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EPYC 7642 AMD Linux Kernel Comparison

AMD EPYC 7642 benchmarks by Michael Larabel.

Automated Executive Summary

Linux 4.19 had the most wins, coming in first place for 42% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 4.19) was 1.019x the speed of the slowest (Linux 5.4 Git). Linux 4.20 was 0.994x the speed of Linux 4.19, Linux 5.2 was 0.996x the speed of Linux 4.20, Linux 5.1 was 0.996x the speed of Linux 5.2, Linux 5.0 was 1x the speed of Linux 5.1, Linux 5.3 was 0.999x the speed of Linux 5.0, Linux 5.4 Git was 0.996x the speed of Linux 5.3.

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

Stress-NG (Test: System V Message Passing) at 1.564x
HPC Challenge (Test / Class: Random Ring Bandwidth) at 1.475x
SQLite (Threads / Copies: 64) at 1.4x
RAMspeed SMP (Type: Average - Benchmark: Integer) at 1.376x
Stress-NG (Test: Socket Activity) at 1.336x
RAMspeed SMP (Type: Average - Benchmark: Floating Point) at 1.334x
Sockperf (Test: Throughput) at 1.324x
IOR (Write Test) at 1.302x

PostgreSQL pgbench (Scaling: Buffer Test - Test: Normal Load - Mode: Read Only) at 1.266x
Flexible IO Tester (Type: Random Read - IO Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory) at 1.264x.

Test Systems:

Linux 4.19

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 4.19.0-041900-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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 / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: l1tf: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB IBRS_FW

Linux 4.20

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 4.20.0-042000-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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 / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: l1tf: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: conditional RSB filling

Linux 5.0

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.0.0-050000-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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 / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: l1tf: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling

Linux 5.1

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.1.0-050100-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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 / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: l1tf: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling

Linux 5.2

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.2.0-050200-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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 / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling

Linux 5.3

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

EPYC 7642 AMD Linux Kernel Comparison

OS: Ubuntu 19.10, Kernel: 5.3.0-050300-generic (x86_64), Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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 / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: l1tf: Not affected + mds: Not affected + 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 Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling

Linux 5.4 Git

Processor: AMD EPYC 7642 48-Core @ 2.30GHz (48 Cores / 96 Threads), Motherboard: ASRockRack EPYCD8 (P2.10 BIOS), Chipset: AMD Starship/Matisse, Memory: 129024MB, Disk: 280GB INTEL SSDPED1D280GA, Graphics: llvmpipe 126GB, Audio: AMD Starship/Matisse, Network: 2 x Intel I350

OS: Ubuntu 19.10, Kernel: 5.4.0-999-generic (x86_64) 20191114, Desktop: GNOME Shell 3.34.1, Display Server: X Server 1.20.5, Display Driver: modesetting 1.20.5, OpenGL: 3.3 Mesa 19.2.1 (LLVM 9.0 128 bits), Compiler: GCC 9.2.1 20191008, File-System: ext4, Screen Resolution: 1024x768

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++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-offload-targets=nvptx-none,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 / errors=remount-ro,relatime,rw
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x830101c
Python Notes: Python 2.7.17rc1 + Python 3.7.5rc1
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + 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 Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + tsx_async_abort: Not affected

	Linux 4.19	Linux 4.20	Linux 5.0	Linux 5.1	Linux 5.2	Linux 5.3	Linux 5.4
SQLite - 64 (sec)	**35.454**	41.837	46.814	46.667	46.206	48.602	**49.627**
Normalized	100%	84.74%	75.73%	75.97%	76.73%	72.95%	71.44%
Standard Deviation	1.2%	1%	0.8%	1.1%	1%	0.6%	0.6%
SQLite - 128 (sec)	**86.356**	89.977	99.690	99.931	98.475	**106.722**	105.436
Normalized	100%	95.98%	86.62%	86.42%	87.69%	80.92%	81.9%
Standard Deviation	1.6%	0.7%	0.5%	0.6%	0.2%	0.2%	0.4%
Flexible IO Tester - Rand Read - Linux AIO - Yes - No - 2MB (MB/s)	1123	1114	1153	**1159**	1153	1062	**1058**
Normalized	96.89%	96.12%	99.48%	100%	99.48%	91.63%	91.29%
Standard Deviation	1.6%	0.8%	0.4%	0.5%	0.3%	0.9%	0.4%

EPYC 7642 AMD Linux Kernel Comparison

Flexible IO Tester - Rand Read - Linux AIO - Yes - No - 4KB (MB/s)	226	196	238	239	247	236	241
Normalized	91.5%	79.35%	96.36%	96.76%	100%	95.55%	97.57%
Standard Deviation	0.9%	5.4%	1.9%	0.9%	6.1%	5.8%	2.9%
Flexible IO Tester - Rand Read - Linux AIO - Yes - No - 4KB (IOPS)	57867	50060	61033	60800	63287	60267	61740
Normalized	91.44%	79.1%	96.44%	96.07%	100%	95.23%	97.56%
Standard Deviation	1%	5.2%	1.9%	1.4%	6.2%	5.8%	3%
Flexible IO Tester - Rand Write - Linux AIO - Yes - No - 2MB (MB/s)	1190	1192	1195	1176	1169	1105	1088
Normalized	99.58%	99.75%	100%	98.41%	97.82%	92.47%	91.05%
Standard Deviation	0.6%	1.2%	0.8%	0.2%	0.5%	0.6%	
Flexible IO Tester - Rand Write - Linux AIO - Yes - No - 4KB (MB/s)	822	824	829	829	821	799	810
Normalized	99.16%	99.4%	100%	100%	99.03%	96.38%	97.71%
Standard Deviation	0.5%	0.7%	0.4%	1.1%	0.6%	2.7%	0.4%
Flexible IO Tester - Rand Write - Linux AIO - Yes - No - 4KB (IOPS)	210000	211000	212333	212333	210333	204500	207000
Normalized	98.9%	99.37%	100%	100%	99.06%	96.31%	97.49%
Standard Deviation			0.3%	1%	0.7%	2.7%	0.5%
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 2MB (MB/s)	1915	1825	2297	2304	2295	2240	2255
Normalized	83.12%	79.21%	99.7%	100%	99.61%	97.22%	97.87%
Standard Deviation	0.4%	0.3%	0.7%	0.3%	0.5%	0.3%	0.2%
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 4KB (MB/s)	1734	1822	2108	2112	2092	1898	1898
Normalized	82.1%	86.27%	99.81%	100%	99.05%	89.87%	89.87%
Standard Deviation	0.8%	5.5%	0.7%	0.3%	0.8%	0.4%	0.3%
Flexible IO Tester - Seq Read - Linux AIO - Yes - No - 4KB (IOPS)	444000	466467	539667	540667	535333	486000	485667
Normalized	82.12%	86.28%	99.82%	100%	99.01%	89.89%	89.83%
Standard Deviation	0.8%	5.5%	0.7%	0.3%	0.8%	0.4%	0.2%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 2MB (MB/s)	1195	1193	1190	1181	1166	1129	1089
Normalized	100%	99.83%	99.58%	98.83%	97.57%	94.48%	91.13%
Standard Deviation	0.3%	0.5%	0.6%	0.1%	0.2%	0.3%	0.4%
Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 4KB (MB/s)	882	883	889	887	881	861	850
Normalized	99.21%	99.33%	100%	99.78%	99.1%	96.85%	95.61%
Standard Deviation		0.5%	0.6%	0.5%	0.8%		0.1%

EPYC 7642 AMD Linux Kernel Comparison

Flexible IO Tester - Seq Write - Linux AIO - Yes - No - 4KB (IOPS)	226000	226000	227667	226667	225667	220333	217667
Normalized	99.27%	99.27%	100%	99.56%	99.12%	96.78%	95.61%
Standard Deviation		0.4%	0.7%	0.5%	0.9%	0.3%	0.3%
IOR - Write Test (MB/s)	1067	1015	1318	1283	1285	1282	1322
Normalized	80.72%	76.8%	99.75%	97.03%	97.21%	97%	100%
Standard Deviation	0.2%	0.9%	0.9%	0.6%	0.4%	0.1%	0.7%
IOR - Read Test (MB/s)	2066	2012	1955	1956	1958	1953	1943
Normalized	100%	97.4%	94.65%	94.7%	94.79%	94.54%	94.06%
Standard Deviation	0.2%	0.6%	0.6%	0.1%	0.4%	0.1%	0.1%
RAMspeed SMP - Average - Integer (MB/s)	29774	40363	38592	35637	29810	40956	39983
Normalized	72.7%	98.55%	94.23%	87.01%	72.78%	100%	97.62%
RAMspeed SMP - Average - Floating Point (MB/s)	29708	39524	35635	29770	29741	39619	38555
Normalized	74.98%	99.76%	89.95%	75.14%	75.07%	100%	97.32%
Stream - Copy (MB/s)	90793	91014	91074	90996	90943	90777	90978
Normalized	99.69%	99.93%	100%	99.91%	99.86%	99.67%	99.89%
Standard Deviation	0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Stream - Scale (MB/s)	88889	89186	89272	89240	89228	89060	89162
Normalized	99.57%	99.9%	100%	99.96%	99.95%	99.76%	99.88%
Standard Deviation	0.1%	0.1%	0%	0.1%	0.1%	0.2%	0.1%
Stream - Triad (MB/s)	99294	99464	99503	99440	99460	99329	99261
Normalized	99.79%	99.96%	100%	99.94%	99.96%	99.82%	99.76%
Standard Deviation	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Stream - Add (MB/s)	97974	98260	98288	98249	98122	98004	98129
Normalized	99.68%	99.97%	100%	99.96%	99.83%	99.71%	99.84%
Standard Deviation	0.1%	0.1%	0.1%	0.1%	0.1%	0%	0.1%
Tinymembench - Standard Memcpy (MB/s)	8822	8807	8794	8760	8828	8815	8820
Normalized	99.93%	99.76%	99.61%	99.23%	100%	99.85%	99.9%
Standard Deviation	0.5%	0.2%	0.7%	2.1%	0.4%	0.4%	0.3%
Tinymembench - Standard Memset (MB/s)	14827	14842	14868	14887	14862	14769	14840
Normalized	99.59%	99.7%	99.87%	100%	99.83%	99.2%	99.68%
Standard Deviation	0.6%	0.3%	0.5%	0.1%	0.5%	0.4%	0.5%
MBW - Memory Copy - 8192 MiB (MiB/s)	15539	15178	15153	15173	15242	15303	15163
Normalized	100%	97.67%	97.51%	97.64%	98.09%	98.48%	97.58%
Standard Deviation	0.3%	1.1%	0.3%	0.1%	0.8%	0.3%	1.1%
MBW - M.C.F.B.S - 8192 MiB (MiB/s)	9015	8986	9054	9038	9018	9054	8983
Normalized	99.56%	99.25%	100%	99.82%	99.6%	100%	99.21%
Standard Deviation	0.4%	0.9%	0%	0.2%	0.3%	0.3%	0.1%
Sockperf - Throughput (Messages/sec)	613928	513794	511030	518292	530344	501403	463561
Normalized	100%	83.69%	83.24%	84.42%	86.39%	81.67%	75.51%
Standard Deviation	2.8%	3%	3.4%	3.1%	1.5%	1.4%	2%
Sockperf - Latency Ping Pong (usec)	4.759	5.003	4.896	4.897	5.057	5.048	5.117
Normalized	100%	95.12%	97.2%	97.18%	94.11%	94.27%	93%
Standard Deviation	1.2%	0.6%	1.7%	0.9%	1.1%	1.2%	0.9%

EPYC 7642 AMD Linux Kernel Comparison

Sockperf - Latency Under Load (usec)	18.953	19.548	19.390	20.683	21.930	21.679	21.506
Normalized	100%	96.96%	97.75%	91.64%	86.42%	87.43%	88.13%
Standard Deviation	13.2%	18.7%	13.1%	14.6%	15.3%	12.9%	9.7%
HPC Challenge - G-HPL (GFLOPS)	111.06100	110.95500	111.34000	111.73700	113.28500	112.61700	111.87500
Normalized	98.04%	97.94%	98.28%	98.63%	100%	99.41%	98.76%
HPC Challenge - G-Ffte (GFLOPS)	17.33460	16.96160	17.04780	16.75700	17.17080	17.05970	16.91850
Normalized	100%	97.85%	98.35%	96.67%	99.06%	98.41%	97.6%
HPC Challenge - G-Ffte (GFLOP/s)	17.33460	16.96160	17.04780	16.75700	17.17080	17.05970	16.91850
Normalized	100%	97.85%	98.35%	96.67%	99.06%	98.41%	97.6%
HPC Challenge - EP-DGEMM (GFLOPS)	21.23340	21.46030	21.62090	21.10420	20.98670	21.49800	21.39090
Normalized	98.21%	99.26%	100%	97.61%	97.07%	99.43%	98.94%
HPC Challenge - G-Ptrans (GB/s)	11.89410	11.86130	11.84530	11.88210	11.86900	11.87630	11.80760
Normalized	100%	99.72%	99.59%	99.9%	99.79%	99.85%	99.27%
HPC Challenge - EP-STREAM Triad (GB/s)	2.12613	2.12610	2.12696	2.12919	2.12624	2.12775	2.12817
Normalized	99.86%	99.85%	99.9%	100%	99.86%	99.93%	99.95%
HPC Challenge - G-Rand Access (GUP/s)	0.18297	0.18209	0.18141	0.18223	0.18198	0.18204	0.18353
Normalized	99.69%	99.22%	98.84%	99.29%	99.16%	99.19%	100%
HPC Challenge - R.R.L (usecs)	1.13436	1.15245	1.13548	1.13674	1.10960	1.15864	1.14714
Normalized	97.82%	96.28%	97.72%	97.61%	100%	95.77%	96.73%
HPC Challenge - R.R.B (GB/s)	1.05287	1.05889	1.04710	1.51464	1.54411	1.49760	1.51968
Normalized	68.19%	68.58%	67.81%	98.09%	100%	96.99%	98.42%
HPC Challenge - M.P.P.B (MB/s)	16325	15393	16274	15141	15184	16539	16499
Normalized	98.71%	93.07%	98.4%	91.54%	91.81%	100%	99.76%
miniFE - Small (CG	19406	19292	19364	19346	19328	19352	19348
Normalized	100%	99.42%	99.79%	99.69%	99.6%	99.73%	99.7%
Standard Deviation	0.1%	0.1%	0.1%	0.1%	0%	0.2%	0.1%
NAMD - ATPase Simulation - 327,506	0.53744	0.53787	0.53803	0.53803	0.53778	0.53901	0.53895
Normalized	100%	99.92%	99.89%	99.89%	99.94%	99.71%	99.72%
Standard Deviation	0.2%	0.3%	0.2%	0.3%	0.3%	0.4%	0.2%
Timed MrBayes Analysis - P.P.A (sec)	103.214	105.649	103.050	102.995	103.933	104.198	105.131
Normalized	99.79%	97.49%	99.95%	100%	99.1%	98.85%	97.97%
Standard Deviation	0.2%	2.6%	0.2%	0.3%	0.5%	2.7%	3%
Timed HMMer Search - P.D.S (sec)	6.105	6.220	6.239	6.262	6.069	6.255	6.285
Normalized	99.41%	97.57%	97.28%	96.92%	100%	97.03%	96.56%
Standard Deviation	0.6%	2.7%	2.3%	1.5%	1.5%	1.8%	2.2%
GraphicsMagick - Swirl (Iterations/min)	1627	1595	1604	1604	1572	1598	1587
Normalized	100%	98.03%	98.59%	98.59%	96.62%	98.22%	97.54%

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Standard Deviation		0.1%	0.1%	0.1%	0.2%	0.1%	0.1%
GraphicsMagick - Rotate (Iterations/min)	524	513	515	515	510	522	514
Normalized	100%	97.9%	98.28%	98.28%	97.33%	99.62%	98.09%
Standard Deviation	0.4%	0.2%	0.1%	0.3%		0.8%	0.4%
GraphicsMagick - Sharpen (Iterations/min)	505	501	502	502	498	501	499
Normalized	100%	99.21%	99.41%	99.41%	98.61%	99.21%	98.81%
Standard Deviation	0.1%	0.1%					
GraphicsMagick - Enhanced (Iterations/min)	751	744	743	742	741	742	741
Normalized	100%	99.07%	98.93%	98.8%	98.67%	98.8%	98.67%
Standard Deviation	0.2%	0.1%	0.1%	0.1%			
GraphicsMagick - Resizing (Iterations/min)	1959	1903	1890	1954	1944	1920	2044
Normalized	95.84%	93.1%	92.47%	95.6%	95.11%	93.93%	100%
Standard Deviation	2.8%	3.7%	2.9%	2.8%	4.8%	0.8%	2.3%
GraphicsMagick - Noise-Gaussian (Iterations/min)	605	605	594	589	593	588	594
Normalized	100%	100%	98.18%	97.36%	98.02%	97.19%	98.18%
Standard Deviation	0.3%		0.7%	0.3%	0.3%	0.2%	0.3%
GraphicsMagick - HWB Color Space	1295	1219	1260	1238	1214	1222	1227
Normalized	100%	94.13%	97.3%	95.6%	93.75%	94.36%	94.75%
Standard Deviation	0.7%	0.7%	0.3%	1.1%	0.8%	0.6%	0.9%
OSPray - San Miguel - SciVis (FPS)	50	48.21	47.62	48.02	48.21	48.10	47.86
Normalized	100%	96.42%	95.24%	96.04%	96.42%	96.2%	95.72%
Standard Deviation		2.5%	0%	1.9%	2.5%	2.2%	1.6%
OSPray - San Miguel - Path Tracer (FPS)	4.19	4.19	4.17	4.17	4.17	4.16	4.17
Normalized	100%	100%	99.52%	99.52%	99.52%	99.28%	99.52%
Standard Deviation	0.2%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%
Embree - Pathtracer - Crown (FPS)	41.4323	41.5070	41.3416	41.3274	41.3648	41.3294	41.2984
Normalized	99.82%	100%	99.6%	99.57%	99.66%	99.57%	99.5%
Standard Deviation	0.2%	0.1%	0.2%	0.1%	0.1%	0%	0.2%
Embree - Pathtracer ISPC - Crown (FPS)	39.7127	39.6765	39.5798	39.5735	39.6243	39.5529	39.5448
Normalized	100%	99.91%	99.67%	99.65%	99.78%	99.6%	99.58%
Standard Deviation	0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
rav1e - 1.T.A.V.E (FPS)	1.047	1.041	1.044	1.040	1.041	1.043	1.041
Normalized	100%	99.43%	99.71%	99.33%	99.43%	99.62%	99.43%
Standard Deviation	0.6%	0.6%	0.3%	0.6%	0.6%	0.1%	0.3%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	294.90	288.79	286.95	286.69	281.27	283.52	285.78
Normalized	100%	97.93%	97.3%	97.22%	95.38%	96.14%	96.91%
Standard Deviation	0.6%	0.4%	0.4%	1.8%	1.9%	1.7%	1%
ACES DGEMM - S.F.P.R (GFLOP/s)	14.012168	13.496678	13.985749	14.193214	14.089816	14.072234	13.982508
Normalized	98.72%	95.09%	98.54%	100%	99.27%	99.15%	98.52%
Standard Deviation	2.7%	2.7%	2.6%	1%	1.4%	0.9%	3%

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Intel Open Image Denoise - Memorial (Images / Sec)	20.14	20.17	20.14	20.11	20.18	**20.30**	**19.94**
Normalized	99.21%	99.36%	99.21%	99.06%	99.41%	100%	98.23%
Standard Deviation	0%	0.1%	0.1%	0.2%	0.1%	1.3%	0.2%
Himeno Benchmark - P.P.S (MFLOPS)	3370	**3402**	3317	3122	3379	3369	**3096**
Normalized	99.05%	100%	97.5%	91.77%	99.32%	99.03%	91%
Standard Deviation	1.5%	0.3%	3.8%	1.3%	1.2%	1.1%	1.3%
Timed GCC Compilation - Time To Compile (sec)	**741.533**	743.020	745.083	742.486	745.579	**752.476**	751.648
Normalized	100%	99.8%	99.52%	99.87%	99.46%	98.55%	98.65%
Standard Deviation	0.1%	0.1%	0.1%	0.1%	0%	0.1%	0%
Timed Linux Kernel Compilation - Time To Compile (sec)	25.922	**25.894**	26.071	26.044	26.148	26.292	**26.309**
Normalized	99.89%	100%	99.32%	99.42%	99.03%	98.49%	98.42%
Standard Deviation	3%	3%	2.6%	2.9%	2.9%	2.9%	2.9%
Timed LLVM Compilation - Time To Compile (sec)	121.959	**120.989**	121.356	123.105	121.599	121.618	**123.124**
Normalized	99.2%	100%	99.7%	98.28%	99.5%	99.48%	98.27%
Tungsten Renderer - Hair (sec)	**8.64569**	8.58423	**8.57427**	8.64465	8.59725	8.60613	8.59755
Normalized	99.17%	99.88%	100%	99.19%	99.73%	99.63%	99.73%
Standard Deviation	0.4%	0.3%	1.1%	0.9%	0.1%	1.1%	1.4%
Tungsten Renderer - Water Caustic (sec)	22.7844	22.6992	**22.6826**	**22.7899**	22.6926	22.7072	22.7353
Normalized	99.55%	99.93%	100%	99.53%	99.96%	99.89%	99.77%
Standard Deviation	0.1%	0.2%	0.2%	0.1%	0.2%	0.1%	0.2%
Tungsten Renderer - Non-Exponential (sec)	3.08623	**2.53678**	**3.38365**	3.35999	2.93166	3.08744	3.27692
Normalized	82.2%	100%	74.97%	75.5%	86.53%	82.16%	77.41%
Standard Deviation	12.6%	0.8%	1.7%	0.6%	14.2%	12.6%	8.7%
Tungsten Renderer - Volumetric Caustic (sec)	**4.34999**	4.35547	4.42436	4.41802	**4.42605**	4.41098	4.41290
Normalized	100%	99.87%	98.32%	98.46%	98.28%	98.62%	98.57%
Standard Deviation	0.2%	0.1%	0.1%	0.2%	0.1%	0.2%	0.1%
Hackbench - 16 - Thread (sec)	**13.937**	14.323	14.514	14.693	14.752	15.977	**16.239**
Normalized	100%	97.31%	96.02%	94.85%	94.48%	87.23%	85.82%
Standard Deviation	0.6%	0.8%	0.4%	0.2%	0.9%	1%	1.7%
Hackbench - 16 - Process (sec)	**13.299**	13.552	13.796	13.691	13.756	15.085	**15.281**
Normalized	100%	98.13%	96.4%	97.14%	96.68%	88.16%	87.03%
Standard Deviation	0.9%	0.9%	1.5%	1.1%	1.6%	0.1%	0.5%
Hackbench - 32 - Process (sec)	**25.199**	26.242	26.707	26.638	26.339	29.876	**30.597**
Normalized	100%	96.03%	94.35%	94.6%	95.67%	84.35%	82.36%
Standard Deviation	1.1%	0.7%	0.6%	0.8%	1.5%	0.3%	0.1%
N-Queens - Elapsed Time (sec)	3.287	3.281	**3.279**	3.287	3.288	3.303	**3.307**
Normalized	99.76%	99.94%	100%	99.76%	99.73%	99.27%	99.15%
Standard Deviation	0.1%	0.2%	0.1%	0.1%	0.2%	0.6%	0.1%

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OpenSSL - R.4.b.P (Signs/sec)	10302	**10304**	10286	10292	10296	**10285**	10299
Normalized	99.98%	100%	99.83%	99.88%	99.93%	99.82%	99.95%
Standard Deviation	0.1%	0%	0.1%	0.1%	0.1%	0.1%	0%
ASKAP - tConvolve MT - Gridding (Million Grid Points/sec)	4400	**4396**	4405	4421	4416	4406	**4427**
Normalized	99.4%	99.3%	99.5%	99.87%	99.76%	99.52%	100%
Standard Deviation	0.1%	0.1%	0.2%	0.4%	0.8%	0.5%	0.4%
ASKAP - tConvolve MT - Degridding (Million Grid Points/sec)	5934	**5926**	5933	**5981**	5955	5950	5959
Normalized	99.22%	99.09%	99.2%	100%	99.56%	99.49%	99.64%
Standard Deviation	0.2%	0.5%	0.6%	0.5%	0.5%	0.2%	0.2%
ASKAP - tConvolve MPI - Gridding (Million Grid Points/sec)	**4560**	4562	4560	4561	4561	4562	**4565**
Normalized	99.87%	99.92%	99.88%	99.9%	99.89%	99.93%	100%
Standard Deviation	0%	0%	0%	0.1%	0.1%	0%	0%
ASKAP - tConvolve MPI - Degridding (Million Grid Points/sec)	6210	6215	**6204**	6217	6216	6219	**6225**
Normalized	99.76%	99.84%	99.66%	99.87%	99.85%	99.9%	100%
Standard Deviation	0%	0.1%	0%	0.1%	0.1%	0.1%	0%
ASKAP - tConvolve OpenMP - Gridding (Million Grid Points/sec)	7019	6887	7011	**7223**	**6770**	6887	7057
Normalized	97.18%	95.35%	97.07%	100%	93.73%	95.35%	97.7%
Standard Deviation	8.1%	1.5%	8.6%	10.3%	1.5%	1.5%	2.5%
ASKAP - tConvolve OpenMP - Degridding (Million Grid Points/sec)	6175	6339	**6137**	6151	**6443**	6391	6378
Normalized	95.85%	98.4%	95.27%	95.48%	100%	99.2%	99%
Standard Deviation	1.9%	0%	2.1%	3.4%	1.4%	1.4%	1.2%
GROMACS - Water Benchmark (Ns/Day)	4.068	4.076	4.070	**4.063**	4.075	**4.085**	4.072
Normalized	99.58%	99.78%	99.63%	99.46%	99.76%	100%	99.68%
Standard Deviation	0.1%	0.2%	0.1%	0.5%	0.1%	0.1%	0%
PostgreSQL pgbench - Buffer Test - Normal Load - Read Only (TPS)	**722890**	721248	581741	581546	577467	575464	**571176**
Normalized	100%	99.77%	80.47%	80.45%	79.88%	79.61%	79.01%
Standard Deviation	0.6%	0.6%	0.5%	0.6%	0.2%	0.3%	0.2%
PostgreSQL pgbench - Buffer Test - Normal Load - Read Write (TPS)	**51881**	51279	48849	48623	48371	48206	**47535**
Normalized	100%	98.84%	94.16%	93.72%	93.23%	92.92%	91.62%
Standard Deviation	0.3%	0.3%	0.5%	0.4%	0.2%	0.3%	0.3%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	77.414	77.566	**77.265**	77.902	**78.164**	77.675	78.083
Normalized	99.81%	99.61%	100%	99.18%	98.85%	99.47%	98.95%
Standard Deviation	0.3%	0.8%	0.5%	0.1%	0.4%	0.2%	0.3%

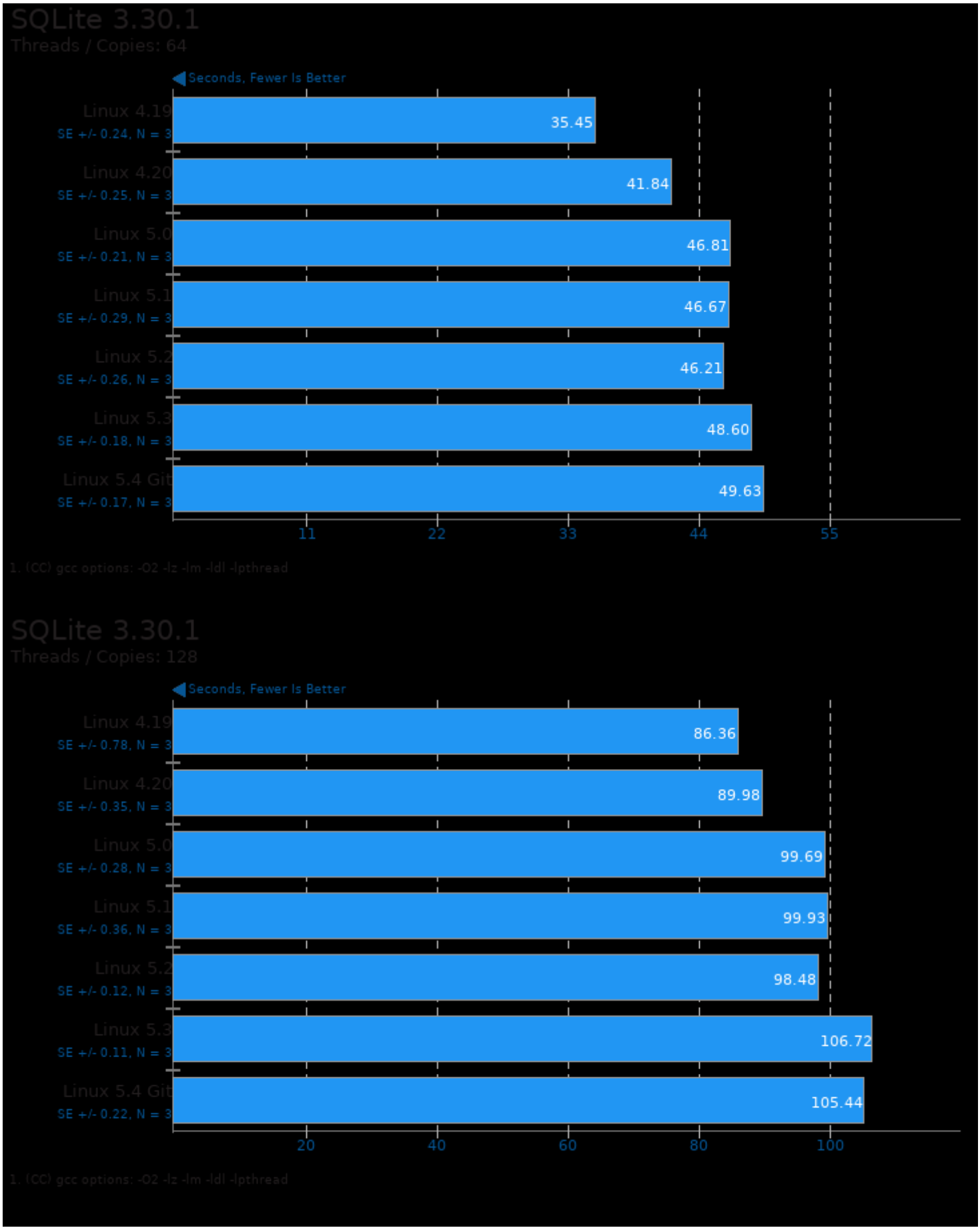
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Stress-NG - Semaphores (Bogo Ops/s)	2259262	**2236834**	2238135	2244519	**2273594**	2247022	2248510
Normalized	99.37%	98.38%	98.44%	98.72%	100%	98.83%	98.9%
Standard Deviation	0.6%	0.6%	0.2%	0.3%	0.7%	0.3%	0.3%
Stress-NG - Socket Activity (Bogo Ops/s)	**22760**	21013	18025	**17038**	19306	18882	17813
Normalized	100%	92.32%	79.19%	74.86%	84.83%	82.96%	78.26%
Standard Deviation	1.3%	0.7%	0.8%	1%	0.3%	0.5%	0.3%
Stress-NG - Context Switching (Bogo Ops/s)	**25591992**	22418127	18691055	19657675	17684848	17871356	**16748270**
Normalized	100%	87.6%	73.03%	76.81%	69.1%	69.83%	65.44%
Standard Deviation	0.9%	7.2%	1%	8.7%	2.8%	6.3%	7.2%
Stress-NG - S.V.M.P (Bogo Ops/s)	20076726	19207242	**16341284**	17724572	**25562466**	25071194	25342661
Normalized	78.54%	75.14%	63.93%	69.34%	100%	98.08%	99.14%
Standard Deviation	0.8%	2.1%	2.2%	2.7%	2.3%	1.1%	1.8%
ctx_clock - C.S.T (Clocks)	138	138	138	138	138	138	138
Chaos Group V-RAY - CPU (Ksamples)	**53860**	53485	**50636**	51348	51135	51030	50976
Normalized	100%	99.3%	94.01%	95.34%	94.94%	94.75%	94.65%
Standard Deviation	1.2%	0.4%	0.2%	1.2%	1.3%	1.2%	0.4%
IndigoBench - Bedroom (M samples/s)	**5.293**	5.287	5.248	5.242	**5.224**	5.254	5.256
Normalized	100%	99.89%	99.15%	99.04%	98.7%	99.26%	99.3%
Standard Deviation	0.4%	0%	0.2%	0.4%	0.2%	0.2%	0.2%
IndigoBench - Supercar (M samples/s)	**9.058**	8.988	**8.907**	8.940	8.942	8.941	8.918
Normalized	100%	99.23%	98.33%	98.7%	98.72%	98.71%	98.45%
Standard Deviation	0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%
Facebook RocksDB - Rand Fill (Op/s)	**341457**	356242	346493	350102	344395	**356507**	351130
Normalized	95.78%	99.93%	97.19%	98.2%	96.6%	100%	98.49%
Standard Deviation	4.7%	0.1%	1.1%	1.6%	1.6%	1.2%	1.7%
Facebook RocksDB - Rand Read (Op/s)	**186016129**	185394718	167208762	166608589	**163416242**	169222387	167033565
Normalized	100%	99.67%	89.89%	89.57%	87.85%	90.97%	89.8%
Standard Deviation	1.1%	0.5%	0.3%	1%	2.7%	0.1%	0.9%
Facebook RocksDB - Seq Fill (Op/s)	364865	**374265**	359923	**353535**	358055	370037	363578
Normalized	97.49%	100%	96.17%	94.46%	95.67%	98.87%	97.14%
Standard Deviation	1.5%	1.8%	1.6%	0.4%	1.8%	2%	2.1%
Facebook RocksDB - Rand Fill Sync (Op/s)	**186362**	183227	170948	170485	169283	169927	**168454**
Normalized	100%	98.32%	91.73%	91.48%	90.84%	91.18%	90.39%
Standard Deviation	0.6%	0.1%	0.3%	0.1%	0.3%	0.3%	0.4%
Facebook RocksDB - Read While Writing (Op/s)	**6960064**	6950399	6780873	6690902	**6675991**	6707642	6748932
Normalized	100%	99.86%	97.43%	96.13%	95.92%	96.37%	96.97%
Standard Deviation	0.5%	0.6%	1.8%	0.6%	1.2%	1.2%	0.9%
Blender - Classroom - CPU-Only (sec)	**111.08**	112.01	122.62	121.64	121.99	**123.22**	123.12
Normalized	100%	99.17%	90.59%	91.32%	91.06%	90.15%	90.22%
Standard Deviation	0.1%	0.9%	0.7%	0.3%	0.2%	0.3%	0.4%

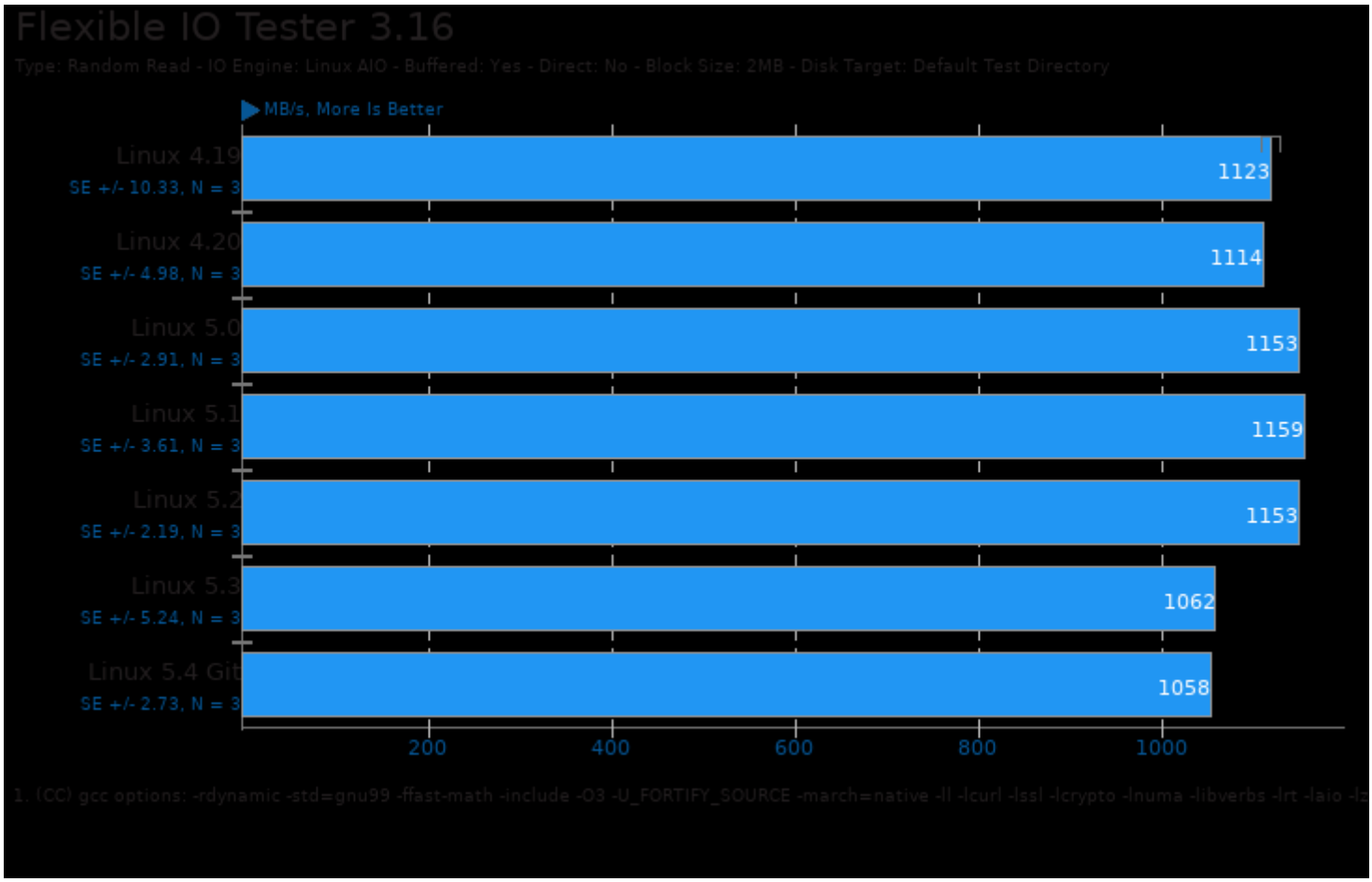
EPYC 7642 AMD Linux Kernel Comparison

Blender - Barbershop - CPU-Only (sec)	**190.55**	191.55	200.73	200.30	200.09	201.29	**201.46**
Normalized	100%	99.48%	94.93%	95.13%	95.23%	94.66%	94.58%
Standard Deviation	0.3%	0.2%	0.3%	0.2%	0.3%	0.3%	0.6%
PyBench - T.F.A.T.T (Milliseconds)	**1255**	1257	1257	1257	1257	**1263**	**1263**
Normalized	100%	99.84%	99.84%	99.84%	99.84%	99.37%	99.37%
Standard Deviation	0.4%	0.3%	0.4%	0.3%	0.2%	0.4%	0.5%
Apache Benchmark - S.W.P.S (Reqs/sec)	26677	26722	25996	26047	**26791**	**25689**	26069
Normalized	99.58%	99.74%	97.03%	97.22%	100%	95.89%	97.3%
Standard Deviation	0.4%	1.5%	1.2%	0.5%	0.7%	0.1%	1.1%
Appleseed - Emily (sec)	159.453151	**156.04235**	**163.611755**	161.710706	161.242782	161.176189	162.158666
Normalized	97.86%	100%	95.37%	96.49%	96.77%	96.81%	96.23%
Appleseed - Disney Material (sec)	**71.582387**	72.572683	74.585453	75.487852	76.267705	**76.519467**	73.592559
Normalized	100%	98.64%	95.97%	94.83%	93.86%	93.55%	97.27%
Appleseed - Material Tester (sec)	184.832939	**184.5159**	190.449474	**192.233042**	191.920178	187.093167	188.961134
Normalized	99.83%	100%	96.88%	95.99%	96.14%	98.62%	97.65%
PHPBench - P.B.S (Score)	498271	499151	500688	501792	**507537**	**494186**	502586
Normalized	98.17%	98.35%	98.65%	98.87%	100%	97.37%	99.02%
Standard Deviation	0.5%	0.3%	0.4%	0.2%	1.3%	0.2%	0.6%
Selenium - Octane - Firefox (Geometric Mean)	25339	**26129**	**25006**	26118	25739	25630	25869
Normalized	96.98%	100%	95.7%	99.96%	98.51%	98.09%	99%
Standard Deviation	2.4%	1.3%	2.5%	0.8%	2.8%	2.2%	1%
Selenium - Jetstream - Firefox (Score)	155.61	155.87	**155.27**	156.26	155.96	**156.81**	155.80
Normalized	99.23%	99.4%	99.02%	99.65%	99.46%	100%	99.36%
Standard Deviation	0.2%	0.6%	0.4%	0.5%	0.9%	0.3%	0.4%
Selenium - StyleBench - Firefox (Runs / Minute)	**61.0**	60.3	60.4	60.7	60.4	60.4	**60.0**
Normalized	100%	98.85%	99.02%	99.51%	99.02%	99.02%	98.36%
Standard Deviation	1.5%	0.8%	1.4%	1.5%	1.5%	1%	1%
Selenium - Maze Solver - Firefox (sec)	**5.1**	**5.1**	**5.2**	**5.1**	**5.2**	**5.1**	**5.1**
Normalized	100%	100%	98.08%	100%	98.08%	100%	100%
Standard Deviation	2.2%	2%	1.9%	2%	1.1%	2.2%	1.1%
Selenium - Speedometer - Firefox (Runs/min)	**67.5**	68.7	68.23	67.7	68.6	68.4	**68.76**
Normalized	98.17%	99.91%	99.23%	98.46%	99.77%	99.48%	100%
Standard Deviation	0.7%	0.6%	0.5%	1%	0.3%	1.1%	0.2%
Selenium - PSPDFKit WASM - Firefox (Score)	1791	**1802**	1790	1782	1782	**1779**	1783
Normalized	99.33%	98.72%	99.39%	99.83%	99.83%	100%	99.78%
Standard Deviation	0.1%	0.7%	0.4%	0.8%	1.3%	0.3%	0.4%

