17
PostgreSQL 10.0 Beta 1
SE +/- 16.03, N = 3
-lpthread
1391.65
300
600
900
1200
1500
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -fpic -lpgcommon -lpgport -lrt -lcrypt -ldl -lm
PostgreSQL pgbench
Scaling: Buffer Test - Test: Normal Load - Mode: Read Only
TPS, More Is Better
PostgreSQL 9.6.3
SE +/- 107.94, N = 3
126711.14
PostgreSQL 10.0 Beta 1
SE +/- 189.53, N = 3
-lpthread
120952.24
30K
60K
90K
120K
150K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -fpic -lpgcommon -lpgport -lrt -lcrypt -ldl -lm
PostgreSQL pgbench
Scaling: Buffer Test - Test: Normal Load - Mode: Read Write
TPS, More Is Better
PostgreSQL 9.6.3
SE +/- 738.96, N = 6
1657.06
PostgreSQL 10.0 Beta 1
SE +/- 23.94, N = 3
-lpthread
2326.75
500
1000
1500
2000
2500
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -fpic -lpgcommon -lpgport -lrt -lcrypt -ldl -lm

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This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 01:24.