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Xeon Platinum 8380 Fedora

2 x Intel Xeon Platinum 8380 testing with a Intel M50CYP2SB2U (SE5C6200.86B.0022.D08.2103221623 BIOS) and ASPEED on Arch Linux via the Phoronix Test Suite.

Automated Executive Summary

CentOS Stream had the most wins, coming in first place for 35% of the tests.

Based on the geometric mean of all complete results, the fastest (CentOS Stream) was 1.108x the speed of the slowest (openSUSE Tumbleweed). Arch Linux was 0.959x the speed of CentOS Stream, Debian 11 was 0.955x the speed of Arch Linux, Fedora 35 Beta was 0.991x the speed of Debian 11, Ubuntu 21.10 Oct1 was 0.999x the speed of Fedora 35 Beta, openSUSE Tumbleweed was 0.994x the speed of Ubuntu 21.10 Oct1.

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

PostgreSQL pgbench (Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency) at 327.433x
PostgreSQL pgbench (Scaling Factor: 100 - Clients: 500 - Mode: Read Write - Average Latency) at 200.511x
Stress-NG (Test: NUMA) at 9.443x
PostgreSQL pgbench (Scaling Factor: 100 - Clients: 500 - Mode: Read Write) at 8.813x
Facebook RocksDB (Test: Random Fill Sync) at 7.843x
PostgreSQL pgbench (Scaling Factor: 100 - Clients: 250 - Mode: Read Write - Average Latency) at 7.619x
PostgreSQL pgbench (Scaling Factor: 100 - Clients: 250 - Mode: Read Write) at 7.612x

Facebook RocksDB (Test: Random Fill) at 6.633x
Facebook RocksDB (Test: Update Random) at 6.534x
PostgreSQL pgbench (Scaling Factor: 100 - Clients: 500 - Mode: Read Only) at 5.774x.

Test Systems:

Fedora 35 Beta

Processor: 2 x Intel Xeon Platinum 8380 @ 3.40GHz (80 Cores / 160 Threads), Motherboard: Intel M50CYP2SB2U (SE5C6200.86B.0022.D08.2103221623 BIOS), Chipset: Intel Device 0998, Memory: 504GB, Disk: 7682GB INTEL SSDPF2KX076TZ, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X710 for 10GBASE-T + 2 x Intel E810-C for QSFP

OS: Fedora Linux 35, Kernel: 5.14.7-300.fc35.x86_64 (x86_64), Compiler: GCC 11.2.1 20210728, File-System: xfs, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Environment Notes: DEBUGINFOD_URLS=https://debuginfod.fedoraproject.org/
Compiler Notes: --build=x86_64-redhat-linux --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,objc,obj-c++,ada,go,d,lto --enable-link-serialization=1 --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=i686 --with-build-config=bootstrap-lto --with-gcc-major-version-only --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Disk Notes: NONE / attr2,inode64,logbsize=32k,logbufs=8,noquota,relatime,rw,seclabel / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd0002a0
Java Notes: OpenJDK Runtime Environment 18.9 (build 11.0.12+7)
Python Notes: Python 3.10.0rc2
Security Notes: SELinux + 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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Ubuntu 21.10 Oct1

Processor: 2 x Intel Xeon Platinum 8380 @ 3.40GHz (80 Cores / 160 Threads), Motherboard: Intel M50CYP2SB2U (SE5C6200.86B.0022.D08.2103221623 BIOS), Chipset: Intel Device 0998, Memory: 504GB, Disk: 7682GB INTEL SSDPF2KX076TZ, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X710 for 10GBASE-T + 2 x Intel E810-C for QSFP

OS: Ubuntu 21.10, Kernel: 5.13.0-16-generic (x86_64), Desktop: GNOME Shell 40.5, Display Server: X Server, Vulkan: 1.1.182, Compiler: GCC 11.2.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-cet --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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-ZPT0kp/gcc-11-11.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-ZPT0kp/gcc-11-11.2.0/debian/tmp-gcn/usr --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-build-config=bootstrap-lto-lean --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 / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd0002a0
Java Notes: OpenJDK Runtime Environment (build 11.0.12+7-Ubuntu-0ubuntu3)
Python Notes: Python 3.9.7
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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

openSUSE Tumbleweed

Processor: 2 x Intel Xeon Platinum 8380 @ 3.40GHz (80 Cores / 160 Threads), Motherboard: Intel M50CYP2SB2U (SE5C6200.86B.0022.D08.2103221623 BIOS), Chipset: Intel Device 0998, Memory: 504GB, Disk: 7682GB INTEL SSDPF2KX076TZ + 15GB Ultra USB 3.0, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X710 for 10GBASE-T + 2 x Intel E810-C for QSFP

OS: openSUSE Tumbleweed 20210929, Kernel: 5.14.6-1-default (x86_64), Desktop: KDE Plasma, Display Server: X Server 1.20.13, Compiler: GCC 11.2.1 20210816 [revision 056e324ce46a7924b5cf10f61010cf9dd2ca10e9], File-System: btrfs, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: always
Environment Notes: DEBUGINFOD_URLS=https://debuginfod.opensuse.org/
Compiler Notes: --build=x86_64-suse-linux --disable-libcc1 --disable-libssp --disable-libstdcxx-pch --disable-libvtv --disable-werror --enable-cet=auto --enable-checking=release --enable-gnu-indirect-function --enable-host-shared --enable-languages=c,c++,objc,fortran,obj-c++,ada,go,d,jit --enable-libphobos --enable-libstdcxx-allocator=new --enable-link-mutex --enable-linux-futex --enable-multilib --enable-offload-targets=nvptx-none,amdgcn-amdhsa, --enable-plugin --enable-ssp --enable-version-specific-runtime-libs --host=x86_64-suse-linux --mandir=/usr/share/man --with-arch-32=x86-64 --with-build-config=bootstrap-lto-lean --with-gcc-major-version-only --with-slibdir=/lib64 --with-tune=generic --without-cuda-driver --without-system-libunwind
Disk Notes: NONE / relatime,rw,space_cache,ssd,subvol=/@/home,subvolid=262 / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd0002a0
Java Notes: OpenJDK Runtime Environment (build 11.0.12+7-suse-3.1-x8664)
Python Notes: Python 3.8.12
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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

CentOS Stream

Processor: 2 x Intel Xeon Platinum 8380 @ 3.40GHz (80 Cores / 160 Threads), Motherboard: Intel M50CYP2SB2U (SE5C6200.86B.0022.D08.2103221623 BIOS), Chipset: Intel Device 0998, Memory: 504GB, Disk: 7682GB INTEL SSDPF2KX076TZ, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X710 for 10GBASE-T + 2 x Intel E810-C for QSFP

OS: CentOS Stream 8, Kernel: 4.18.0-338.el8.x86_64 (x86_64), Desktop: GNOME Shell 3.32.2, Display Server: X Server, Compiler: GCC 8.5.0 20210514, File-System: xfs, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: always
Compiler Notes: --build=x86_64-redhat-linux --disable-libmpx --disable-libunwind-exceptions --enable-__cxa_atexit --enable-bootstrap --enable-cet --enable-checking=release --enable-gnu-indirect-function --enable-gnu-unique-object --enable-initfini-array --enable-languages=c,c++,fortran,lto --enable-multilib --enable-offload-targets=nvptx-none --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-arch_32=x86-64 --with-gcc-major-version-only --with-isl --with-linker-hash-style=gnu --with-tune=generic --without-cuda-driver
Disk Notes: NONE / attr2,inode64,logbsize=32k,logbufs=8,noquota,relatime,rw,seclabel / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate performance - CPU Microcode: 0xd0002a0
Java Notes: OpenJDK Runtime Environment (build 1.8.0_302-b08)
Python Notes: Python 3.6.8
Security Notes: SELinux + 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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Debian 11

Processor: 2 x Intel Xeon Platinum 8380 @ 3.40GHz (80 Cores / 160 Threads), Motherboard: Intel M50CYP2SB2U (SE5C6200.86B.0022.D08.2103221623 BIOS), Chipset: Intel Device 0998, Memory: 504GB, Disk: 7682GB INTEL SSDPF2KX076TZ, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X710 for 10GBASE-T + 2 x Intel E810-C for QSFP

OS: Debian 11, Kernel: 5.10.0-8-amd64 (x86_64), Vulkan: 1.0.2, Compiler: GCC 10.2.1 20210110, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: always
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++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug

--enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-Km9U7s/gcc-10-10.2.1/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-Km9U7s/gcc-10-10.2.1/debian/tmp-gcn/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-build-config=bootstrap-lto-lean --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 / Block Size: 4096
Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xd000270
Java Notes: OpenJDK Runtime Environment (build 11.0.12+7-post-Debian-2)
Python Notes: Python 3.9.2
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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

Arch Linux

Processor: 2 x Intel Xeon Platinum 8380 @ 3.40GHz (80 Cores / 160 Threads), Motherboard: Intel M50CYP2SB2U (SE5C6200.86B.0022.D08.2103221623 BIOS), Chipset: Intel Device 0998, Memory: 504GB, Disk: 7682GB INTEL SSDPF2KX076TZ, Graphics: ASPEED, Monitor: VE228, Network: 2 x Intel X710 for 10GBASE-T + 2 x Intel E810-C for QSFP

OS: Arch Linux, Kernel: 5.14.9-arch2-1 (x86_64), Compiler: GCC 11.1.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-libunwind-exceptions --disable-werror --enable-__cxa_atexit --enable-cet=auto --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-install-libiberty --enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++,d --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-isl --with-linker-hash-style=gnu
Disk Notes: NONE / relatime,rw
Processor Notes: Scaling Governor: intel_cpufreq schedutil - CPU Microcode: 0xd0002a0
Java Notes: OpenJDK Runtime Environment (build 11.0.12+7)
Python Notes: Python 3.9.7
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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	Fedora 35 Beta	Ubuntu 21.10 Oct1	openSUSE Tumbleweed	CentOS Stream	Debian 11	Arch Linux
Stress-NG - MMAP (Bogo Ops/s)	**4720**	3839	4697	**3331**	4174	4530
Normalized	100%	81.34%	99.53%	70.57%	88.43%	95.99%
Standard Deviation	1.2%	1.6%	1%	0.1%	1.4%	0.1%
Stress-NG - NUMA (Bogo Ops/s)	45.25	44.94	7.11	10.33	**5.17**	**48.82**
Normalized	92.69%	92.05%	14.56%	21.16%	10.59%	100%
Standard Deviation	2.5%	0.6%	23.8%	0.8%	0.5%	1.3%
Stress-NG - MEMFD (Bogo Ops/s)	3895	3771	**4285**	**2750**	3916	3842
Normalized	90.91%	88%	100%	64.17%	91.39%	89.67%
Standard Deviation	1.3%	1.9%	1.6%	0.2%	1.6%	0.2%
Stress-NG - Crypto (Bogo Ops/s)	14075	13703	**14258**	**12281**	13483	14009
Normalized	98.71%	96.11%	100%	86.13%	94.56%	98.25%
Standard Deviation	1.5%	1.5%	0.8%	0.1%	0.6%	0.1%

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Stress-NG - Malloc (Bogo Ops/s)	1399403296	1407281591	1410532156	1445156502	1477294639	1405182368
Normalized	94.73%	95.26%	95.48%	97.82%	100%	95.12%
Standard Deviation	0.2%	0.2%	0.4%	0.2%	0.1%	0.2%
Stress-NG - RdRand (Bogo Ops/s)	666960	666871	666960	669870	666684	669356
Normalized	99.57%	99.55%	99.57%	100%	99.52%	99.92%
Standard Deviation	0.6%	0.6%	0.6%	0%	0.6%	0%
Stress-NG - Forking (Bogo Ops/s)	69886	66266	90874	63226	57939	70978
Normalized	76.9%	72.92%	100%	69.58%	63.76%	78.11%
Standard Deviation	0.7%	0.4%	2.3%	0.4%	2.4%	0.2%
Stress-NG - IO_uring (Bogo Ops/s)	336629	91422	75342		258561	275046
Normalized	100%	27.16%	22.38%		76.81%	81.71%
Standard Deviation	4.1%	0.7%	8.5%		1.7%	2.2%
Stress-NG - SENDFILE (Bogo Ops/s)	1225385	1197036	1231360	978143	1149339	1227990
Normalized	99.51%	97.21%	100%	79.44%	93.34%	99.73%
Standard Deviation	0.4%	0.4%	0.5%	2.1%	0.7%	0.1%
Stress-NG - CPU Cache (Bogo Ops/s)	15.93	16.10	16.45	16.26	16.61	17.45
Normalized	91.29%	92.26%	94.27%	93.18%	95.19%	100%
Standard Deviation	0%	2.4%	3.8%	2.3%	6.1%	2.5%
Stress-NG - CPU Stress (Bogo Ops/s)	126640	126296	127127	111992	125486	128536
Normalized	98.53%	98.26%	98.9%	87.13%	97.63%	100%
Standard Deviation	0.5%	0.4%	0.3%	1%	0.3%	1.3%
Stress-NG - Semaphores (Bogo Ops/s)	9177477	9460606	10452080	12432373	10070481	12285180
Normalized	73.82%	76.1%	84.07%	100%	81%	98.82%
Standard Deviation	2.5%	0.2%	0.2%	0.5%	0.1%	0.4%
Stress-NG - Matrix Math (Bogo Ops/s)	290056	292344	294254	333721	300489	294188
Normalized	86.92%	87.6%	88.17%	100%	90.04%	88.15%
Standard Deviation	0.8%	0.6%	0.6%	0.2%	0.5%	0.5%
Stress-NG - Vector Math (Bogo Ops/s)	277479	278045	278158	223731	250970	286563
Normalized	96.83%	97.03%	97.07%	78.07%	87.58%	100%
Standard Deviation	0.5%	0.6%	0.3%	2%	0.3%	0.1%
Stress-NG - Memory Copying (Bogo Ops/s)	13309	13002	13315	8418	8288	8197
Normalized	99.96%	97.65%	100%	63.22%	62.25%	61.56%
Standard Deviation	0.2%	0.1%	0.1%	0.2%	0.1%	0.5%
Stress-NG - Context Switching (Bogo Ops/s)	4484675	5272695	24430642	11482636	17724791	5715029
Normalized	18.36%	21.58%	100%	47%	72.55%	23.39%
Standard Deviation	1.7%	2.1%	1.5%	9.1%	7.3%	1.6%
Stress-NG - G.C.S.F (Bogo Ops/s)	7933317	7962721	7905372	7842753	8138767	8031126
Normalized	97.48%	97.84%	97.13%	96.36%	100%	98.68%
Standard Deviation	0.8%	0.5%	2.3%	1.2%	0.8%	1%

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Stress-NG - G.Q.D.S (Bogo Ops/s)	978.29	964.65	980.62	979.66	984.25	984.22
Normalized	99.39%	98.01%	99.63%	99.53%	100%	100%
Standard Deviation	0.6%	0.5%	0.8%	0.3%	0.3%	0.1%
Stress-NG - S.V.M.P (Bogo Ops/s)	4098551	3578020	3045985	5648012	1764395	4562405
Normalized	72.57%	63.35%	53.93%	100%	31.24%	80.78%
Standard Deviation	9.2%	2.4%	0.3%	0.1%	2.3%	2.3%
OpenSSL - SHA256 (byte/s)	59198740233	58476634107	58447799270	57290460430	60273469430	59517468147
Normalized	98.22%	97.02%	96.97%	95.05%	100%	98.75%
Standard Deviation	0.2%	0.2%	0.1%	0%	0.3%	0.4%
OSPray - San Miguel - SciVis (FPS)	90.91	90.91	90.91	100	90.91	90.91
Normalized	90.91%	90.91%	90.91%	100%	90.91%	90.91%
Standard Deviation	0%	0%	0%		0%	0%
OSPray - San Miguel - Path Tracer (FPS)	10.42	10.42	10.64	10.56	10.68	10.45
Normalized	97.57%	97.57%	99.63%	98.88%	100%	97.85%
Standard Deviation	0%	0%	0%	0.6%	0.6%	0.6%
OSPray - M.R - SciVis (FPS)	111.11	110.19	111.11	125	111.11	111.11
Normalized	88.89%	88.15%	88.89%	100%	88.89%	88.89%
Standard Deviation	0%	2.9%	0%		0%	0%
Embree - Pathtracer - Crown (FPS)	62.1289	64.4883	64.8851	63.6950	63.8788	63.9893
Normalized	95.75%	99.39%	100%	98.17%	98.45%	98.62%
Standard Deviation	0.9%	1.1%	1.7%	0.7%	0.9%	0.5%
Embree - Pathtracer ISPC - Crown (FPS)	64.7554	66.3379	71.8391	73.3976	66.4038	74.0660
Normalized	87.43%	89.57%	96.99%	99.1%	89.65%	100%
Standard Deviation	0.6%	0.5%	2.4%	0.8%	0.6%	1.2%
Embree - Pathtracer - Asian Dragon (FPS)	81.9327	83.0416	83.5001	82.4740	84.4523	81.0275
Normalized	97.02%	98.33%	98.87%	97.66%	100%	95.94%
Standard Deviation	0.9%	1.8%	1.6%	1.8%	1.2%	0.1%
Embree - Pathtracer ISPC - Asian Dragon (FPS)	105.4949	107.6734	108.9060	108.5165	107.0315	103.2698
Normalized	96.87%	98.87%	100%	99.64%	98.28%	94.82%
Standard Deviation	2.2%	1.1%	0.6%	0.9%	2.2%	1.8%
SVT-AV1 - Preset 4 - Bosphorus 4K (FPS)	2.952	2.944	3.036	4.858	2.944	3.314
Normalized	60.77%	60.6%	62.49%	100%	60.6%	68.22%
Standard Deviation	0.5%	0.6%	0.5%	2%	0.7%	1.8%
SVT-AV1 - Preset 8 - Bosphorus 4K (FPS)	30.117	31.697	34.268	58.905	30.512	27.203
Normalized	51.13%	53.81%	58.18%	100%	51.8%	46.18%
Standard Deviation	0.7%	0.6%	0.5%	1.7%	2.2%	2.3%
SVT-HEVC - 1 - Bosphorus 1080p (FPS)	30.32	29.74	30.04	38.01	29.69	38.06
Normalized	79.66%	78.14%	78.93%	99.87%	78.01%	100%
Standard Deviation	0.9%	2.2%	0.7%	1.1%	0.9%	2.4%
SVT-HEVC - 7 - Bosphorus 1080p (FPS)	168.45	174.24	176.05	304.17	170.57	130.00
Normalized	55.38%	57.28%	57.88%	100%	56.08%	42.74%

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Standard Deviation	1.8%	1.4%	1.9%	2.5%	0.6%	2.5%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	207.34	214.16	212.88	459.87	203.41	168.85
Normalized	45.09%	46.57%	46.29%	100%	44.23%	36.72%
Standard Deviation	1.9%	2.4%	0.7%	2.7%	2.2%	1.1%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	172.78	178.73	178.98	361.28	169.81	127.23
Normalized	47.82%	49.47%	49.54%	100%	47%	35.22%
Standard Deviation	0.9%	1.5%	2.4%	1.2%	2.4%	3.1%
x265 - Bosphorus 4K (FPS)	11.91	12.08	12.30	27.07	13.49	11.28
Normalized	44%	44.63%	45.44%	100%	49.83%	41.67%
Standard Deviation	1%	1.8%	0.4%	5.8%	1.6%	1.7%
x265 - Bosphorus 1080p	26.99	26.95	27.06	76.57	28.19	22.73
Normalized	35.25%	35.2%	35.34%	100%	36.82%	29.69%
Standard Deviation	1.4%	2.1%	1.7%	2.1%	1.2%	0.8%
simdjson - Kostya (GB/s)	2.44	2.45	2.50	2.44	2.53	2.45
Normalized	96.44%	96.84%	98.81%	96.44%	100%	96.84%
Standard Deviation	0.2%	0.2%	0.2%	0%	0%	0%
simdjson - LargeRand (GB/s)	0.86	0.85	0.87	0.85	0.86	0.85
Normalized	98.85%	97.7%	100%	97.7%	98.85%	97.7%
Standard Deviation	0.7%	0%	0%	0.7%	0%	0%
simdjson - PartialTweets (GB/s)	3.63	3.71	3.65	3.83	3.78	3.66
Normalized	94.78%	96.87%	95.3%	100%	98.69%	95.56%
Standard Deviation	0.3%	0%	0.6%	0.2%	0.2%	0.6%
simdjson - DistinctUserID (GB/s)	4.16	4.22	4.12	4.23	4.31	4.24
Normalized	96.52%	97.91%	95.59%	98.14%	100%	98.38%
Standard Deviation	0.6%	0.1%	0.1%	0.5%	0%	0.1%
High Performance Conjugate Gradient (GFLOP/s)	39.6784	40.0345	39.8828	40.5930	40.1957	40.8601
Normalized	97.11%	97.98%	97.61%	99.35%	98.37%	100%
Standard Deviation	0.3%	0.2%	0.4%	0.3%	0.7%	0.1%
GNU GMP GMPbench - Total Time (GMPbench Score)	3777	4503	3828	4229	4519	3875
Normalized	83.58%	99.65%	84.72%	93.58%	100%	85.74%
Intel Open Image Denoise - RT.hdr_alb_nrm.3840x2160 (Images / Sec)	2.87	2.94	2.90	2.94	2.91	2.90
Normalized	97.62%	100%	98.64%	100%	98.98%	98.64%
Standard Deviation	0.3%	0.3%	0.6%	1%	0.5%	0.3%
ONNX Runtime - yolov4 - OpenMP CPU	548	541				539
Normalized	100%	98.72%				98.36%
Standard Deviation	1.2%	1%				1.8%
ONNX Runtime - bertsquad-10 - OpenMP CPU (Inferences/min)	687	648				667
Normalized	100%	94.32%				97.09%
Standard Deviation	5.7%	5.9%				5%

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ONNX Runtime - fcn-resnet101-11 - OpenMP CPU (Inferences/min)	474	**476**				**466**
Normalized	99.58%	100%				97.9%
Standard Deviation	1.2%	1.9%				0.8%
ONNX Runtime - shufflenet-v2-10 - OpenMP CPU (Inferences/min)	12630	**11943**				**12801**
Normalized	98.66%	93.3%				100%
Standard Deviation	1%	1.1%				1.5%
OpenVKL - vklBenchmark ISPC (Items / Sec)	271	**268**	274	**285**	275	279
Normalized	95.09%	94.04%	96.14%	100%	96.49%	97.89%
Standard Deviation	0%	0.6%	1%	0.6%	1.1%	0.5%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	2387053	**2282293**	2393687	2333336	2372627	**2419880**
Normalized	98.64%	94.31%	98.92%	96.42%	98.05%	100%
Standard Deviation	0.1%	0.1%	0%	0.5%	0.1%	0.2%
SecureMark - SecureMark-TLS (marks)	228244	223678	229049	**234638**	230202	**220316**
Normalized	97.27%	95.33%	97.62%	100%	98.11%	93.9%
Standard Deviation	0.1%	0.1%	2.4%	0.4%	0.1%	0.2%
LZ4 Compression - 3 - Compression Speed (MB/s)	**43.83**	45.33	46.33	**49.78**	49.48	44.28
Normalized	88.05%	91.06%	93.07%	100%	99.4%	88.95%
Standard Deviation	0.8%	0%	0.3%	0.4%	0.2%	0%
LZ4 Compression - 3 - D.S (MB/s)	7137	7194	7153	**6931**	**7475**	7246
Normalized	95.47%	96.23%	95.69%	92.72%	100%	96.93%
Standard Deviation	0.1%	0.2%	0.5%	0%	0.1%	1%
LZ4 Compression - 9 - Compression Speed (MB/s)	43.19	44.32	45.51	**48.94**	48.49	**42.88**
Normalized	88.25%	90.56%	92.99%	100%	99.08%	87.62%
Standard Deviation	0.1%	0.1%	0.1%	0.2%	0%	1.5%
LZ4 Compression - 9 - D.S (MB/s)	7150	7211	7115	**7100**	**7484**	7225
Normalized	95.53%	96.34%	95.07%	94.86%	100%	96.54%
Standard Deviation	0.2%	0.1%	0.1%	2.2%	0%	0.2%
Zstd Compression - 8 - Compression Speed (MB/s)	2027	2035	**1947**	**2763**	1948	2327
Normalized	73.35%	73.64%	70.44%	100%	70.49%	84.21%
Standard Deviation	1%	5.1%	3.7%	6.7%	1.5%	1.7%
Zstd Compression - 8 - D.S (MB/s)	**3105**	2917	3026	2987	**2733**	3103
Normalized	100%	93.97%	97.48%	96.22%	88.02%	99.94%
Standard Deviation	0.2%	12%	7.6%	0.8%	20%	0.1%
Zstd Compression - 19 - Compression Speed (MB/s)	81.2	**80.2**	87.1	**89.9**	86.6	81.1
Normalized	90.32%	89.21%	96.89%	100%	96.33%	90.21%
Standard Deviation	1.2%	1.1%	2.2%	1.7%	3.9%	1.1%

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Zstd Compression - 19 - D.S (MB/s)	2658	2646	2671	2578	2620	2648
Normalized	99.52%	99.08%	100%	96.53%	98.09%	99.14%
Standard Deviation	0.2%	0.1%	0.1%	0.3%	0.8%	0.2%
Zstd Compression - 19, Long Mode - Compression Speed (MB/s)	44.6	44.1	48.0	45.1	44.7	44.6
Normalized	92.92%	91.88%	100%	93.96%	93.13%	92.92%
Standard Deviation	0.3%	0.5%	2.6%	1%	1.8%	2.4%
Zstd Compression - 19, Long Mode - D.S (MB/s)	2729	2690	2743	2638	2732	2735
Normalized	99.49%	98.04%	100%	96.15%	99.57%	99.68%
Standard Deviation	0.5%	0.3%	0.4%	0.3%	0.3%	0.3%
7-Zip Compression - C.S.T (MIPS)	290145	306548	354644	392910	351256	308670
Normalized	73.85%	78.02%	90.26%	100%	89.4%	78.56%
Standard Deviation	0.6%	0.9%	0.6%	1.1%	0.3%	0.9%
JPEG XL libjxl - PNG - 7 (MP/s)	7.24	7.30	8.15	11.76	8.15	7.06
Normalized	61.56%	62.07%	69.3%	100%	69.3%	60.03%
Standard Deviation	1.7%	0.4%	0.7%	0.2%	0.8%	1.5%
JPEG XL libjxl - PNG - 8 (MP/s)	0.66	0.66	0.76	0.73	0.73	0.66
Normalized	86.84%	86.84%	100%	96.05%	96.05%	86.84%
Standard Deviation	0%	0.9%	0.8%	0%	0.8%	0%
JPEG XL libjxl - JPEG - 7 (MP/s)	40.42	40.72	49.82	84.36	45.67	39.43
Normalized	47.91%	48.27%	59.06%	100%	54.14%	46.74%
Standard Deviation	0.2%	0.2%	0.7%	0.8%	0.8%	0.8%
JPEG XL libjxl - JPEG - 8 (MP/s)	15.68	16.39	17.57	27.99	17.24	15.70
Normalized	56.02%	58.56%	62.77%	100%	61.59%	56.09%
Standard Deviation	0.3%	0.1%	0.9%	1.1%	0.5%	0.1%
Stockfish - Total Time (Nodes/s)	180079720	176162289	183803628	183054178	178004391	177528188
Normalized	97.97%	95.84%	100%	99.59%	96.84%	96.59%
Standard Deviation	2.1%	2.6%	2.1%	2.9%	0.5%	3.3%
GROMACS - MPI CPU - water_GMX50_bare (Ns/Day)	9.049	9.038	9.076	8.719	9.150	
Normalized	98.9%	98.78%	99.19%	95.29%	100%	
Standard Deviation	0.4%	2.2%	0.6%	0.2%	0.2%	
Apache Cassandra - Writes (Op/s)	155829	150942	150708	266050	149220	106839
Normalized	58.57%	56.73%	56.65%	100%	56.09%	40.16%
Standard Deviation	2.8%	2.9%	2.5%	1.6%	2.5%	2.4%
Facebook RocksDB - Rand Fill (Op/s)	101033	99799		619860	93455	103108
Normalized	16.3%	16.1%		100%	15.08%	16.63%
Standard Deviation	0.4%	0.2%		0.1%	0.9%	0%
Facebook RocksDB - Rand Read (Op/s)	369206119	324373890		332140763	356094496	349410415
Normalized	100%	87.86%		89.96%	96.45%	94.64%
Standard Deviation	4%	1.9%		2.4%	0.2%	0.3%

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Facebook RocksDB - Update Rand (Op/s)	96320	94412		586633	89779	99751
Normalized	16.42%	16.09%		100%	15.3%	17%
Standard Deviation	0.2%	0.1%		0.1%	0.2%	0.6%
Facebook RocksDB - Rand Fill Sync (Op/s)	100599	71086		536318	68379	102363
Normalized	18.76%	13.25%		100%	12.75%	19.09%
Standard Deviation	0.2%	0.1%		0.3%	0.9%	0.1%
Facebook RocksDB - R.R.W.R (Op/s)	884458	866761		3806446	837568	889444
Normalized	23.24%	22.77%		100%	22%	23.37%
Standard Deviation	0.2%	0.1%		1.3%	0.1%	0.1%
Node.js Express HTTP Load Test (Reqs/sec)	5453	7318		10069	4676	5620
Normalized	54.16%	72.68%		100%	46.44%	55.81%
Standard Deviation	2.4%	4.4%		2.4%	1.3%	4.3%
nginx - 100 (Reqs/sec)	88738	72553	78819	213115	74654	63777
Normalized	41.64%	34.04%	36.98%	100%	35.03%	29.93%
Standard Deviation	1.9%	0.7%	1.6%	0.9%	0.3%	0.9%
nginx - 200 (Reqs/sec)	204765	168716	195438	188446	95362	186361
Normalized	100%	82.4%	95.44%	92.03%	46.57%	91.01%
Standard Deviation	1%	19.3%	2.3%	0.5%	0.5%	1.4%
nginx - 500 (Reqs/sec)	213761	189132	206192	196944	200483	193418
Normalized	100%	88.48%	96.46%	92.13%	93.79%	90.48%
Standard Deviation	1.1%	2.5%	1.1%	0.8%	8.1%	2.1%
nginx - 1000 (Reqs/sec)	216774	191182	208713	200334	204201	195471
Normalized	100%	88.19%	96.28%	92.42%	94.2%	90.17%
Standard Deviation	1%	1.1%	1.2%	1.2%	9.8%	2.2%
Apache HTTP Server - 100 (Reqs/sec)	40138	30630	78275	118170	28231	30174
Normalized	33.97%	25.92%	66.24%	100%	23.89%	25.53%
Standard Deviation	1.1%	0.9%	0.4%	0.9%	1.5%	0.4%
Apache HTTP Server - 200 (Reqs/sec)	39792	43438	196789	131724	49245	128457
Normalized	20.22%	22.07%	100%	66.94%	25.02%	65.28%
Standard Deviation	0.4%	0.8%	1.3%	0.5%	1%	2.9%
Apache HTTP Server - 1000 (Reqs/sec)	59961	106682	206714	119249	39218	113981
Normalized	29.01%	51.61%	100%	57.69%	18.97%	55.14%
Standard Deviation	17.5%	17.8%	1.7%	0.9%	4.8%	4.3%
PHPBench - P.B.S (Score)	761666	784757	628171	640144	727869	780762
Normalized	97.06%	100%	80.05%	81.57%	92.75%	99.49%
Standard Deviation	0.2%	0.5%	1.9%	0.3%	0.1%	0.4%
OpenSSL - RSA4096 (sign/s)	17707	17798	17744	17701	17850	18107
Normalized	97.79%	98.3%	98%	97.76%	98.58%	100%
Standard Deviation	1.2%	0.9%	1.3%	0.3%	1%	0.2%
NAS Parallel Benchmarks - BT.C (Mop/s)	48296	192541	48701	49586	191625	
Normalized	25.08%	100%	25.29%	25.75%	99.52%	
Standard Deviation	0.5%	0.6%	0.4%	0.1%	2.4%	
NAS Parallel Benchmarks - CG.C (Mop/s)	20483	39438	20497	22965	39866	
Normalized	51.38%	98.93%	51.41%	57.61%	100%	
Standard Deviation	1.4%	0.7%	5.5%	1.6%	0.6%	

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NAS Parallel Benchmarks - EP.D (Mop/s)	2725	**8873**	2873	**2605**	8510	
Normalized	30.71%	100%	32.38%	29.36%	95.9%	
Standard Deviation	0.1%	3.7%	1.4%	2.2%	2.4%	
NAS Parallel Benchmarks - FT.C (Mop/s)	**36258**	91713	37549	38712	**93063**	
Normalized	38.96%	98.55%	40.35%	41.6%	100%	
Standard Deviation	0.3%	2.4%	1.2%	0.1%	6.5%	
NAS Parallel Benchmarks - IS.D (Mop/s)	**1879**	3024	2040	2034	**3243**	2061
Normalized	57.92%	93.24%	62.91%	62.73%	100%	63.56%
Standard Deviation	3.1%	2%	2.5%	0.3%	1.8%	1.3%
NAS Parallel Benchmarks - LU.C (Mop/s)	38573	177749	**38036**	39290	**178836**	
Normalized	21.57%	99.39%	21.27%	21.97%	100%	
Standard Deviation	0.7%	2.4%	0.8%	1.2%	1.4%	
NAS Parallel Benchmarks - MG.C (Mop/s)	**35006**	117165	36360	45452	**117312**	
Normalized	29.84%	99.87%	30.99%	38.74%	100%	
Standard Deviation	2.2%	0.2%	3.1%	0.3%	0.5%	
NAS Parallel Benchmarks - SP.B (Mop/s)	**23010**	113703	23088	23861	**115022**	
Normalized	20%	98.85%	20.07%	20.75%	100%	
Standard Deviation	1.1%	1%	0.6%	0.2%	1%	
NAS Parallel Benchmarks - SP.C (Mop/s)	**23992**	**91411**	24133	24408	90606	
Normalized	26.25%	100%	26.4%	26.7%	99.12%	
Standard Deviation	0.9%	0.3%	0.4%	0.3%	0%	
PostgreSQL pgbench - 100 - 250 - Read Only (TPS)	**991583**	937156	**912058**	984861	953348	941552
Normalized	100%	94.51%	91.98%	99.32%	96.14%	94.95%
Standard Deviation	2.3%	8.9%	20.3%	7.3%	7.2%	4.8%
PostgreSQL pgbench - 100 - 250 - Read Write (TPS)	32630	31120	**12099**	**92097**	28458	84918
Normalized	35.43%	33.79%	13.14%	100%	30.9%	92.2%
Standard Deviation	0.1%	0.3%	3.3%	0.2%	2.9%	1.3%
PostgreSQL pgbench - 100 - 500 - Read Only (TPS)	1875522	1859821	1794700	**329430**	**1902066**	1839998
Normalized	98.6%	97.78%	94.36%	17.32%	100%	96.74%
Standard Deviation	2.4%	4.1%	10.7%	230.1%	1.9%	4.1%
PostgreSQL pgbench - 100 - 500 - Read Write (TPS)	27335	30731	**9872**	39695	23512	**87000**
Normalized	31.42%	35.32%	11.35%	45.63%	27.03%	100%
Standard Deviation	0.1%	0.2%	1%	122.8%	1.2%	0.4%
OpenSSL - RSA4096	1187547	1191218	1193326	**1186730**	1191301	**1194210**
Normalized	99.44%	99.75%	99.93%	99.37%	99.76%	100%
Standard Deviation	0.2%	0%	0.1%	0.1%	0.9%	0.1%
Google SynthMark - VoiceMark_100 (Voices)	543.430	550.527	**543.043**	547.054	549.780	**558.783**
Normalized	97.25%	98.52%	97.18%	97.9%	98.39%	100%
Standard Deviation	1.9%	1.3%	0.2%	0.1%	0.5%	1.9%

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Chaos Group V-RAY - CPU (vsamples)	63528	**63275**	66690	**67330**	66940	64816
Normalized	94.35%	93.98%	99.05%	100%	99.42%	96.27%
Standard Deviation	0.9%	1%	1.2%	1.6%	1.5%	1.2%
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	**0.28029**	0.27847	0.27899	0.27436	**0.27334**	0.27372
Normalized	97.52%	98.16%	97.97%	99.63%	100%	99.86%
Standard Deviation	0.6%	0.4%	0.3%	0.3%	0.3%	0.2%
LevelDB - Hot Read (us/Op)	**205.520**	182.263	179.589	191.577	**171.136**	180.162
Normalized	83.27%	93.9%	95.29%	89.33%	100%	94.99%
Standard Deviation	2.5%	2%	1.8%	1.3%	1.6%	1.3%
TensorFlow Lite - SqueezeNet (us)	49724	**50688**	49661	47474	47638	**47154**
Normalized	94.83%	93.03%	94.95%	99.33%	98.98%	100%
Standard Deviation	0.5%	1.5%	2.2%	1.4%	1.1%	0.8%
TensorFlow Lite - Inception V4 (us)	710372	**710386**	693874	**667444**	668386	672669
Normalized	93.96%	93.96%	96.19%	100%	99.86%	99.22%
Standard Deviation	0.7%	2.1%	1.1%	0.3%	1.4%	1.5%
TensorFlow Lite - NASNet Mobile (us)	83310	**84493**	82945	**75555**	76318	79477
Normalized	90.69%	89.42%	91.09%	100%	99%	95.07%
Standard Deviation	2%	1.9%	2.8%	1%	2.3%	1.6%
TensorFlow Lite - Mobilenet Float (us)	40682	**42433**	39087	**33156**	37544	33958
Normalized	81.5%	78.14%	84.82%	100%	88.31%	97.64%
Standard Deviation	2.1%	4.2%	1.3%	1.1%	4.1%	1%
TensorFlow Lite - Mobilenet Quant (us)	37666	**41711**	37729	**33739**	37688	35722
Normalized	89.57%	80.89%	89.42%	100%	89.52%	94.45%
Standard Deviation	0.3%	6.4%	3.7%	0.1%	4.5%	0.9%
TensorFlow Lite - I.R.V (us)	594597	595226	**596888**	580283	**570385**	576301
Normalized	95.93%	95.83%	95.56%	98.29%	100%	98.97%
Standard Deviation	0.4%	0.4%	0.3%	1.4%	0.1%	0.2%
PyBench - T.F.A.T.T (Milliseconds)	1157	1011	**1205**	1184	**978**	1028
Normalized	84.53%	96.74%	81.16%	82.6%	100%	95.14%
Standard Deviation	0.2%	0.6%	0.4%	0.4%	0.2%	0.7%
PyPerformance - 2to3 (Milliseconds)	524	515	**556**	353	511	**334**
Normalized	63.74%	64.85%	60.07%	94.62%	65.36%	100%
Standard Deviation	0.2%	0%	0%			1.9%
PyPerformance - chaos (Milliseconds)	132	136	**177**	126	128	**110**
Normalized	83.33%	80.88%	62.15%	87.3%	85.94%	100%
Standard Deviation	1.6%	1.9%	6.7%	0.5%	7%	0.5%
PyPerformance - float (Milliseconds)	128	148	**174**	120	149	**118**
Normalized	92.19%	79.73%	67.82%	98.33%	79.19%	100%
Standard Deviation	0%	9.6%	7.6%	0.5%	7.4%	0.8%
PyPerformance - nbody (Milliseconds)	161	152	**191**	125	138	**120**
Normalized	74.53%	78.95%	62.83%	96%	86.96%	100%

Standard Deviation	2.2%	9.1%	8.3%	0.5%	5.4%	0.8%
PyPerformance - pathlib (Milliseconds)	28.7	26.1	29.4	20.3	24.9	17.7
Normalized	61.67%	67.82%	60.2%	87.19%	71.08%	100%
Standard Deviation	0%	5.2%	6.3%	0.3%	7.4%	0.3%
PyPerformance - raytrace (Milliseconds)	525	487	627	618	468	487
Normalized	89.14%	96.1%	74.64%	75.73%	100%	96.1%
Standard Deviation	0.4%	0.9%	0.7%		1%	0.1%
PyPerformance - json_loads (Milliseconds)	26.2	30.5	31.8	26.3	31.5	24.6
Normalized	93.89%	80.66%	77.36%	93.54%	78.1%	100%
Standard Deviation	1%	7.2%	7.7%	0%	3.9%	0.5%
PyPerformance - crypto_pyaes (Milliseconds)	137	133	173	113	125	106
Normalized	77.37%	79.7%	61.27%	93.81%	84.8%	100%
Standard Deviation	1.5%	9.2%	7.1%	0.5%	7.5%	2%
PyPerformance - regex_compile	206	215	248	208	198	173
Normalized	83.98%	80.47%	69.76%	83.17%	87.37%	100%
Standard Deviation	0.6%	7.9%	2.5%		2.4%	0%
PyPerformance - python_startup	16.1	16.8	19.9	10.4	17.1	15.3
Normalized	64.6%	61.9%	52.26%	100%	60.82%	67.97%
Standard Deviation	0.4%	1%	0.3%	0%	0.6%	0.4%
PyPerformance - django_template	55.8	59.1	67.9	77.8	58.0	49.2
Normalized	88.17%	83.25%	72.46%	63.24%	84.83%	100%
Standard Deviation	2.4%	10.3%	1.1%	0.1%	7.4%	0.1%
PyPerformance - pickle_pure_python (Milliseconds)	516	604	705	540	555	443
Normalized	85.85%	73.34%	62.84%	82.04%	79.82%	100%
Standard Deviation	1%	7.6%	9.5%		7.8%	0.2%
Renaissance - Rand Forest (ms)	1537	1562	1429	688.7	1495	1536
Normalized	44.8%	44.08%	48.2%	100%	46.07%	44.83%
Standard Deviation	2.3%	1%	1.1%	2.2%	1.1%	1.3%
Renaissance - ALS Movie Lens (ms)	18146	18068	18283	6747	18182	19364
Normalized	37.18%	37.34%	36.9%	100%	37.11%	34.84%
Standard Deviation	0.1%	0.5%	1.6%	1.5%	1.4%	0.4%
Renaissance - Apache Spark ALS (ms)	3172	3096	3176	1325	3149	3349
Normalized	41.76%	42.8%	41.72%	100%	42.08%	39.56%
Standard Deviation	0.6%	0.8%	0.8%	0.8%	1%	0.8%
Renaissance - Apache Spark Bayes (ms)	1018	973.5	1172	523.7	992.4	1157
Normalized	51.45%	53.8%	44.69%	100%	52.77%	45.28%
Standard Deviation	2.5%	2.3%	0.8%	8.9%	1.6%	2.4%
Renaissance - Savina Reactors.IO (ms)	21211	21434	20868	14117	21143	21832
Normalized	66.55%	65.86%	67.65%	100%	66.77%	64.66%

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Standard Deviation	3.4%	1.1%	2.4%	0.7%	1.7%	2.4%
Renaissance - F.H.R (ms)	8138	7753	5996		5967	8108
Normalized	73.33%	76.97%	99.52%		100%	73.6%
Standard Deviation	2.4%	0.5%	2.4%		2%	2%
Renaissance - A.U.C.T (ms)	36176	35585	32549	15062	32557	37630
Normalized	41.63%	42.33%	46.27%	100%	46.26%	40.03%
Standard Deviation	1%	2%	0.5%	1.2%	0.6%	1.1%
Renaissance - G.A.U.J.F	6932	6835	6432	1689	6986	7090
Normalized	24.36%	24.7%	26.26%	100%	24.17%	23.82%
Standard Deviation	0.3%	0.8%	0.5%	4.3%	1.2%	0.8%
oneDNN - IP Shapes 1D - bf16bf16bf16 - CPU (ms)	6.50917	6.50961	6.63389	3.00178	2.98827	3.04050
Normalized	45.91%	45.91%	45.05%	99.55%	100%	98.28%
Standard Deviation	49.5%	40.7%	41.1%	0.3%	1.8%	2.5%
oneDNN - IP Shapes 3D - bf16bf16bf16 - CPU (ms)	2.99045	3.96654	2.77560	1.73826	1.72474	1.83573
Normalized	57.67%	43.48%	62.14%	99.22%	100%	93.95%
Standard Deviation	12%	59.2%	10.1%	0.5%	0.9%	0.7%
oneDNN - C.B.S.A - bf16bf16bf16 - CPU (ms)	2.13007	2.12241	2.12178	2.09939	2.10779	2.11395
Normalized	98.56%	98.92%	98.94%	100%	99.6%	99.31%
Standard Deviation	1.5%	2%	1.3%	0.1%	1.5%	1.8%
oneDNN - D.B.s - bf16bf16bf16 - CPU (ms)	3.23502	3.29168	3.23059	3.45007	3.19617	3.20742
Normalized	98.8%	97.1%	98.93%	92.64%	100%	99.65%
Standard Deviation	0.4%	0.4%	0.1%	0.2%	0.1%	0.3%
oneDNN - D.B.s - bf16bf16bf16 - CPU (ms)	3.63442	3.61481	3.63231	3.63602	3.61866	3.64563
Normalized	99.46%	100%	99.52%	99.42%	99.89%	99.15%
Standard Deviation	3.7%	3.5%	3.4%	0.5%	3.7%	4.6%
oneDNN - R.N.N.T - bf16bf16bf16 - CPU (ms)	684.349	680.887	664.141	664.924	654.350	683.101
Normalized	95.62%	96.1%	98.53%	98.41%	100%	95.79%
Standard Deviation	0.7%	0.5%	0.7%	0.8%	0.2%	0.4%
oneDNN - R.N.N.I - bf16bf16bf16 - CPU (ms)	449.104	449.010	438.642	438.770	427.828	448.809
Normalized	95.26%	95.28%	97.53%	97.51%	100%	95.33%
Standard Deviation	0.6%	0.7%	0.4%	0.4%	0.5%	0.3%
PostgreSQL pgbench - 100 - 250 - Read Only - Average Latency (ms)	0.252	0.269	0.297	0.255	0.264	0.266
Normalized	100%	93.68%	84.85%	98.82%	95.45%	94.74%
Standard Deviation	2.4%	9.9%	42.7%	7.6%	7.4%	5%
PostgreSQL pgbench - 100 - 250 - Read Write - Average Latency (ms)	7.663	8.039	20.686	2.715	8.798	2.945
Normalized	35.43%	33.77%	13.12%	100%	30.86%	92.19%
Standard Deviation	0.1%	0.3%	3.2%	0.2%	2.9%	1.3%
Mobile Neural Network - mobilenetV3 (ms)	1.994	1.949	2.069	2.128	1.967	1.979
Normalized	97.74%	100%	94.2%	91.59%	99.08%	98.48%
Standard Deviation	8.4%	0.6%	6.2%	4.8%	5.6%	3.3%