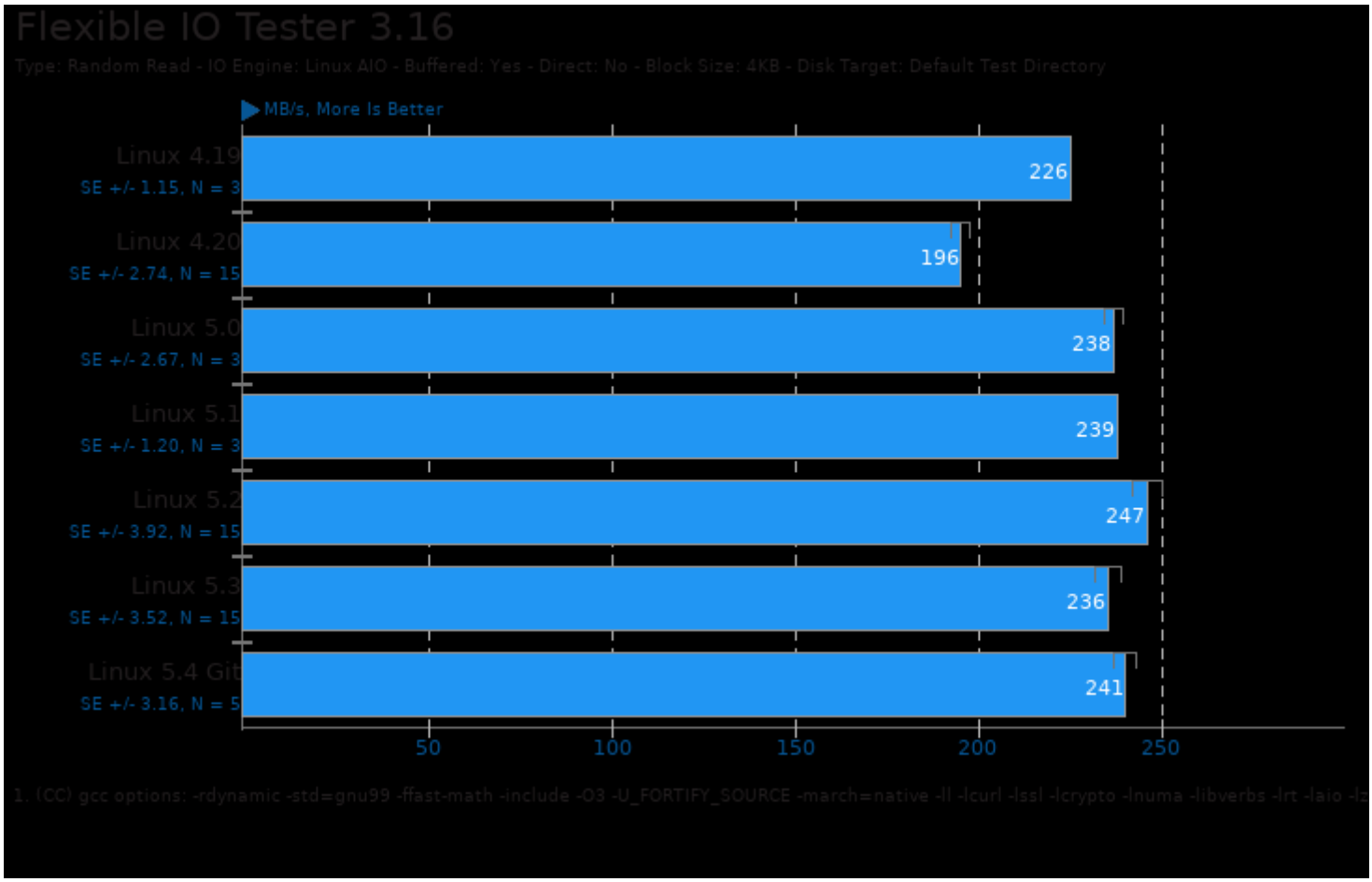
EPYC 7642 AMD Linux Kernel Comparison



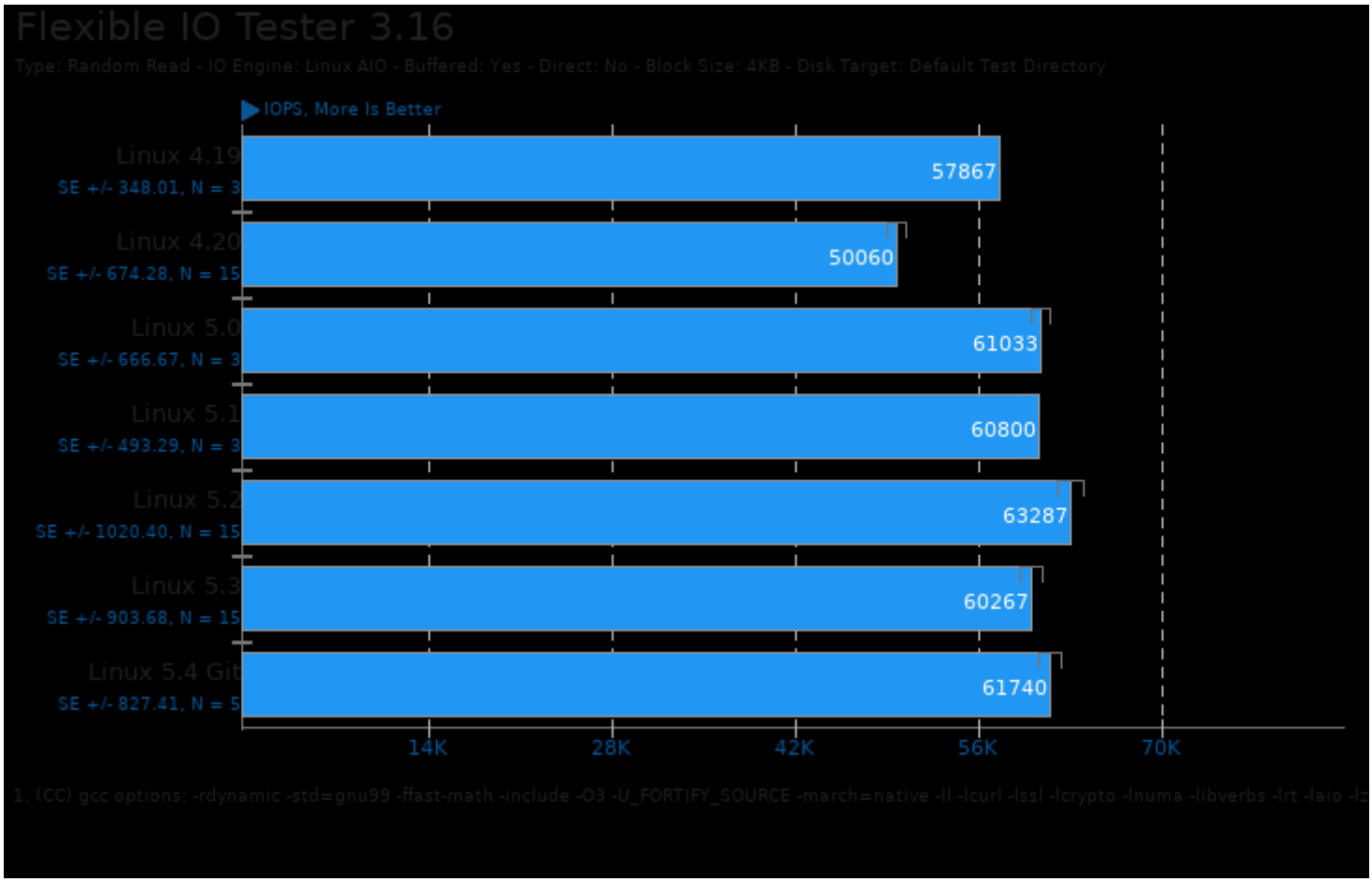
EPYC 7642 AMD Linux Kernel Comparison



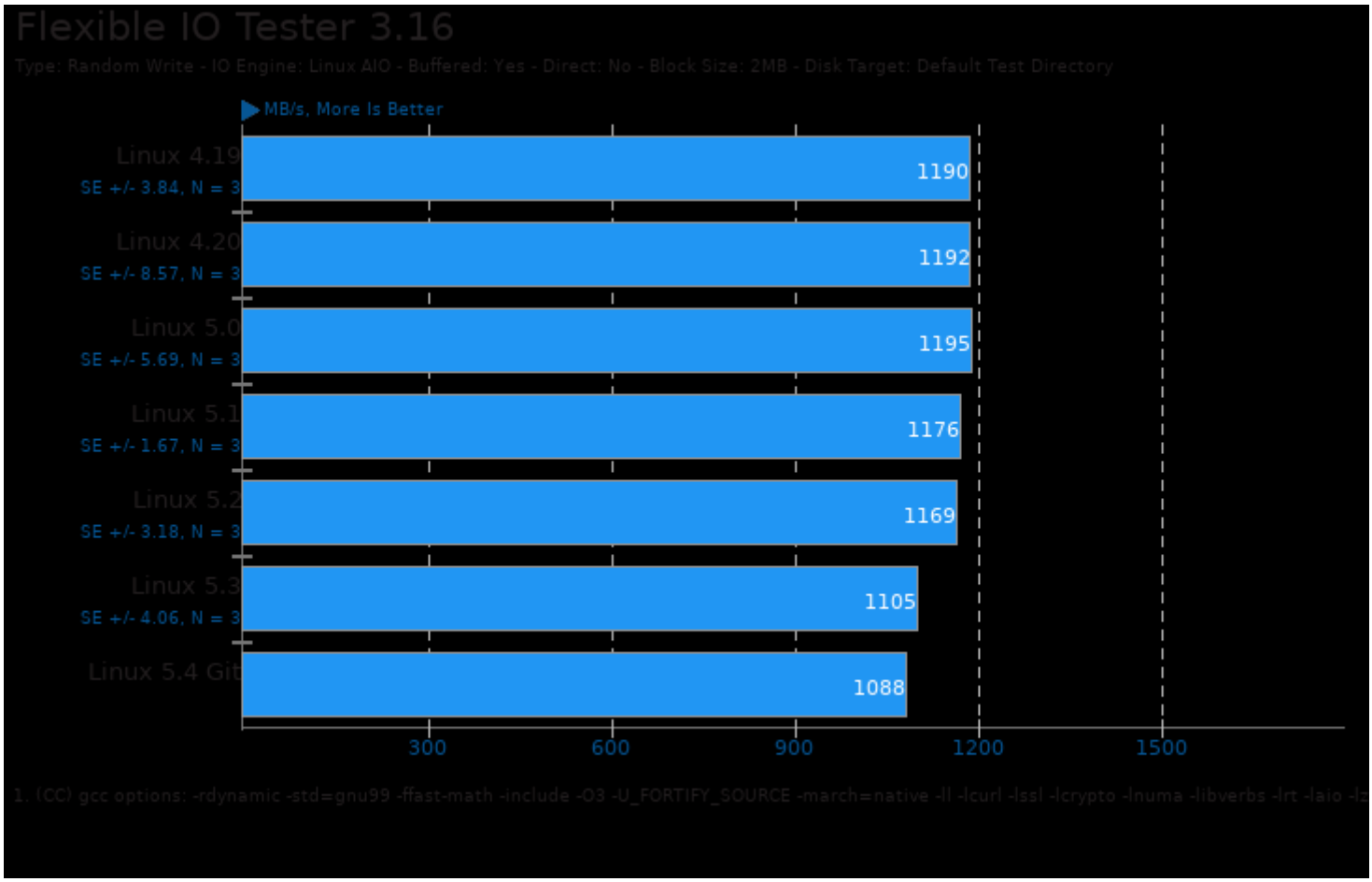
EPYC 7642 AMD Linux Kernel Comparison



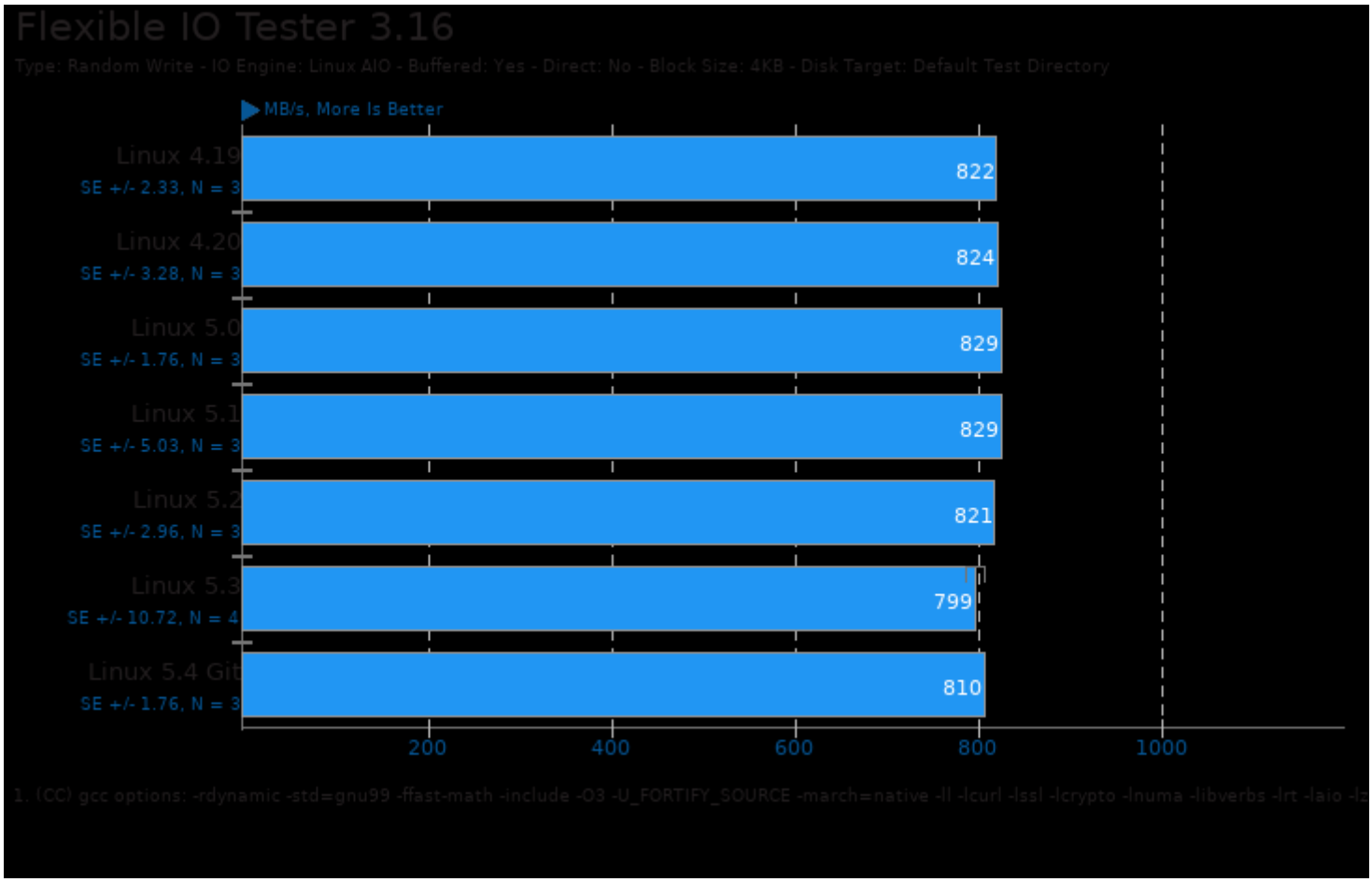
EPYC 7642 AMD Linux Kernel Comparison



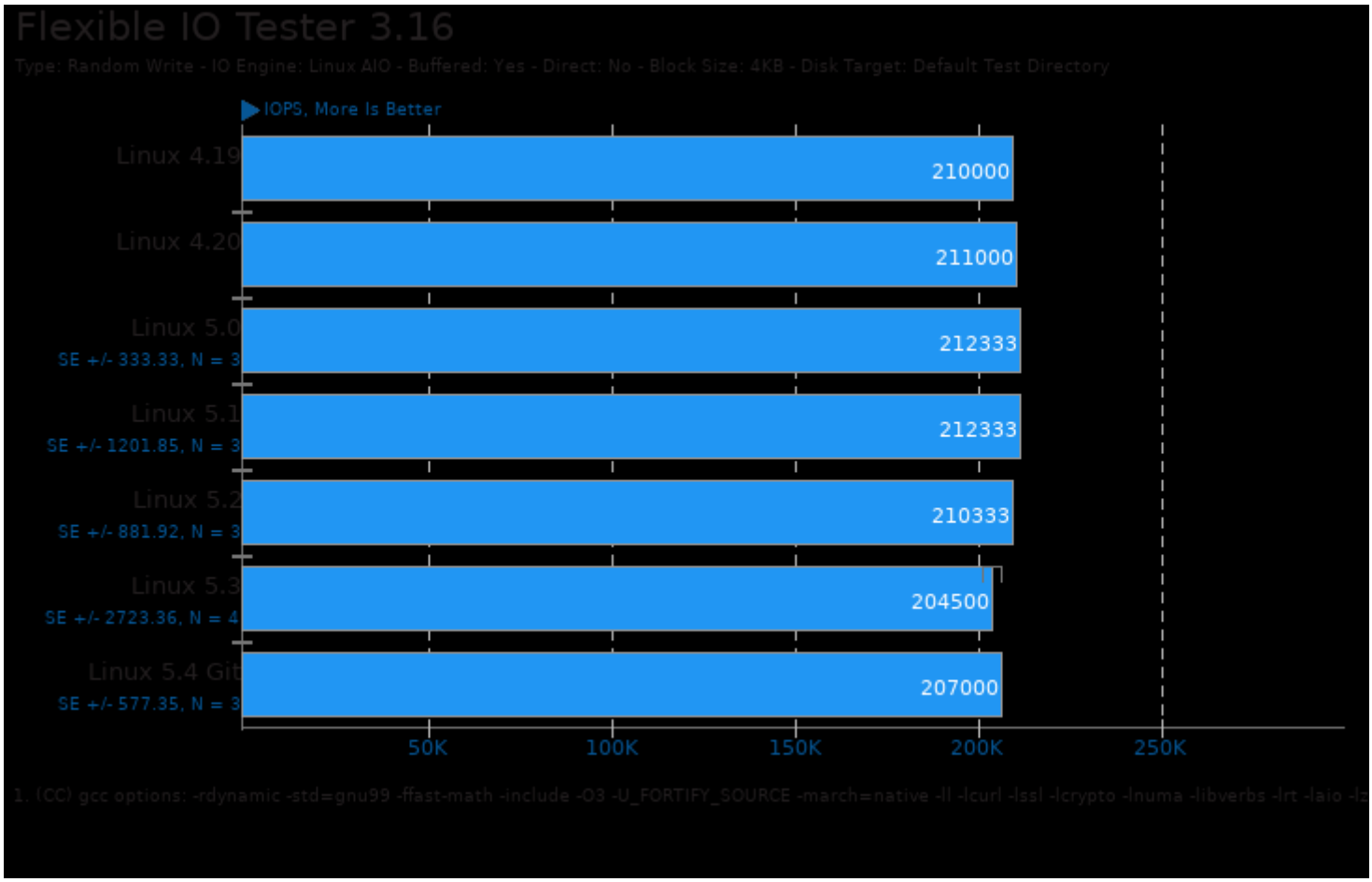
EPYC 7642 AMD Linux Kernel Comparison



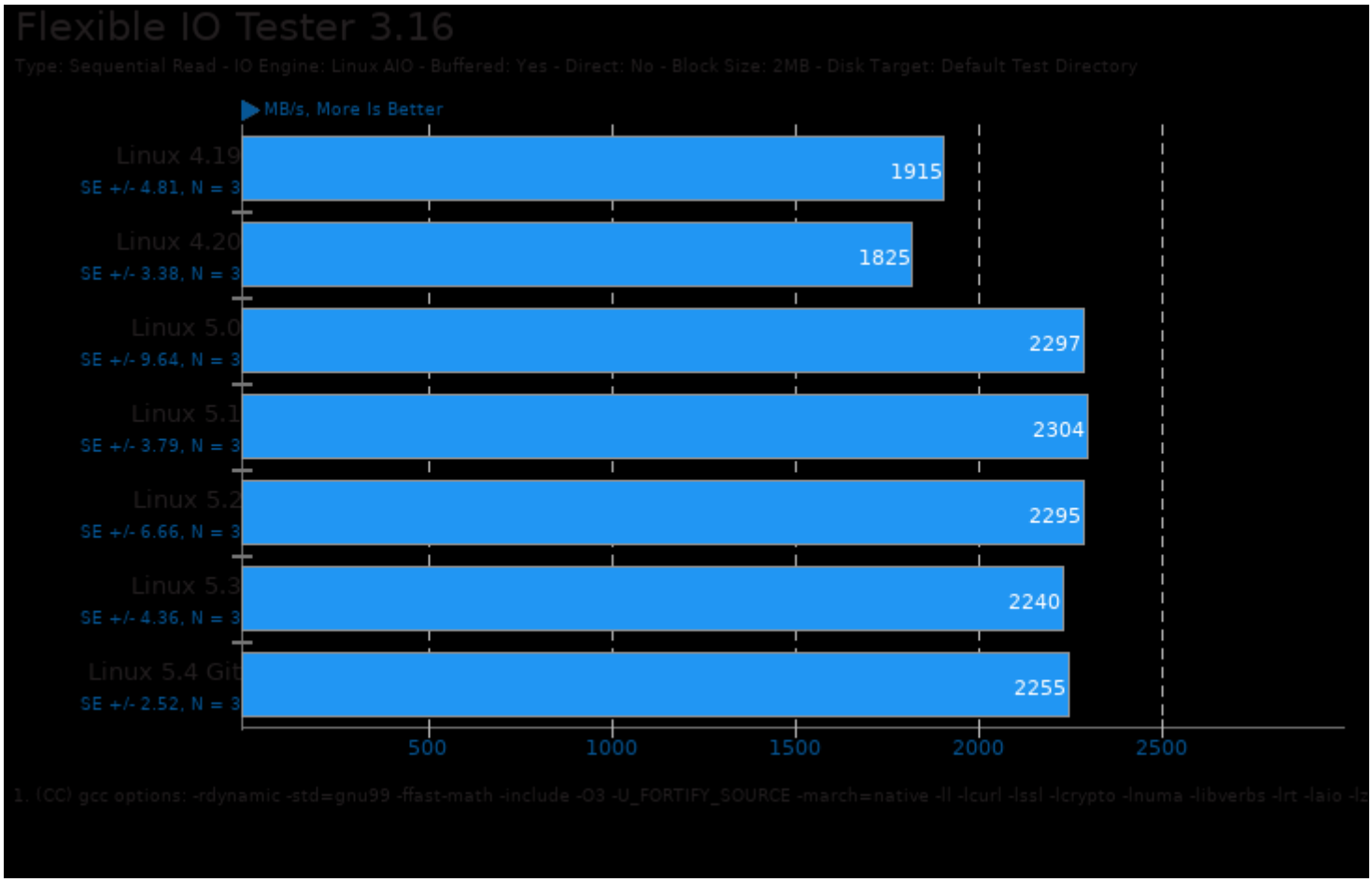
EPYC 7642 AMD Linux Kernel Comparison



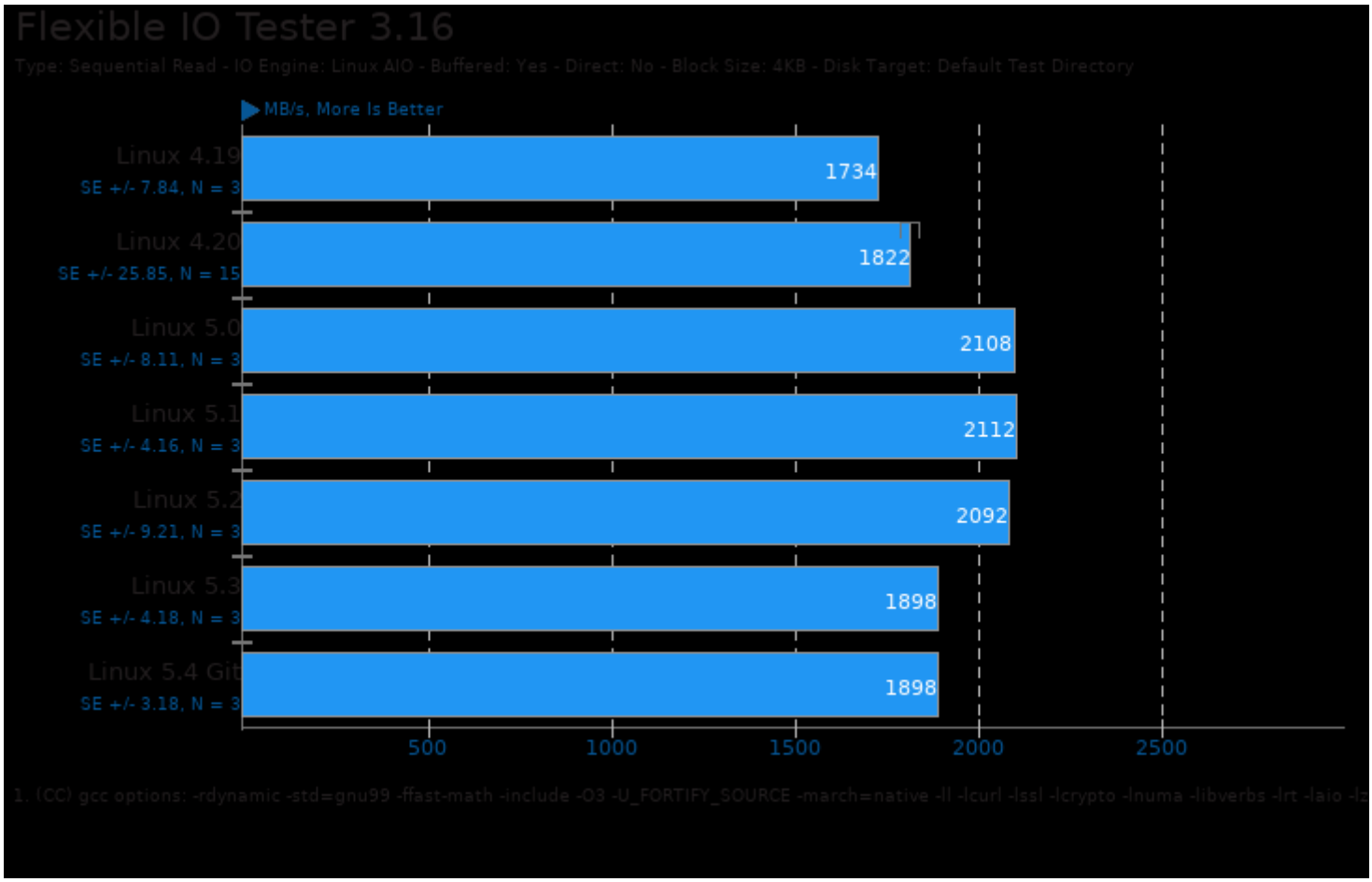
EPYC 7642 AMD Linux Kernel Comparison



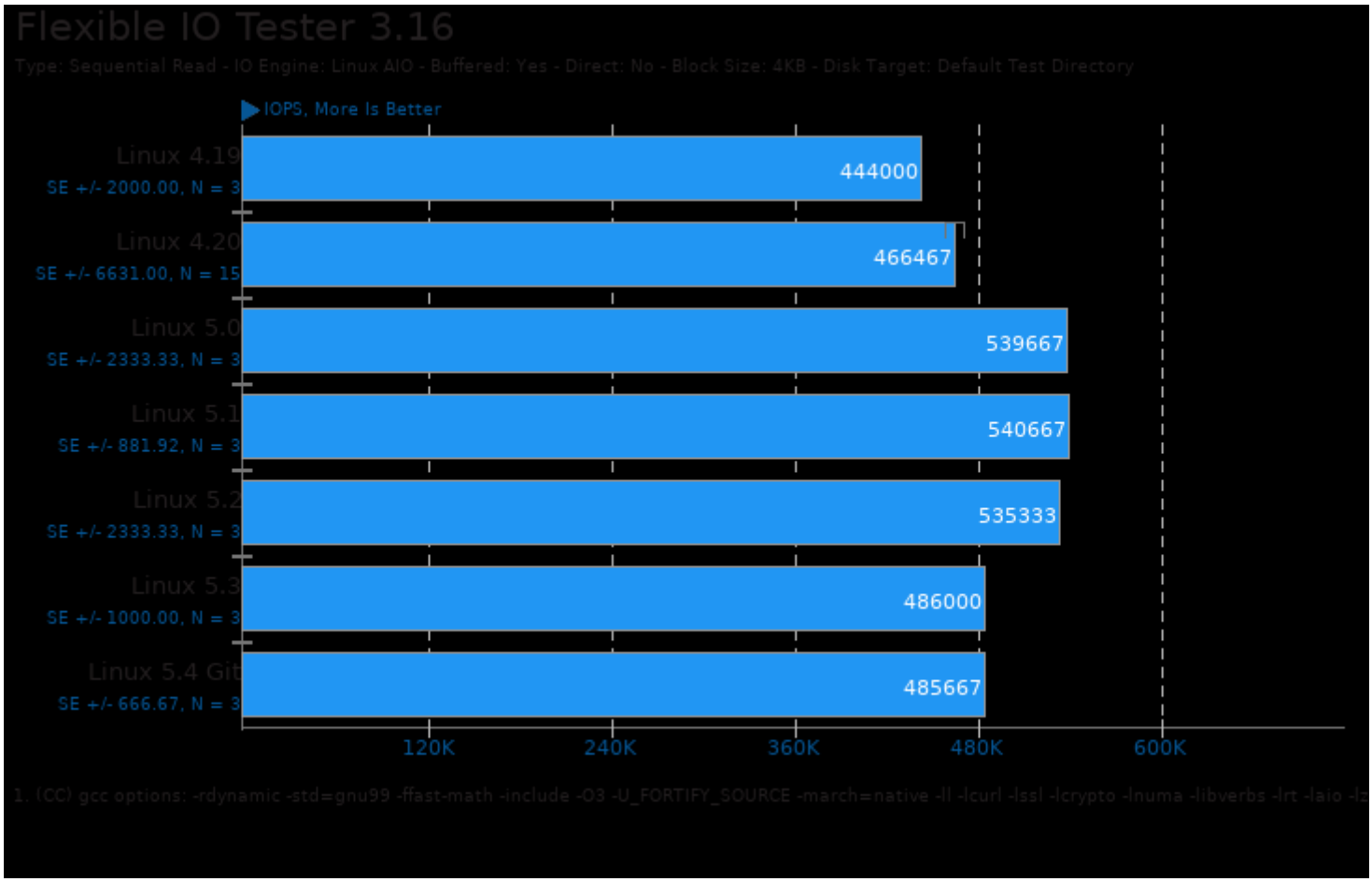
EPYC 7642 AMD Linux Kernel Comparison



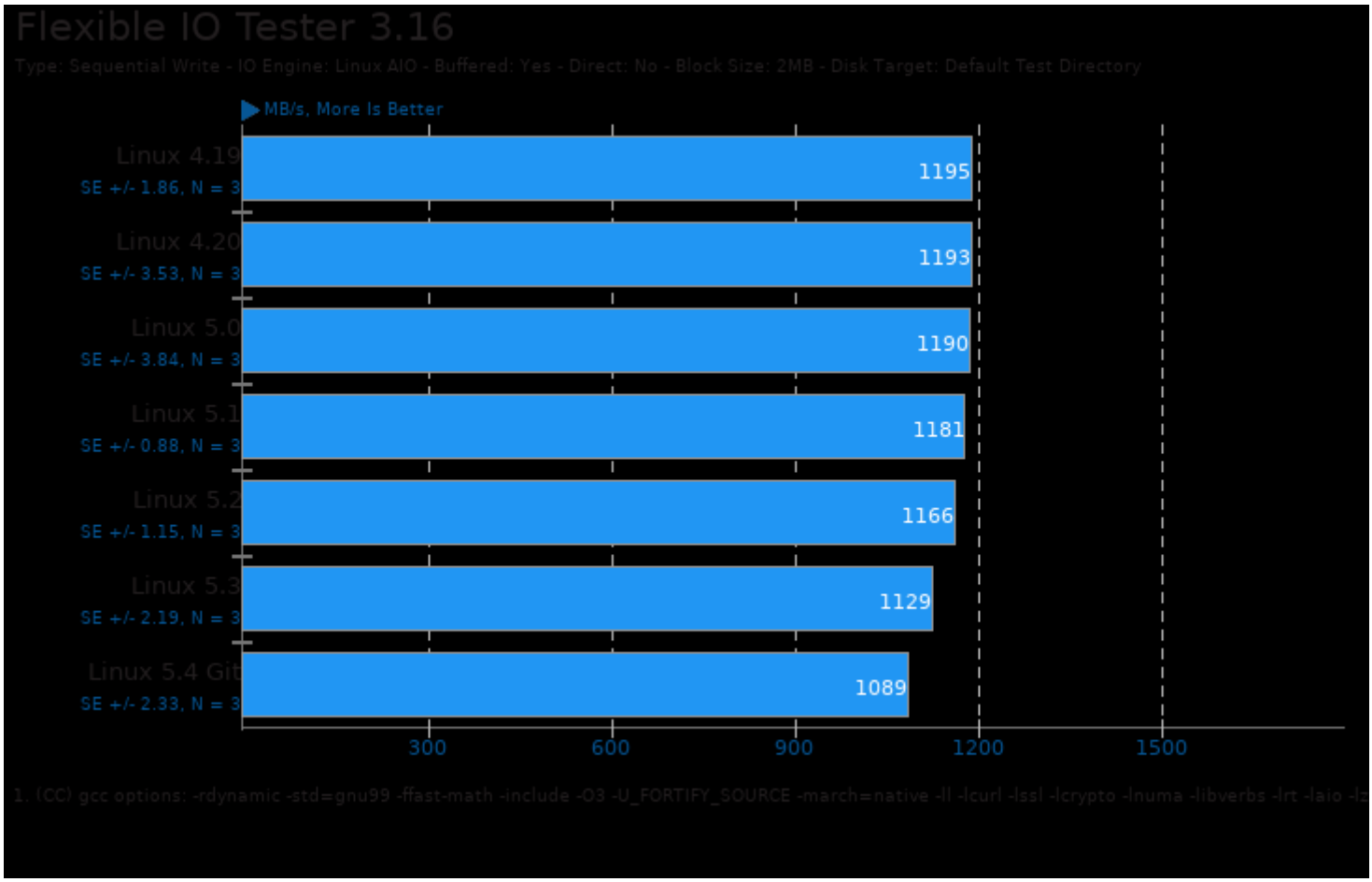
EPYC 7642 AMD Linux Kernel Comparison



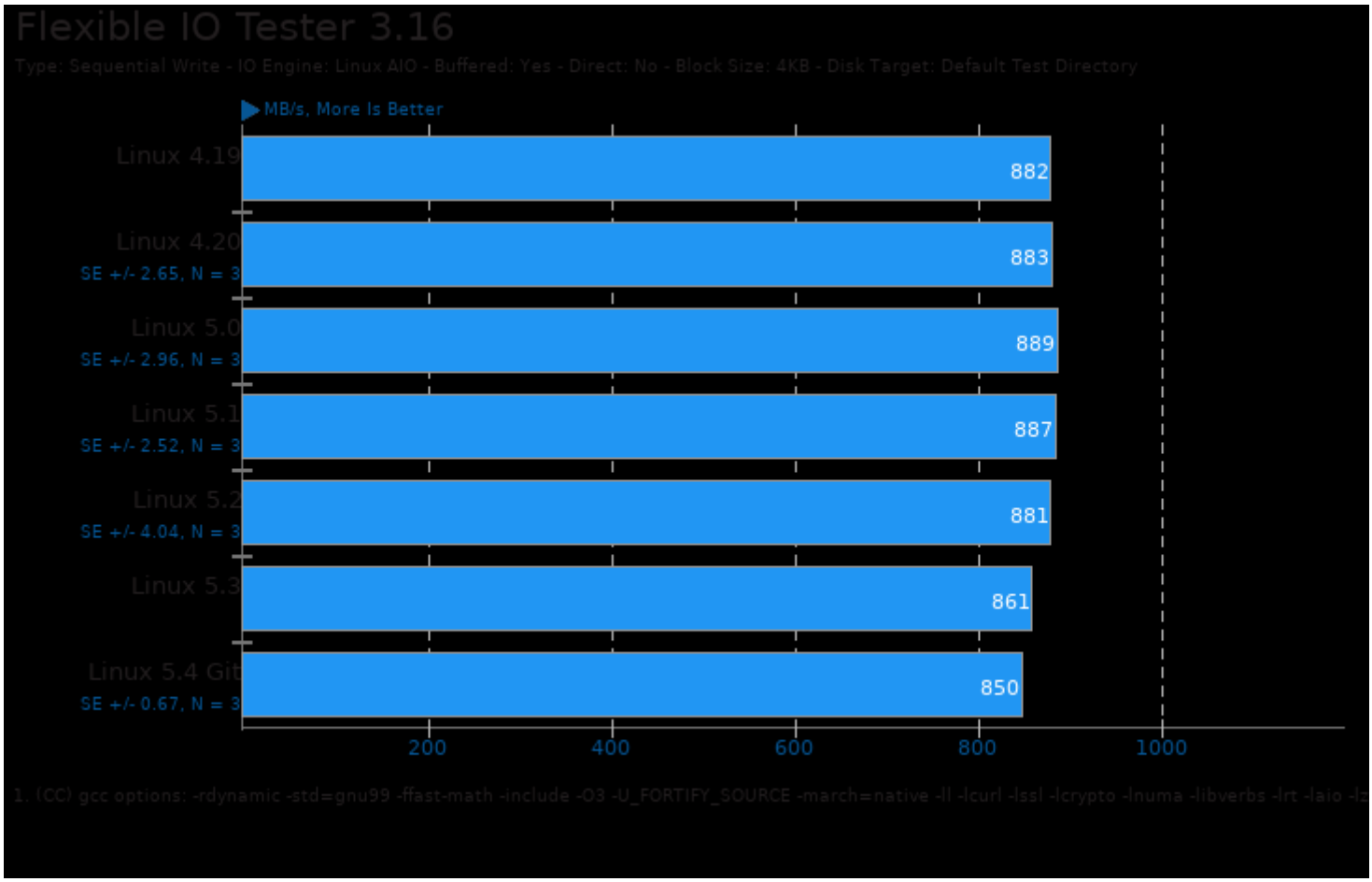
EPYC 7642 AMD Linux Kernel Comparison

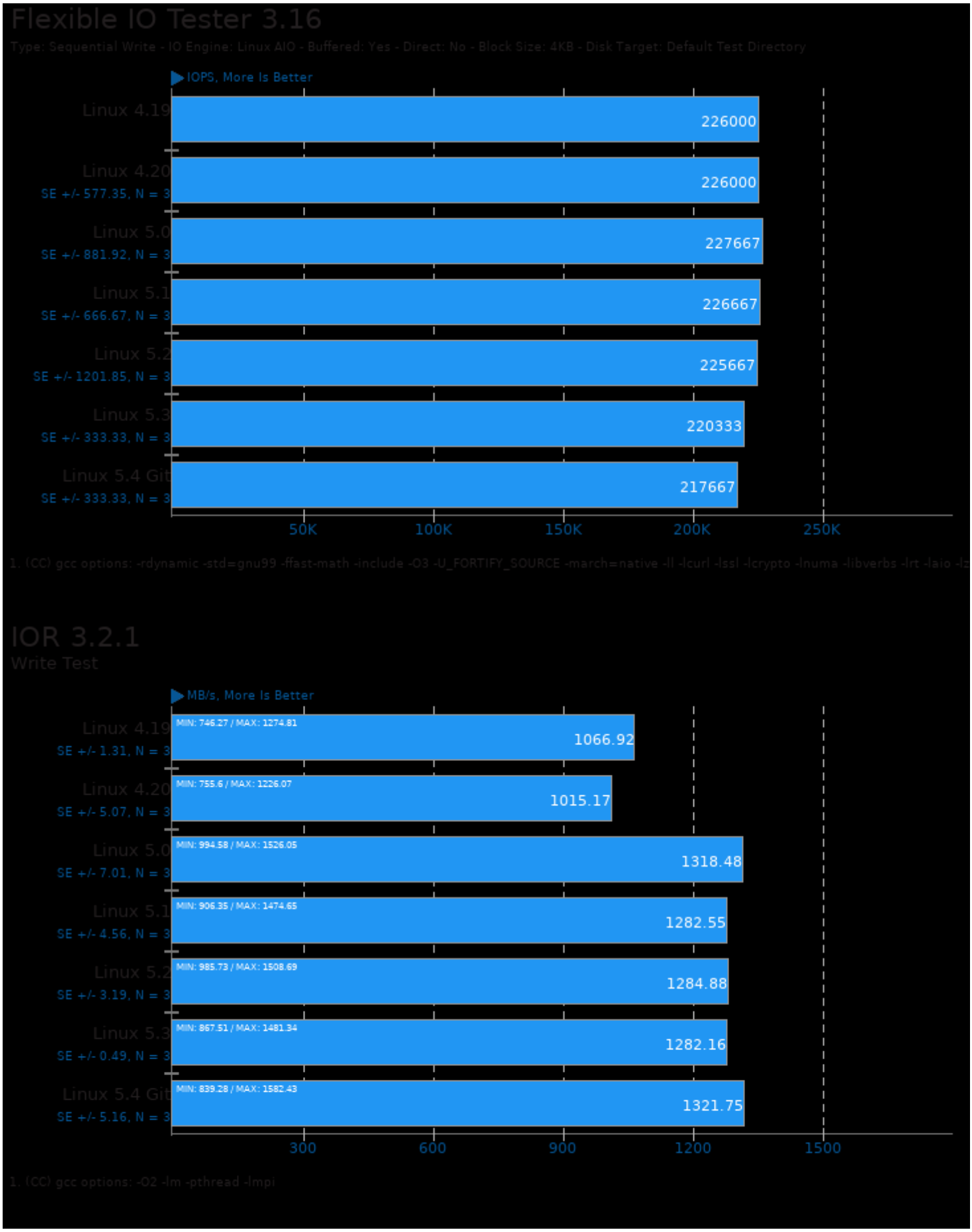


EPYC 7642 AMD Linux Kernel Comparison

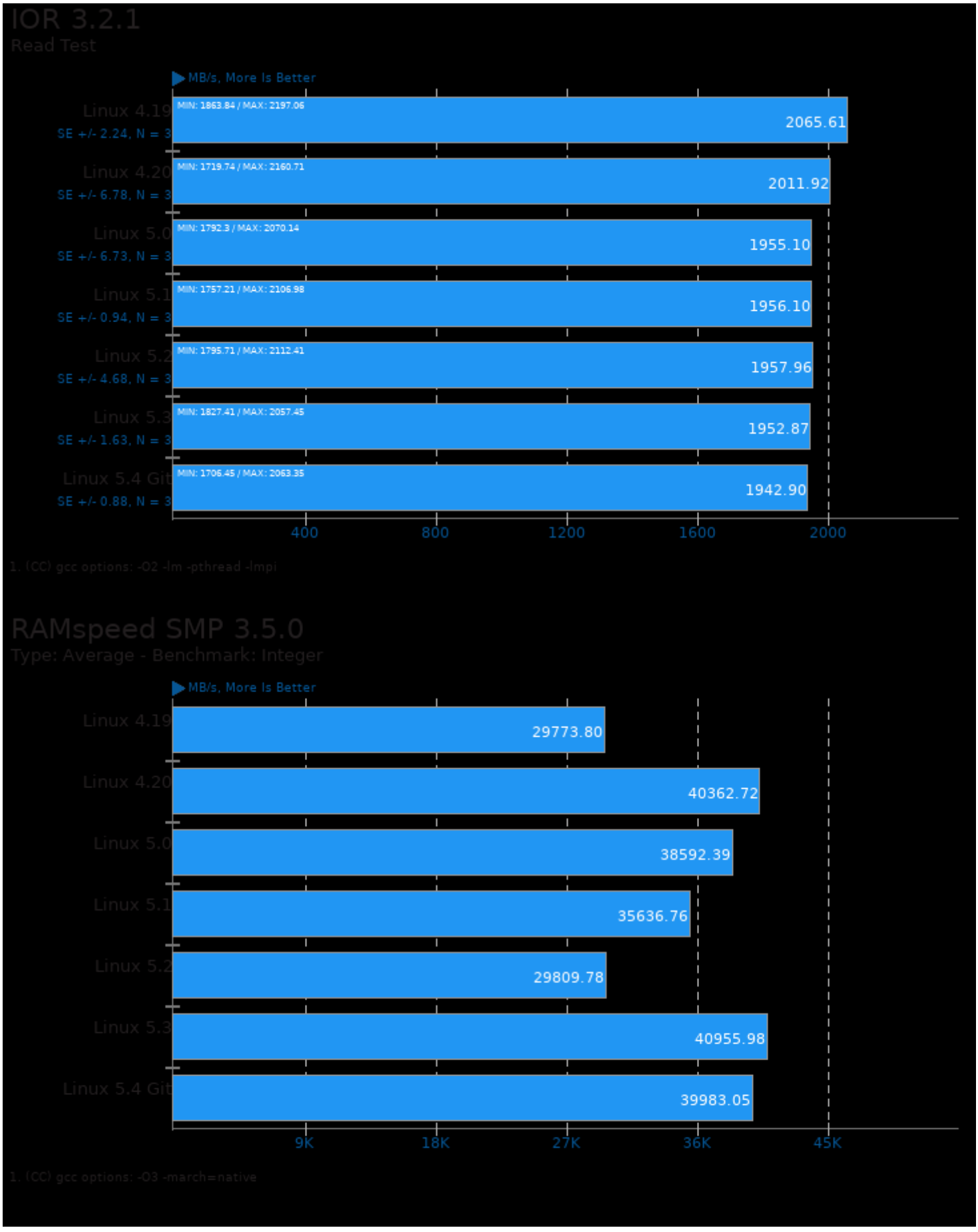


EPYC 7642 AMD Linux Kernel Comparison




Flexible IO Tester 3.16
Type: Sequential Write - IO Engine: Linux AIO - Buffered: Yes - Direct: No - Block Size: 4KB - Disk Target: Default Test Directory
IOPS, More Is Better
Linux 4.19
226000
Linux 4.20
SE +/- 577.35, N = 3
226000
Linux 5.0
SE +/- 881.92, N = 3
227667
Linux 5.1
SE +/- 666.67, N = 3
226667
Linux 5.2
SE +/- 1201.85, N = 3
225667
Linux 5.3
SE +/- 333.33, N = 3
220333
Linux 5.4 Git
SE +/- 333.33, N = 3
217667
50K
100K
150K
200K
250K
1. (CC) gcc options: -rdynamic -std=gnu99 -ffast-math -include -O3 -U_FORTIFY_SOURCE -march=native -ll -lcurl -lssl -lcrypto -lnuma -libverbs -lrt -laio
IOR 3.2.1
Write Test
MB/s, More Is Better
Linux 4.19
SE +/- 1.31, N = 3
MIN: 746.27 / MAX: 1274.81
1066.92
Linux 4.20
SE +/- 5.07, N = 3
MIN: 755.6 / MAX: 1226.07
1015.17
Linux 5.0
SE +/- 7.01, N = 3
MIN: 994.58 / MAX: 1526.05
1318.48
Linux 5.1
SE +/- 4.56, N = 3
MIN: 906.35 / MAX: 1474.65
1282.55
Linux 5.2
SE +/- 3.19, N = 3
MIN: 985.73 / MAX: 1508.69
1284.88
Linux 5.3
SE +/- 0.49, N = 3
MIN: 867.51 / MAX: 1481.34
1282.16
Linux 5.4 Git
SE +/- 5.16, N = 3
MIN: 839.28 / MAX: 1582.43
1321.75
300
600
900
1200
1500
1. (CC) gcc options: -O2 -lm -pthread -lmpi

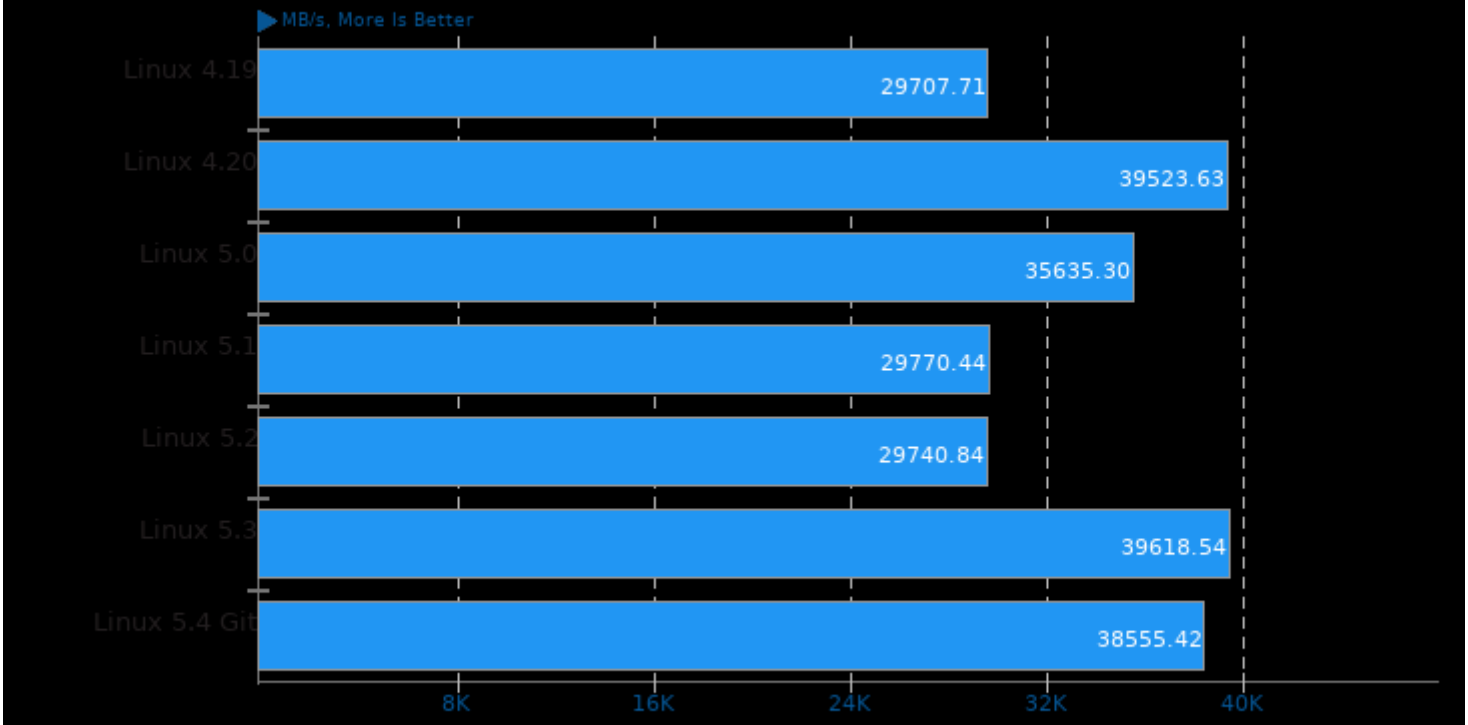
EPYC 7642 AMD Linux Kernel Comparison



EPYC 7642 AMD Linux Kernel Comparison

RAMspeed SMP 3.5.0

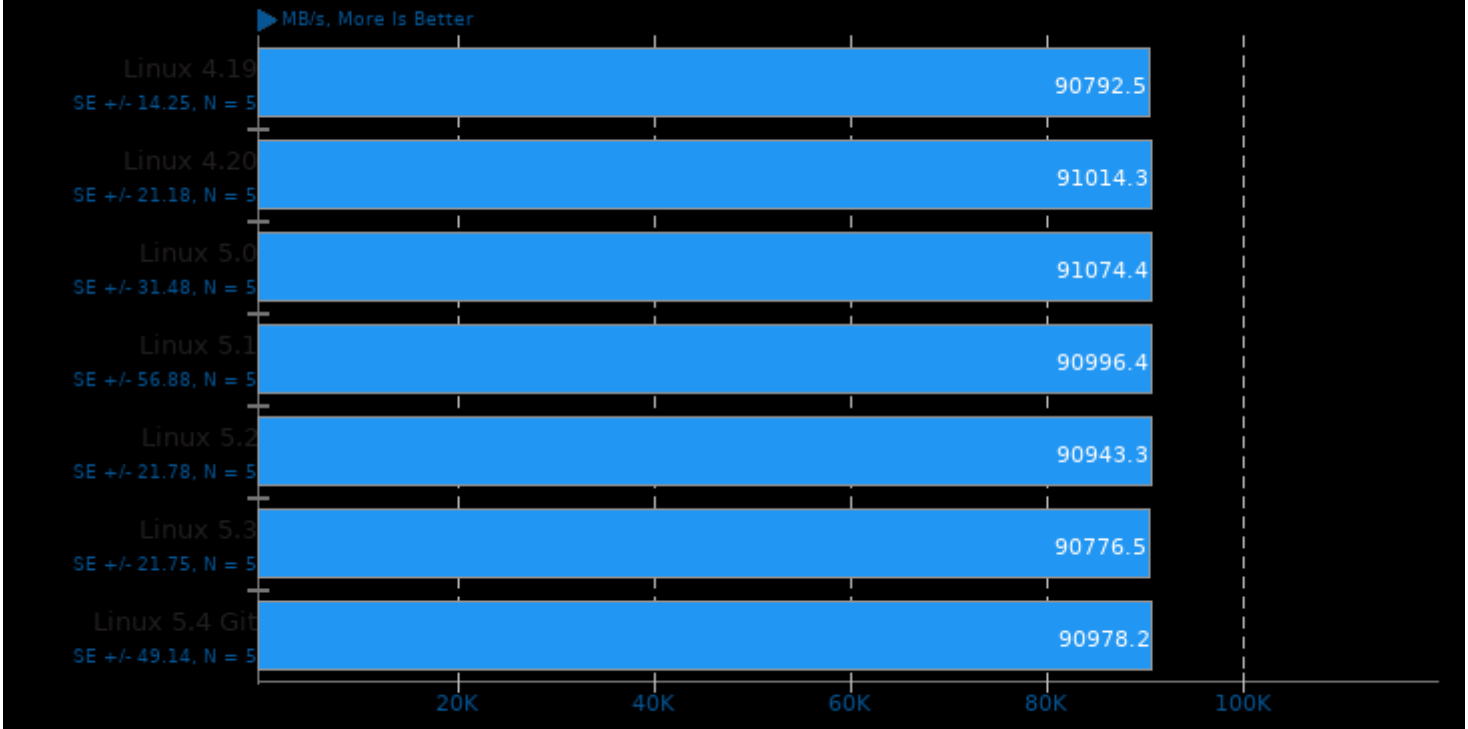
Type: Average - Benchmark: Floating Point



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

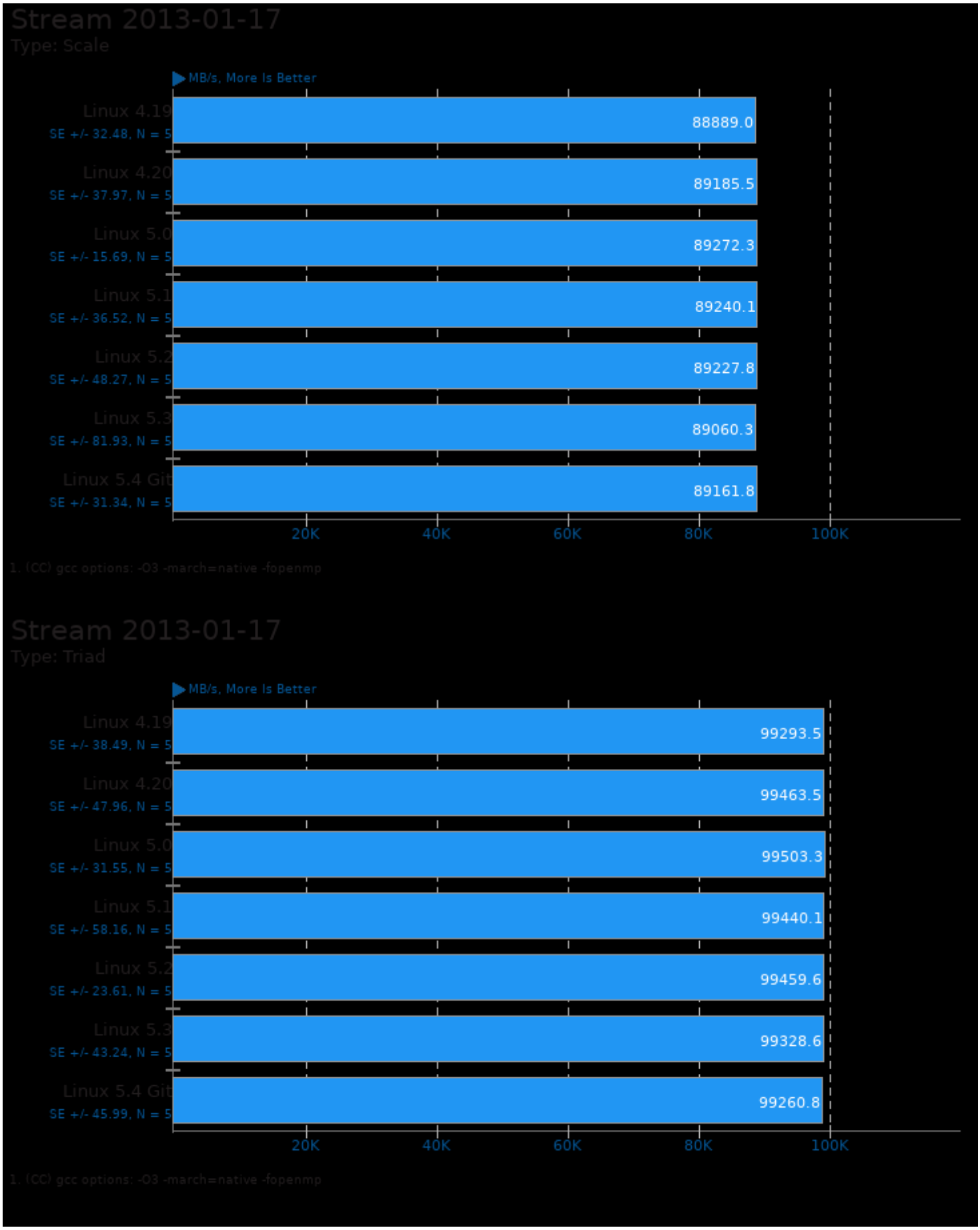
Stream 2013-01-17

Type: Copy

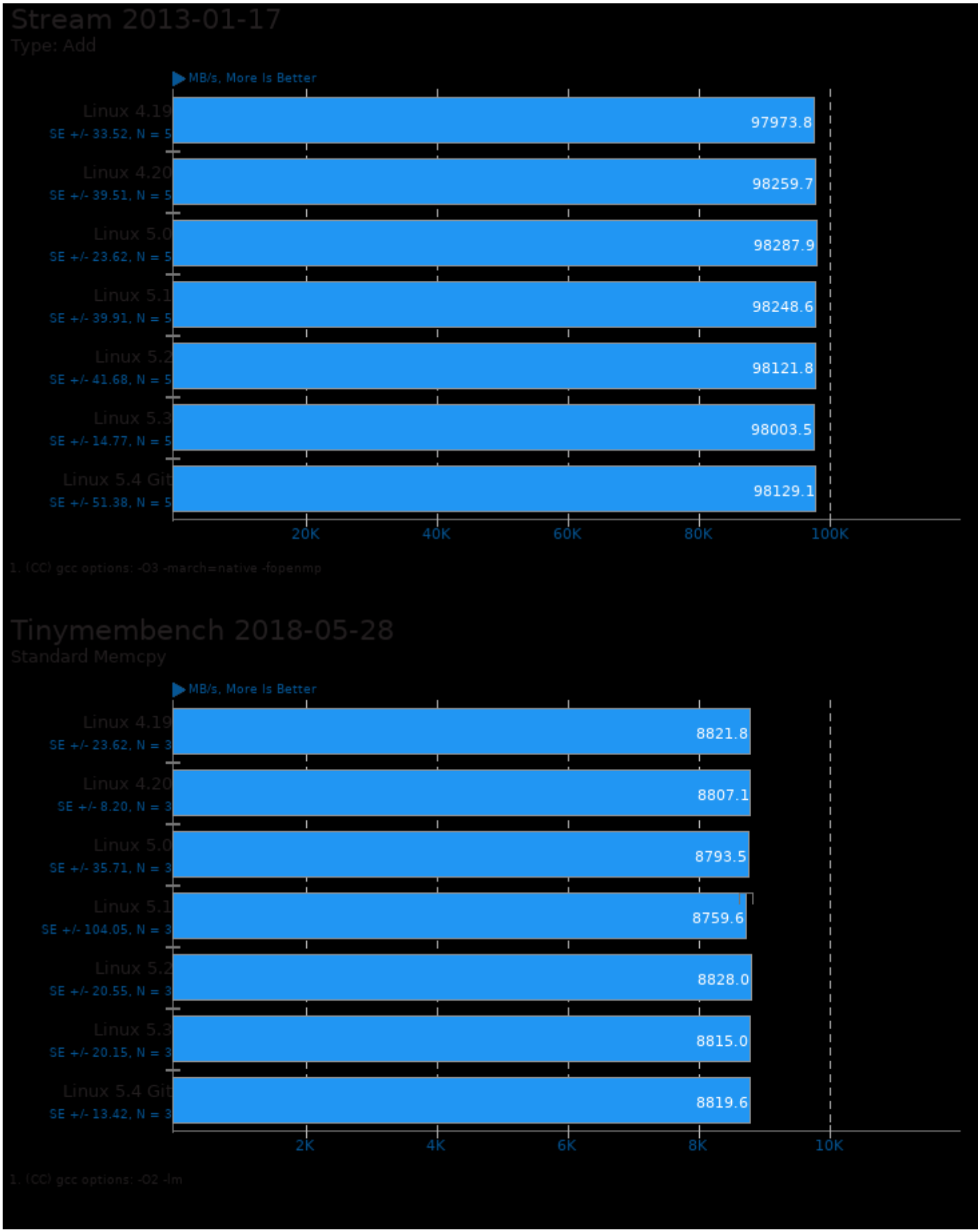


1. (CC) gcc options: -O3 -march=native -fopenmp

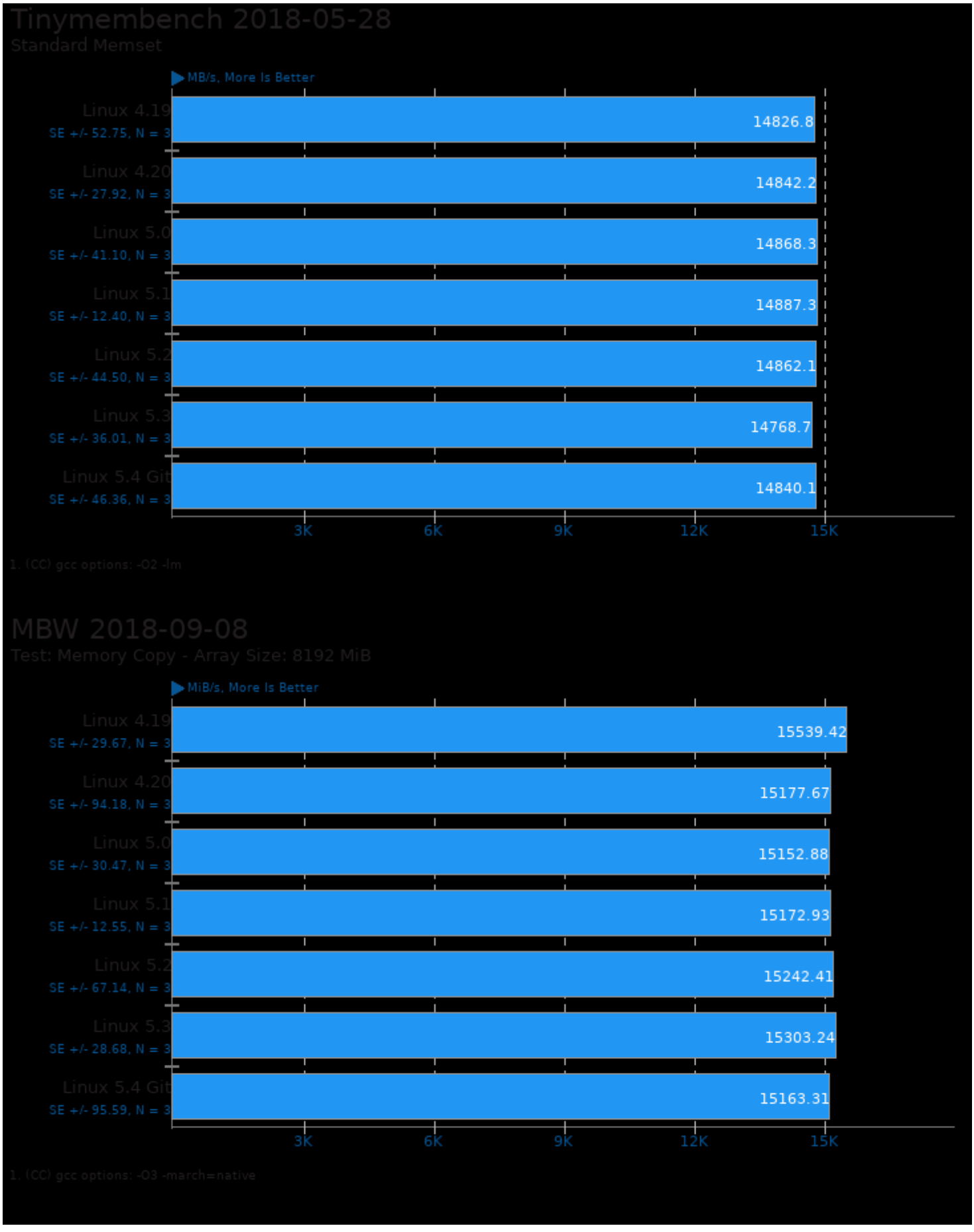
EPYC 7642 AMD Linux Kernel Comparison



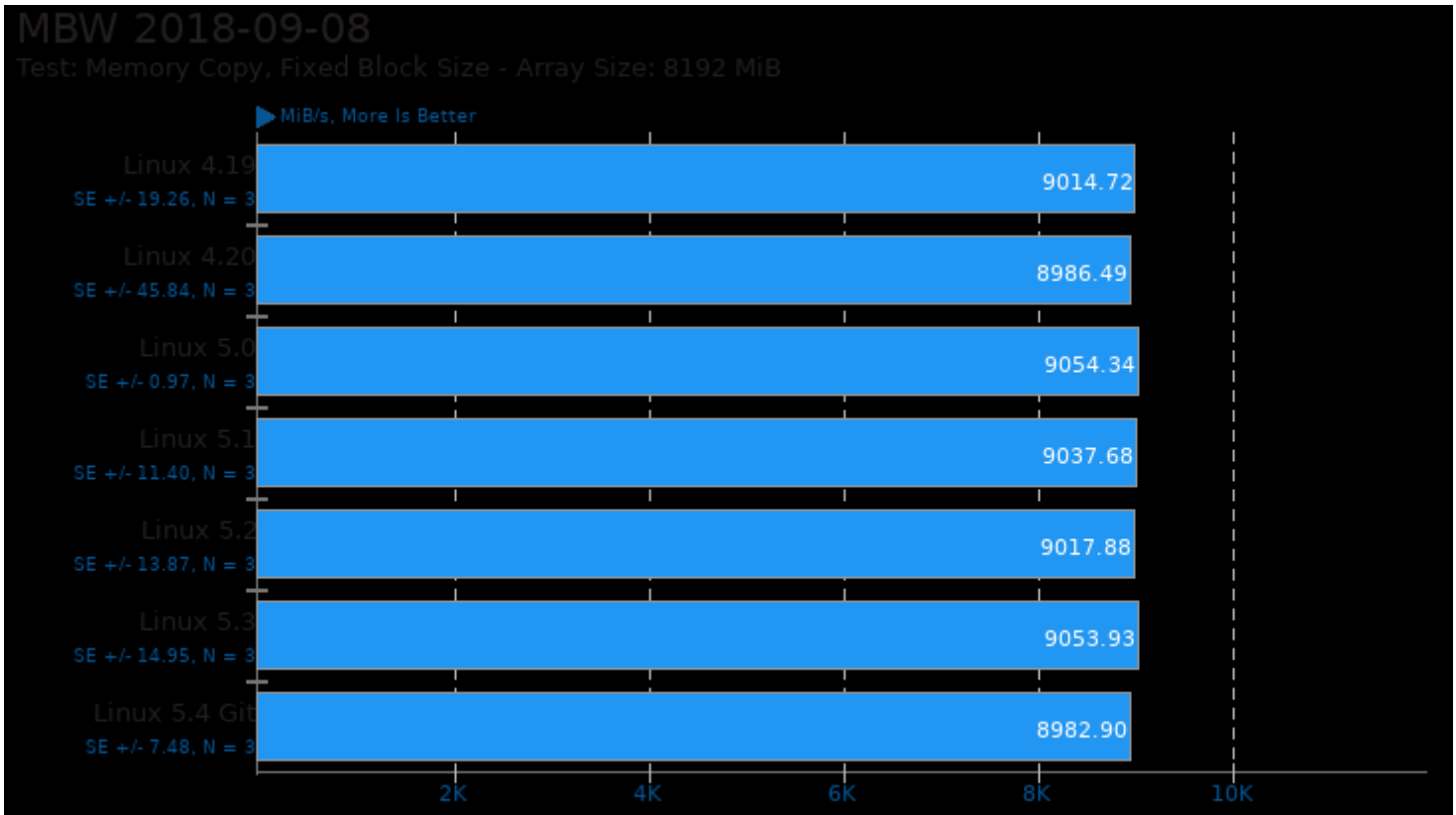
EPYC 7642 AMD Linux Kernel Comparison

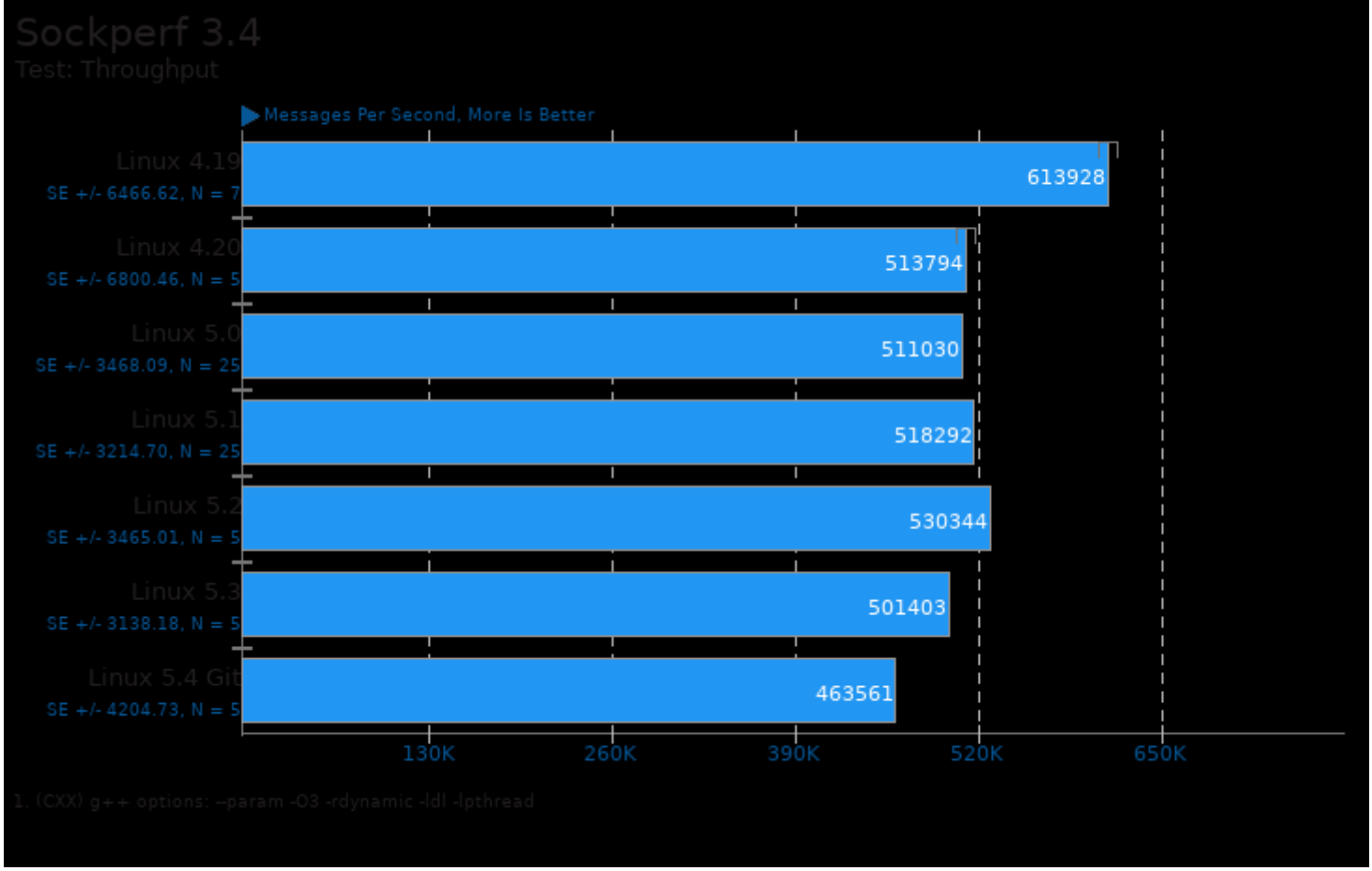


EPYC 7642 AMD Linux Kernel Comparison

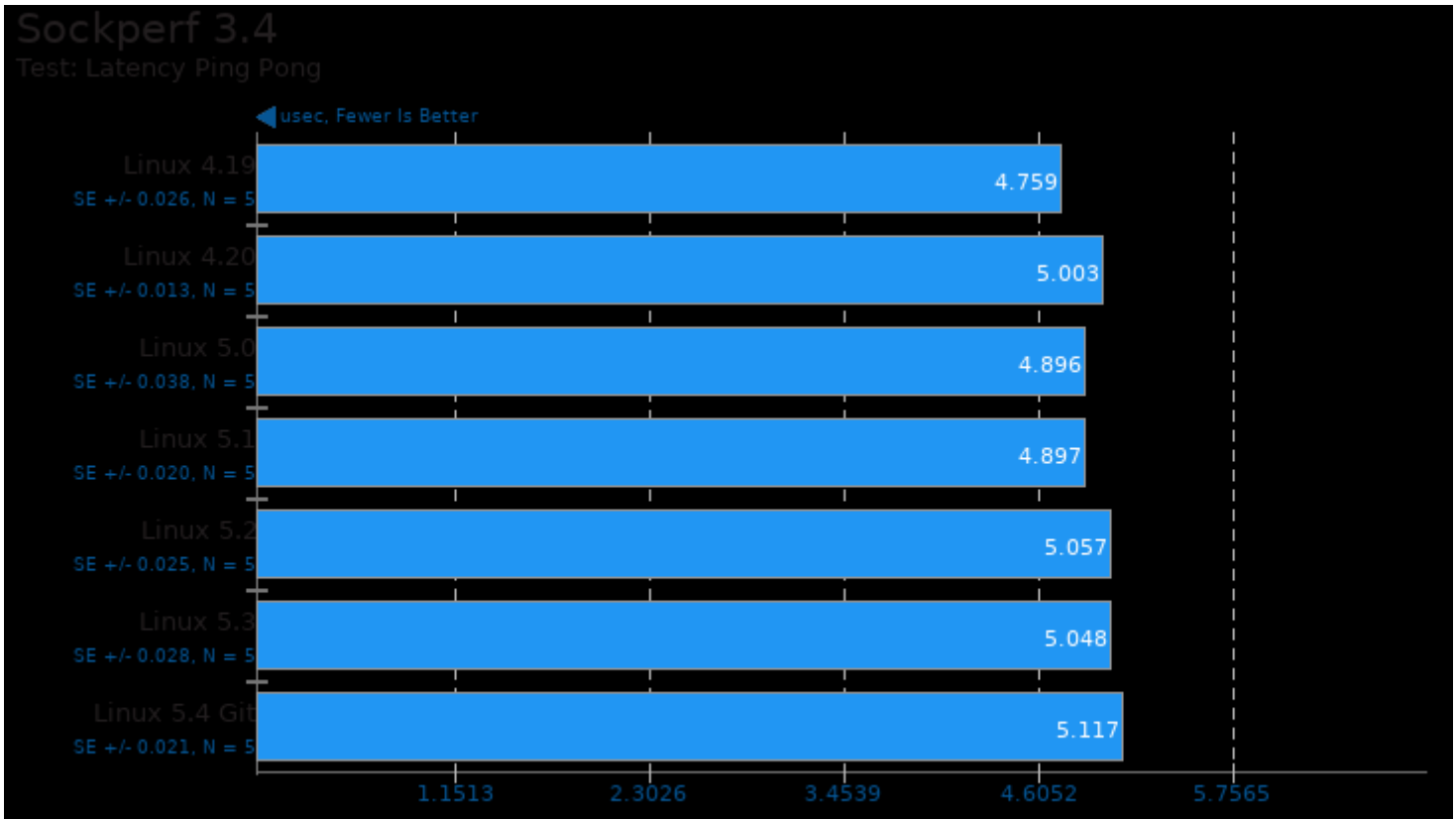


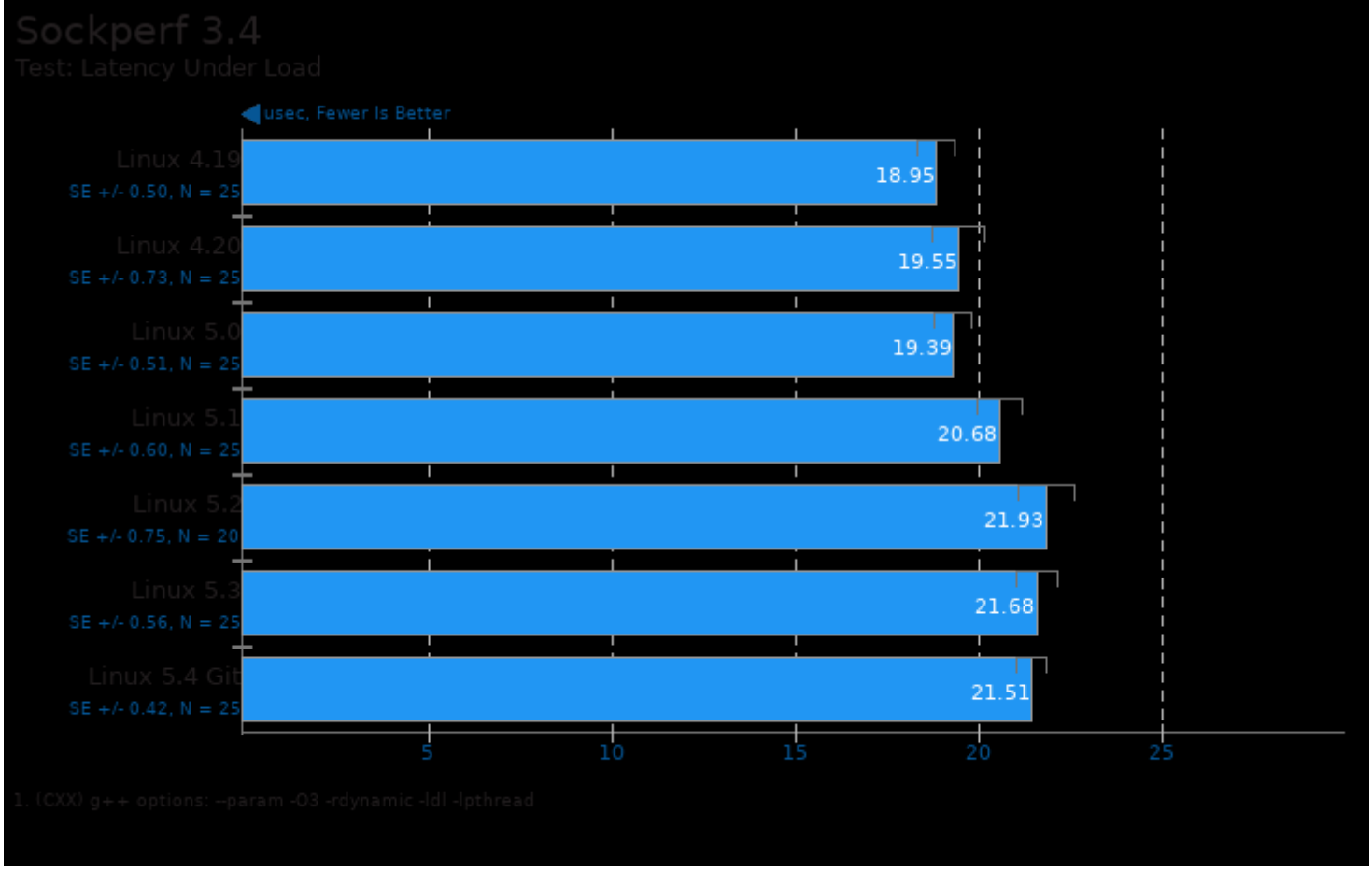
EPYC 7642 AMD Linux Kernel Comparison



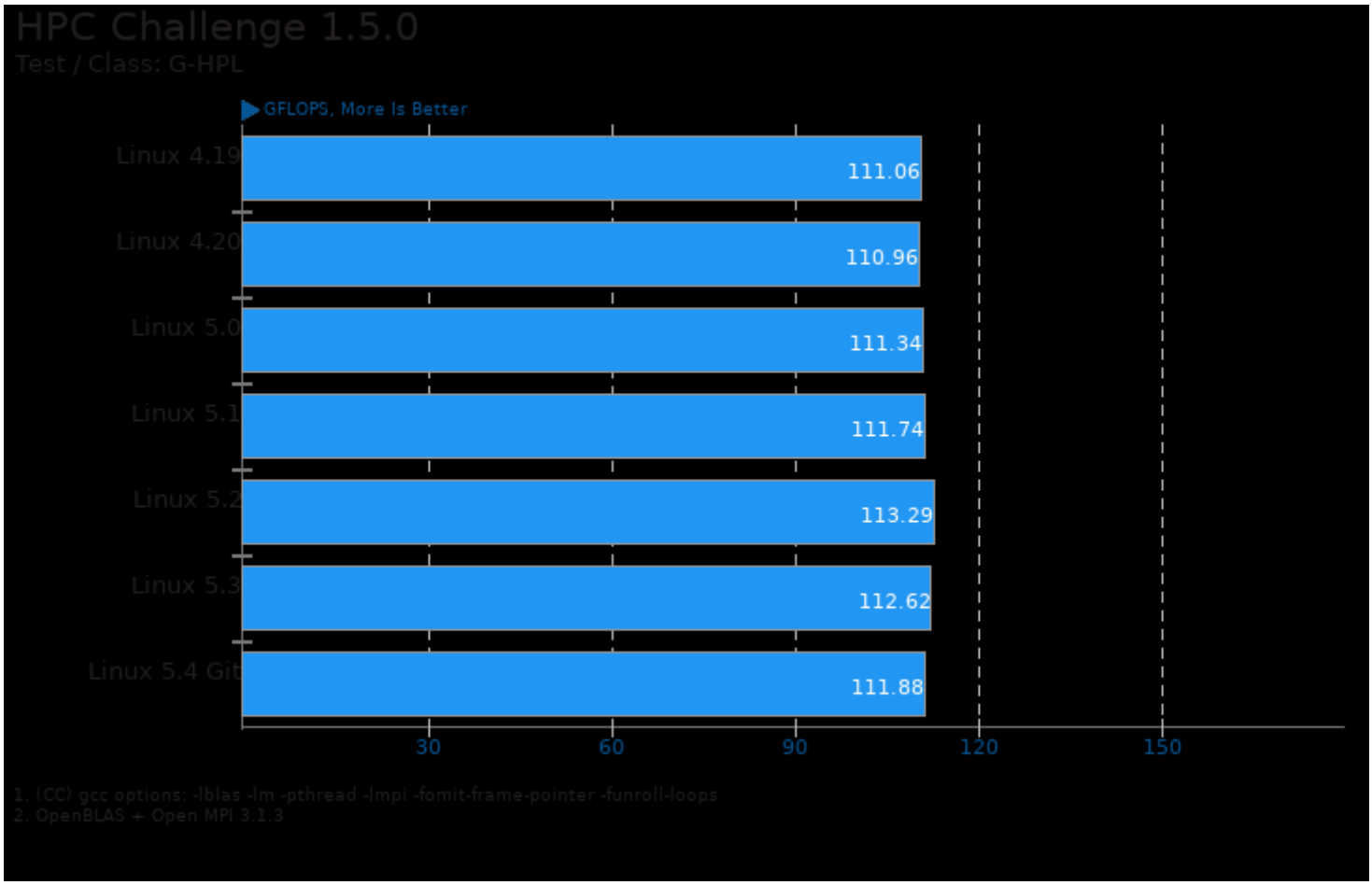


EPYC 7642 AMD Linux Kernel Comparison

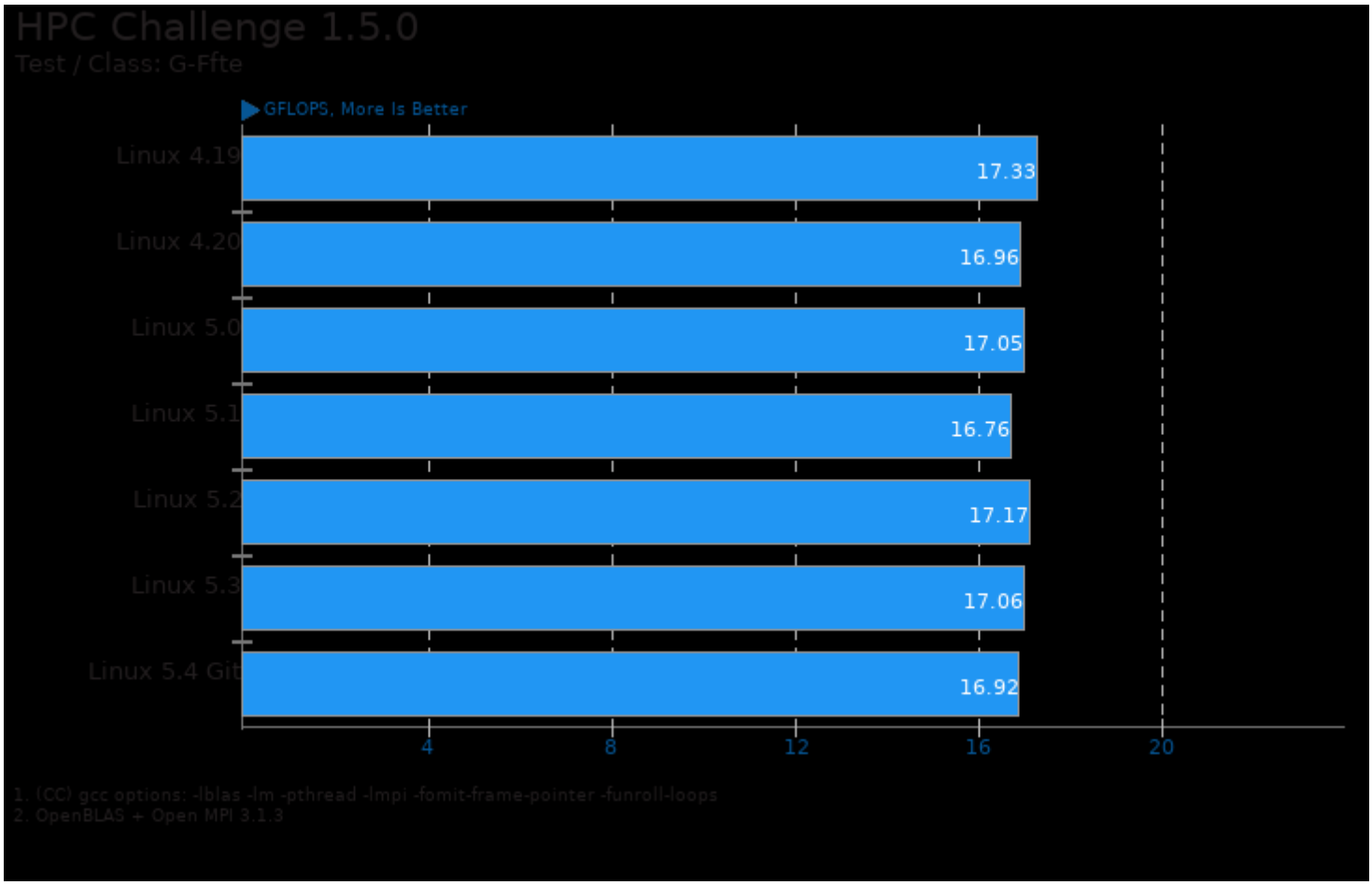




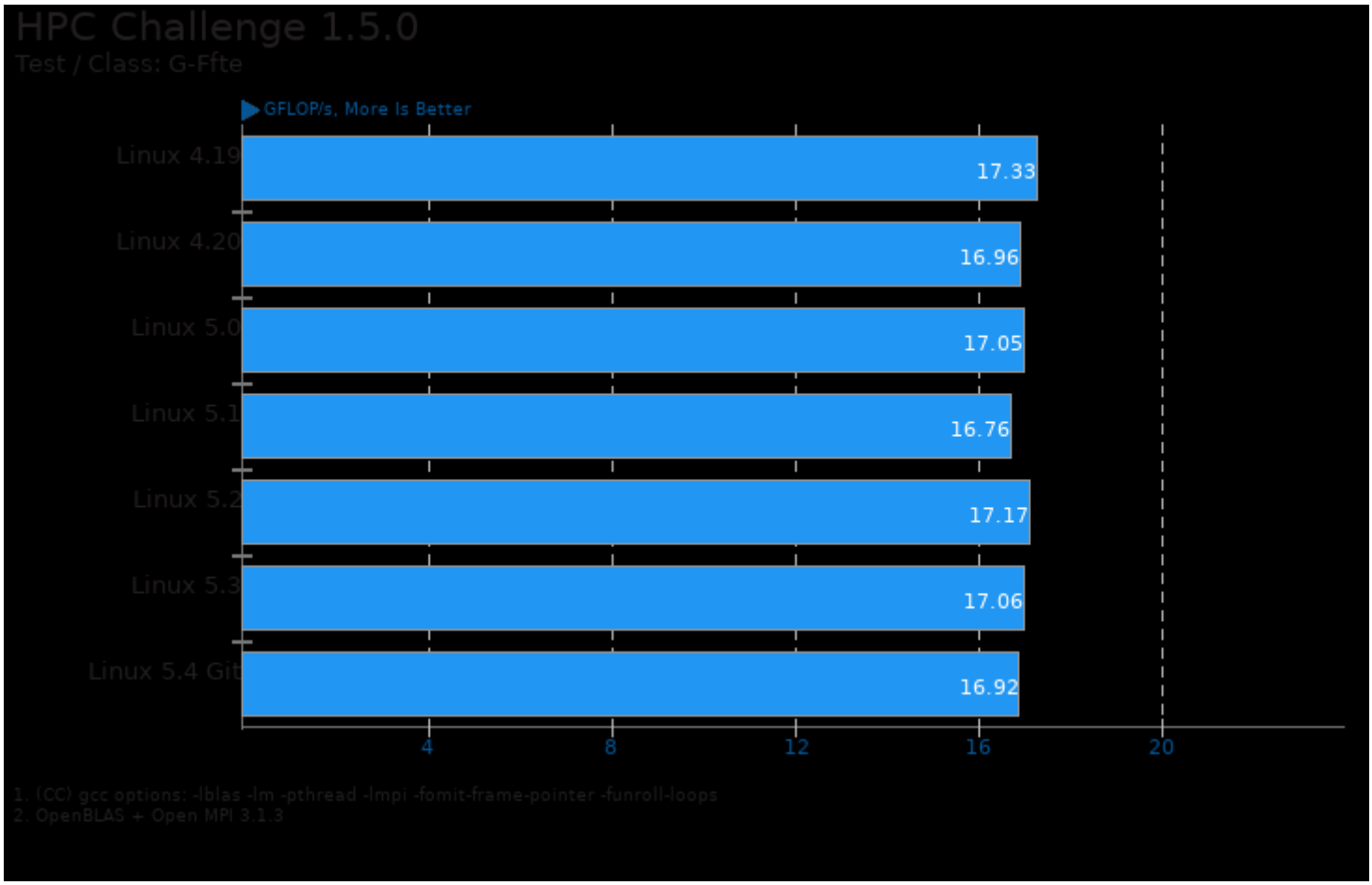
EPYC 7642 AMD Linux Kernel Comparison



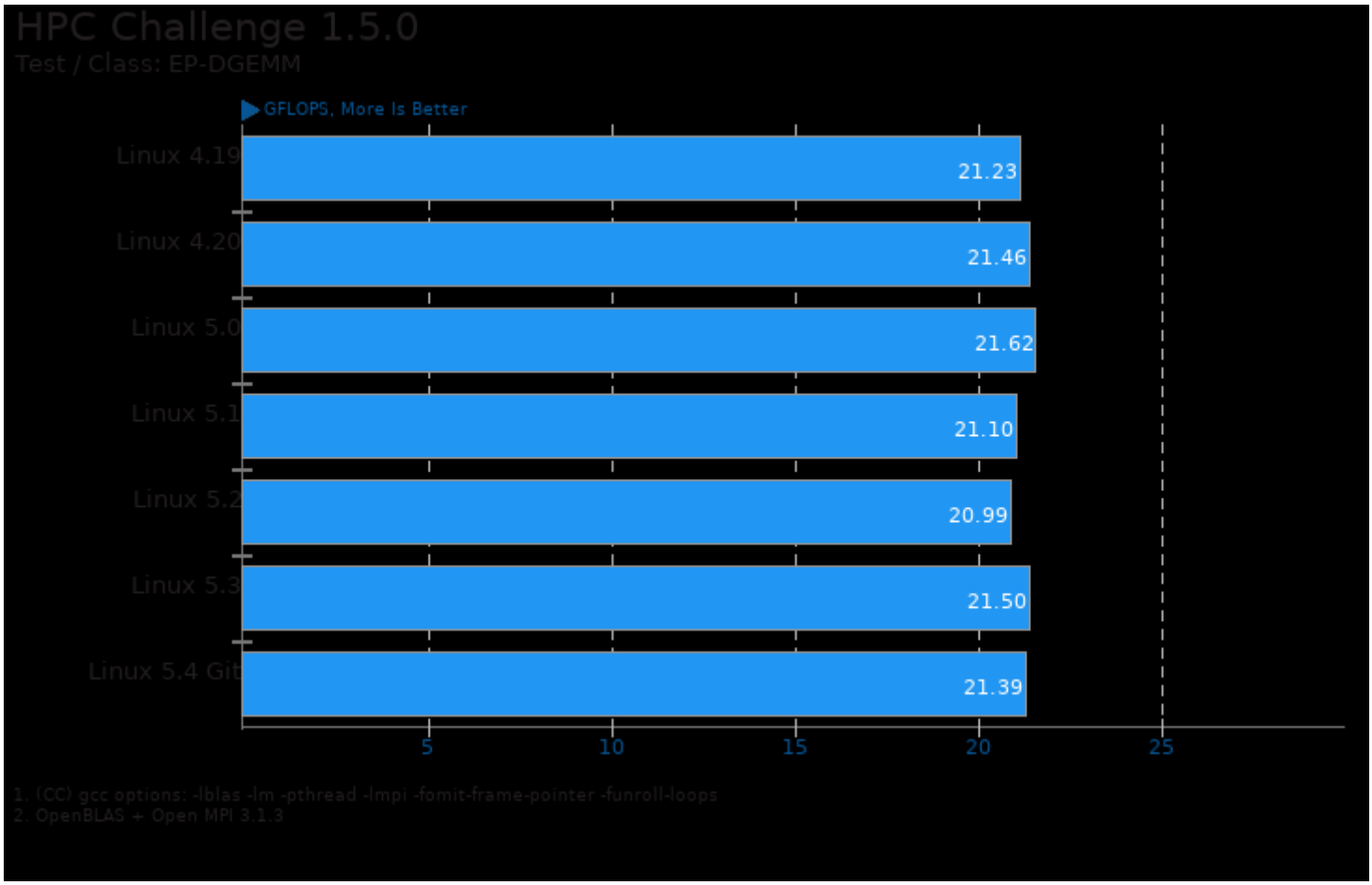
EPYC 7642 AMD Linux Kernel Comparison



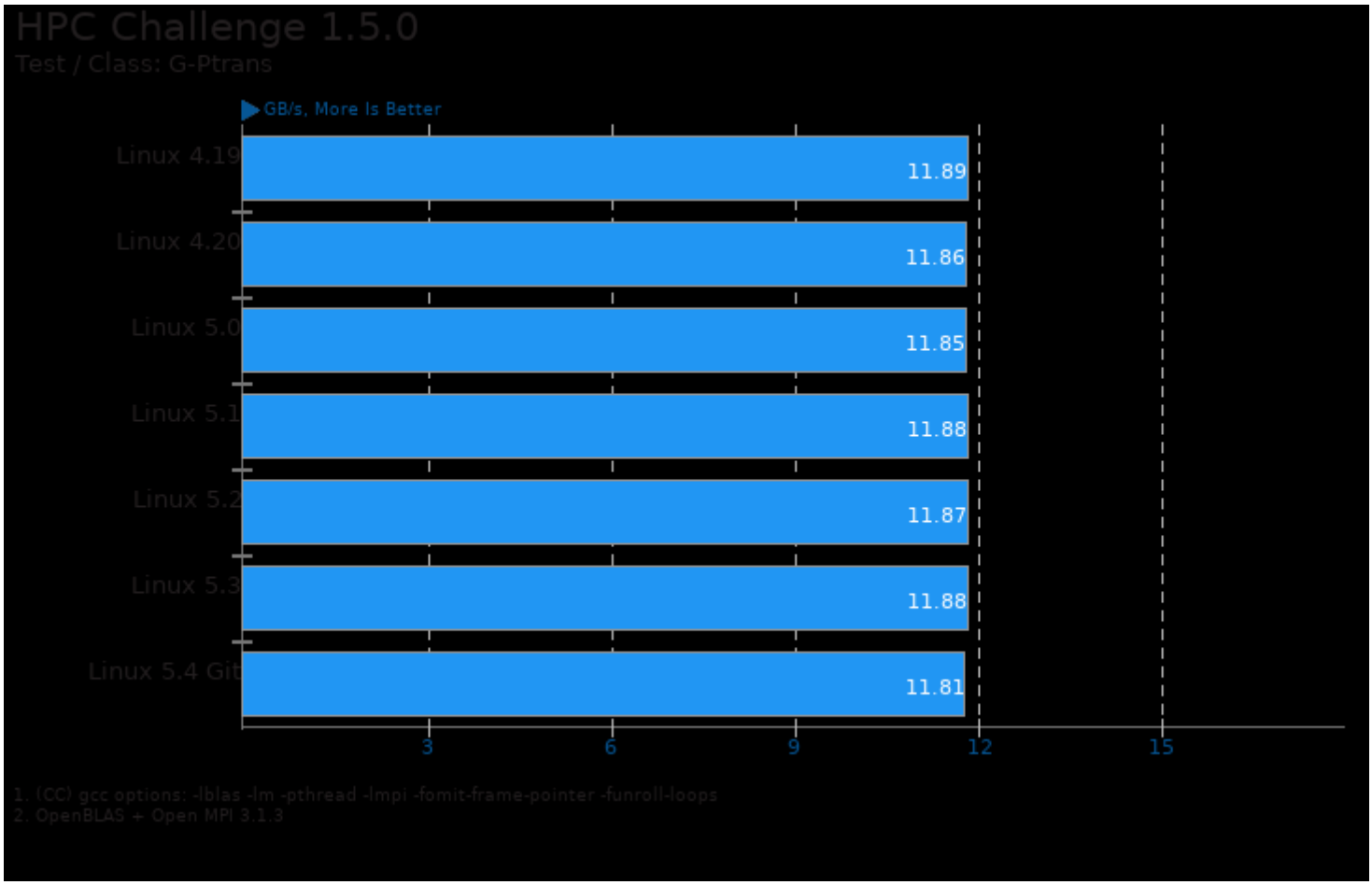
EPYC 7642 AMD Linux Kernel Comparison



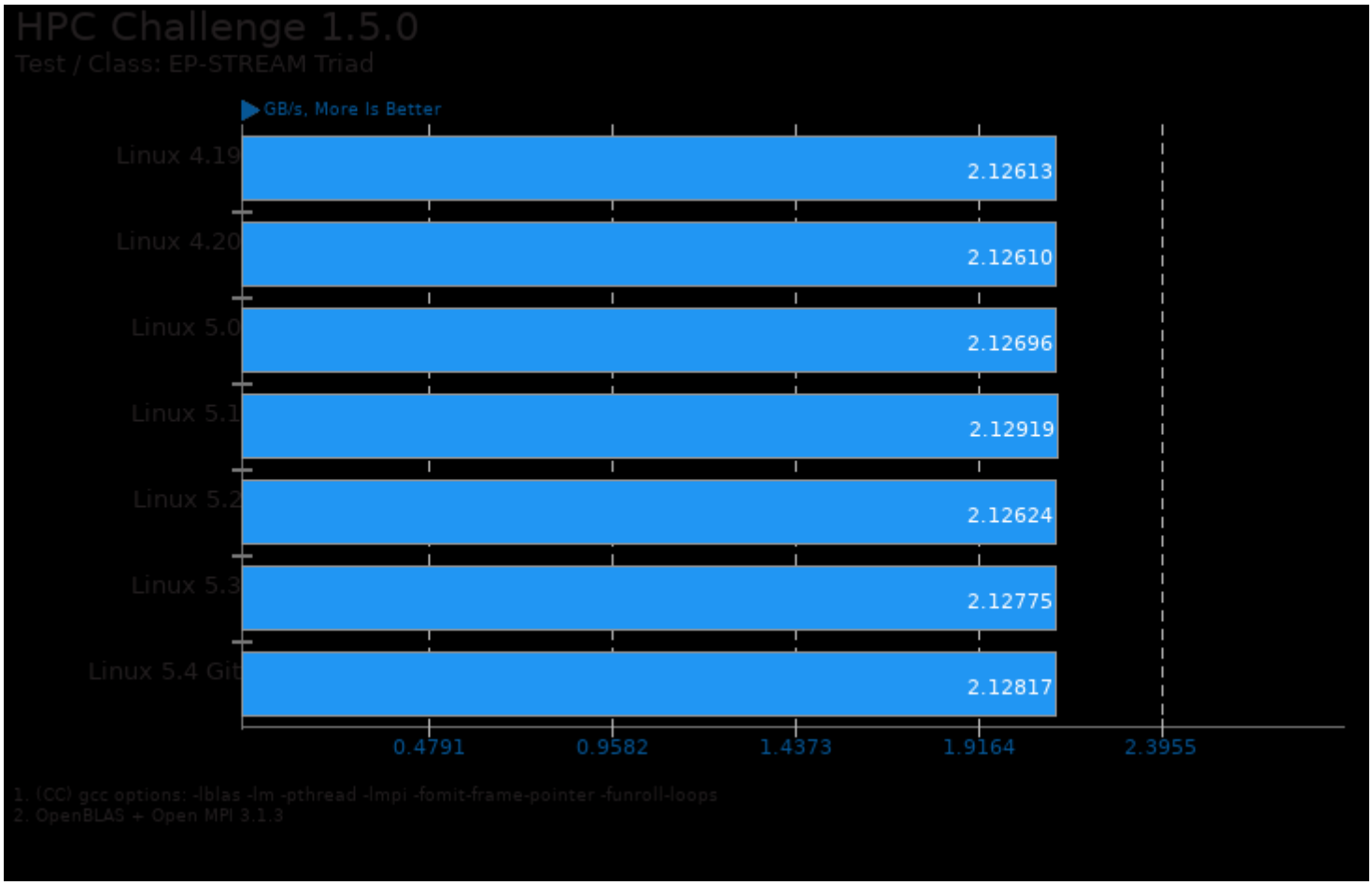
EPYC 7642 AMD Linux Kernel Comparison



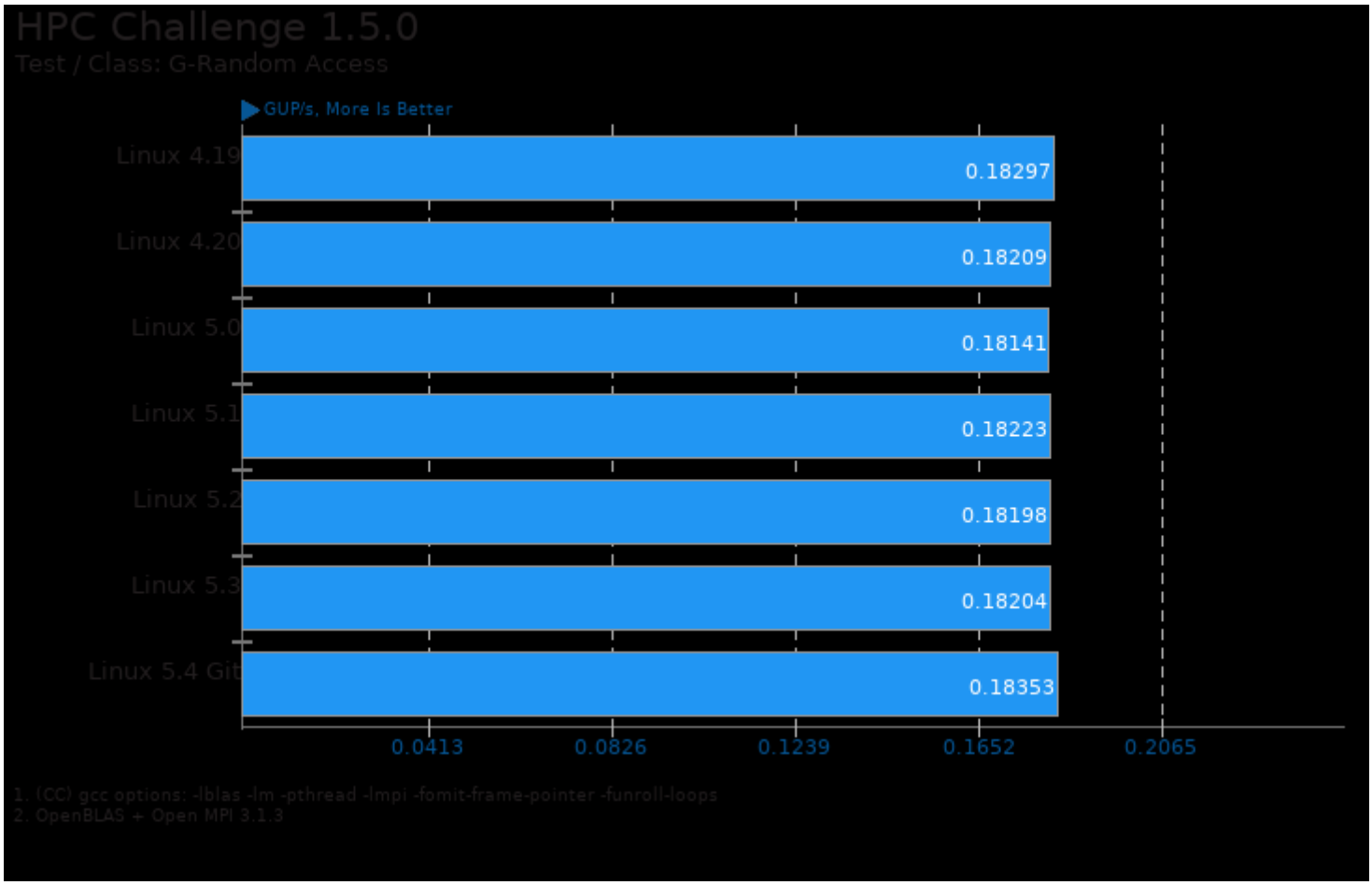
EPYC 7642 AMD Linux Kernel Comparison



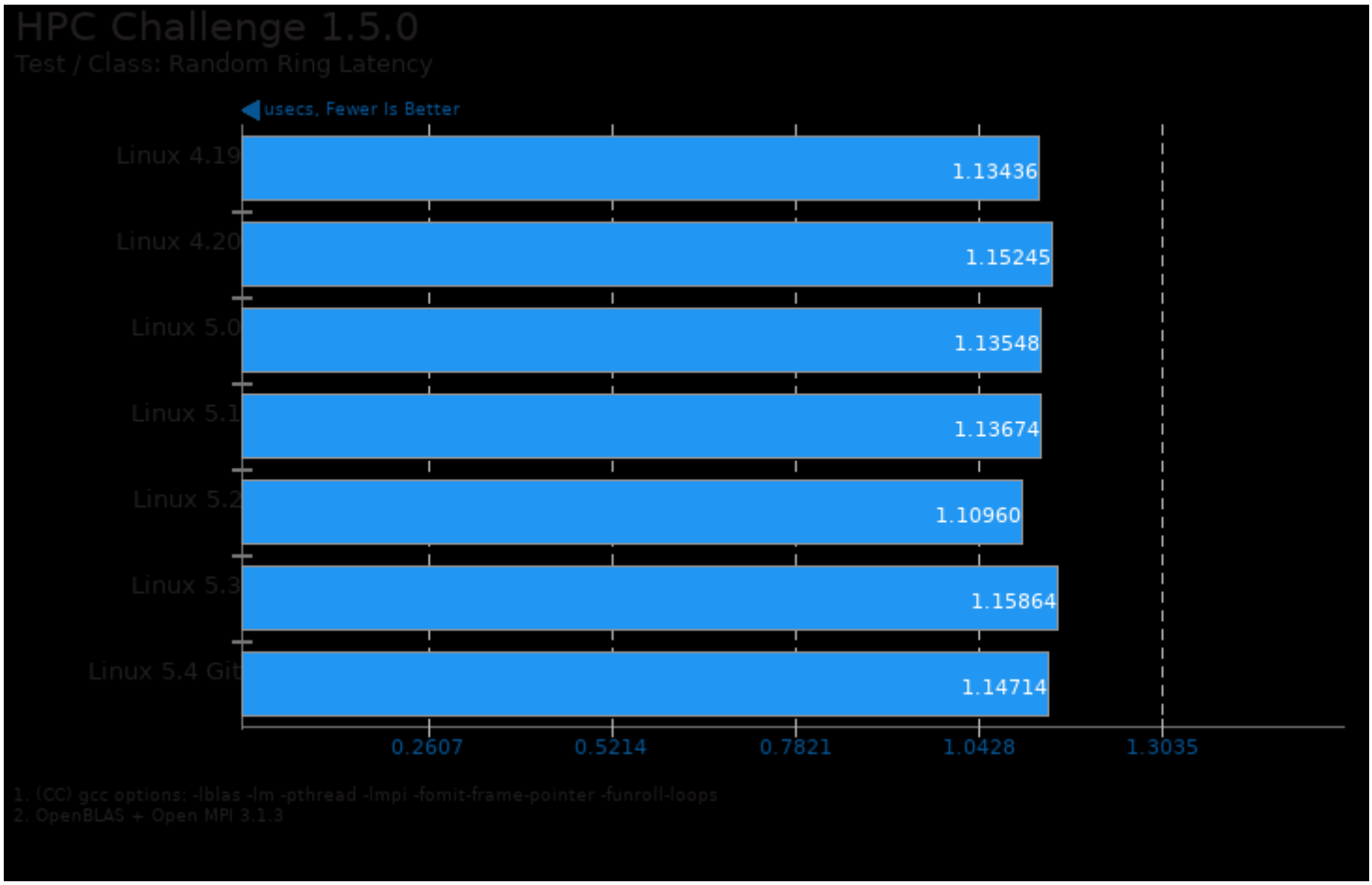
EPYC 7642 AMD Linux Kernel Comparison



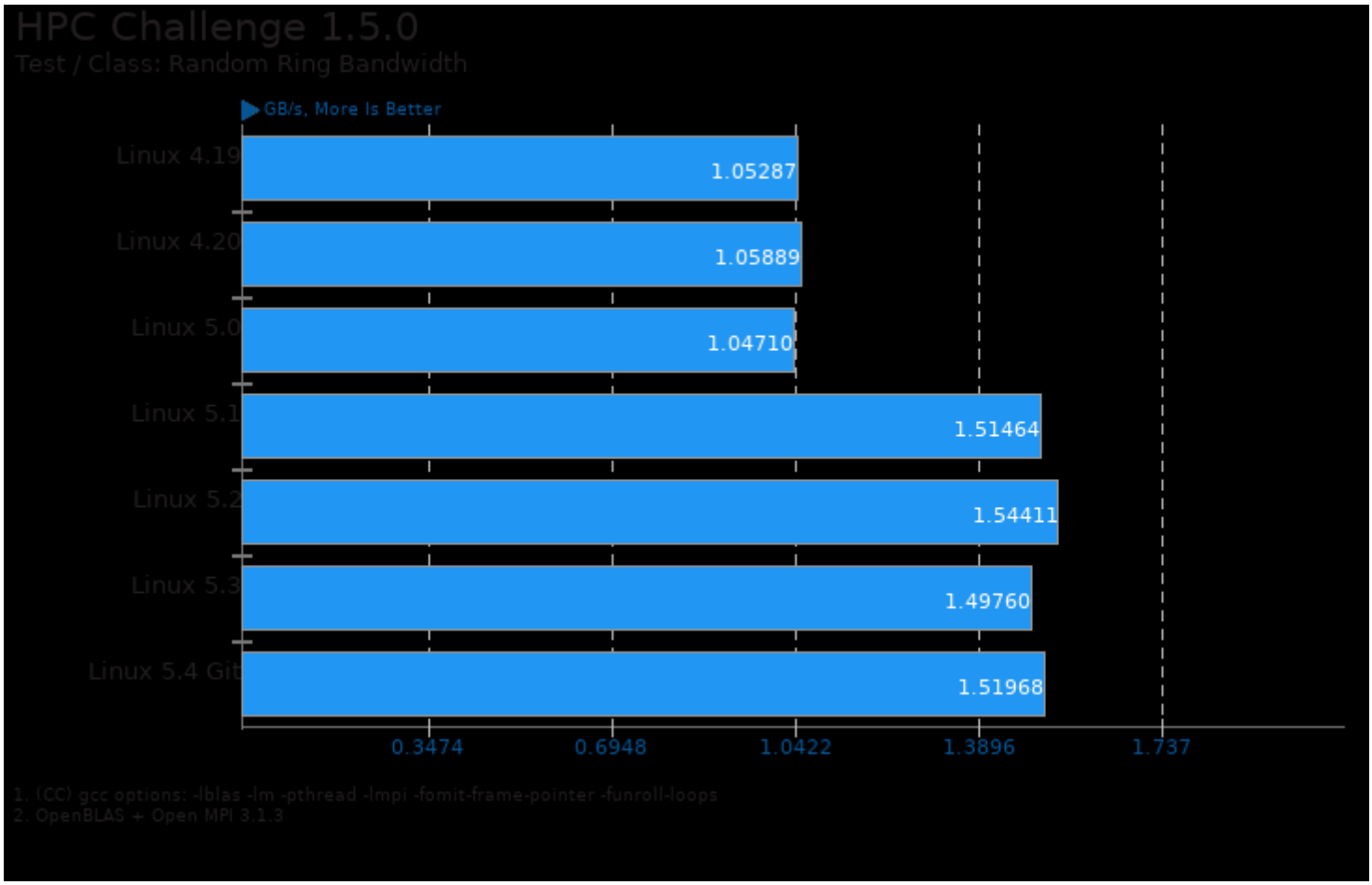
EPYC 7642 AMD Linux Kernel Comparison

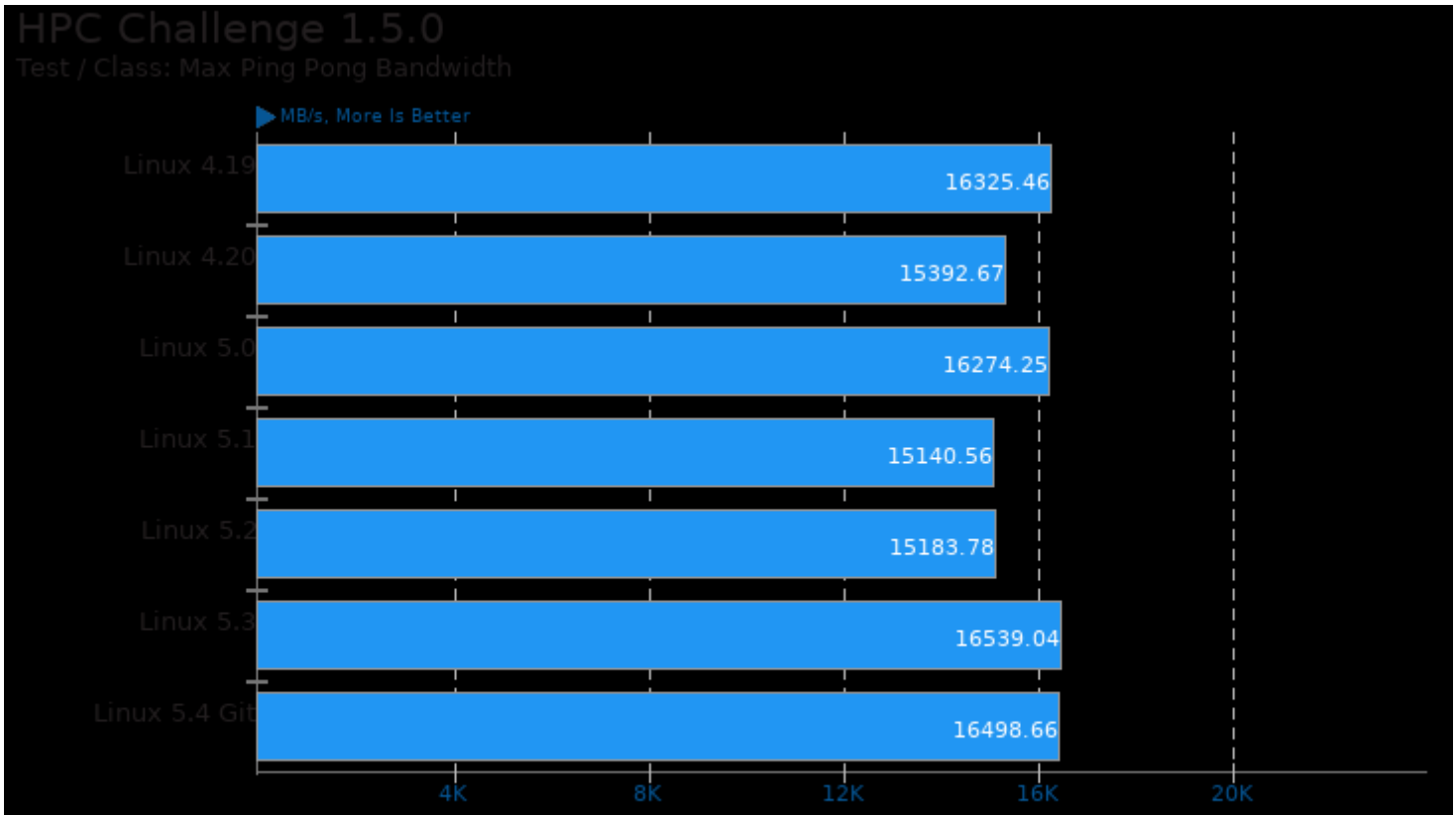


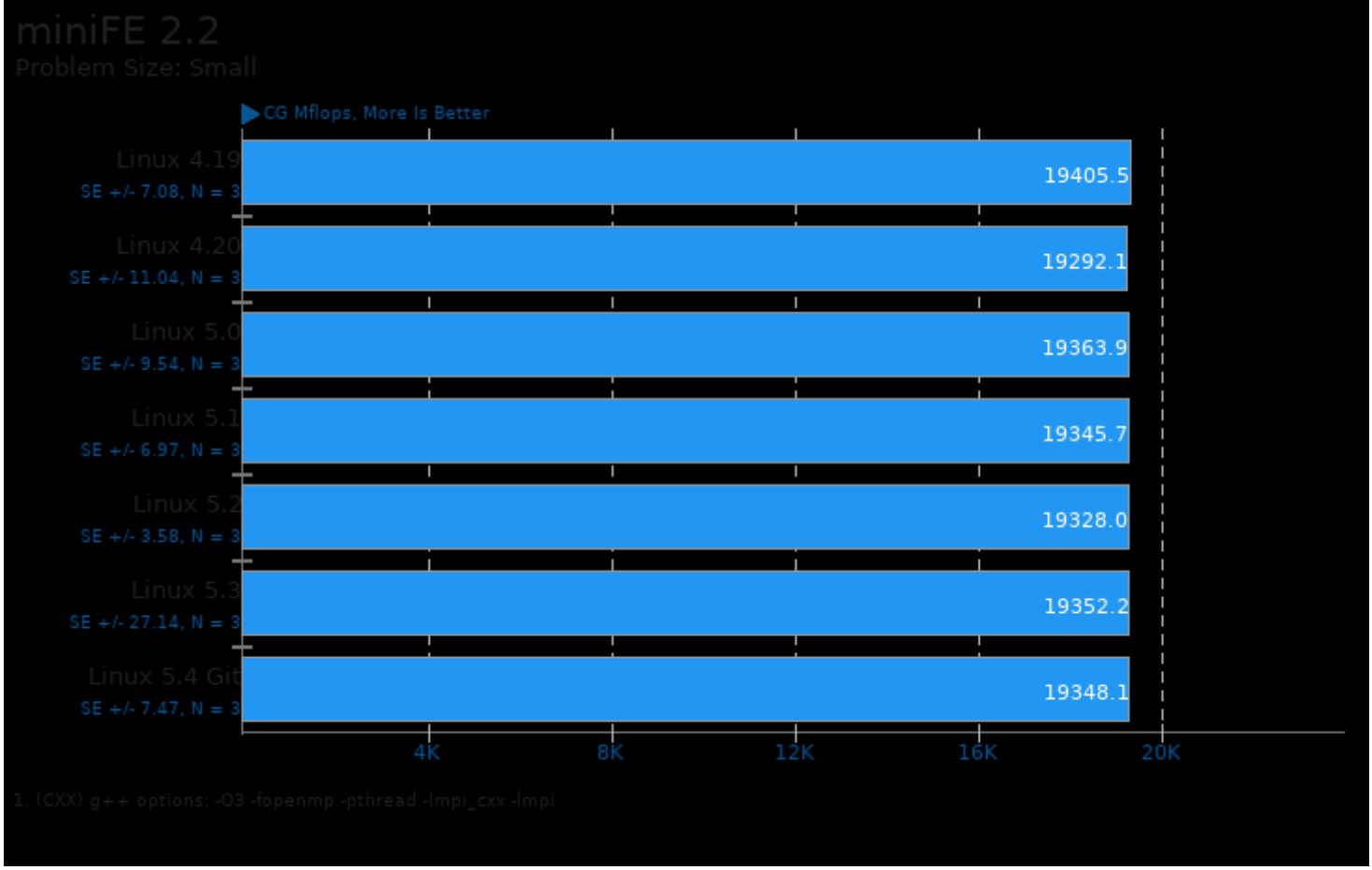
EPYC 7642 AMD Linux Kernel Comparison

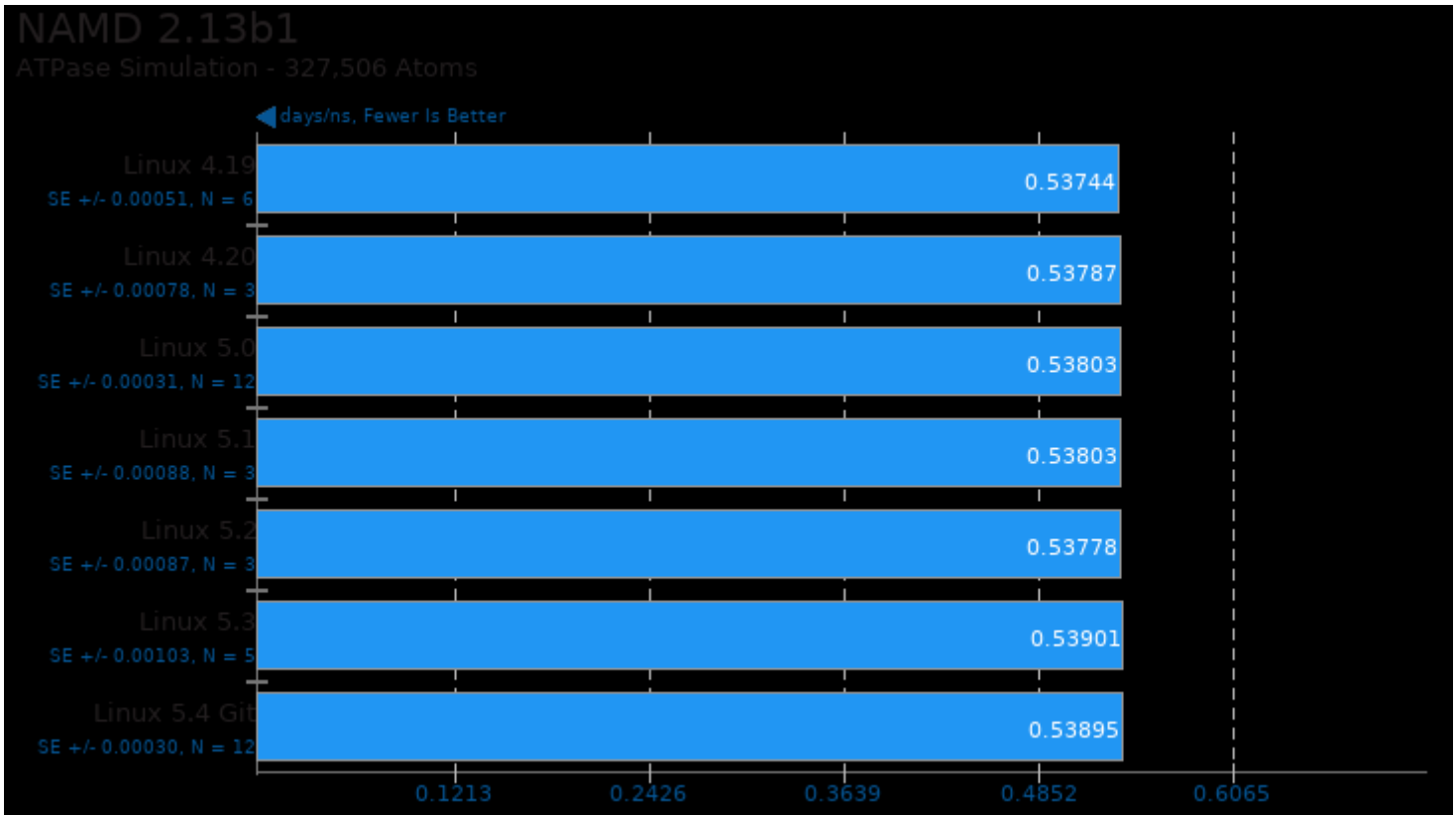


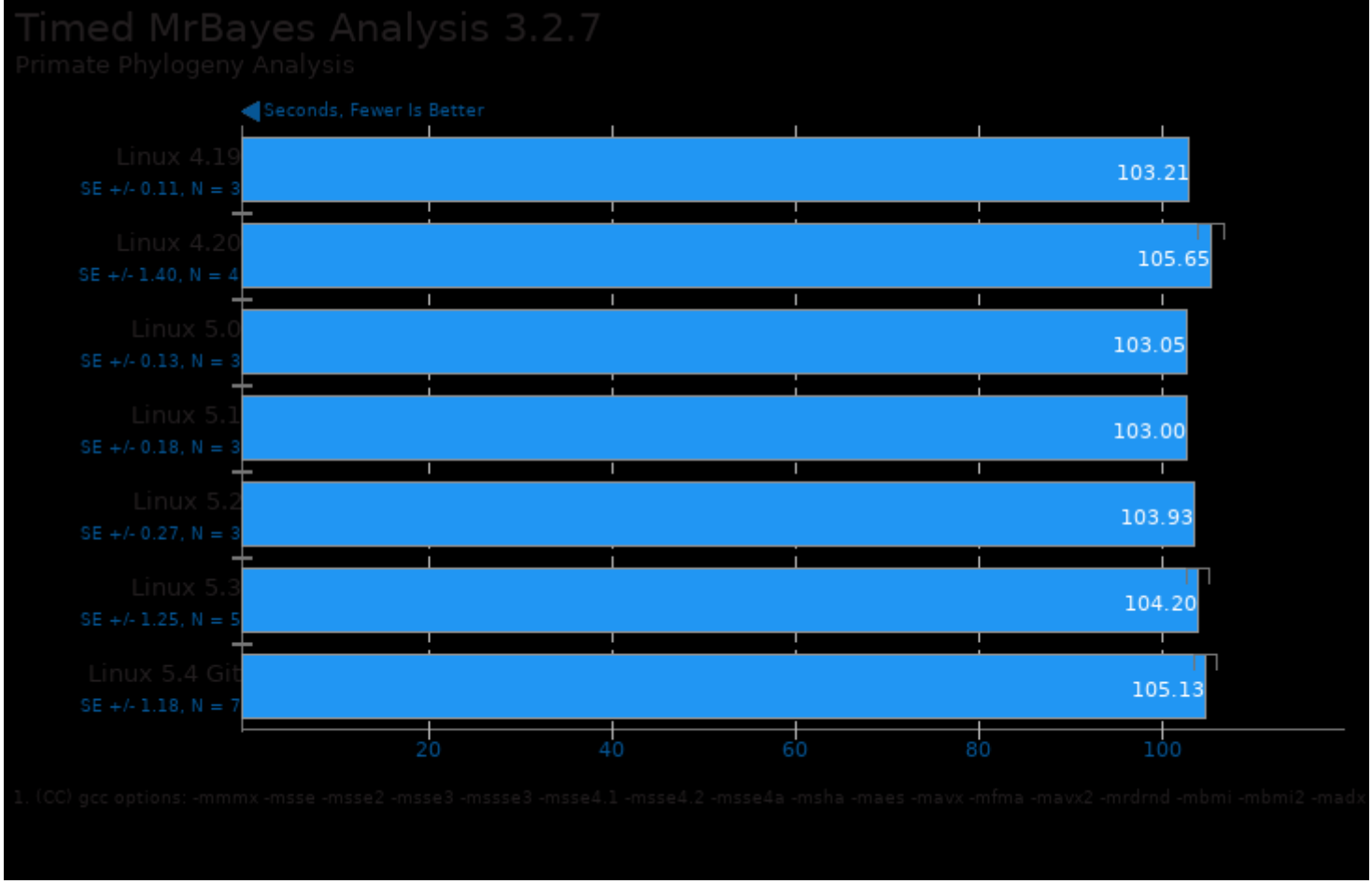
EPYC 7642 AMD Linux Kernel Comparison




HPC Challenge 1.5.0
Test / Class: Max Ping Pong Bandwidth
MB/s, More Is Better
Linux 4.19
16325.46
Linux 4.20
15392.67
Linux 5.0
16274.25
Linux 5.1
15140.56
Linux 5.2
15183.78
Linux 5.3
16539.04
Linux 5.4 Git
16498.66
4K
8K
12K
16K
20K
1. (CC) gcc options: -lblas -lm -pthread -lmpi -fomit-frame-pointer -funroll-loops
2. OpenBLAS + Open MPI 3.1.3


miniFE 2.2
Problem Size: Small
CG Mflops, More Is Better
Linux 4.19
SE +/- 7.08, N = 3
19405.5
Linux 4.20
SE +/- 11.04, N = 3
19292.1
Linux 5.0
SE +/- 9.54, N = 3
19363.9
Linux 5.1
SE +/- 6.97, N = 3
19345.7
Linux 5.2
SE +/- 3.58, N = 3
19328.0
Linux 5.3
SE +/- 27.14, N = 3
19352.2
Linux 5.4 Git
SE +/- 7.47, N = 3
19348.1
4K
8K
12K
16K
20K
1. (CXX) g++ options: -O3 -fopenmp -pthread -lmpi_cxx -lmpi

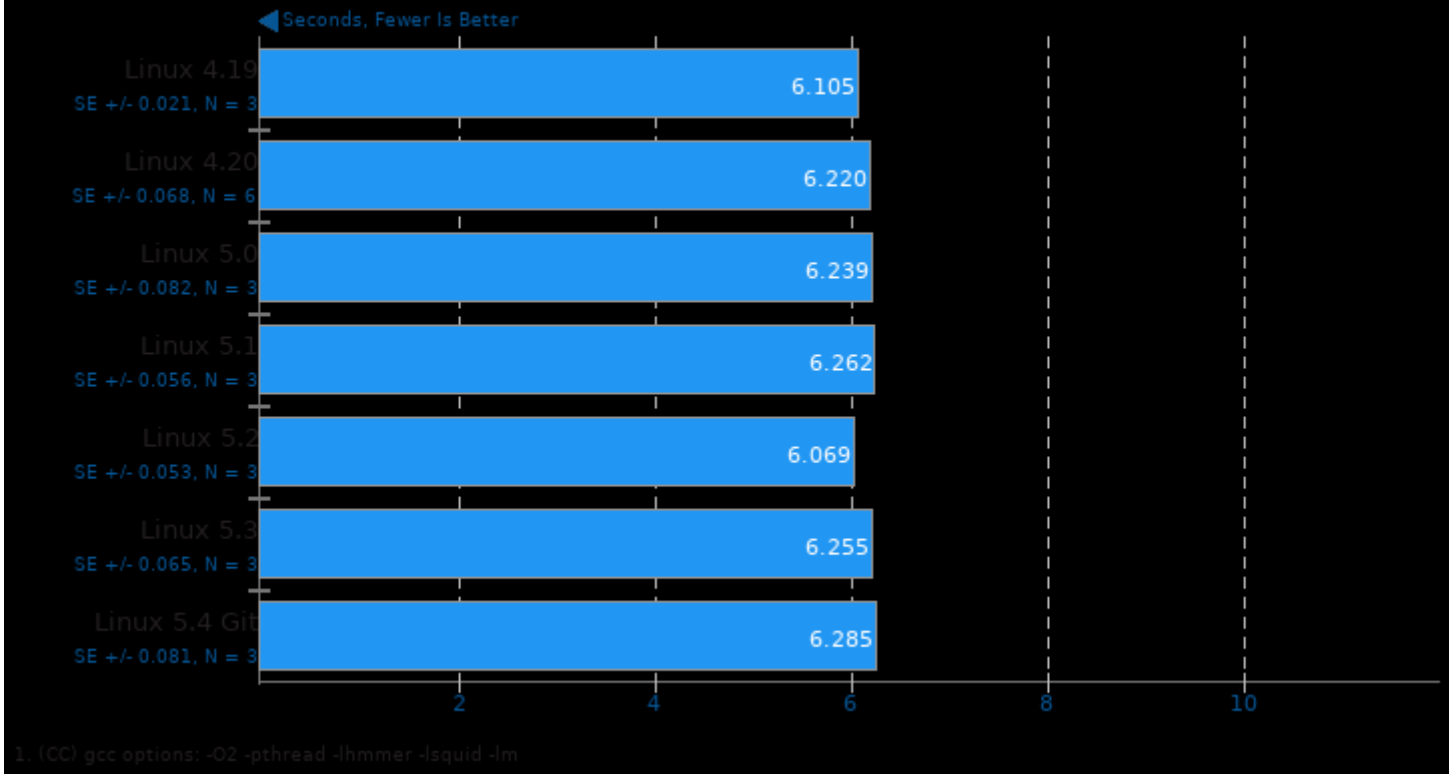

NAMD 2.13b1
ATPase Simulation - 327,506 Atoms
days/ns, Fewer Is Better
Linux 4.19
SE +/- 0.00051, N = 6
0.53744
Linux 4.20
SE +/- 0.00078, N = 3
0.53787
Linux 5.0
SE +/- 0.00031, N = 12
0.53803
Linux 5.1
SE +/- 0.00088, N = 3
0.53803
Linux 5.2
SE +/- 0.00087, N = 3
0.53778
Linux 5.3
SE +/- 0.00103, N = 5
0.53901
Linux 5.4 Git
SE +/- 0.00030, N = 12
0.53895
0.1213
0.2426
0.3639
0.4852
0.6065


Timed MrBayes Analysis 3.2.7
Primate Phylogeny Analysis
Seconds, Fewer Is Better
Linux 4.19
SE +/- 0.11, N = 3
103.21
Linux 4.20
SE +/- 1.40, N = 4
105.65
Linux 5.0
SE +/- 0.13, N = 3
103.05
Linux 5.1
SE +/- 0.18, N = 3
103.00
Linux 5.2
SE +/- 0.27, N = 3
103.93
Linux 5.3
SE +/- 1.25, N = 5
104.20
Linux 5.4 Git
SE +/- 1.18, N = 7
105.13
20
40
60
80
100
1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -msha -maes -mavx -mfma -mavx2 -mrdrnd -mbmi -mbmi2 -madx