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Mobile Neural Network - squeezenetv1.1 (ms)	3.840	3.770	3.760	**3.881**	3.828	**3.725**
Normalized	97.01%	98.81%	99.07%	95.98%	97.31%	100%
Standard Deviation	5.1%	6.1%	6.1%	5.3%	5.2%	4.1%
Mobile Neural Network - resnet-v2-50 (ms)	19.122	**18.794**	18.854	19.436	**19.756**	18.842
Normalized	98.28%	100%	99.68%	96.7%	95.13%	99.75%
Standard Deviation	1.2%	0.4%	2.9%	1.3%	2.1%	2%
Mobile Neural Network - SqueezeNetV1.0 (ms)	4.672	**4.421**	**5.061**	4.559	4.712	4.923
Normalized	94.63%	100%	87.35%	96.97%	93.82%	89.8%
Standard Deviation	12%	0.4%	4.6%	11.7%	5.5%	4.3%
Mobile Neural Network - MobileNetV2_224 (ms)	2.795	2.731	2.876	**2.720**	2.892	**2.941**
Normalized	97.32%	99.6%	94.58%	100%	94.05%	92.49%
Standard Deviation	5.7%	1.9%	7.1%	3%	3.6%	2.3%
Mobile Neural Network - mobilenet-v1-1.0 (ms)	1.946	**1.844**	**1.995**	1.902	1.930	1.864
Normalized	94.76%	100%	92.43%	96.95%	95.54%	98.93%
Standard Deviation	5.5%	1%	2.7%	2.5%	5.8%	2.3%
Mobile Neural Network - inception-v3 (ms)	22.304	**21.614**	22.326	**22.969**	22.468	22.048
Normalized	96.91%	100%	96.81%	94.1%	96.2%	98.03%
Standard Deviation	2.2%	0.6%	1.3%	1.6%	1.5%	2.3%
NCNN - CPU - mobilenet	**21.31**	21.26	21.27	21.12	**19.34**	21.18
Normalized	90.76%	90.97%	90.93%	91.57%	100%	91.31%
Standard Deviation	2.4%	0.8%	1%	2.4%	1.7%	2.3%
NCNN - CPU-v2-v2 - mobilenet-v2 (ms)	**11.99**	11.85	11.82	11.57	**10.37**	11.68
Normalized	86.49%	87.51%	87.73%	89.63%	100%	88.78%
Standard Deviation	1.2%	0.8%	1.7%	2.5%	0.9%	1.1%
NCNN - CPU - shufflenet-v2 (ms)	11.67	11.70	**11.84**	11.79	**10.42**	11.64
Normalized	89.29%	89.06%	88.01%	88.38%	100%	89.52%
Standard Deviation	0.6%	1.8%	0.2%	3.9%	0.7%	1.5%
NCNN - CPU - mnasnet (ms)	**11.43**	11.28	11.17	10.96	**10.01**	11.17
Normalized	87.58%	88.74%	89.62%	91.33%	100%	89.62%
Standard Deviation	1.8%	0.7%	0.8%	2.5%	0.6%	2%
NCNN - CPU - efficientnet-b0 (ms)	**14.48**	14.32	14.13	14.22	**12.64**	14.17
Normalized	87.29%	88.27%	89.46%	88.89%	100%	89.2%
Standard Deviation	1.9%	0.5%	1.1%	2.2%	0.4%	3.6%
NCNN - CPU - blazeface (ms)	6.96	**6.99**	6.69	6.70	**6.30**	6.75
Normalized	90.52%	90.13%	94.17%	94.03%	100%	93.33%
Standard Deviation	3.5%	2.1%	1.7%	1.6%	0.6%	1.6%
NCNN - CPU - googlenet	**23.54**	22.40	21.51	23.16	**19.78**	21.78
Normalized	84.03%	88.3%	91.96%	85.41%	100%	90.82%
Standard Deviation	5.1%	4.2%	2.1%	4.1%	1.1%	2.4%
NCNN - CPU - vgg16 (ms)	29.02	28.66	31.60	**32.48**	**27.17**	30.46
Normalized	93.63%	94.8%	85.98%	83.65%	100%	89.2%
Standard Deviation	3.2%	4.2%	2.1%	6%	1.5%	5.3%
NCNN - CPU - resnet18 (ms)	14.58	14.09	13.35	**14.97**	**13.19**	13.53
Normalized	90.47%	93.61%	98.8%	88.11%	100%	97.49%
Standard Deviation	6.1%	6.9%	2.2%	8.5%	1.3%	1.8%

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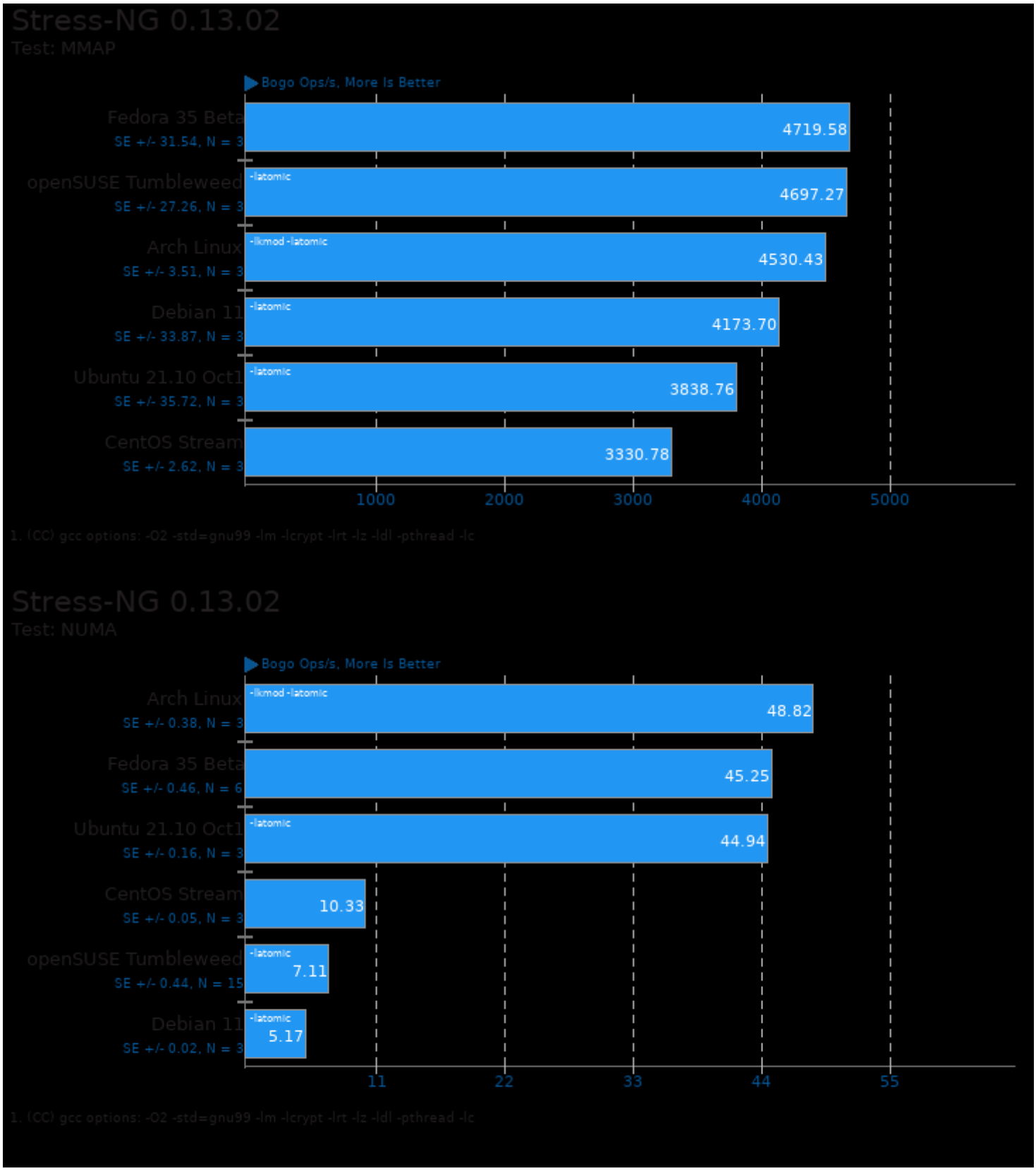
NCNN - CPU - alexnet (ms)	9.69	9.35	**8.53**	**10.62**	8.61	8.70
Normalized	88.03%	91.23%	100%	80.32%	99.07%	98.05%
Standard Deviation	3.3%	7.8%	2.6%	4.4%	0.4%	4.9%
NCNN - CPU - resnet50 (ms)	26.02	26.27	26.94	**27.30**	**24.13**	25.76
Normalized	92.74%	91.85%	89.57%	88.39%	100%	93.67%
Standard Deviation	3.1%	2.2%	1.2%	3.9%	0.7%	2.2%
NCNN - CPU - yolov4-tiny	25.41	25.15	25.69	**27.63**	**24.33**	25.70
Normalized	95.75%	96.74%	94.71%	88.06%	100%	94.67%
Standard Deviation	6.2%	2.2%	0.9%	4.9%	1.3%	1.9%
NCNN - CPU - squeezenet_ssd (ms)	23.85	24.03	23.74	**24.79**	**22.69**	23.64
Normalized	95.14%	94.42%	95.58%	91.53%	100%	95.98%
Standard Deviation	2.3%	0.2%	1.3%	1.9%	0.9%	2.1%
NCNN - CPU - regnety_400m (ms)	37.97	37.70	37.77	**38.04**	**34.93**	37.45
Normalized	91.99%	92.65%	92.48%	91.82%	100%	93.27%
Standard Deviation	3.2%	1.2%	1.7%	2.5%	0.8%	1.8%
NCNN - CPU-v3-v3 - mobilenet-v3 (ms)	**11.66**	11.56	11.43	11.51	**10.22**	11.43
Normalized	87.65%	88.41%	89.41%	88.79%	100%	89.41%
Standard Deviation	2.4%	1%	0.9%	4.8%	0.9%	2.2%
TNN - CPU - DenseNet (ms)	4131	**4539**	3940	**3667**	3893	4020
Normalized	88.78%	80.8%	93.08%	100%	94.21%	91.22%
Standard Deviation	1.7%	2.8%	1.1%	0.1%	0.6%	0.1%
TNN - CPU - MobileNet v2 (ms)	396.219	**441.997**	383.432	**365.187**	375.456	376.362
Normalized	92.17%	82.62%	95.24%	100%	97.26%	97.03%
Standard Deviation	1.2%	8.4%	5%	0.1%	1.6%	1.4%
TNN - CPU - SqueezeNet v2 (ms)	74.022	**76.861**	74.832	73.942	**73.833**	74.829
Normalized	99.74%	96.06%	98.67%	99.85%	100%	98.67%
Standard Deviation	1.6%	1.7%	2.3%	0.3%	1.5%	0.1%
TNN - CPU - SqueezeNet v1.1 (ms)	366.322	**368.220**	**365.690**	367.410	366.341	368.114
Normalized	99.83%	99.31%	100%	99.53%	99.82%	99.34%
Standard Deviation	0.1%	0%	0%	0.2%	0.1%	0%
PostgreSQL pgbench - 100 - 500 - Read Only - Average Latency (ms)	0.267	0.269	0.282	**86.115**	**0.263**	0.272
Normalized	98.5%	97.77%	93.26%	0.31%	100%	96.69%
Standard Deviation	2.4%	4.2%	10.7%	47.3%	1.9%	4.2%
PostgreSQL pgbench - 100 - 500 - Read Write - Average Latency (ms)	18.292	16.270	50.652	**1152**	21.268	**5.747**
Normalized	31.42%	35.32%	11.35%	0.5%	27.02%	100%
Standard Deviation	0.1%	0.2%	1%	87.9%	1.2%	0.4%
DaCapo Benchmark - H2 (msec)	**10776**	10704	9579	**3706**	9850	10518
Normalized	34.39%	34.62%	38.69%	100%	37.62%	35.23%
Standard Deviation	1.7%	1.1%	2.4%	6.6%	0.7%	0.3%
DaCapo Benchmark - Jython (msec)	5386	4727	5022	**3663**	**5519**	5179
Normalized	68.01%	77.49%	72.94%	100%	66.37%	70.73%

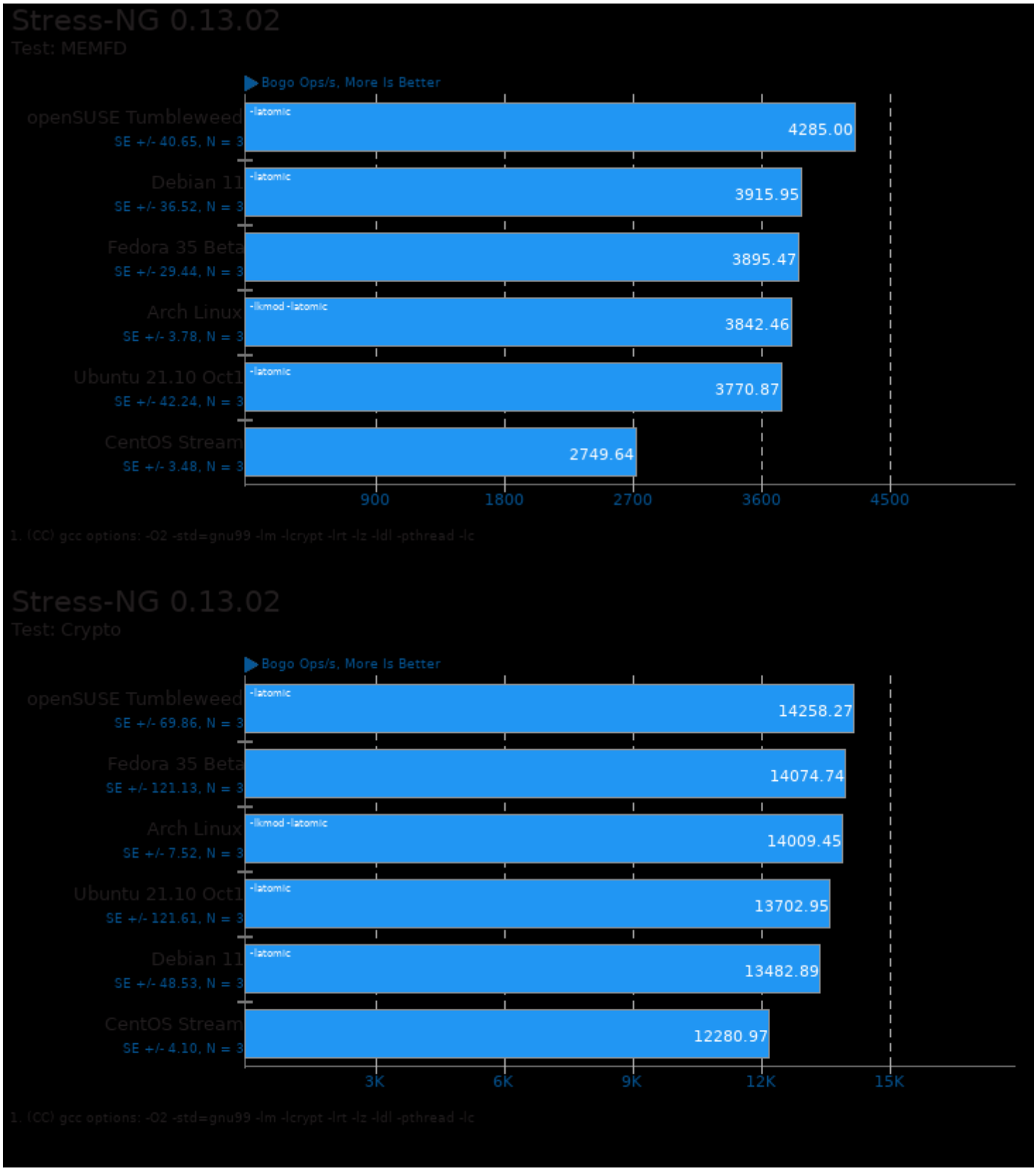
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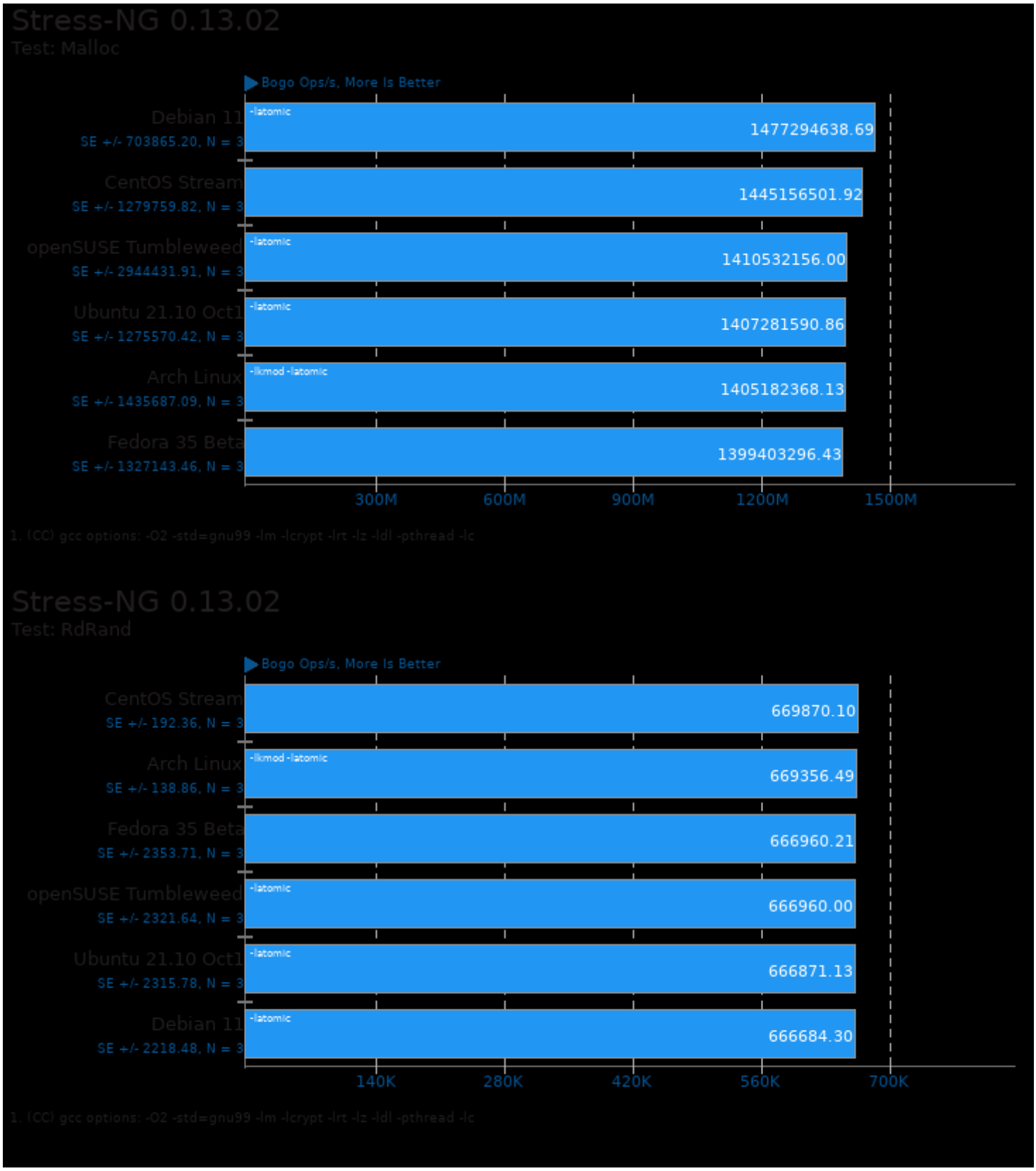
Standard Deviation	13.4%	11.7%	12.5%	1.4%	11.1%	8.8%
DaCapo Benchmark - Tradebeans (msec)	16993	16793	15573	3712	16382	16914
Normalized	21.84%	22.1%	23.84%	100%	22.66%	21.95%
Standard Deviation	0.6%	1.2%	0.8%	10.1%	0.8%	1.5%
Rodinia - OpenMP LavaMD (sec)	45.727	46.576	44.160	45.530	38.065	40.025
Normalized	83.24%	81.73%	86.2%	83.6%	100%	95.1%
Standard Deviation	0.5%	1.8%	0.1%	0.6%	0.8%	0.7%
Rodinia - OpenMP Leukocyte (sec)	48.918	53.420	51.066	45.741	55.253	64.730
Normalized	93.51%	85.63%	89.57%	100%	82.78%	70.66%
Standard Deviation	6.1%	3.9%	8.1%	4.7%	7.6%	2.4%
Rodinia - O.S (sec)	8.179	8.282	8.178	7.965	7.834	8.145
Normalized	95.78%	94.59%	95.79%	98.36%	100%	96.18%
Standard Deviation	8.3%	1.6%	3.4%	2.4%	5.9%	3.6%
Timed Godot Game Engine Compilation - Time To Compile (sec)	61.622	73.737			73.388	72.290
Normalized	100%	83.57%			83.97%	85.24%
Standard Deviation	1.6%	0.8%			1.5%	2.2%
Timed Linux Kernel Compilation - Time To Compile (sec)	25.863	25.284		21.337	24.166	26.286
Normalized	82.5%	84.39%		100%	88.29%	81.17%
Standard Deviation	4.5%	4%		2.4%	4.2%	3.2%
Timed LLVM Compilation - Ninja (sec)	131.309	129.937	131.767	119.737	126.842	144.311
Normalized	91.19%	92.15%	90.87%	100%	94.4%	82.97%
Standard Deviation	0.2%	1%	0.6%	0.5%	0.4%	0.4%
Timed LLVM Compilation - Unix Makefiles (sec)	199.621	200.787	199.274	174.512	202.122	212.996
Normalized	87.42%	86.91%	87.57%	100%	86.34%	81.93%
Standard Deviation	0.6%	0.1%	1.5%	1.1%	0.8%	0.5%
Timed Node.js Compilation - Time To Compile (sec)		98.281	101.799	84.774	98.020	101.517
Normalized		86.26%	83.28%	100%	86.49%	83.51%
Standard Deviation		1.9%	0.3%	0.5%	0.6%	0.7%
Timed Wasmer Compilation - Time To Compile (sec)	44.812	57.203	42.776	39.757	66.403	37.698
Normalized	84.12%	65.9%	88.13%	94.82%	56.77%	100%
Standard Deviation	1.1%	2.5%	0.4%	0.5%	2.4%	1.4%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	59.770	62.546	72.652	60.538	58.901	63.432
Normalized	98.55%	94.17%	81.07%	97.3%	100%	92.86%
Standard Deviation	0.7%	0.8%	0.8%	0.6%	0.7%	0.1%
Blender - BMW27 - CPU-Only (sec)	29.86	29.53	29.20	28.43	28.82	29.60
Normalized	95.21%	96.27%	97.36%	100%	98.65%	96.05%
Standard Deviation	0.3%	0.7%	0.3%	0.4%	0.7%	0.7%
Blender - Classroom - CPU-Only (sec)	73.64	73.41	72.44	71.29	71.32	72.60
Normalized	96.81%	97.11%	98.41%	100%	99.96%	98.2%

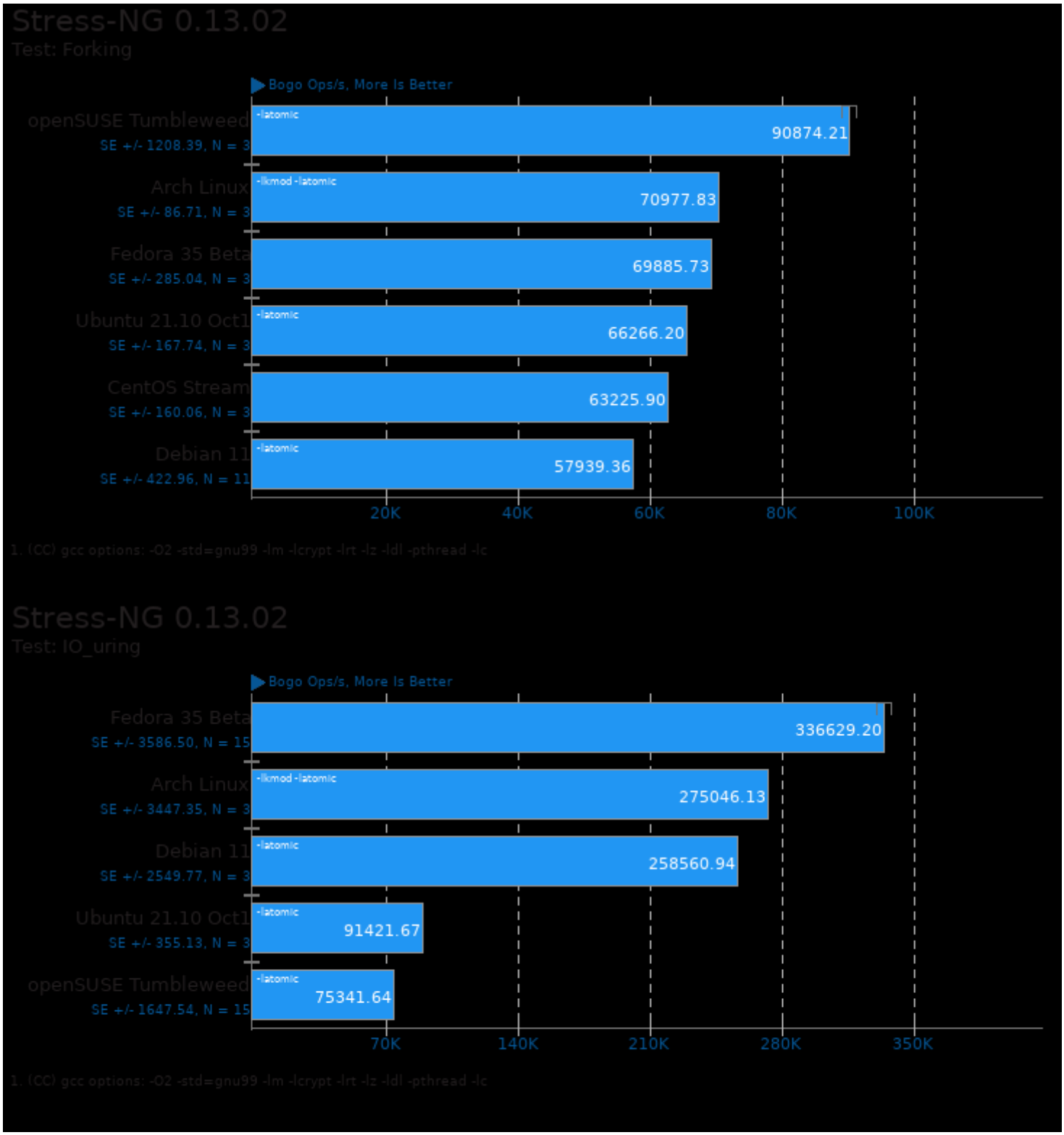
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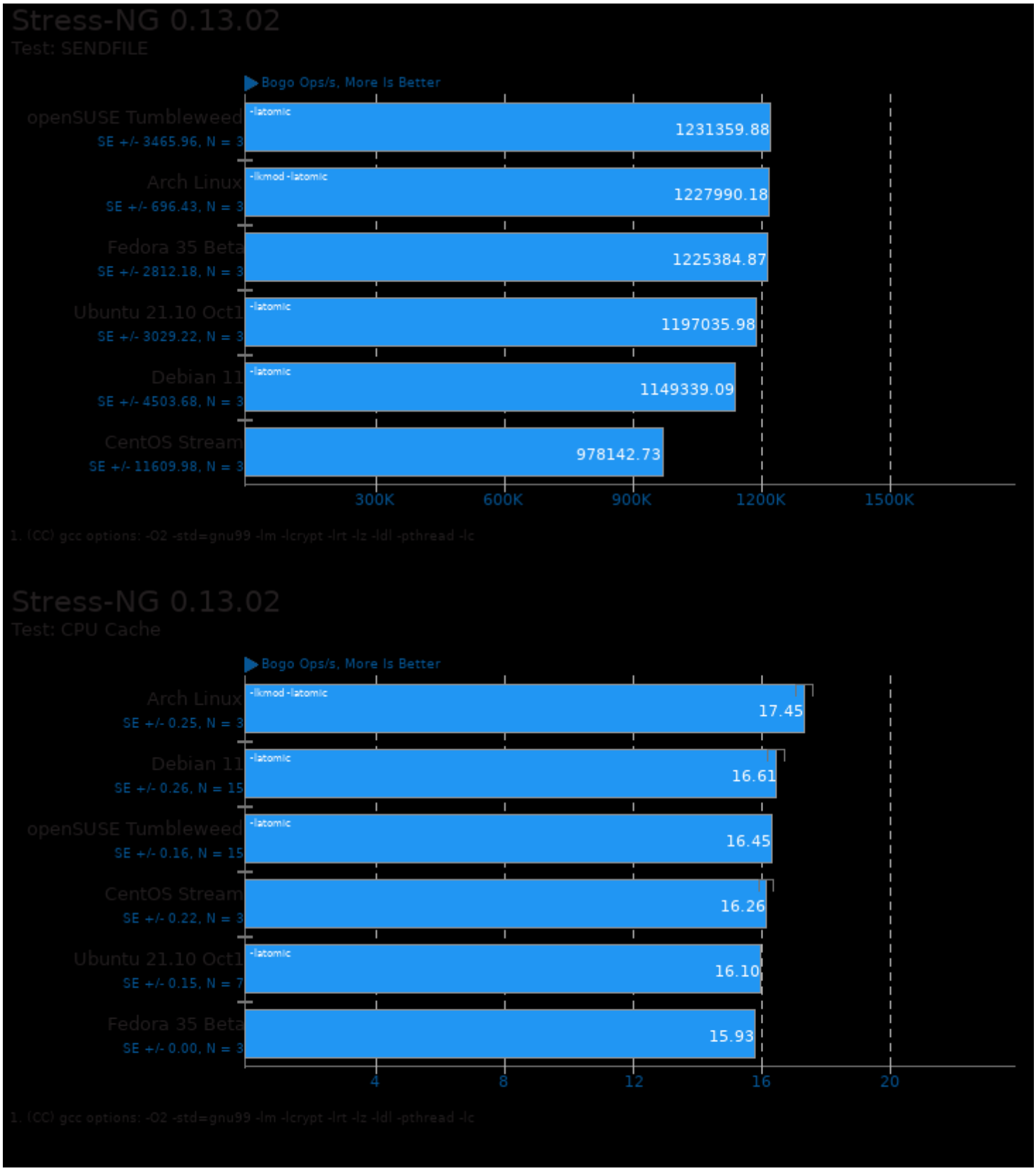
Standard Deviation	0%	0.2%	0.3%	0.4%	0.2%	0.2%
Blender - Barbershop - CPU-Only (sec)	**109.60**	108.68	105.32	**102.30**	104.77	106.75
Normalized	93.34%	94.13%	97.13%	100%	97.64%	95.83%
Standard Deviation	0.7%	0.7%	0.2%	0.1%	0.4%	0.4%
Appleseed - Emily (sec)	178.073796	178.454037	175.525803	**122.616377**	179.056715	**204.68717**
Normalized	68.86%	68.71%	69.86%	100%	68.48%	59.9%
Appleseed - Disney Material (sec)	83.066417	81.862378	83.338994	**57.698613**	81.754584	**86.075688**
Normalized	69.46%	70.48%	69.23%	100%	70.58%	67.03%
Appleseed - Material Tester (sec)	194.072632	190.722468	189.12003	192.679047	**185.484738**	**203.90362**
Normalized	95.57%	97.25%	98.08%	96.27%	100%	90.97%
Git - T.T.C.C.G.C (sec)	**62.329**	60.819	60.788	61.820	**59.890**	60.787
Normalized	96.09%	98.47%	98.52%	96.88%	100%	98.52%
Standard Deviation	0.5%	0.2%	0.4%	0.3%	0.7%	0.2%
Timed LLVM Compilation - Ninja (sec)	132.315	131.763	133.642	**122.391**	129.376	**147.016**
Normalized	92.5%	92.89%	91.58%	100%	94.6%	83.25%
Standard Deviation	0.7%	0.2%	0.4%	0.6%	0.1%	0.2%
Timed LLVM Compilation - Unix Makefiles (sec)	206.063	205.281	206.827	**179.813**	207.298	**222.229**
Normalized	87.26%	87.59%	86.94%	100%	86.74%	80.91%
Standard Deviation	0.7%	1.2%	1.4%	1.3%	1.2%	0.2%

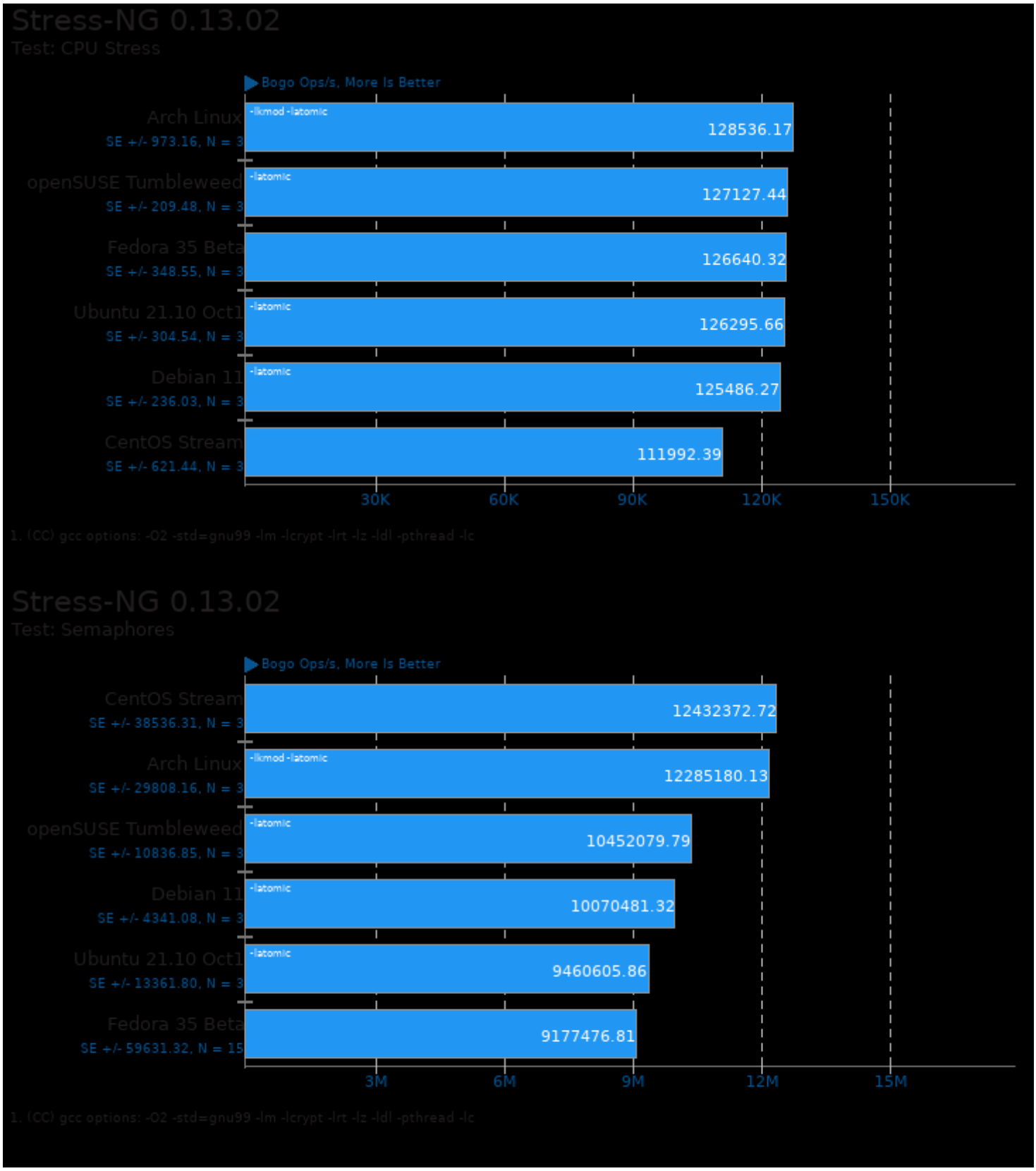

Stress-NG 0.13.02
Test: MMAP
Bogo Ops/s, More Is Better
Fedora 35 Beta
SE +/- 31.54, N = 3
4719.58
openSUSE Tumbleweed
SE +/- 27.26, N = 3
-latomic
4697.27
Arch Linux
SE +/- 3.51, N = 3
-lkmod -latomic
4530.43
Debian 11
SE +/- 33.87, N = 3
-latomic
4173.70
Ubuntu 21.10 Oct1
SE +/- 35.72, N = 3
-latomic
3838.76
CentOS Stream
SE +/- 2.62, N = 3
3330.78
1000
2000
3000
4000
5000
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: NUMA
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 0.38, N = 3
-lkmod -latomic
48.82
Fedora 35 Beta
SE +/- 0.46, N = 6
45.25
Ubuntu 21.10 Oct1
SE +/- 0.16, N = 3
-latomic
44.94
CentOS Stream
SE +/- 0.05, N = 3
10.33
openSUSE Tumbleweed
SE +/- 0.44, N = 15
-latomic
7.11
Debian 11
SE +/- 0.02, N = 3
-latomic
5.17
11
22
33
44
55
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

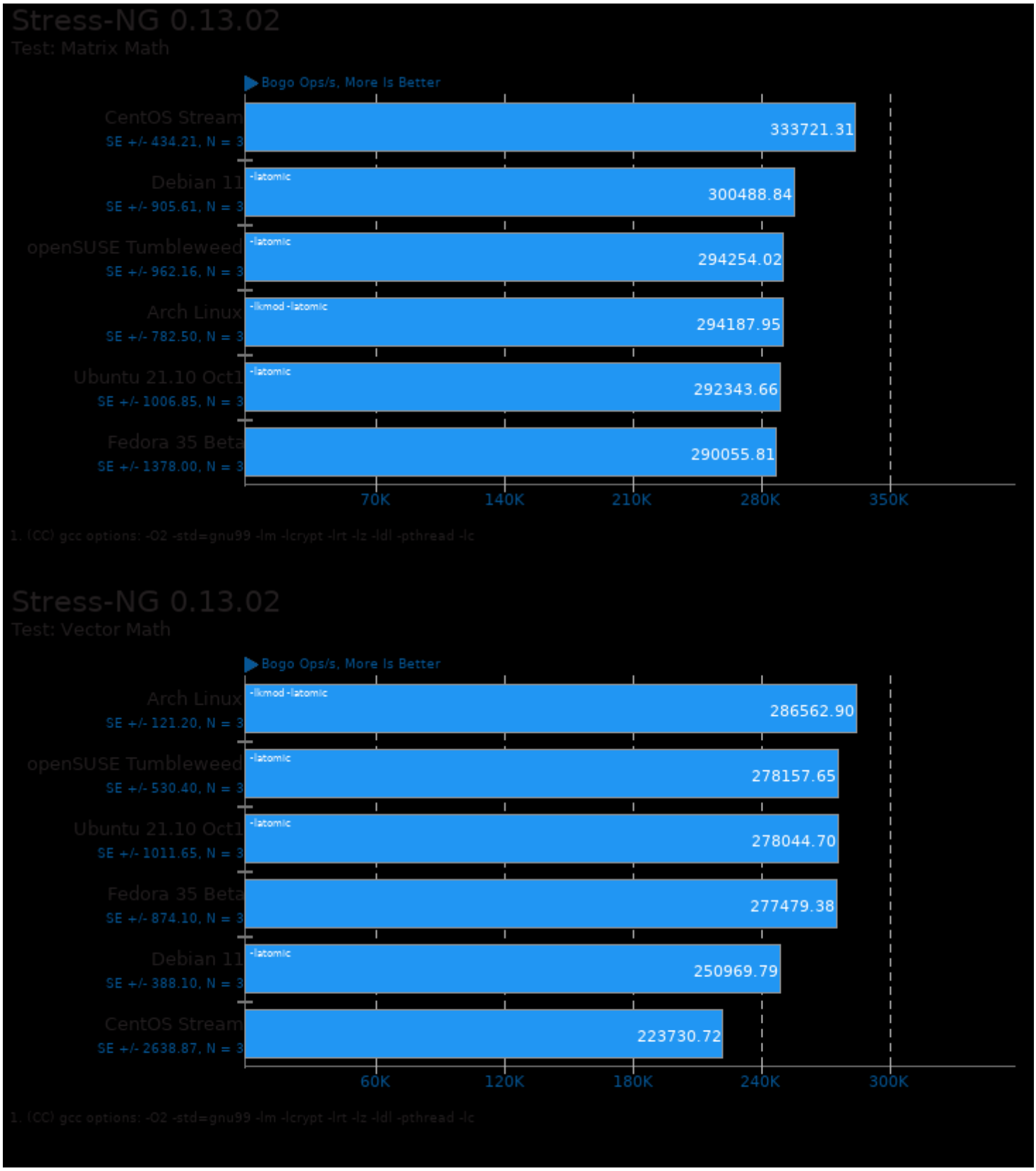

Stress-NG 0.13.02
Test: MEMFD
Bogo Ops/s, More Is Better
openSUSE Tumbleweed
SE +/- 40.65, N = 3
-latomic
4285.00
Debian 11
SE +/- 36.52, N = 3
-latomic
3915.95
Fedora 35 Beta
SE +/- 29.44, N = 3
3895.47
Arch Linux
SE +/- 3.78, N = 3
-lkmod -latomic
3842.46
Ubuntu 21.10 Oct1
SE +/- 42.24, N = 3
-latomic
3770.87
CentOS Stream
SE +/- 3.48, N = 3
2749.64
900
1800
2700
3600
4500
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: Crypto
Bogo Ops/s, More Is Better
openSUSE Tumbleweed
SE +/- 69.86, N = 3
-latomic
14258.27
Fedora 35 Beta
SE +/- 121.13, N = 3
14074.74
Arch Linux
SE +/- 7.52, N = 3
-lkmod -latomic
14009.45
Ubuntu 21.10 Oct1
SE +/- 121.61, N = 3
-latomic
13702.95
Debian 11
SE +/- 48.53, N = 3
-latomic
13482.89
CentOS Stream
SE +/- 4.10, N = 3
12280.97
3K
6K
9K
12K
15K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

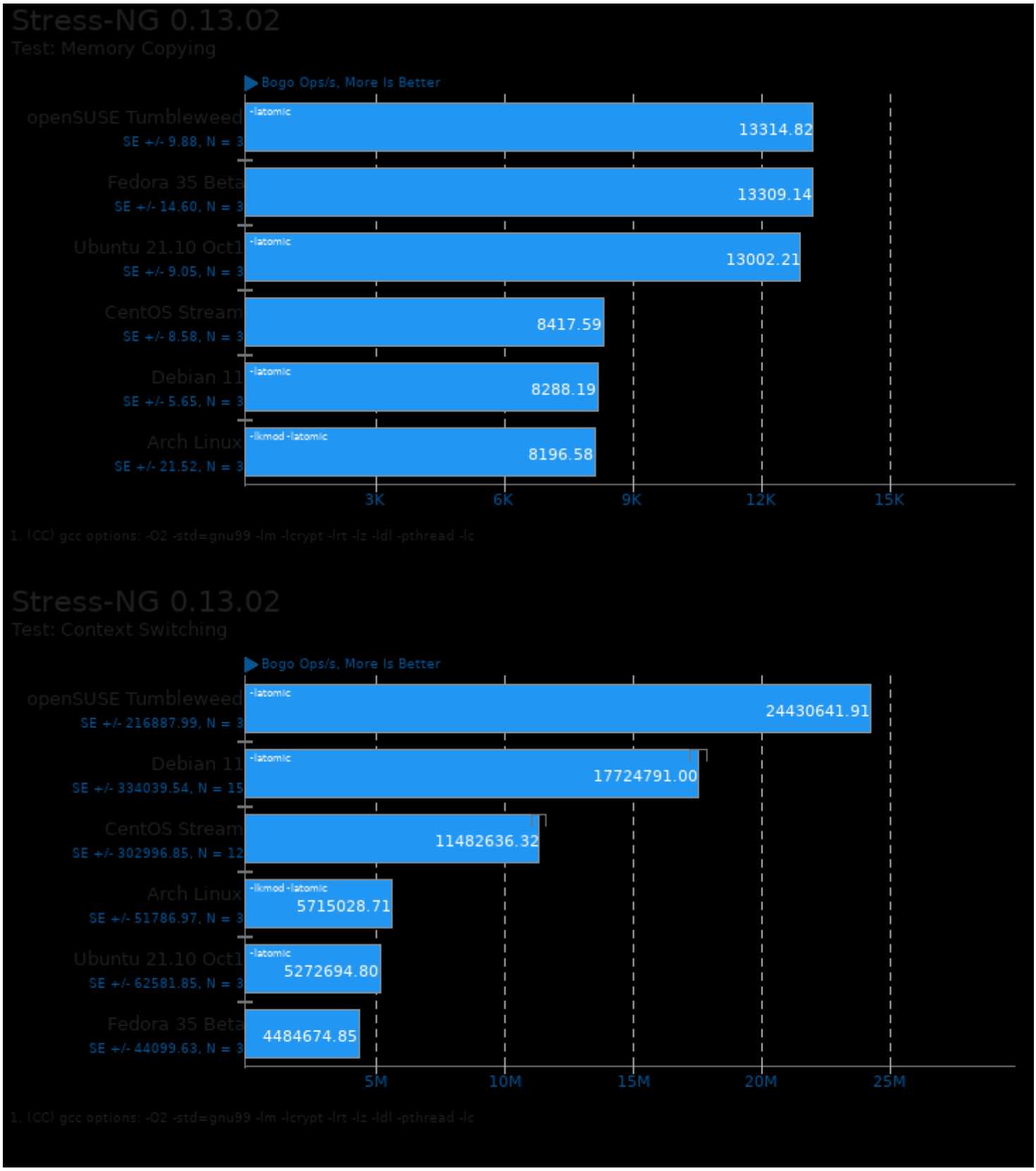

Stress-NG 0.13.02
Test: Malloc
Bogo Ops/s, More Is Better
Debian 11
SE +/- 703865.20, N = 3
-latomic
1477294638.69
CentOS Stream
SE +/- 1279759.82, N = 3
1445156501.92
openSUSE Tumbleweed
SE +/- 2944431.91, N = 3
-latomic
1410532156.00
Ubuntu 21.10 Oct1
SE +/- 1275570.42, N = 3
-latomic
1407281590.86
Arch Linux
SE +/- 1435687.09, N = 3
-lkmod -latomic
1405182368.13
Fedora 35 Beta
SE +/- 1327143.46, N = 3
1399403296.43
300M
600M
900M
1200M
1500M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: RdRand
Bogo Ops/s, More Is Better
CentOS Stream
SE +/- 192.36, N = 3
669870.10
Arch Linux
SE +/- 138.86, N = 3
-lkmod -latomic
669356.49
Fedora 35 Beta
SE +/- 2353.71, N = 3
666960.21
openSUSE Tumbleweed
SE +/- 2321.64, N = 3
-latomic
666960.00
Ubuntu 21.10 Oct1
SE +/- 2315.78, N = 3
-latomic
666871.13
Debian 11
SE +/- 2218.48, N = 3
-latomic
666684.30
140K
280K
420K
560K
700K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