EPYC 7642 AMD Linux Kernel Comparison

Timed HMMer Search 2.3.2

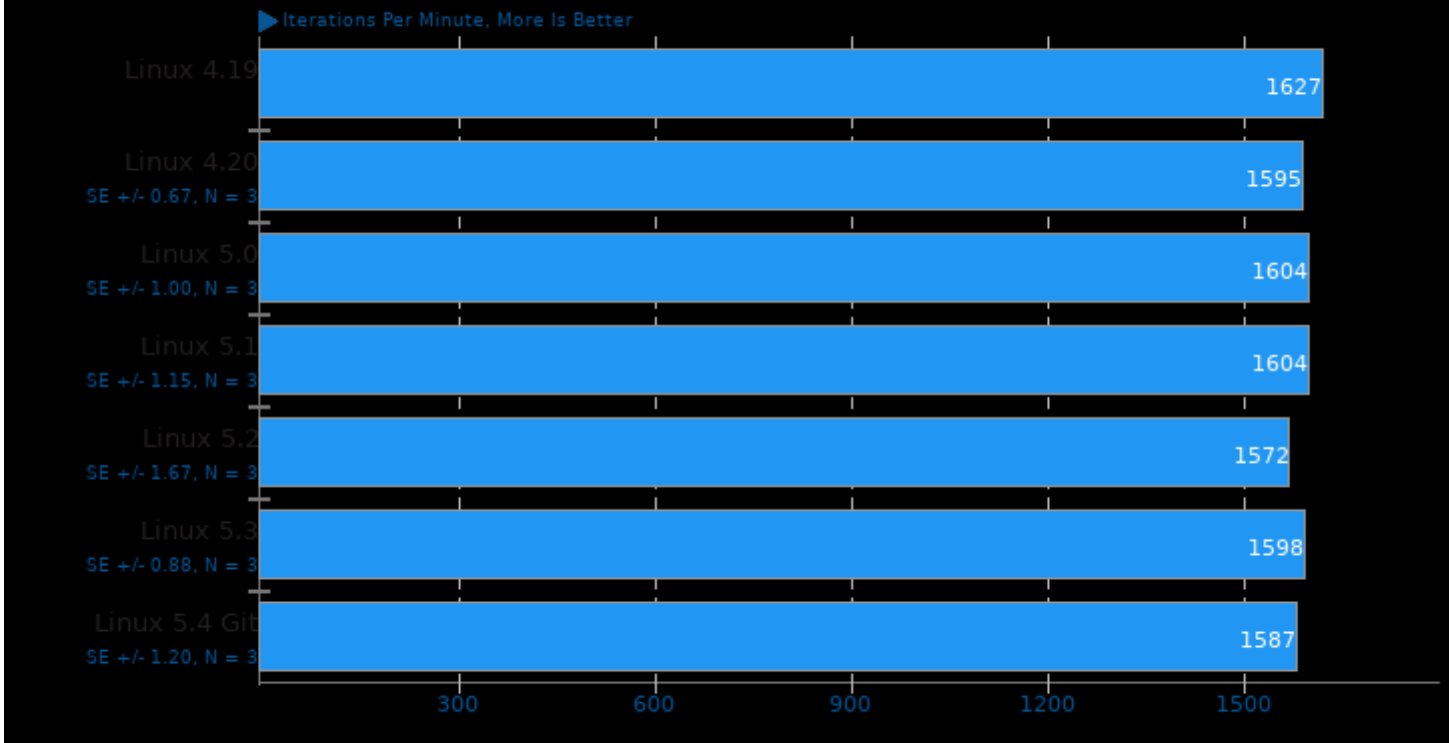
Pfam Database Search



1. (CC) gcc options: -O2 -pthread -lhmmer -lsquid -lm

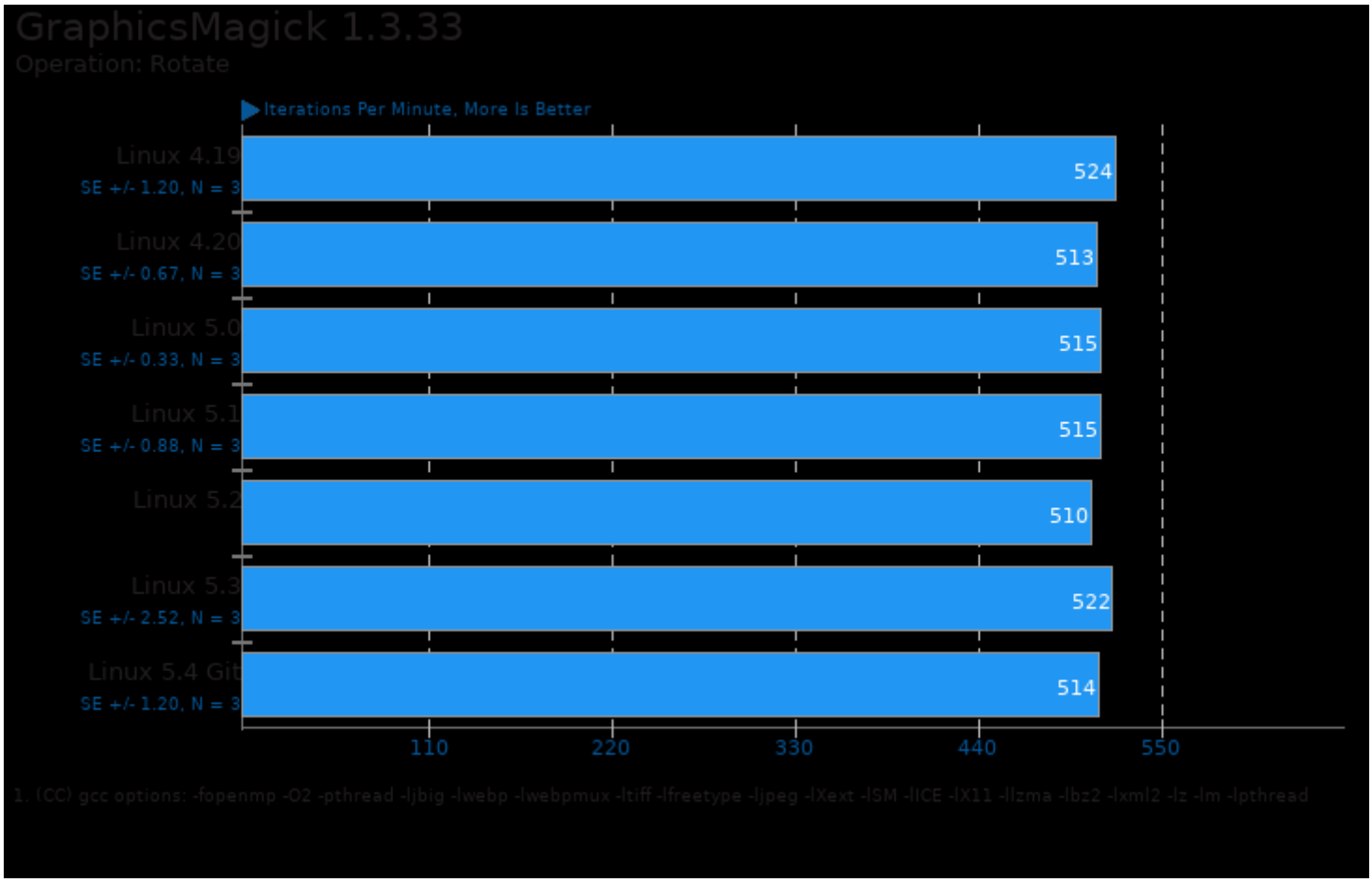
GraphicsMagick 1.3.33

Operation: Swirl

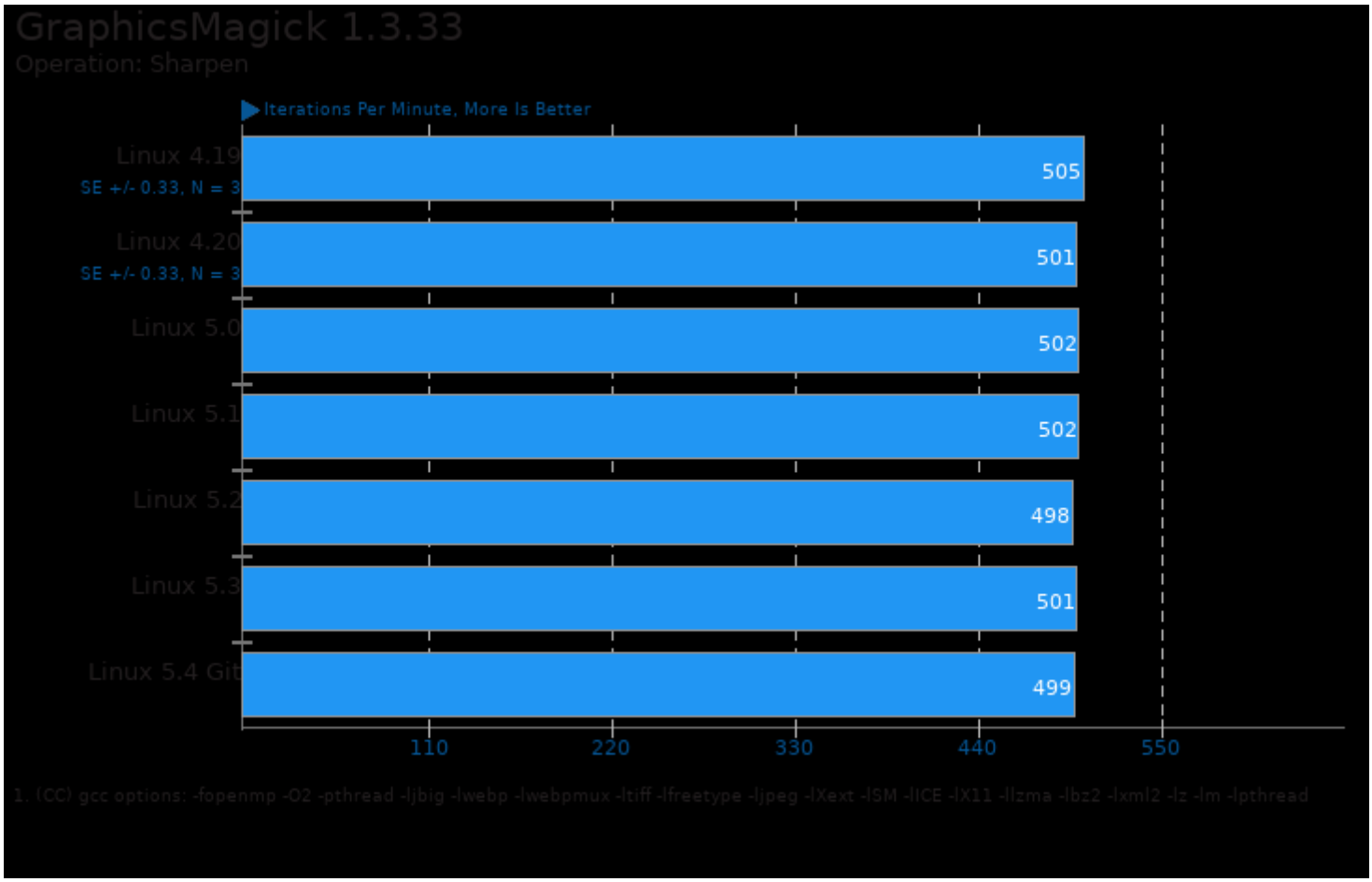


1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread

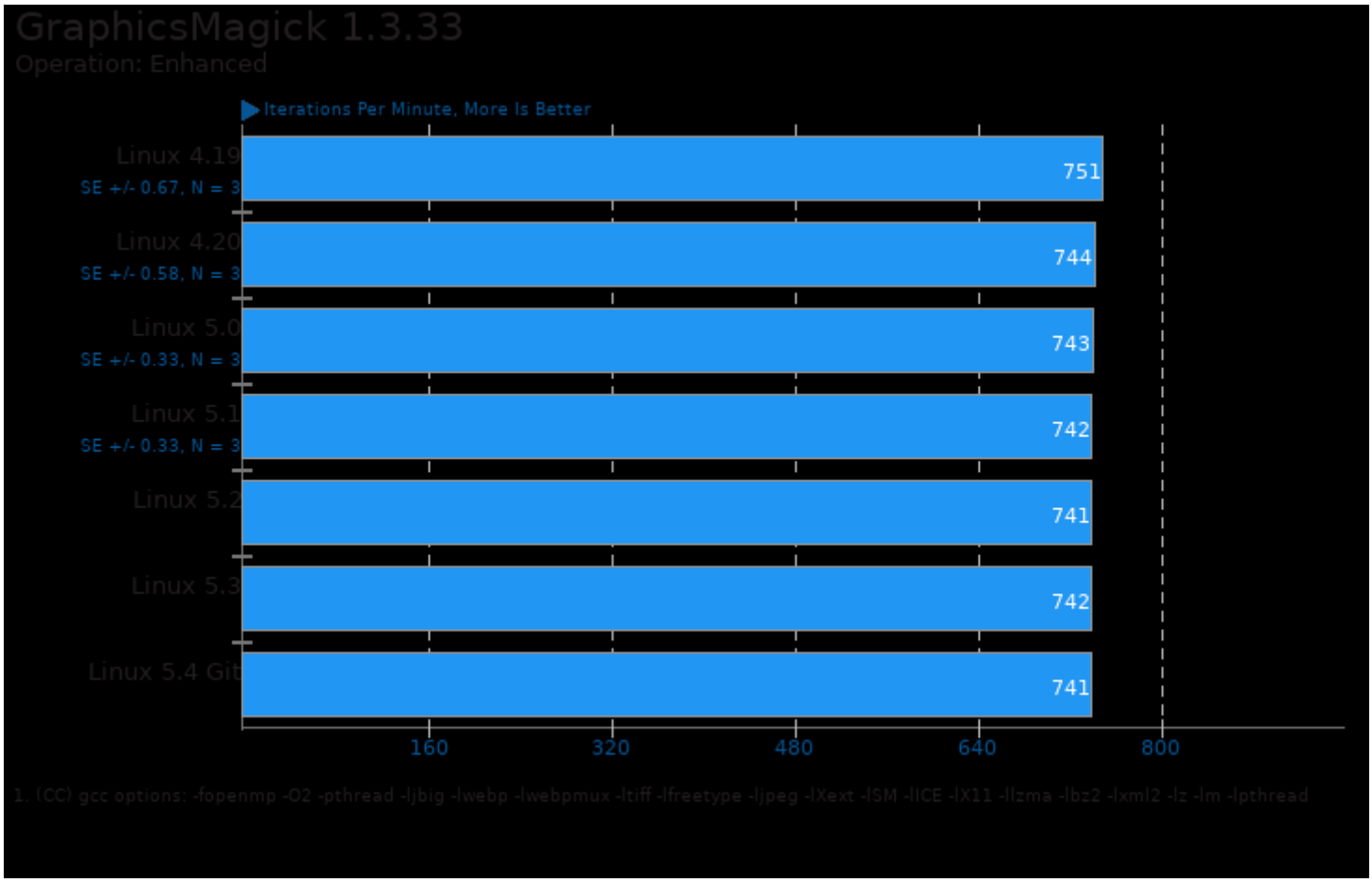
EPYC 7642 AMD Linux Kernel Comparison



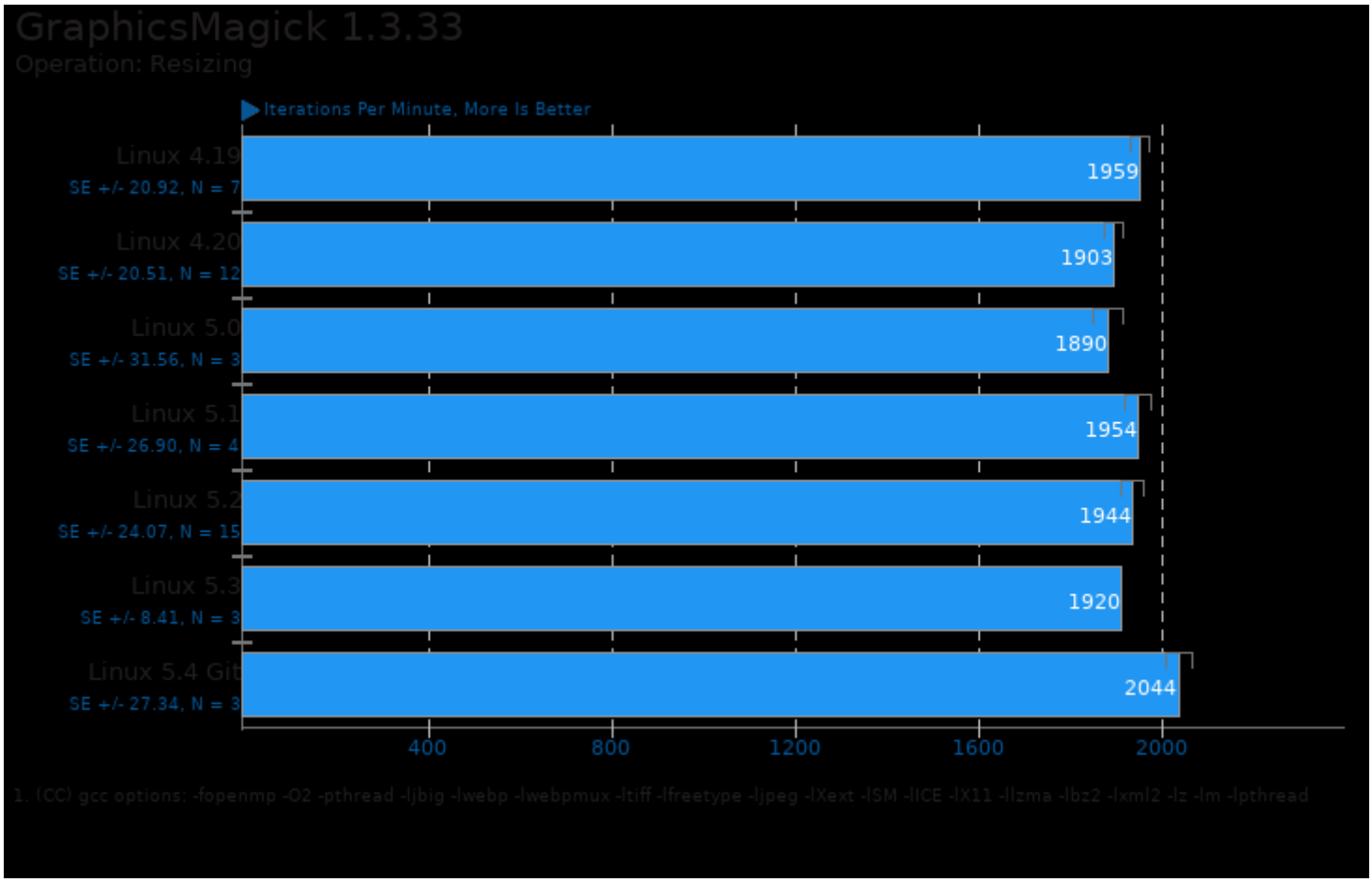
EPYC 7642 AMD Linux Kernel Comparison



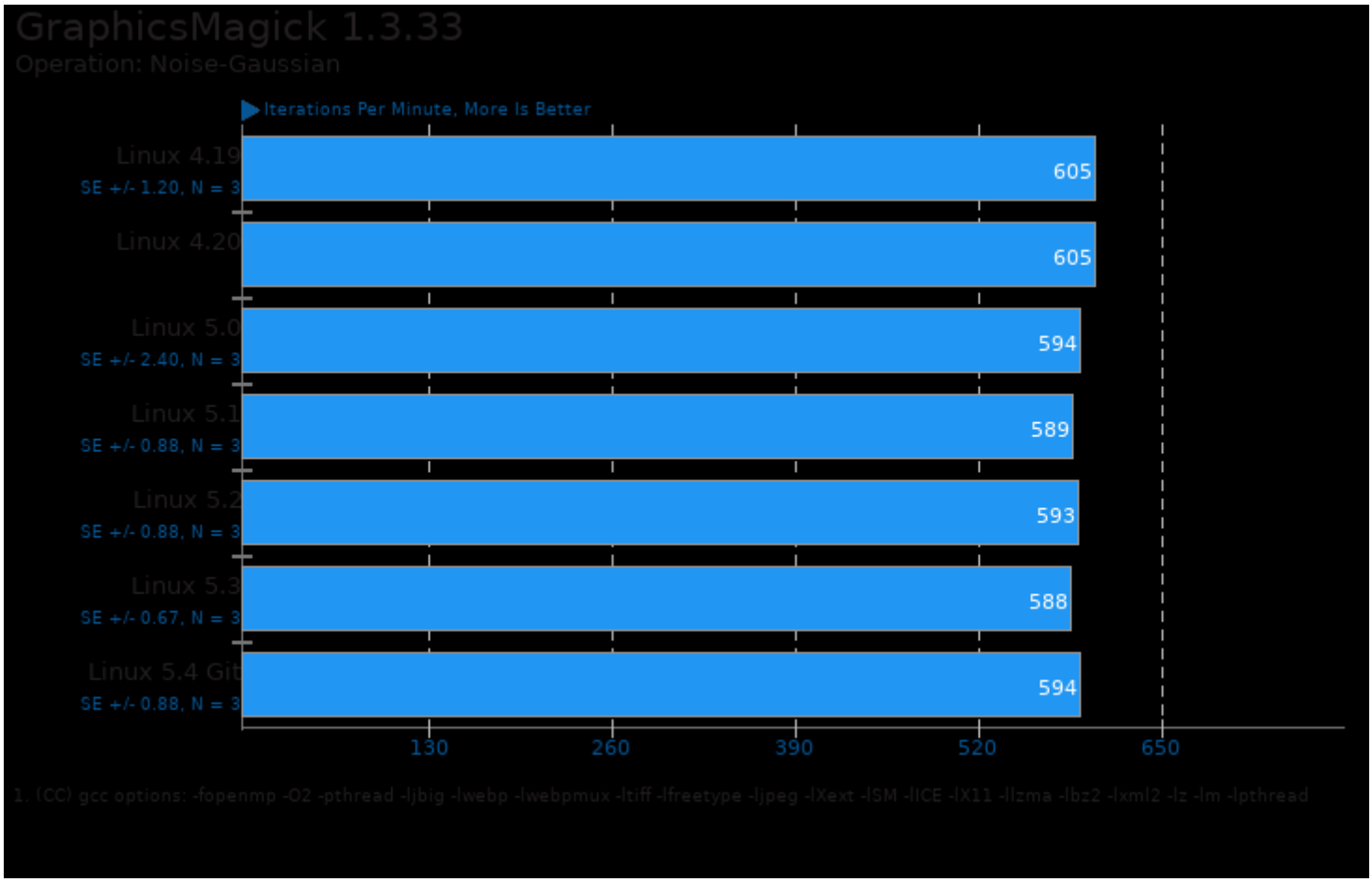
EPYC 7642 AMD Linux Kernel Comparison

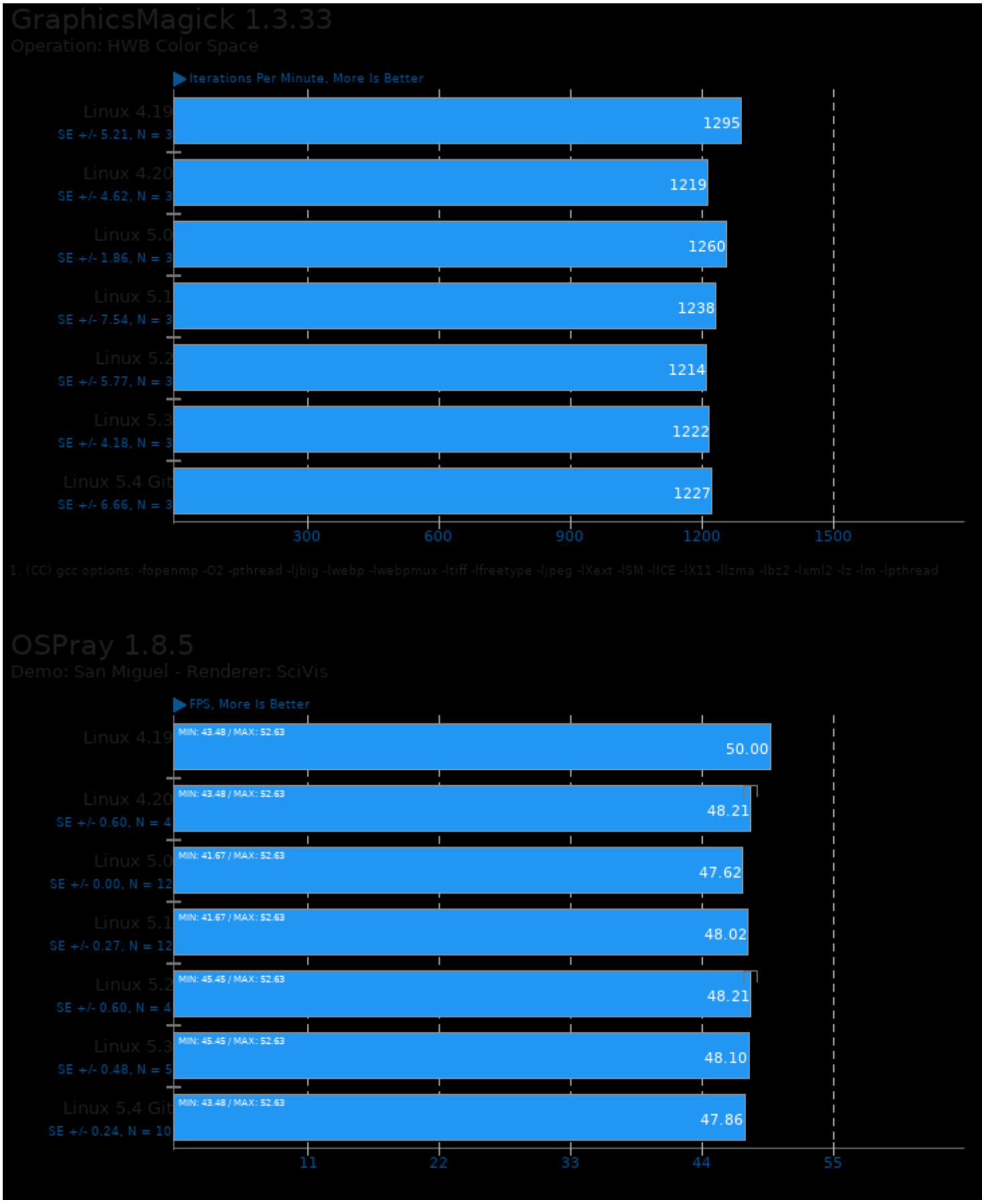


EPYC 7642 AMD Linux Kernel Comparison

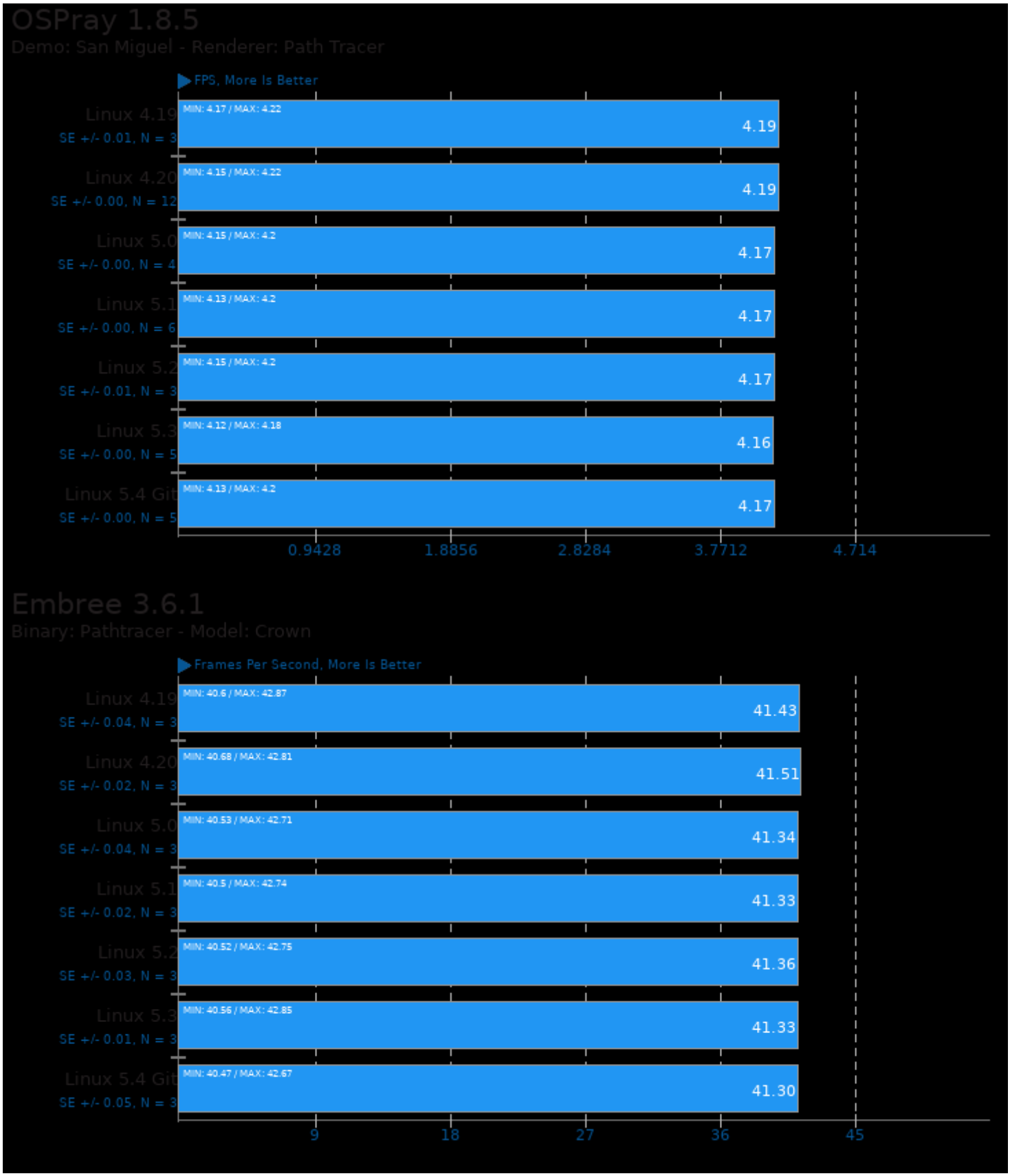


EPYC 7642 AMD Linux Kernel Comparison

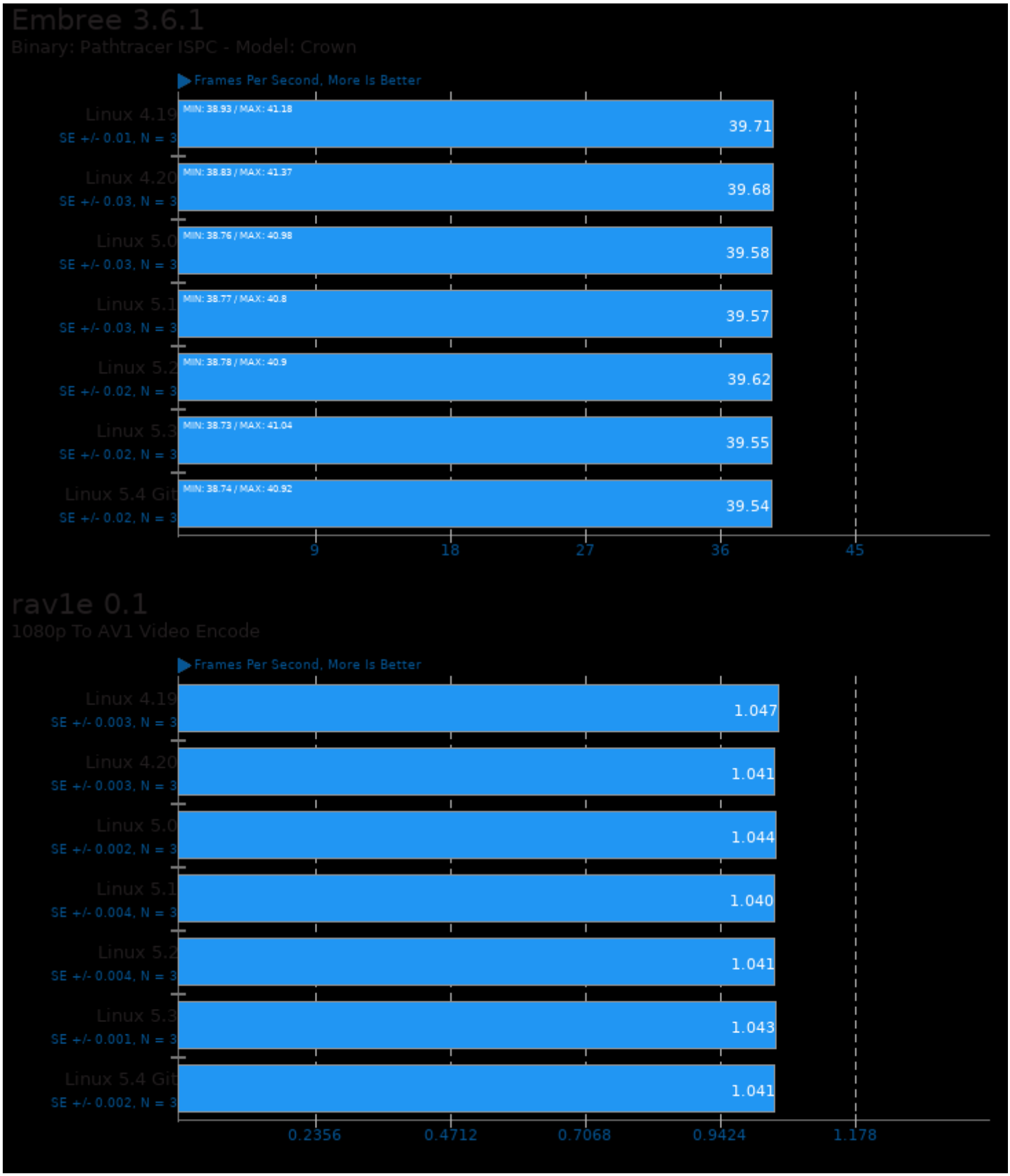


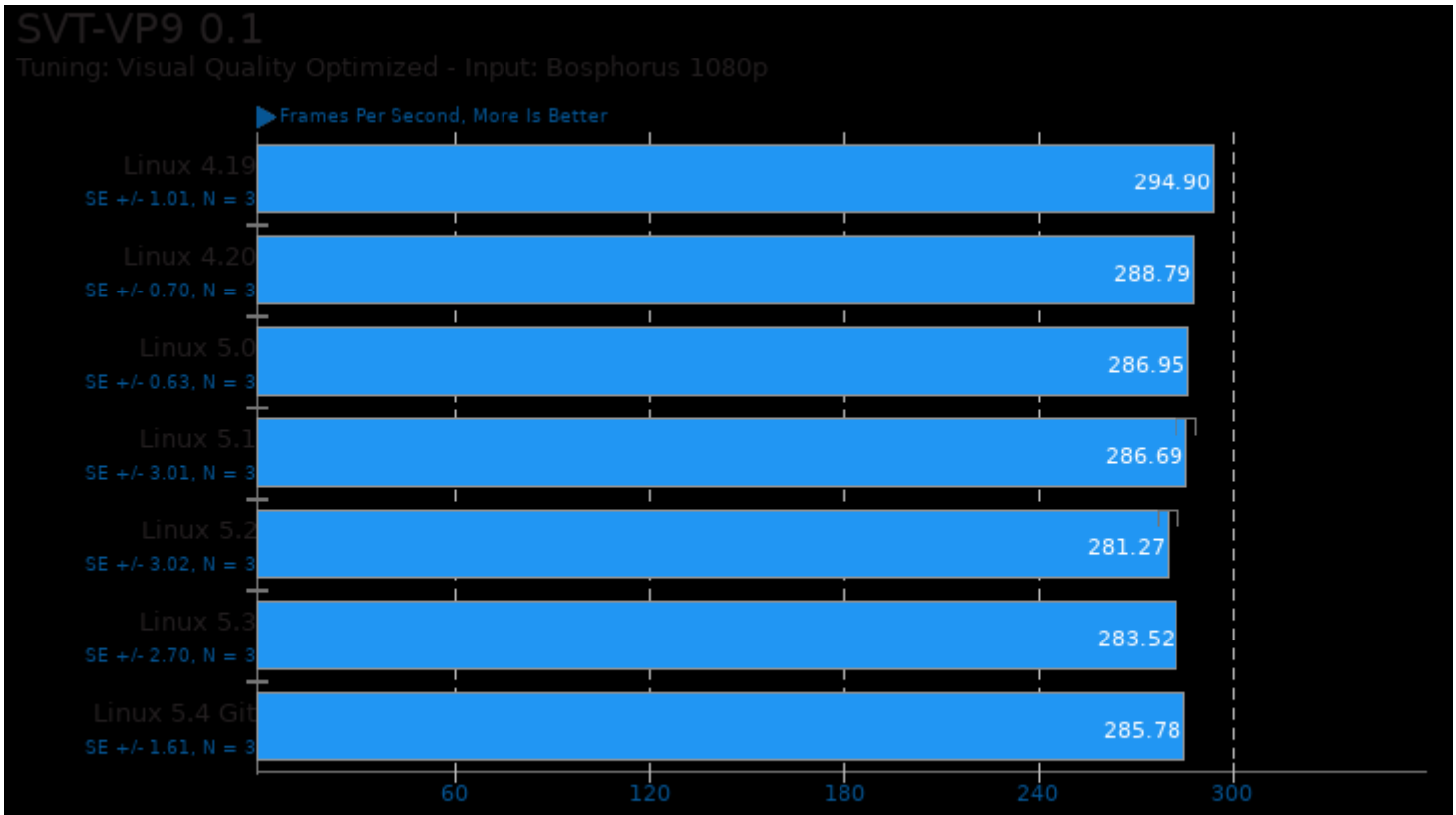

GraphicsMagick 1.3.33
Operation: HWB Color Space
Iterations Per Minute, More Is Better
Linux 4.19
SE +/- 5.21, N = 3
1295
Linux 4.20
SE +/- 4.62, N = 3
1219
Linux 5.0
SE +/- 1.86, N = 3
1260
Linux 5.1
SE +/- 7.54, N = 3
1238
Linux 5.2
SE +/- 5.77, N = 3
1214
Linux 5.3
SE +/- 4.18, N = 3
1222
Linux 5.4 Git
SE +/- 6.66, N = 3
1227
300
600
900
1200
1500
1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lXext -lSM -lICE -lX11 -llzma -lbz2 -lxml2 -lz -lm -lpthread
OSPray 1.8.5
Demo: San Miguel - Renderer: SciVis
FPS, More Is Better
Linux 4.19
MIN: 43.48 / MAX: 52.63
50.00
Linux 4.20
SE +/- 0.60, N = 4
MIN: 43.48 / MAX: 52.63
48.21
Linux 5.0
SE +/- 0.00, N = 12
MIN: 41.67 / MAX: 52.63
47.62
Linux 5.1
SE +/- 0.27, N = 12
MIN: 41.67 / MAX: 52.63
48.02
Linux 5.2
SE +/- 0.60, N = 4
MIN: 45.45 / MAX: 52.63
48.21
Linux 5.3
SE +/- 0.48, N = 5
MIN: 45.45 / MAX: 52.63
48.10
Linux 5.4 Git
SE +/- 0.24, N = 10
MIN: 43.48 / MAX: 52.63
47.86
11
22
33
44
55

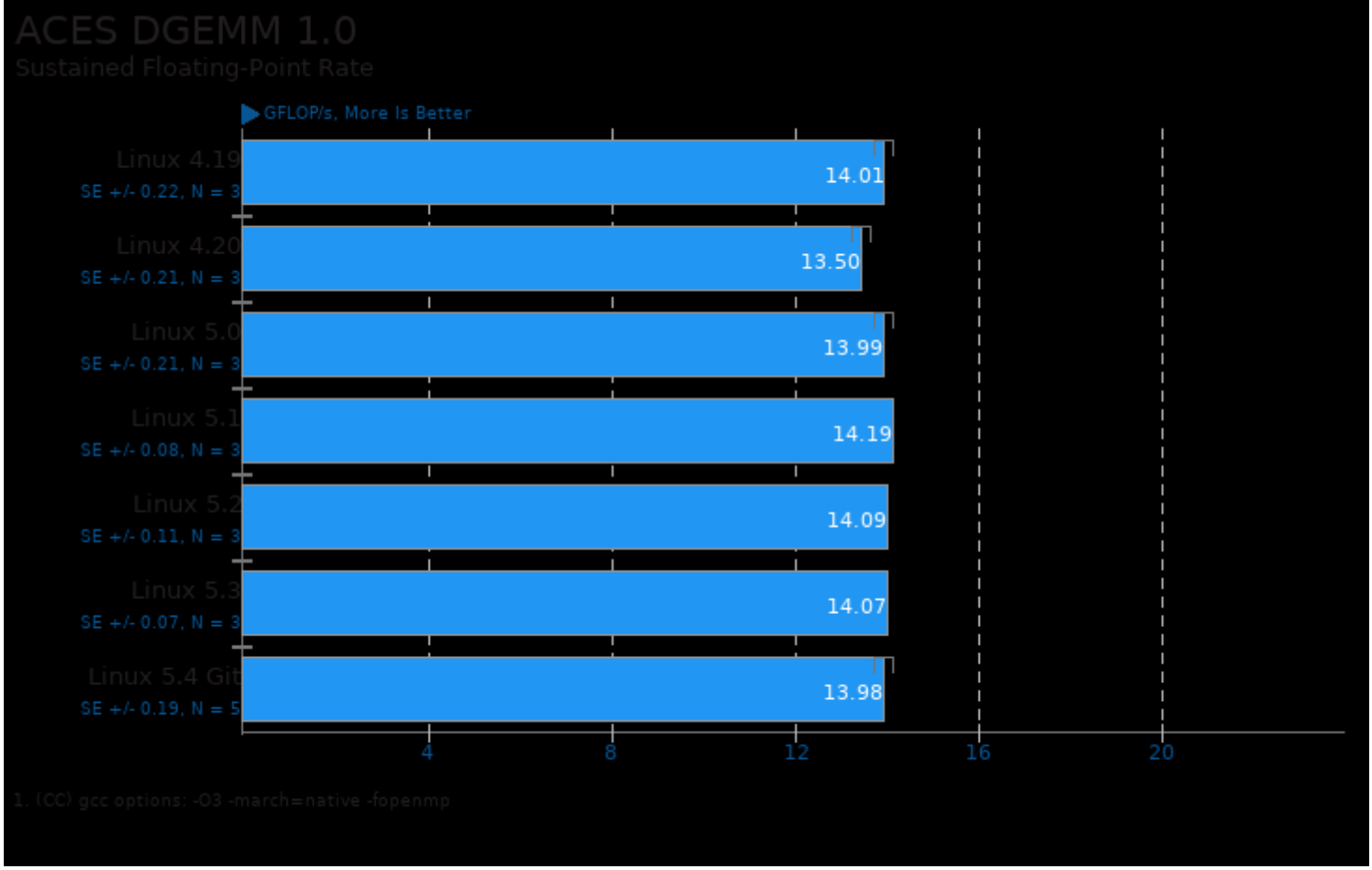
EPYC 7642 AMD Linux Kernel Comparison

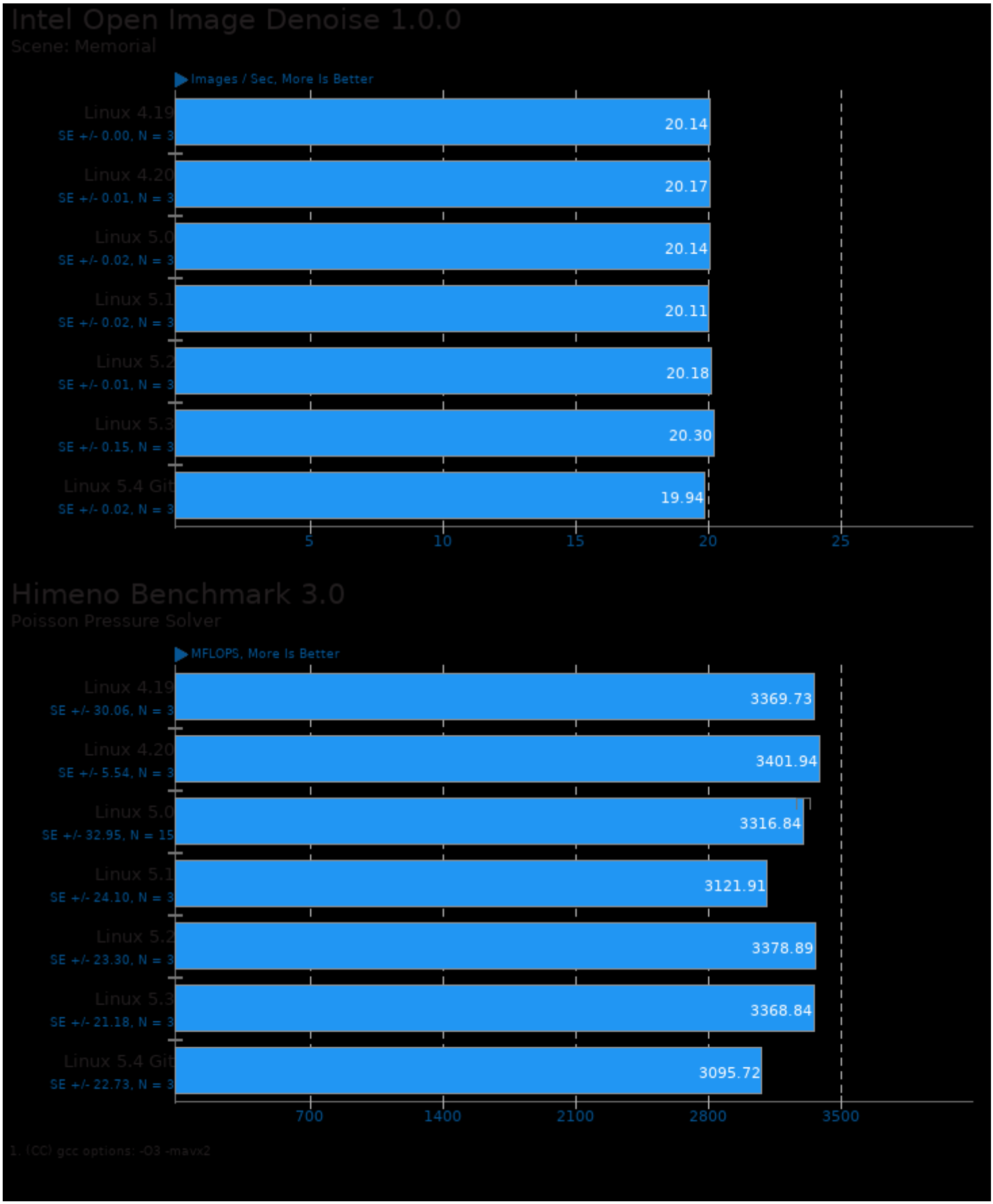


EPYC 7642 AMD Linux Kernel Comparison

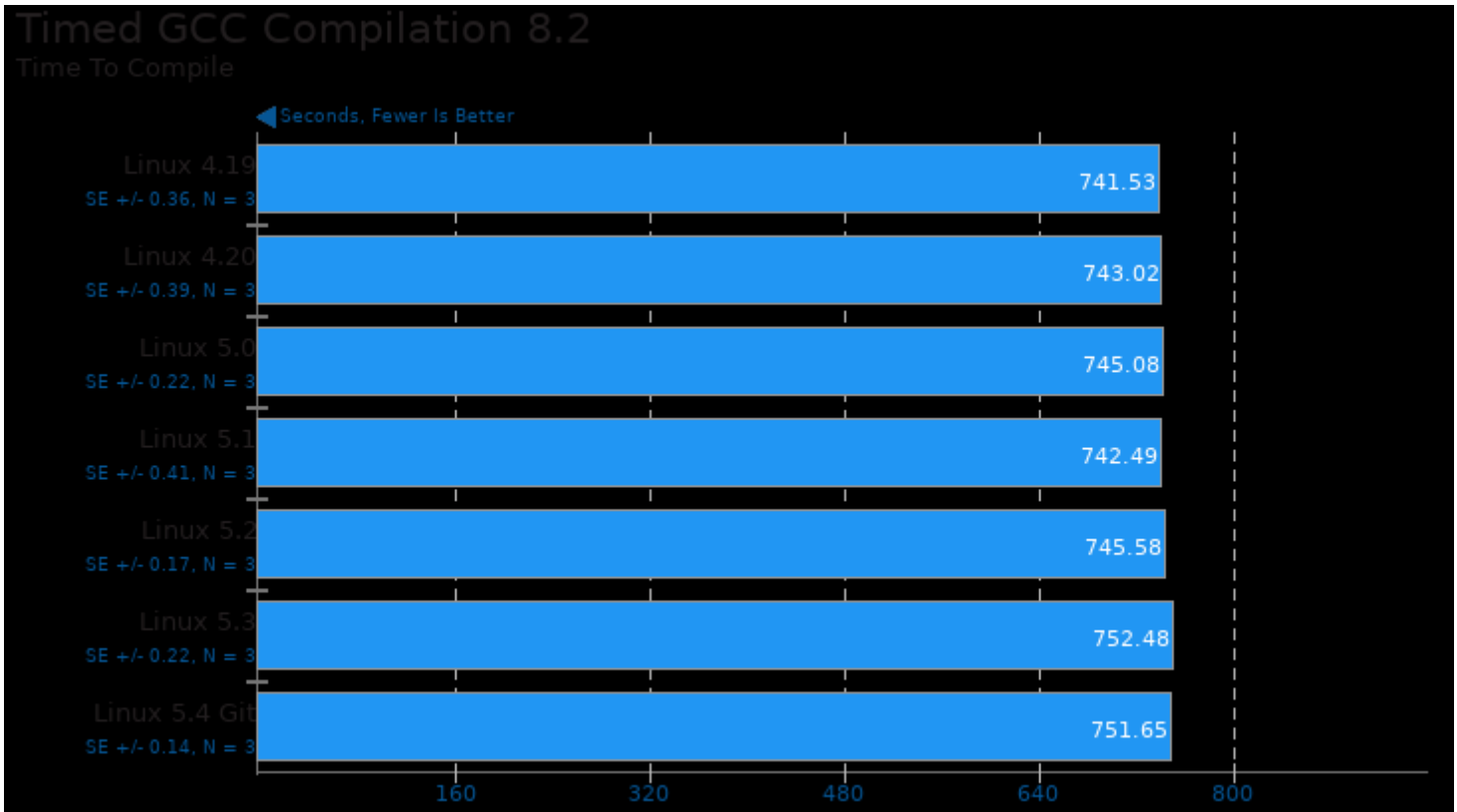


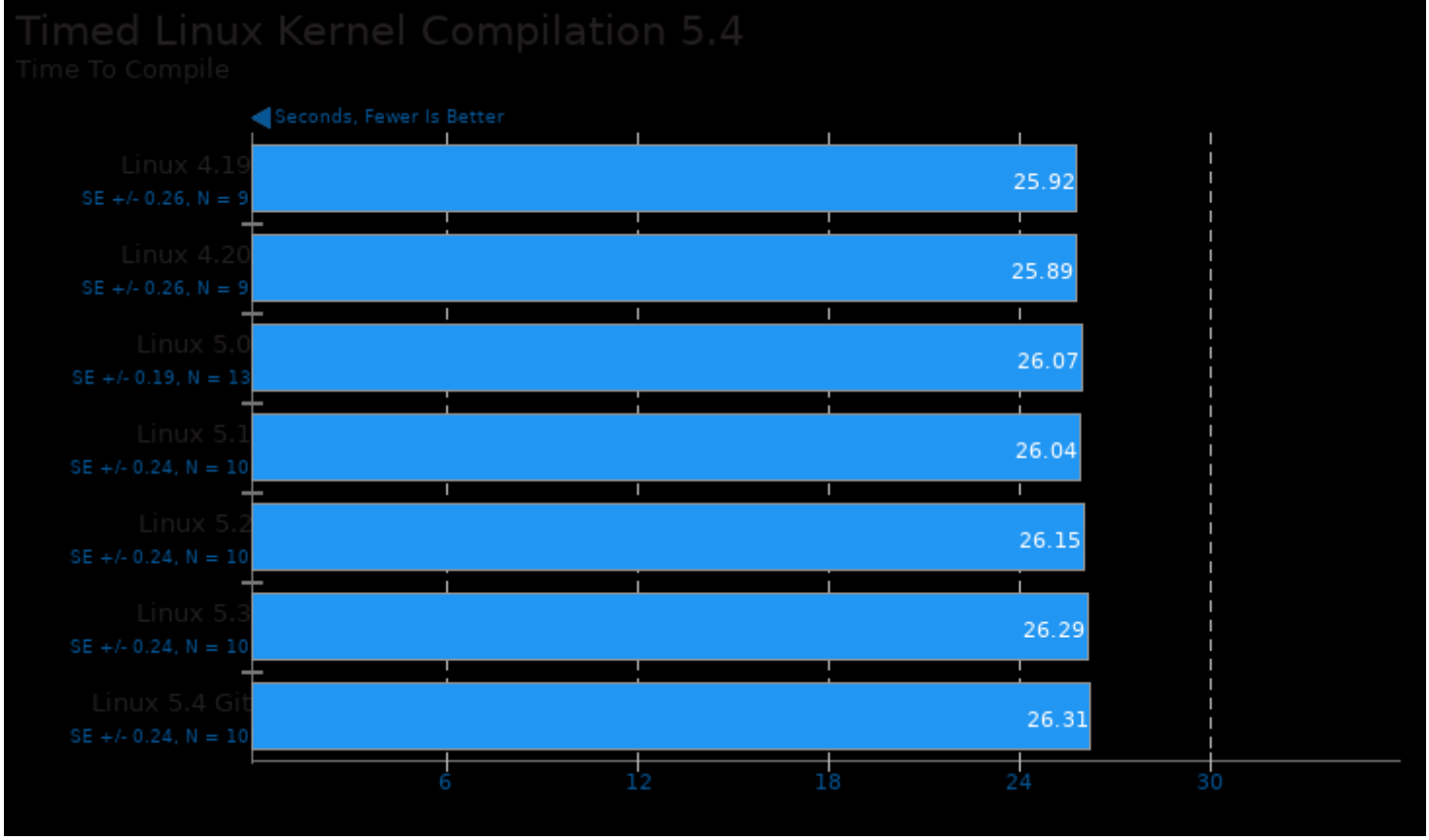

SVT-VP9 0.1
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Linux 4.19
SE +/- 1.01, N = 3
294.90
Linux 4.20
SE +/- 0.70, N = 3
288.79
Linux 5.0
SE +/- 0.63, N = 3
286.95
Linux 5.1
SE +/- 3.01, N = 3
286.69
Linux 5.2
SE +/- 3.02, N = 3
281.27
Linux 5.3
SE +/- 2.70, N = 3
283.52
Linux 5.4 Git
SE +/- 1.61, N = 3
285.78
60
120
180
240
300
1. (CC) gcc options: -fPIE -fPIC -fvisibility=hidden -O3 -pie -rdynamic -lpthread -lrt -lm

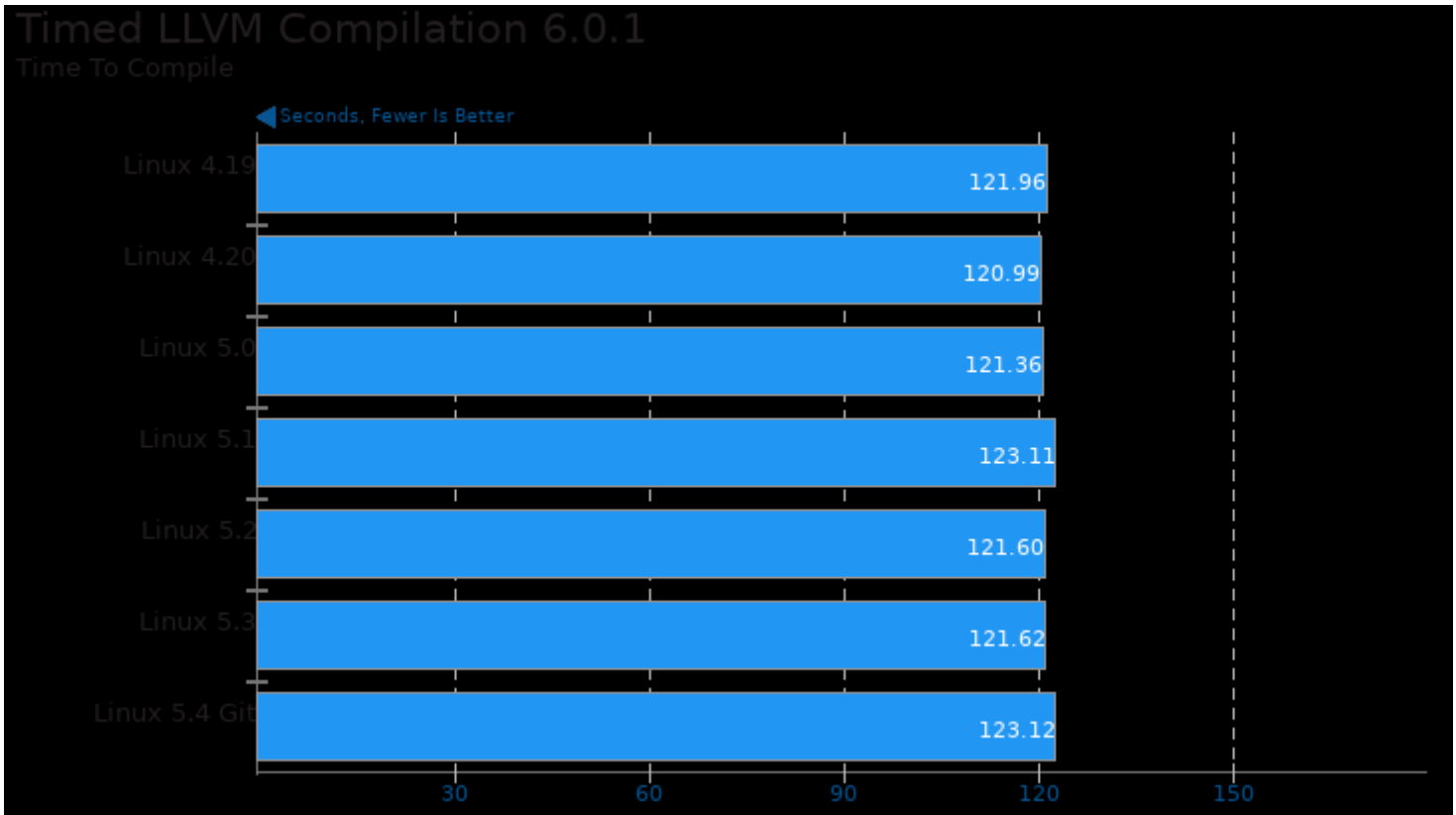

ACES DGEMM 1.0
Sustained Floating-Point Rate
GFLOP/s, More Is Better
Linux 4.19
SE +/- 0.22, N = 3
14.01
Linux 4.20
SE +/- 0.21, N = 3
13.50
Linux 5.0
SE +/- 0.21, N = 3
13.99
Linux 5.1
SE +/- 0.08, N = 3
14.19
Linux 5.2
SE +/- 0.11, N = 3
14.09
Linux 5.3
SE +/- 0.07, N = 3
14.07
Linux 5.4 Git
SE +/- 0.19, N = 5
13.98
4
8
12
16
20
1. (CC) gcc options: -O3 -march=native -fopenmp