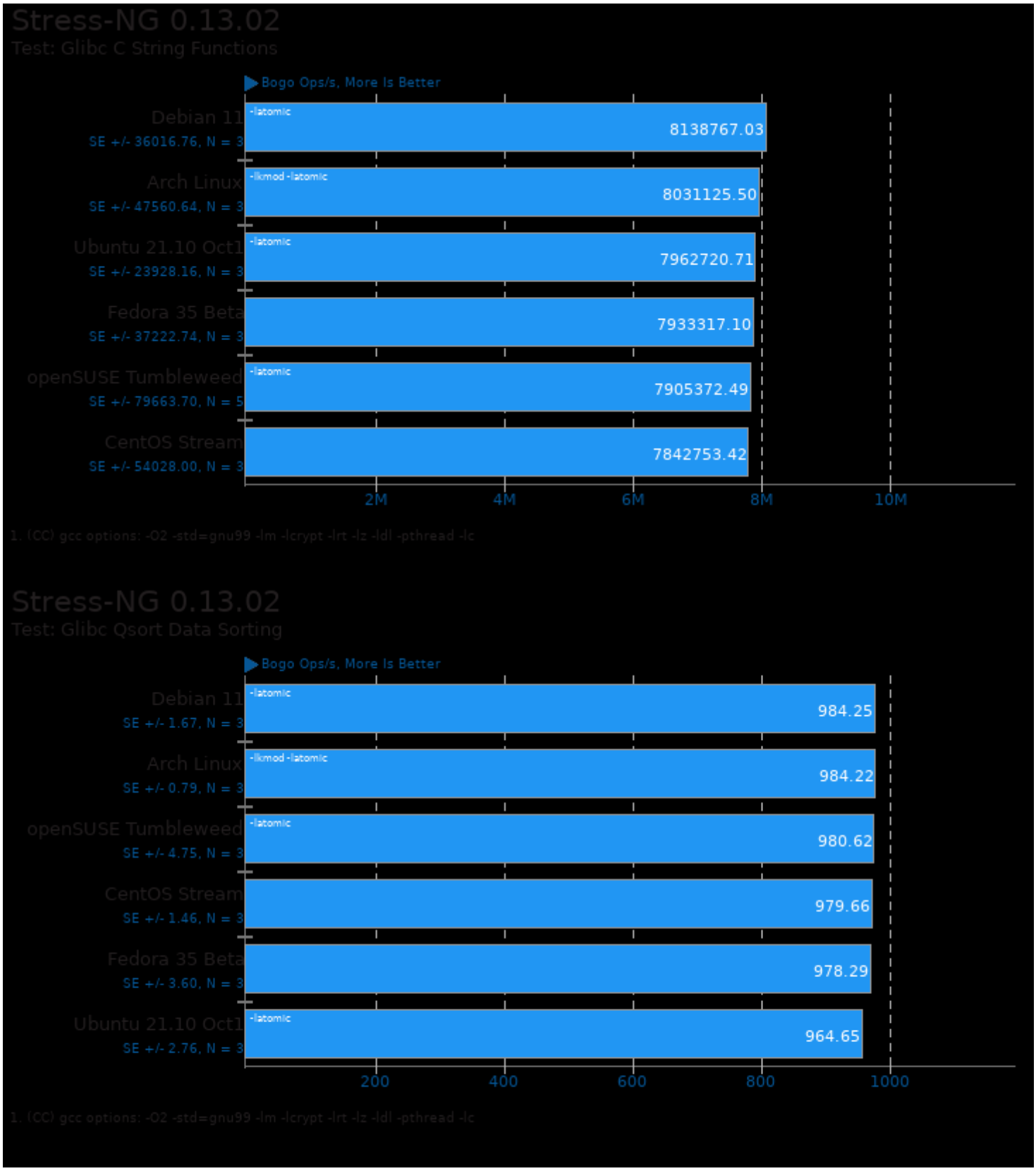

Stress-NG 0.13.02
Test: Forking
Bogo Ops/s, More Is Better
openSUSE Tumbleweed
SE +/- 1208.39, N = 3
-latomic
90874.21
Arch Linux
SE +/- 86.71, N = 3
-lkmod -latomic
70977.83
Fedora 35 Beta
SE +/- 285.04, N = 3
69885.73
Ubuntu 21.10 Oct1
SE +/- 167.74, N = 3
-latomic
66266.20
CentOS Stream
SE +/- 160.06, N = 3
63225.90
Debian 11
SE +/- 422.96, N = 11
-latomic
57939.36
20K
40K
60K
80K
100K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: IO_uring
Bogo Ops/s, More Is Better
Fedora 35 Beta
SE +/- 3586.50, N = 15
336629.20
Arch Linux
SE +/- 3447.35, N = 3
-lkmod -latomic
275046.13
Debian 11
SE +/- 2549.77, N = 3
-latomic
258560.94
Ubuntu 21.10 Oct1
SE +/- 355.13, N = 3
-latomic
91421.67
openSUSE Tumbleweed
SE +/- 1647.54, N = 15
-latomic
75341.64
70K
140K
210K
280K
350K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

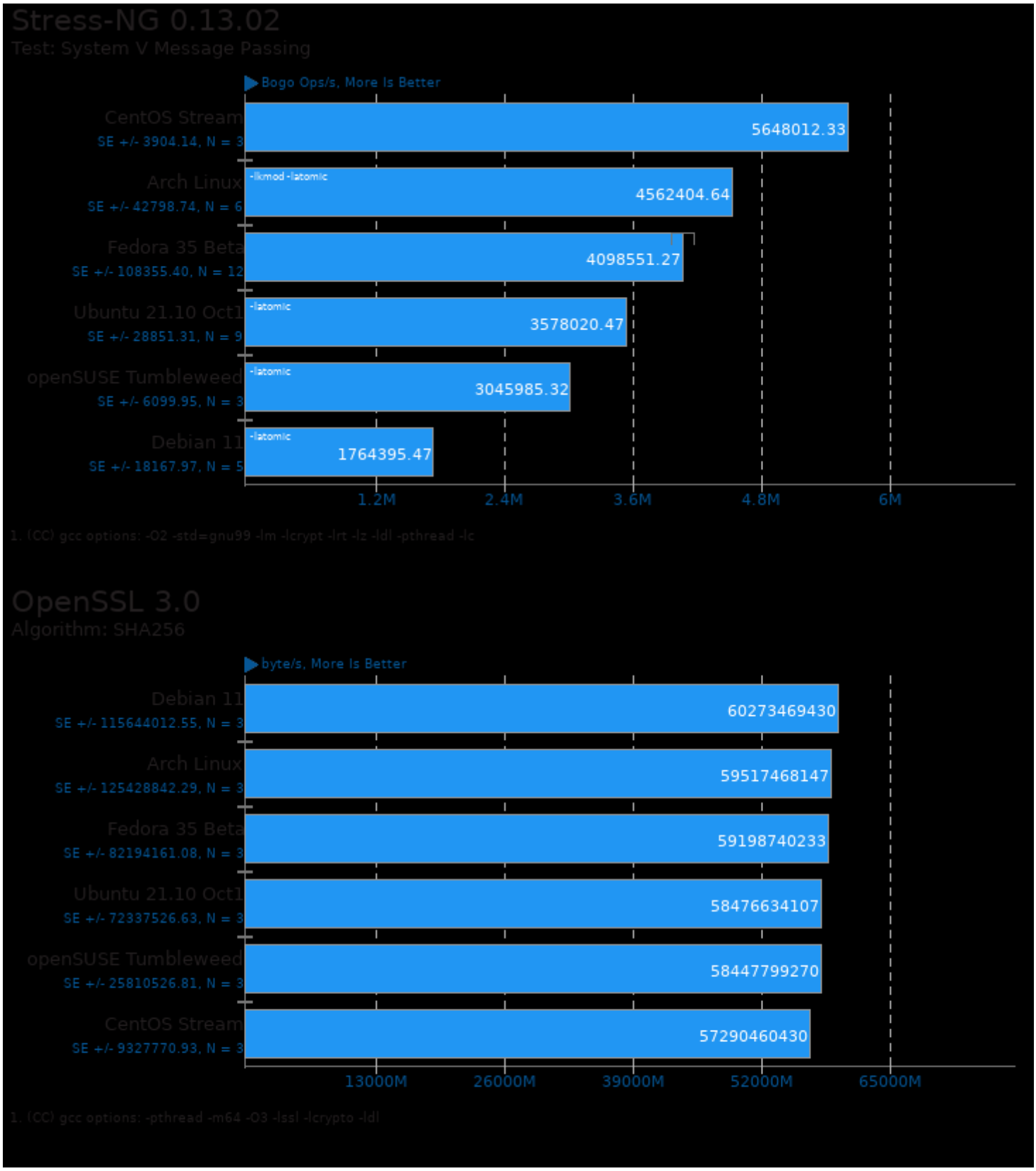

Stress-NG 0.13.02
Test: SENDFILE
Bogo Ops/s, More Is Better
openSUSE Tumbleweed
SE +/- 3465.96, N = 3
-latomic
1231359.88
Arch Linux
SE +/- 696.43, N = 3
-lkmod -latomic
1227990.18
Fedora 35 Beta
SE +/- 2812.18, N = 3
1225384.87
Ubuntu 21.10 Oct1
SE +/- 3029.22, N = 3
-latomic
1197035.98
Debian 11
SE +/- 4503.68, N = 3
-latomic
1149339.09
CentOS Stream
SE +/- 11609.98, N = 3
978142.73
300K
600K
900K
1200K
1500K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: CPU Cache
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 0.25, N = 3
-lkmod -latomic
17.45
Debian 11
SE +/- 0.26, N = 15
-latomic
16.61
openSUSE Tumbleweed
SE +/- 0.16, N = 15
-latomic
16.45
CentOS Stream
SE +/- 0.22, N = 3
16.26
Ubuntu 21.10 Oct1
SE +/- 0.15, N = 7
-latomic
16.10
Fedora 35 Beta
SE +/- 0.00, N = 3
15.93
4
8
12
16
20
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

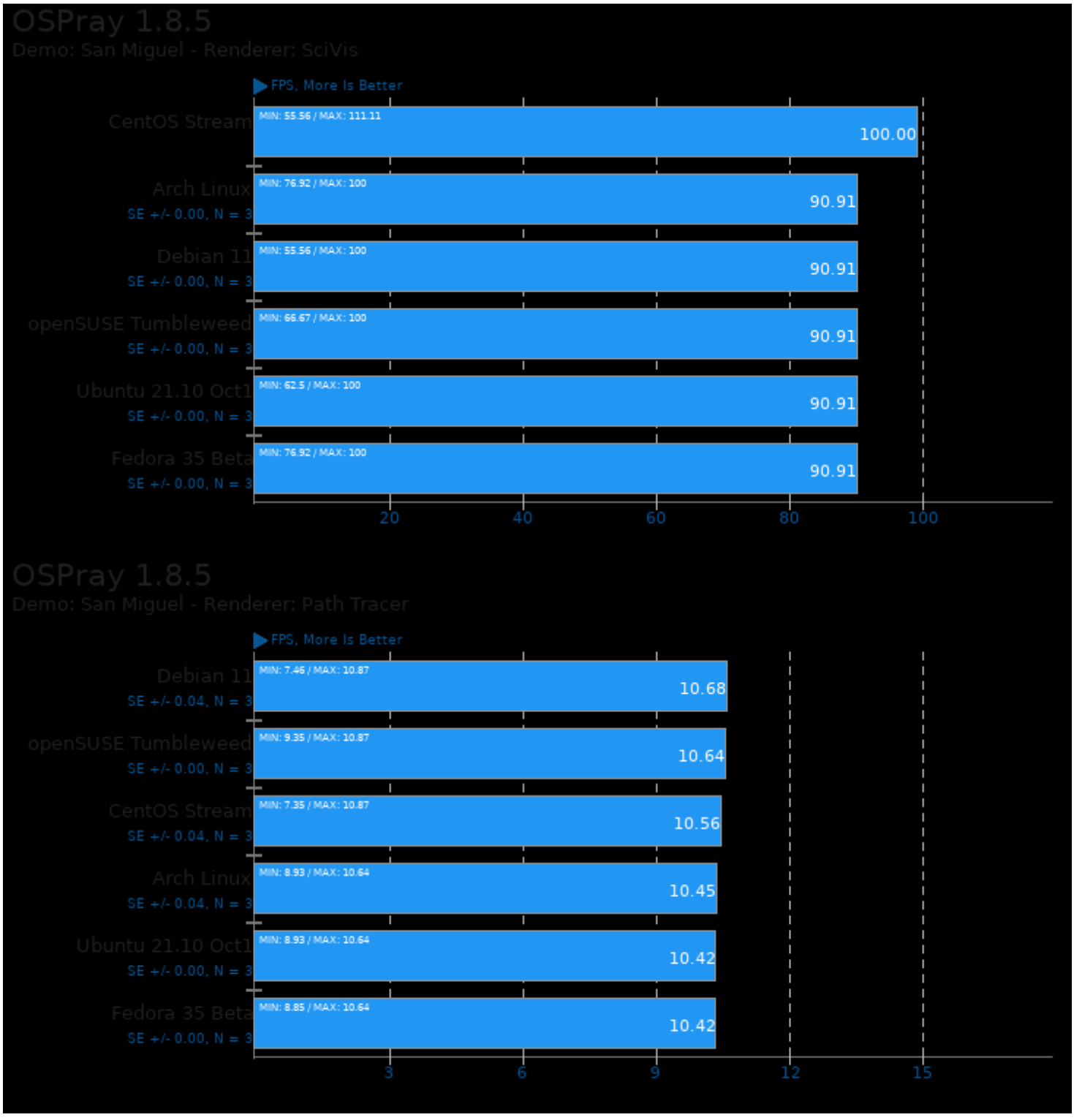

Stress-NG 0.13.02
Test: CPU Stress
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 973.16, N = 3
-lkmod -latomic
128536.17
openSUSE Tumbleweed
SE +/- 209.48, N = 3
-latomic
127127.44
Fedora 35 Beta
SE +/- 348.55, N = 3
126640.32
Ubuntu 21.10 Oct1
SE +/- 304.54, N = 3
-latomic
126295.66
Debian 11
SE +/- 236.03, N = 3
-latomic
125486.27
CentOS Stream
SE +/- 621.44, N = 3
111992.39
30K
60K
90K
120K
150K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: Semaphores
Bogo Ops/s, More Is Better
CentOS Stream
SE +/- 38536.31, N = 3
12432372.72
Arch Linux
SE +/- 29808.16, N = 3
-lkmod -latomic
12285180.13
openSUSE Tumbleweed
SE +/- 10836.85, N = 3
-latomic
10452079.79
Debian 11
SE +/- 4341.08, N = 3
-latomic
10070481.32
Ubuntu 21.10 Oct1
SE +/- 13361.80, N = 3
-latomic
9460605.86
Fedora 35 Beta
SE +/- 59631.32, N = 15
9177476.81
3M
6M
9M
12M
15M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

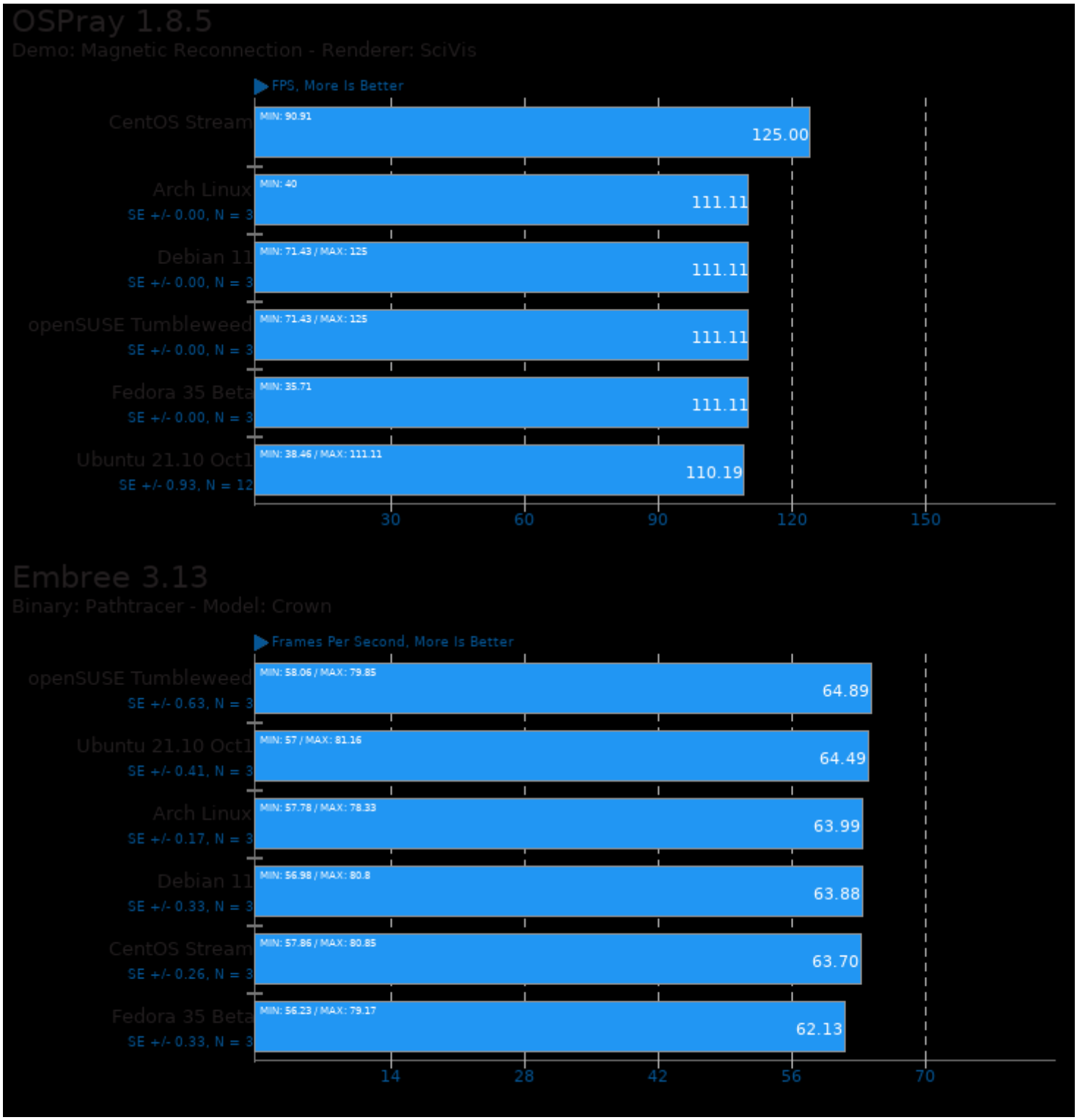

Stress-NG 0.13.02
Test: Matrix Math
Bogo Ops/s, More Is Better
CentOS Stream
SE +/- 434.21, N = 3
333721.31
Debian 11
SE +/- 905.61, N = 3
-latomic
300488.84
openSUSE Tumbleweed
SE +/- 962.16, N = 3
-latomic
294254.02
Arch Linux
SE +/- 782.50, N = 3
-lkmod -latomic
294187.95
Ubuntu 21.10 Oct1
SE +/- 1006.85, N = 3
-latomic
292343.66
Fedora 35 Beta
SE +/- 1378.00, N = 3
290055.81
70K
140K
210K
280K
350K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: Vector Math
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 121.20, N = 3
-lkmod -latomic
286562.90
openSUSE Tumbleweed
SE +/- 530.40, N = 3
-latomic
278157.65
Ubuntu 21.10 Oct1
SE +/- 1011.65, N = 3
-latomic
278044.70
Fedora 35 Beta
SE +/- 874.10, N = 3
277479.38
Debian 11
SE +/- 388.10, N = 3
-latomic
250969.79
CentOS Stream
SE +/- 2638.87, N = 3
223730.72
60K
120K
180K
240K
300K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

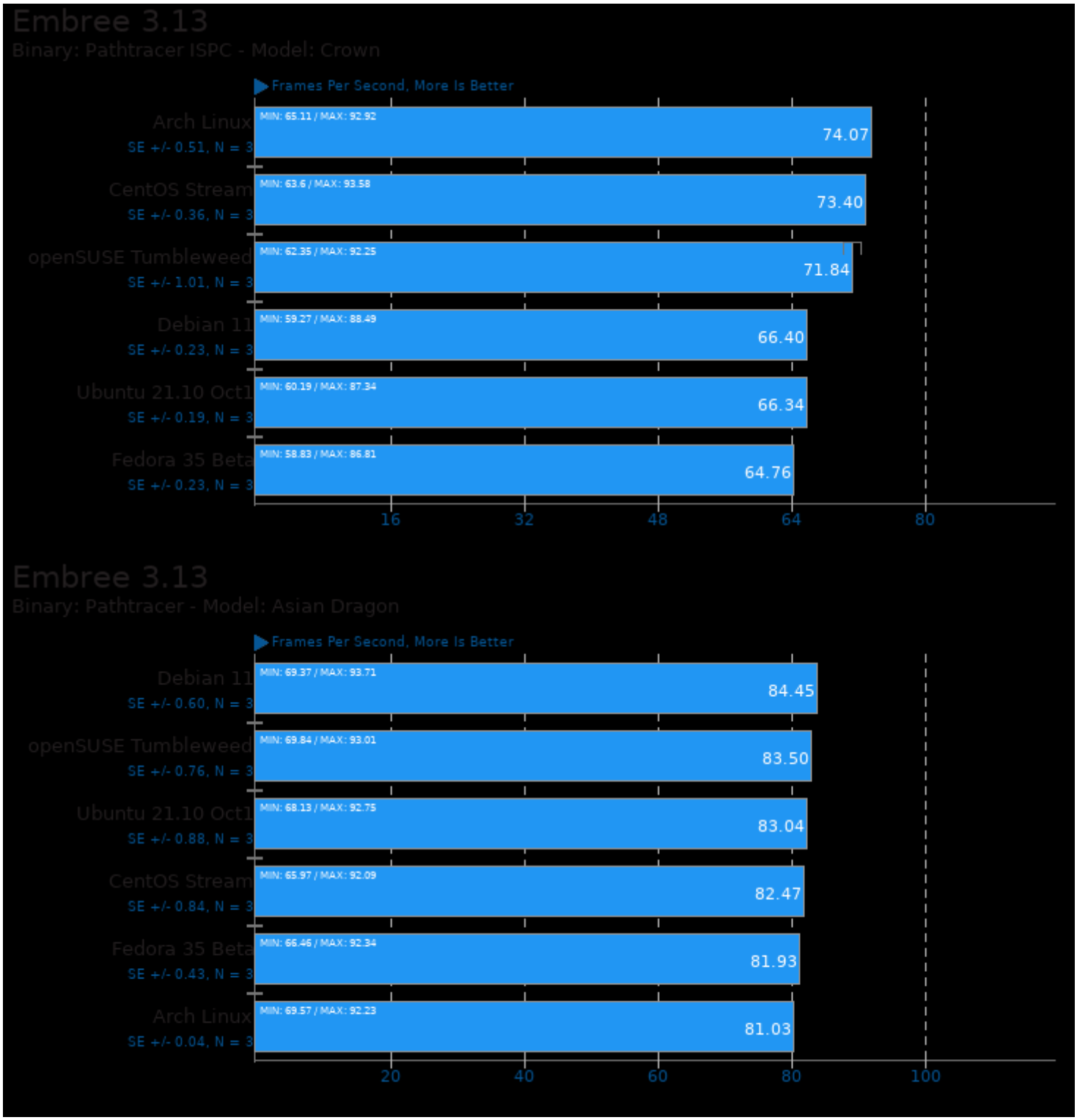

Stress-NG 0.13.02
Test: Memory Copying
Bogo Ops/s, More Is Better
openSUSE Tumbleweed
SE +/- 9.88, N = 3
-latomic
13314.82
Fedora 35 Beta
SE +/- 14.60, N = 3
13309.14
Ubuntu 21.10 Oct
SE +/- 9.05, N = 3
-latomic
13002.21
CentOS Stream
SE +/- 8.58, N = 3
8417.59
Debian 11
SE +/- 5.65, N = 3
-latomic
8288.19
Arch Linux
SE +/- 21.52, N = 3
-lkmod -latomic
8196.58
3K
6K
9K
12K
15K
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: Context Switching
Bogo Ops/s, More Is Better
openSUSE Tumbleweed
SE +/- 216887.99, N = 3
-latomic
24430641.91
Debian 11
SE +/- 334039.54, N = 15
-latomic
17724791.00
CentOS Stream
SE +/- 302996.85, N = 12
11482636.32
Arch Linux
SE +/- 51786.97, N = 3
-lkmod -latomic
5715028.71
Ubuntu 21.10 Oct
SE +/- 62581.85, N = 3
-latomic
5272694.80
Fedora 35 Beta
SE +/- 44099.63, N = 3
4484674.85
5M
10M
15M
20M
25M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

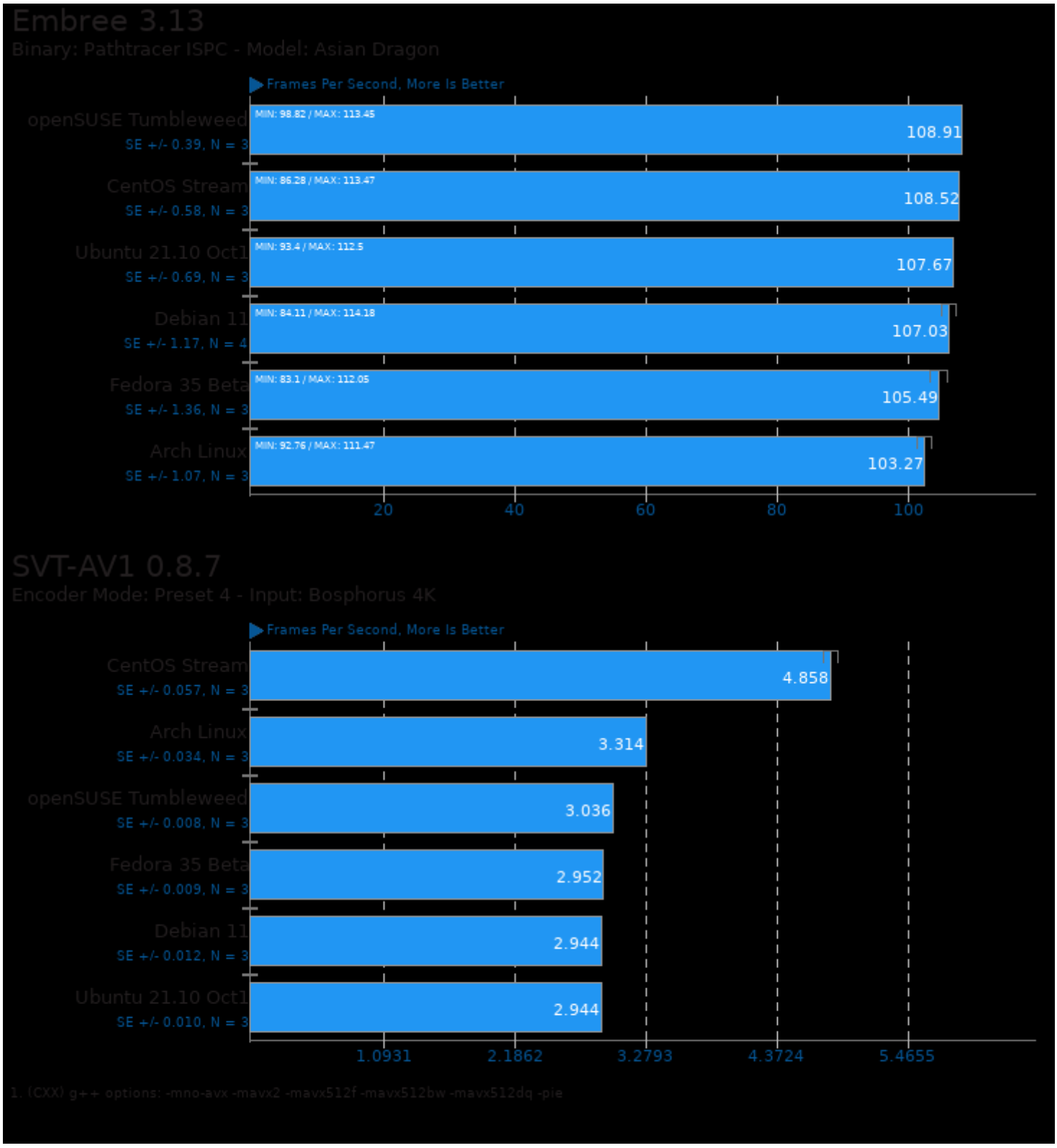

Stress-NG 0.13.02
Test: Glibc C String Functions
Bogo Ops/s, More Is Better
Debian 11
SE +/- 36016.76, N = 3
-latomic
8138767.03
Arch Linux
SE +/- 47560.64, N = 3
-lkmod -latomic
8031125.50
Ubuntu 21.10 Oct1
SE +/- 23928.16, N = 3
-latomic
7962720.71
Fedora 35 Beta
SE +/- 37222.74, N = 3
7933317.10
openSUSE Tumbleweed
SE +/- 79663.70, N = 5
-latomic
7905372.49
CentOS Stream
SE +/- 54028.00, N = 3
7842753.42
2M
4M
6M
8M
10M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Stress-NG 0.13.02
Test: Glibc Qsort Data Sorting
Bogo Ops/s, More Is Better
Debian 11
SE +/- 1.67, N = 3
-latomic
984.25
Arch Linux
SE +/- 0.79, N = 3
-lkmod -latomic
984.22
openSUSE Tumbleweed
SE +/- 4.75, N = 3
-latomic
980.62
CentOS Stream
SE +/- 1.46, N = 3
979.66
Fedora 35 Beta
SE +/- 3.60, N = 3
978.29
Ubuntu 21.10 Oct1
SE +/- 2.76, N = 3
-latomic
964.65
200
400
600
800
1000
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc

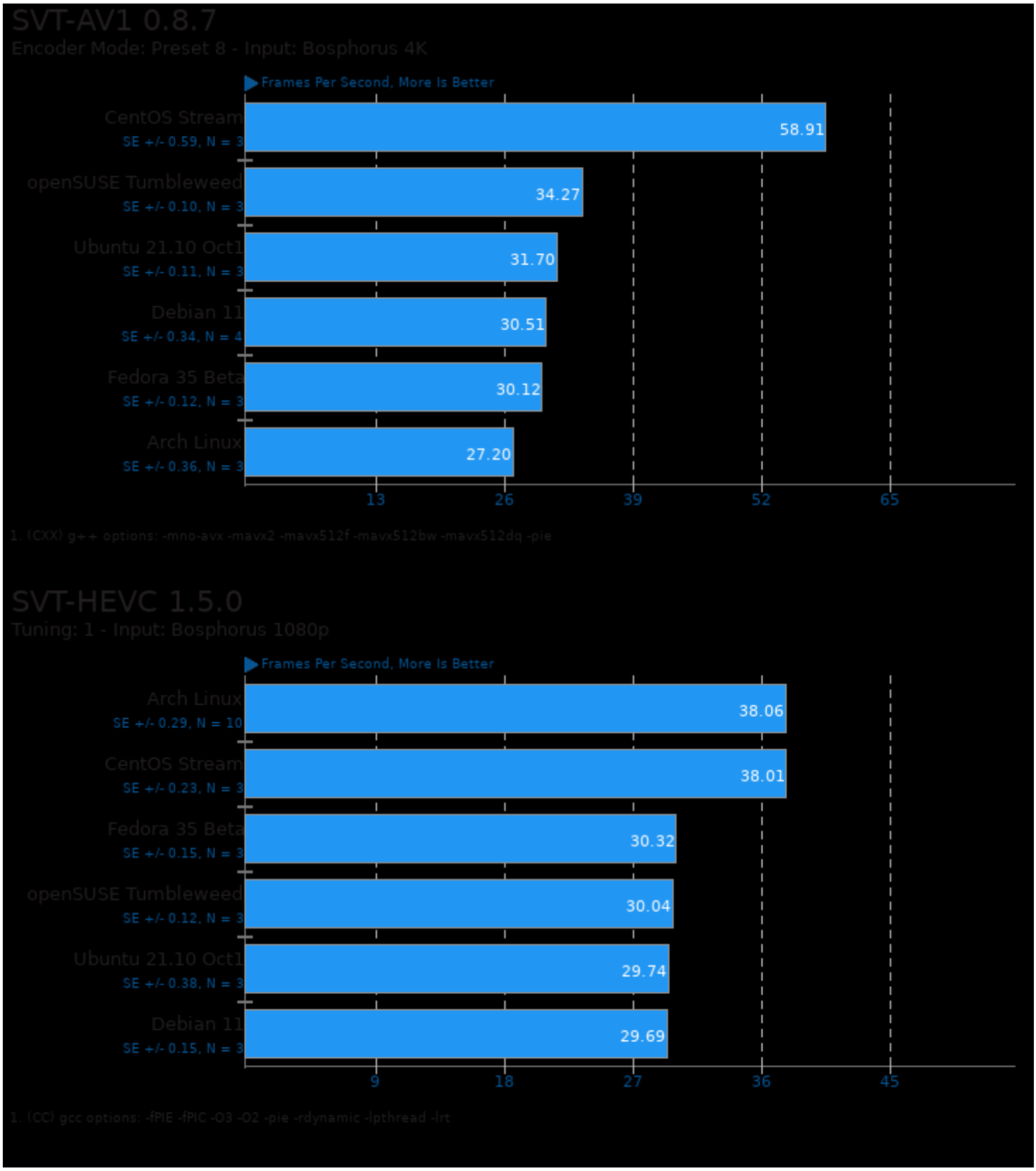

Stress-NG 0.13.02
Test: System V Message Passing
Bogo Ops/s, More Is Better
CentOS Stream
SE +/- 3904.14, N = 3
5648012.33
Arch Linux
SE +/- 42798.74, N = 6
-lkmod -latomic
4562404.64
Fedora 35 Beta
SE +/- 108355.40, N = 12
4098551.27
Ubuntu 21.10 Oct1
SE +/- 28851.31, N = 9
-latomic
3578020.47
openSUSE Tumbleweed
SE +/- 6099.95, N = 3
-latomic
3045985.32
Debian 11
SE +/- 18167.97, N = 5
-latomic
1764395.47
1.2M
2.4M
3.6M
4.8M
6M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
OpenSSL 3.0
Algorithm: SHA256
byte/s, More Is Better
Debian 11
SE +/- 115644012.55, N = 3
60273469430
Arch Linux
SE +/- 125428842.29, N = 3
59517468147
Fedora 35 Beta
SE +/- 82194161.08, N = 3
59198740233
Ubuntu 21.10 Oct1
SE +/- 72337526.63, N = 3
58476634107
openSUSE Tumbleweed
SE +/- 25810526.81, N = 3
58447799270
CentOS Stream
SE +/- 9327770.93, N = 3
57290460430
13000M
26000M
39000M
52000M
65000M
1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

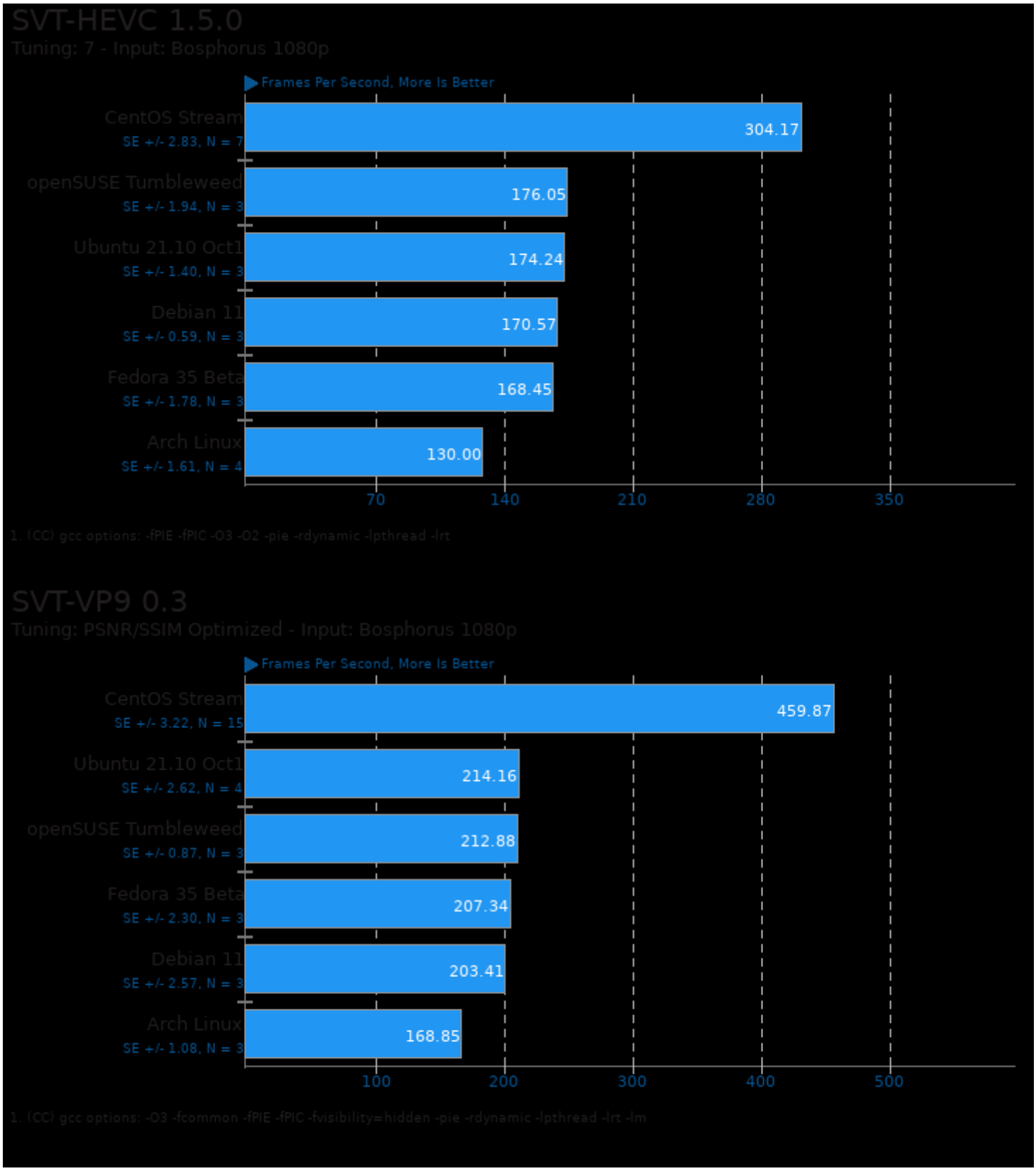

OSPray 1.8.5
Demo: San Miguel - Renderer: SciVis
FPS, More Is Better
CentOS Stream
MIN: 55.56 / MAX: 111.11
100.00
Arch Linux
SE +/- 0.00, N = 3
MIN: 76.92 / MAX: 100
90.91
Debian 11
SE +/- 0.00, N = 3
MIN: 55.56 / MAX: 100
90.91
openSUSE Tumbleweed
SE +/- 0.00, N = 3
MIN: 66.67 / MAX: 100
90.91
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
MIN: 62.5 / MAX: 100
90.91
Fedora 35 Beta
SE +/- 0.00, N = 3
MIN: 76.92 / MAX: 100
90.91
20
40
60
80
100
OSPray 1.8.5
Demo: San Miguel - Renderer: Path Tracer
FPS, More Is Better
Debian 11
SE +/- 0.04, N = 3
MIN: 7.46 / MAX: 10.87
10.68
openSUSE Tumbleweed
SE +/- 0.00, N = 3
MIN: 9.35 / MAX: 10.87
10.64
CentOS Stream
SE +/- 0.04, N = 3
MIN: 7.35 / MAX: 10.87
10.56
Arch Linux
SE +/- 0.04, N = 3
MIN: 8.93 / MAX: 10.64
10.45
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
MIN: 8.93 / MAX: 10.64
10.42
Fedora 35 Beta
SE +/- 0.00, N = 3
MIN: 8.85 / MAX: 10.64
10.42
3
6
9
12
15

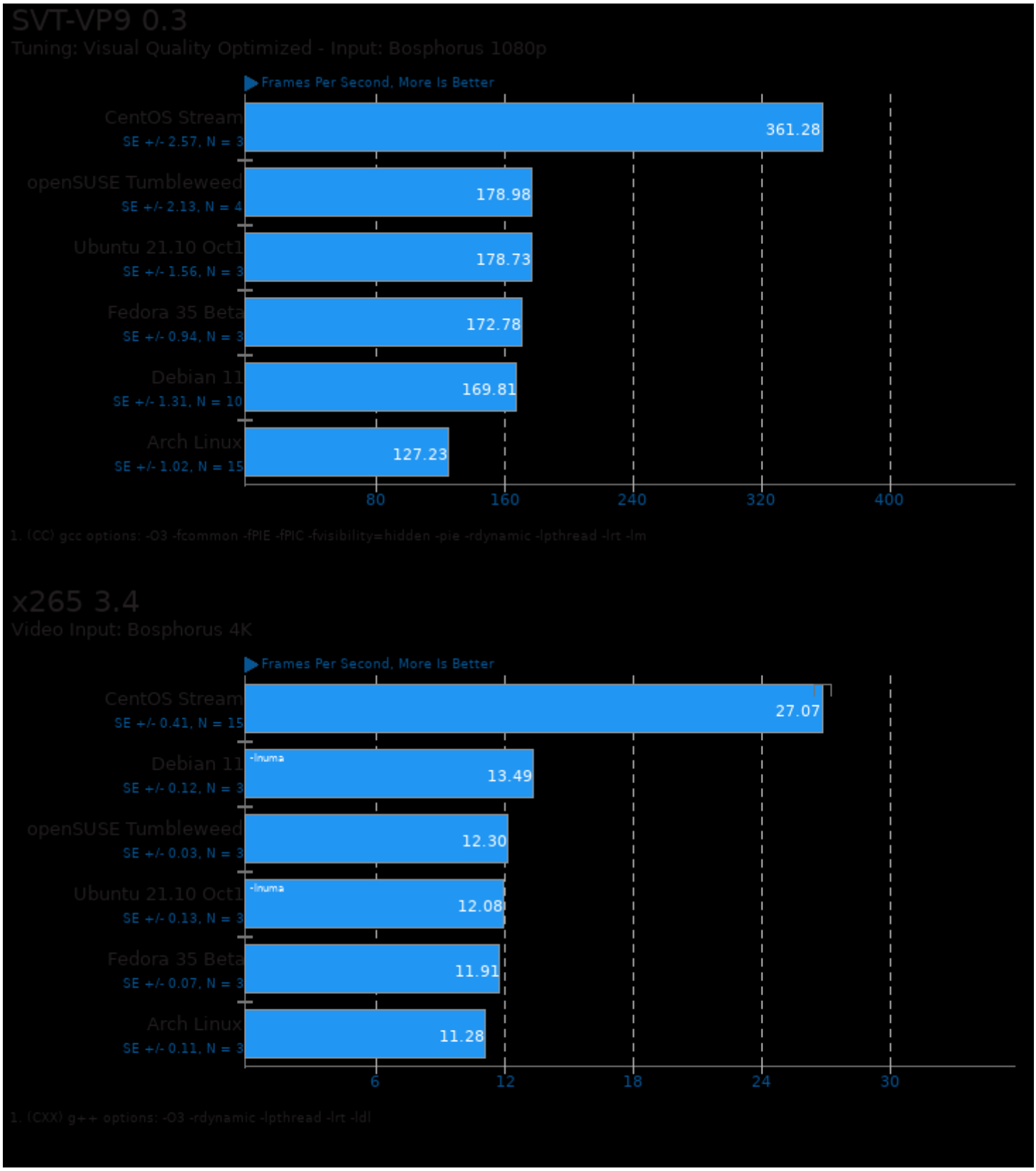

OSPray 1.8.5
Demo: Magnetic Reconnection - Renderer: SciVis
FPS, More Is Better
CentOS Stream
MIN: 90.91
125.00
Arch Linux
SE +/- 0.00, N = 3
MIN: 40
111.11
Debian 11
SE +/- 0.00, N = 3
MIN: 71.43 / MAX: 125
111.11
openSUSE Tumbleweed
SE +/- 0.00, N = 3
MIN: 71.43 / MAX: 125
111.11
Fedora 35 Beta
SE +/- 0.00, N = 3
MIN: 35.71
111.11
Ubuntu 21.10 Oct1
SE +/- 0.93, N = 12
MIN: 38.46 / MAX: 111.11
110.19
30
60
90
120
150
Embree 3.13
Binary: Pathtracer - Model: Crown
Frames Per Second, More Is Better
openSUSE Tumbleweed
SE +/- 0.63, N = 3
MIN: 58.06 / MAX: 79.85
64.89
Ubuntu 21.10 Oct1
SE +/- 0.41, N = 3
MIN: 57 / MAX: 81.16
64.49
Arch Linux
SE +/- 0.17, N = 3
MIN: 57.78 / MAX: 78.33
63.99
Debian 11
SE +/- 0.33, N = 3
MIN: 56.98 / MAX: 80.8
63.88
CentOS Stream
SE +/- 0.26, N = 3
MIN: 57.86 / MAX: 80.85
63.70
Fedora 35 Beta
SE +/- 0.33, N = 3
MIN: 56.23 / MAX: 79.17
62.13
14
28
42
56
70

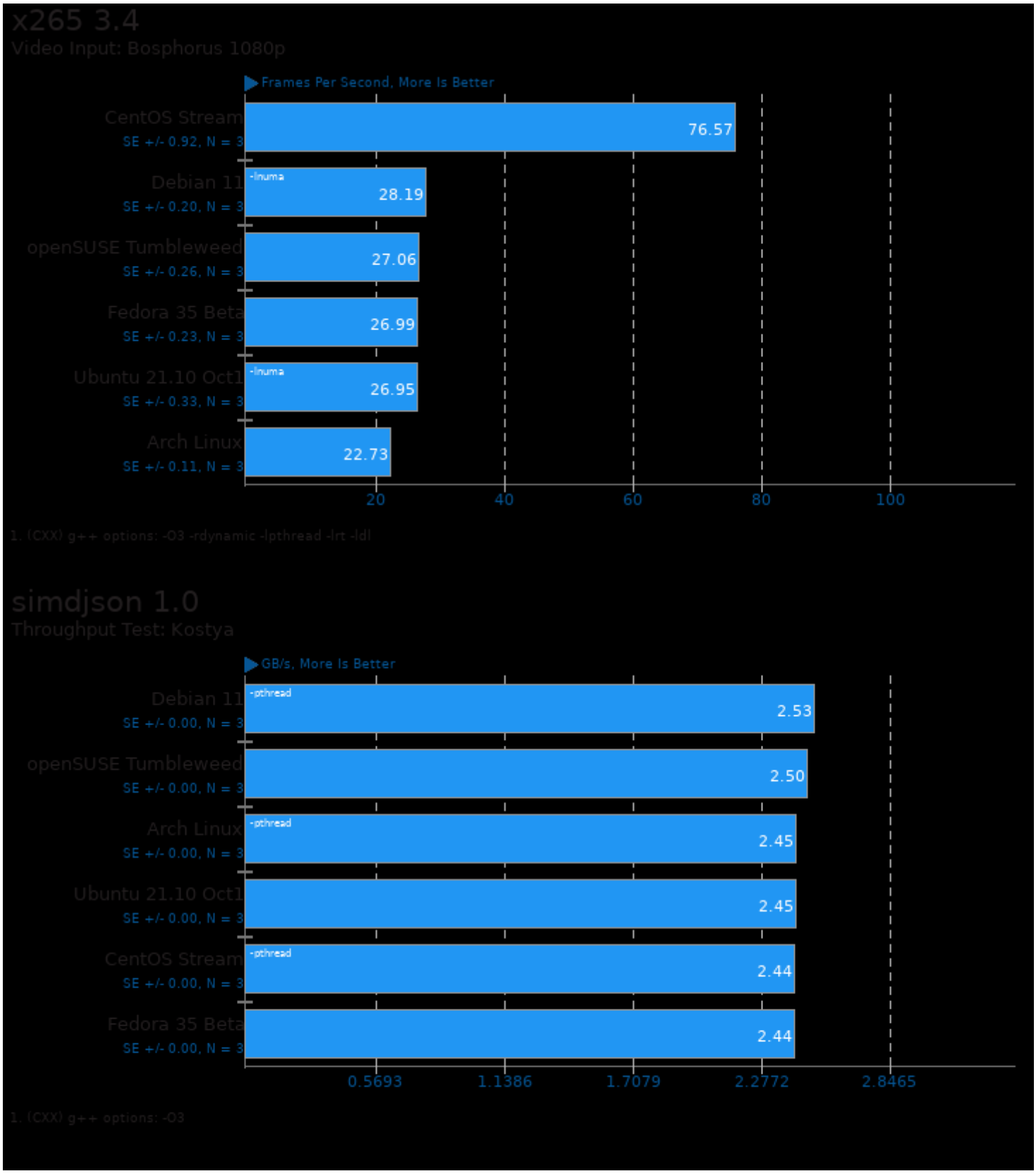

Embree 3.13
Binary: Pathtracer ISPC - Model: Crown
Frames Per Second, More Is Better
Arch Linux
SE +/- 0.51, N = 3
MIN: 65.11 / MAX: 92.92
74.07
CentOS Stream
SE +/- 0.36, N = 3
MIN: 63.6 / MAX: 93.58
73.40
openSUSE Tumbleweed
SE +/- 1.01, N = 3
MIN: 62.35 / MAX: 92.25
71.84
Debian 11
SE +/- 0.23, N = 3
MIN: 59.27 / MAX: 88.49
66.40
Ubuntu 21.10 Oct1
SE +/- 0.19, N = 3
MIN: 60.19 / MAX: 87.34
66.34
Fedora 35 Beta
SE +/- 0.23, N = 3
MIN: 58.83 / MAX: 86.81
64.76
16
32
48
64
80
Embree 3.13
Binary: Pathtracer - Model: Asian Dragon
Frames Per Second, More Is Better
Debian 11
SE +/- 0.60, N = 3
MIN: 69.37 / MAX: 93.71
84.45
openSUSE Tumbleweed
SE +/- 0.76, N = 3
MIN: 69.84 / MAX: 93.01
83.50
Ubuntu 21.10 Oct1
SE +/- 0.88, N = 3
MIN: 68.13 / MAX: 92.75
83.04
CentOS Stream
SE +/- 0.84, N = 3
MIN: 65.97 / MAX: 92.09
82.47
Fedora 35 Beta
SE +/- 0.43, N = 3
MIN: 66.46 / MAX: 92.34
81.93
Arch Linux
SE +/- 0.04, N = 3
MIN: 69.57 / MAX: 92.23
81.03
20
40
60
80
100

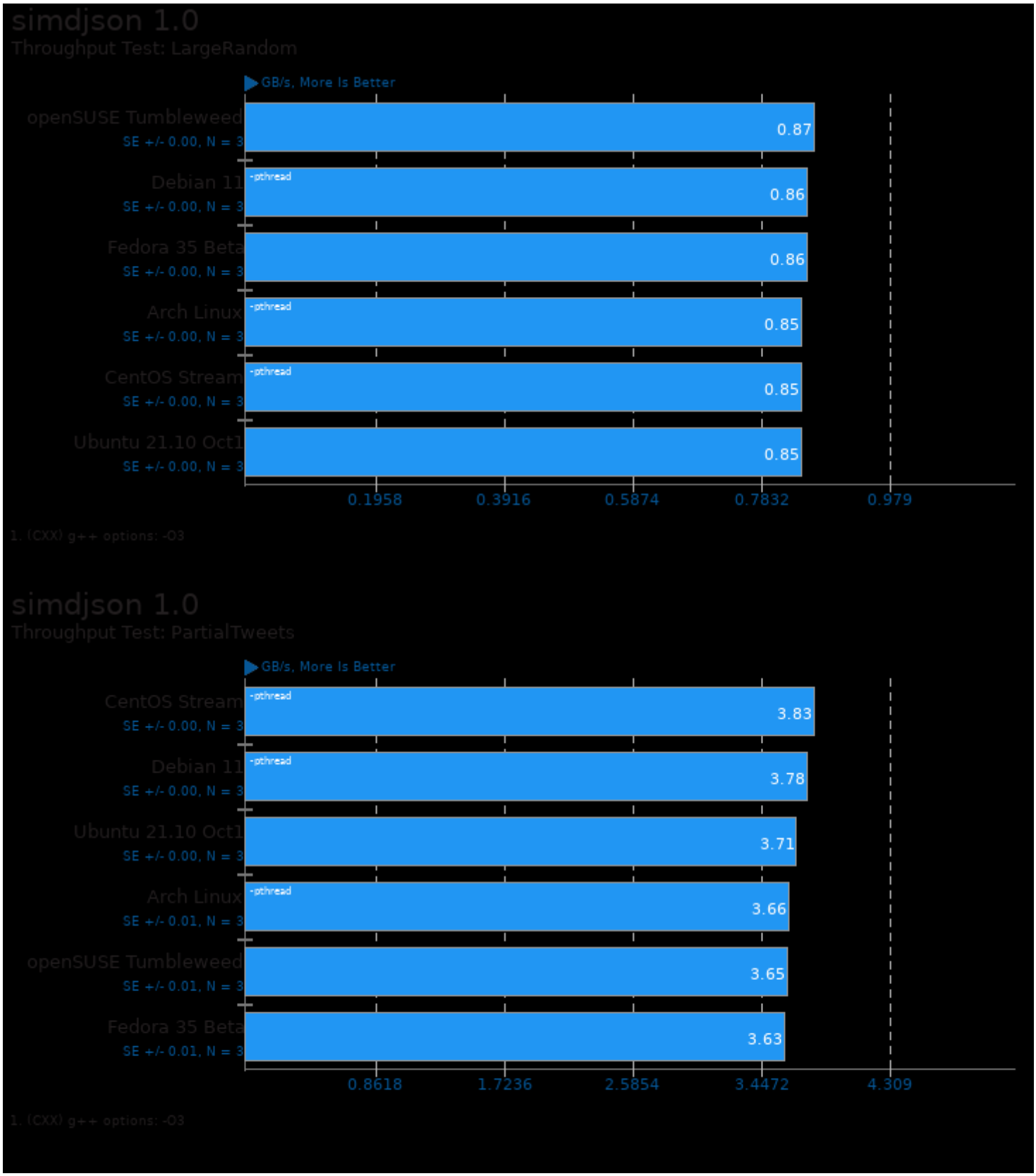

Embree 3.13
Binary: Pathtracer ISPC - Model: Asian Dragon
Frames Per Second, More Is Better
openSUSE Tumbleweed
SE +/- 0.39, N = 3
MIN: 98.82 / MAX: 113.45
108.91
CentOS Stream
SE +/- 0.58, N = 3
MIN: 86.28 / MAX: 113.47
108.52
Ubuntu 21.10 Oct1
SE +/- 0.69, N = 3
MIN: 93.4 / MAX: 112.5
107.67
Debian 11
SE +/- 1.17, N = 4
MIN: 84.11 / MAX: 114.18
107.03
Fedora 35 Beta
SE +/- 1.36, N = 3
MIN: 83.1 / MAX: 112.05
105.49
Arch Linux
SE +/- 1.07, N = 3
MIN: 92.76 / MAX: 111.47
103.27
20
40
60
80
100
SVT-AV1 0.8.7
Encoder Mode: Preset 4 - Input: Bosphorus 4K
Frames Per Second, More Is Better
CentOS Stream
SE +/- 0.057, N = 3
4.858
Arch Linux
SE +/- 0.034, N = 3
3.314
openSUSE Tumbleweed
SE +/- 0.008, N = 3
3.036
Fedora 35 Beta
SE +/- 0.009, N = 3
2.952
Debian 11
SE +/- 0.012, N = 3
2.944
Ubuntu 21.10 Oct1
SE +/- 0.010, N = 3
2.944
1.0931
2.1862
3.2793
4.3724
5.4655
1. (CXX) g++ options: -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq -pie

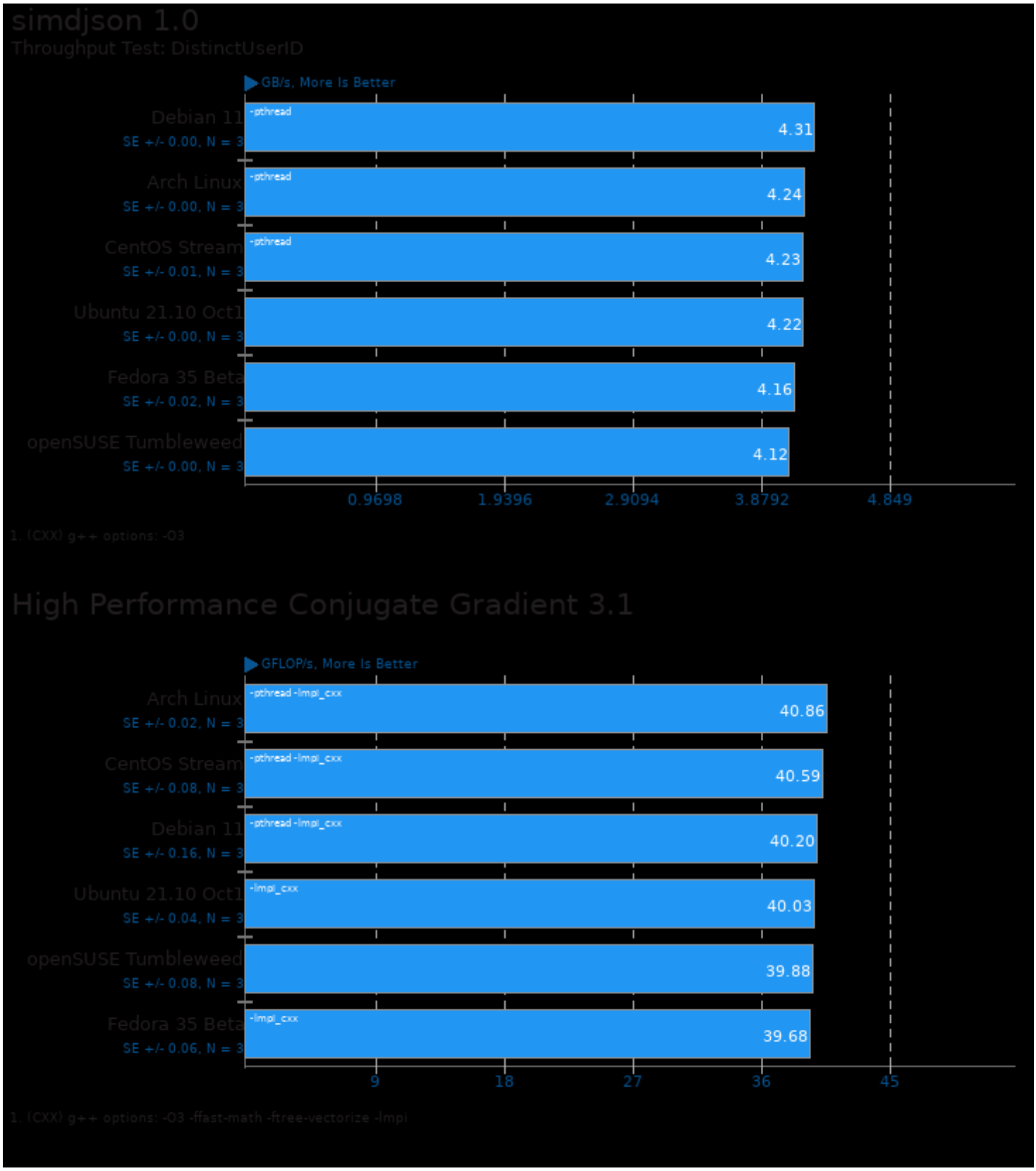

SVT-AV1 0.8.7
Encoder Mode: Preset 8 - Input: Bosphorus 4K
Frames Per Second, More Is Better
CentOS Stream
SE +/- 0.59, N = 3
58.91
openSUSE Tumbleweed
SE +/- 0.10, N = 3
34.27
Ubuntu 21.10 Oct1
SE +/- 0.11, N = 3
31.70
Debian 11
SE +/- 0.34, N = 4
30.51
Fedora 35 Beta
SE +/- 0.12, N = 3
30.12
Arch Linux
SE +/- 0.36, N = 3
27.20
13
26
39
52
65
1. (CXX) g++ options: -mno-avx -mavx2 -mavx512f -mavx512bw -mavx512dq -pie
SVT-HEVC 1.5.0
Tuning: 1 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Arch Linux
SE +/- 0.29, N = 10
38.06
CentOS Stream
SE +/- 0.23, N = 3
38.01
Fedora 35 Beta
SE +/- 0.15, N = 3
30.32
openSUSE Tumbleweed
SE +/- 0.12, N = 3
30.04
Ubuntu 21.10 Oct1
SE +/- 0.38, N = 3
29.74
Debian 11
SE +/- 0.15, N = 3
29.69
9
18
27
36
45
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt

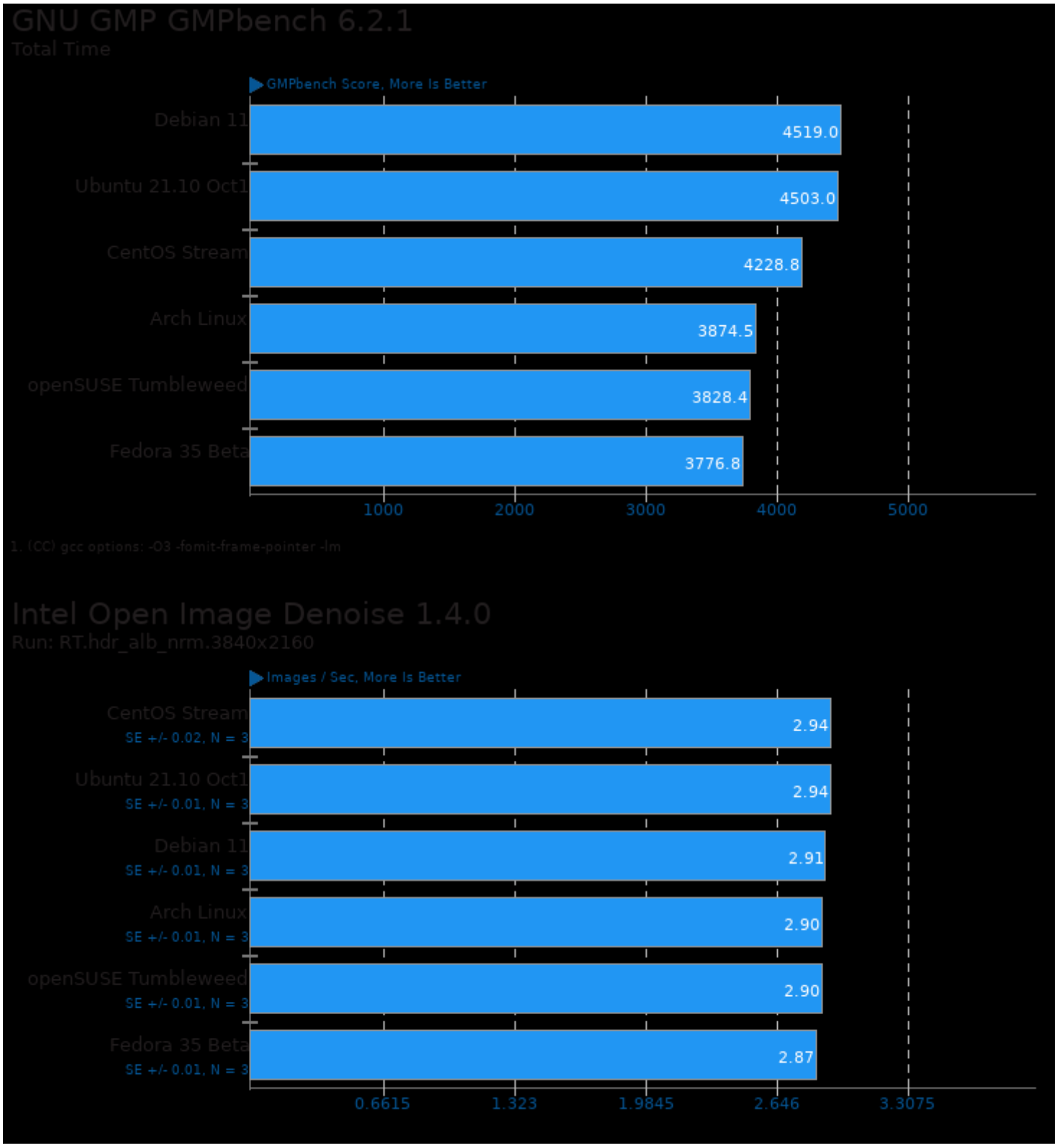

SVT-HEVC 1.5.0
Tuning: 7 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
CentOS Stream
SE +/- 2.83, N = 7
304.17
openSUSE Tumbleweed
SE +/- 1.94, N = 3
176.05
Ubuntu 21.10 Oct1
SE +/- 1.40, N = 3
174.24
Debian 11
SE +/- 0.59, N = 3
170.57
Fedora 35 Beta
SE +/- 1.78, N = 3
168.45
Arch Linux
SE +/- 1.61, N = 4
130.00
70
140
210
280
350
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt
SVT-VP9 0.3
Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
CentOS Stream
SE +/- 3.22, N = 15
459.87
Ubuntu 21.10 Oct1
SE +/- 2.62, N = 4
214.16
openSUSE Tumbleweed
SE +/- 0.87, N = 3
212.88
Fedora 35 Beta
SE +/- 2.30, N = 3
207.34
Debian 11
SE +/- 2.57, N = 3
203.41
Arch Linux
SE +/- 1.08, N = 3
168.85
100
200
300
400
500
1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

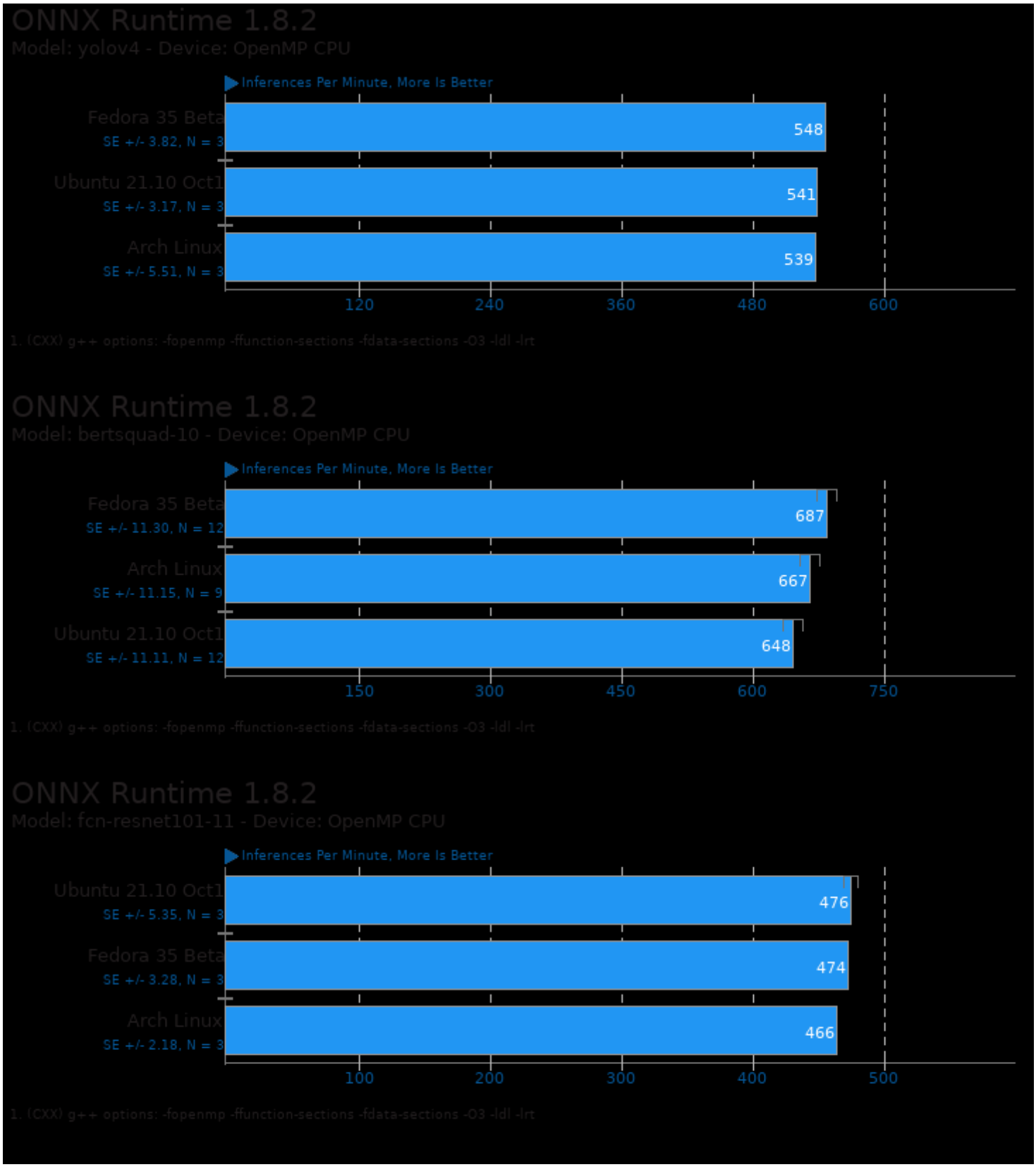

SVT-VP9 0.3
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
CentOS Stream
SE +/- 2.57, N = 3
361.28
openSUSE Tumbleweed
SE +/- 2.13, N = 4
178.98
Ubuntu 21.10 Oct1
SE +/- 1.56, N = 3
178.73
Fedora 35 Beta
SE +/- 0.94, N = 3
172.78
Debian 11
SE +/- 1.31, N = 10
169.81
Arch Linux
SE +/- 1.02, N = 15
127.23
80
160
240
320
400
1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm
x265 3.4
Video Input: Bosphorus 4K
Frames Per Second, More Is Better
CentOS Stream
SE +/- 0.41, N = 15
27.07
Debian 11
SE +/- 0.12, N = 3
-linuma
13.49
openSUSE Tumbleweed
SE +/- 0.03, N = 3
12.30
Ubuntu 21.10 Oct1
SE +/- 0.13, N = 3
-linuma
12.08
Fedora 35 Beta
SE +/- 0.07, N = 3
11.91
Arch Linux
SE +/- 0.11, N = 3
11.28
6
12
18
24
30
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl

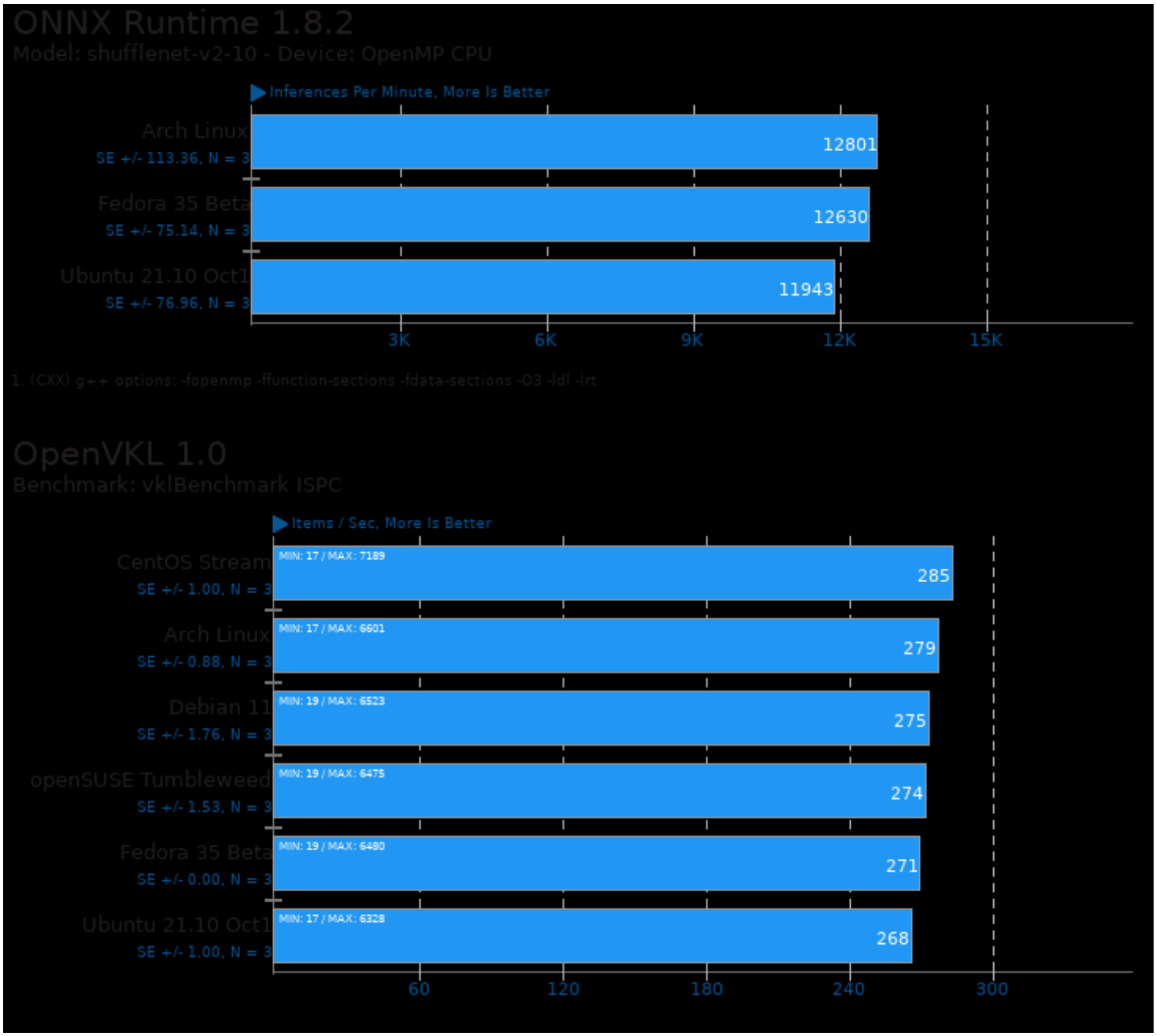

x265 3.4
Video Input: Bosphorus 1080p
Frames Per Second, More Is Better
CentOS Stream
SE +/- 0.92, N = 3
76.57
Debian 11
SE +/- 0.20, N = 3
-lnuma
28.19
openSUSE Tumbleweed
SE +/- 0.26, N = 3
27.06
Fedora 35 Beta
SE +/- 0.23, N = 3
26.99
Ubuntu 21.10 Oct1
SE +/- 0.33, N = 3
-lnuma
26.95
Arch Linux
SE +/- 0.11, N = 3
22.73
20
40
60
80
100
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl
simdjson 1.0
Throughput Test: Kostya
GB/s, More Is Better
Debian 11
SE +/- 0.00, N = 3
-pthread
2.53
openSUSE Tumbleweed
SE +/- 0.00, N = 3
2.50
Arch Linux
SE +/- 0.00, N = 3
-pthread
2.45
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
2.45
CentOS Stream
SE +/- 0.00, N = 3
-pthread
2.44
Fedora 35 Beta
SE +/- 0.00, N = 3
2.44
0.5693
1.1386
1.7079
2.2772
2.8465
1. (CXX) g++ options: -O3


simdjson 1.0
Throughput Test: LargeRandom
GB/s, More Is Better
openSUSE Tumbleweed
SE +/- 0.00, N = 3
0.87
Debian 11
SE +/- 0.00, N = 3
-pthread
0.86
Fedora 35 Beta
SE +/- 0.00, N = 3
0.86
Arch Linux
SE +/- 0.00, N = 3
-pthread
0.85
CentOS Stream
SE +/- 0.00, N = 3
-pthread
0.85
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
0.85
0.1958
0.3916
0.5874
0.7832
0.979
1. (CXX) g++ options: -O3
simdjson 1.0
Throughput Test: PartialTweets
GB/s, More Is Better
CentOS Stream
SE +/- 0.00, N = 3
-pthread
3.83
Debian 11
SE +/- 0.00, N = 3
-pthread
3.78
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
3.71
Arch Linux
SE +/- 0.01, N = 3
-pthread
3.66
openSUSE Tumbleweed
SE +/- 0.01, N = 3
3.65
Fedora 35 Beta
SE +/- 0.01, N = 3
3.63
0.8618
1.7236
2.5854
3.4472
4.309
1. (CXX) g++ options: -O3

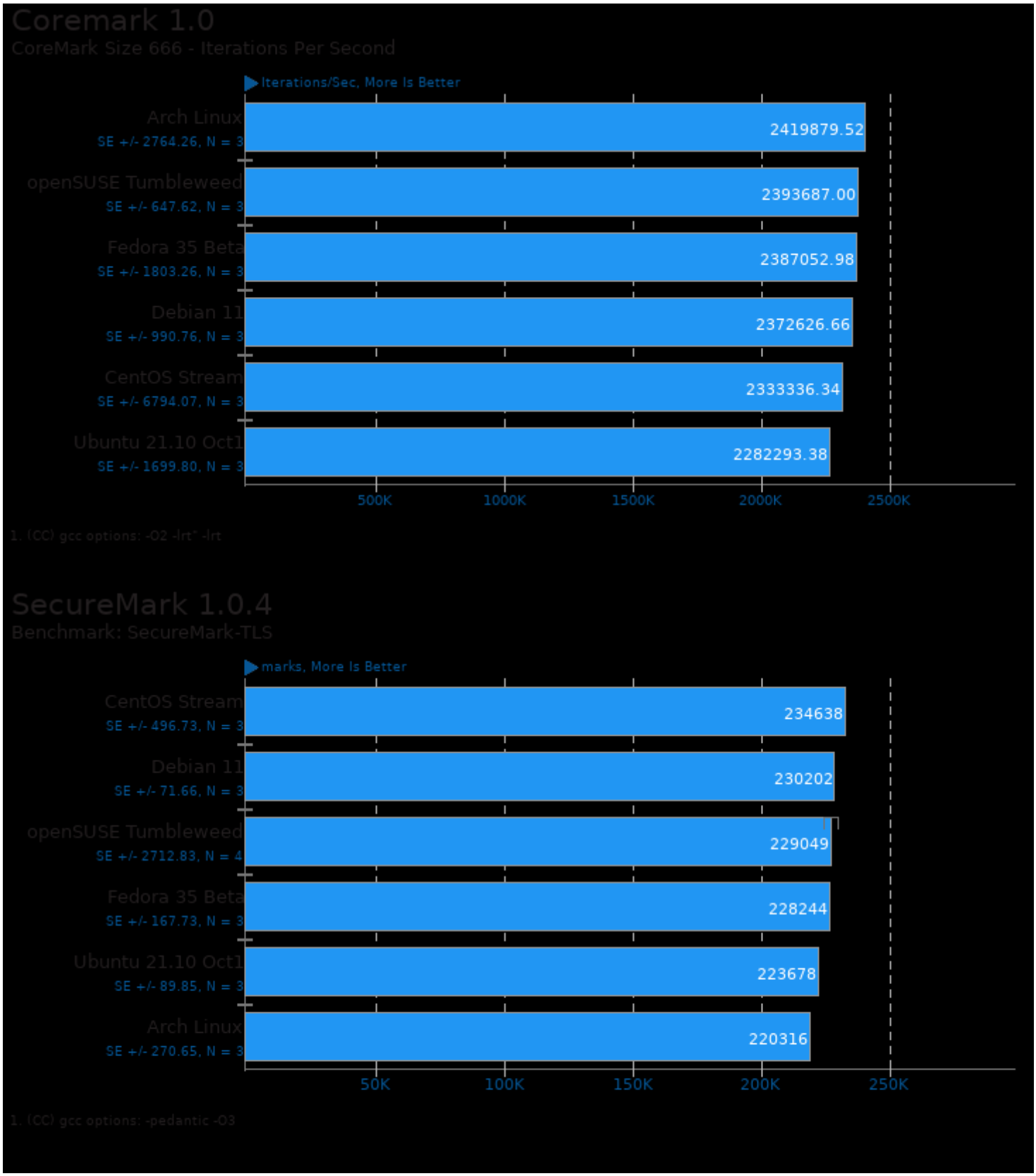

simdjson 1.0
Throughput Test: DistinctUserID
GB/s, More Is Better
Debian 11
SE +/- 0.00, N = 3
-pthread
4.31
Arch Linux
SE +/- 0.00, N = 3
-pthread
4.24
CentOS Stream
SE +/- 0.01, N = 3
-pthread
4.23
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
4.22
Fedora 35 Beta
SE +/- 0.02, N = 3
4.16
openSUSE Tumbleweed
SE +/- 0.00, N = 3
4.12
0.9698
1.9396
2.9094
3.8792
4.849
1. (CXX) g++ options: -O3
High Performance Conjugate Gradient 3.1
GFLOP/s, More Is Better
Arch Linux
SE +/- 0.02, N = 3
-pthread -lmpi_cxx
40.86
CentOS Stream
SE +/- 0.08, N = 3
-pthread -lmpi_cxx
40.59
Debian 11
SE +/- 0.16, N = 3
-pthread -lmpi_cxx
40.20
Ubuntu 21.10 Oct1
SE +/- 0.04, N = 3
-lmpi_cxx
40.03
openSUSE Tumbleweed
SE +/- 0.08, N = 3
39.88
Fedora 35 Beta
SE +/- 0.06, N = 3
-lmpi_cxx
39.68
9
18
27
36
45
1. (CXX) g++ options: -O3 -ffast-math -ftree-vectorize -lmpi

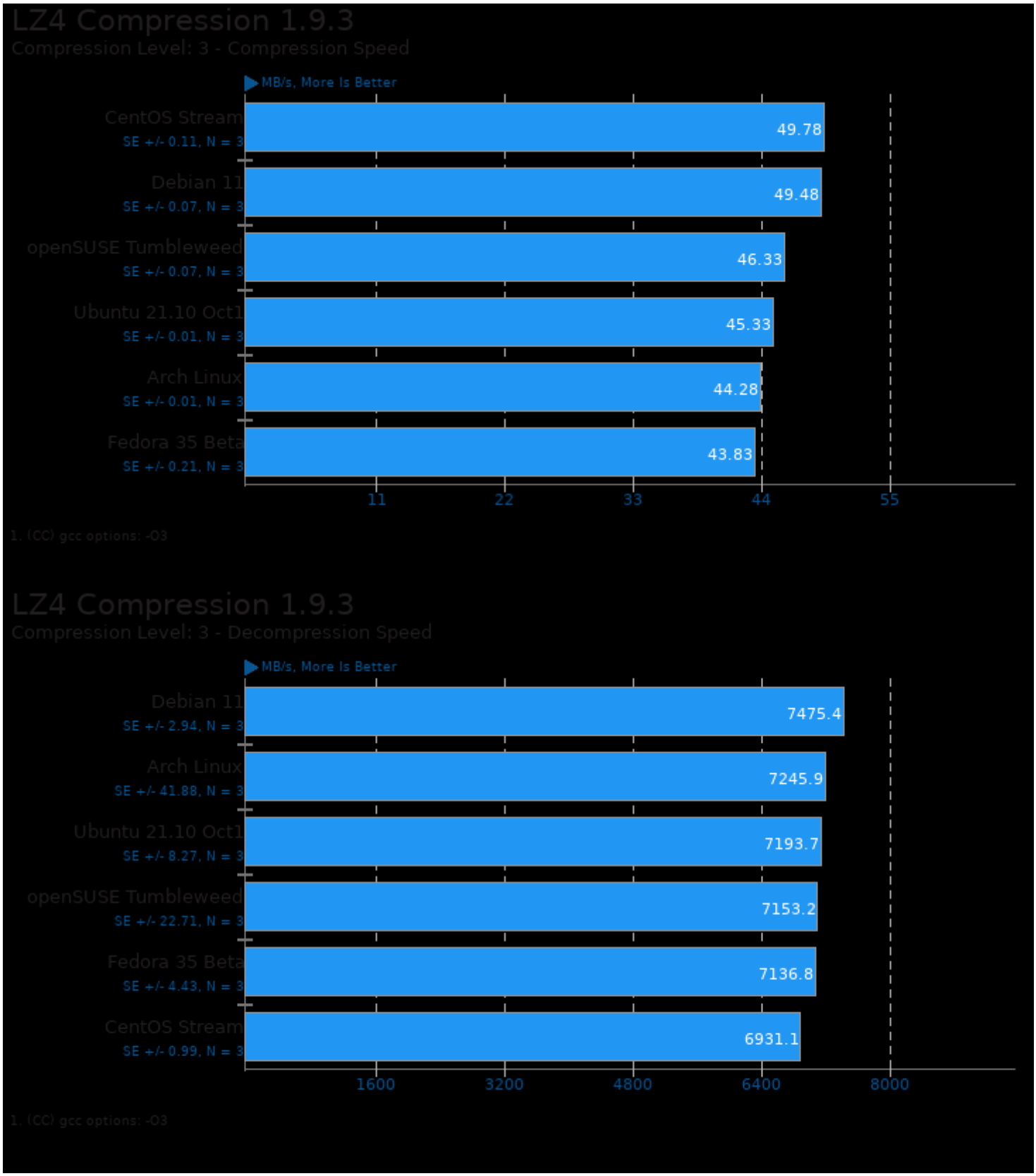

GNU GMP GMPbench 6.2.1
Total Time
GMPbench Score, More Is Better
Debian 11
4519.0
Ubuntu 21.10 Oct1
4503.0
CentOS Stream
4228.8
Arch Linux
3874.5
openSUSE Tumbleweed
3828.4
Fedora 35 Beta
3776.8
1000
2000
3000
4000
5000
1. (CC) gcc options: -O3 -fomit-frame-pointer -lm
Intel Open Image Denoise 1.4.0
Run: RT.hdr_alb_nrm.3840x2160
Images / Sec, More Is Better
CentOS Stream
SE +/- 0.02, N = 3
2.94
Ubuntu 21.10 Oct1
SE +/- 0.01, N = 3
2.94
Debian 11
SE +/- 0.01, N = 3
2.91
Arch Linux
SE +/- 0.01, N = 3
2.90
openSUSE Tumbleweed
SE +/- 0.01, N = 3
2.90
Fedora 35 Beta
SE +/- 0.01, N = 3
2.87
0.6615
1.323
1.9845
2.646
3.3075

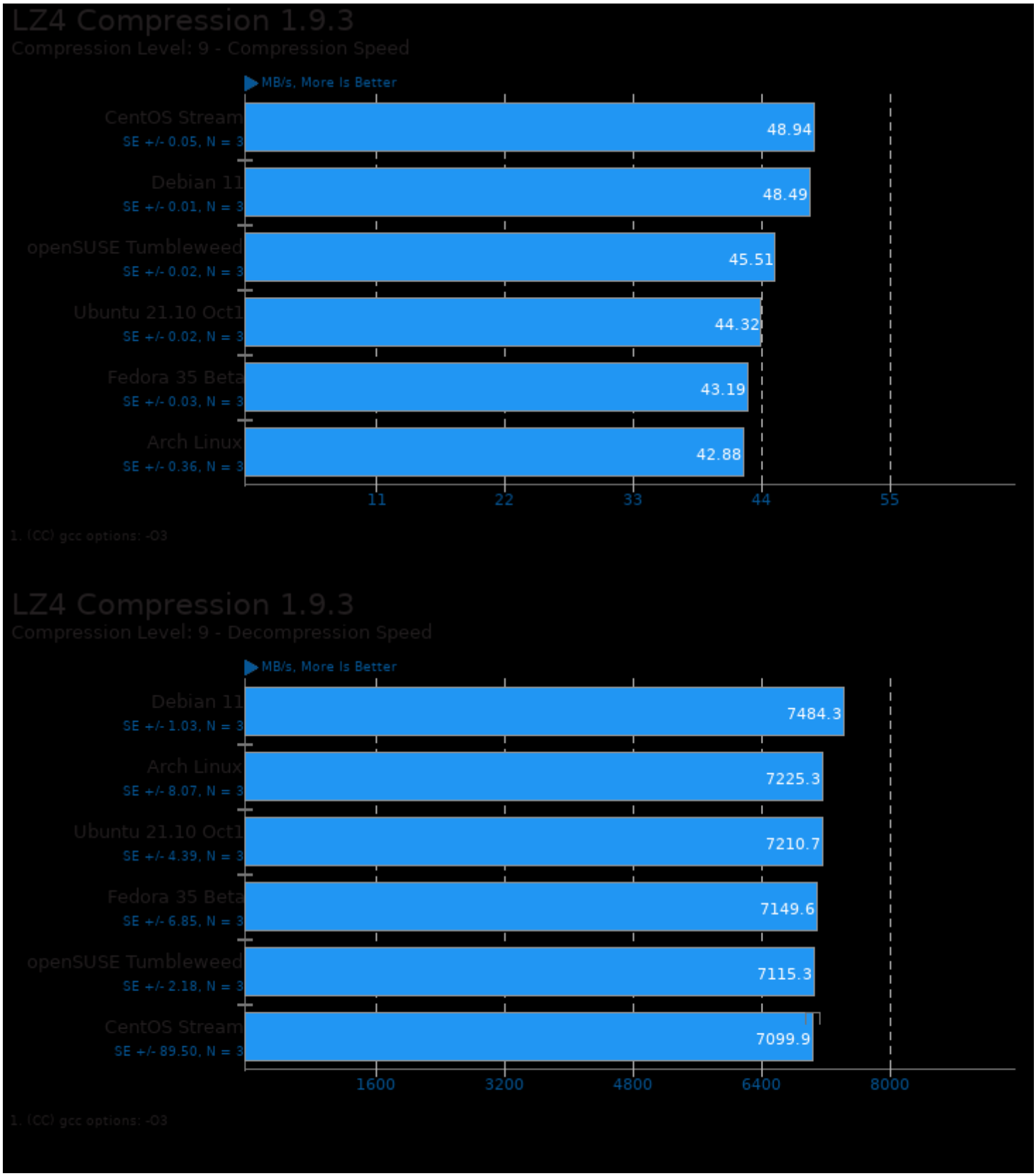

ONNX Runtime 1.8.2
Model: yolov4 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
Fedora 35 Beta
SE +/- 3.82, N = 3
548
Ubuntu 21.10 Oct1
SE +/- 3.17, N = 3
541
Arch Linux
SE +/- 5.51, N = 3
539
120
240
360
480
600
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
ONNX Runtime 1.8.2
Model: bertsquad-10 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
Fedora 35 Beta
SE +/- 11.30, N = 12
687
Arch Linux
SE +/- 11.15, N = 9
667
Ubuntu 21.10 Oct1
SE +/- 11.11, N = 12
648
150
300
450
600
750
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
ONNX Runtime 1.8.2
Model: fcn-resnet101-11 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
Ubuntu 21.10 Oct1
SE +/- 5.35, N = 3
476
Fedora 35 Beta
SE +/- 3.28, N = 3
474
Arch Linux
SE +/- 2.18, N = 3
466
100
200
300
400
500
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt