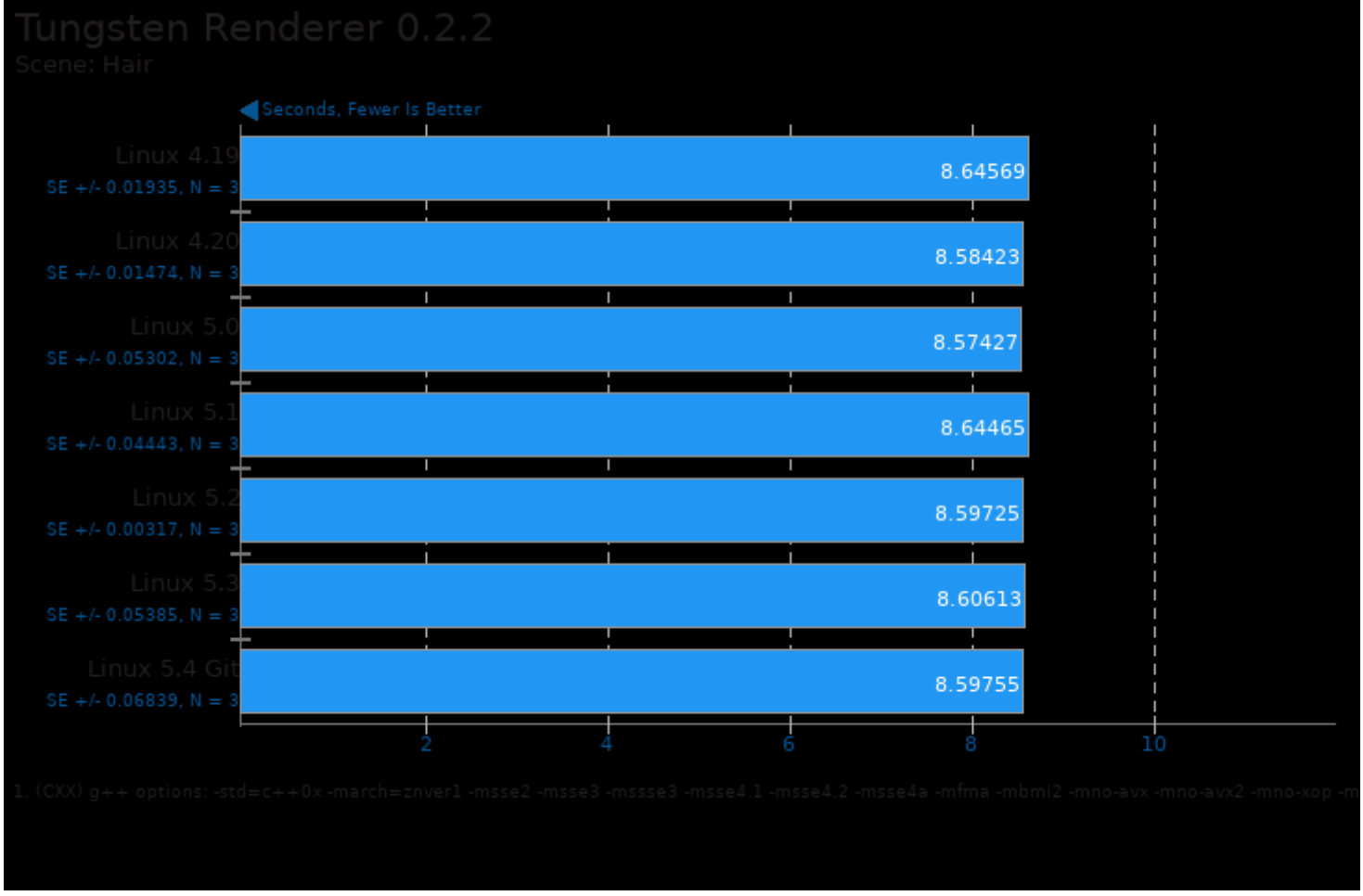

Intel Open Image Denoise 1.0.0
Scene: Memorial
Images / Sec, More Is Better
Linux 4.19
SE +/- 0.00, N = 3
20.14
Linux 4.20
SE +/- 0.01, N = 3
20.17
Linux 5.0
SE +/- 0.02, N = 3
20.14
Linux 5.1
SE +/- 0.02, N = 3
20.11
Linux 5.2
SE +/- 0.01, N = 3
20.18
Linux 5.3
SE +/- 0.15, N = 3
20.30
Linux 5.4 Git
SE +/- 0.02, N = 3
19.94
5
10
15
20
25
Himeno Benchmark 3.0
Poisson Pressure Solver
MFLOPS, More Is Better
Linux 4.19
SE +/- 30.06, N = 3
3369.73
Linux 4.20
SE +/- 5.54, N = 3
3401.94
Linux 5.0
SE +/- 32.95, N = 15
3316.84
Linux 5.1
SE +/- 24.10, N = 3
3121.91
Linux 5.2
SE +/- 23.30, N = 3
3378.89
Linux 5.3
SE +/- 21.18, N = 3
3368.84
Linux 5.4 Git
SE +/- 22.73, N = 3
3095.72
700
1400
2100
2800
3500
1. (CC) gcc options: -O3 -mavx2

EPYC 7642 AMD Linux Kernel Comparison

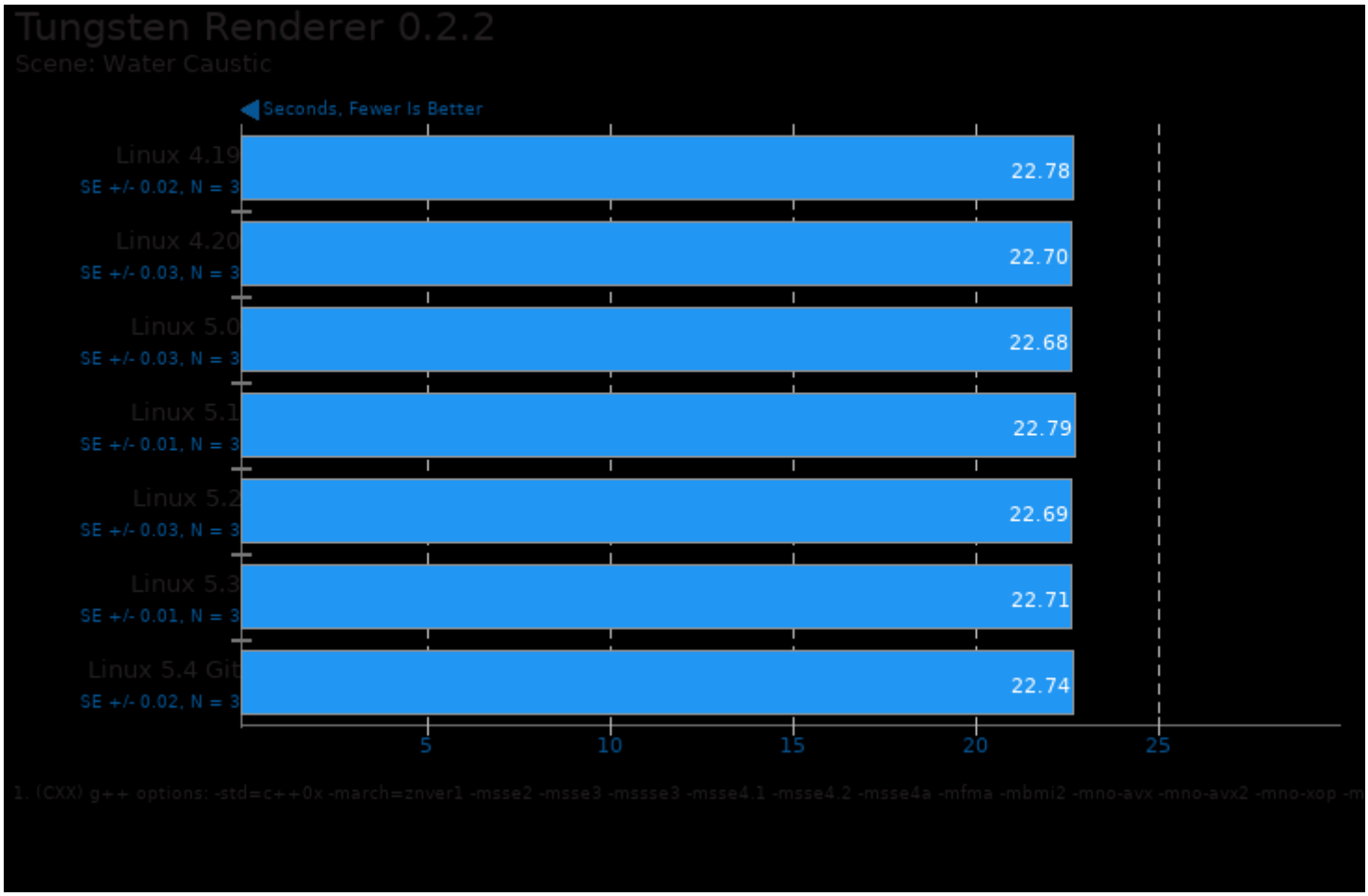




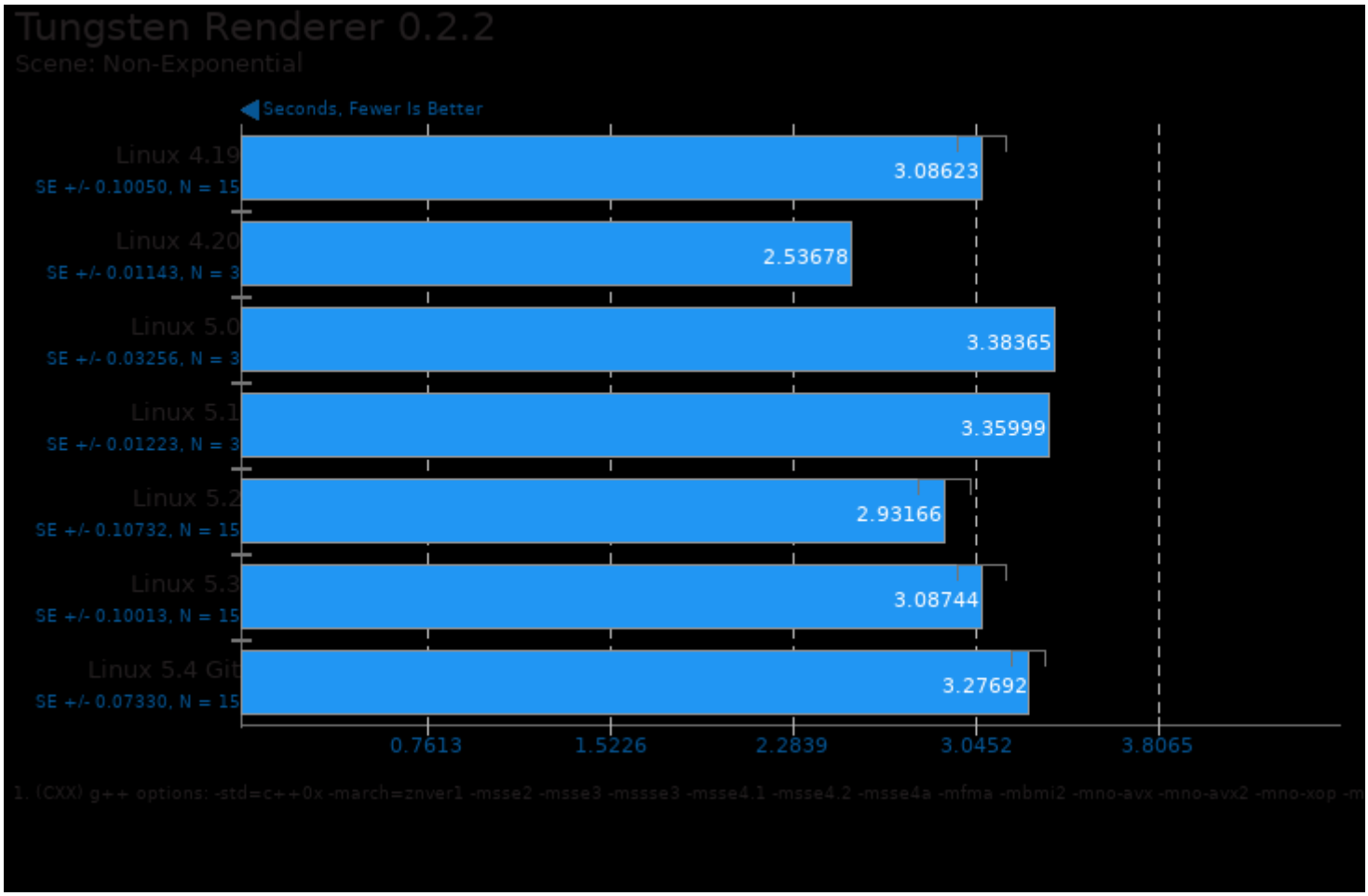

Timed LLVM Compilation 6.0.1
Time To Compile
Seconds, Fewer Is Better
Linux 4.19
121.96
Linux 4.20
120.99
Linux 5.0
121.36
Linux 5.1
123.11
Linux 5.2
121.60
Linux 5.3
121.62
Linux 5.4 Git
123.12
30
60
90
120
150


Tungsten Renderer 0.2.2
Scene: Hair
Seconds, Fewer Is Better
Linux 4.19
SE +/- 0.01935, N = 3
8.64569
Linux 4.20
SE +/- 0.01474, N = 3
8.58423
Linux 5.0
SE +/- 0.05302, N = 3
8.57427
Linux 5.1
SE +/- 0.04443, N = 3
8.64465
Linux 5.2
SE +/- 0.00317, N = 3
8.59725
Linux 5.3
SE +/- 0.05385, N = 3
8.60613
Linux 5.4 Git
SE +/- 0.06839, N = 3
8.59755
2
4
6
8
10
1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

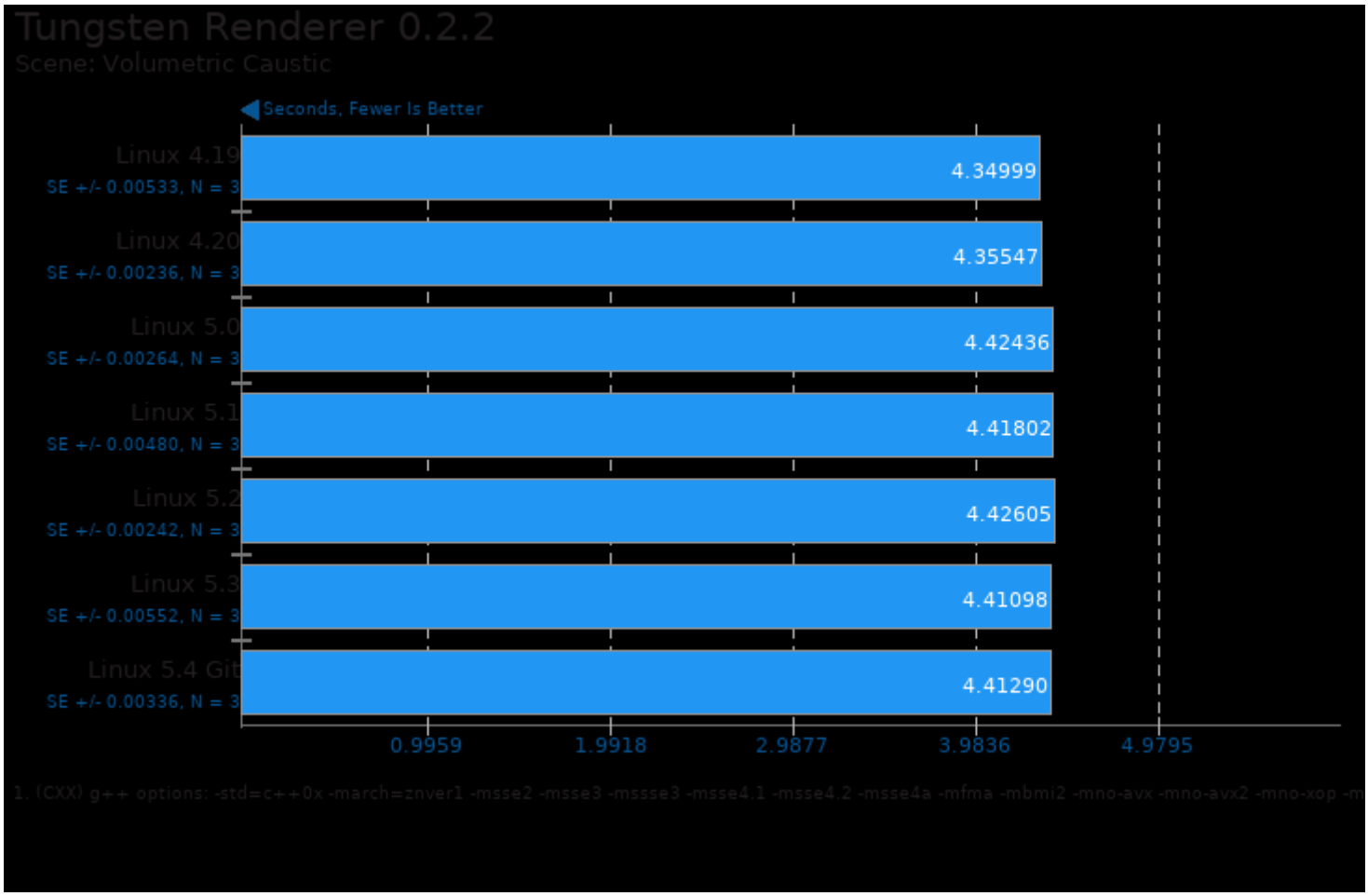
EPYC 7642 AMD Linux Kernel Comparison



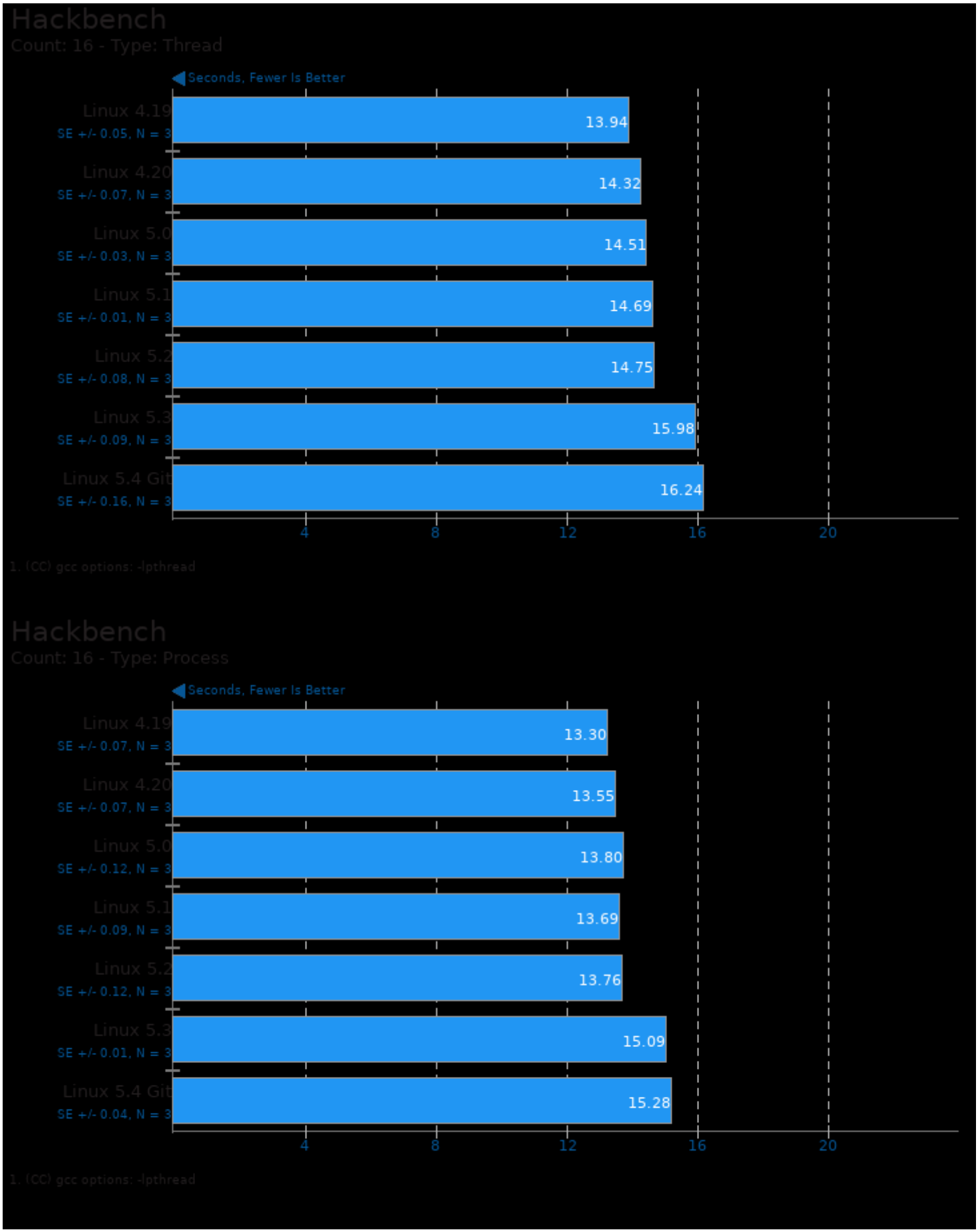
EPYC 7642 AMD Linux Kernel Comparison



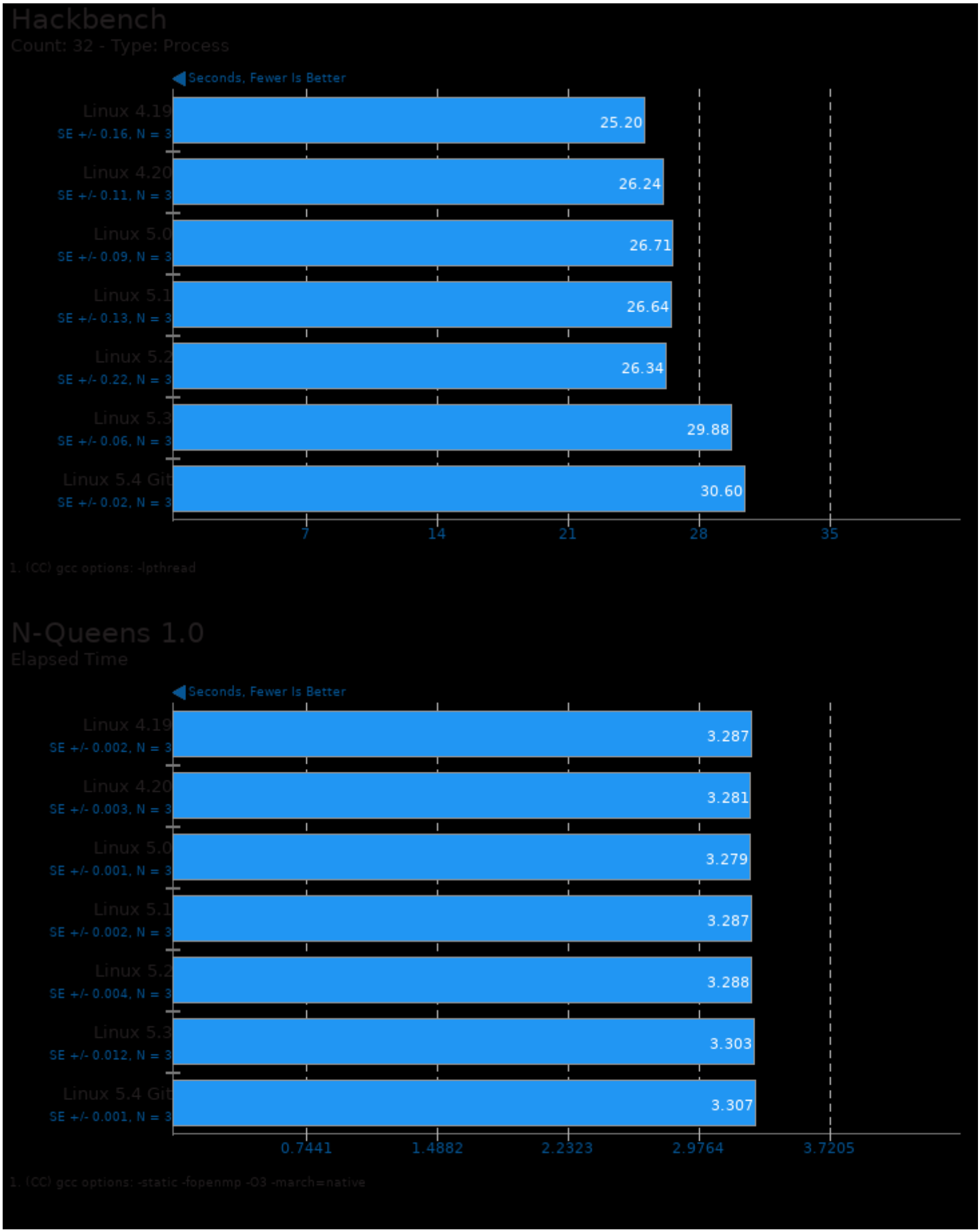
EPYC 7642 AMD Linux Kernel Comparison



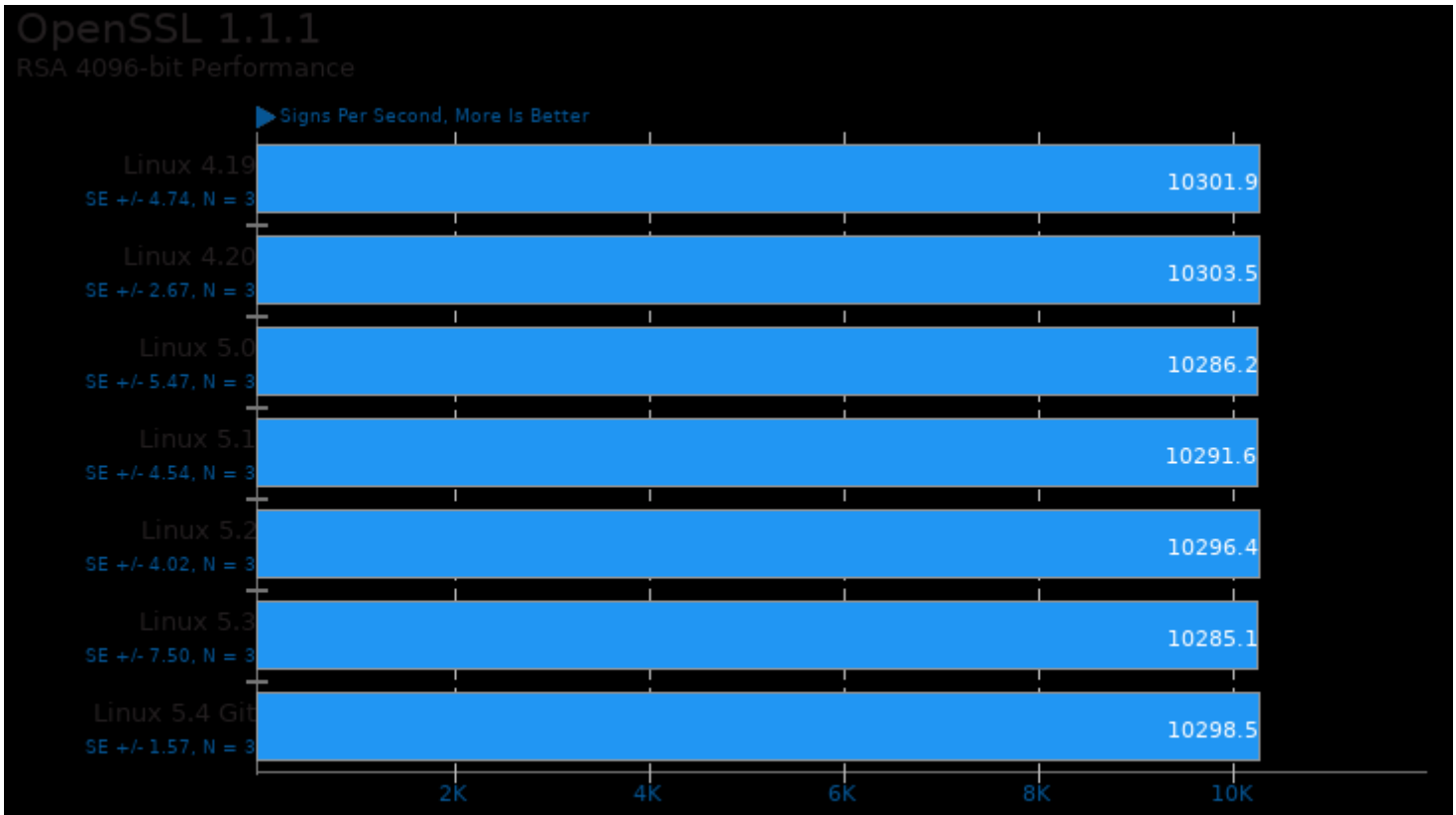
EPYC 7642 AMD Linux Kernel Comparison

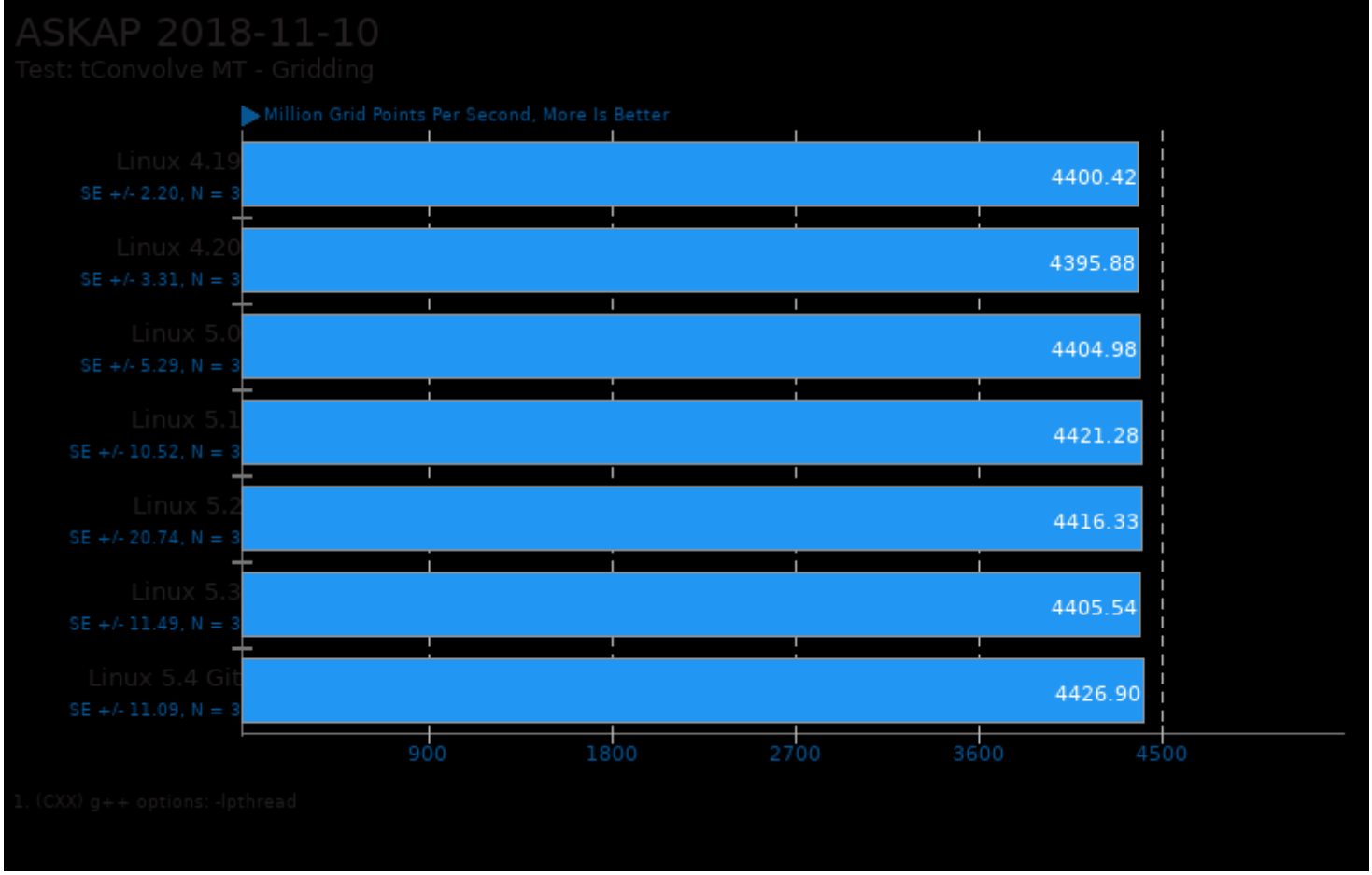


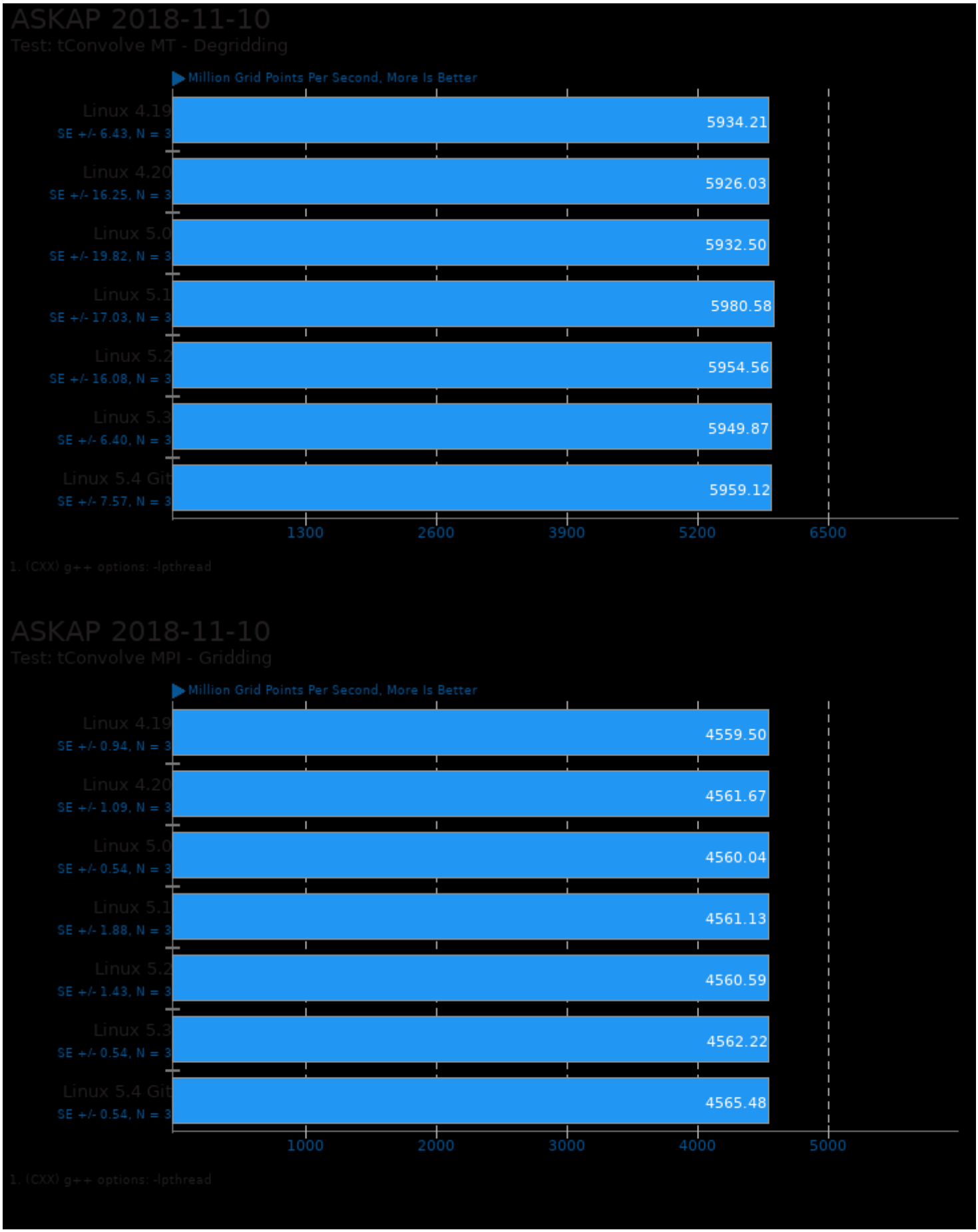
EPYC 7642 AMD Linux Kernel Comparison



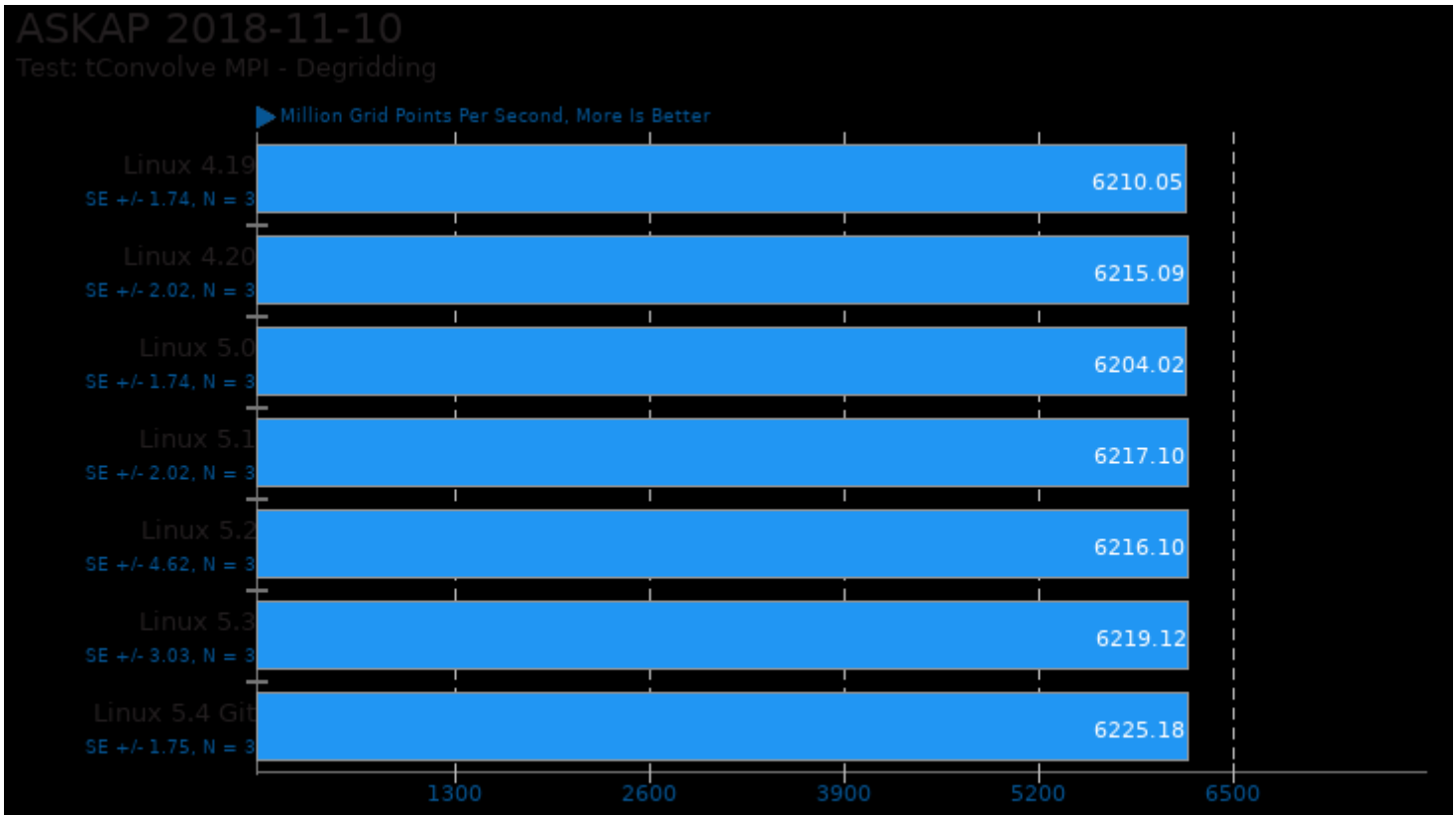
EPYC 7642 AMD Linux Kernel Comparison

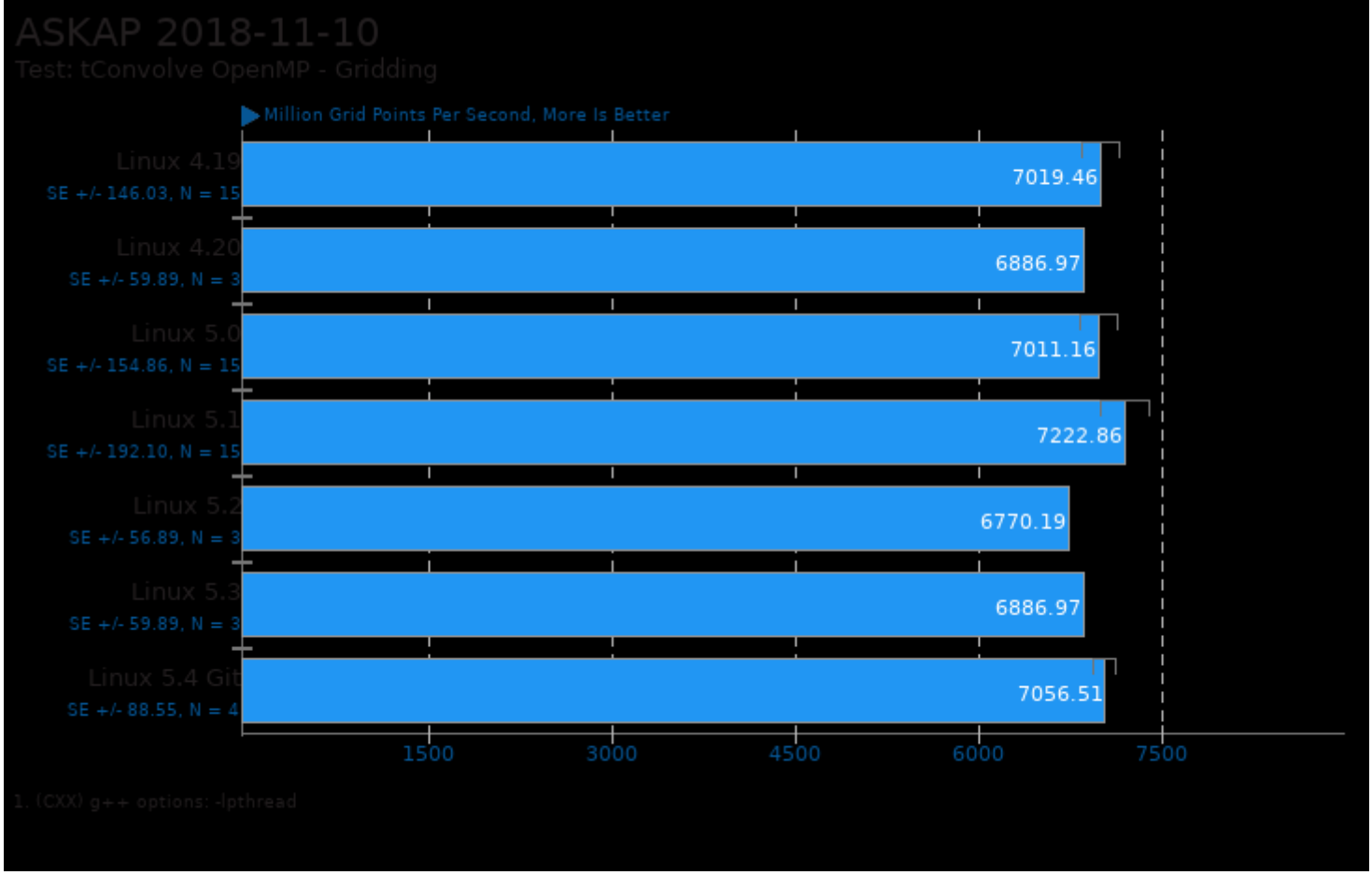




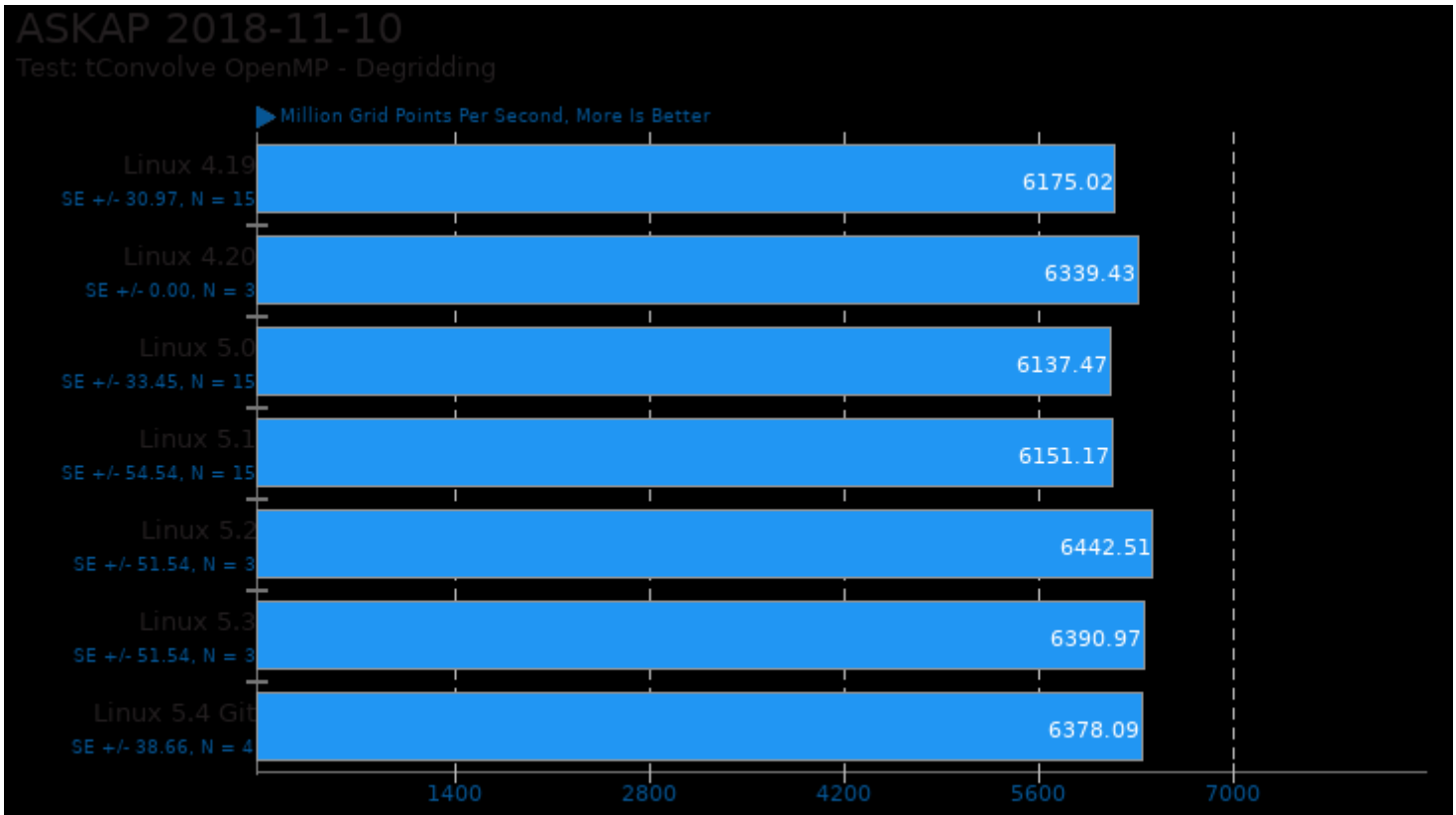

ASKAP 2018-11-10
Test: tConvolve MT - Degridding
Million Grid Points Per Second, More Is Better
Linux 4.19
SE +/- 6.43, N = 3
5934.21
Linux 4.20
SE +/- 16.25, N = 3
5926.03
Linux 5.0
SE +/- 19.82, N = 3
5932.50
Linux 5.1
SE +/- 17.03, N = 3
5980.58
Linux 5.2
SE +/- 16.08, N = 3
5954.56
Linux 5.3
SE +/- 6.40, N = 3
5949.87
Linux 5.4 Git
SE +/- 7.57, N = 3
5959.12
1300
2600
3900
5200
6500
1. (CXX) g++ options: -lpthread
ASKAP 2018-11-10
Test: tConvolve MPI - Gridding
Million Grid Points Per Second, More Is Better
Linux 4.19
SE +/- 0.94, N = 3
4559.50
Linux 4.20
SE +/- 1.09, N = 3
4561.67
Linux 5.0
SE +/- 0.54, N = 3
4560.04
Linux 5.1
SE +/- 1.88, N = 3
4561.13
Linux 5.2
SE +/- 1.43, N = 3
4560.59
Linux 5.3
SE +/- 0.54, N = 3
4562.22
Linux 5.4 Git
SE +/- 0.54, N = 3
4565.48
1000
2000
3000
4000
5000
1. (CXX) g++ options: -lpthread

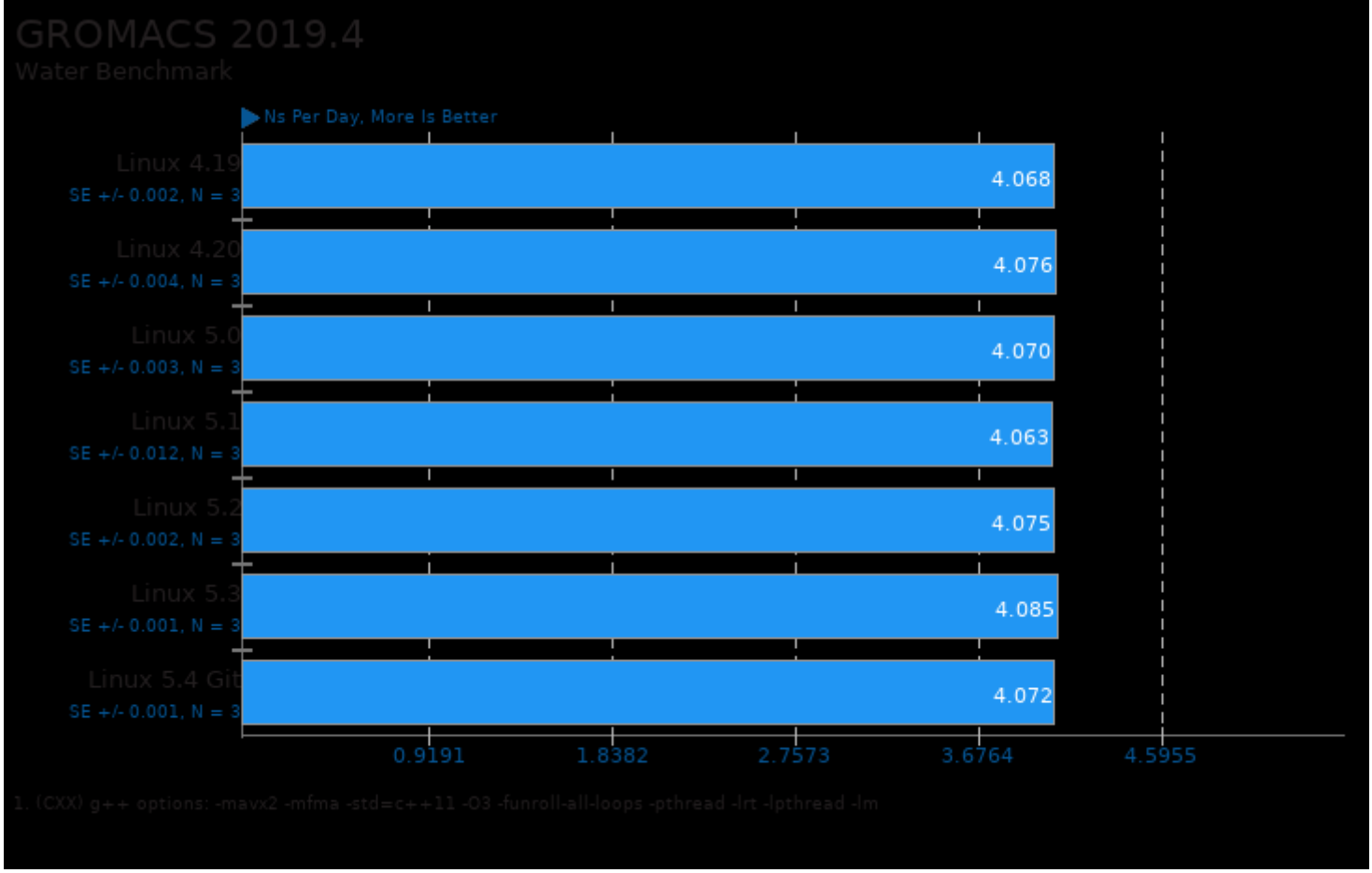
EPYC 7642 AMD Linux Kernel Comparison

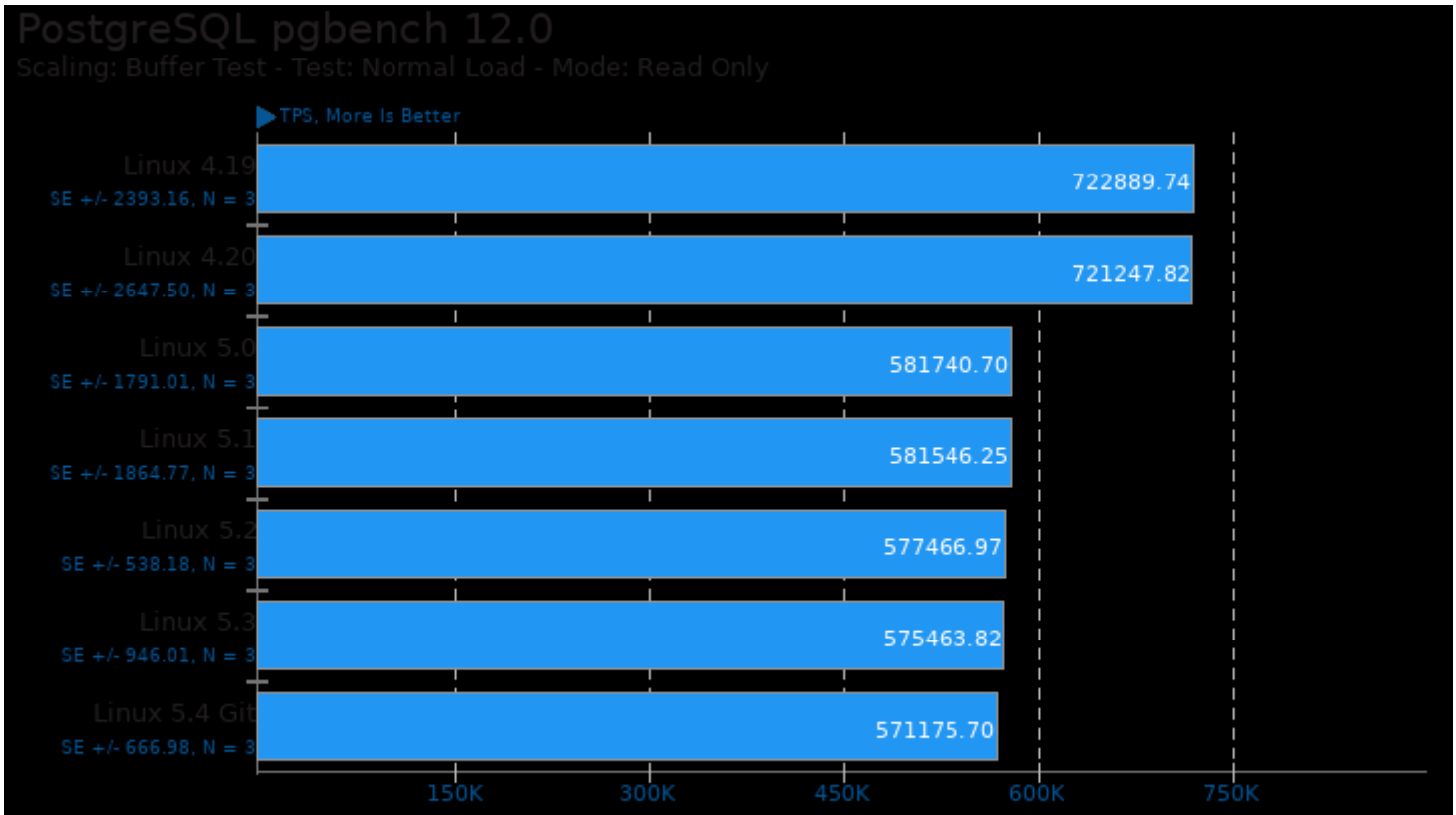


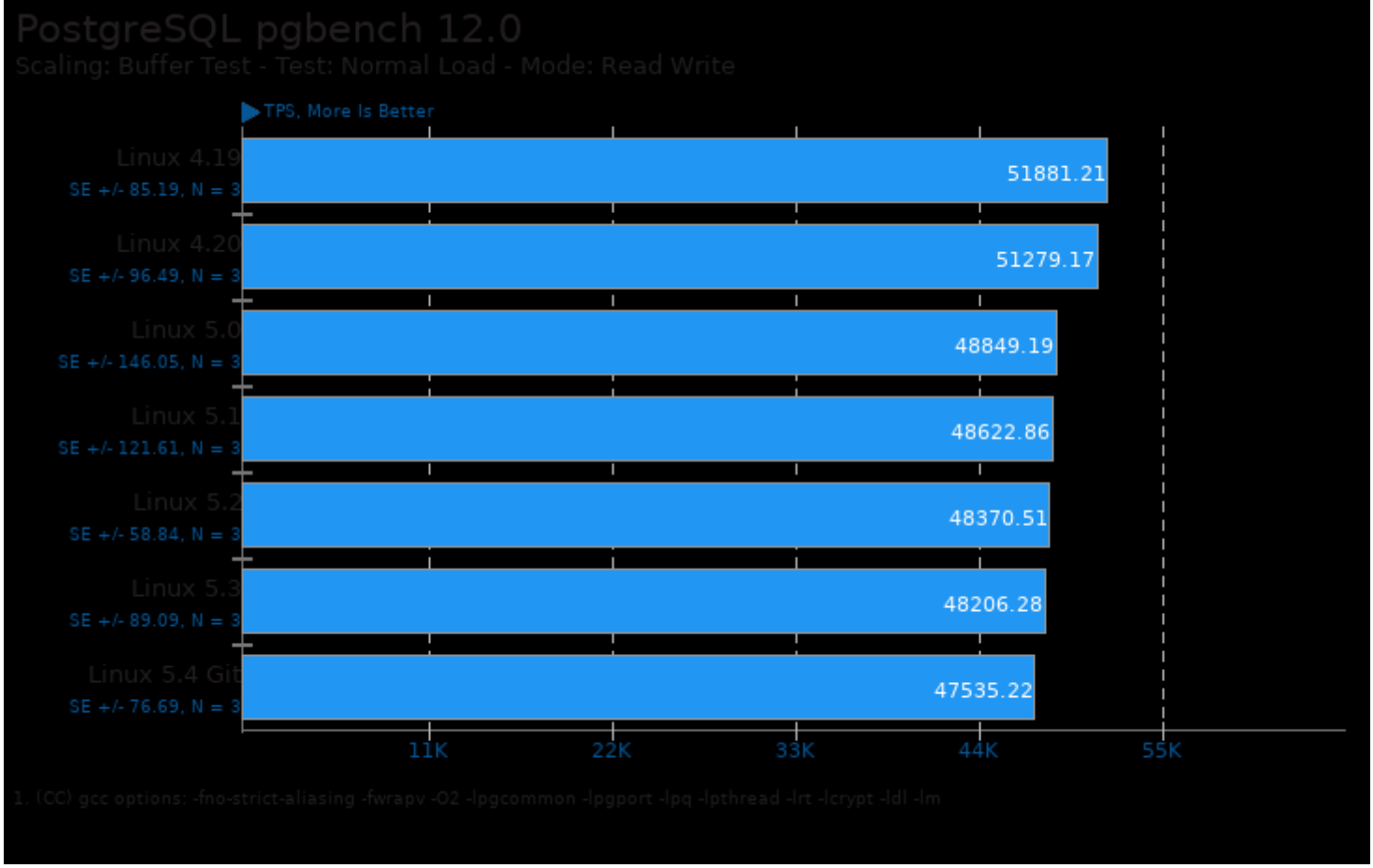


EPYC 7642 AMD Linux Kernel Comparison

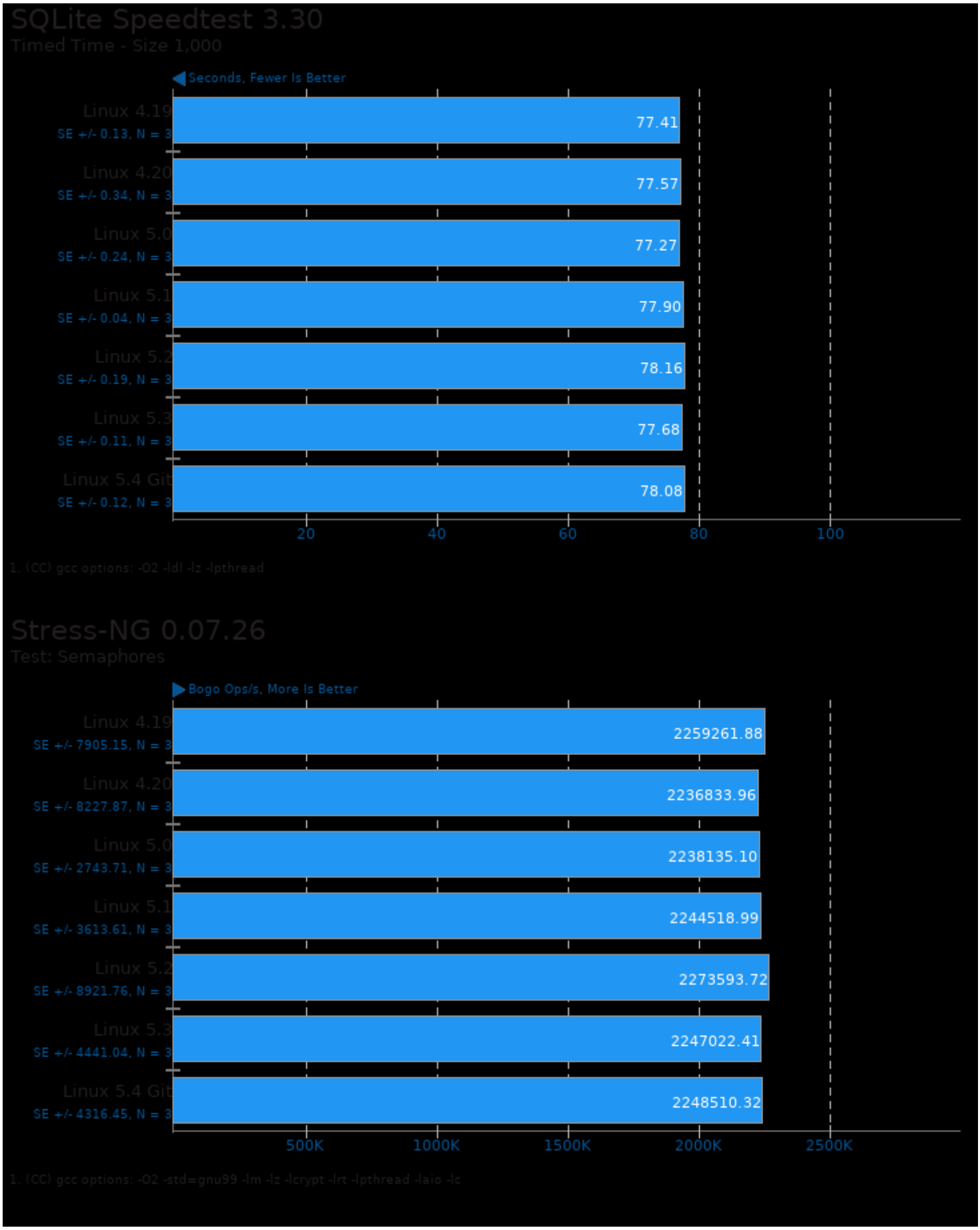




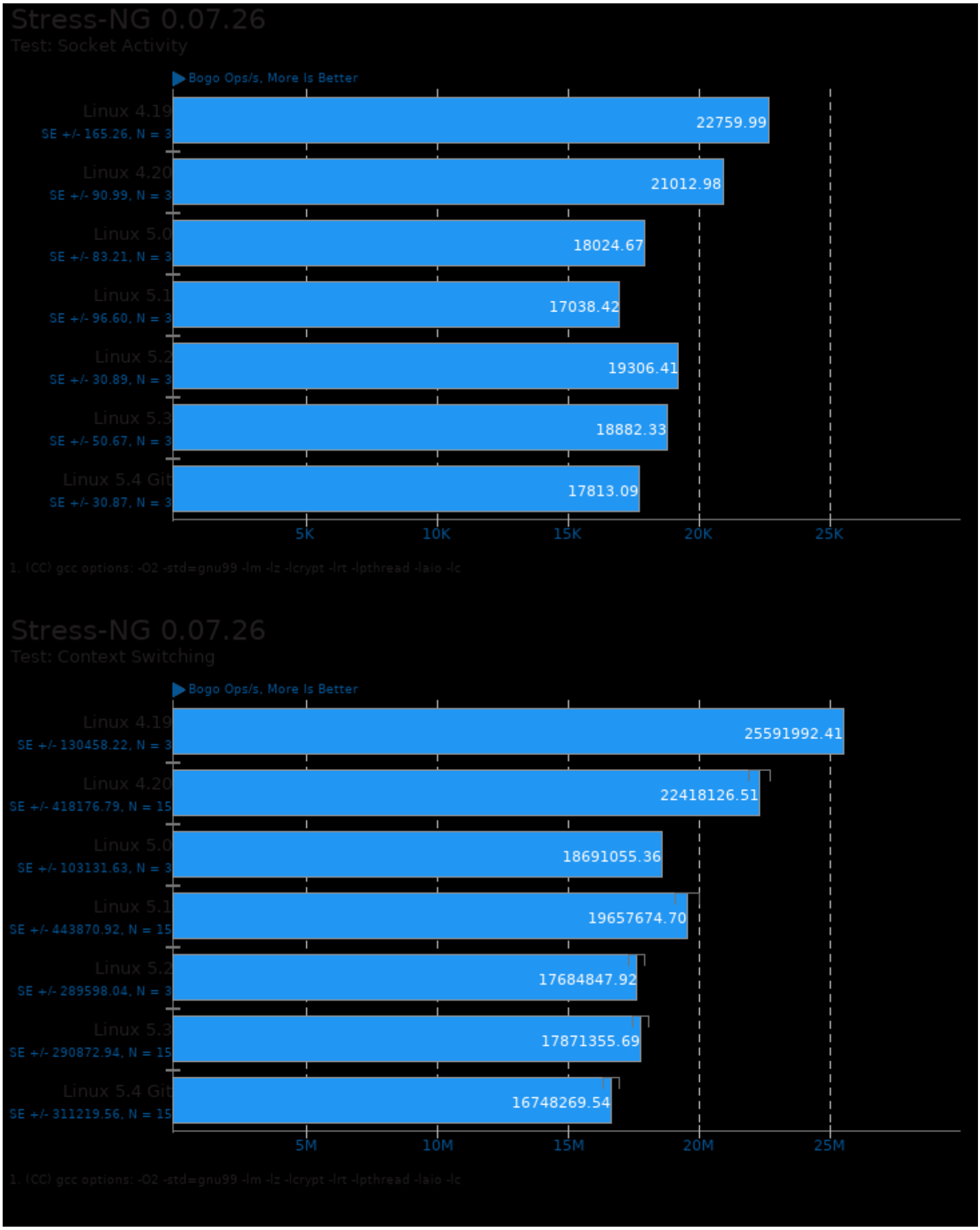

PostgreSQL pgbench 12.0
Scaling: Buffer Test - Test: Normal Load - Mode: Read Only
TPS, More Is Better
Linux 4.19
SE +/- 2393.16, N = 3
722889.74
Linux 4.20
SE +/- 2647.50, N = 3
721247.82
Linux 5.0
SE +/- 1791.01, N = 3
581740.70
Linux 5.1
SE +/- 1864.77, N = 3
581546.25
Linux 5.2
SE +/- 538.18, N = 3
577466.97
Linux 5.3
SE +/- 946.01, N = 3
575463.82
Linux 5.4 Git
SE +/- 666.98, N = 3
571175.70
150K
300K
450K
600K
750K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -lcrypt -ldl -lm


PostgreSQL pgbench 12.0
Scaling: Buffer Test - Test: Normal Load - Mode: Read Write
TPS, More Is Better
Linux 4.19
SE +/- 85.19, N = 3
51881.21
Linux 4.20
SE +/- 96.49, N = 3
51279.17
Linux 5.0
SE +/- 146.05, N = 3
48849.19
Linux 5.1
SE +/- 121.61, N = 3
48622.86
Linux 5.2
SE +/- 58.84, N = 3
48370.51
Linux 5.3
SE +/- 89.09, N = 3
48206.28
Linux 5.4 Git
SE +/- 76.69, N = 3
47535.22
11K
22K
33K
44K
55K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lpthread -lrt -lcrypt -ldl -lm

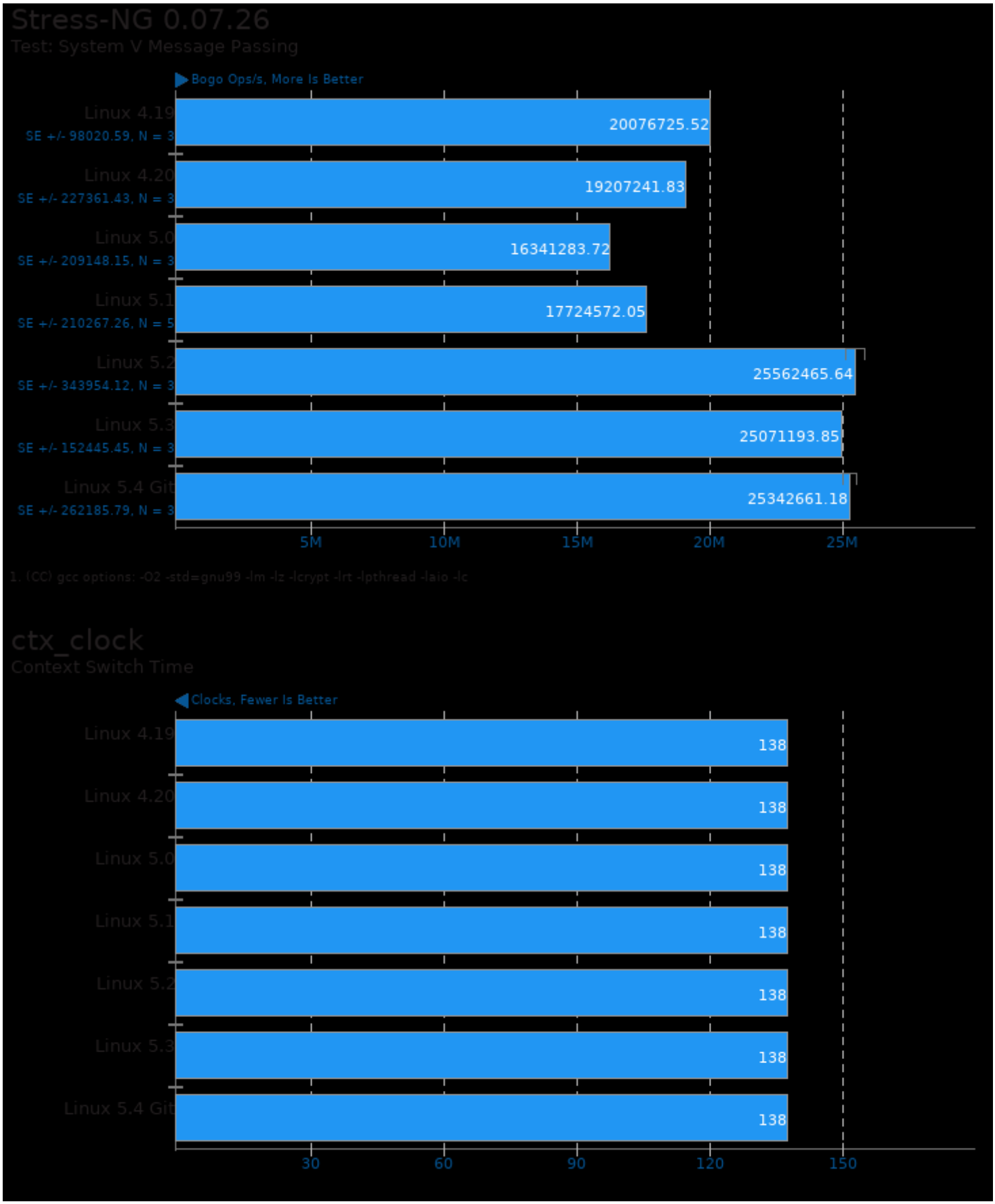
EPYC 7642 AMD Linux Kernel Comparison



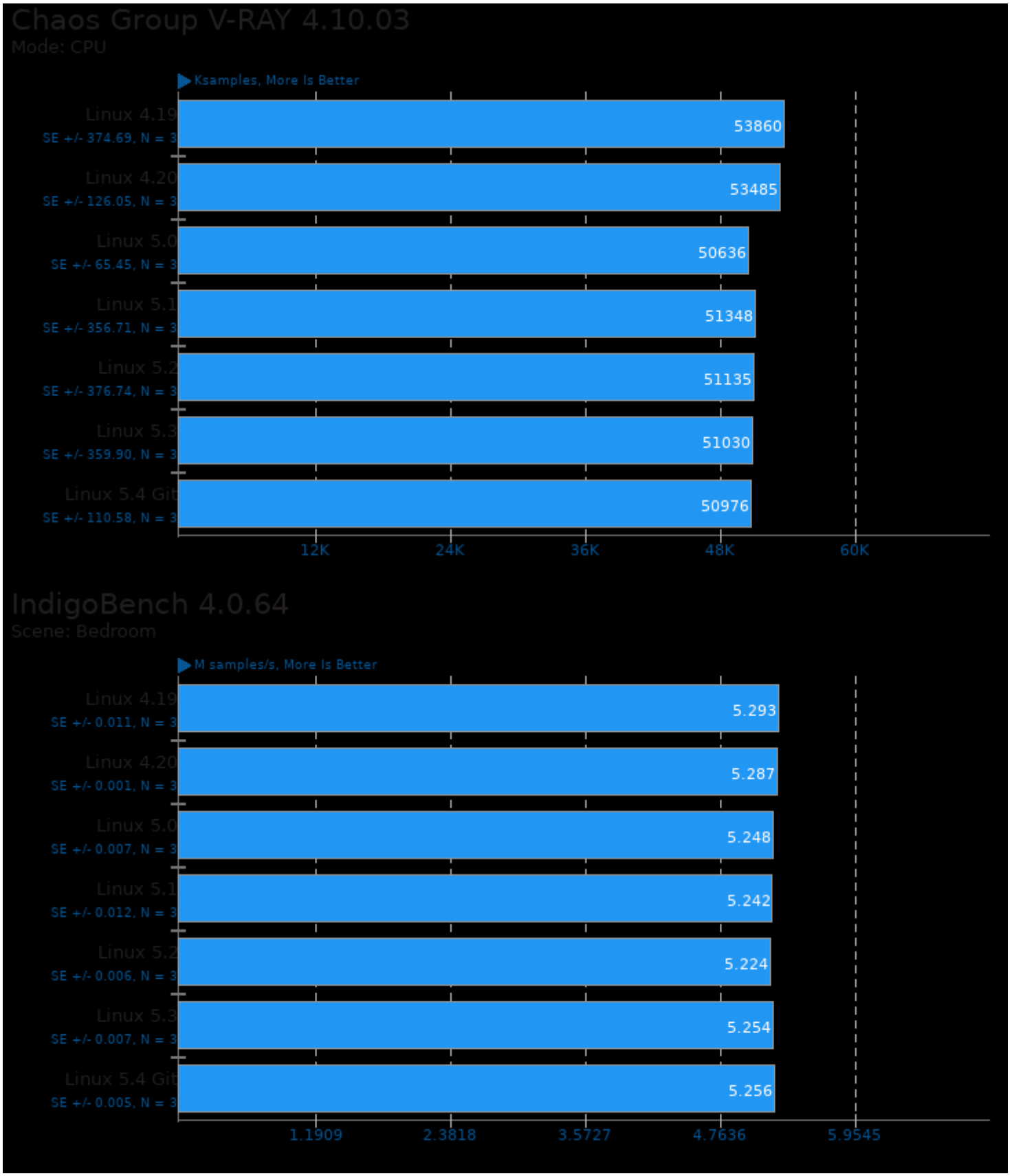
EPYC 7642 AMD Linux Kernel Comparison



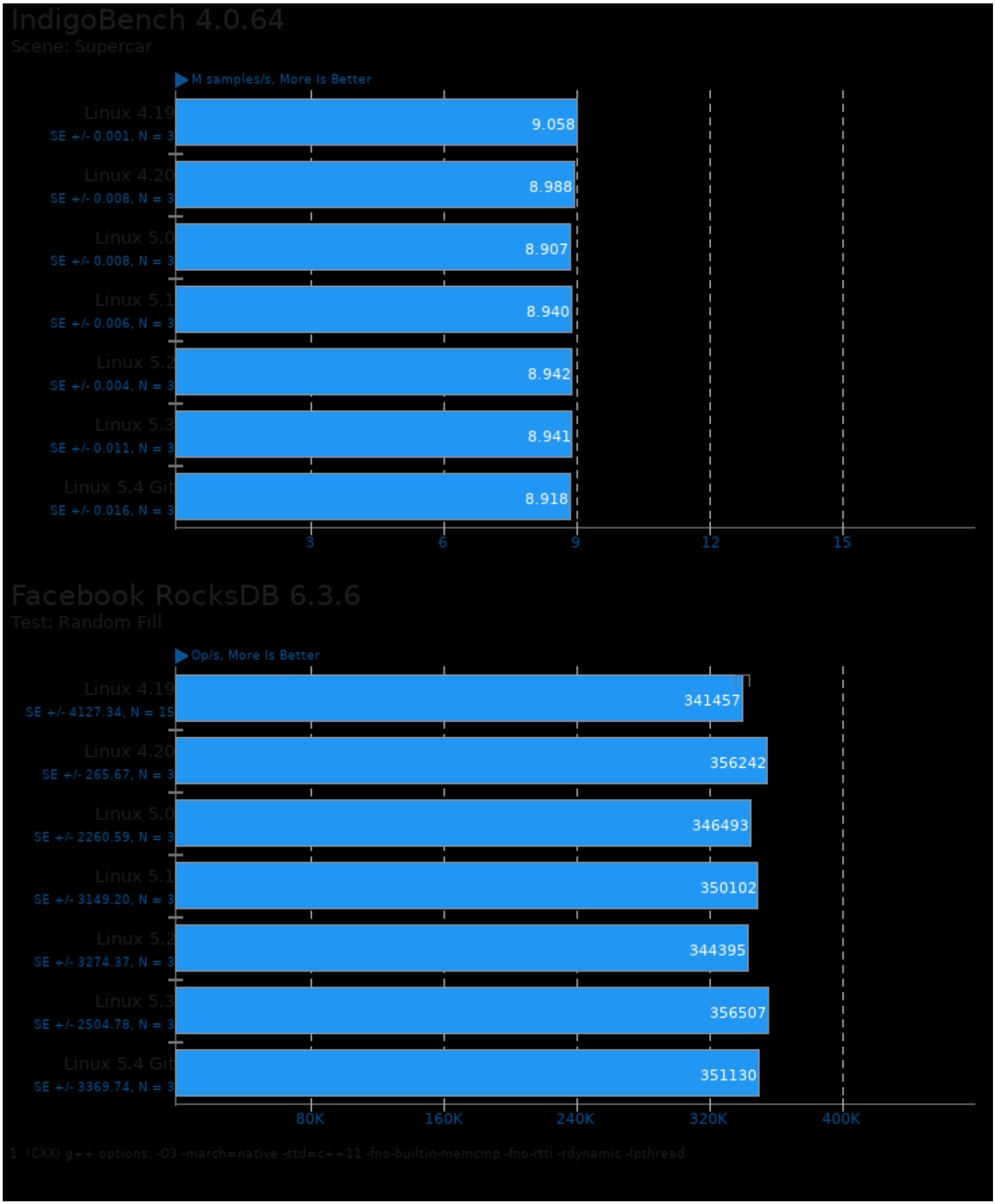
EPYC 7642 AMD Linux Kernel Comparison



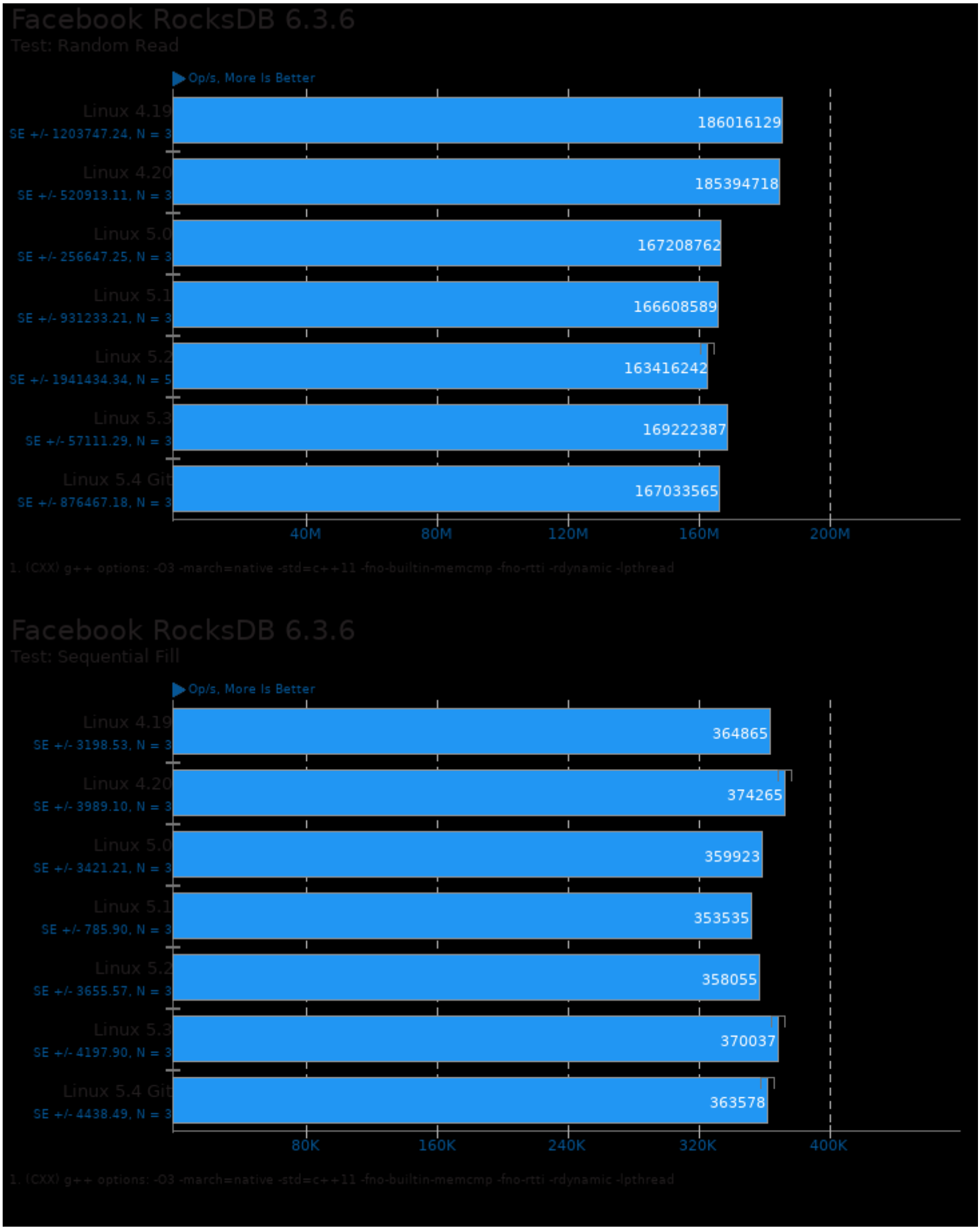
EPYC 7642 AMD Linux Kernel Comparison

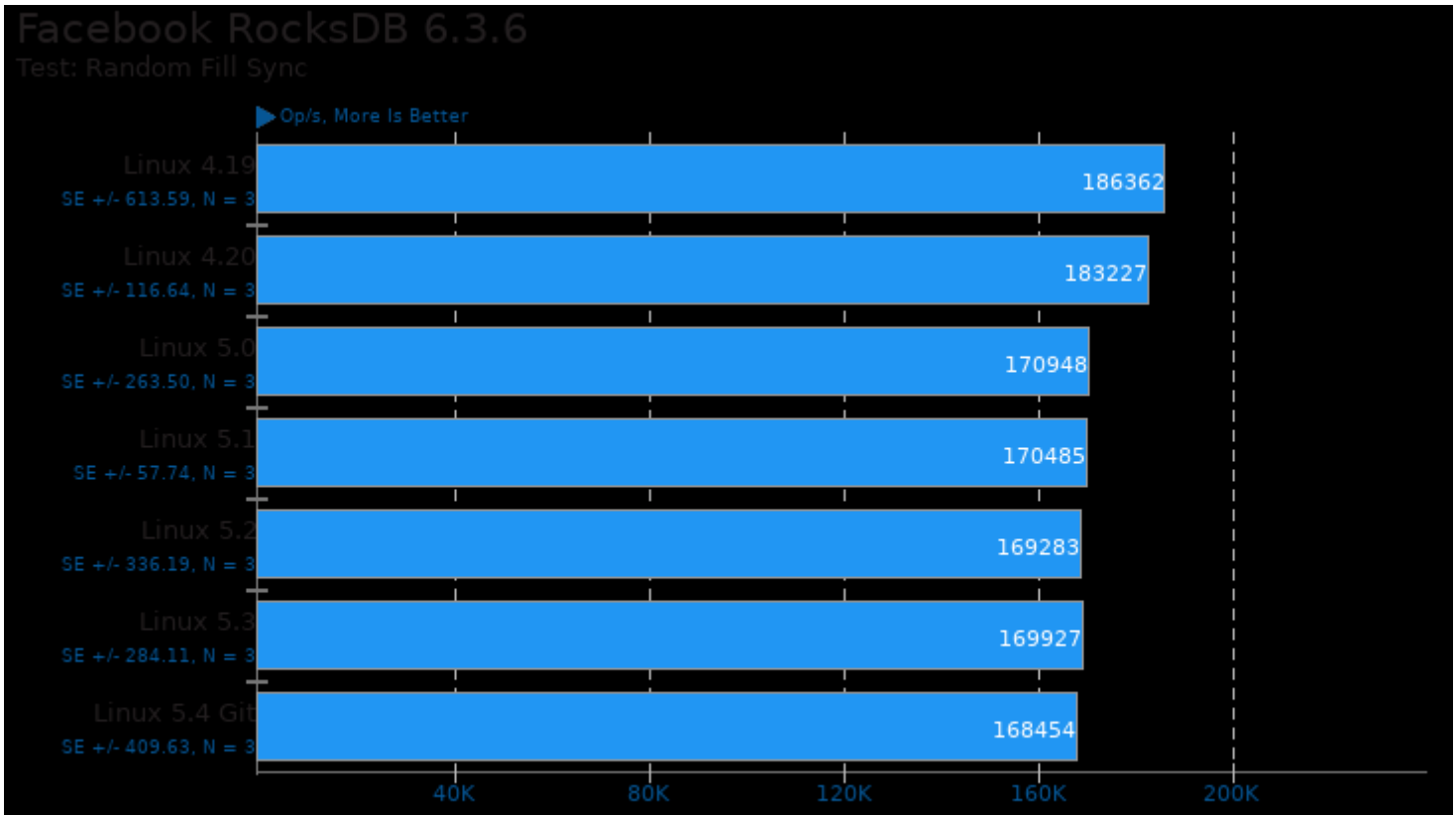


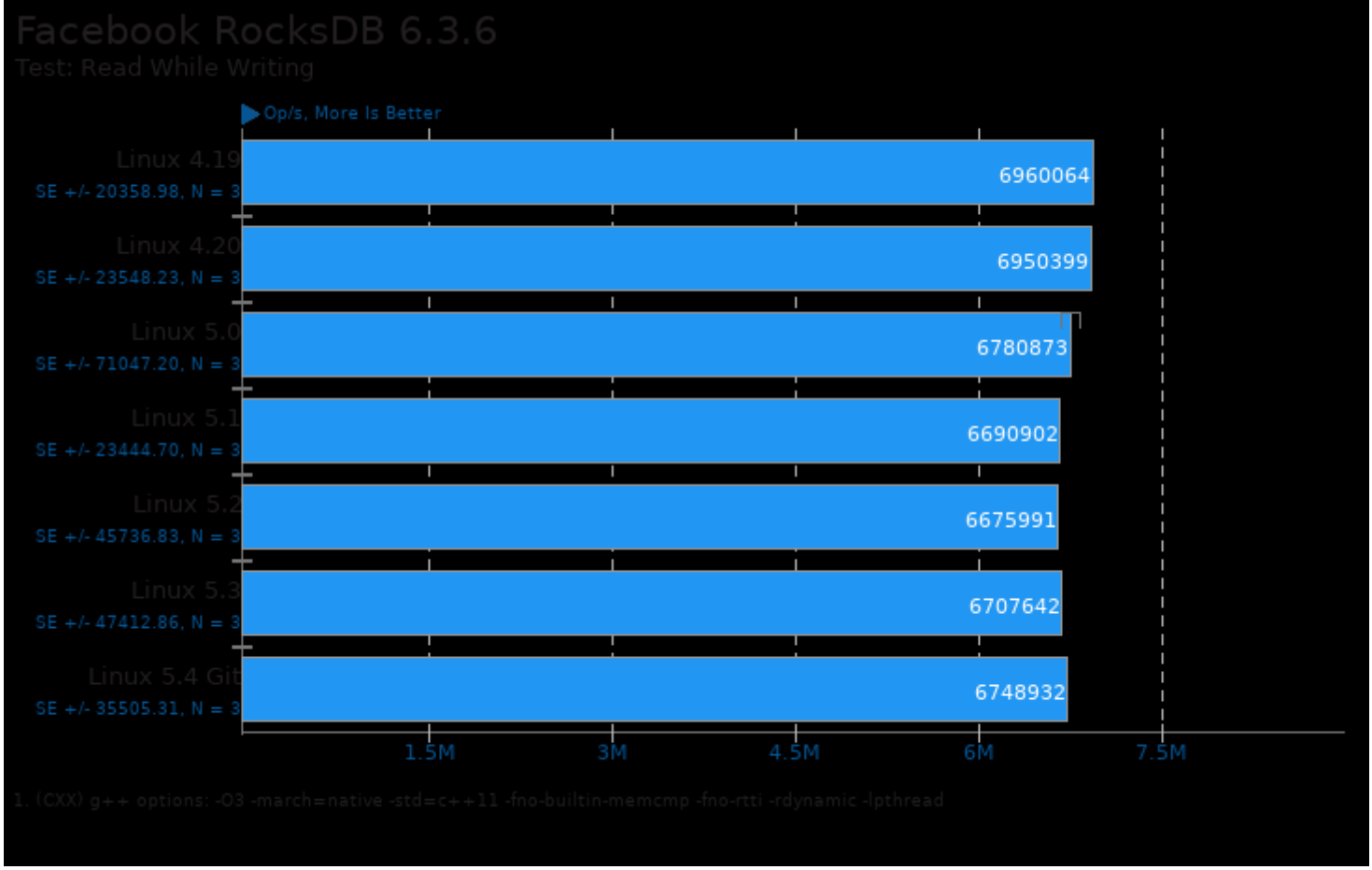
EPYC 7642 AMD Linux Kernel Comparison



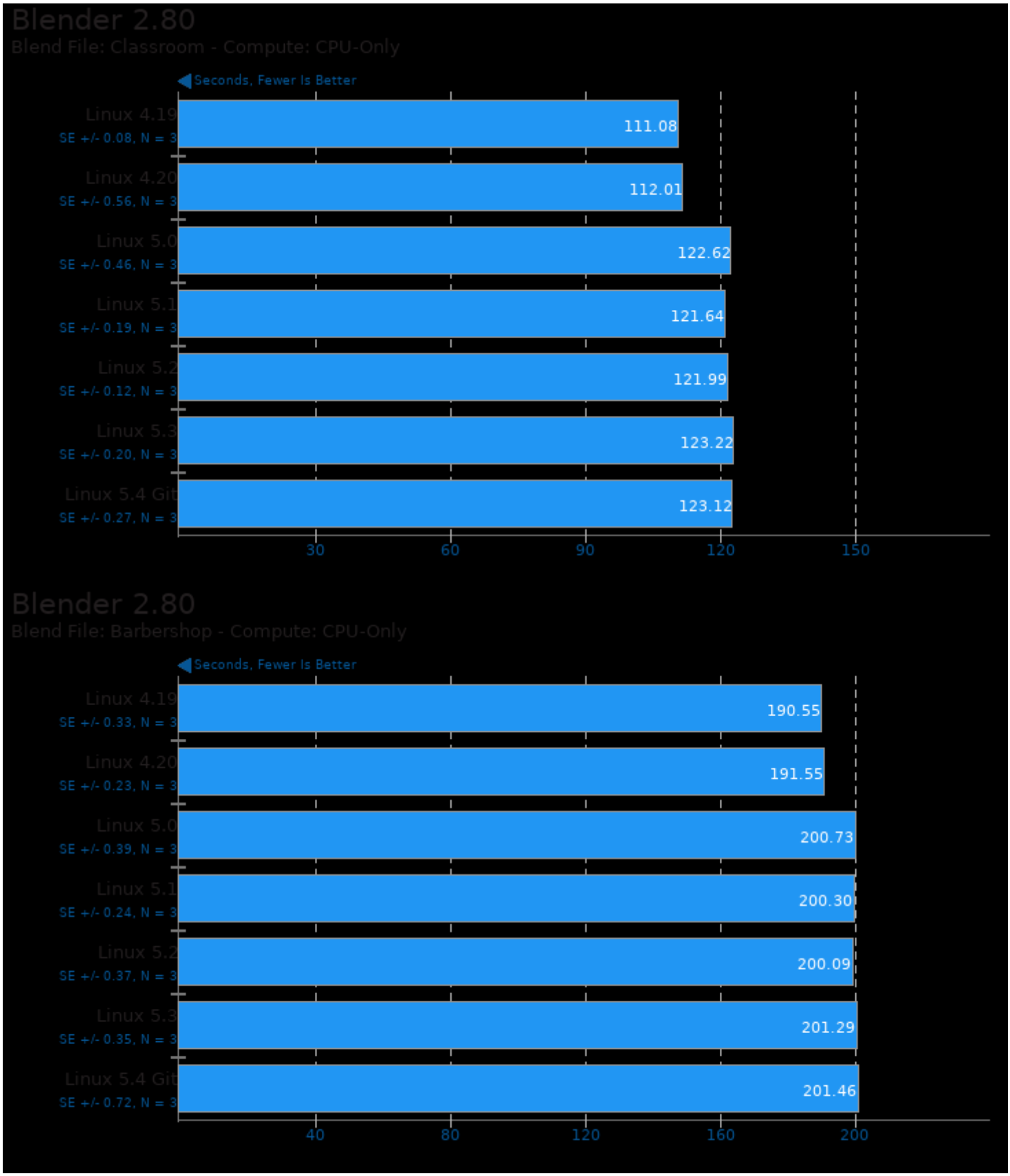
EPYC 7642 AMD Linux Kernel Comparison



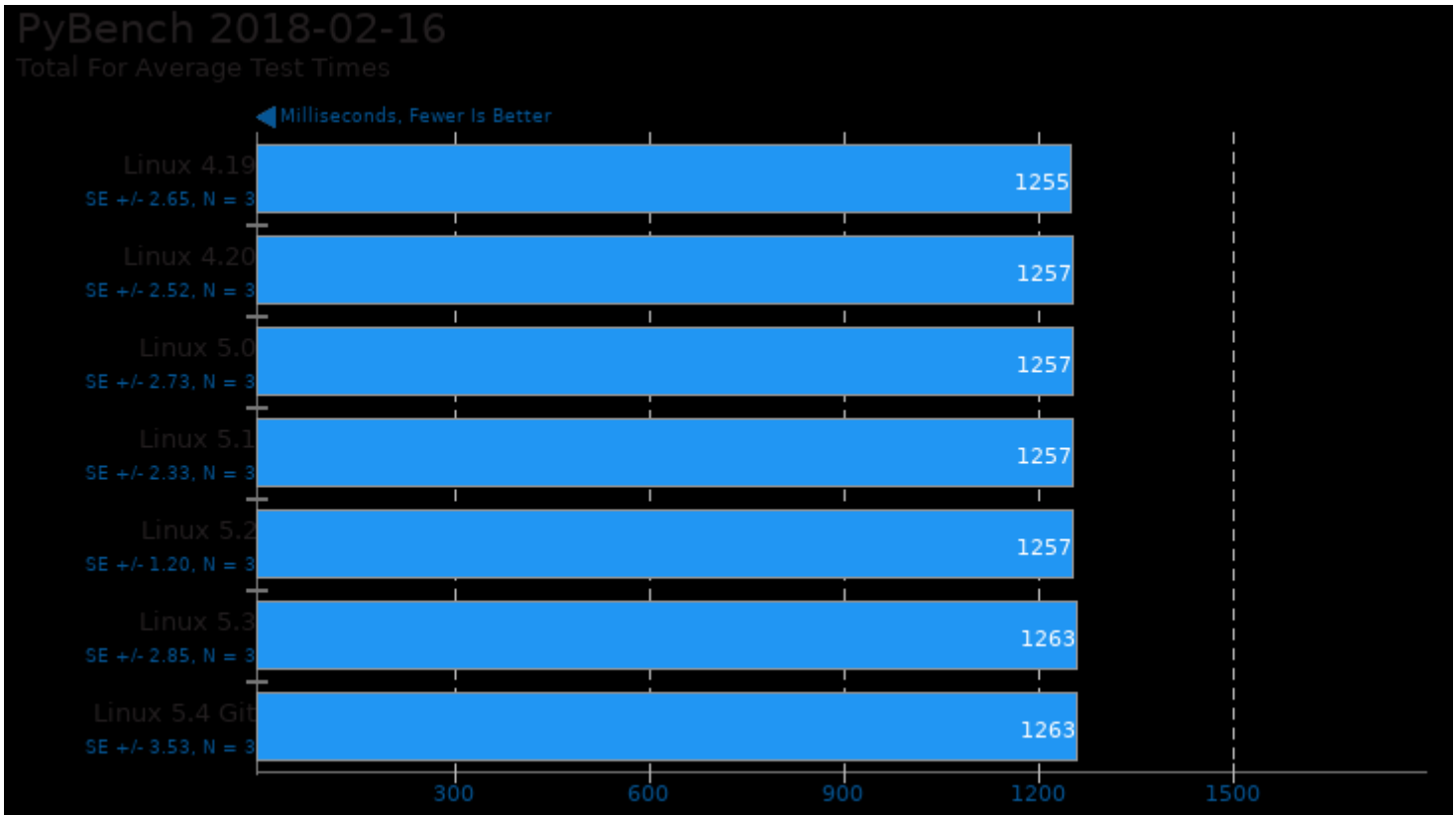

Facebook RocksDB 6.3.6
Test: Random Fill Sync
Op/s, More Is Better
Linux 4.19
SE +/- 613.59, N = 3
186362
Linux 4.20
SE +/- 116.64, N = 3
183227
Linux 5.0
SE +/- 263.50, N = 3
170948
Linux 5.1
SE +/- 57.74, N = 3
170485
Linux 5.2
SE +/- 336.19, N = 3
169283
Linux 5.3
SE +/- 284.11, N = 3
169927
Linux 5.4 Git
SE +/- 409.63, N = 3
168454
40K
80K
120K
160K
200K
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-builtin-memcmp -fno-rtti -rdynamic -lpthread

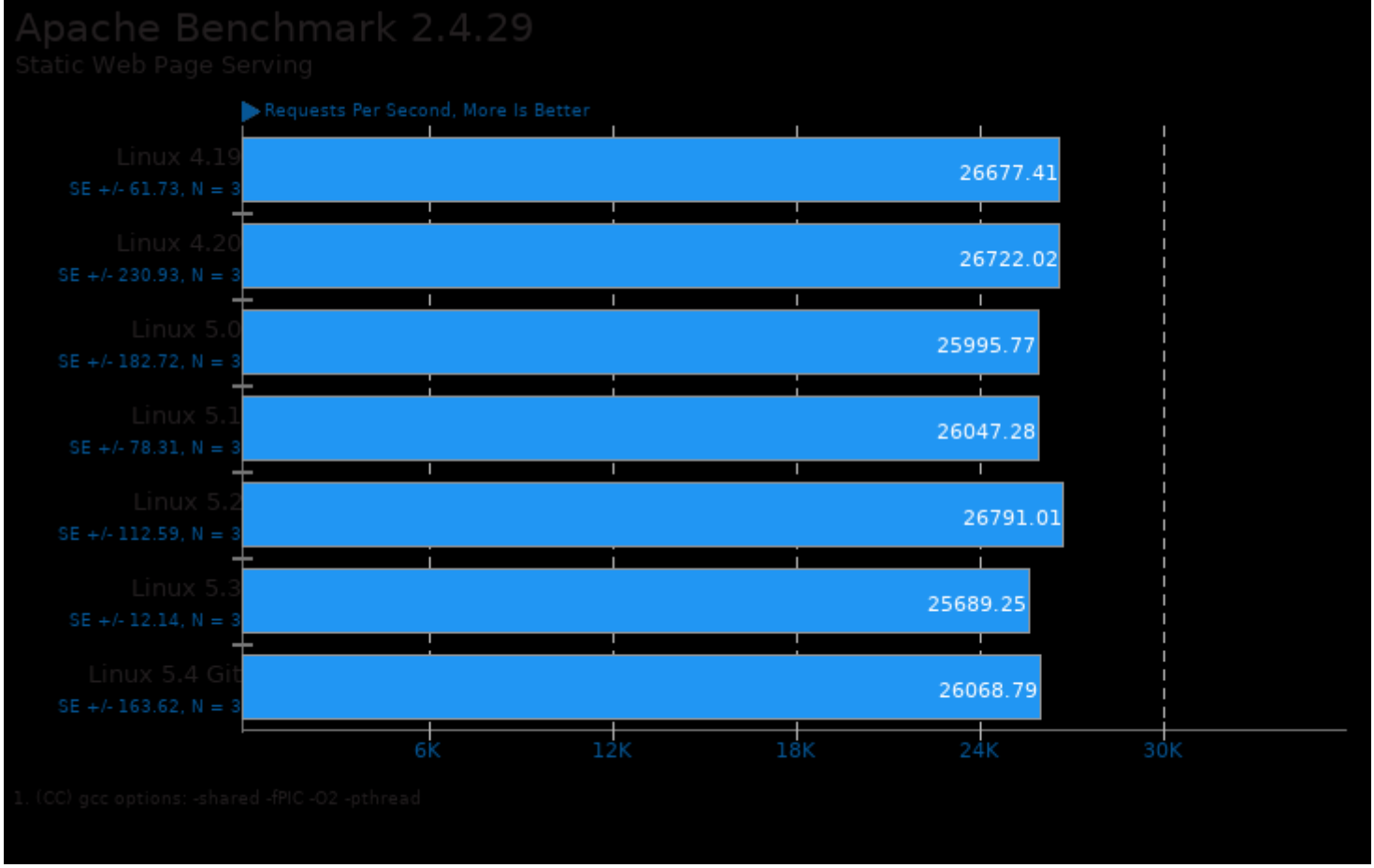

Facebook RocksDB 6.3.6
Test: Read While Writing
Op/s, More Is Better
Linux 4.19
SE +/- 20358.98, N = 3
6960064
Linux 4.20
SE +/- 23548.23, N = 3
6950399
Linux 5.0
SE +/- 71047.20, N = 3
6780873
Linux 5.1
SE +/- 23444.70, N = 3
6690902
Linux 5.2
SE +/- 45736.83, N = 3
6675991
Linux 5.3
SE +/- 47412.86, N = 3
6707642
Linux 5.4 Git
SE +/- 35505.31, N = 3
6748932
1.5M
3M
4.5M
6M
7.5M
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-builtin-memcmp -fno-rtti -rdynamic -lpthread

EPYC 7642 AMD Linux Kernel Comparison

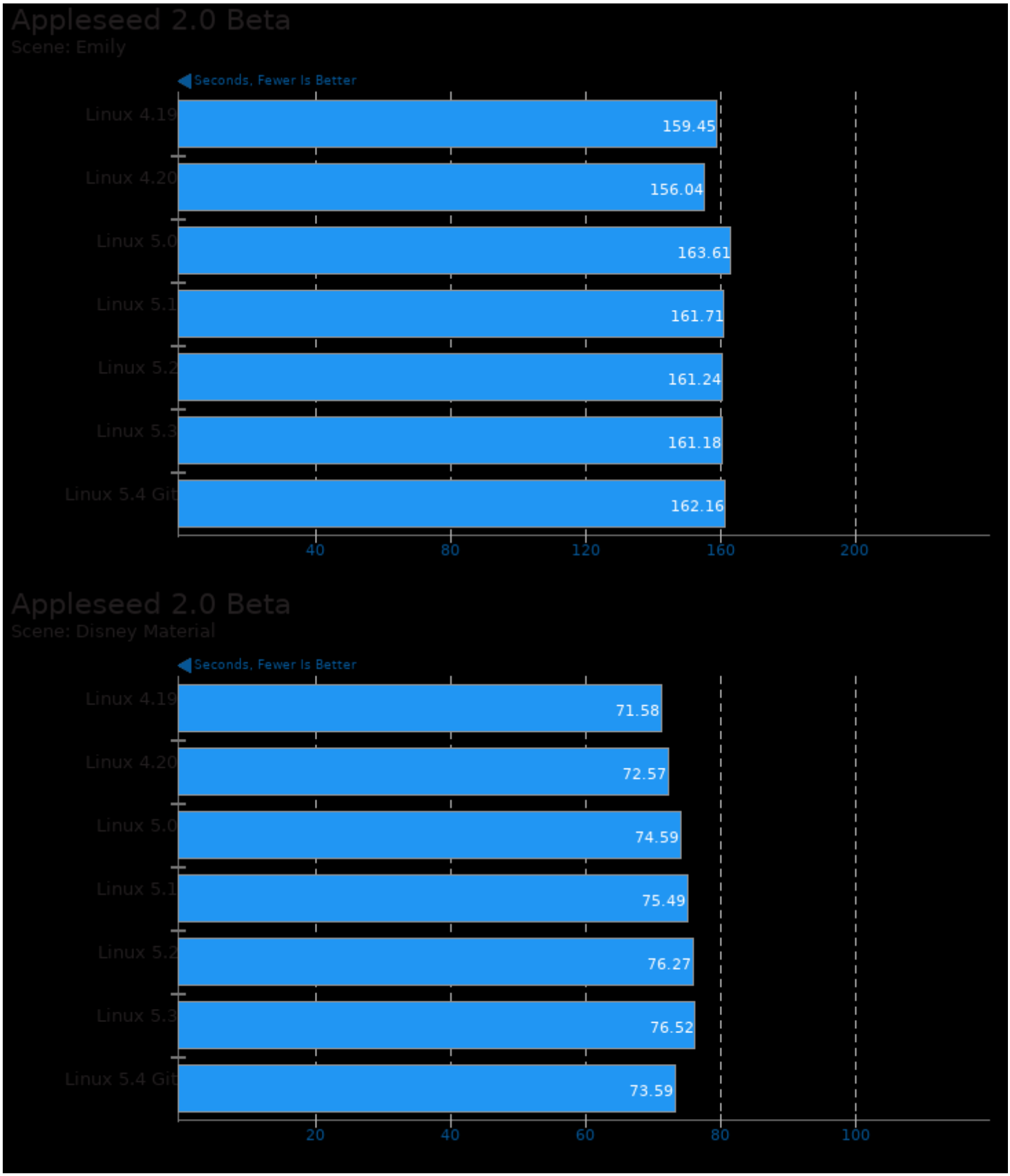


EPYC 7642 AMD Linux Kernel Comparison

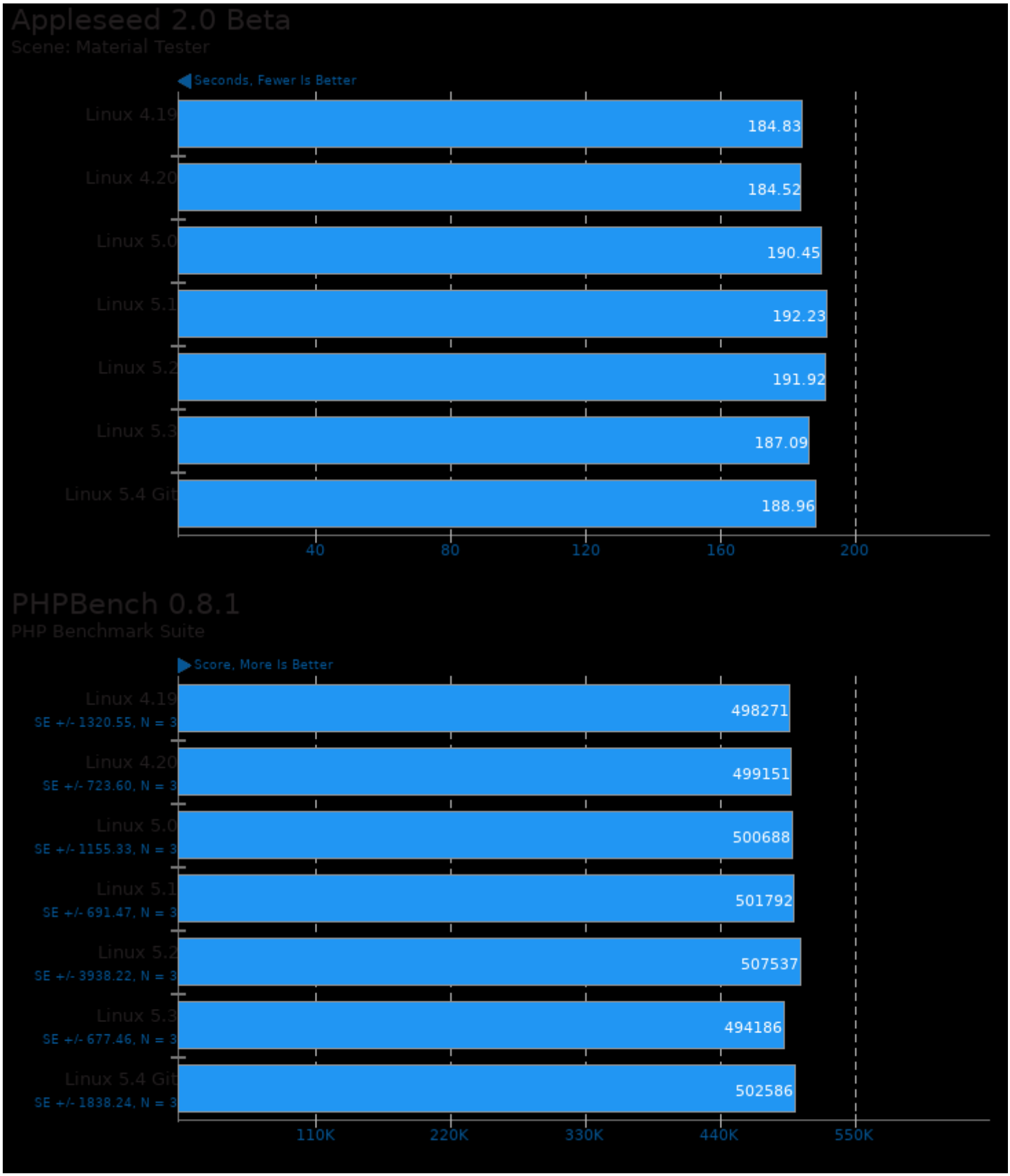


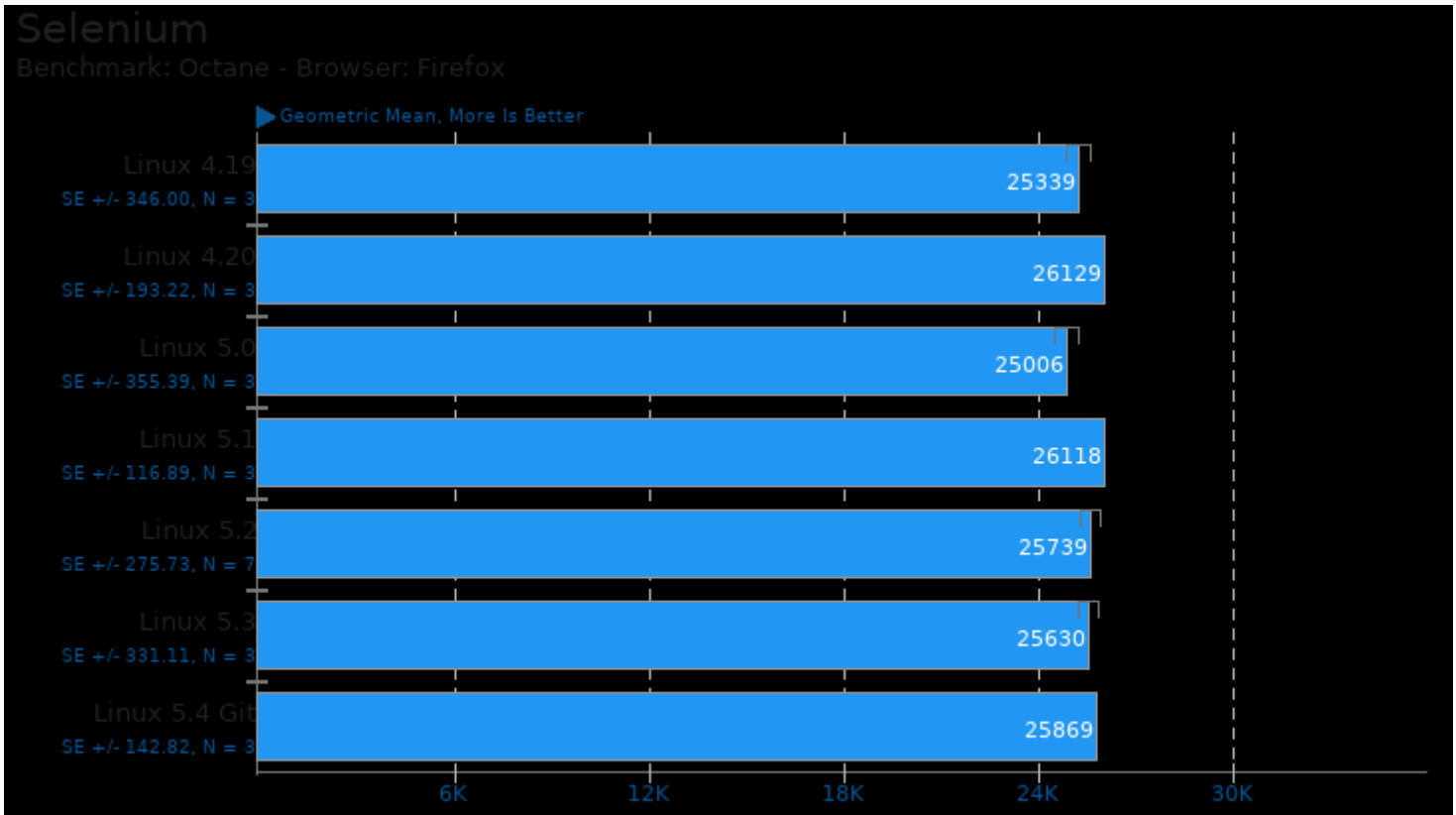


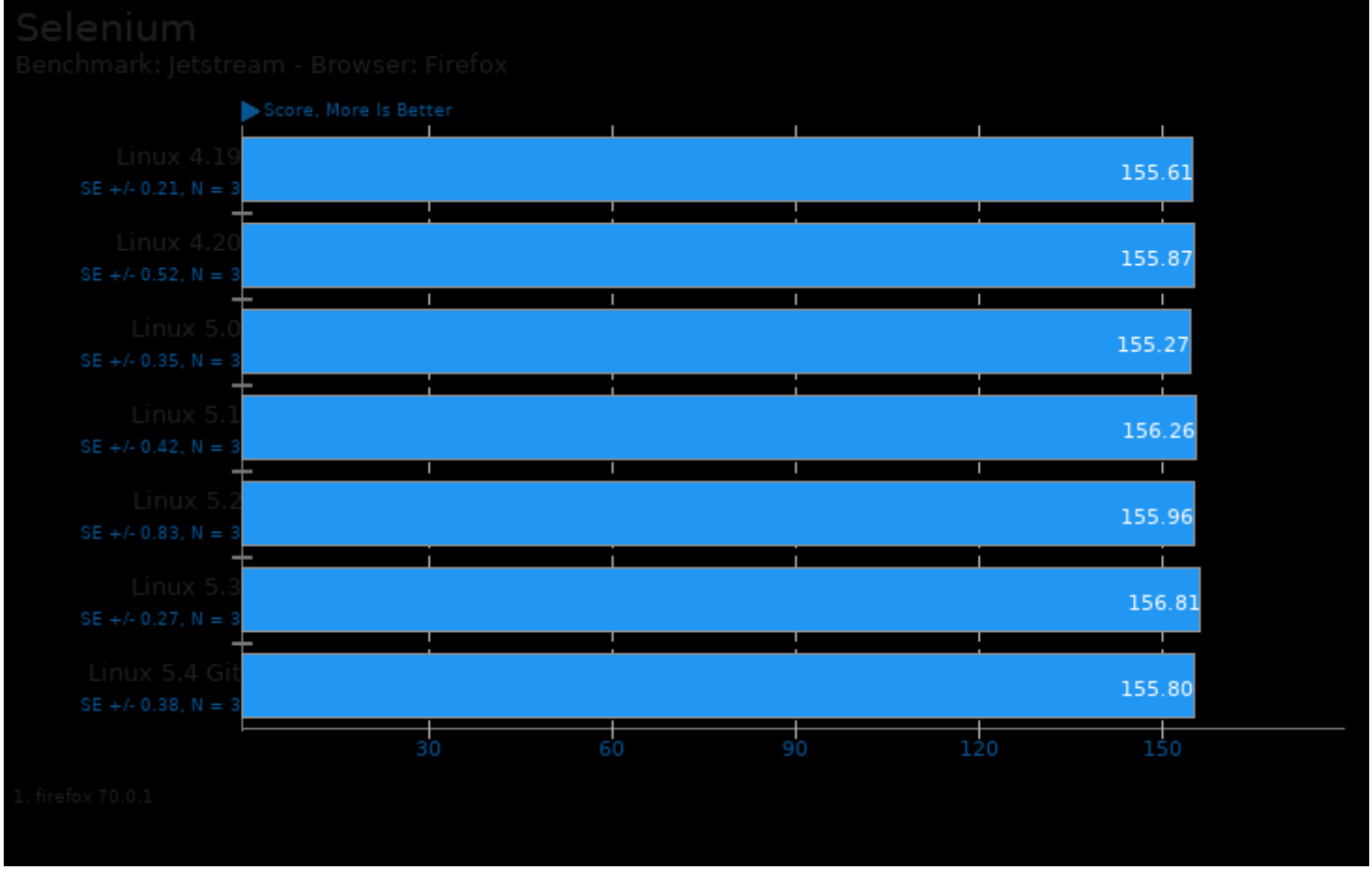
EPYC 7642 AMD Linux Kernel Comparison



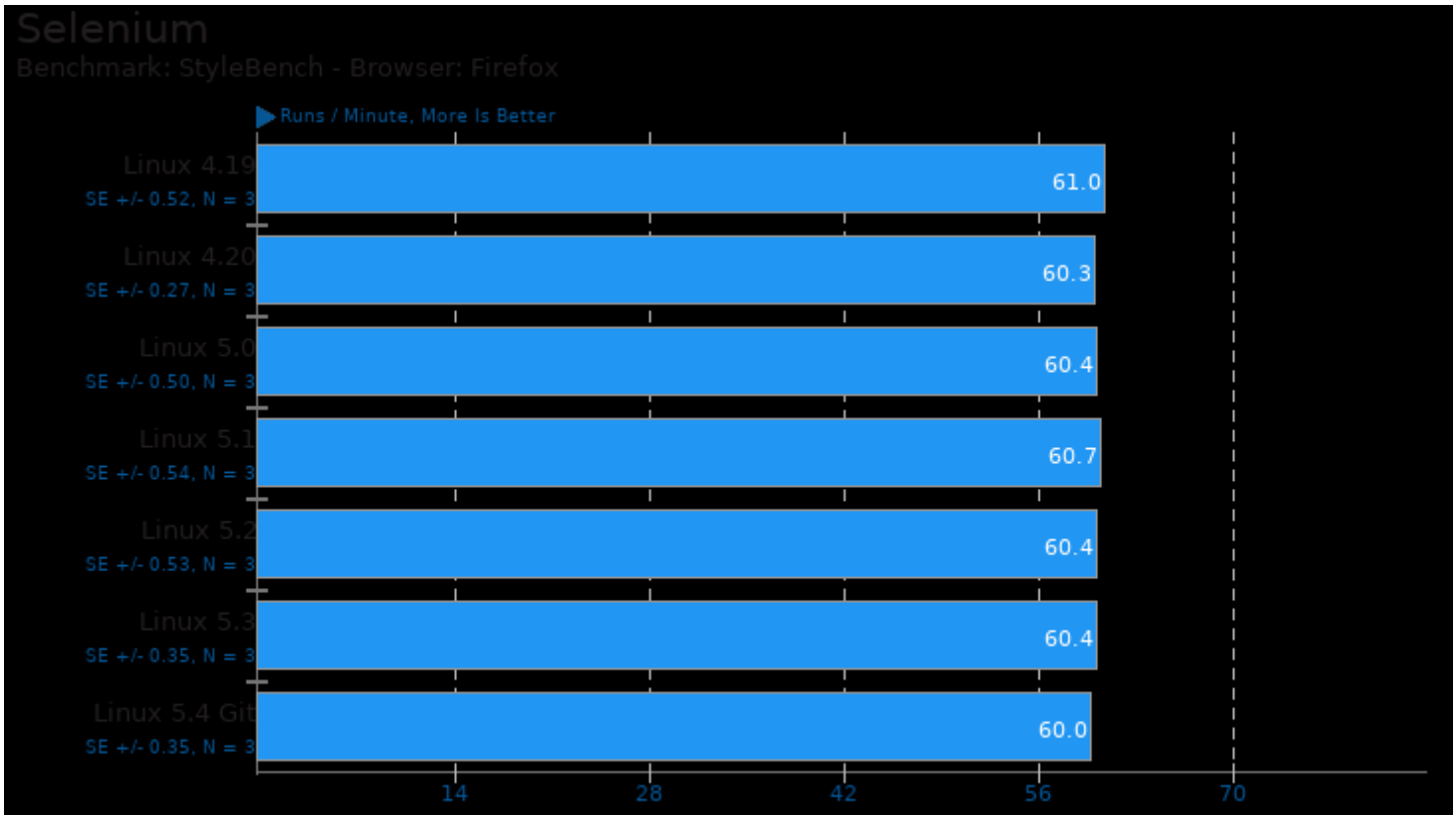
EPYC 7642 AMD Linux Kernel Comparison

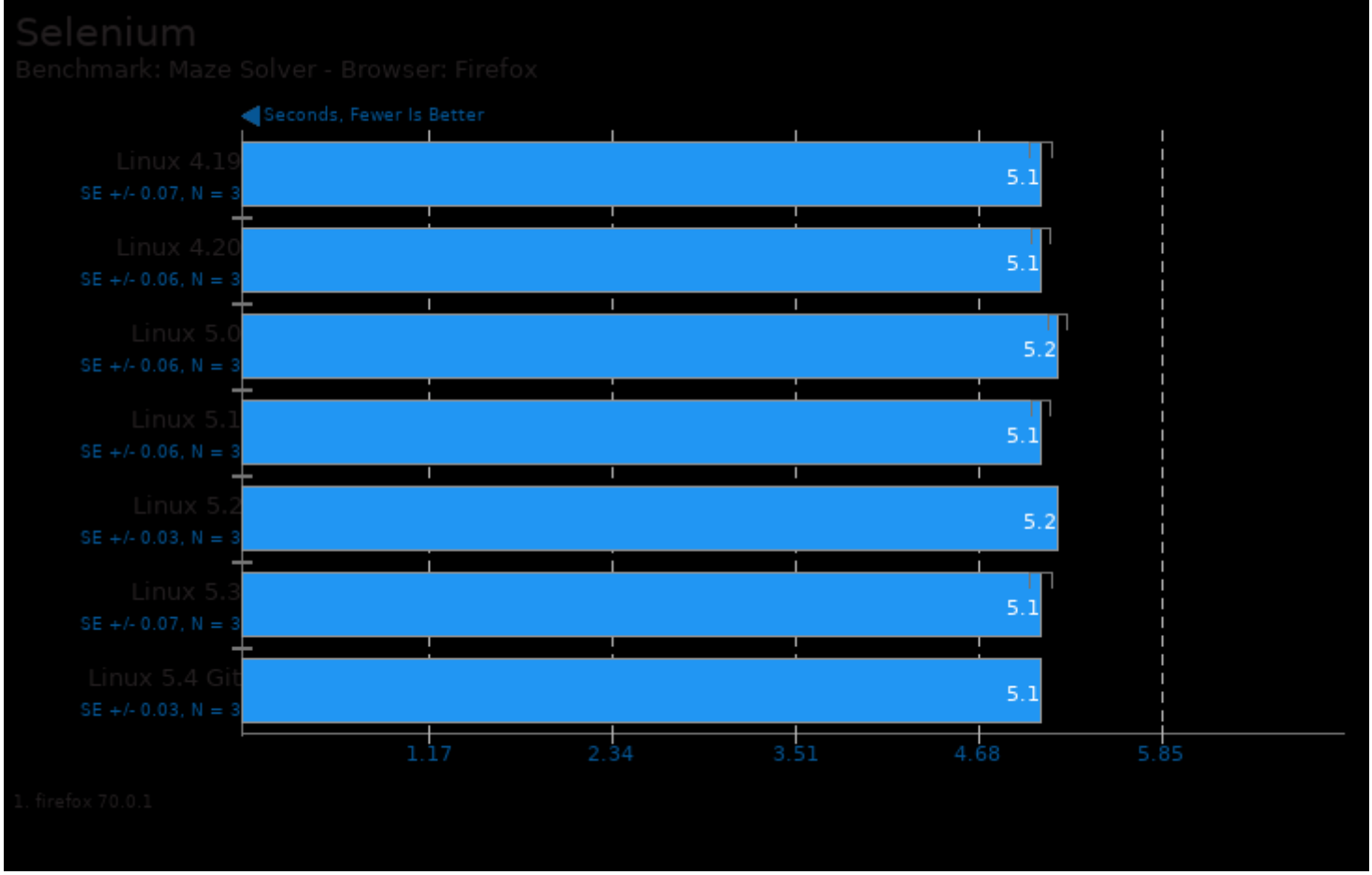



Selenium
Benchmark: Octane - Browser: Firefox
Geometric Mean, More Is Better
Linux 4.19
SE +/- 346.00, N = 3
25339
Linux 4.20
SE +/- 193.22, N = 3
26129
Linux 5.0
SE +/- 355.39, N = 3
25006
Linux 5.1
SE +/- 116.89, N = 3
26118
Linux 5.2
SE +/- 275.73, N = 7
25739
Linux 5.3
SE +/- 331.11, N = 3
25630
Linux 5.4 Git
SE +/- 142.82, N = 3
25869
6K
12K
18K
24K
30K
1. firefox 70.0.1