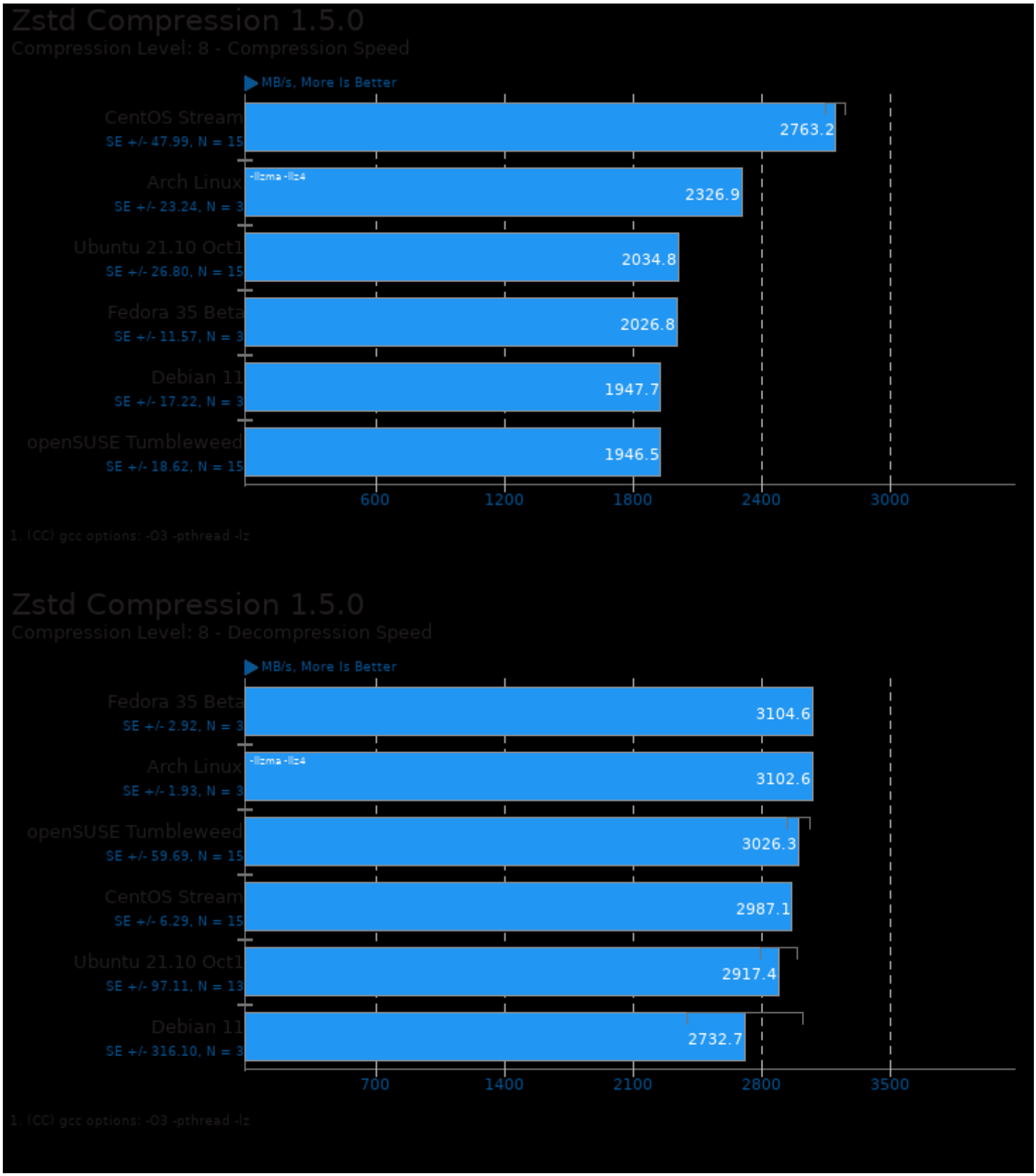

ONNX Runtime 1.8.2
Model: shufflenet-v2-10 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
Arch Linux
SE +/- 113.36, N = 3
12801
Fedora 35 Beta
SE +/- 75.14, N = 3
12630
Ubuntu 21.10 Oct1
SE +/- 76.96, N = 3
11943
3K
6K
9K
12K
15K
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
OpenVKL 1.0
Benchmark: vklBenchmark ISPC
Items / Sec, More Is Better
CentOS Stream
SE +/- 1.00, N = 3
MIN: 17 / MAX: 7189
285
Arch Linux
SE +/- 0.88, N = 3
MIN: 17 / MAX: 6601
279
Debian 11
SE +/- 1.76, N = 3
MIN: 19 / MAX: 6523
275
openSUSE Tumbleweed
SE +/- 1.53, N = 3
MIN: 19 / MAX: 6475
274
Fedora 35 Beta
SE +/- 0.00, N = 3
MIN: 19 / MAX: 6480
271
Ubuntu 21.10 Oct1
SE +/- 1.00, N = 3
MIN: 17 / MAX: 6328
268
60
120
180
240
300

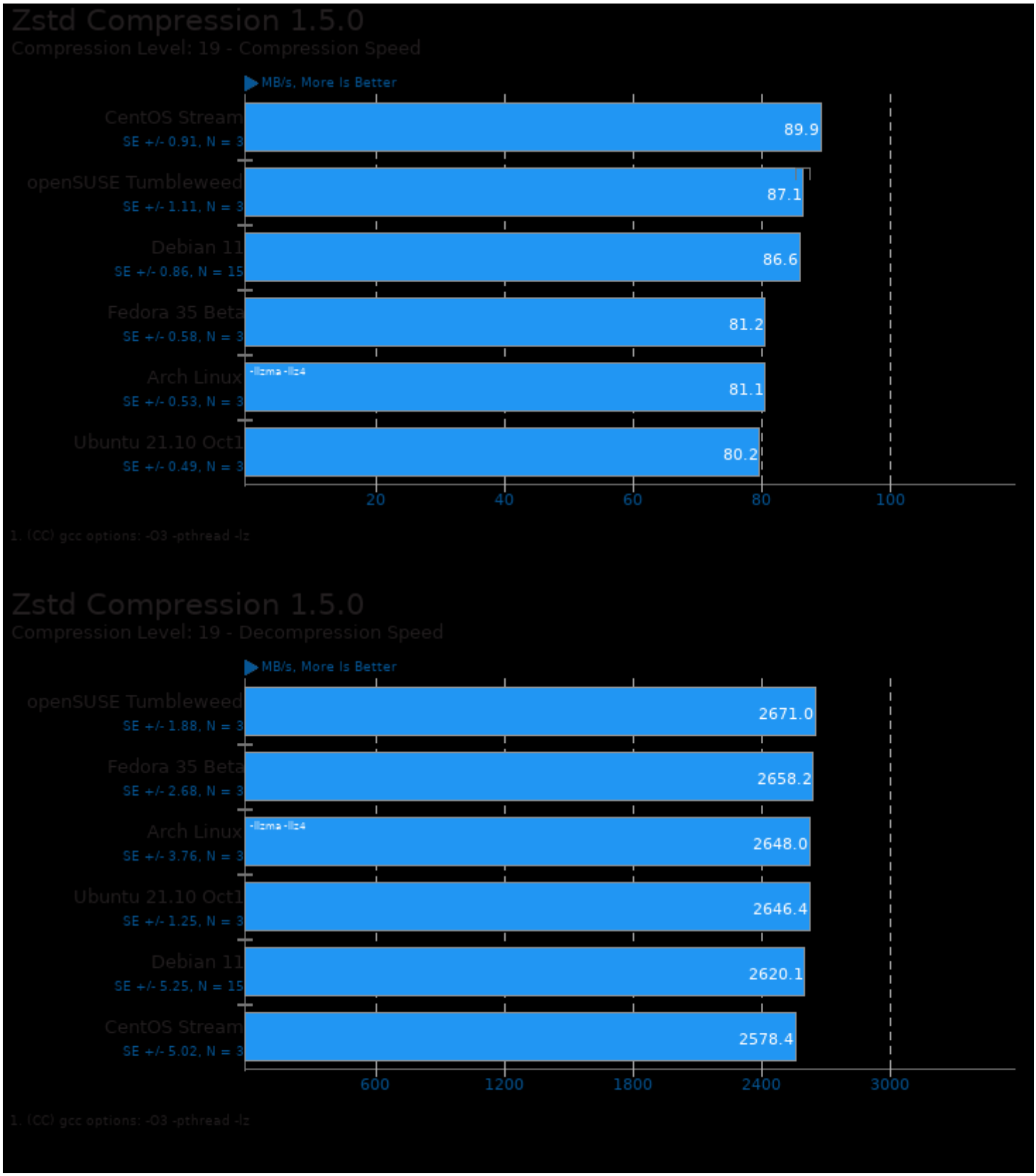
Xeon Platinum 8380 Fedora

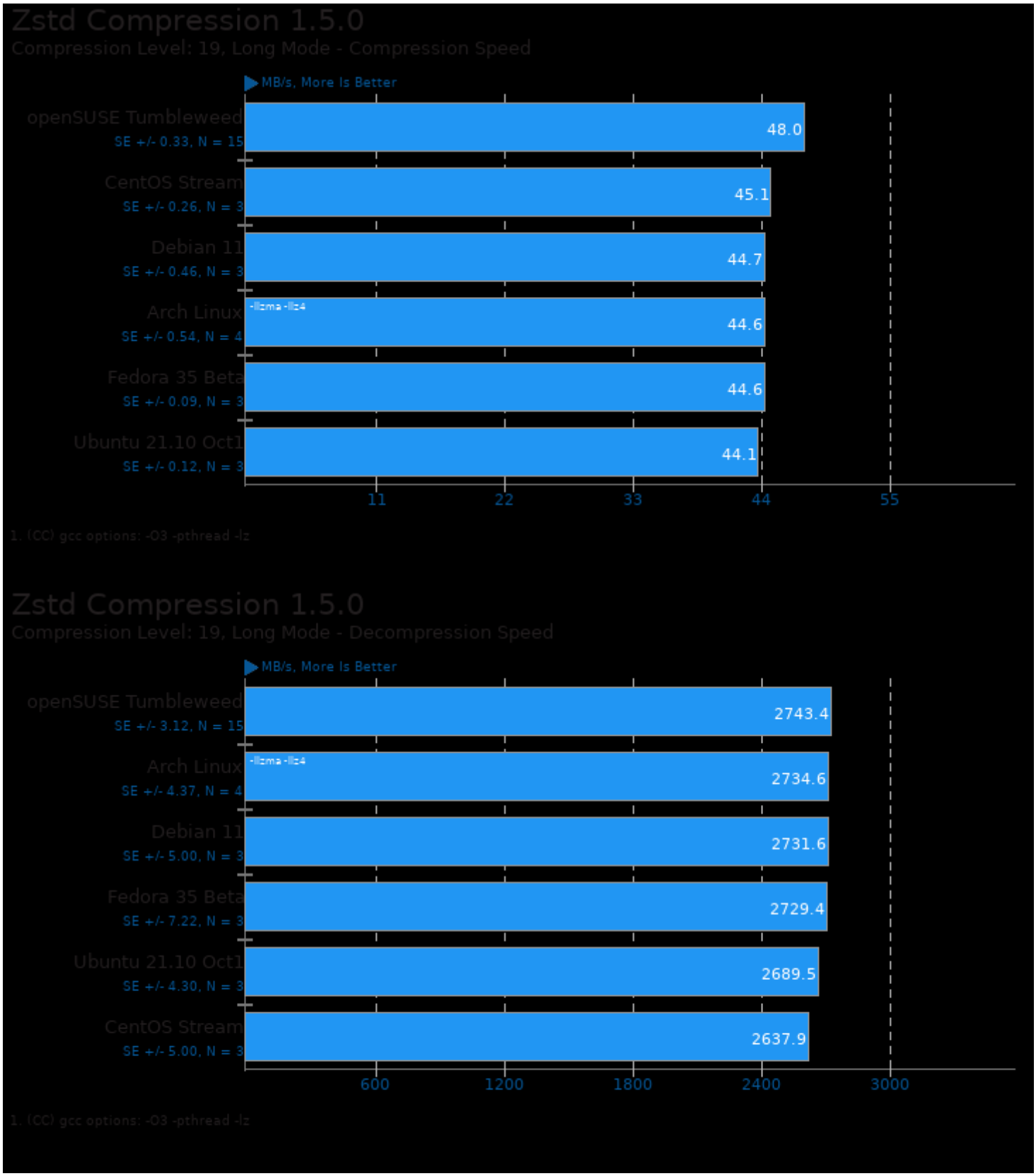


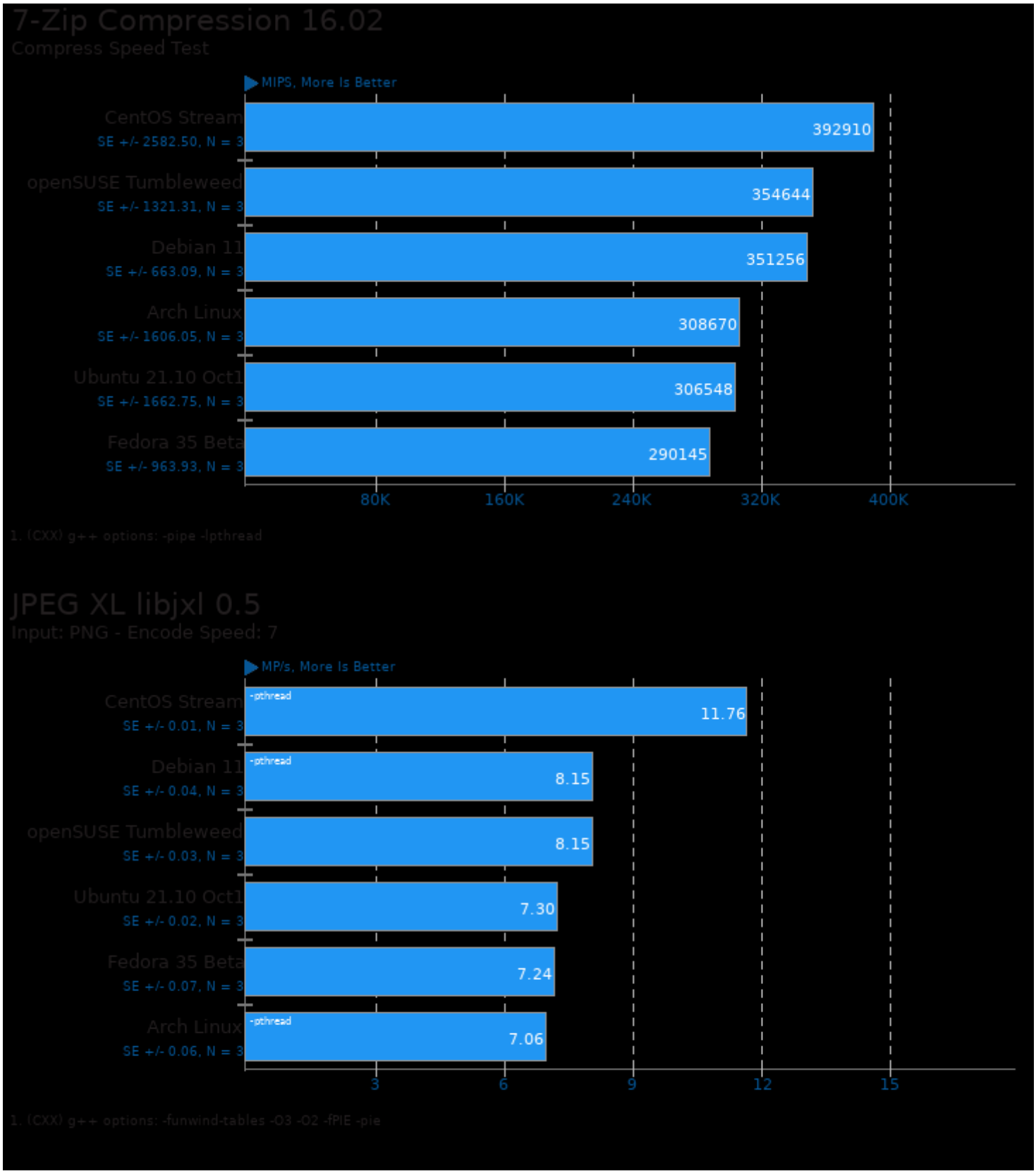

LZ4 Compression 1.9.3
Compression Level: 3 - Compression Speed
MB/s, More Is Better
CentOS Stream
SE +/- 0.11, N = 3
49.78
Debian 11
SE +/- 0.07, N = 3
49.48
openSUSE Tumbleweed
SE +/- 0.07, N = 3
46.33
Ubuntu 21.10 Oct1
SE +/- 0.01, N = 3
45.33
Arch Linux
SE +/- 0.01, N = 3
44.28
Fedora 35 Beta
SE +/- 0.21, N = 3
43.83
11
22
33
44
55
1. (CC) gcc options: -O3
LZ4 Compression 1.9.3
Compression Level: 3 - Decompression Speed
MB/s, More Is Better
Debian 11
SE +/- 2.94, N = 3
7475.4
Arch Linux
SE +/- 41.88, N = 3
7245.9
Ubuntu 21.10 Oct1
SE +/- 8.27, N = 3
7193.7
openSUSE Tumbleweed
SE +/- 22.71, N = 3
7153.2
Fedora 35 Beta
SE +/- 4.43, N = 3
7136.8
CentOS Stream
SE +/- 0.99, N = 3
6931.1
1600
3200
4800
6400
8000
1. (CC) gcc options: -O3

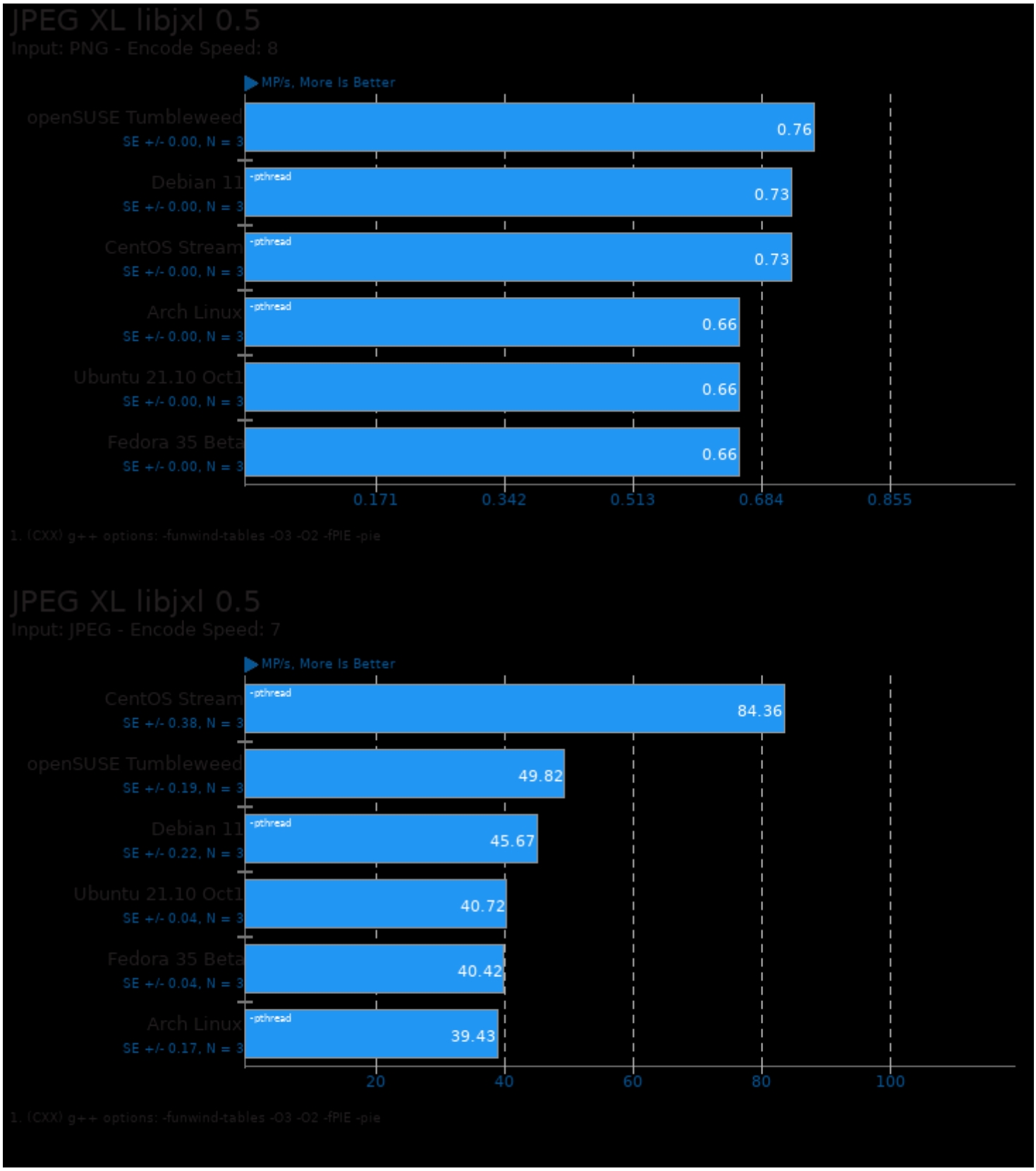

LZ4 Compression 1.9.3
Compression Level: 9 - Compression Speed
MB/s, More Is Better
CentOS Stream
SE +/- 0.05, N = 3
48.94
Debian 11
SE +/- 0.01, N = 3
48.49
openSUSE Tumbleweed
SE +/- 0.02, N = 3
45.51
Ubuntu 21.10 Oct1
SE +/- 0.02, N = 3
44.32
Fedora 35 Beta
SE +/- 0.03, N = 3
43.19
Arch Linux
SE +/- 0.36, N = 3
42.88
11
22
33
44
55
1. (CC) gcc options: -O3
LZ4 Compression 1.9.3
Compression Level: 9 - Decompression Speed
MB/s, More Is Better
Debian 11
SE +/- 1.03, N = 3
7484.3
Arch Linux
SE +/- 8.07, N = 3
7225.3
Ubuntu 21.10 Oct1
SE +/- 4.39, N = 3
7210.7
Fedora 35 Beta
SE +/- 6.85, N = 3
7149.6
openSUSE Tumbleweed
SE +/- 2.18, N = 3
7115.3
CentOS Stream
SE +/- 89.50, N = 3
7099.9
1600
3200
4800
6400
8000
1. (CC) gcc options: -O3

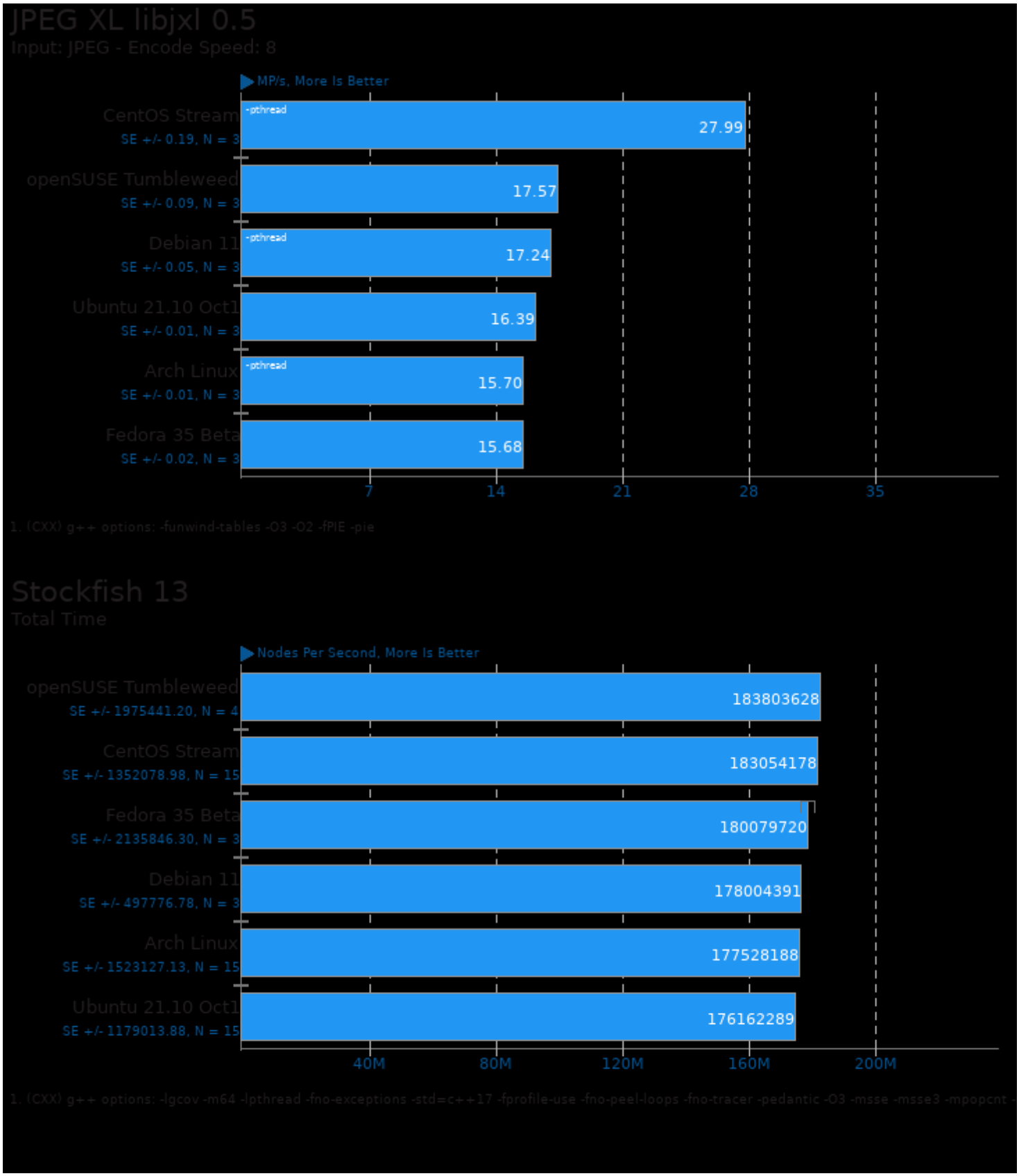

Zstd Compression 1.5.0
Compression Level: 8 - Compression Speed
MB/s, More Is Better
CentOS Stream
SE +/- 47.99, N = 15
2763.2
Arch Linux
SE +/- 23.24, N = 3
-llzma -llz4
2326.9
Ubuntu 21.10 Oct1
SE +/- 26.80, N = 15
2034.8
Fedora 35 Beta
SE +/- 11.57, N = 3
2026.8
Debian 11
SE +/- 17.22, N = 3
1947.7
openSUSE Tumbleweed
SE +/- 18.62, N = 15
1946.5
600
1200
1800
2400
3000
1. (CC) gcc options: -O3 -pthread -lz
Zstd Compression 1.5.0
Compression Level: 8 - Decompression Speed
MB/s, More Is Better
Fedora 35 Beta
SE +/- 2.92, N = 3
3104.6
Arch Linux
SE +/- 1.93, N = 3
-llzma -llz4
3102.6
openSUSE Tumbleweed
SE +/- 59.69, N = 15
3026.3
CentOS Stream
SE +/- 6.29, N = 15
2987.1
Ubuntu 21.10 Oct1
SE +/- 97.11, N = 13
2917.4
Debian 11
SE +/- 316.10, N = 3
2732.7
700
1400
2100
2800
3500
1. (CC) gcc options: -O3 -pthread -lz

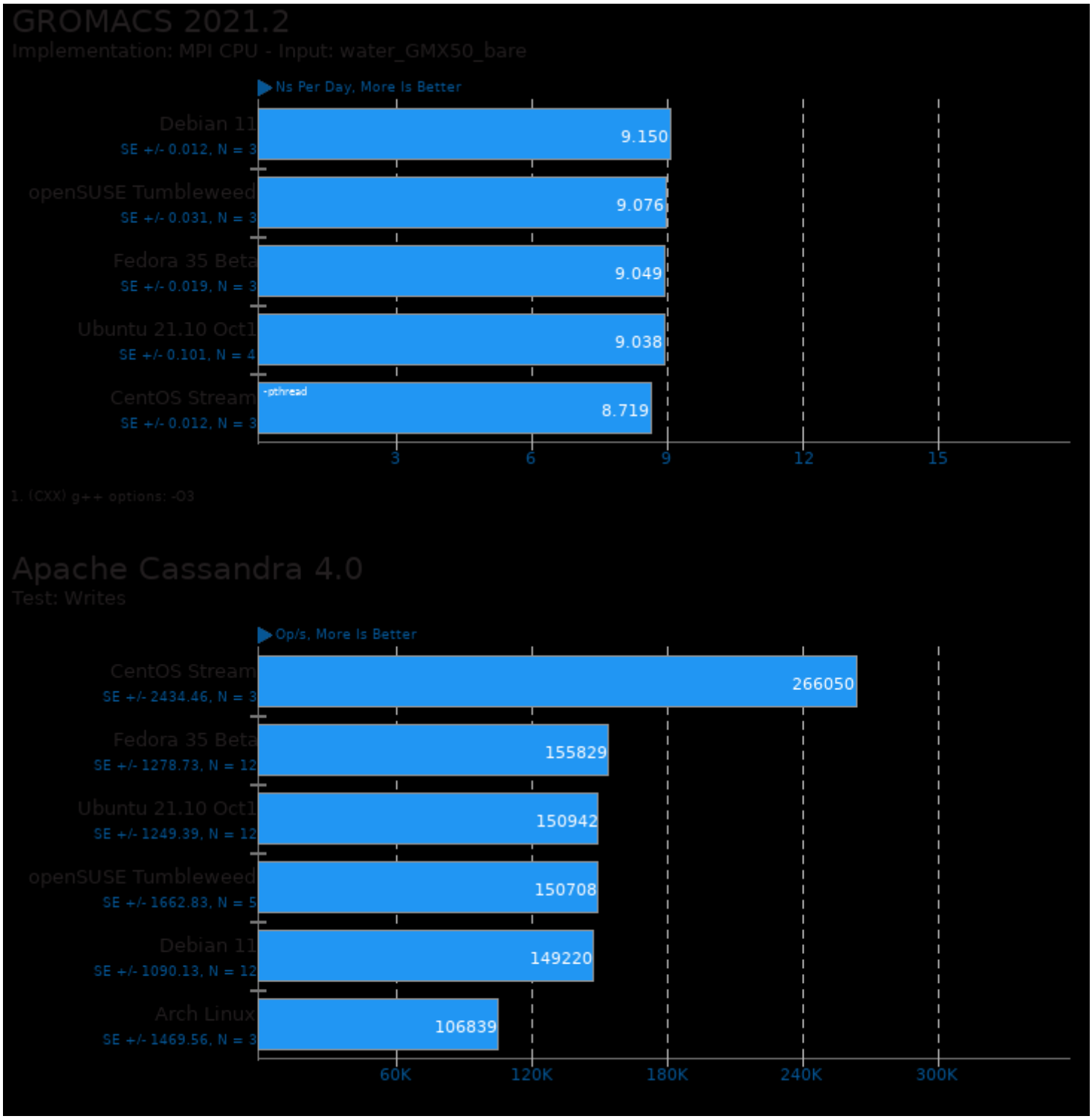

Zstd Compression 1.5.0
Compression Level: 19 - Compression Speed
MB/s, More Is Better
CentOS Stream
SE +/- 0.91, N = 3
89.9
openSUSE Tumbleweed
SE +/- 1.11, N = 3
87.1
Debian 11
SE +/- 0.86, N = 15
86.6
Fedora 35 Beta
SE +/- 0.58, N = 3
81.2
Arch Linux
SE +/- 0.53, N = 3
-llzma -llz4
81.1
Ubuntu 21.10 Oct1
SE +/- 0.49, N = 3
80.2
20
40
60
80
100
1. (CC) gcc options: -O3 -pthread -lz
Zstd Compression 1.5.0
Compression Level: 19 - Decompression Speed
MB/s, More Is Better
openSUSE Tumbleweed
SE +/- 1.88, N = 3
2671.0
Fedora 35 Beta
SE +/- 2.68, N = 3
2658.2
Arch Linux
SE +/- 3.76, N = 3
-llzma -llz4
2648.0
Ubuntu 21.10 Oct1
SE +/- 1.25, N = 3
2646.4
Debian 11
SE +/- 5.25, N = 15
2620.1
CentOS Stream
SE +/- 5.02, N = 3
2578.4
600
1200
1800
2400
3000
1. (CC) gcc options: -O3 -pthread -lz

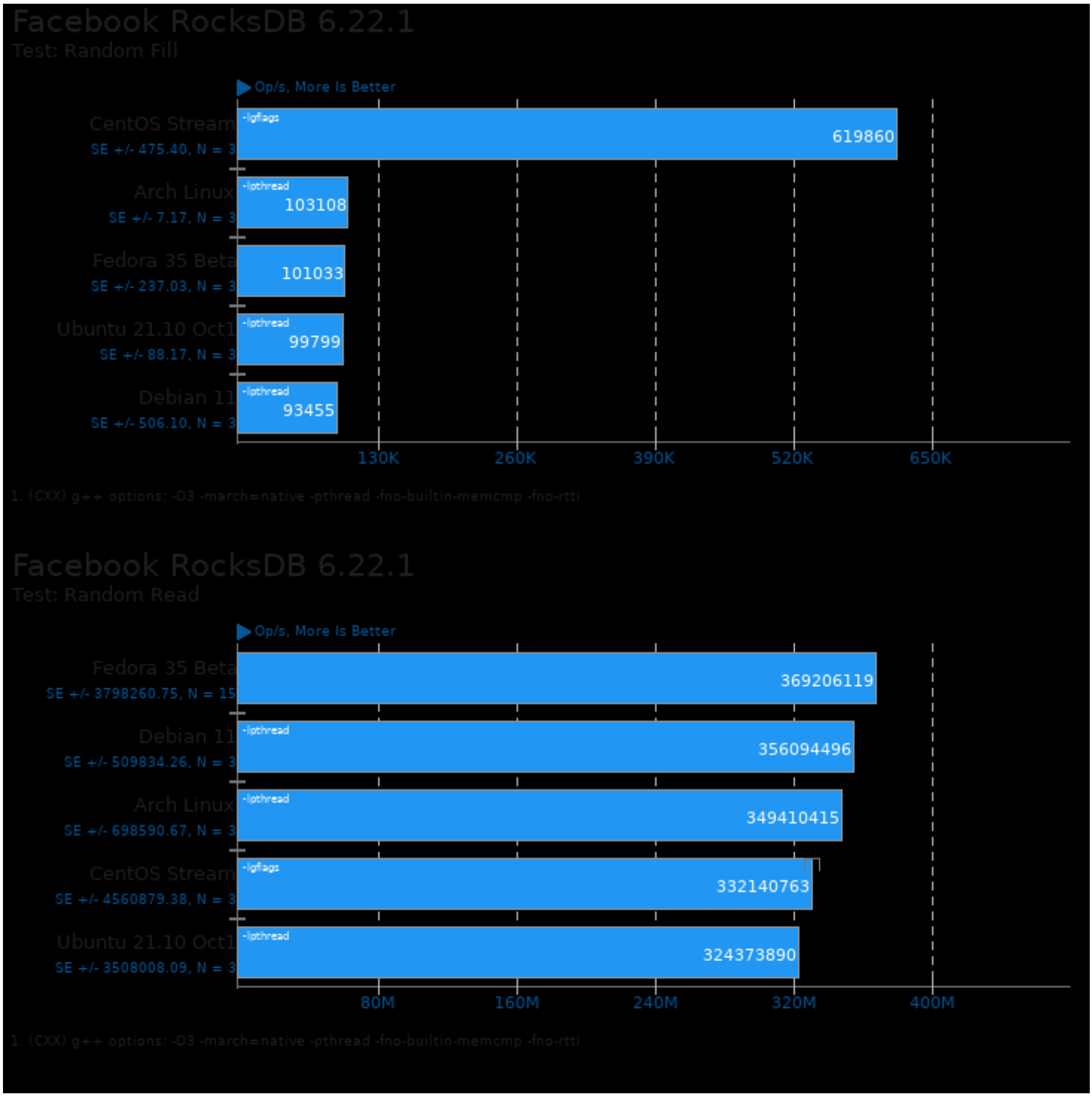

Zstd Compression 1.5.0
Compression Level: 19, Long Mode - Compression Speed
MB/s, More Is Better
openSUSE Tumbleweed
SE +/- 0.33, N = 15
48.0
CentOS Stream
SE +/- 0.26, N = 3
45.1
Debian 11
SE +/- 0.46, N = 3
44.7
Arch Linux
SE +/- 0.54, N = 4
-llzma -llz4
44.6
Fedora 35 Beta
SE +/- 0.09, N = 3
44.6
Ubuntu 21.10 Oct1
SE +/- 0.12, N = 3
44.1
11
22
33
44
55
1. (CC) gcc options: -O3 -pthread -lz
Zstd Compression 1.5.0
Compression Level: 19, Long Mode - Decompression Speed
MB/s, More Is Better
openSUSE Tumbleweed
SE +/- 3.12, N = 15
2743.4
Arch Linux
SE +/- 4.37, N = 4
-llzma -llz4
2734.6
Debian 11
SE +/- 5.00, N = 3
2731.6
Fedora 35 Beta
SE +/- 7.22, N = 3
2729.4
Ubuntu 21.10 Oct1
SE +/- 4.30, N = 3
2689.5
CentOS Stream
SE +/- 5.00, N = 3
2637.9
600
1200
1800
2400
3000
1. (CC) gcc options: -O3 -pthread -lz

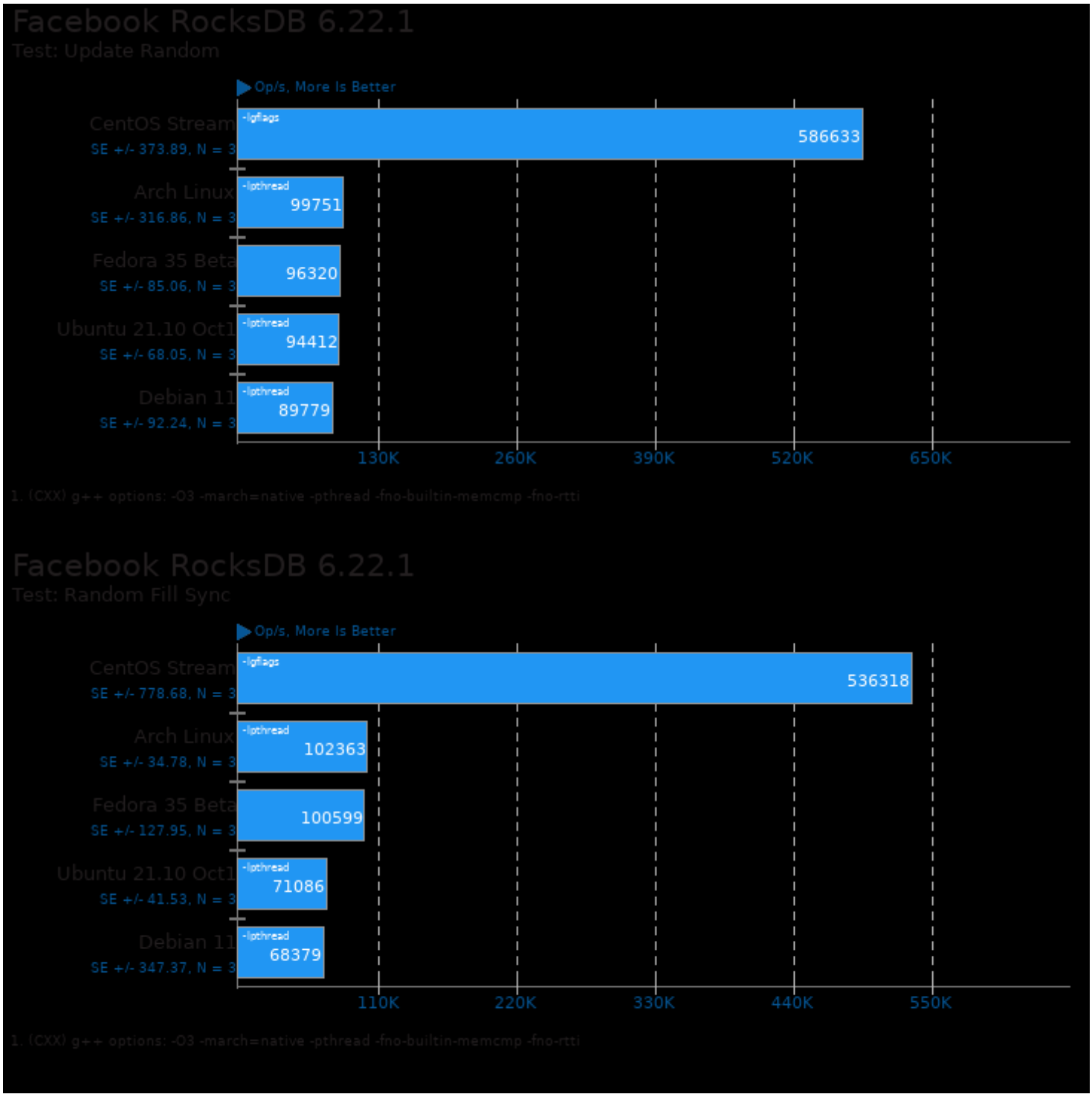

7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
CentOS Stream
SE +/- 2582.50, N = 3
392910
openSUSE Tumbleweed
SE +/- 1321.31, N = 3
354644
Debian 11
SE +/- 663.09, N = 3
351256
Arch Linux
SE +/- 1606.05, N = 3
308670
Ubuntu 21.10 Oct1
SE +/- 1662.75, N = 3
306548
Fedora 35 Beta
SE +/- 963.93, N = 3
290145
80K
160K
240K
320K
400K
1. (CXX) g++ options: -pipe -lpthread
JPEG XL libjxl 0.5
Input: PNG - Encode Speed: 7
MP/s, More Is Better
CentOS Stream
SE +/- 0.01, N = 3
-pthread
11.76
Debian 11
SE +/- 0.04, N = 3
-pthread
8.15
openSUSE Tumbleweed
SE +/- 0.03, N = 3
8.15
Ubuntu 21.10 Oct1
SE +/- 0.02, N = 3
7.30
Fedora 35 Beta
SE +/- 0.07, N = 3
7.24
Arch Linux
SE +/- 0.06, N = 3
-pthread
7.06
3
6
9
12
15
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie

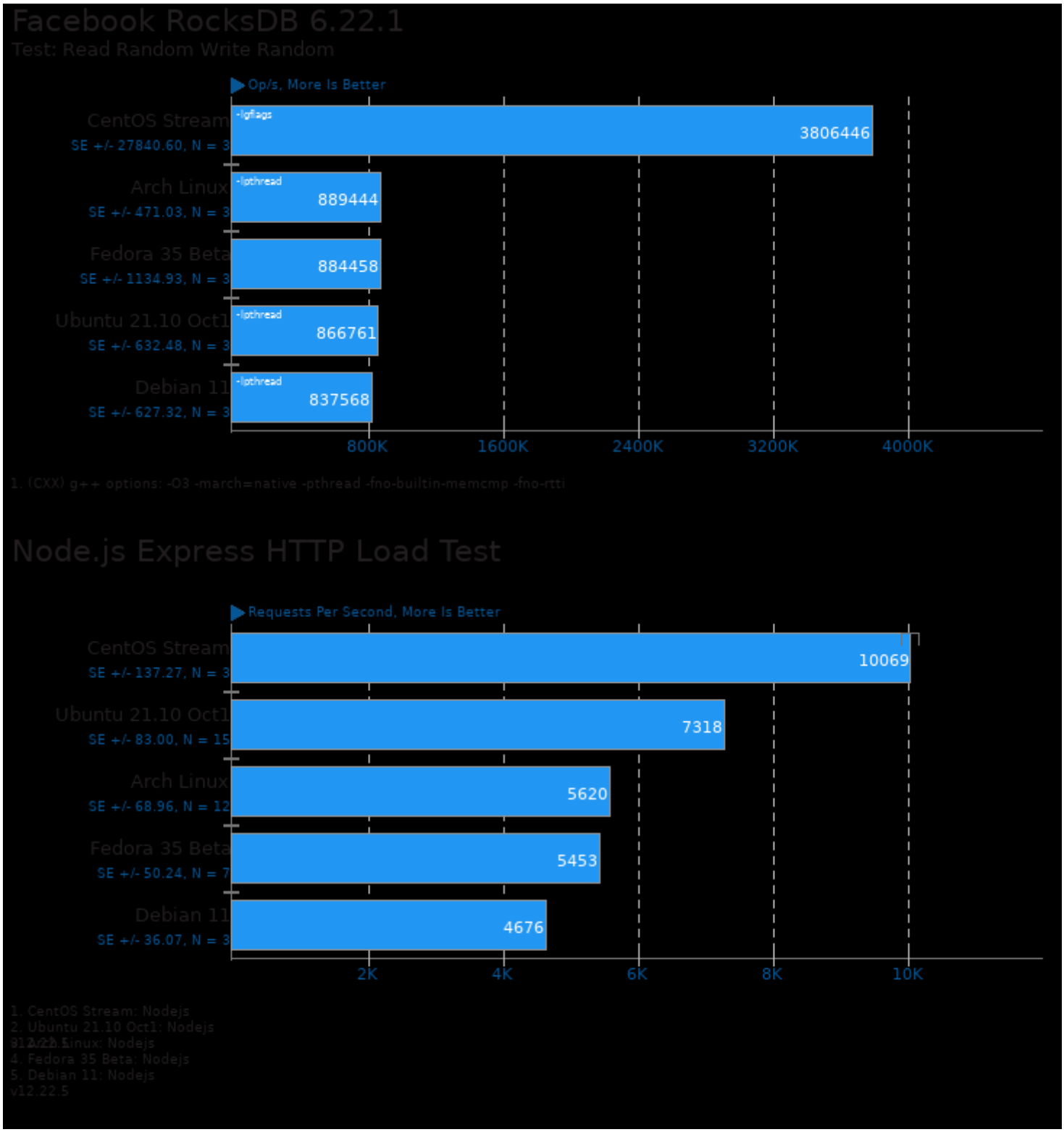

JPEG XL libjxl 0.5
Input: PNG - Encode Speed: 8
MP/s, More Is Better
openSUSE Tumbleweed
SE +/- 0.00, N = 3
0.76
Debian 11
SE +/- 0.00, N = 3
-pthread
0.73
CentOS Stream
SE +/- 0.00, N = 3
-pthread
0.73
Arch Linux
SE +/- 0.00, N = 3
-pthread
0.66
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
0.66
Fedora 35 Beta
SE +/- 0.00, N = 3
0.66
0.171
0.342
0.513
0.684
0.855
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie
JPEG XL libjxl 0.5
Input: JPEG - Encode Speed: 7
MP/s, More Is Better
CentOS Stream
SE +/- 0.38, N = 3
-pthread
84.36
openSUSE Tumbleweed
SE +/- 0.19, N = 3
49.82
Debian 11
SE +/- 0.22, N = 3
-pthread
45.67
Ubuntu 21.10 Oct1
SE +/- 0.04, N = 3
40.72
Fedora 35 Beta
SE +/- 0.04, N = 3
40.42
Arch Linux
SE +/- 0.17, N = 3
-pthread
39.43
20
40
60
80
100
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie

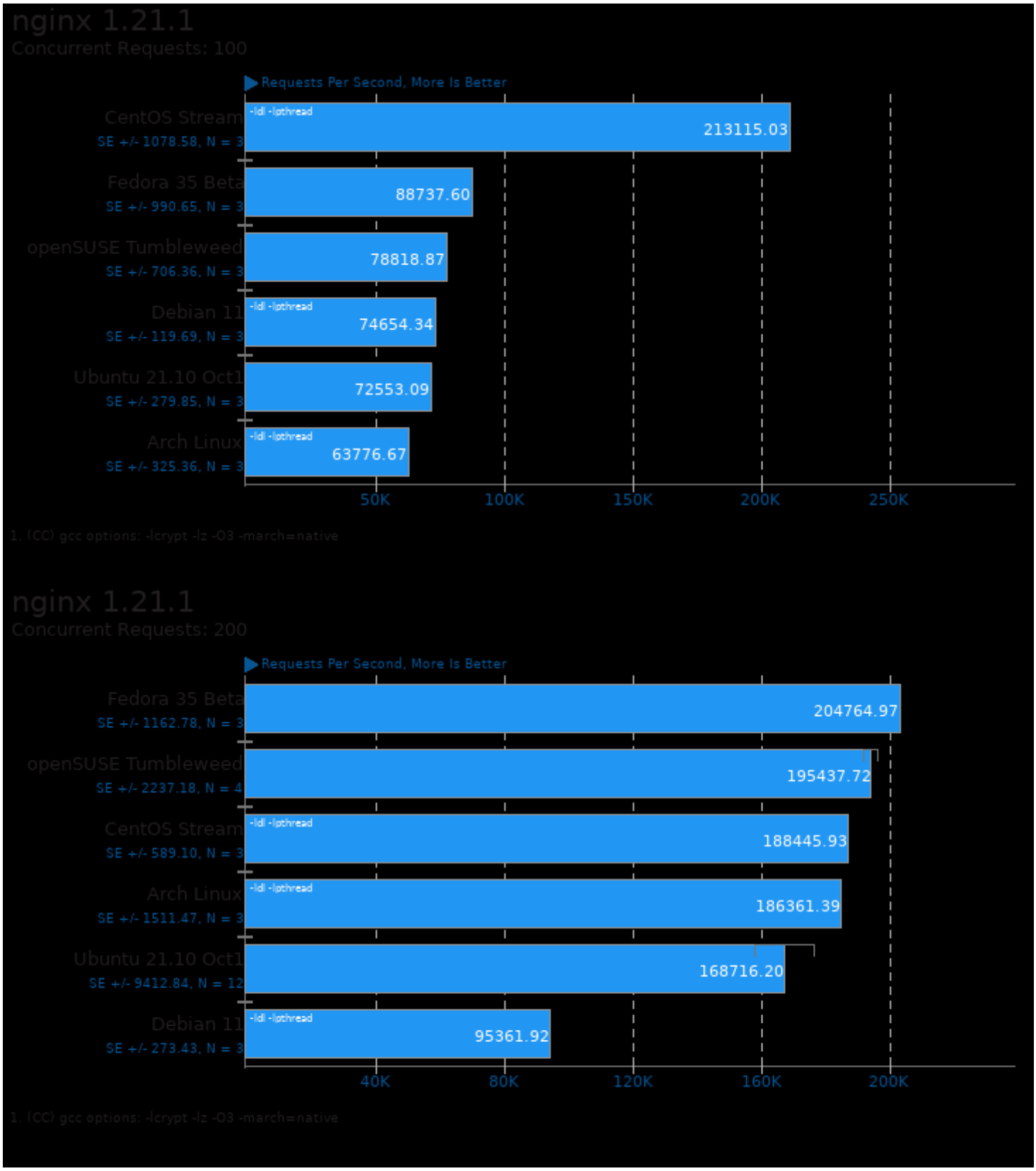

JPEG XL libjxl 0.5
Input: JPEG - Encode Speed: 8
MP/s, More Is Better
CentOS Stream
SE +/- 0.19, N = 3
-pthread
27.99
openSUSE Tumbleweed
SE +/- 0.09, N = 3
17.57
Debian 11
SE +/- 0.05, N = 3
-pthread
17.24
Ubuntu 21.10 Oct1
SE +/- 0.01, N = 3
16.39
Arch Linux
SE +/- 0.01, N = 3
-pthread
15.70
Fedora 35 Beta
SE +/- 0.02, N = 3
15.68
7
14
21
28
35
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie
Stockfish 13
Total Time
Nodes Per Second, More Is Better
openSUSE Tumbleweed
SE +/- 1975441.20, N = 4
183803628
CentOS Stream
SE +/- 1352078.98, N = 15
183054178
Fedora 35 Beta
SE +/- 2135846.30, N = 3
180079720
Debian 11
SE +/- 497776.78, N = 3
178004391
Arch Linux
SE +/- 1523127.13, N = 15
177528188
Ubuntu 21.10 Oct1
SE +/- 1179013.88, N = 15
176162289
40M
80M
120M
160M
200M
1. (CXX) g++ options: -lgcov -m64 -lpthread -fno-exceptions -std=c++17 -fprofile-use -fno-peel-loops -fno-tracer -pedantic -O3 -msse -msse3 -mpopcnt

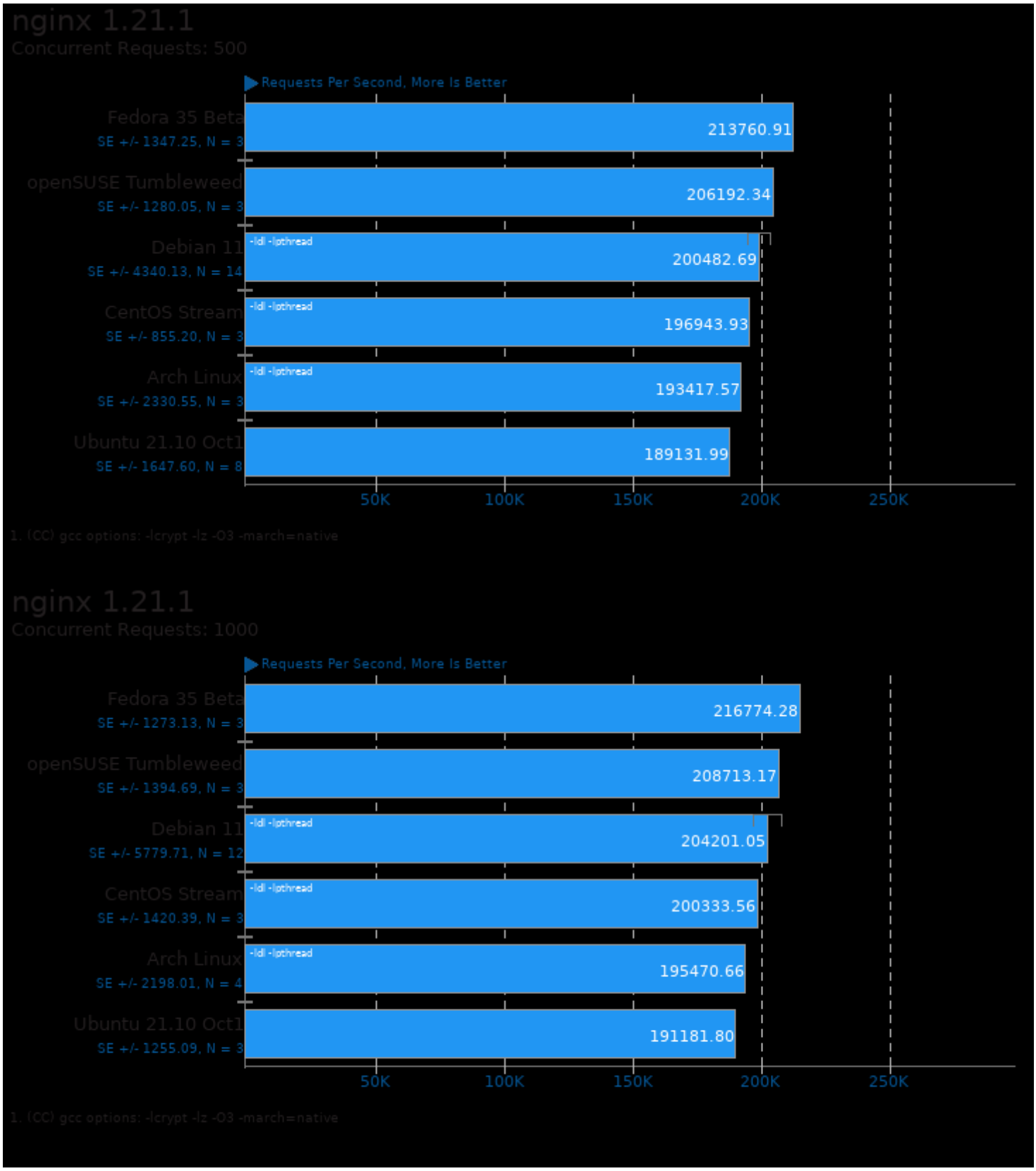

GROMACS 2021.2
Implementation: MPI CPU - Input: water_GMX50_bare
Ns Per Day, More Is Better
Debian 11
SE +/- 0.012, N = 3
9.150
openSUSE Tumbleweed
SE +/- 0.031, N = 3
9.076
Fedora 35 Beta
SE +/- 0.019, N = 3
9.049
Ubuntu 21.10 Oct1
SE +/- 0.101, N = 4
9.038
CentOS Stream
SE +/- 0.012, N = 3
-pthread
8.719
3
6
9
12
15
1. (CXX) g++ options: -O3
Apache Cassandra 4.0
Test: Writes
Op/s, More Is Better
CentOS Stream
SE +/- 2434.46, N = 3
266050
Fedora 35 Beta
SE +/- 1278.73, N = 12
155829
Ubuntu 21.10 Oct1
SE +/- 1249.39, N = 12
150942
openSUSE Tumbleweed
SE +/- 1662.83, N = 5
150708
Debian 11
SE +/- 1090.13, N = 12
149220
Arch Linux
SE +/- 1469.56, N = 3
106839
60K
120K
180K
240K
300K

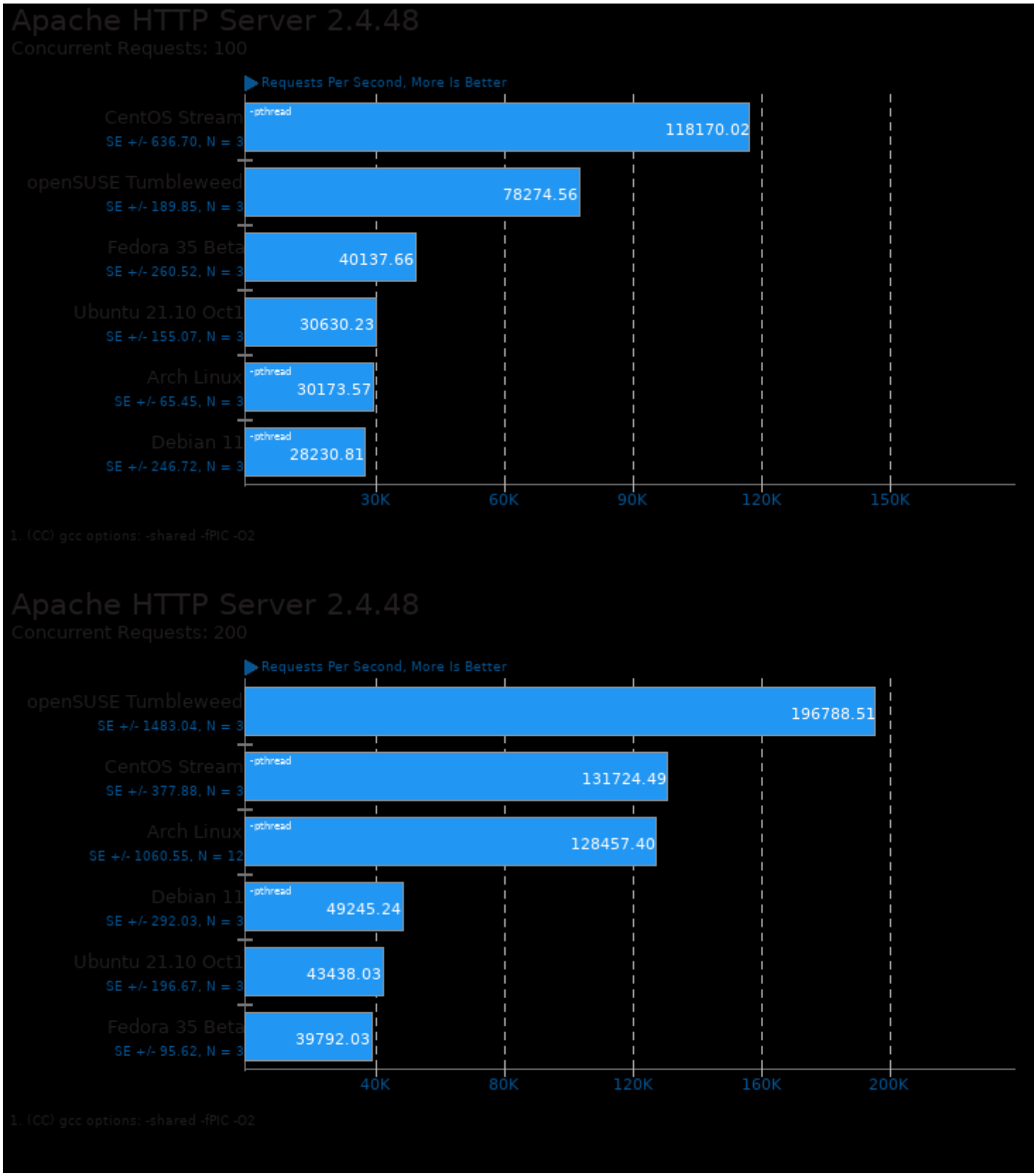

Facebook RocksDB 6.22.1
Test: Random Fill
Op/s, More Is Better
CentOS Stream
SE +/- 475.40, N = 3
-lgflags
619860
Arch Linux
SE +/- 7.17, N = 3
-lpthread
103108
Fedora 35 Beta
SE +/- 237.03, N = 3
101033
Ubuntu 21.10 Oct1
SE +/- 88.17, N = 3
-lpthread
99799
Debian 11
SE +/- 506.10, N = 3
-lpthread
93455
130K
260K
390K
520K
650K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti
Facebook RocksDB 6.22.1
Test: Random Read
Op/s, More Is Better
Fedora 35 Beta
SE +/- 3798260.75, N = 15
369206119
Debian 11
SE +/- 509834.26, N = 3
-lpthread
356094496
Arch Linux
SE +/- 698590.67, N = 3
-lpthread
349410415
CentOS Stream
SE +/- 4560879.38, N = 3
-lgflags
332140763
Ubuntu 21.10 Oct1
SE +/- 3508008.09, N = 3
-lpthread
324373890
80M
160M
240M
320M
400M
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti

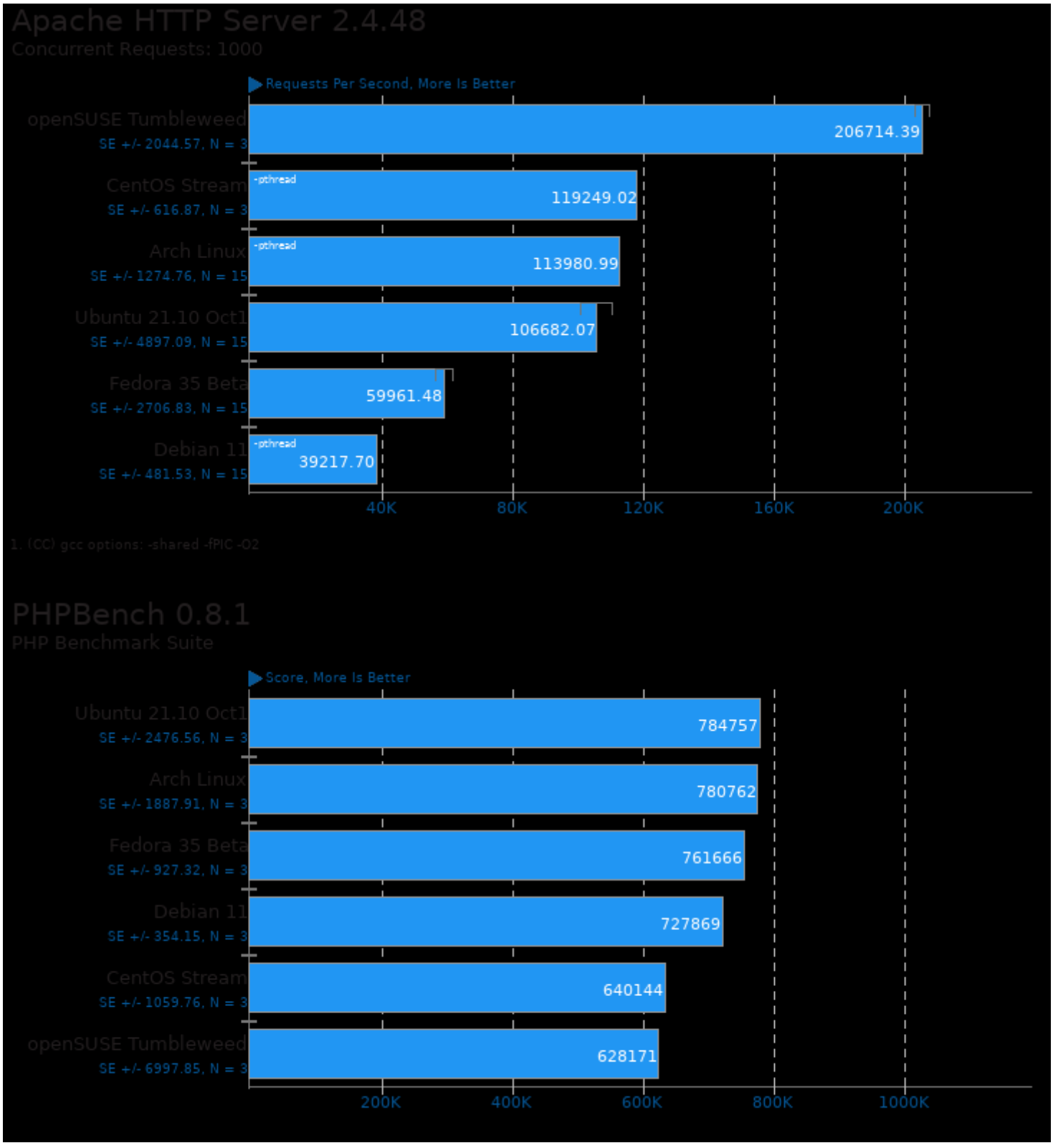

Facebook RocksDB 6.22.1
Test: Update Random
Op/s, More Is Better
CentOS Stream
SE +/- 373.89, N = 3
-lgflags
586633
Arch Linux
SE +/- 316.86, N = 3
-lpthread
99751
Fedora 35 Beta
SE +/- 85.06, N = 3
96320
Ubuntu 21.10 Oct1
SE +/- 68.05, N = 3
-lpthread
94412
Debian 11
SE +/- 92.24, N = 3
-lpthread
89779
130K
260K
390K
520K
650K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti
Facebook RocksDB 6.22.1
Test: Random Fill Sync
Op/s, More Is Better
CentOS Stream
SE +/- 778.68, N = 3
-lgflags
536318
Arch Linux
SE +/- 34.78, N = 3
-lpthread
102363
Fedora 35 Beta
SE +/- 127.95, N = 3
100599
Ubuntu 21.10 Oct1
SE +/- 41.53, N = 3
-lpthread
71086
Debian 11
SE +/- 347.37, N = 3
-lpthread
68379
110K
220K
330K
440K
550K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti

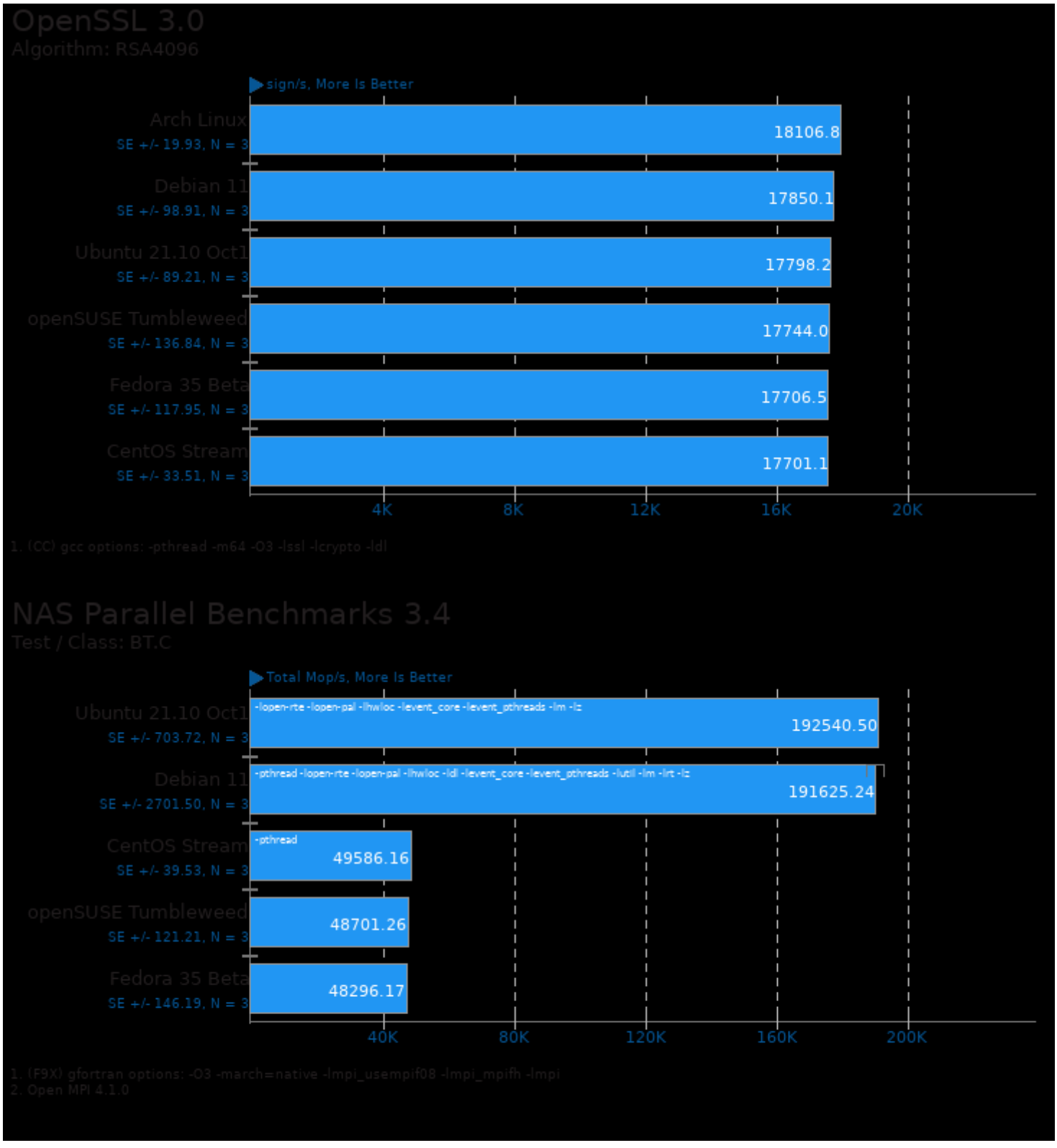

Facebook RocksDB 6.22.1
Test: Read Random Write Random
Op/s, More Is Better
CentOS Stream
SE +/- 27840.60, N = 3
-lgflags
3806446
Arch Linux
SE +/- 471.03, N = 3
-lpthread
889444
Fedora 35 Beta
SE +/- 1134.93, N = 3
884458
Ubuntu 21.10 Oct1
SE +/- 632.48, N = 3
-lpthread
866761
Debian 11
SE +/- 627.32, N = 3
-lpthread
837568
800K
1600K
2400K
3200K
4000K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti
Node.js Express HTTP Load Test
Requests Per Second, More Is Better
CentOS Stream
SE +/- 137.27, N = 3
10069
Ubuntu 21.10 Oct1
SE +/- 83.00, N = 15
7318
Arch Linux
SE +/- 68.96, N = 12
5620
Fedora 35 Beta
SE +/- 50.24, N = 7
5453
Debian 11
SE +/- 36.07, N = 3
4676
2K
4K
6K
8K
10K
1. CentOS Stream: Nodejs
2. Ubuntu 21.10 Oct1: Nodejs
3. Arch Linux: Nodejs
4. Fedora 35 Beta: Nodejs
5. Debian 11: Nodejs
v12.22.5

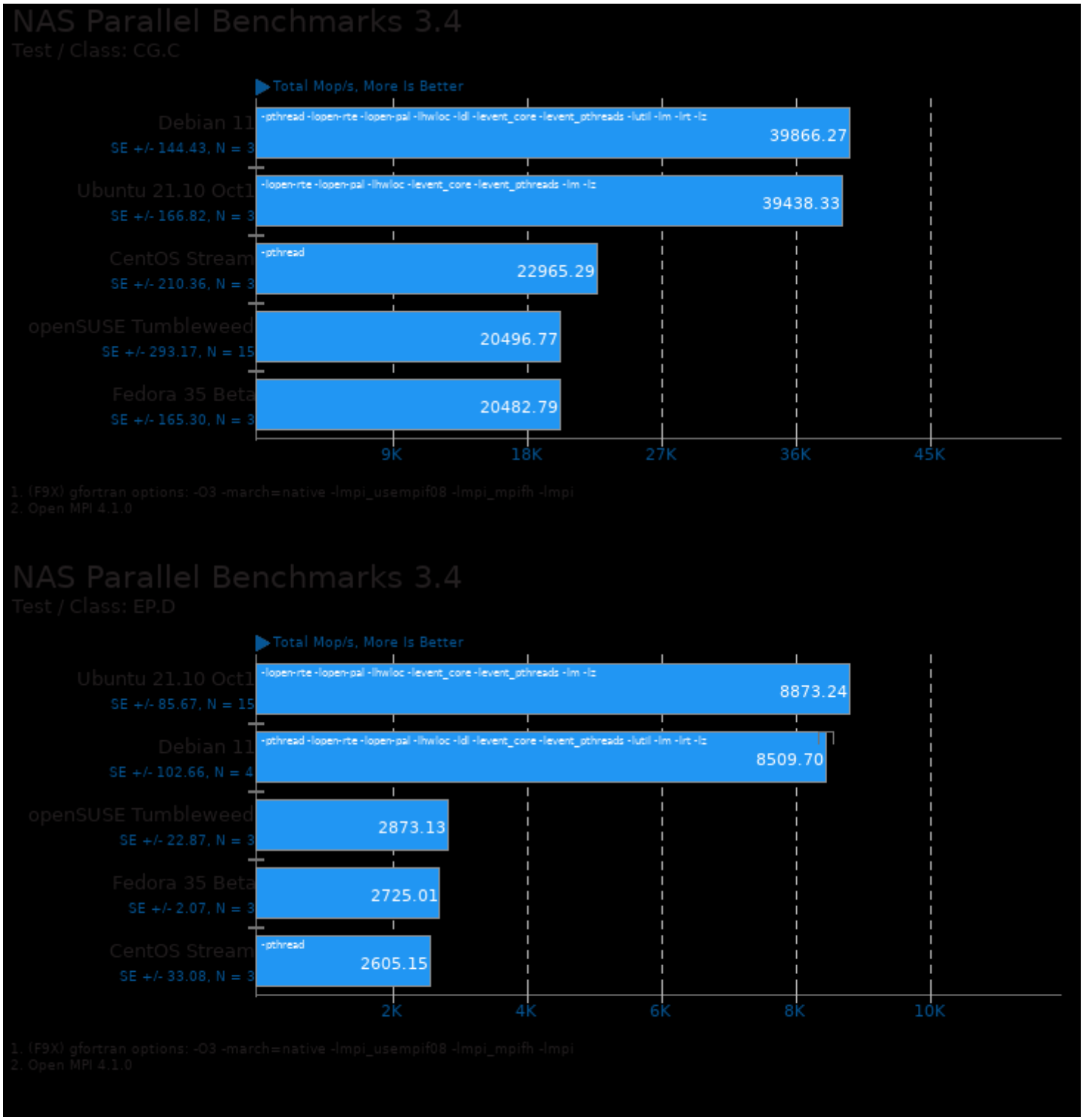

nginx 1.21.1
Concurrent Requests: 100
Requests Per Second, More Is Better
CentOS Stream
SE +/- 1078.58, N = 3
-ldl -lpthread
213115.03
Fedora 35 Beta
SE +/- 990.65, N = 3
88737.60
openSUSE Tumbleweed
SE +/- 706.36, N = 3
78818.87
Debian 11
SE +/- 119.69, N = 3
-ldl -lpthread
74654.34
Ubuntu 21.10 Oct
SE +/- 279.85, N = 3
72553.09
Arch Linux
SE +/- 325.36, N = 3
-ldl -lpthread
63776.67
50K
100K
150K
200K
250K
1. (CC) gcc options: -lcrypt -lz -O3 -march=native
nginx 1.21.1
Concurrent Requests: 200
Requests Per Second, More Is Better
Fedora 35 Beta
SE +/- 1162.78, N = 3
204764.97
openSUSE Tumbleweed
SE +/- 2237.18, N = 4
195437.72
CentOS Stream
SE +/- 589.10, N = 3
-ldl -lpthread
188445.93
Arch Linux
SE +/- 1511.47, N = 3
-ldl -lpthread
186361.39
Ubuntu 21.10 Oct
SE +/- 9412.84, N = 12
168716.20
Debian 11
SE +/- 273.43, N = 3
-ldl -lpthread
95361.92
40K
80K
120K
160K
200K
1. (CC) gcc options: -lcrypt -lz -O3 -march=native

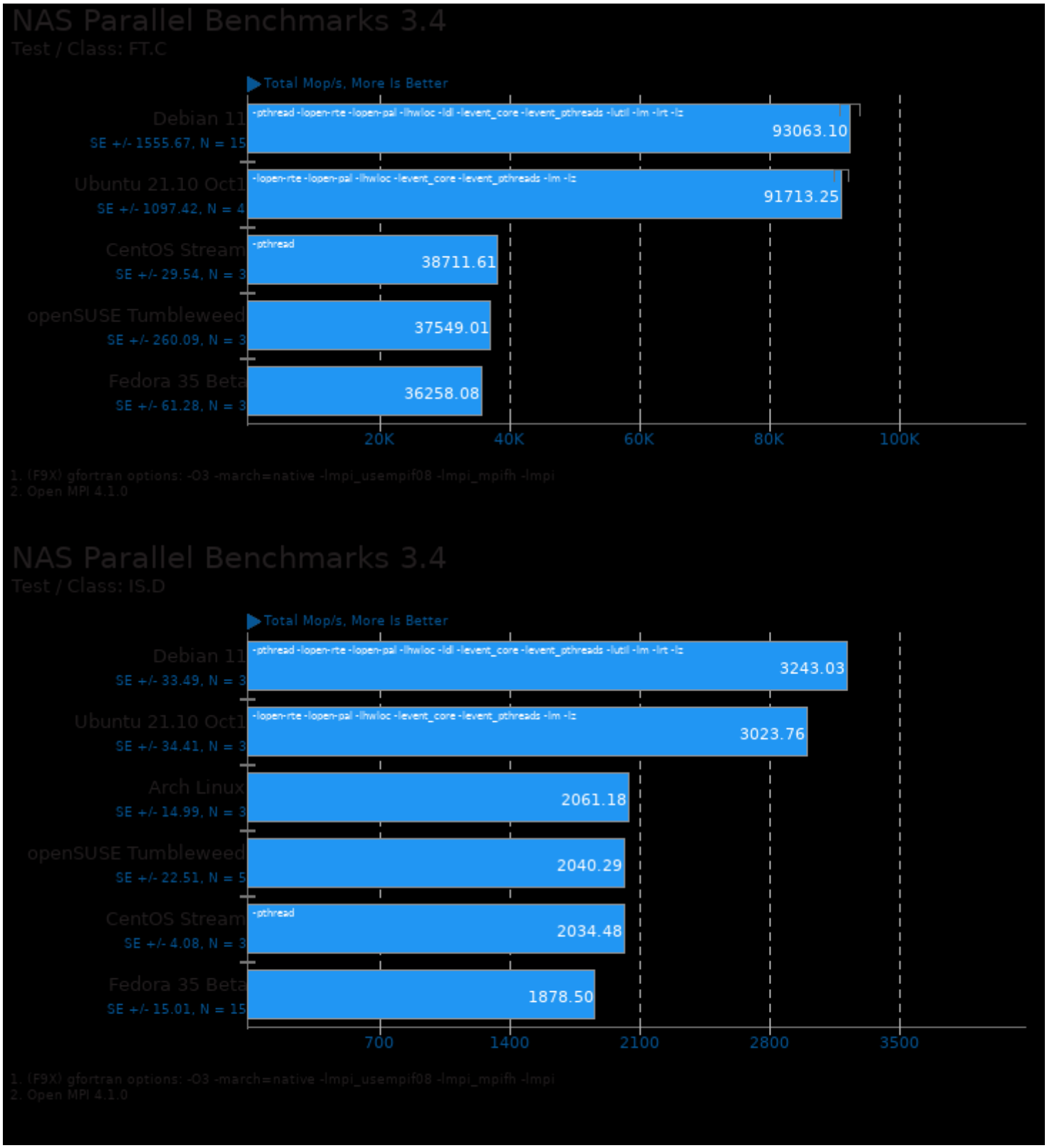

nginx 1.21.1
Concurrent Requests: 500
Requests Per Second, More Is Better
Fedora 35 Beta
SE +/- 1347.25, N = 3
213760.91
openSUSE Tumbleweed
SE +/- 1280.05, N = 3
206192.34
Debian 11
SE +/- 4340.13, N = 14
-ldl -lpthread
200482.69
CentOS Stream
SE +/- 855.20, N = 3
-ldl -lpthread
196943.93
Arch Linux
SE +/- 2330.55, N = 3
-ldl -lpthread
193417.57
Ubuntu 21.10 Oct1
SE +/- 1647.60, N = 8
189131.99
50K
100K
150K
200K
250K
1. (CC) gcc options: -lcrypt -lz -O3 -march=native
nginx 1.21.1
Concurrent Requests: 1000
Requests Per Second, More Is Better
Fedora 35 Beta
SE +/- 1273.13, N = 3
216774.28
openSUSE Tumbleweed
SE +/- 1394.69, N = 3
208713.17
Debian 11
SE +/- 5779.71, N = 12
-ldl -lpthread
204201.05
CentOS Stream
SE +/- 1420.39, N = 3
-ldl -lpthread
200333.56
Arch Linux
SE +/- 2198.01, N = 4
-ldl -lpthread
195470.66
Ubuntu 21.10 Oct1
SE +/- 1255.09, N = 3
191181.80
50K
100K
150K
200K
250K
1. (CC) gcc options: -lcrypt -lz -O3 -march=native

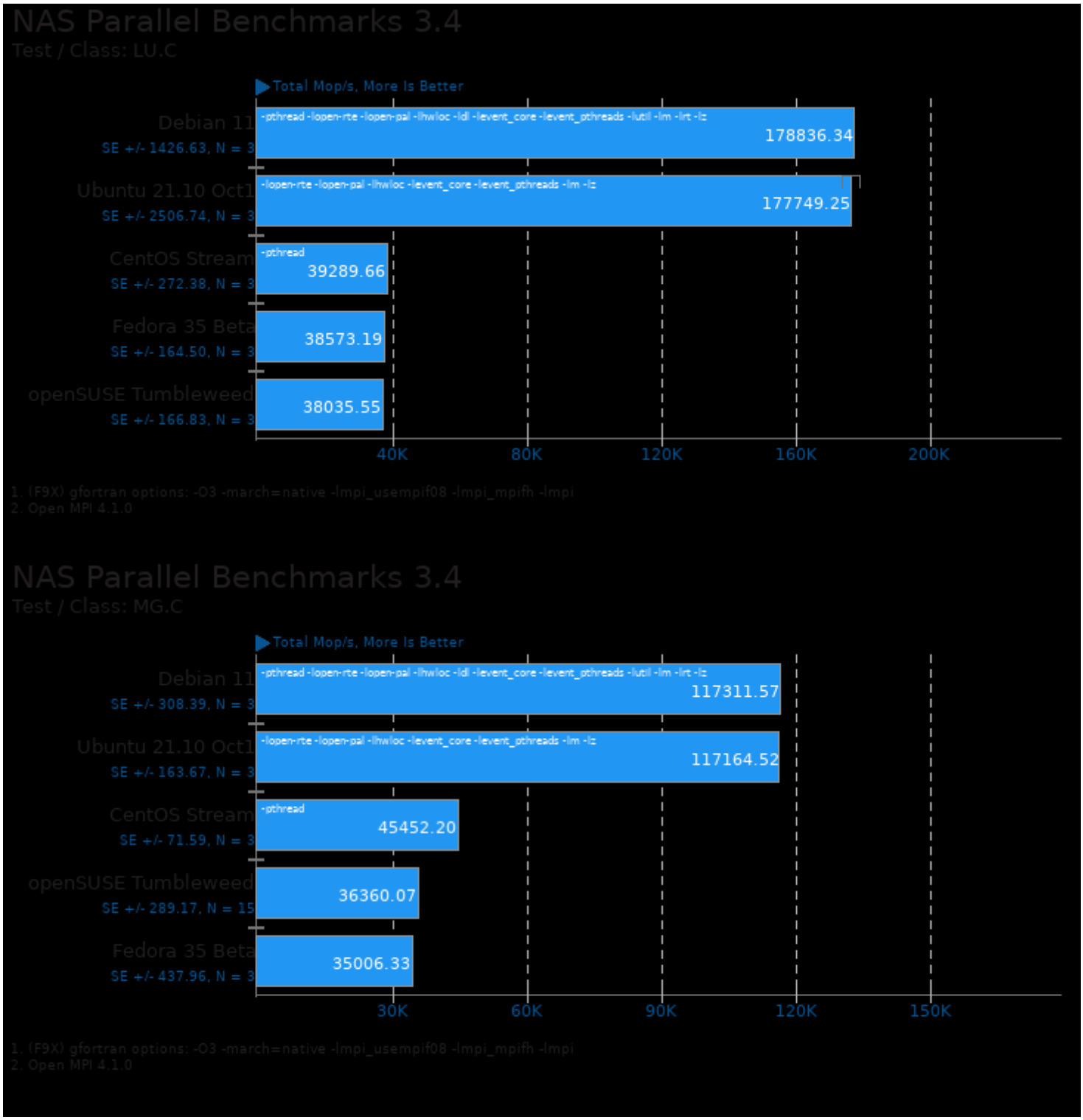

Apache HTTP Server 2.4.48
Concurrent Requests: 100
Requests Per Second, More Is Better
CentOS Stream
SE +/- 636.70, N = 3
-pthread
118170.02
openSUSE Tumbleweed
SE +/- 189.85, N = 3
78274.56
Fedora 35 Beta
SE +/- 260.52, N = 3
40137.66
Ubuntu 21.10 Oct1
SE +/- 155.07, N = 3
30630.23
Arch Linux
SE +/- 65.45, N = 3
-pthread
30173.57
Debian 11
SE +/- 246.72, N = 3
-pthread
28230.81
30K
60K
90K
120K
150K
1. (CC) gcc options: -shared -fPIC -O2
Apache HTTP Server 2.4.48
Concurrent Requests: 200
Requests Per Second, More Is Better
openSUSE Tumbleweed
SE +/- 1483.04, N = 3
196788.51
CentOS Stream
SE +/- 377.88, N = 3
-pthread
131724.49
Arch Linux
SE +/- 1060.55, N = 12
-pthread
128457.40
Debian 11
SE +/- 292.03, N = 3
-pthread
49245.24
Ubuntu 21.10 Oct1
SE +/- 196.67, N = 3
43438.03
Fedora 35 Beta
SE +/- 95.62, N = 3
39792.03
40K
80K
120K
160K
200K
1. (CC) gcc options: -shared -fPIC -O2


Apache HTTP Server 2.4.48
Concurrent Requests: 1000
Requests Per Second, More Is Better
openSUSE Tumbleweed
SE +/- 2044.57, N = 3
206714.39
CentOS Stream
SE +/- 616.87, N = 3
-pthread
119249.02
Arch Linux
SE +/- 1274.76, N = 15
-pthread
113980.99
Ubuntu 21.10 Oct1
SE +/- 4897.09, N = 15
106682.07
Fedora 35 Beta
SE +/- 2706.83, N = 15
59961.48
Debian 11
SE +/- 481.53, N = 15
-pthread
39217.70
40K
80K
120K
160K
200K
1. (CC) gcc options: -shared -fPIC -O2
PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
Ubuntu 21.10 Oct1
SE +/- 2476.56, N = 3
784757
Arch Linux
SE +/- 1887.91, N = 3
780762
Fedora 35 Beta
SE +/- 927.32, N = 3
761666
Debian 11
SE +/- 354.15, N = 3
727869
CentOS Stream
SE +/- 1059.76, N = 3
640144
openSUSE Tumbleweed
SE +/- 6997.85, N = 3
628171
200K
400K
600K
800K
1000K