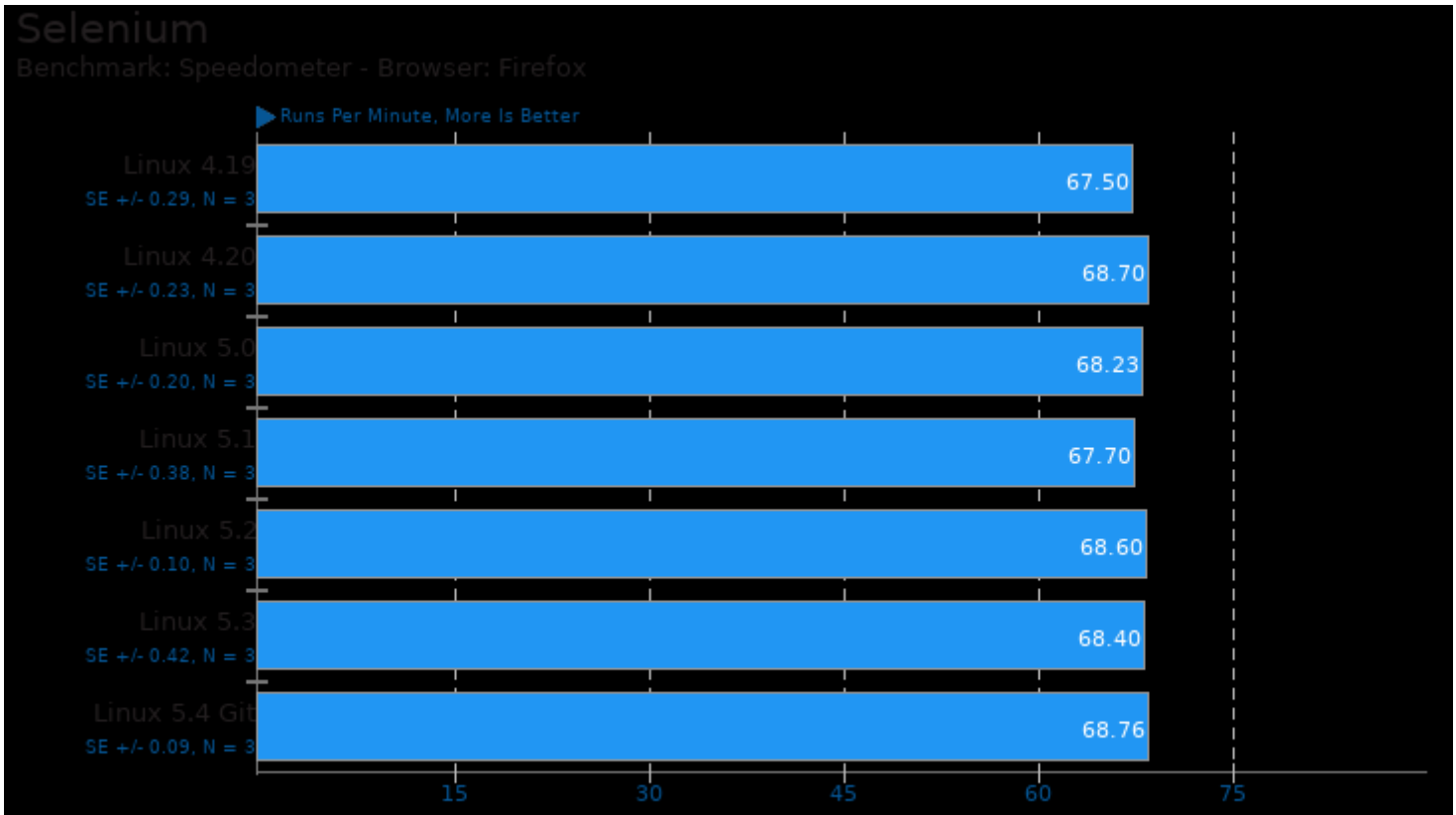

Selenium
Benchmark: Jetstream - Browser: Firefox
Score, More Is Better
Linux 4.19
SE +/- 0.21, N = 3
155.61
Linux 4.20
SE +/- 0.52, N = 3
155.87
Linux 5.0
SE +/- 0.35, N = 3
155.27
Linux 5.1
SE +/- 0.42, N = 3
156.26
Linux 5.2
SE +/- 0.83, N = 3
155.96
Linux 5.3
SE +/- 0.27, N = 3
156.81
Linux 5.4 Git
SE +/- 0.38, N = 3
155.80
30
60
90
120
150
1. firefox 70.0.1

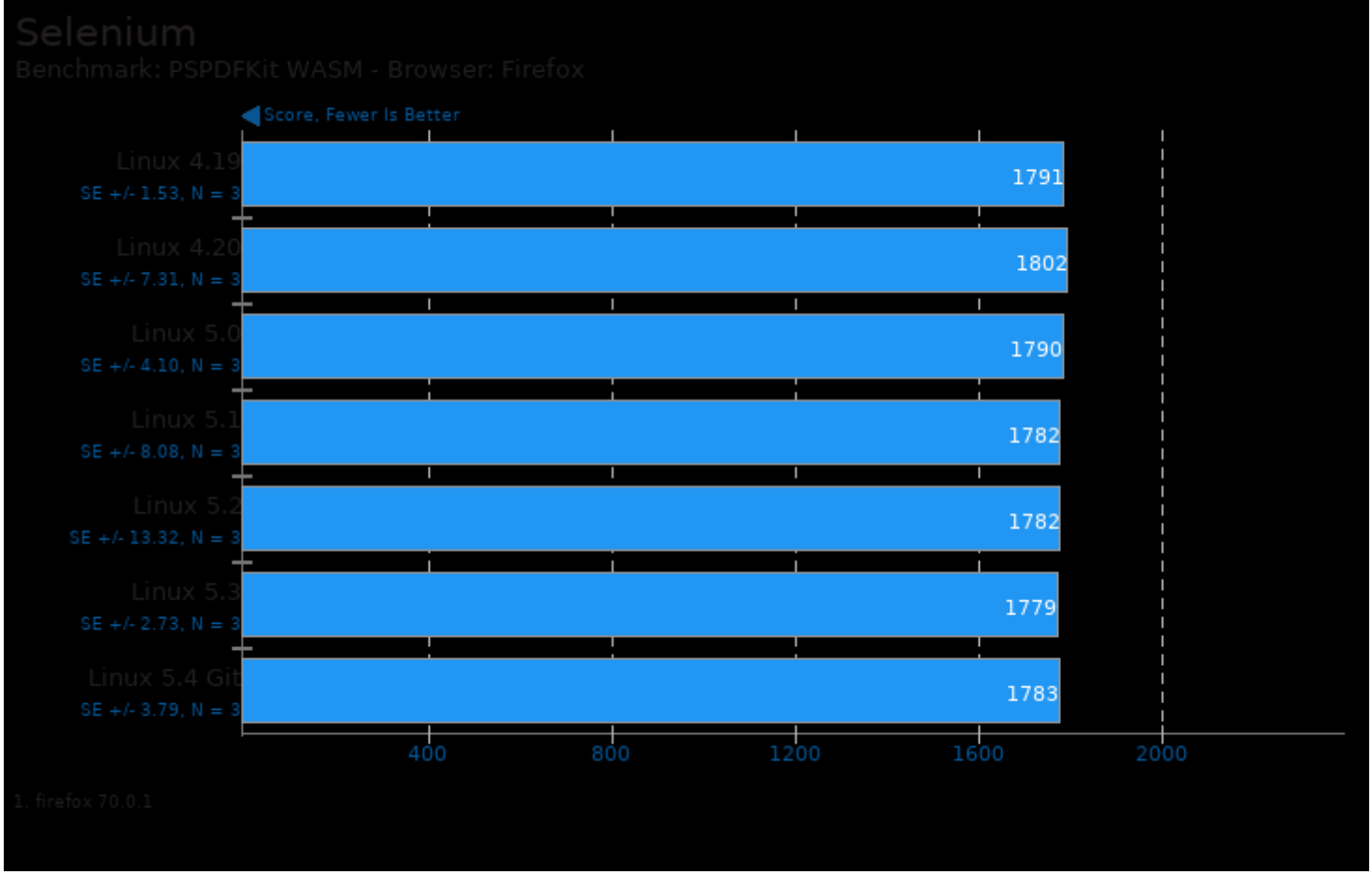
EPYC 7642 AMD Linux Kernel Comparison





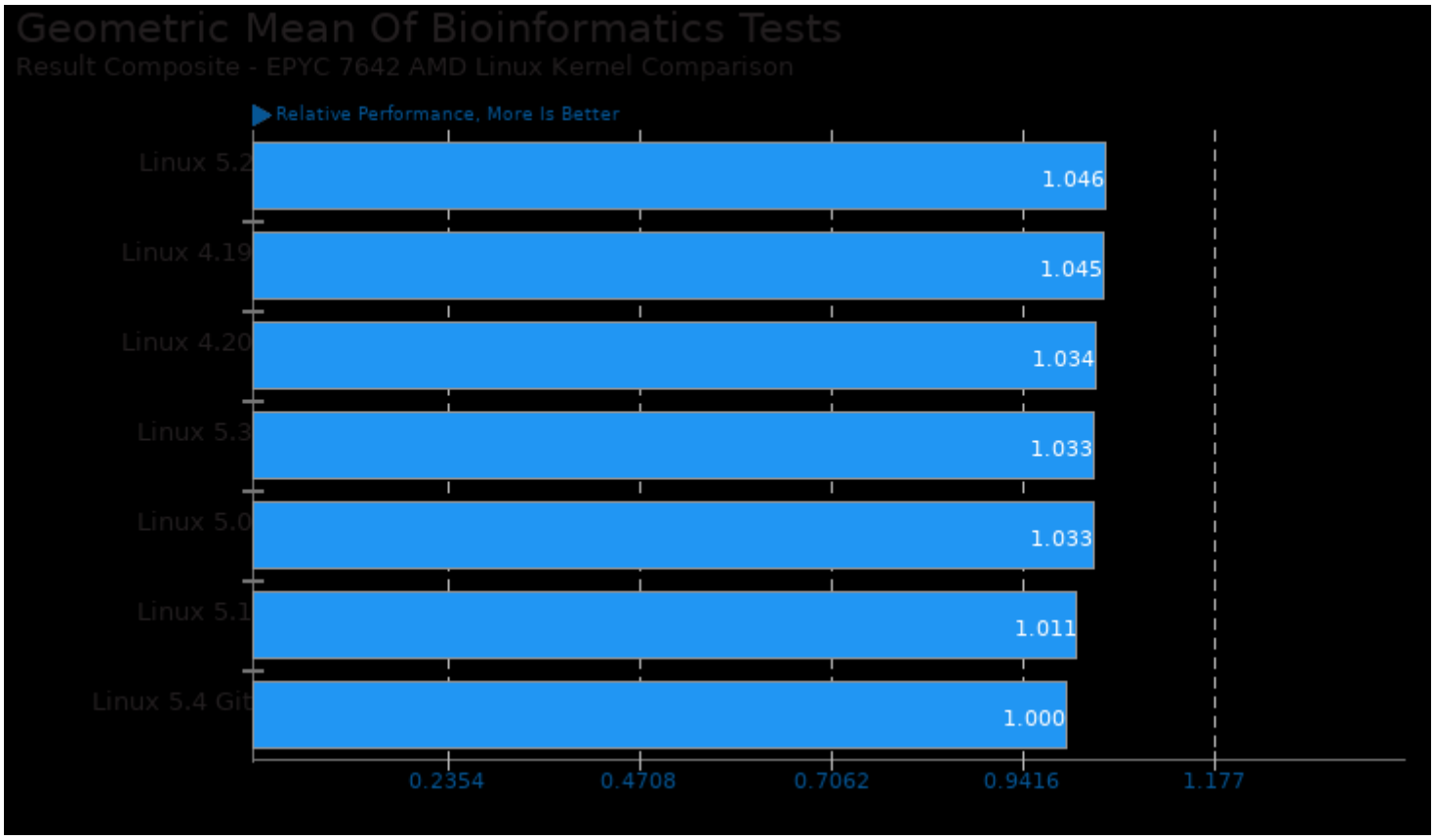
EPYC 7642 AMD Linux Kernel Comparison



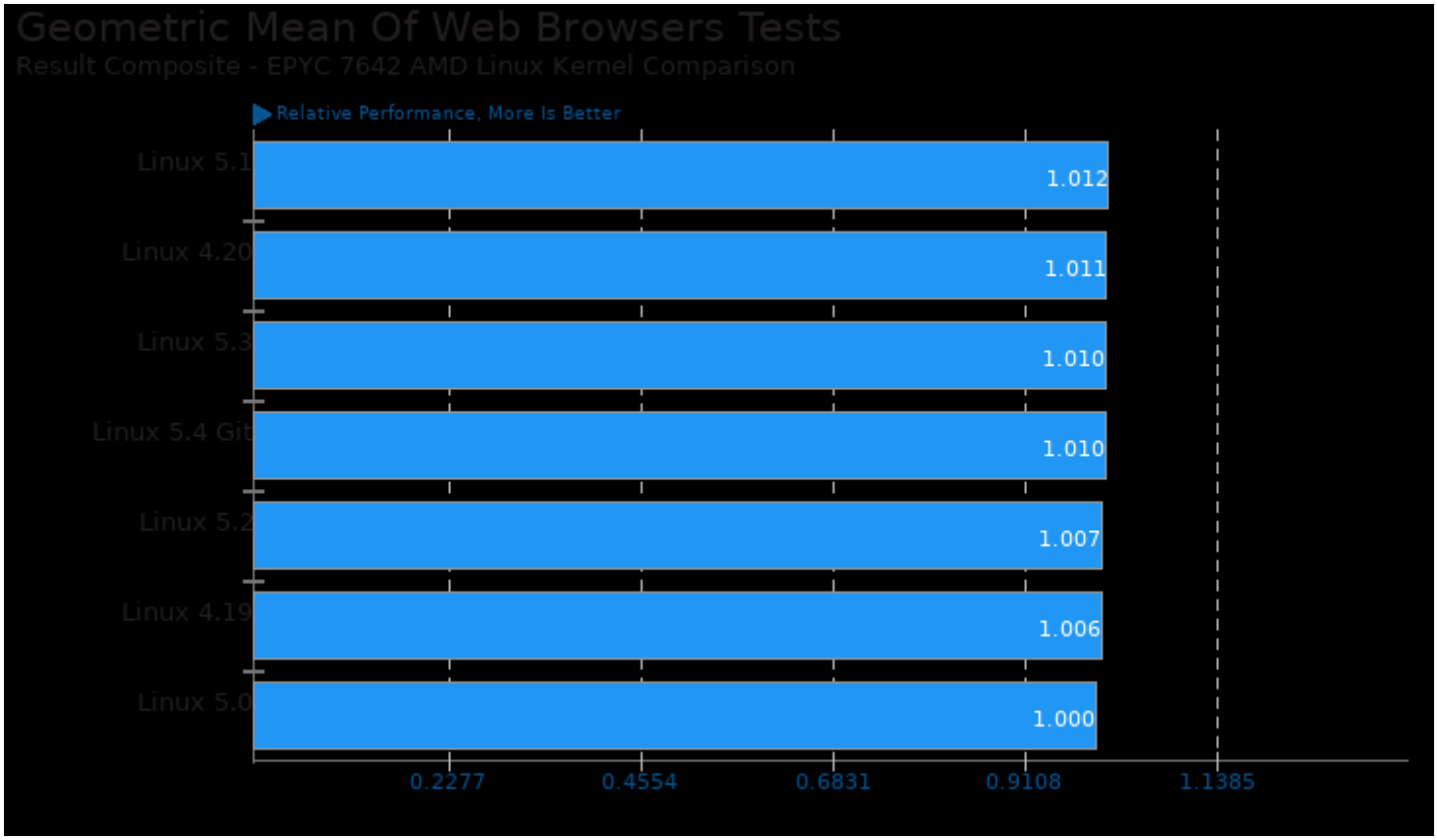


EPYC 7642 AMD Linux Kernel Comparison

These geometric means are based upon test groupings / test suites for this result file.

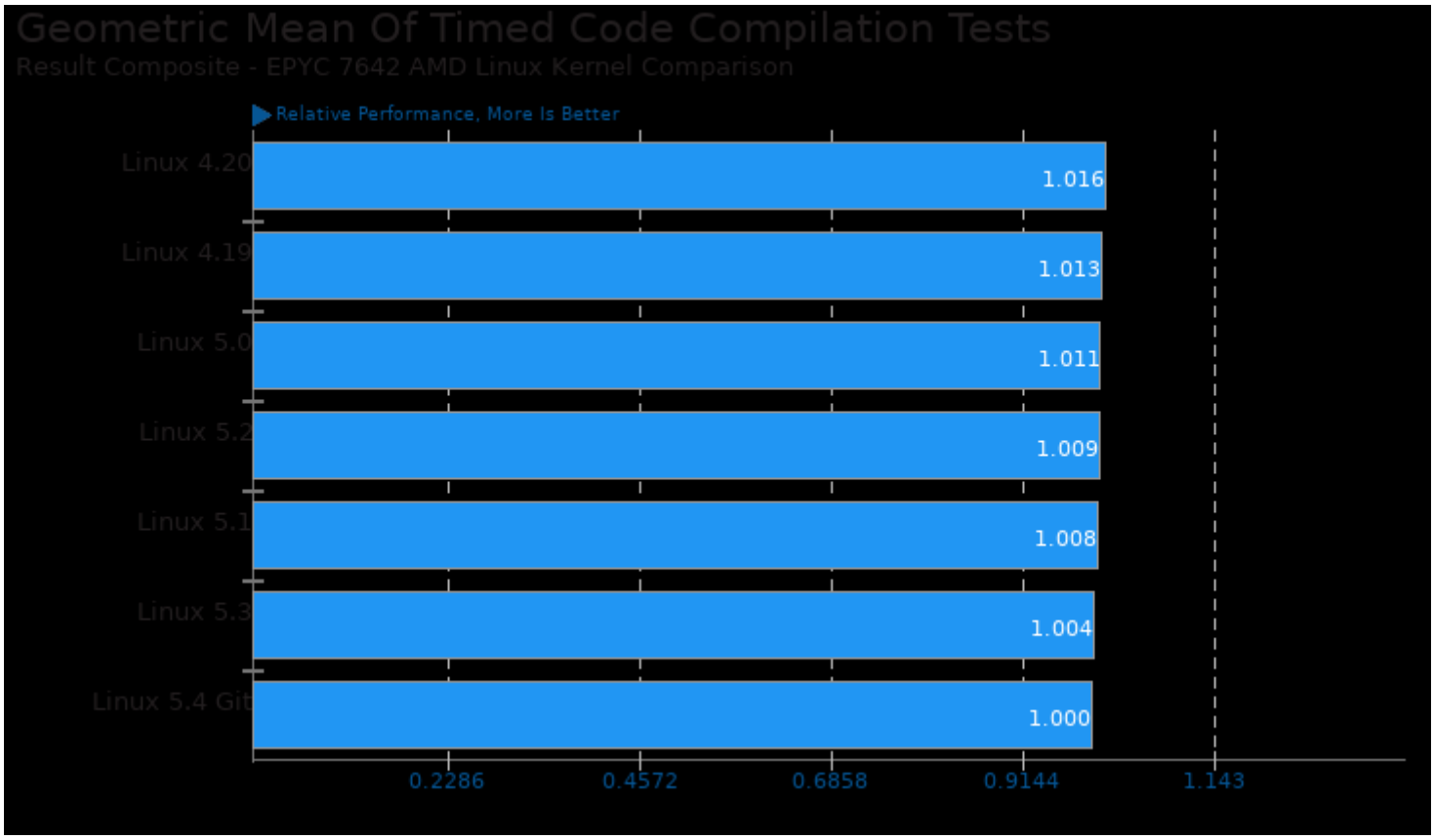


Geometric mean based upon tests: pts/himeno, pts/mrbayes and pts/hmmer

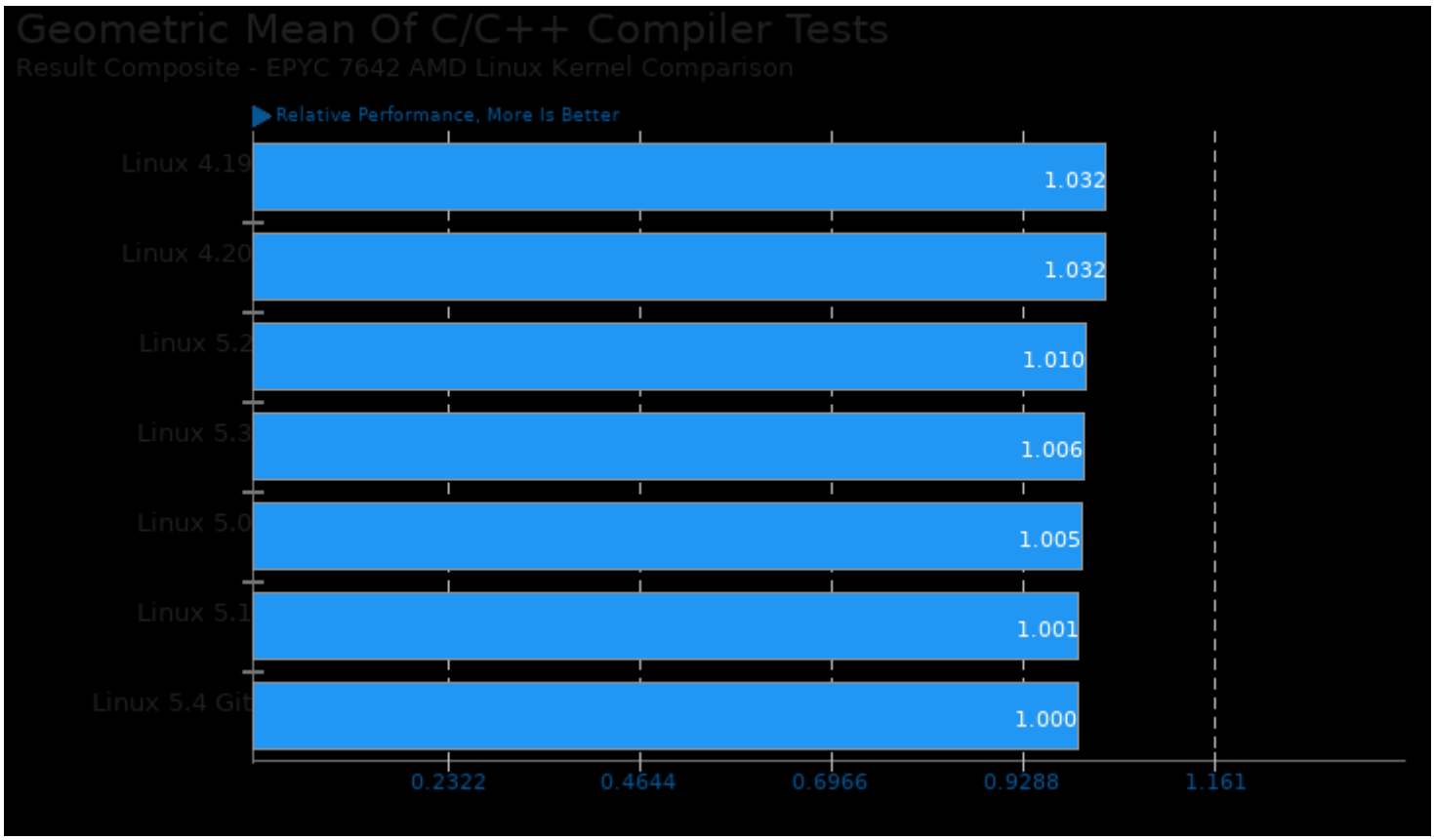


EPYC 7642 AMD Linux Kernel Comparison

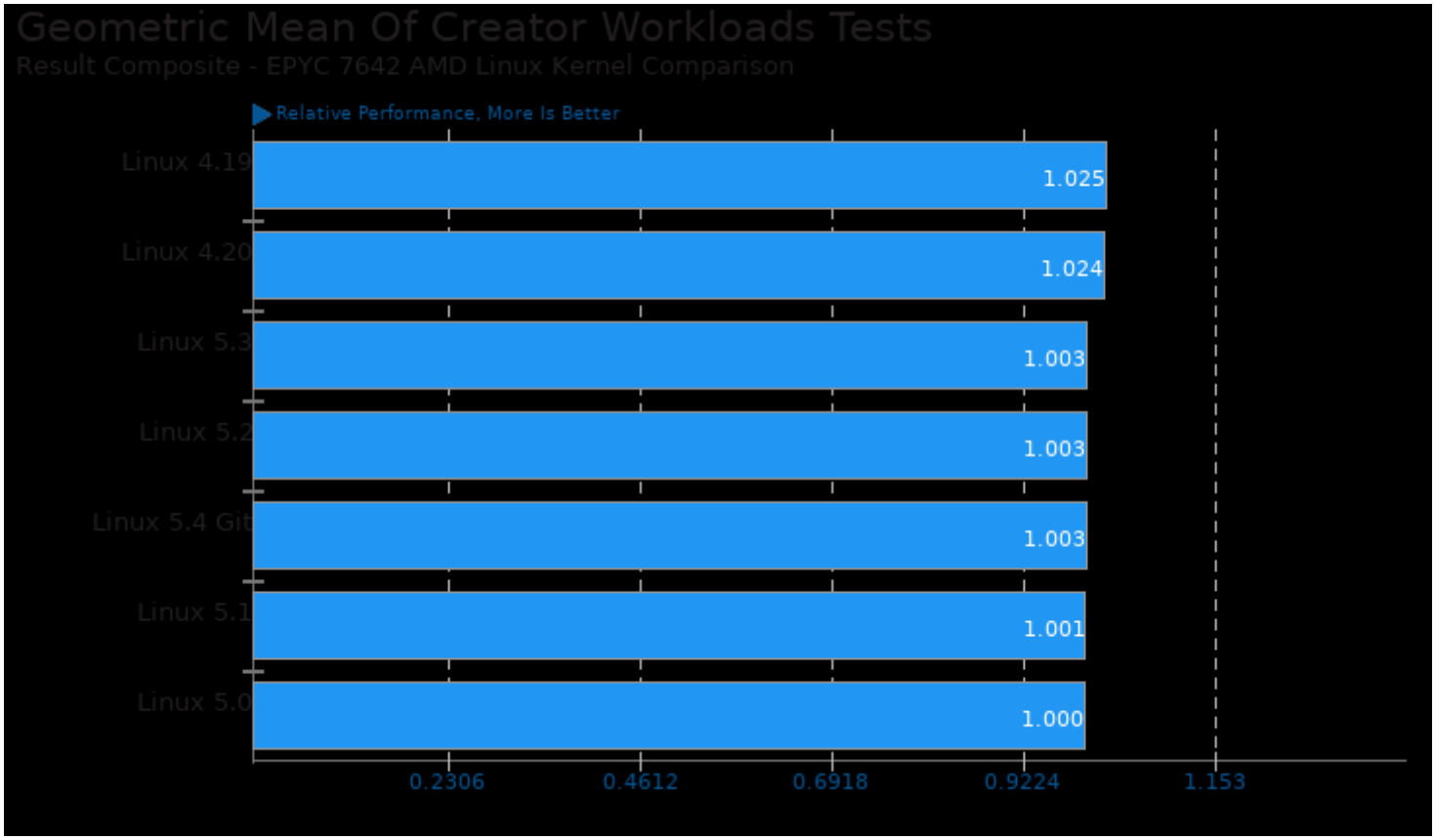
Geometric mean based upon tests: system/selenium



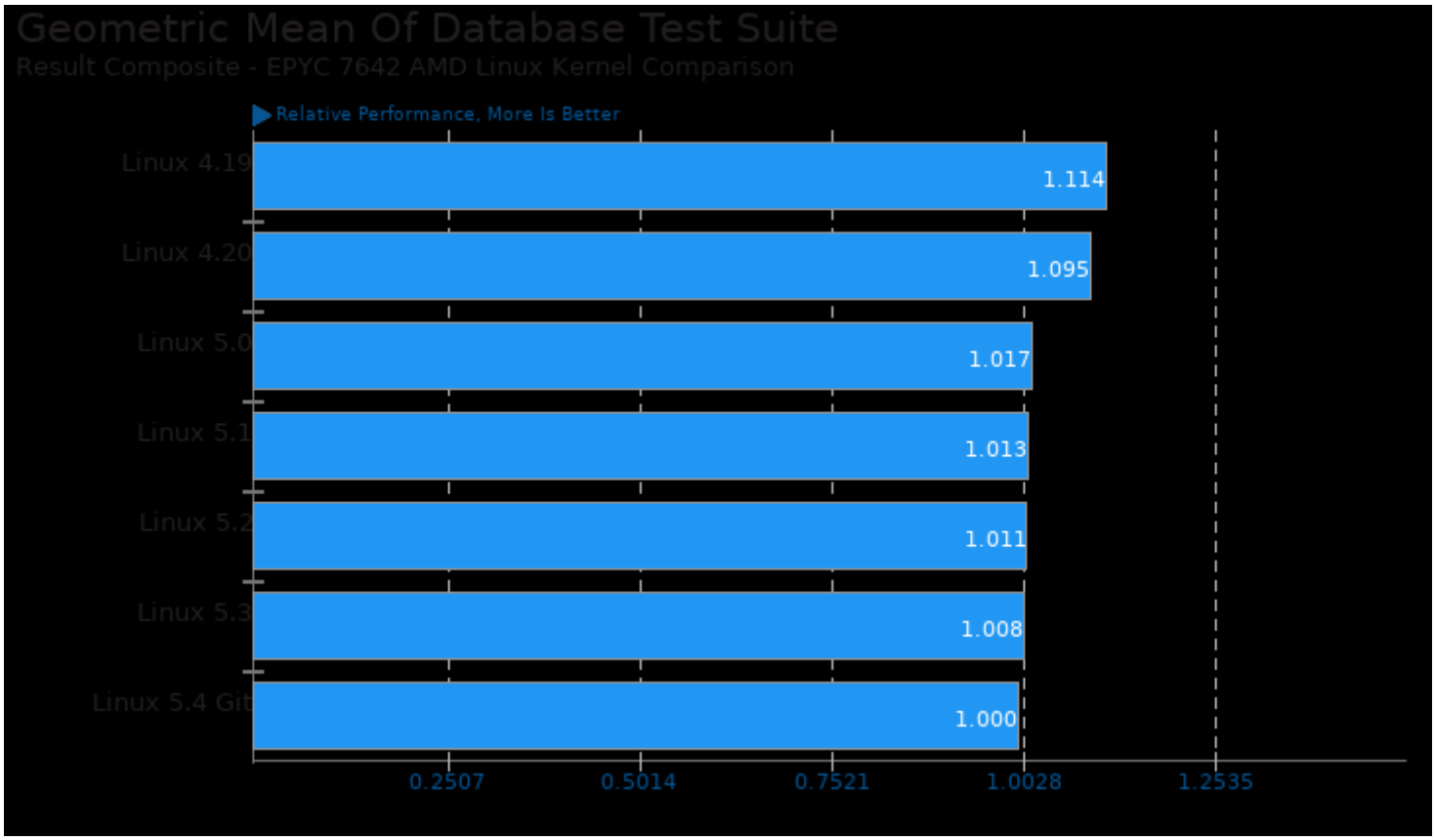
Geometric mean based upon tests: pts/build-linux-kernel, pts/build-gcc and pts/build-llvm



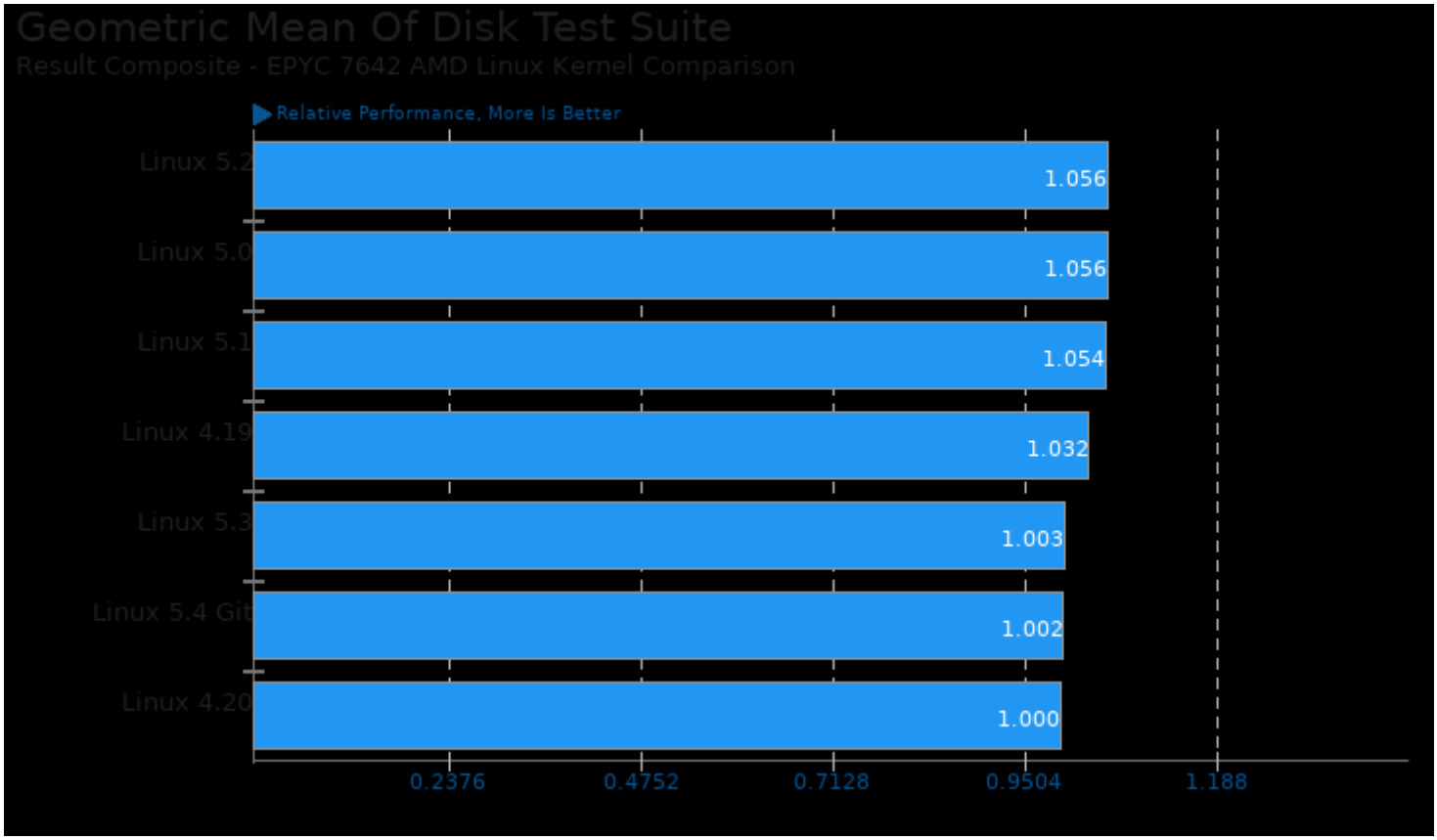
Geometric mean based upon tests: pts/graphics-magick, pts/himeno, pts/hmmer, pts/build-llvm, pts/pgbench, pts/apache, pts/sqlite-speedtest, pts/mrbayes, pts/tungsten, pts/openssl, pts/svt-vp9 and pts/gromacs



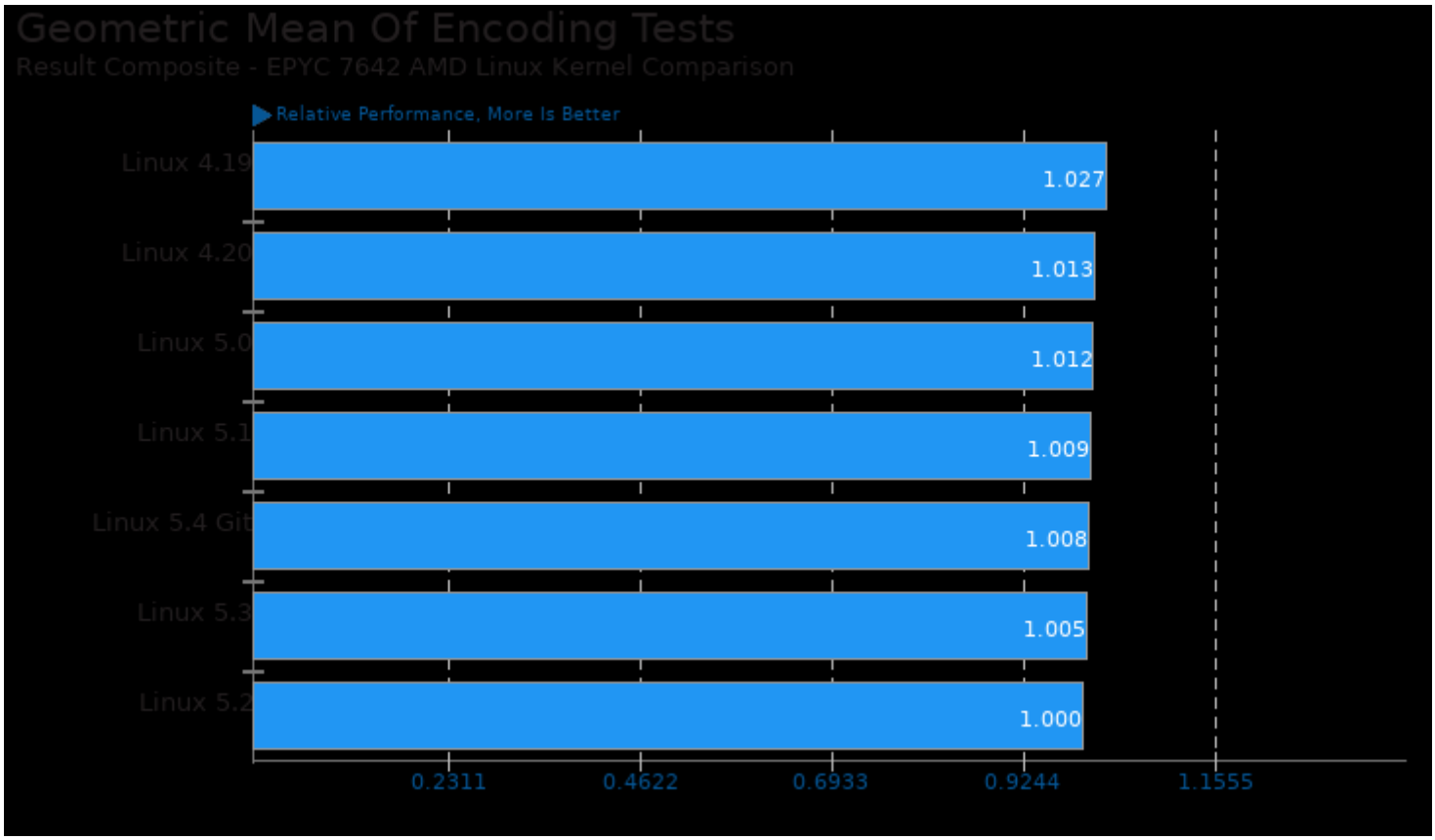
Geometric mean based upon tests: pts/ospray, pts/blender, pts/tungsten, pts/appleseed, pts/v-ray, pts/indigobench, pts/svt-vp9, pts/rav1e, pts/graphics-magick, pts/embree and pts/oidn



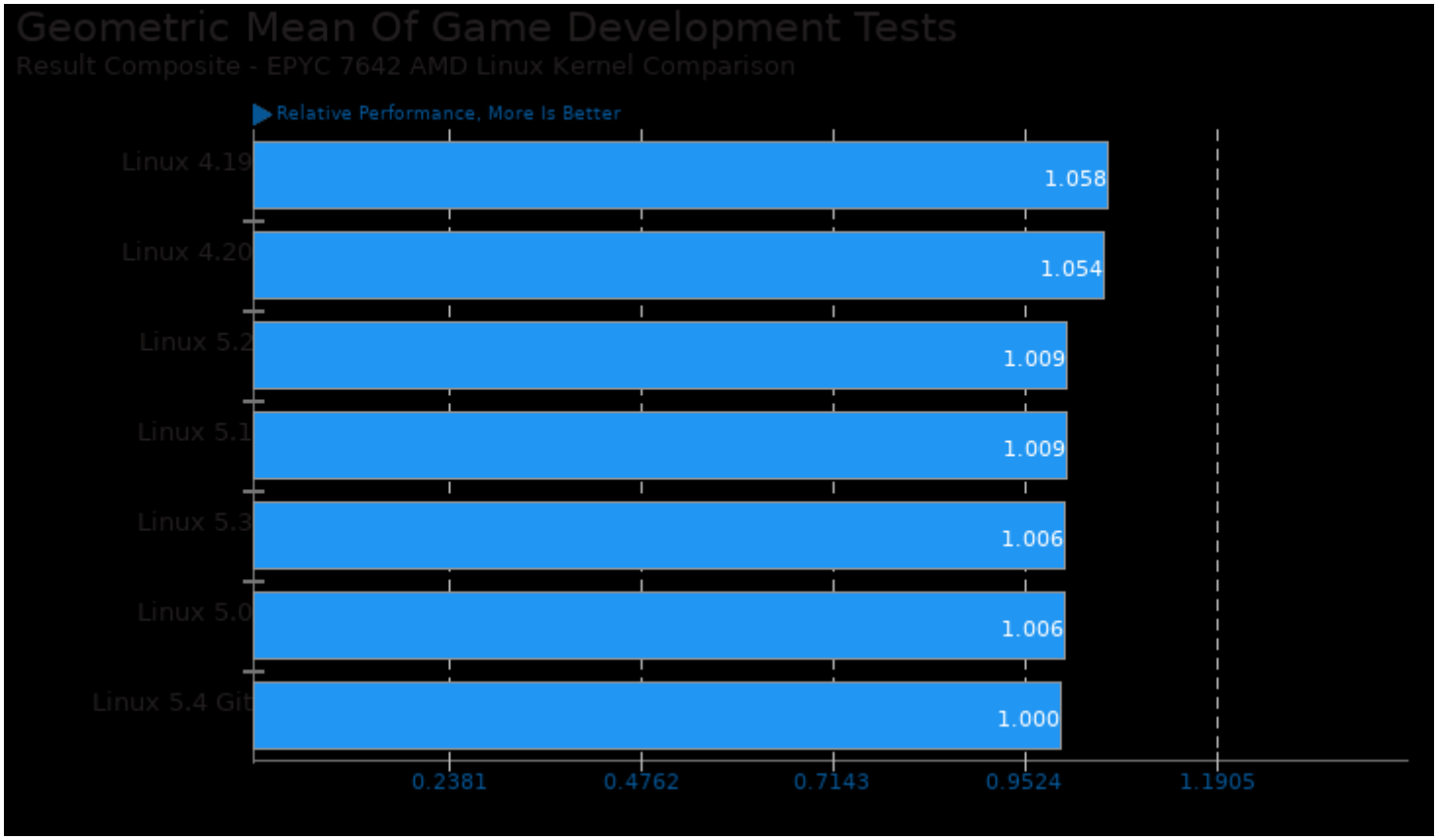
Geometric mean based upon tests: pts/sqlite, pts/sqlite-speedtest, pts/rocksdb and pts/pgbench



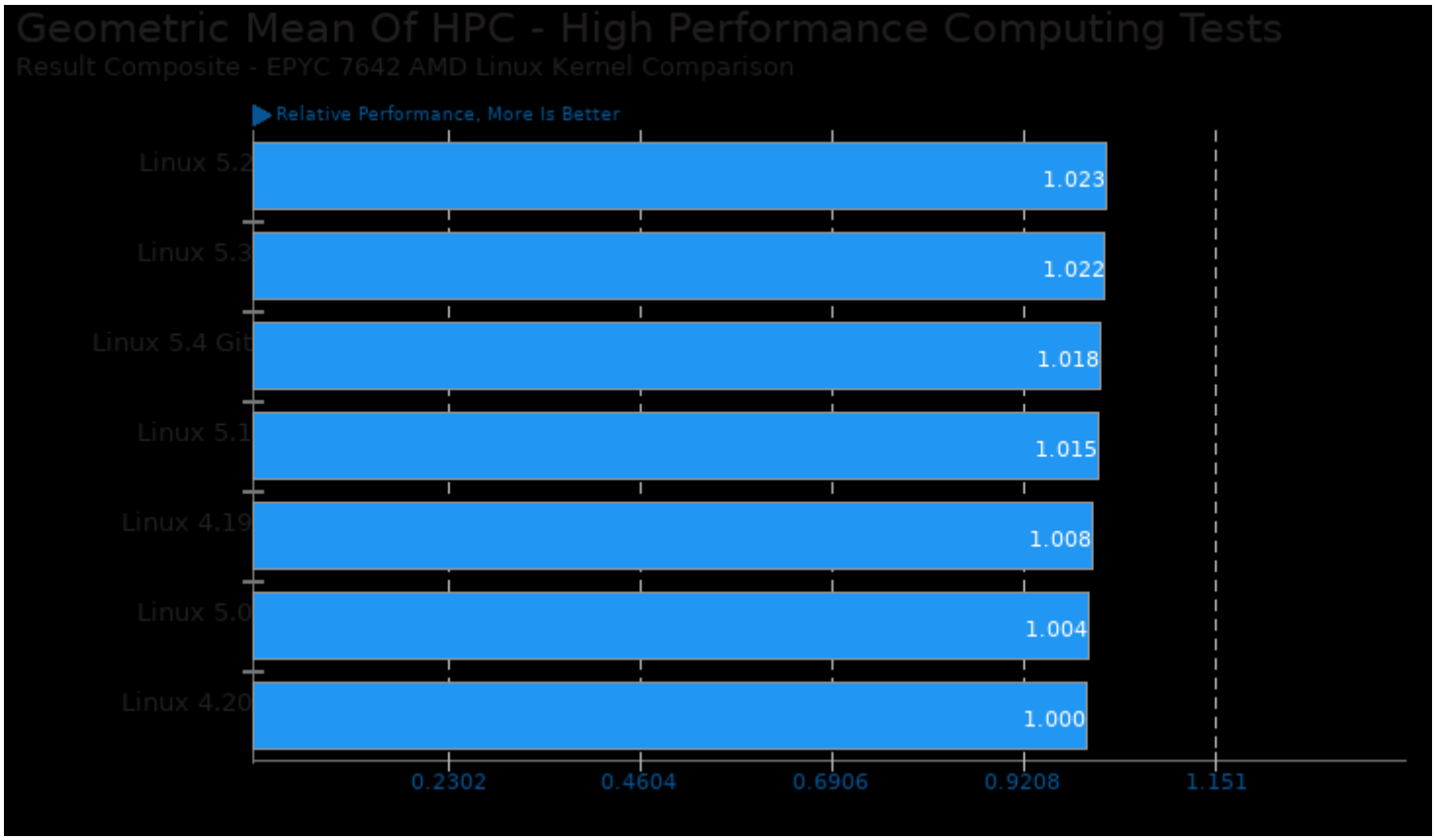
Geometric mean based upon tests: pts/sqlite and pts/fio



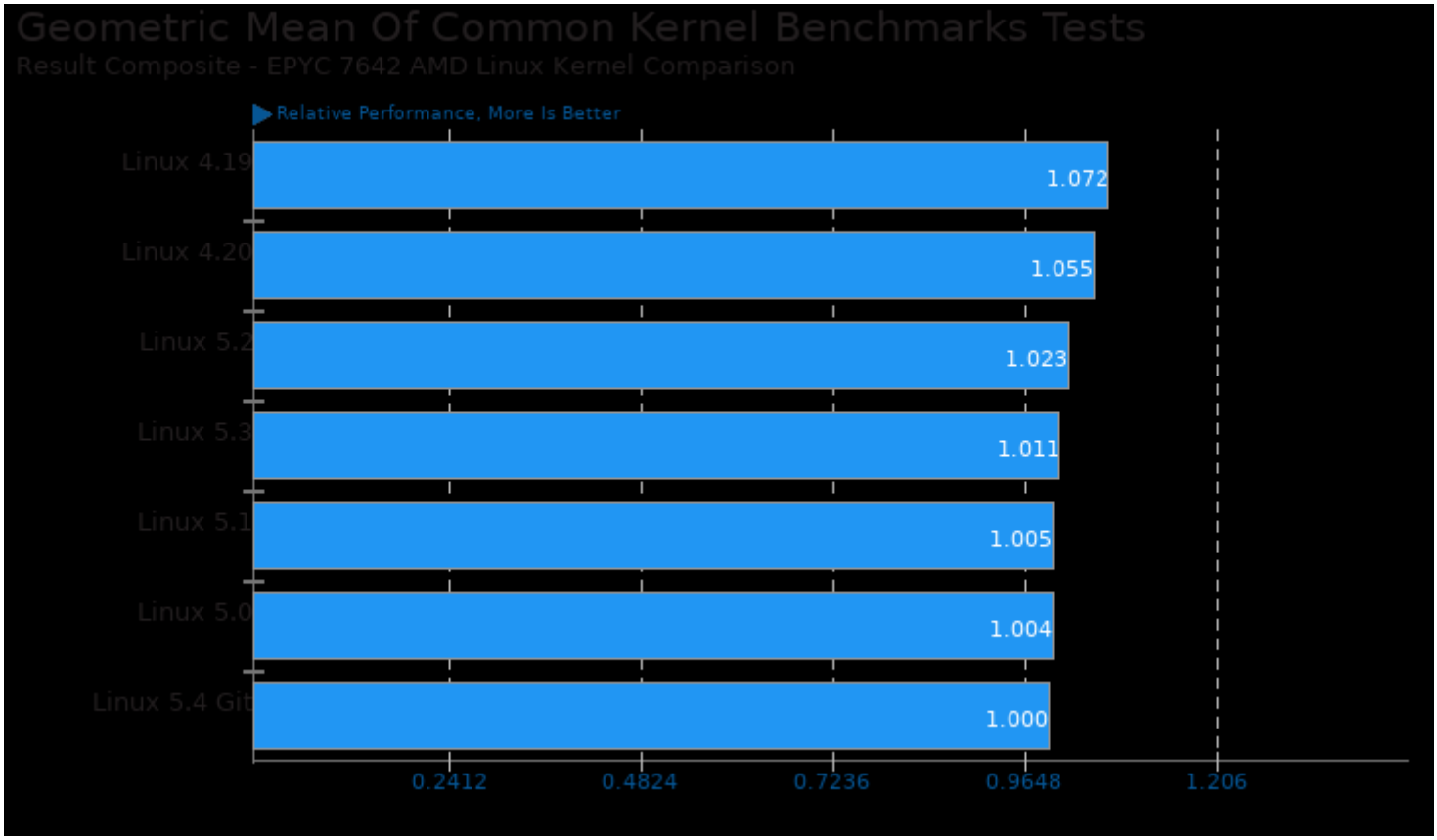
Geometric mean based upon tests: pts/svt-vp9 and pts/rav1e



Geometric mean based upon tests: pts/blender and pts/oidn

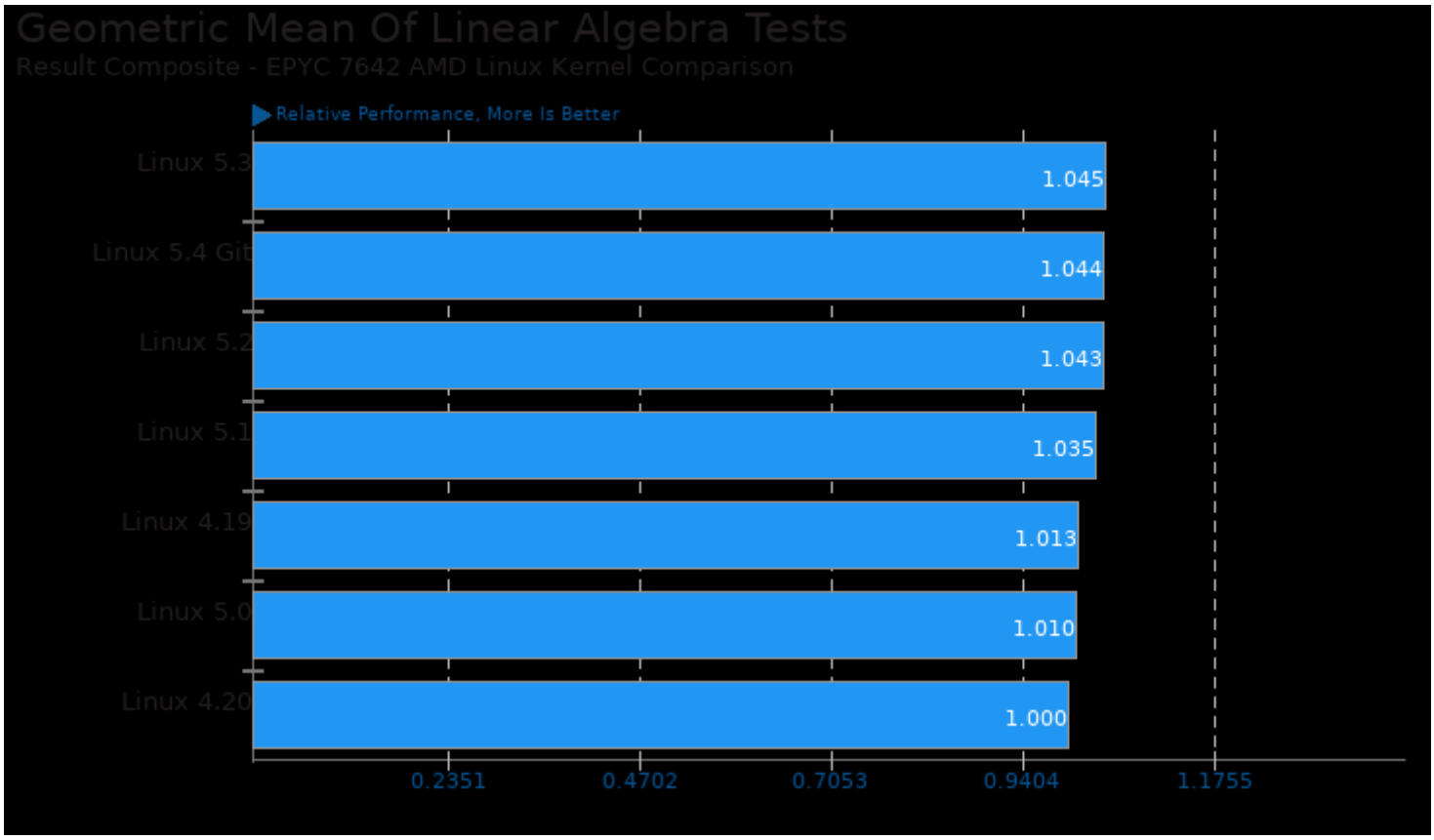


Geometric mean based upon tests: pts/hpcc, pts/askap, pts/mt-dgemm, pts/namd, pts/gromacs, pts/minife, pts/himeno, pts/mrbayes and pts/hmmer

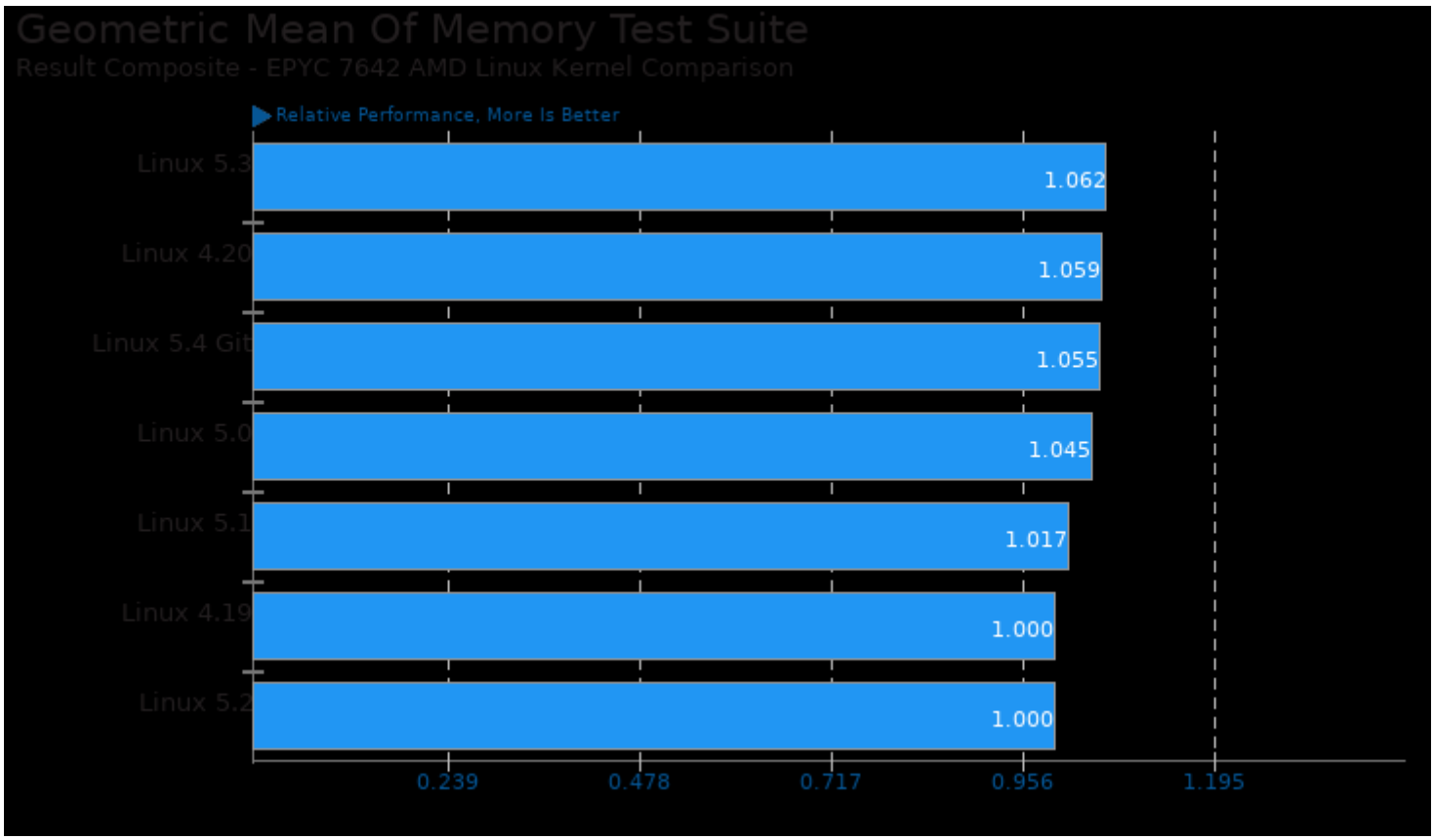


Geometric mean based upon tests: pts/apache, pts/sqlite-speedtest, pts/pgbench, pts/tinymembench, pts/mbw,

pts/openssl, pts/ctx-clock, pts/hackbench, pts/stress-ng and pts/rocksdb

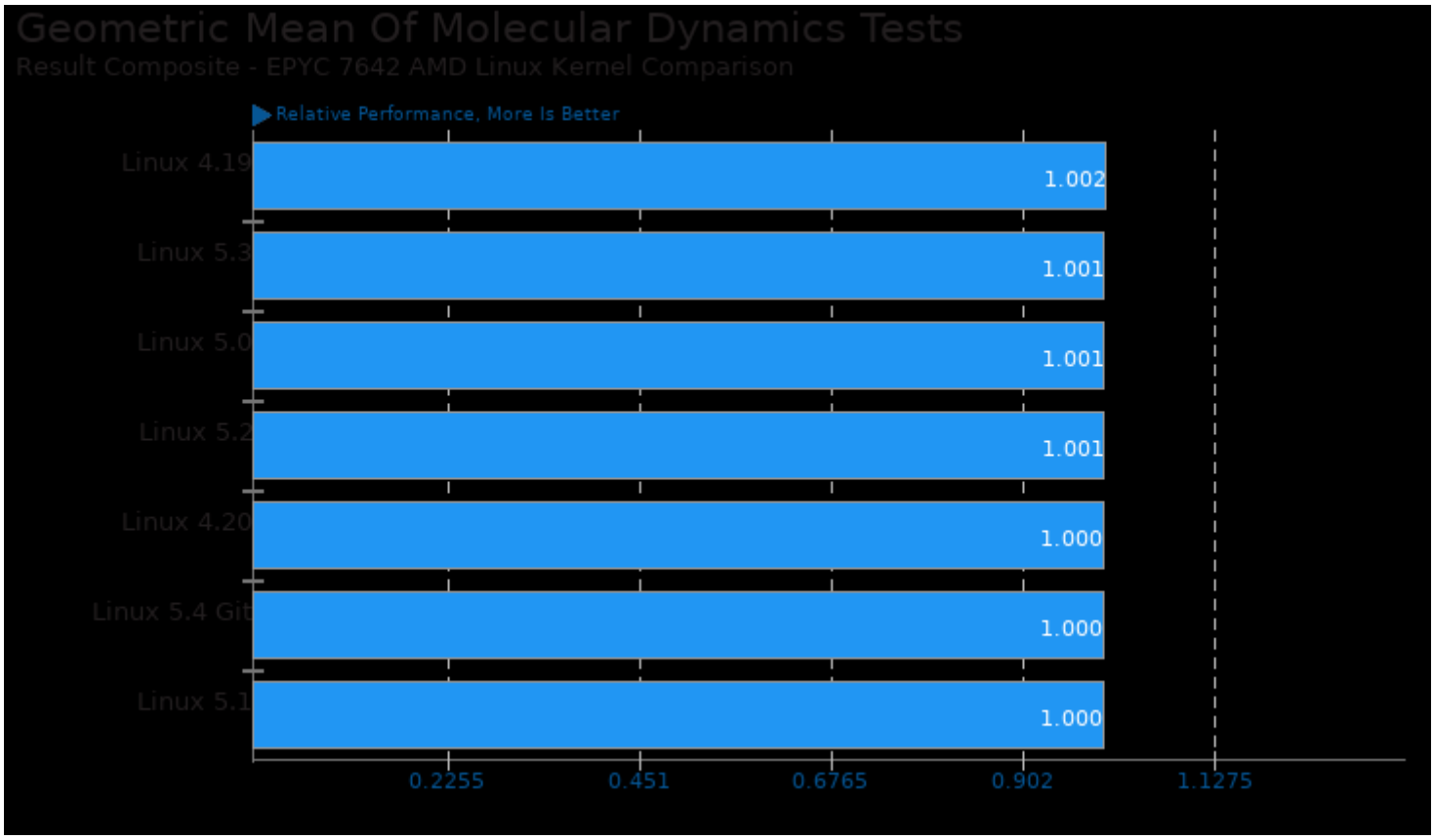


Geometric mean based upon tests: pts/mt-dgemm and pts/hpcc

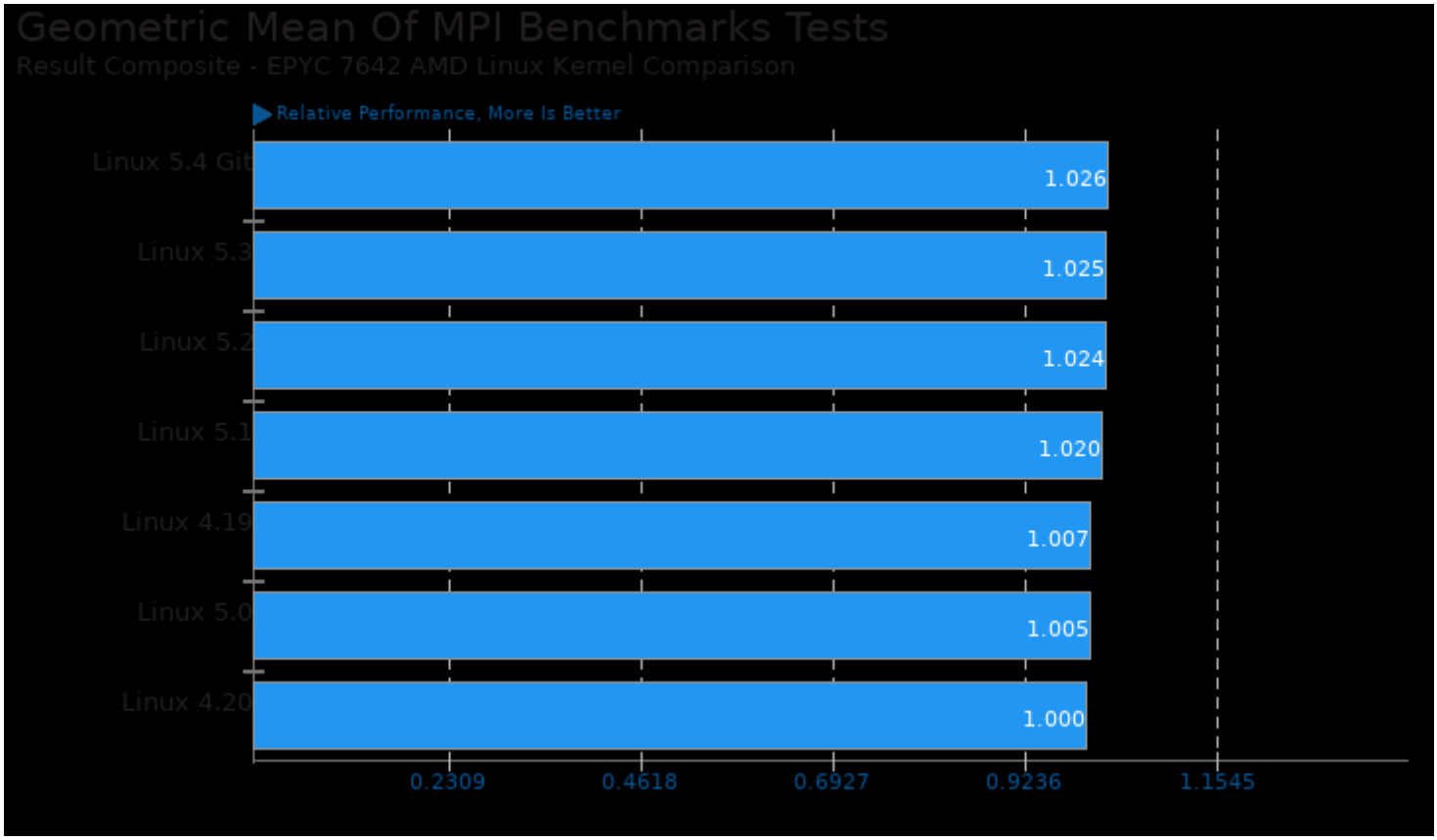


EPYC 7642 AMD Linux Kernel Comparison

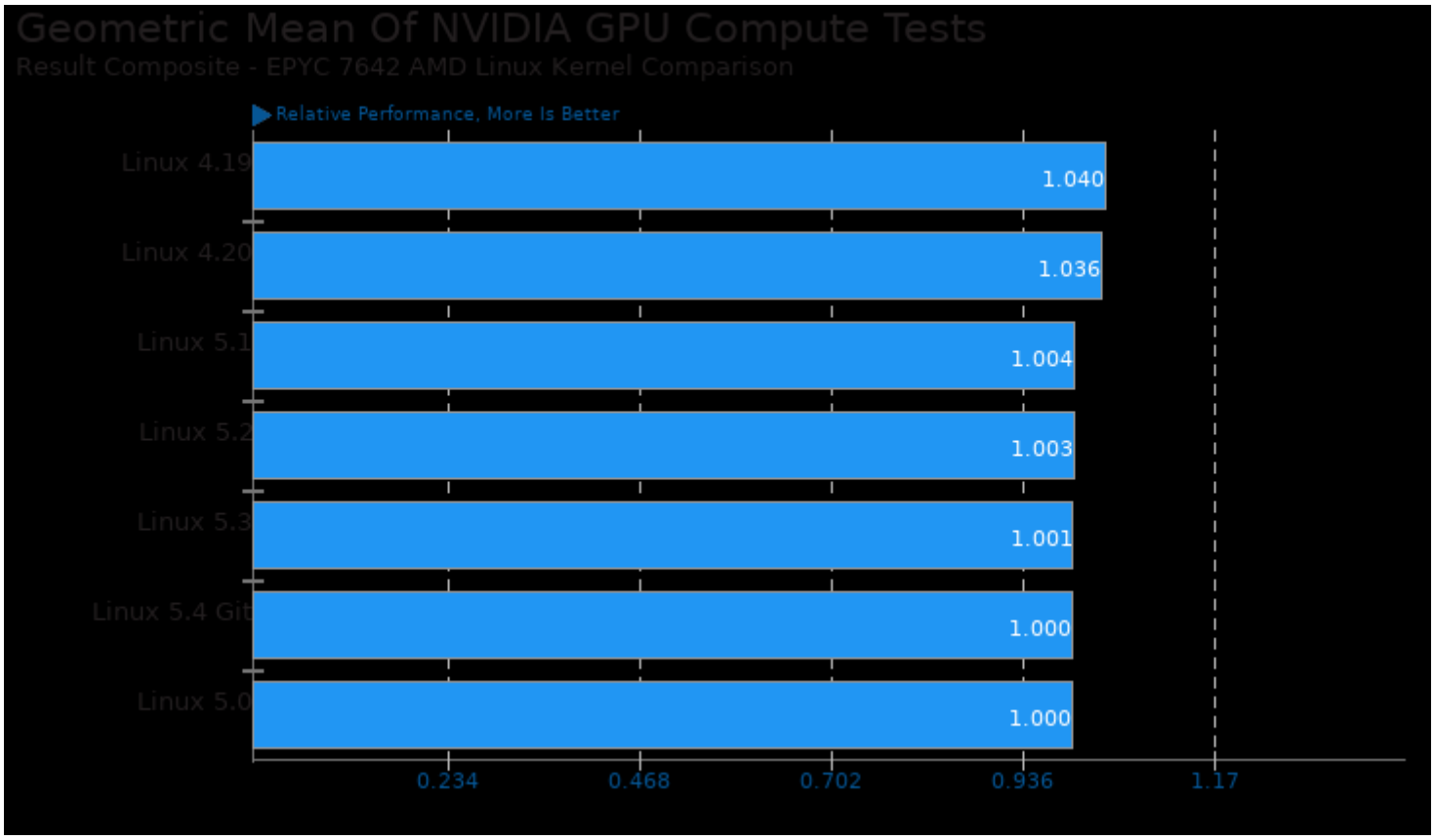
Geometric mean based upon tests: pts/ramspeed, pts/stream, pts/tinymembench and pts/mbw



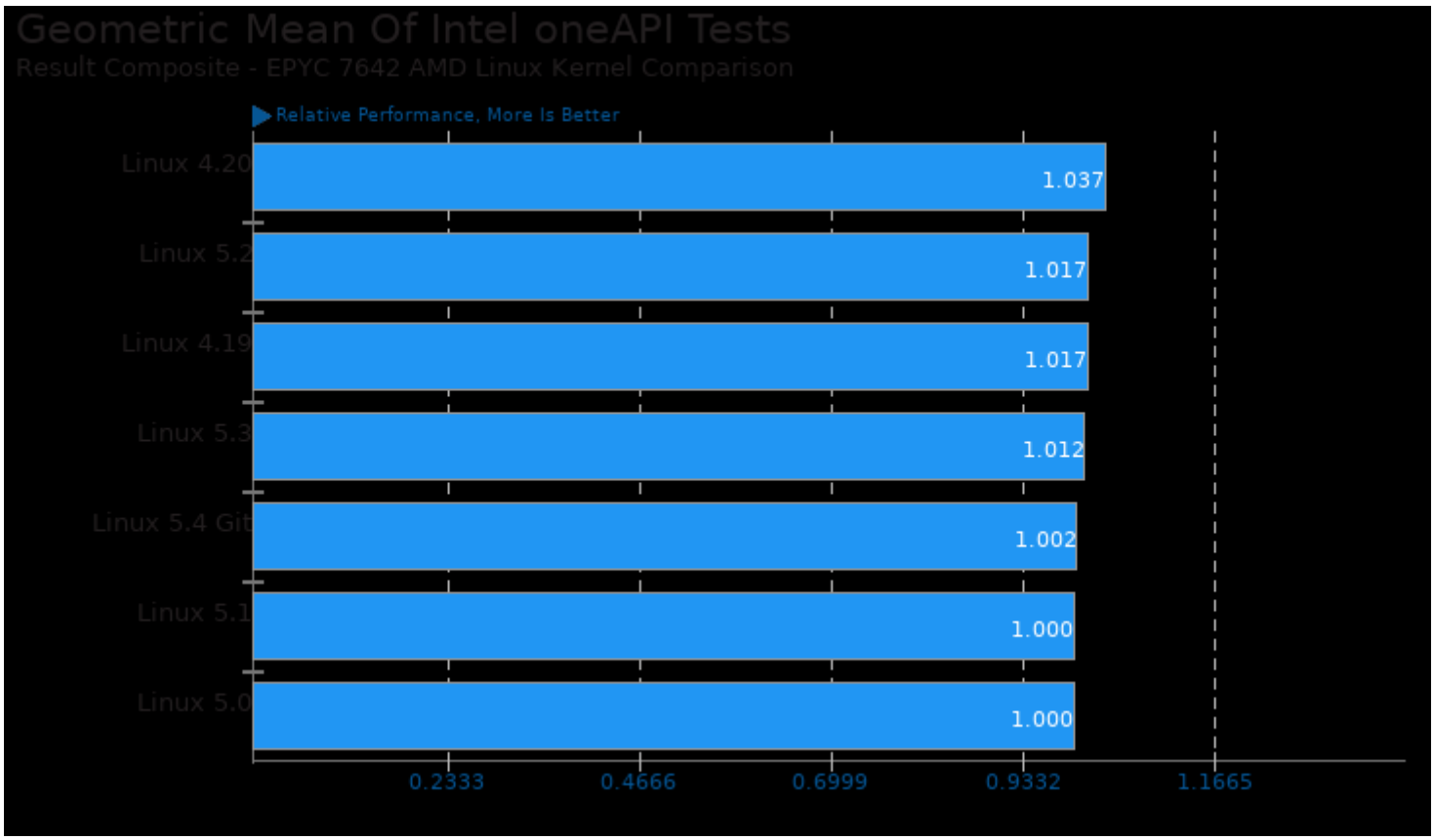
Geometric mean based upon tests: pts/namd, pts/gromacs and pts/minife



Geometric mean based upon tests: pts/askap, pts/hpcc, pts/gromacs, pts/mrbayes and pts/minife

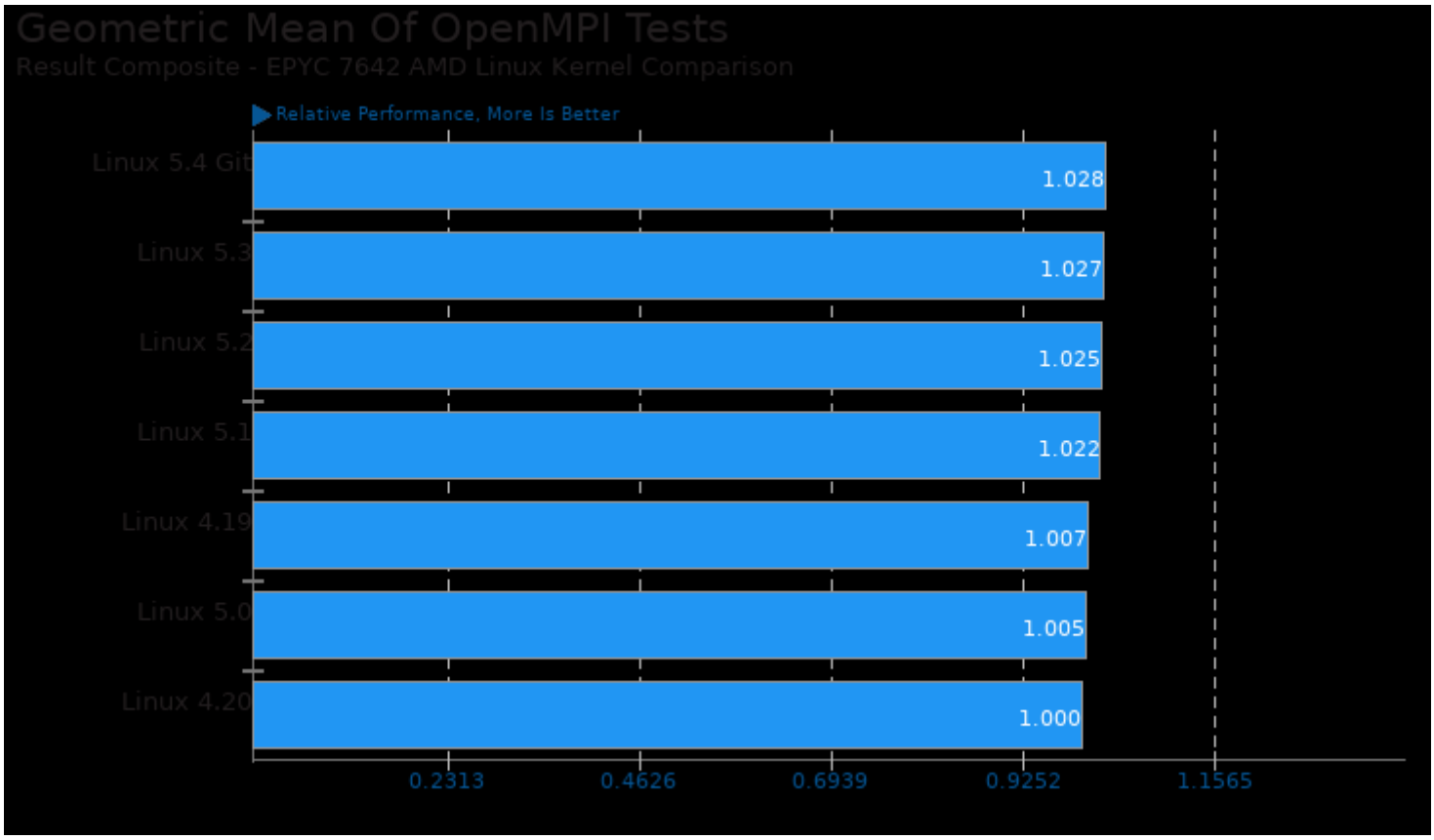


Geometric mean based upon tests: pts/gromacs, pts/indigobench, pts/v-ray and pts/blender

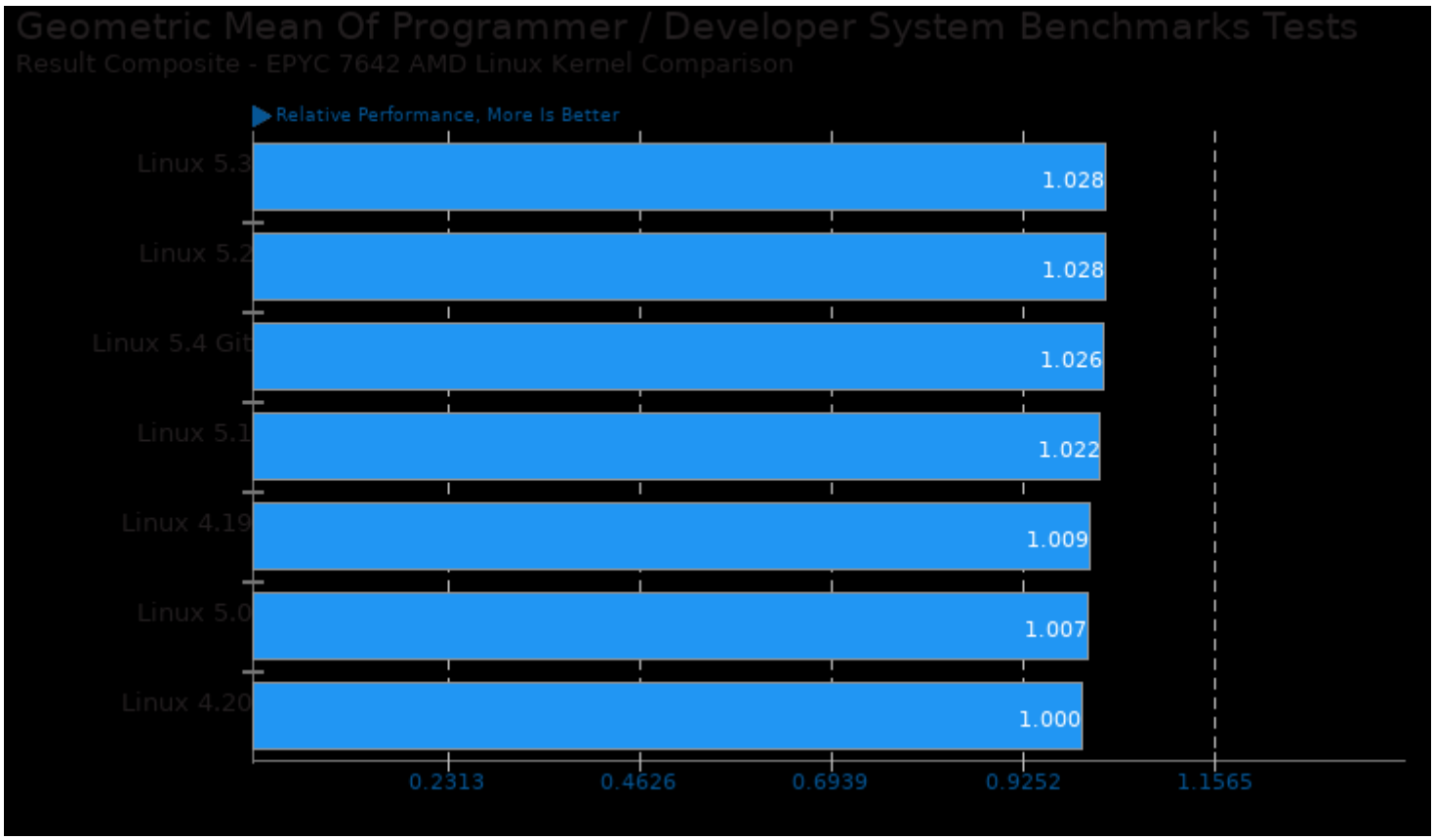


EPYC 7642 AMD Linux Kernel Comparison

Geometric mean based upon tests: pts/embree, pts/oidn, pts/ospray and pts/tungsten

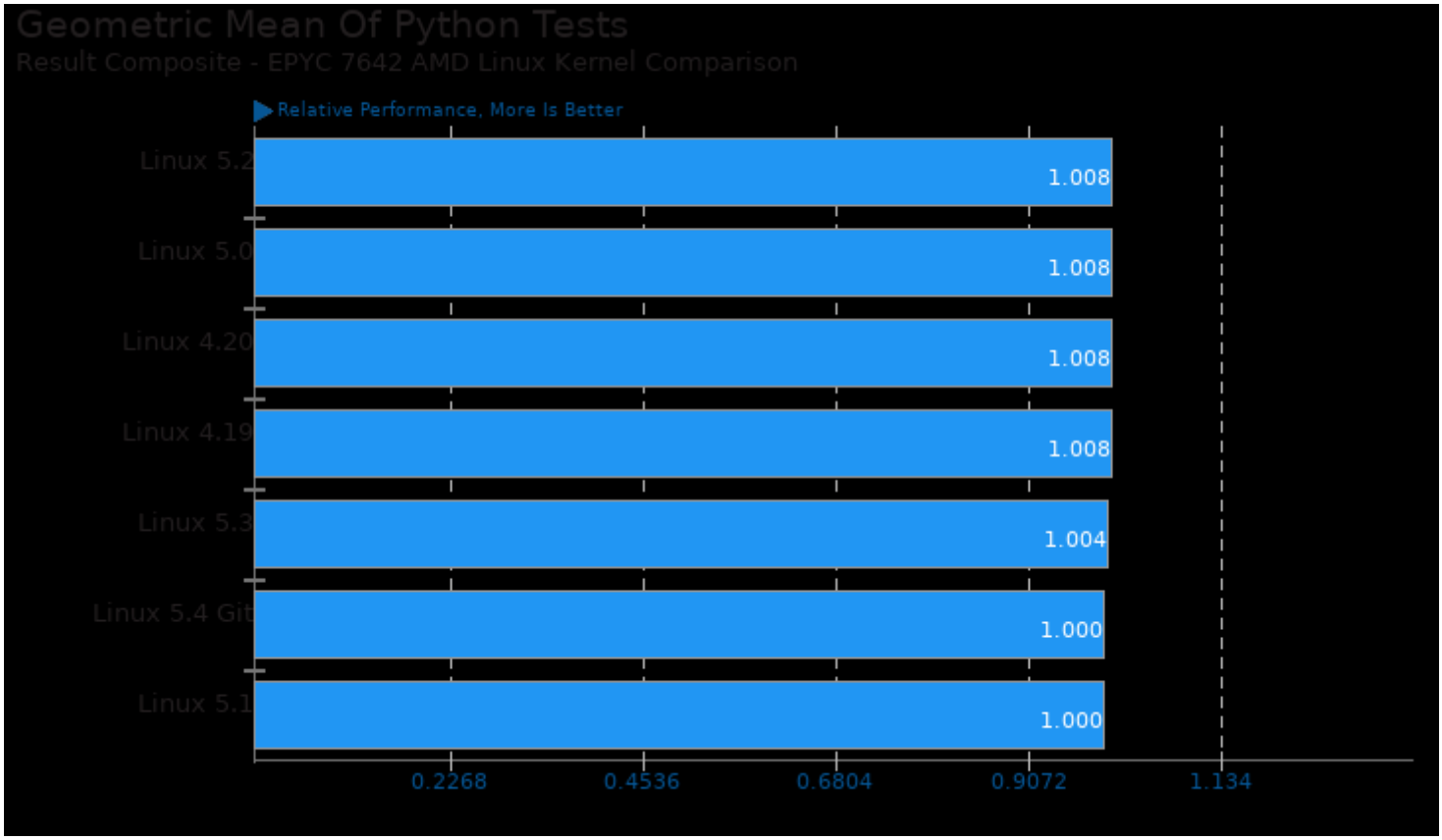


Geometric mean based upon tests: pts/hpcc, pts/minife, pts/mrbayes and pts/askap

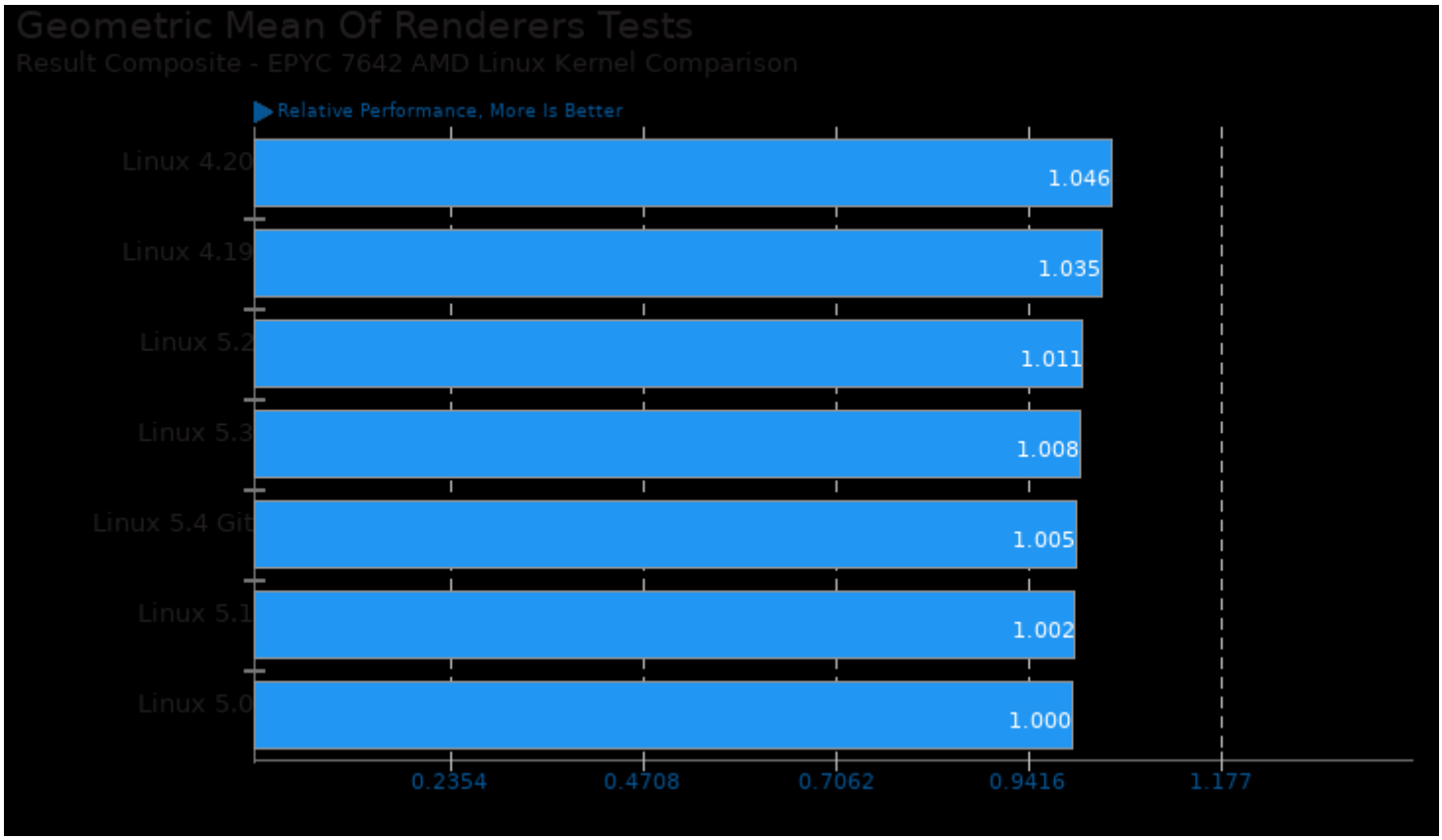


EPYC 7642 AMD Linux Kernel Comparison

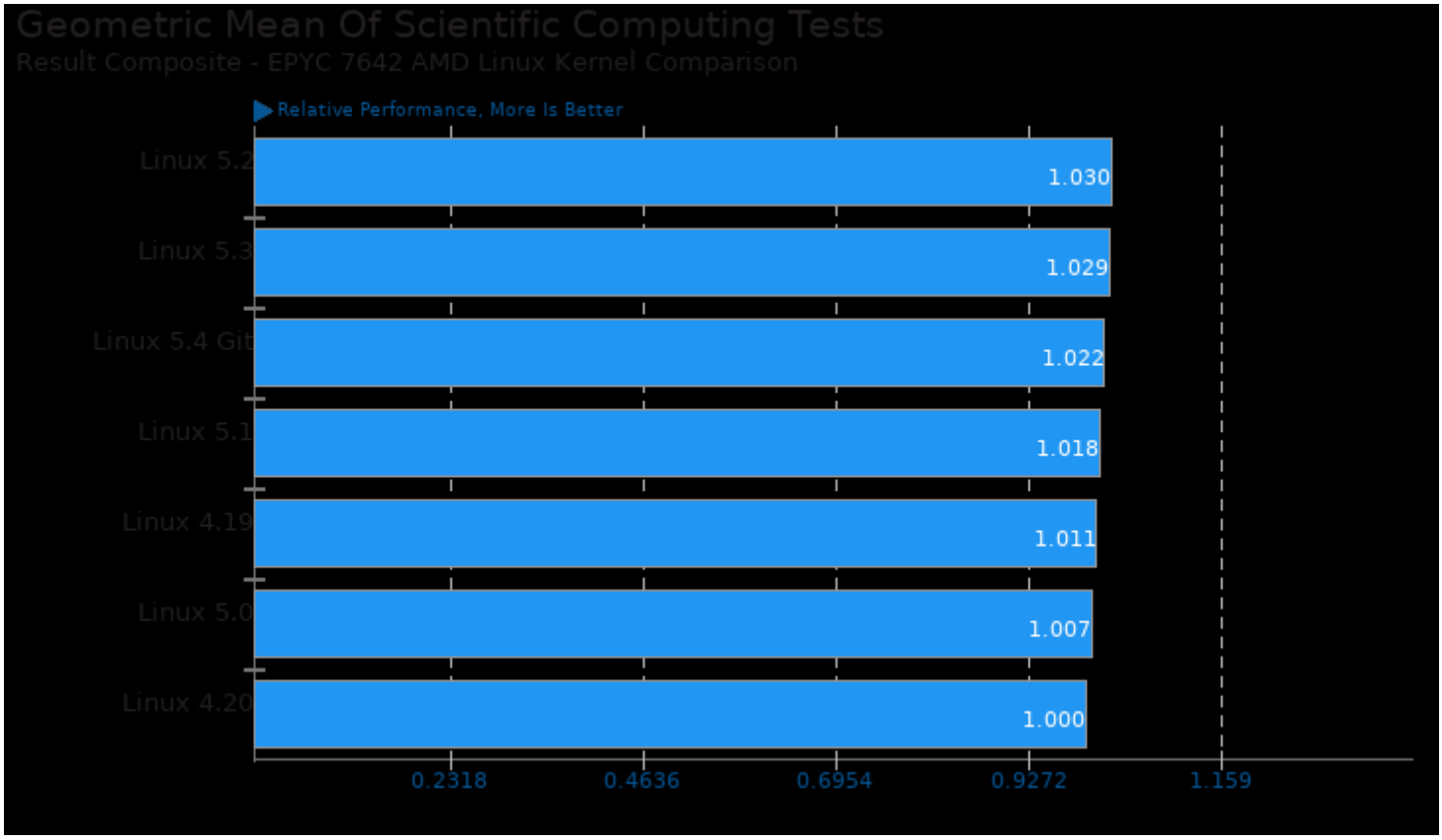
Geometric mean based upon tests: pts/sqlite-speedtest, pts/pybench, pts/build-linux-kernel, pts/build-gcc, pts/build-llvm, pts/mt-dgemm and pts/hpcc



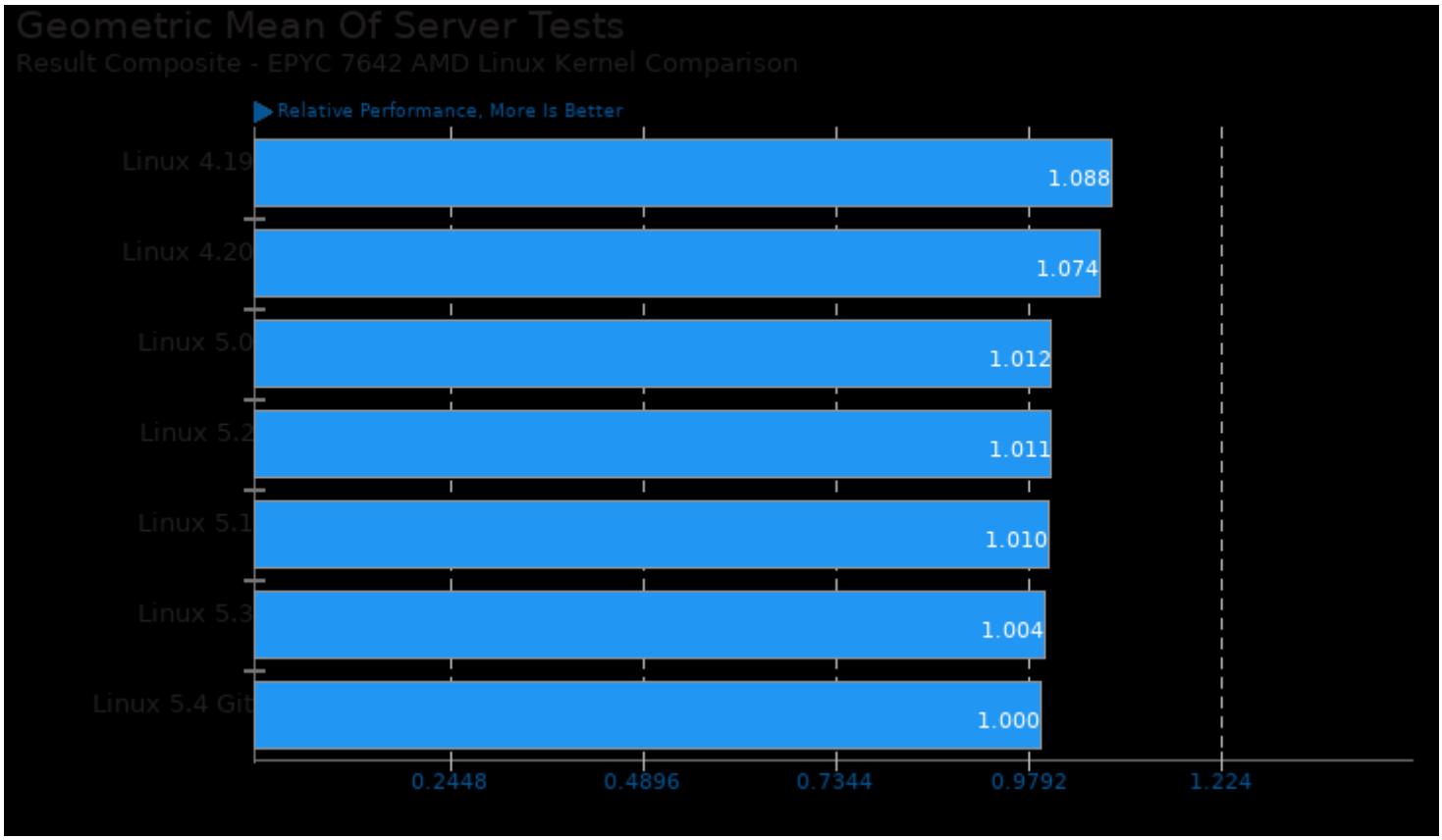
Geometric mean based upon tests: pts/build-llvm and pts/pybench



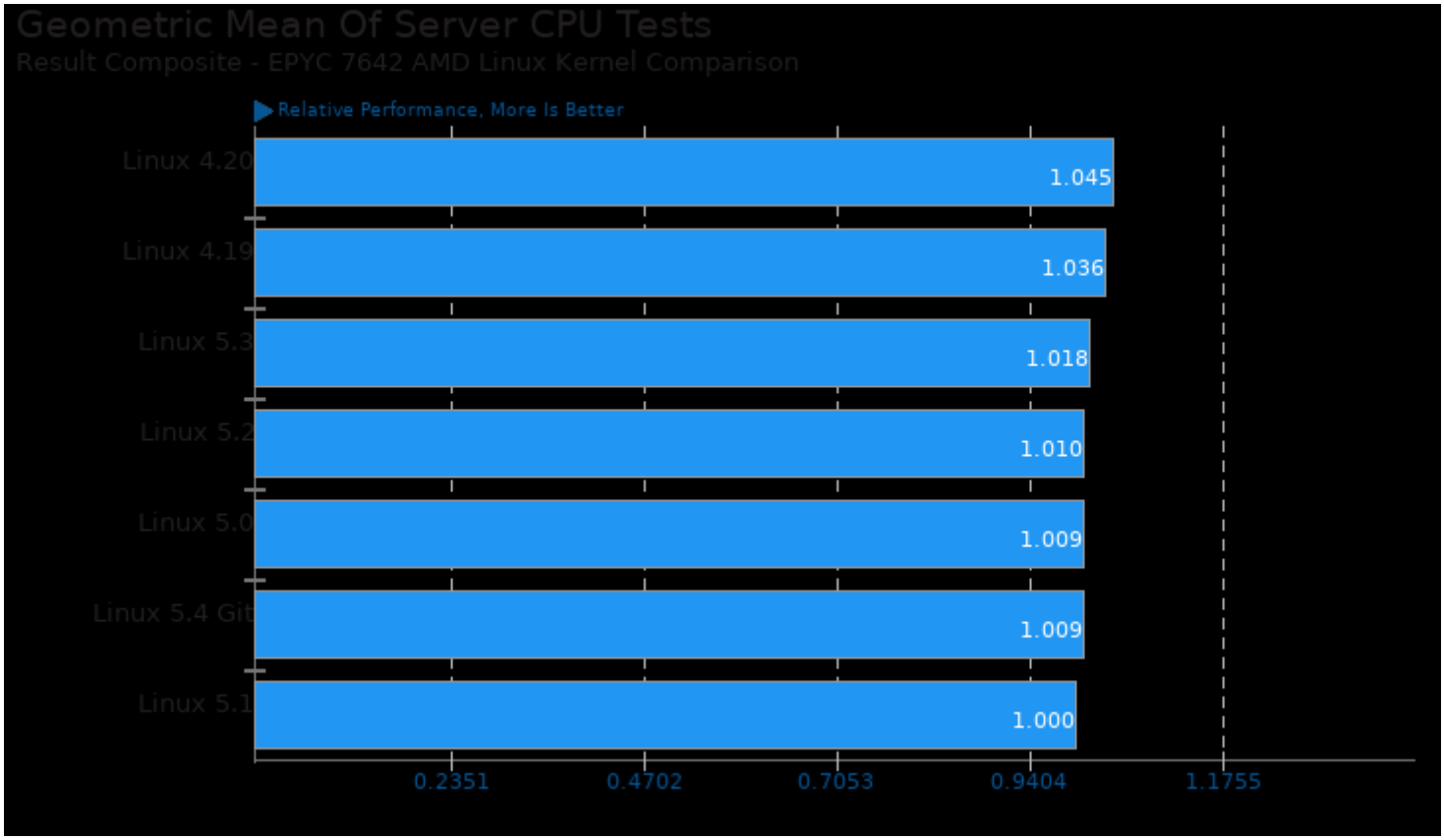
Geometric mean based upon tests: pts/ospray, pts/blender, pts/tungsten, pts/appleseed, pts/v-ray and pts/indigobench



Geometric mean based upon tests: pts/mt-dgemm, pts/hpcc, pts/namd, pts/gromacs, pts/minife, pts/himeno, pts/mrbayes and pts/hmmer

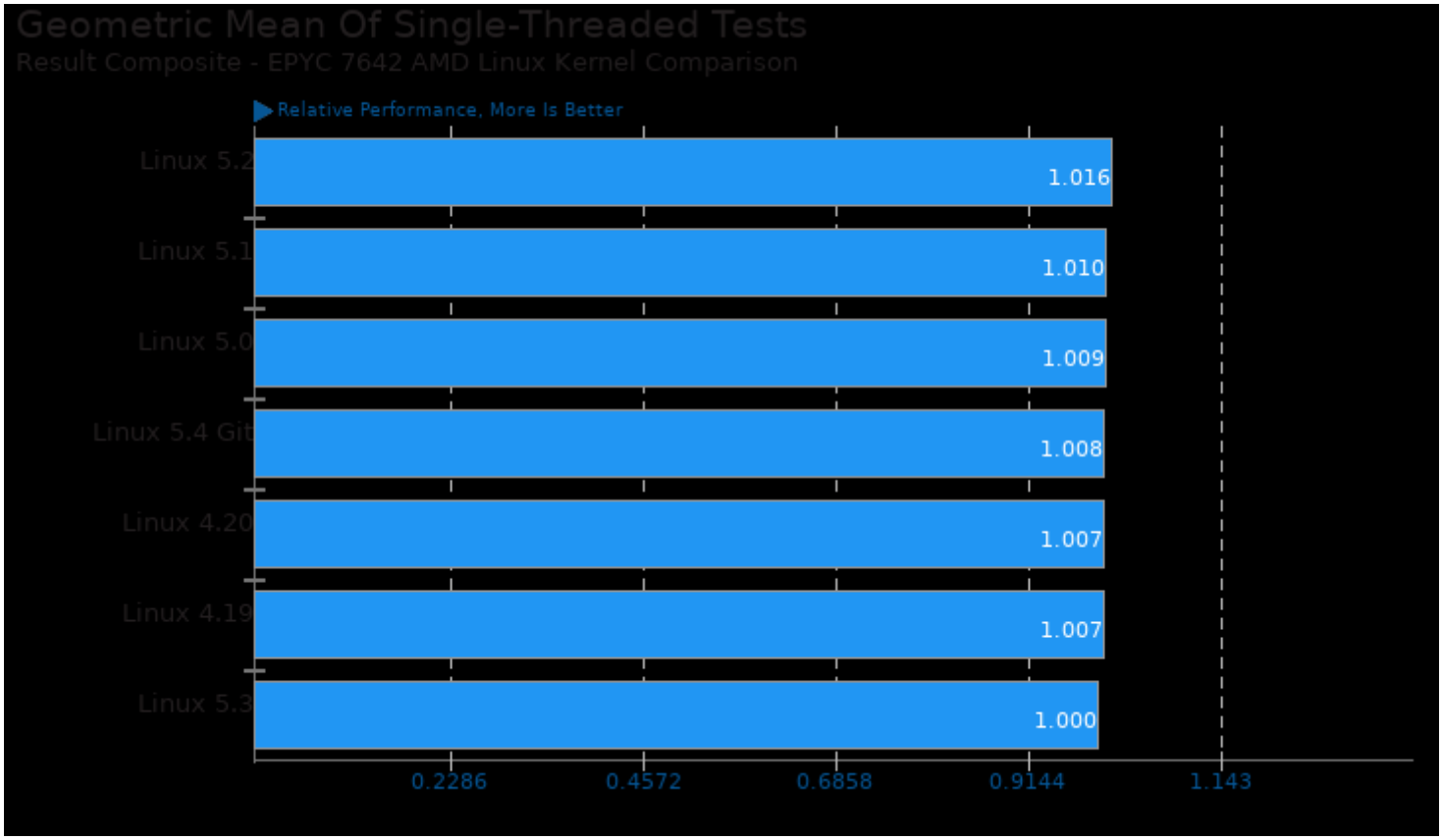


Geometric mean based upon tests: pts/apache, pts/pgbench, pts/rocksdb, pts/phpbench, pts/openssl, pts/sqlite and pts/sqlite-speedtest

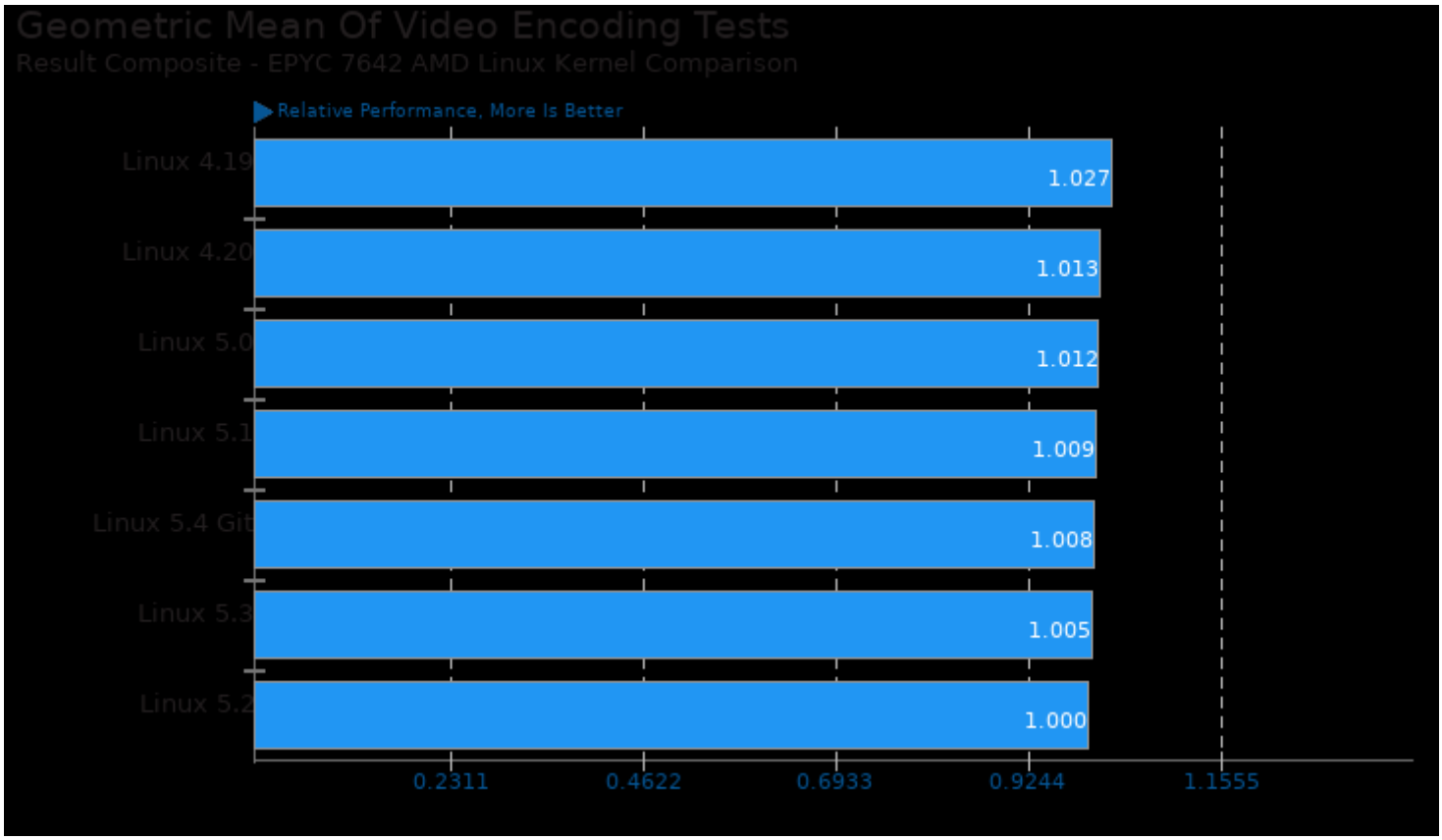


Geometric mean based upon tests: pts/namd, pts/svt-vp9, pts/himeno, pts/build-gcc, pts/build-linux-kernel,

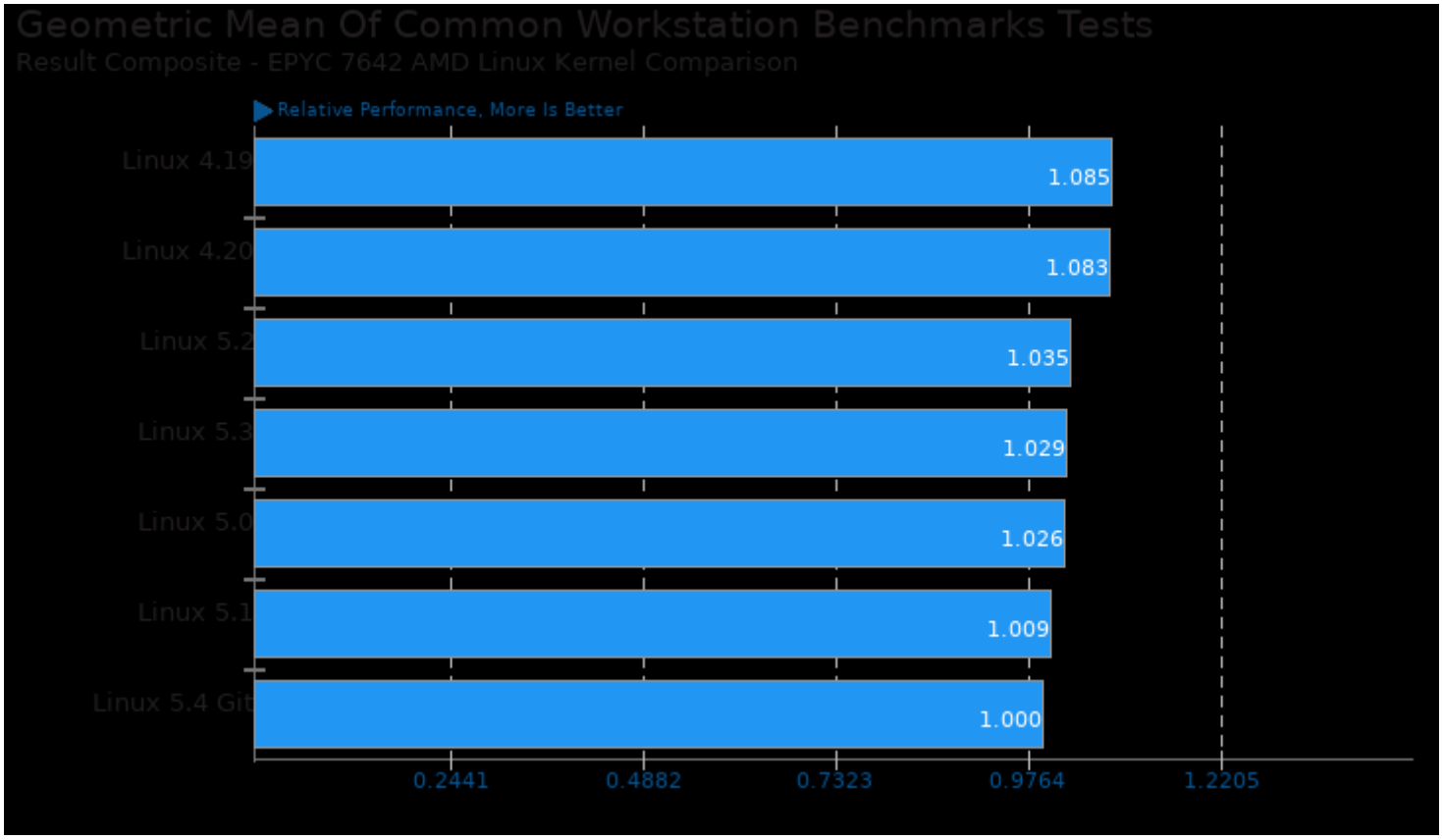
pts/build-llvm, pts/hackbench, pts/openssl, pts/stress-ng, pts/ctx-clock, pts/blender, pts/appleseed, pts/pybench, pts/phpbench, pts/ramspeed and pts/stream



Geometric mean based upon tests: pts/pybench and pts/phpbench



Geometric mean based upon tests: pts/svt-vp9 and pts/rav1e



Geometric mean based upon tests: pts/blender and pts/himeno

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This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 09:37.