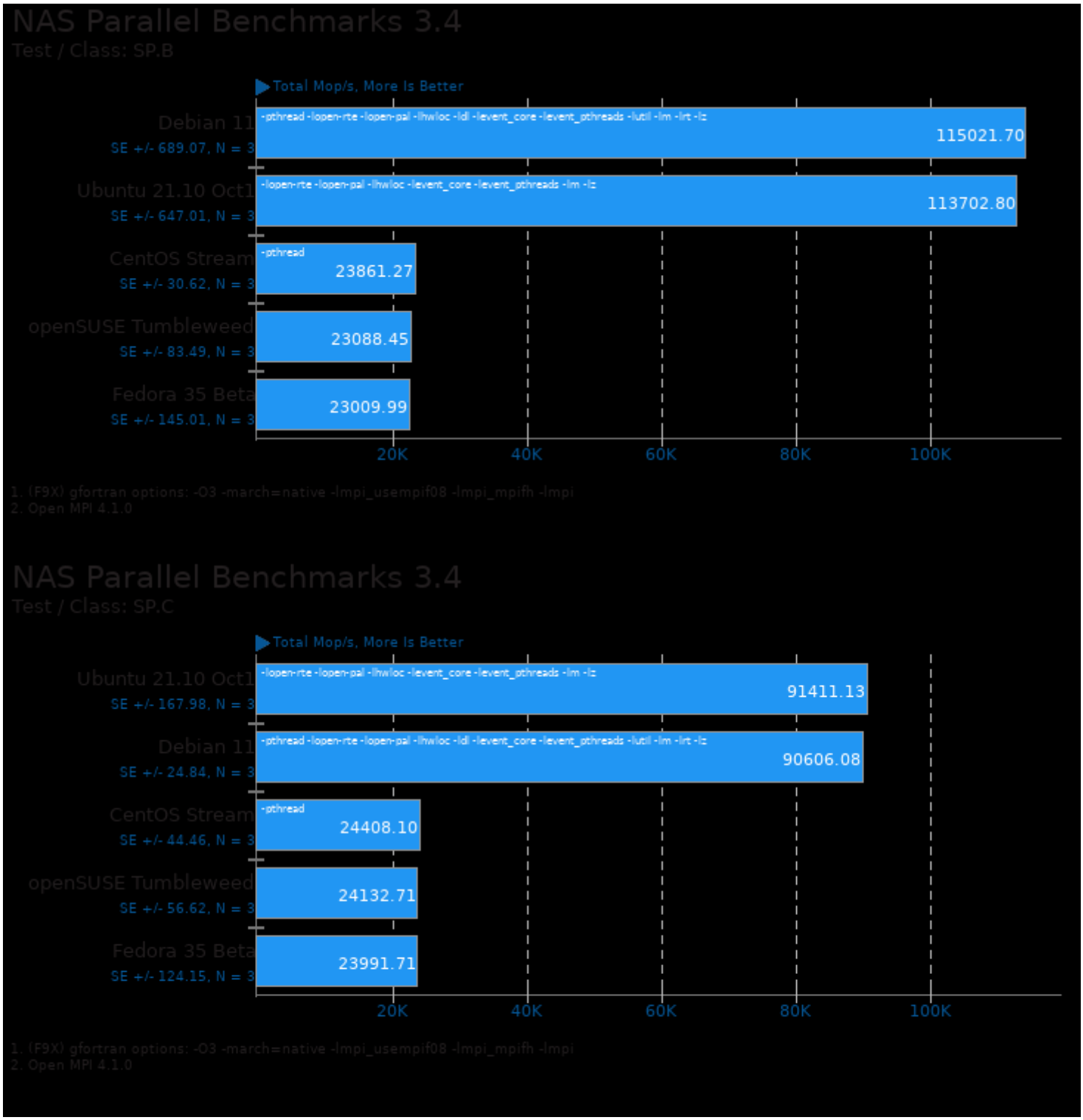

OpenSSL 3.0
Algorithm: RSA4096
sign/s, More Is Better
Arch Linux
SE +/- 19.93, N = 3
18106.8
Debian 11
SE +/- 98.91, N = 3
17850.1
Ubuntu 21.10 Oct1
SE +/- 89.21, N = 3
17798.2
openSUSE Tumbleweed
SE +/- 136.84, N = 3
17744.0
Fedora 35 Beta
SE +/- 117.95, N = 3
17706.5
CentOS Stream
SE +/- 33.51, N = 3
17701.1
4K
8K
12K
16K
20K
1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl
NAS Parallel Benchmarks 3.4
Test / Class: BT.C
Total Mop/s, More Is Better
Ubuntu 21.10 Oct1
SE +/- 703.72, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
192540.50
Debian 11
SE +/- 2701.50, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
191625.24
CentOS Stream
SE +/- 39.53, N = 3
-pthread
49586.16
openSUSE Tumbleweed
SE +/- 121.21, N = 3
48701.26
Fedora 35 Beta
SE +/- 146.19, N = 3
48296.17
40K
80K
120K
160K
200K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0


NAS Parallel Benchmarks 3.4
Test / Class: CG.C
Total Mop/s, More Is Better
Debian 11
SE +/- 144.43, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
39866.27
Ubuntu 21.10 Oct1
SE +/- 166.82, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
39438.33
CentOS Stream
SE +/- 210.36, N = 3
-pthread
22965.29
openSUSE Tumbleweed
SE +/- 293.17, N = 15
20496.77
Fedora 35 Beta
SE +/- 165.30, N = 3
20482.79
9K
18K
27K
36K
45K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0
NAS Parallel Benchmarks 3.4
Test / Class: EP.D
Total Mop/s, More Is Better
Ubuntu 21.10 Oct1
SE +/- 85.67, N = 15
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
8873.24
Debian 11
SE +/- 102.66, N = 4
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
8509.70
openSUSE Tumbleweed
SE +/- 22.87, N = 3
2873.13
Fedora 35 Beta
SE +/- 2.07, N = 3
2725.01
CentOS Stream
SE +/- 33.08, N = 3
-pthread
2605.15
2K
4K
6K
8K
10K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

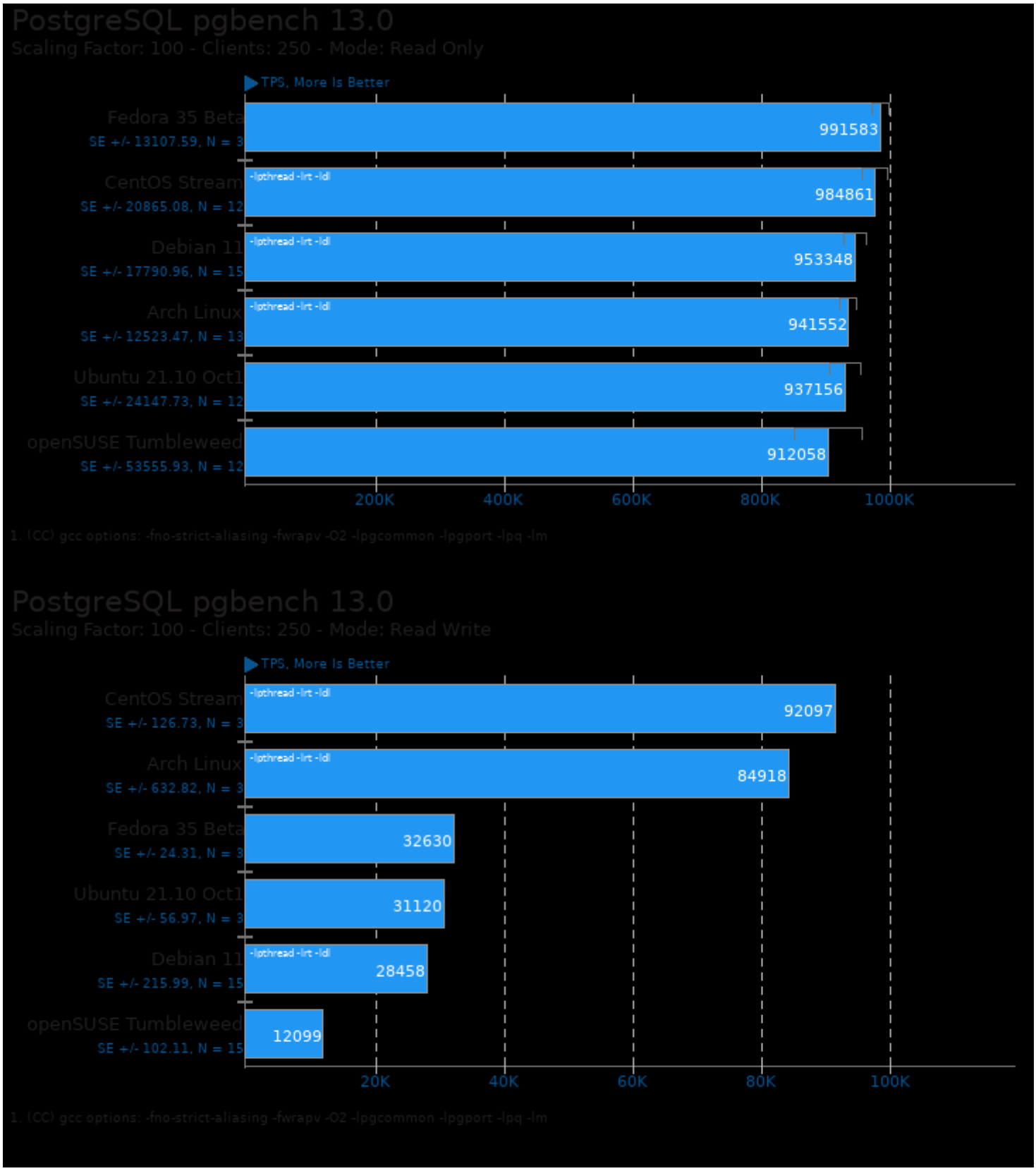

NAS Parallel Benchmarks 3.4
Test / Class: FT.C
Total Mop/s, More Is Better
Debian 11
SE +/- 1555.67, N = 15
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
93063.10
Ubuntu 21.10 Oct1
SE +/- 1097.42, N = 4
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
91713.25
CentOS Stream
SE +/- 29.54, N = 3
-pthread
38711.61
openSUSE Tumbleweed
SE +/- 260.09, N = 3
37549.01
Fedora 35 Beta
SE +/- 61.28, N = 3
36258.08
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0
NAS Parallel Benchmarks 3.4
Test / Class: IS.D
Total Mop/s, More Is Better
Debian 11
SE +/- 33.49, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
3243.03
Ubuntu 21.10 Oct1
SE +/- 34.41, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
3023.76
Arch Linux
SE +/- 14.99, N = 3
2061.18
openSUSE Tumbleweed
SE +/- 22.51, N = 5
2040.29
CentOS Stream
SE +/- 4.08, N = 3
-pthread
2034.48
Fedora 35 Beta
SE +/- 15.01, N = 15
1878.50
700
1400
2100
2800
3500
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

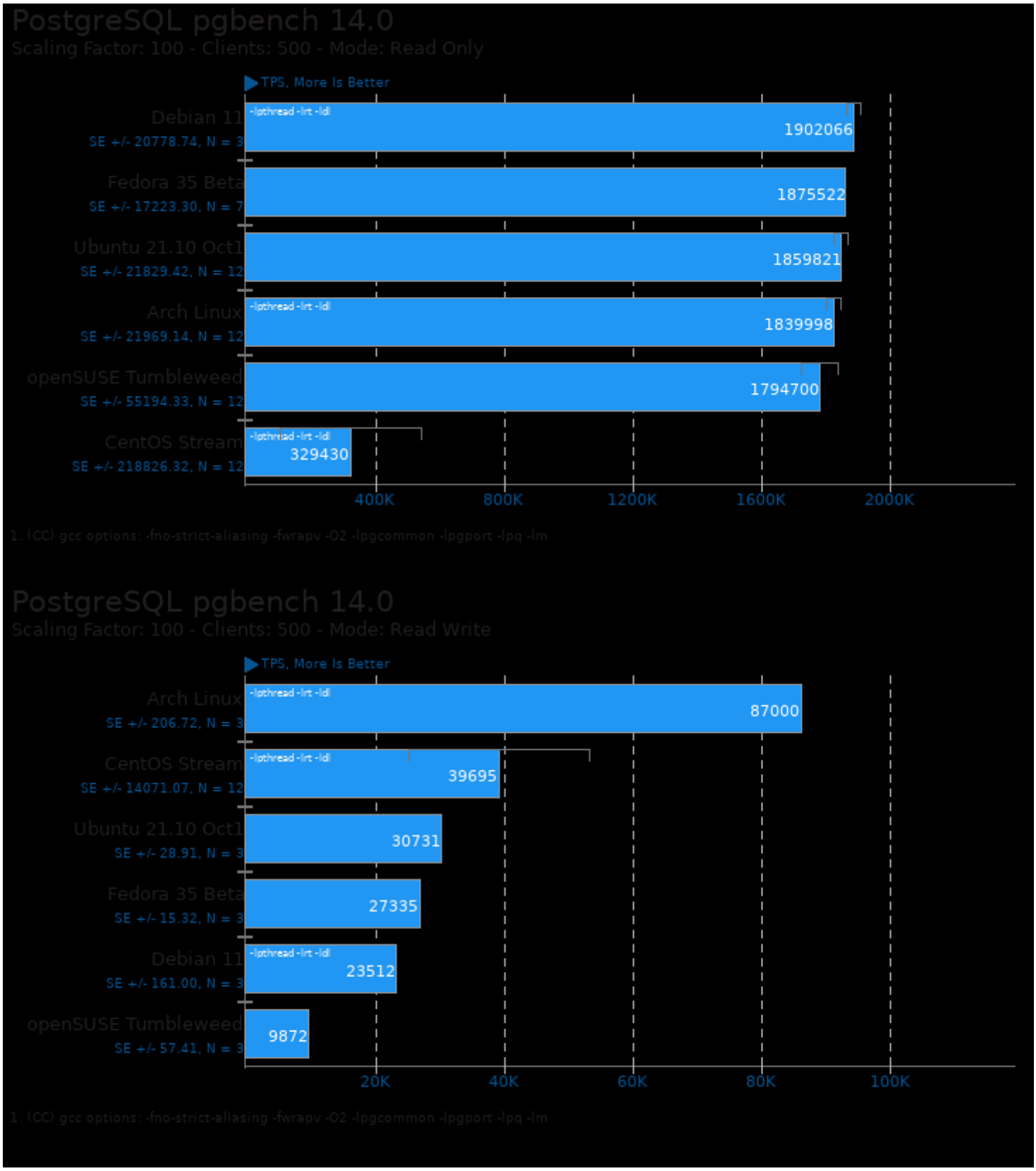

NAS Parallel Benchmarks 3.4
Test / Class: LU.C
Total Mop/s, More Is Better
Debian 11
SE +/- 1426.63, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
178836.34
Ubuntu 21.10 Oct1
SE +/- 2506.74, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
177749.25
CentOS Stream
SE +/- 272.38, N = 3
-pthread
39289.66
Fedora 35 Beta
SE +/- 164.50, N = 3
38573.19
openSUSE Tumbleweed
SE +/- 166.83, N = 3
38035.55
40K
80K
120K
160K
200K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

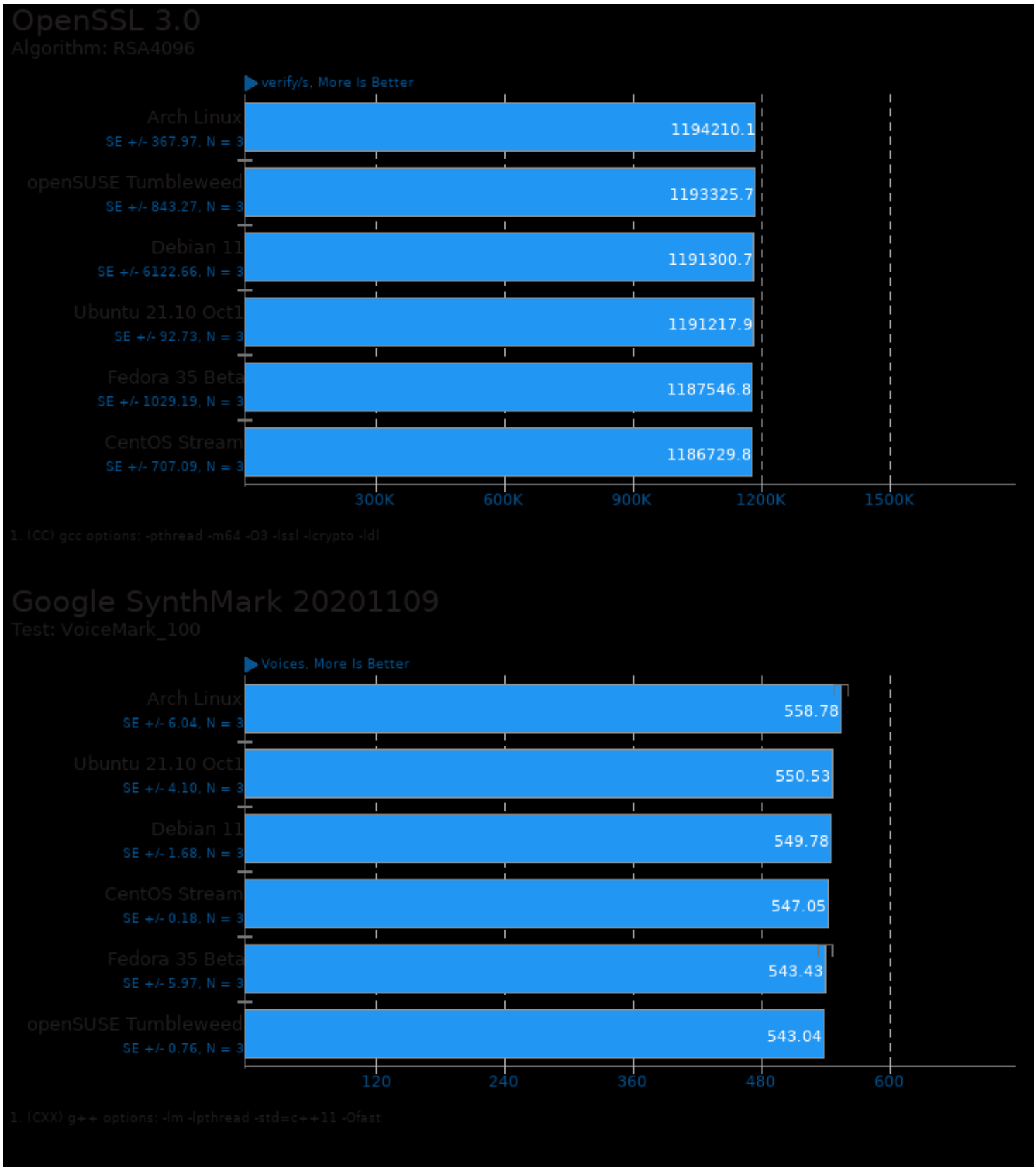
NAS Parallel Benchmarks 3.4
Test / Class: MG.C
Total Mop/s, More Is Better
Debian 11
SE +/- 308.39, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
117311.57
Ubuntu 21.10 Oct1
SE +/- 163.67, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
117164.52
CentOS Stream
SE +/- 71.59, N = 3
-pthread
45452.20
openSUSE Tumbleweed
SE +/- 289.17, N = 15
36360.07
Fedora 35 Beta
SE +/- 437.96, N = 3
35006.33
30K
60K
90K
120K
150K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0


NAS Parallel Benchmarks 3.4
Test / Class: SP.B
Total Mop/s, More Is Better
Debian 11
SE +/- 689.07, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
115021.70
Ubuntu 21.10 Oct1
SE +/- 647.01, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
113702.80
CentOS Stream
SE +/- 30.62, N = 3
-pthread
23861.27
openSUSE Tumbleweed
SE +/- 83.49, N = 3
23088.45
Fedora 35 Beta
SE +/- 145.01, N = 3
23009.99
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

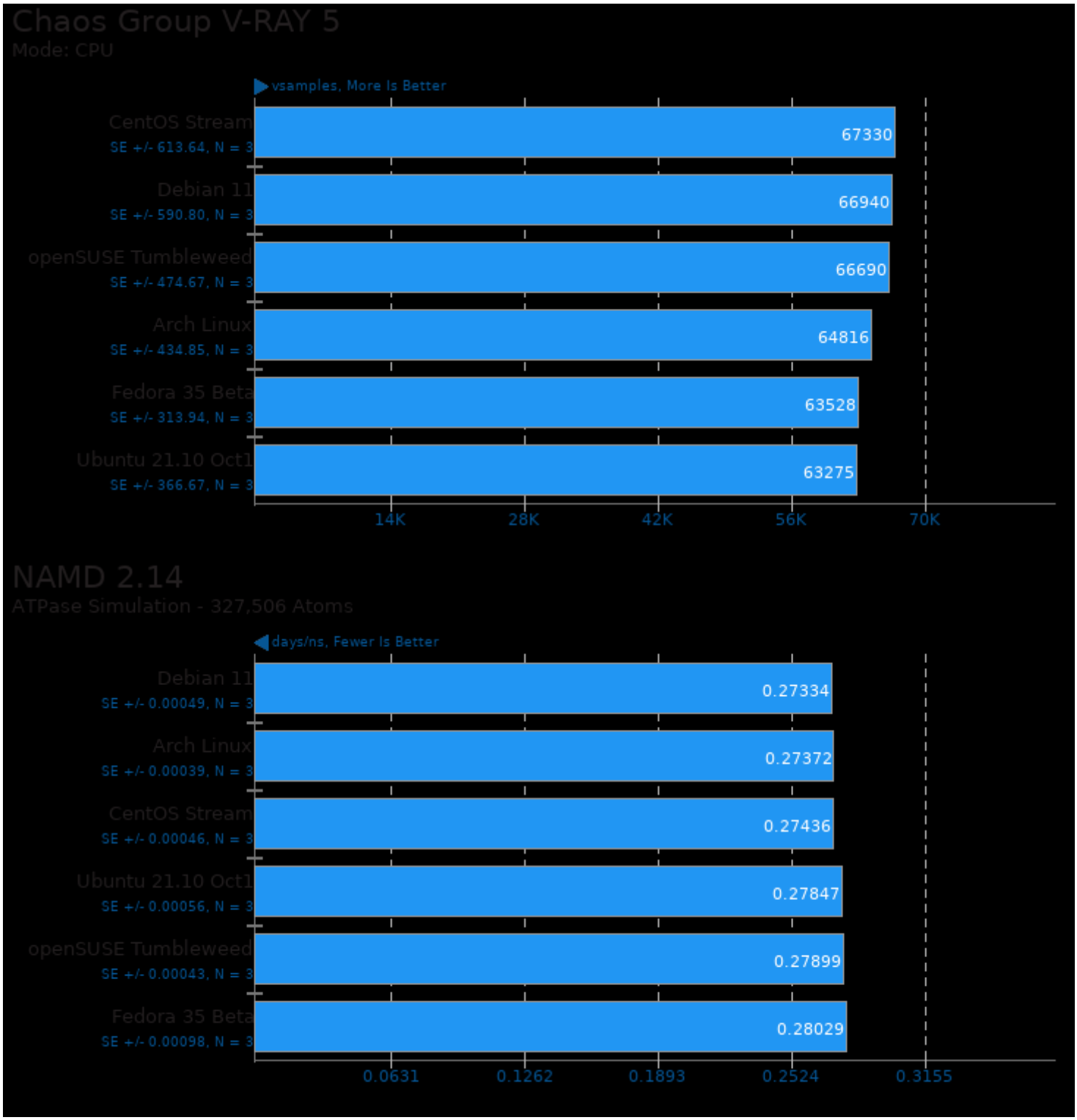
NAS Parallel Benchmarks 3.4
Test / Class: SP.C
Total Mop/s, More Is Better
Ubuntu 21.10 Oct1
SE +/- 167.98, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
91411.13
Debian 11
SE +/- 24.84, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
90606.08
CentOS Stream
SE +/- 44.46, N = 3
-pthread
24408.10
openSUSE Tumbleweed
SE +/- 56.62, N = 3
24132.71
Fedora 35 Beta
SE +/- 124.15, N = 3
23991.71
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

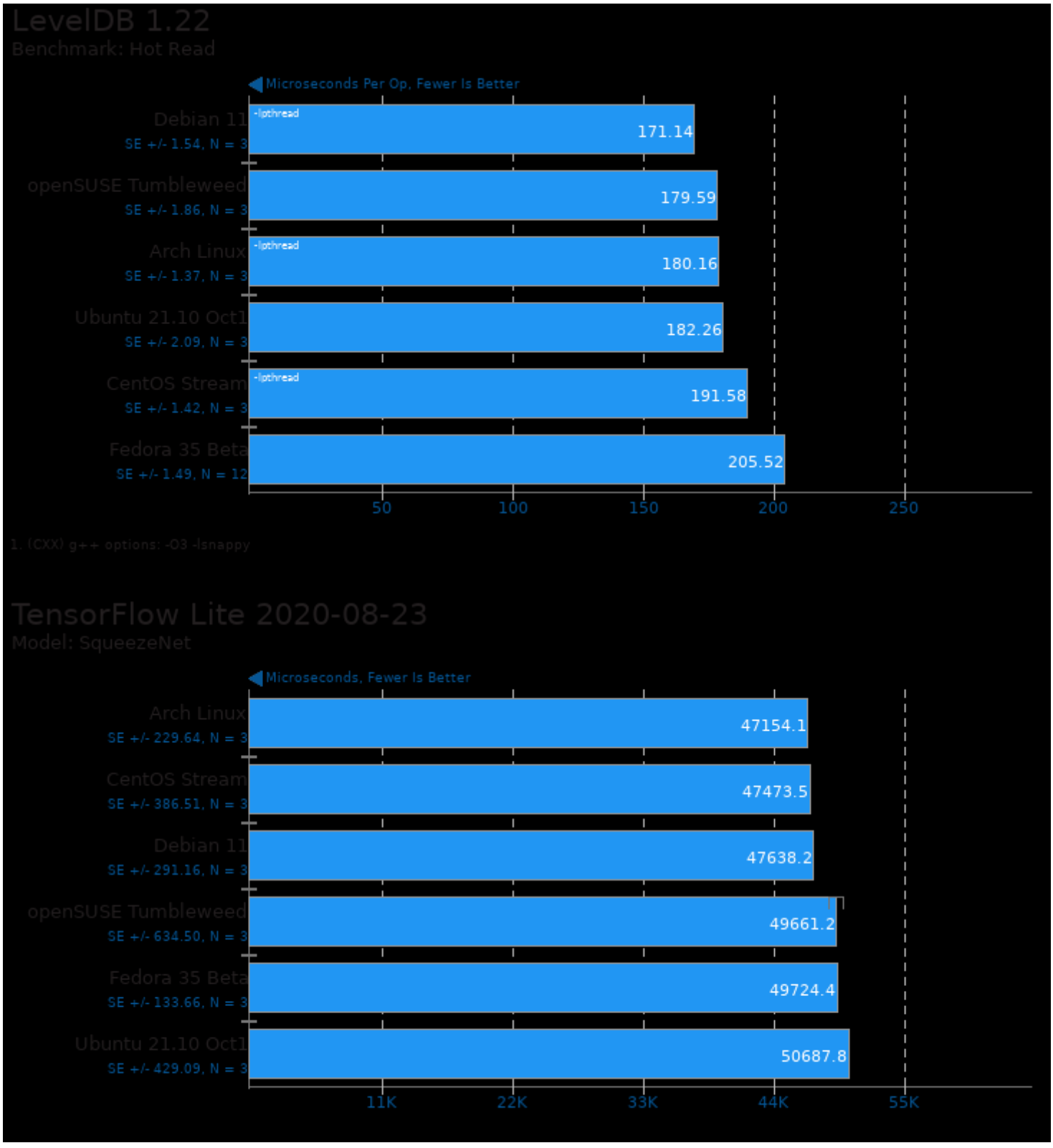

PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only
TPS, More Is Better
Fedora 35 Beta
SE +/- 13107.59, N = 3
991583
CentOS Stream
SE +/- 20865.08, N = 12
-lpthread -lrt -ldl
984861
Debian 11
SE +/- 17790.96, N = 15
-lpthread -lrt -ldl
953348
Arch Linux
SE +/- 12523.47, N = 13
-lpthread -lrt -ldl
941552
Ubuntu 21.10 Oct1
SE +/- 24147.73, N = 12
937156
openSUSE Tumbleweed
SE +/- 53555.93, N = 12
912058
200K
400K
600K
800K
1000K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Write
TPS, More Is Better
CentOS Stream
SE +/- 126.73, N = 3
-lpthread -lrt -ldl
92097
Arch Linux
SE +/- 632.82, N = 3
-lpthread -lrt -ldl
84918
Fedora 35 Beta
SE +/- 24.31, N = 3
32630
Ubuntu 21.10 Oct1
SE +/- 56.97, N = 3
31120
Debian 11
SE +/- 215.99, N = 15
-lpthread -lrt -ldl
28458
openSUSE Tumbleweed
SE +/- 102.11, N = 15
12099
20K
40K
60K
80K
100K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

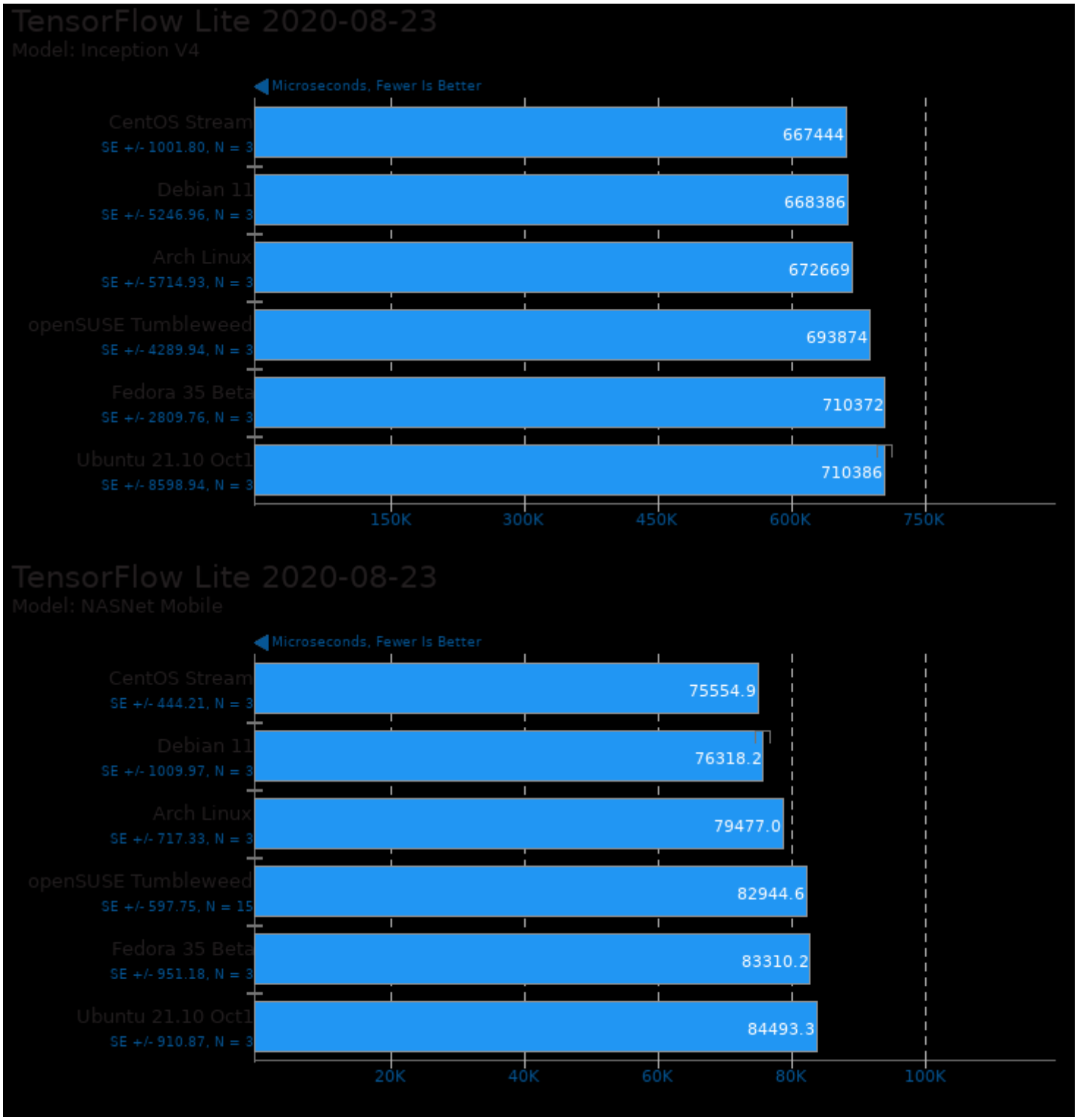

PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 500 - Mode: Read Only
TPS, More Is Better
Debian 11
SE +/- 20778.74, N = 3
Fedora 35 Beta
SE +/- 17223.30, N = 7
Ubuntu 21.10 Oct1
SE +/- 21829.42, N = 12
Arch Linux
SE +/- 21969.14, N = 12
openSUSE Tumbleweed
SE +/- 55194.33, N = 12
CentOS Stream
SE +/- 218826.32, N = 12
-lpthread -lrt -ldl
1902066
1875522
1859821
1839998
1794700
329430
400K
800K
1200K
1600K
2000K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm
PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 500 - Mode: Read Write
TPS, More Is Better
Arch Linux
SE +/- 206.72, N = 3
CentOS Stream
SE +/- 14071.07, N = 12
Ubuntu 21.10 Oct1
SE +/- 28.91, N = 3
Fedora 35 Beta
SE +/- 15.32, N = 3
Debian 11
SE +/- 161.00, N = 3
openSUSE Tumbleweed
SE +/- 57.41, N = 3
-lpthread -lrt -ldl
87000
39695
30731
27335
23512
9872
20K
40K
60K
80K
100K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

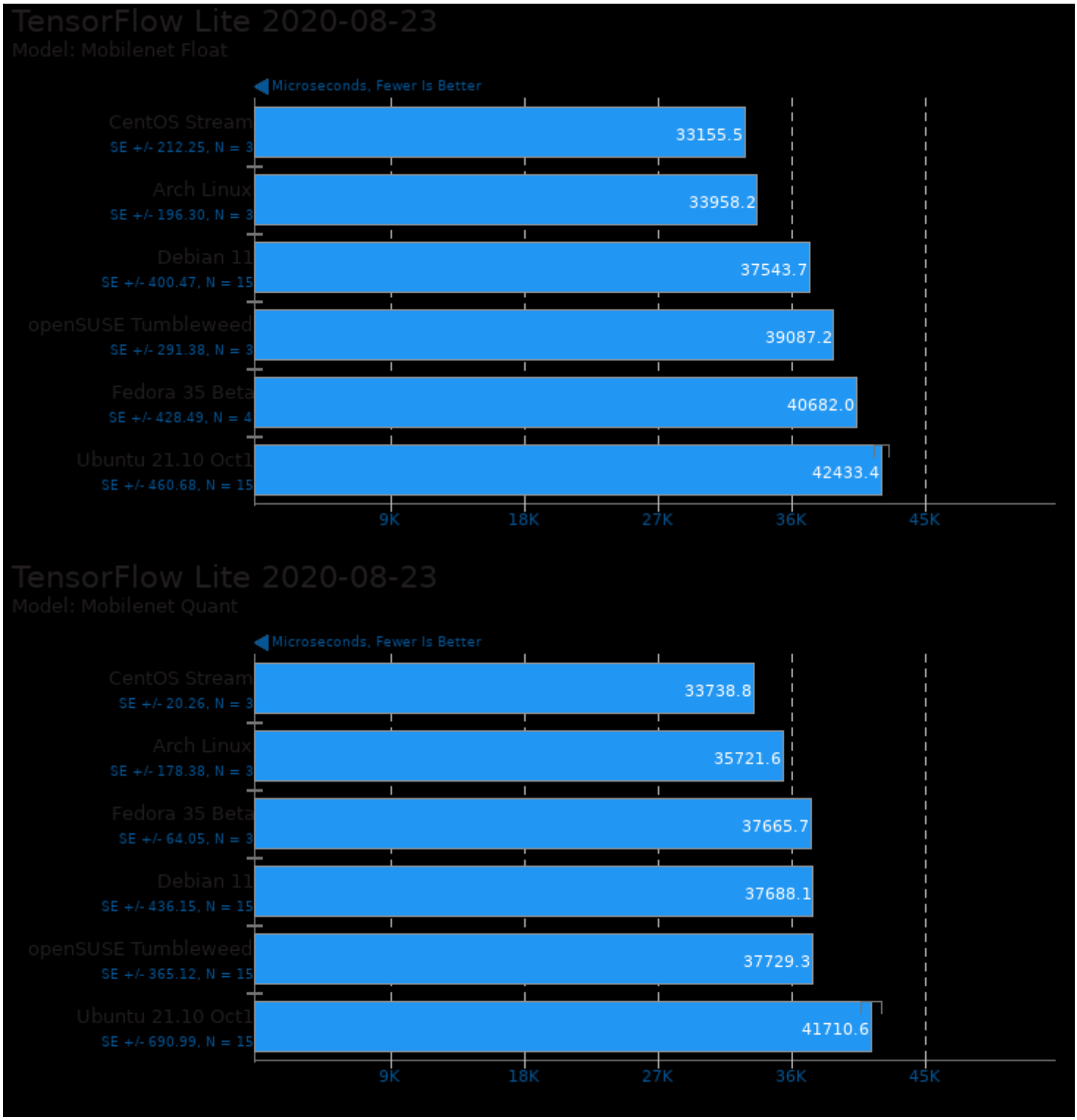

OpenSSL 3.0
Algorithm: RSA4096
verify/s, More Is Better
Arch Linux
SE +/- 367.97, N = 3
1194210.1
openSUSE Tumbleweed
SE +/- 843.27, N = 3
1193325.7
Debian 11
SE +/- 6122.66, N = 3
1191300.7
Ubuntu 21.10 Oct1
SE +/- 92.73, N = 3
1191217.9
Fedora 35 Beta
SE +/- 1029.19, N = 3
1187546.8
CentOS Stream
SE +/- 707.09, N = 3
1186729.8
300K
600K
900K
1200K
1500K
1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl
Google SynthMark 20201109
Test: VoiceMark_100
Voices, More Is Better
Arch Linux
SE +/- 6.04, N = 3
558.78
Ubuntu 21.10 Oct1
SE +/- 4.10, N = 3
550.53
Debian 11
SE +/- 1.68, N = 3
549.78
CentOS Stream
SE +/- 0.18, N = 3
547.05
Fedora 35 Beta
SE +/- 5.97, N = 3
543.43
openSUSE Tumbleweed
SE +/- 0.76, N = 3
543.04
120
240
360
480
600
1. (CXX) g++ options: -lm -lpthread -std=c++11 -Ofast

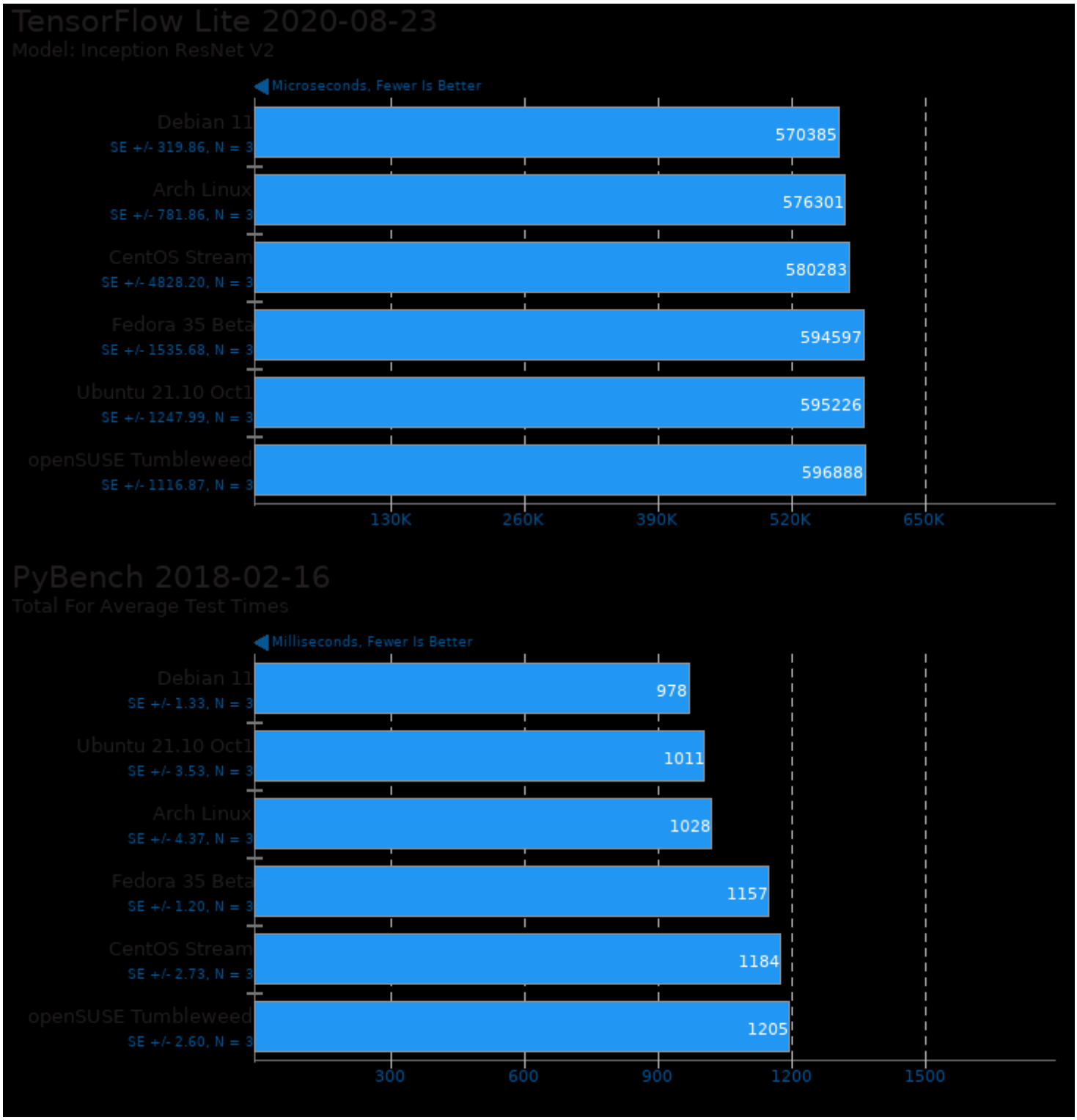
Xeon Platinum 8380 Fedora

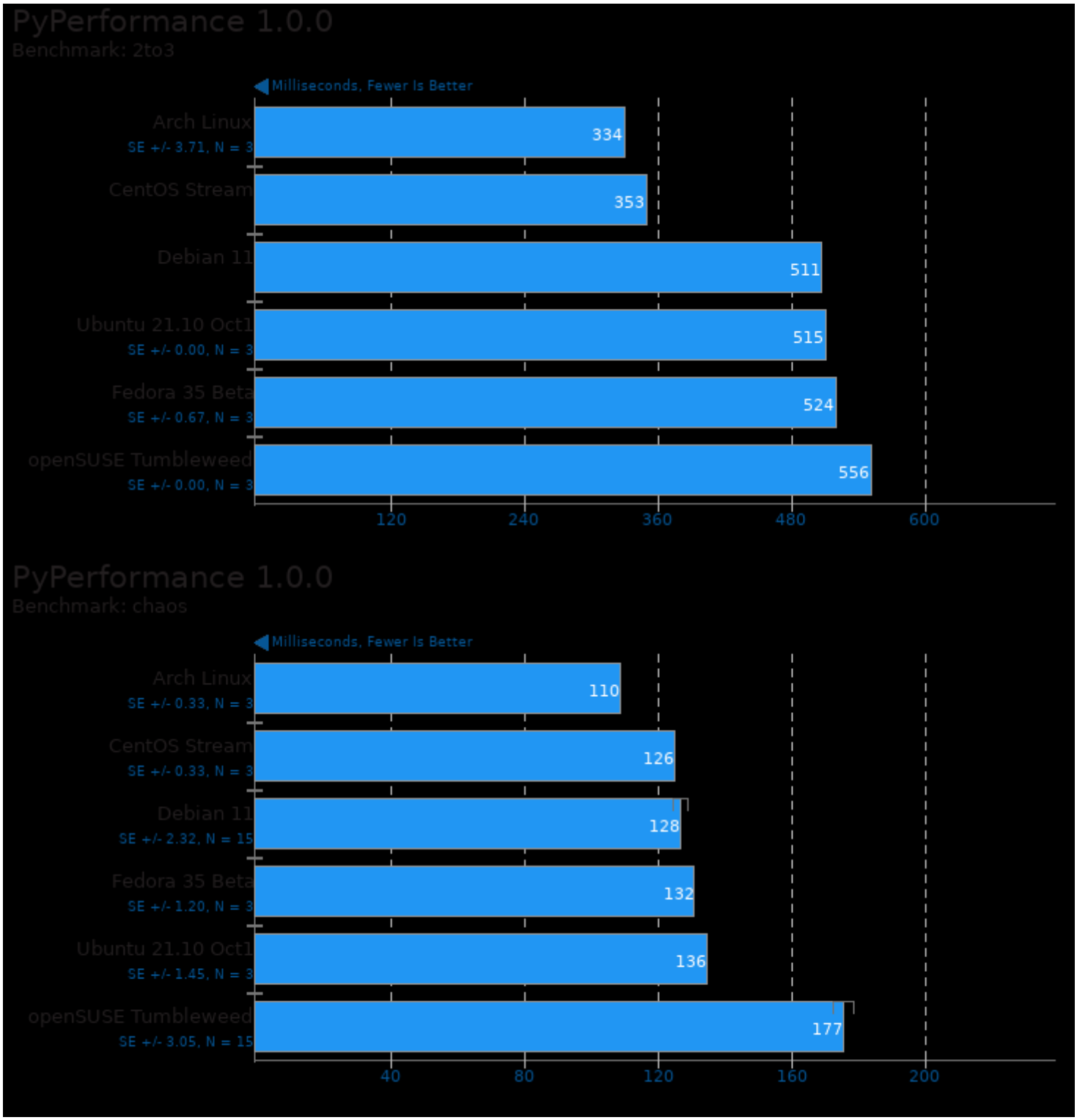


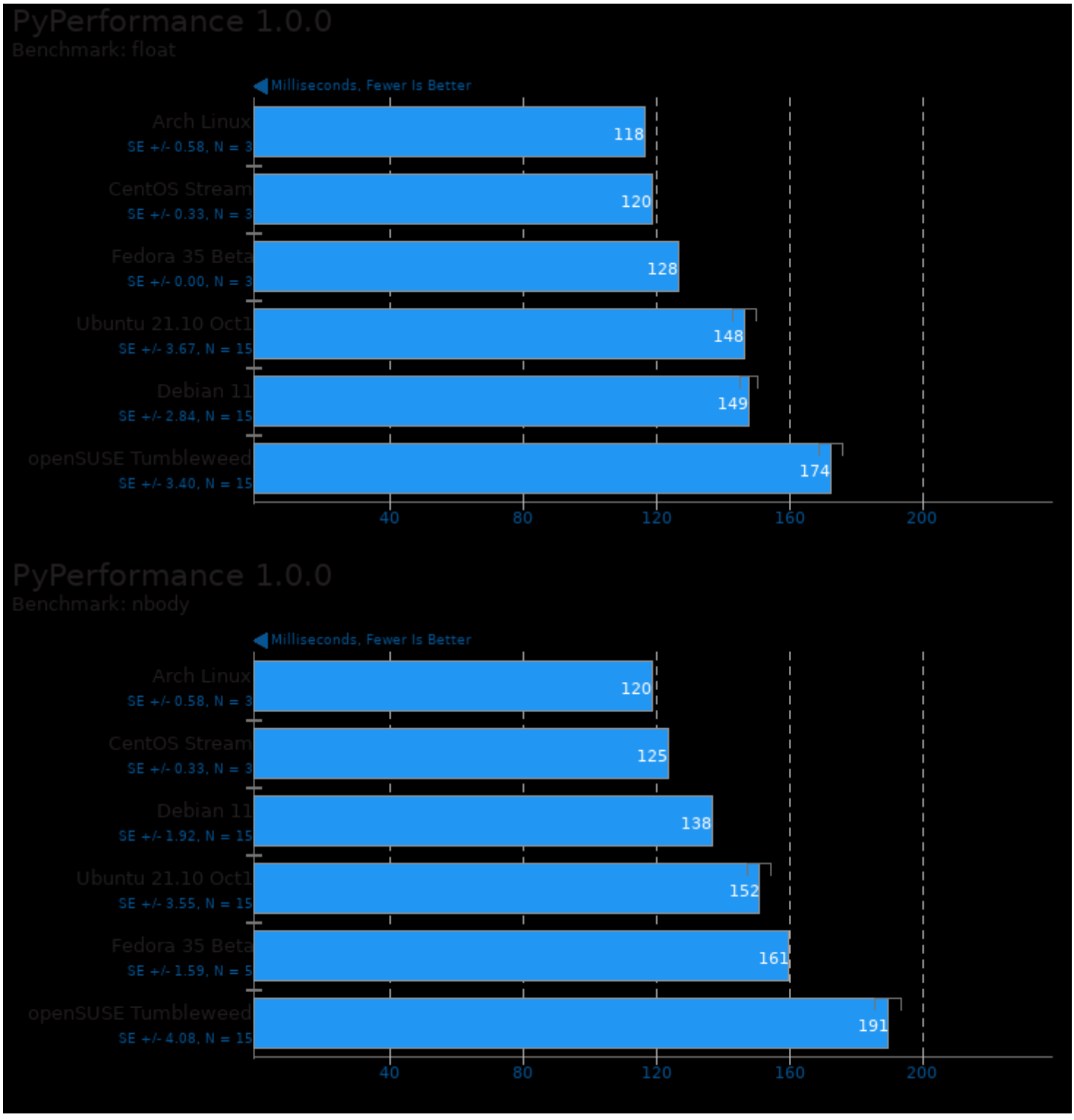

LevelDB 1.22
Benchmark: Hot Read
Microseconds Per Op, Fewer Is Better
Debian 11
SE +/- 1.54, N = 3
-lpthread
171.14
openSUSE Tumbleweed
SE +/- 1.86, N = 3
179.59
Arch Linux
SE +/- 1.37, N = 3
-lpthread
180.16
Ubuntu 21.10 Oct1
SE +/- 2.09, N = 3
182.26
CentOS Stream
SE +/- 1.42, N = 3
-lpthread
191.58
Fedora 35 Beta
SE +/- 1.49, N = 12
205.52
50
100
150
200
250
1. (CXX) g++ options: -O3 -lsnappy
TensorFlow Lite 2020-08-23
Model: SqueezeNet
Microseconds, Fewer Is Better
Arch Linux
SE +/- 229.64, N = 3
47154.1
CentOS Stream
SE +/- 386.51, N = 3
47473.5
Debian 11
SE +/- 291.16, N = 3
47638.2
openSUSE Tumbleweed
SE +/- 634.50, N = 3
49661.2
Fedora 35 Beta
SE +/- 133.66, N = 3
49724.4
Ubuntu 21.10 Oct1
SE +/- 429.09, N = 3
50687.8
11K
22K
33K
44K
55K

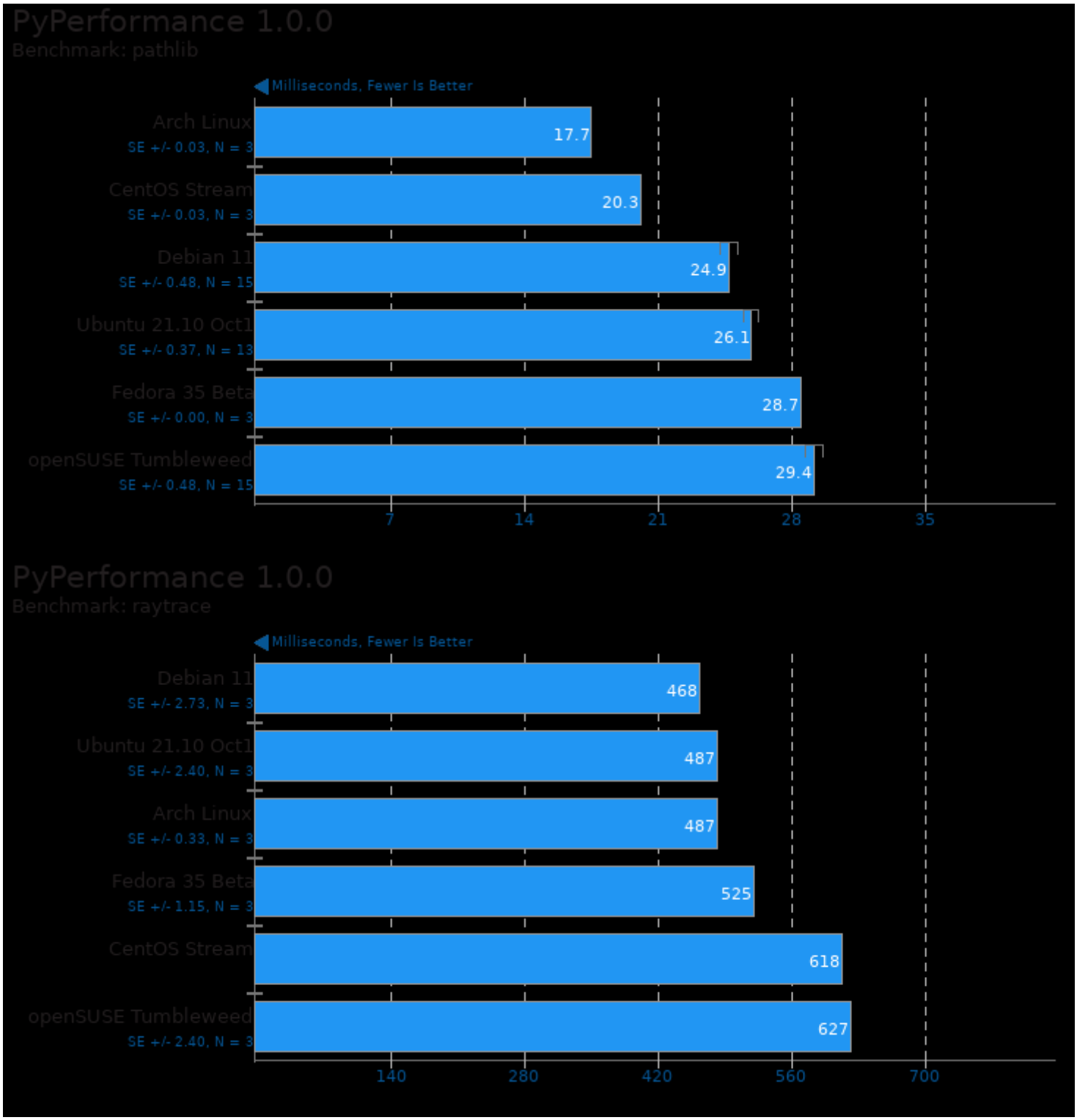

TensorFlow Lite 2020-08-23
Model: Inception V4
Microseconds, Fewer Is Better
CentOS Stream
SE +/- 1001.80, N = 3
667444
Debian 11
SE +/- 5246.96, N = 3
668386
Arch Linux
SE +/- 5714.93, N = 3
672669
openSUSE Tumbleweed
SE +/- 4289.94, N = 3
693874
Fedora 35 Beta
SE +/- 2809.76, N = 3
710372
Ubuntu 21.10 Oct1
SE +/- 8598.94, N = 3
710386
150K
300K
450K
600K
750K
TensorFlow Lite 2020-08-23
Model: NASNet Mobile
Microseconds, Fewer Is Better
CentOS Stream
SE +/- 444.21, N = 3
75554.9
Debian 11
SE +/- 1009.97, N = 3
76318.2
Arch Linux
SE +/- 717.33, N = 3
79477.0
openSUSE Tumbleweed
SE +/- 597.75, N = 15
82944.6
Fedora 35 Beta
SE +/- 951.18, N = 3
83310.2
Ubuntu 21.10 Oct1
SE +/- 910.87, N = 3
84493.3
20K
40K
60K
80K
100K

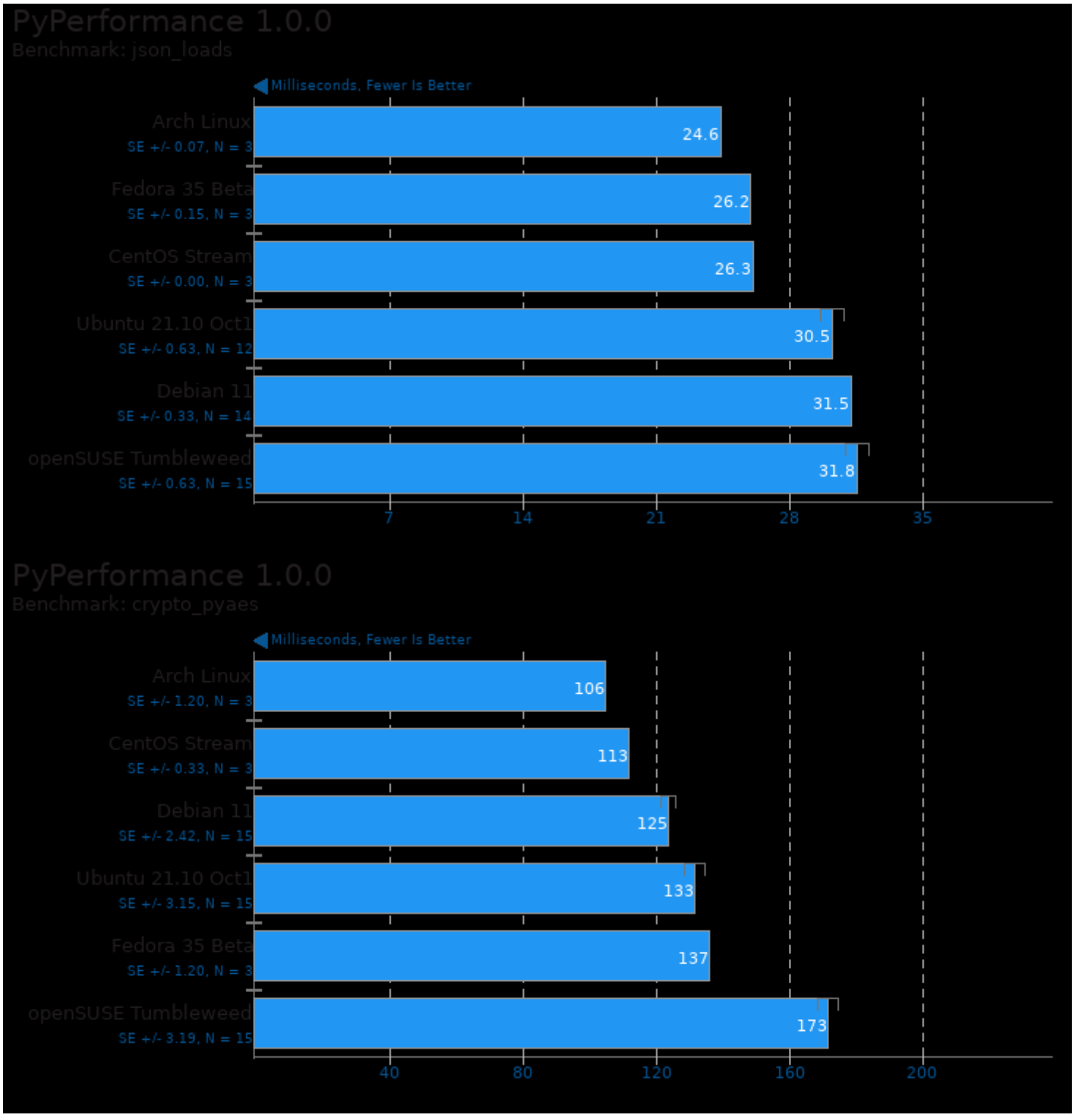

TensorFlow Lite 2020-08-23
Model: Mobilenet Float
Microseconds, Fewer Is Better
CentOS Stream
SE +/- 212.25, N = 3
33155.5
Arch Linux
SE +/- 196.30, N = 3
33958.2
Debian 11
SE +/- 400.47, N = 15
37543.7
openSUSE Tumbleweed
SE +/- 291.38, N = 3
39087.2
Fedora 35 Beta
SE +/- 428.49, N = 4
40682.0
Ubuntu 21.10 Oct1
SE +/- 460.68, N = 15
42433.4
9K
18K
27K
36K
45K
TensorFlow Lite 2020-08-23
Model: Mobilenet Quant
Microseconds, Fewer Is Better
CentOS Stream
SE +/- 20.26, N = 3
33738.8
Arch Linux
SE +/- 178.38, N = 3
35721.6
Fedora 35 Beta
SE +/- 64.05, N = 3
37665.7
Debian 11
SE +/- 436.15, N = 15
37688.1
openSUSE Tumbleweed
SE +/- 365.12, N = 15
37729.3
Ubuntu 21.10 Oct1
SE +/- 690.99, N = 15
41710.6
9K
18K
27K
36K
45K

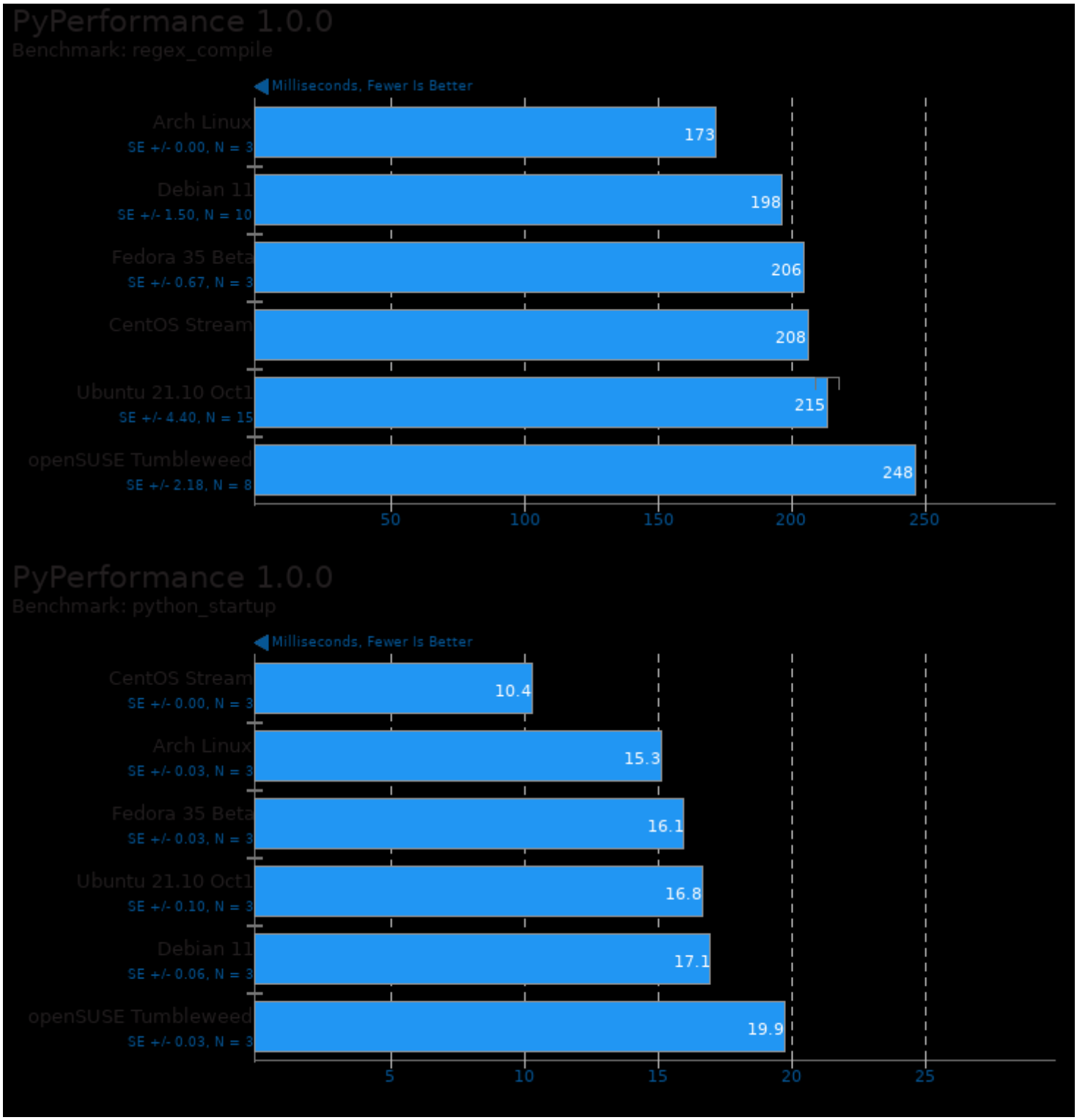

TensorFlow Lite 2020-08-23
Model: Inception ResNet V2
Microseconds, Fewer Is Better
Debian 11
SE +/- 319.86, N = 3
570385
Arch Linux
SE +/- 781.86, N = 3
576301
CentOS Stream
SE +/- 4828.20, N = 3
580283
Fedora 35 Beta
SE +/- 1535.68, N = 3
594597
Ubuntu 21.10 Oct1
SE +/- 1247.99, N = 3
595226
openSUSE Tumbleweed
SE +/- 1116.87, N = 3
596888
130K
260K
390K
520K
650K
PyBench 2018-02-16
Total For Average Test Times
Milliseconds, Fewer Is Better
Debian 11
SE +/- 1.33, N = 3
978
Ubuntu 21.10 Oct1
SE +/- 3.53, N = 3
1011
Arch Linux
SE +/- 4.37, N = 3
1028
Fedora 35 Beta
SE +/- 1.20, N = 3
1157
CentOS Stream
SE +/- 2.73, N = 3
1184
openSUSE Tumbleweed
SE +/- 2.60, N = 3
1205
300
600
900
1200
1500

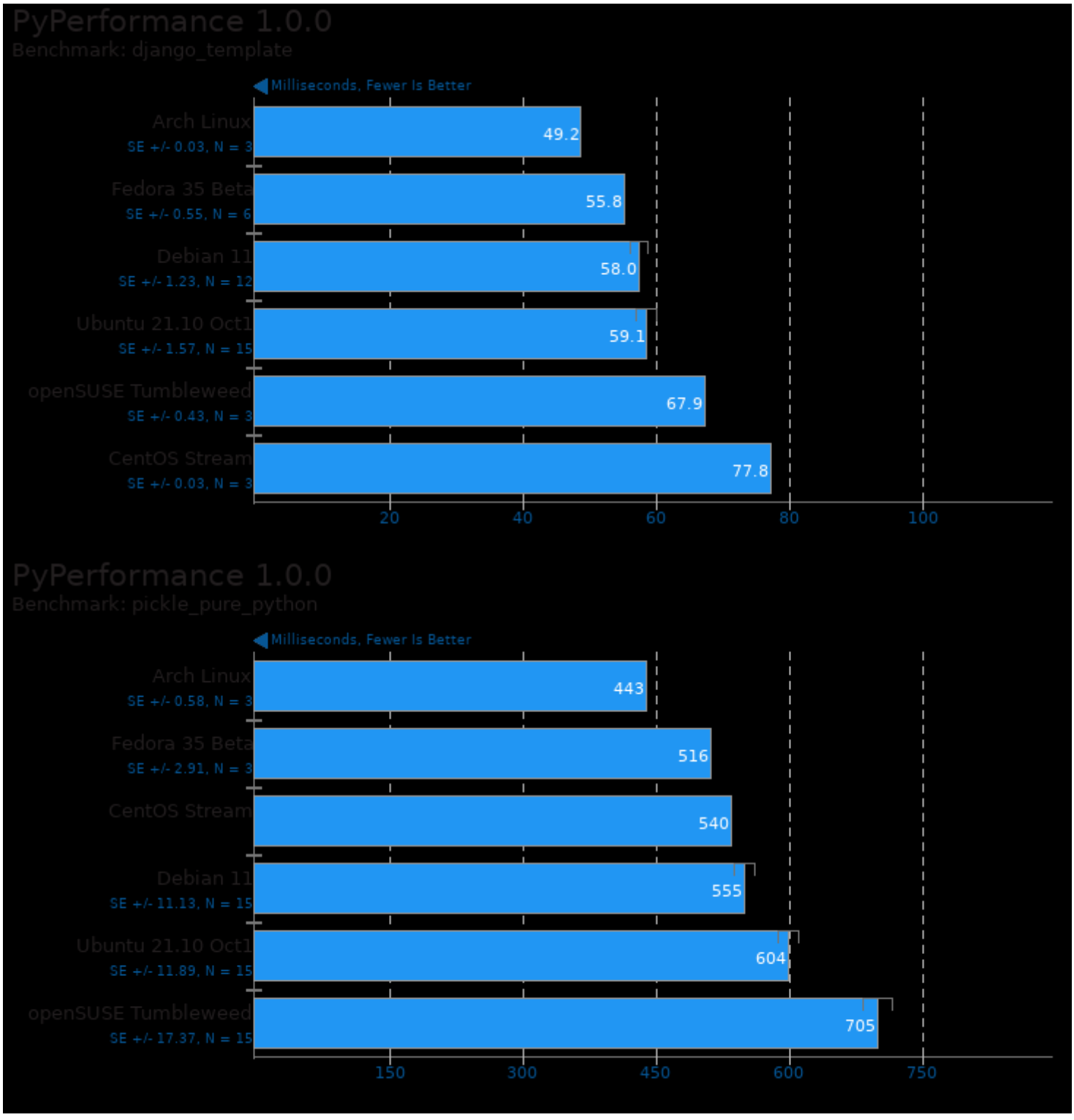

PyPerformance 1.0.0
Benchmark: 2to3
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 3.71, N = 3
334
CentOS Stream
353
Debian 11
511
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
515
Fedora 35 Beta
SE +/- 0.67, N = 3
524
openSUSE Tumbleweed
SE +/- 0.00, N = 3
556
120
240
360
480
600
PyPerformance 1.0.0
Benchmark: chaos
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.33, N = 3
110
CentOS Stream
SE +/- 0.33, N = 3
126
Debian 11
SE +/- 2.32, N = 15
128
Fedora 35 Beta
SE +/- 1.20, N = 3
132
Ubuntu 21.10 Oct1
SE +/- 1.45, N = 3
136
openSUSE Tumbleweed
SE +/- 3.05, N = 15
177
40
80
120
160
200

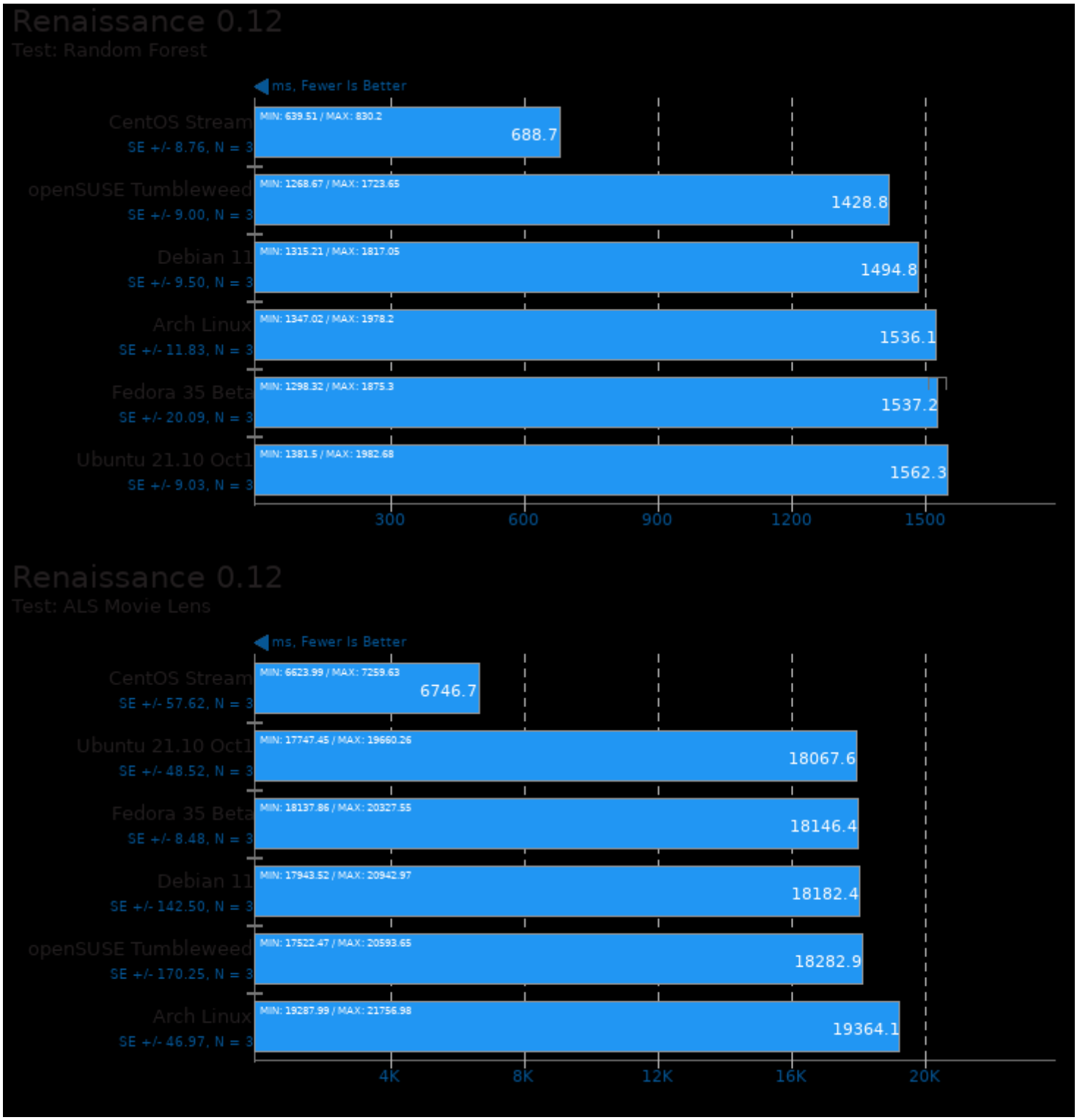

PyPerformance 1.0.0
Benchmark: float
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.58, N = 3
118
CentOS Stream
SE +/- 0.33, N = 3
120
Fedora 35 Beta
SE +/- 0.00, N = 3
128
Ubuntu 21.10 Oct1
SE +/- 3.67, N = 15
148
Debian 11
SE +/- 2.84, N = 15
149
openSUSE Tumbleweed
SE +/- 3.40, N = 15
174
40
80
120
160
200
PyPerformance 1.0.0
Benchmark: nbody
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.58, N = 3
120
CentOS Stream
SE +/- 0.33, N = 3
125
Debian 11
SE +/- 1.92, N = 15
138
Ubuntu 21.10 Oct1
SE +/- 3.55, N = 15
152
Fedora 35 Beta
SE +/- 1.59, N = 5
161
openSUSE Tumbleweed
SE +/- 4.08, N = 15
191
40
80
120
160
200

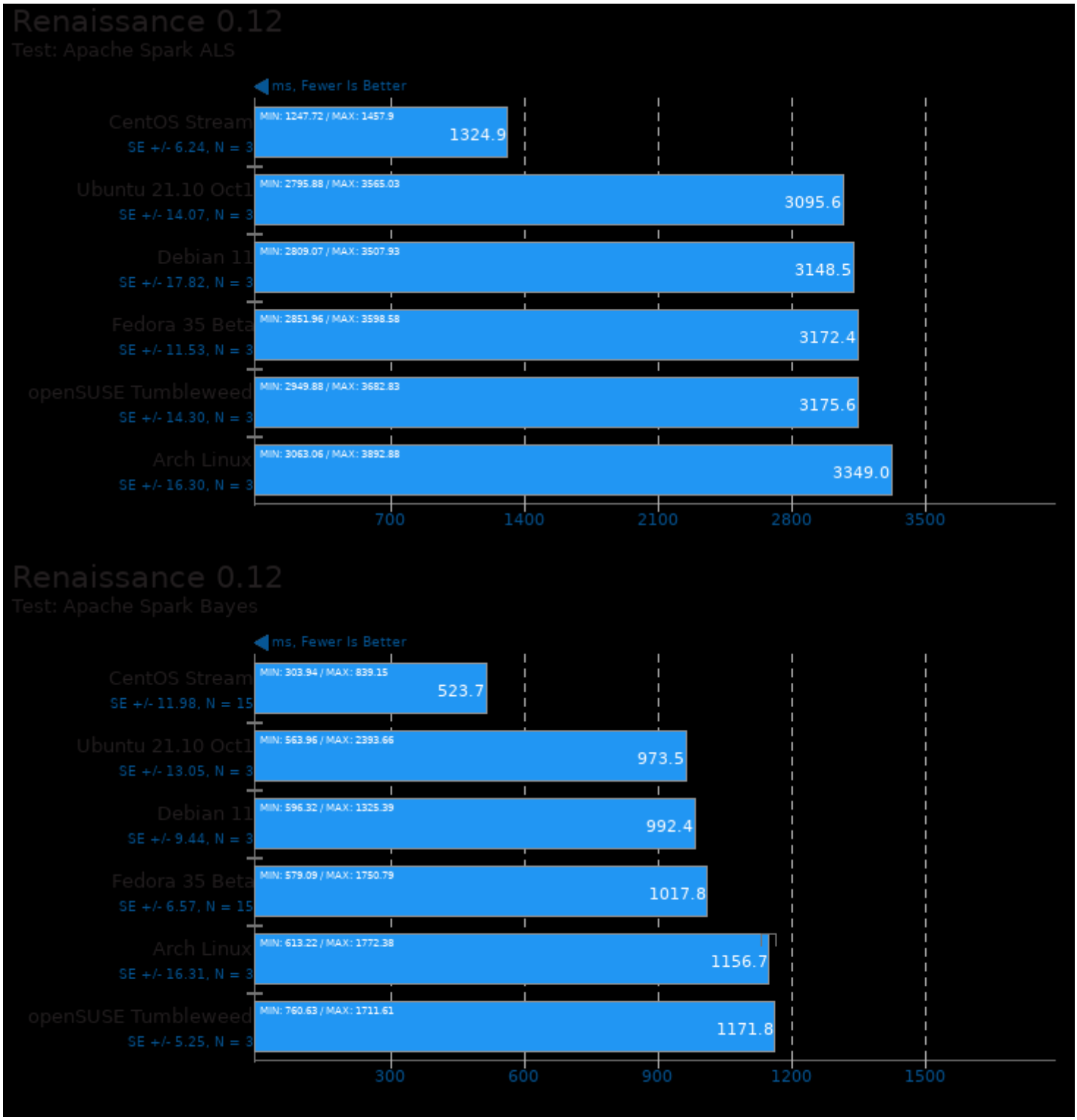

PyPerformance 1.0.0
Benchmark: pathlib
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.03, N = 3
17.7
CentOS Stream
SE +/- 0.03, N = 3
20.3
Debian 11
SE +/- 0.48, N = 15
24.9
Ubuntu 21.10 Oct1
SE +/- 0.37, N = 13
26.1
Fedora 35 Beta
SE +/- 0.00, N = 3
28.7
openSUSE Tumbleweed
SE +/- 0.48, N = 15
29.4
7
14
21
28
35
PyPerformance 1.0.0
Benchmark: raytrace
Milliseconds, Fewer Is Better
Debian 11
SE +/- 2.73, N = 3
468
Ubuntu 21.10 Oct1
SE +/- 2.40, N = 3
487
Arch Linux
SE +/- 0.33, N = 3
487
Fedora 35 Beta
SE +/- 1.15, N = 3
525
CentOS Stream
618
openSUSE Tumbleweed
SE +/- 2.40, N = 3
627
140
280
420
560
700

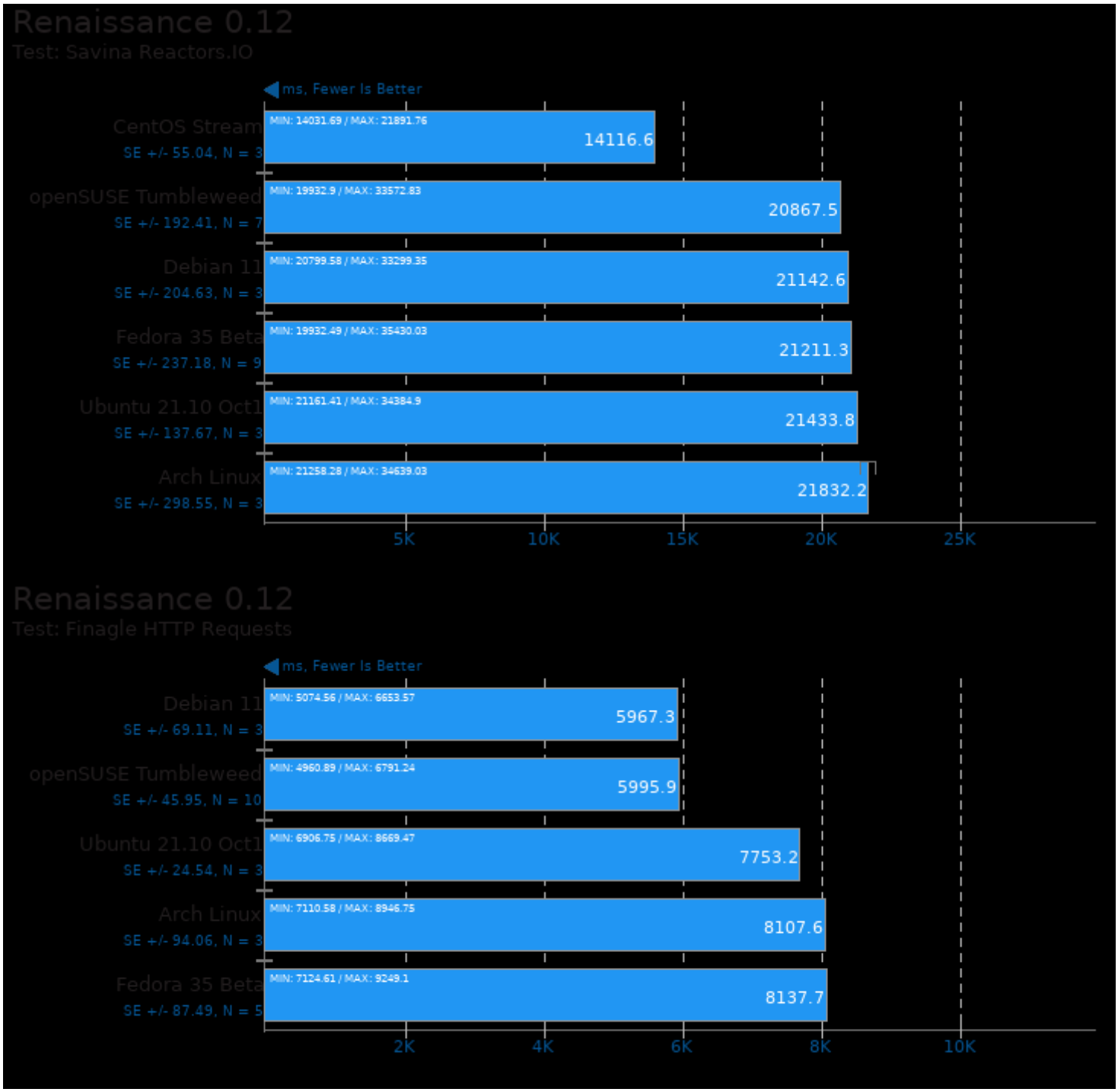

PyPerformance 1.0.0
Benchmark: json_loads
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.07, N = 3
24.6
Fedora 35 Beta
SE +/- 0.15, N = 3
26.2
CentOS Stream
SE +/- 0.00, N = 3
26.3
Ubuntu 21.10 Oct1
SE +/- 0.63, N = 12
30.5
Debian 11
SE +/- 0.33, N = 14
31.5
openSUSE Tumbleweed
SE +/- 0.63, N = 15
31.8
7
14
21
28
35
PyPerformance 1.0.0
Benchmark: crypto_pyaes
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 1.20, N = 3
106
CentOS Stream
SE +/- 0.33, N = 3
113
Debian 11
SE +/- 2.42, N = 15
125
Ubuntu 21.10 Oct1
SE +/- 3.15, N = 15
133
Fedora 35 Beta
SE +/- 1.20, N = 3
137
openSUSE Tumbleweed
SE +/- 3.19, N = 15
173
40
80
120
160
200

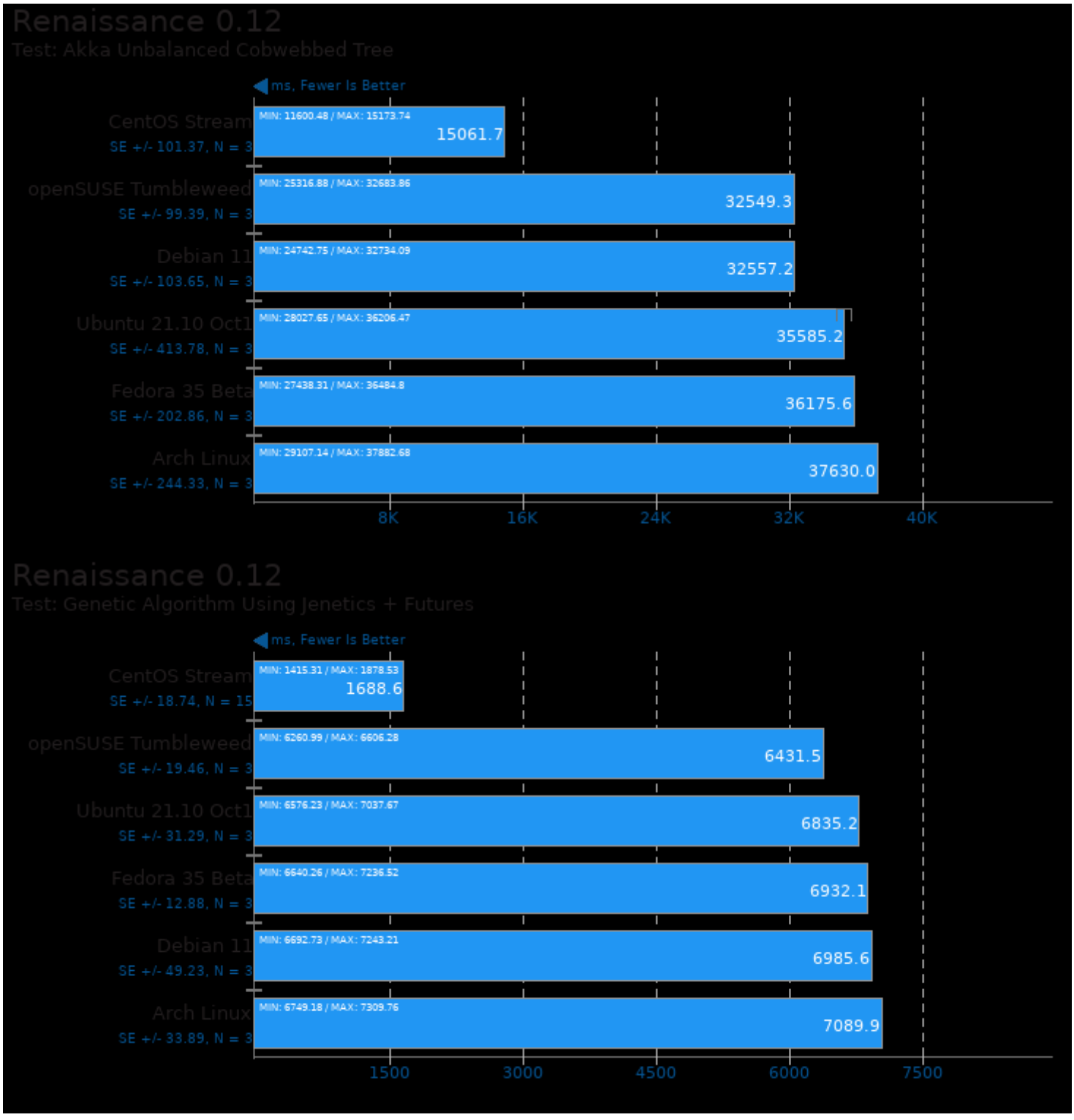

PyPerformance 1.0.0
Benchmark: regex_compile
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.00, N = 3
173
Debian 11
SE +/- 1.50, N = 10
198
Fedora 35 Beta
SE +/- 0.67, N = 3
206
CentOS Stream
208
Ubuntu 21.10 Oct1
SE +/- 4.40, N = 15
215
openSUSE Tumbleweed
SE +/- 2.18, N = 8
248
50
100
150
200
250
PyPerformance 1.0.0
Benchmark: python_startup
Milliseconds, Fewer Is Better
CentOS Stream
SE +/- 0.00, N = 3
10.4
Arch Linux
SE +/- 0.03, N = 3
15.3
Fedora 35 Beta
SE +/- 0.03, N = 3
16.1
Ubuntu 21.10 Oct1
SE +/- 0.10, N = 3
16.8
Debian 11
SE +/- 0.06, N = 3
17.1
openSUSE Tumbleweed
SE +/- 0.03, N = 3
19.9
5
10
15
20
25

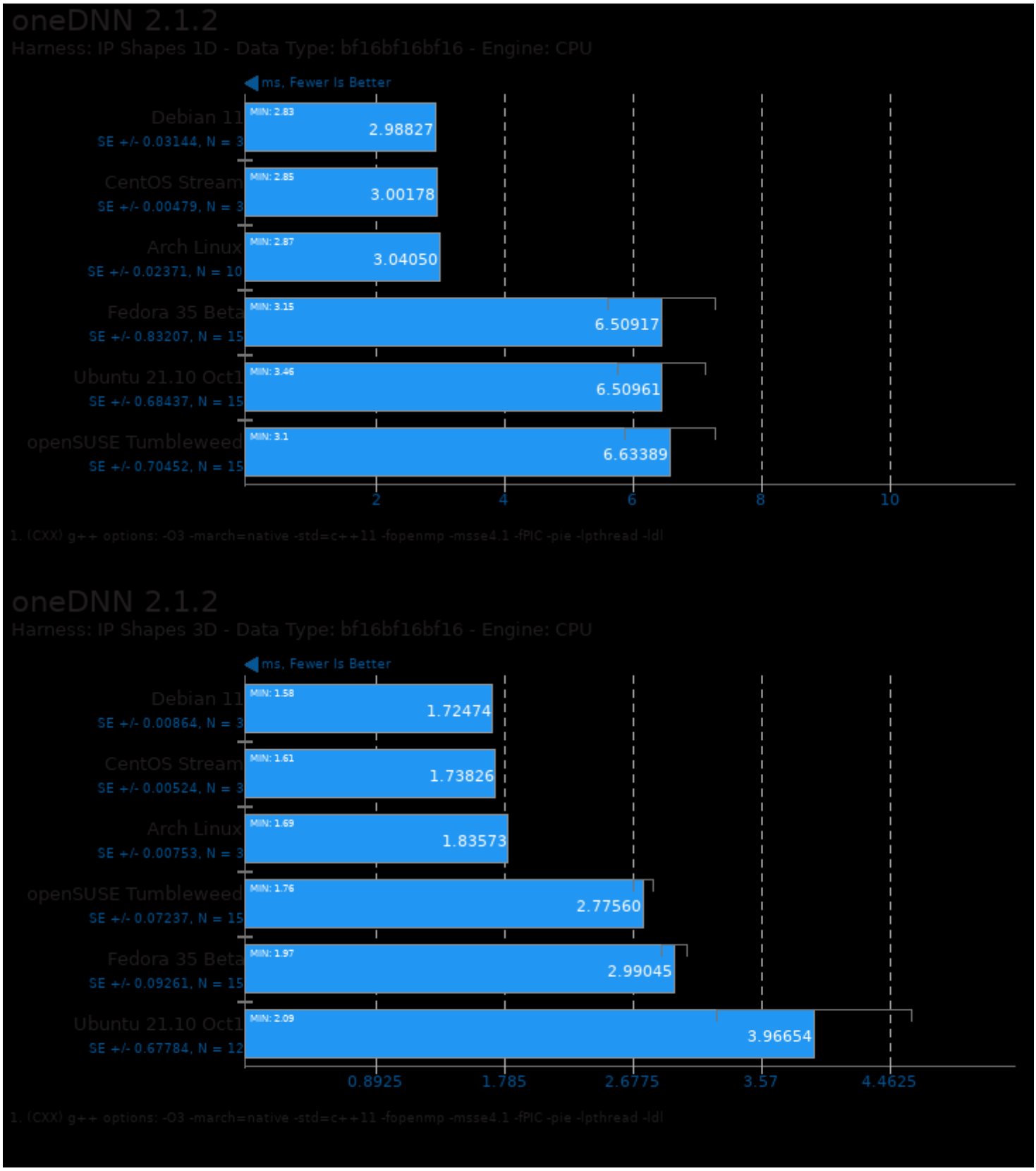

PyPerformance 1.0.0
Benchmark: django_template
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.03, N = 3
49.2
Fedora 35 Beta
SE +/- 0.55, N = 6
55.8
Debian 11
SE +/- 1.23, N = 12
58.0
Ubuntu 21.10 Oct1
SE +/- 1.57, N = 15
59.1
openSUSE Tumbleweed
SE +/- 0.43, N = 3
67.9
CentOS Stream
SE +/- 0.03, N = 3
77.8
20
40
60
80
100
PyPerformance 1.0.0
Benchmark: pickle_pure_python
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.58, N = 3
443
Fedora 35 Beta
SE +/- 2.91, N = 3
516
CentOS Stream
540
Debian 11
SE +/- 11.13, N = 15
555
Ubuntu 21.10 Oct1
SE +/- 11.89, N = 15
604
openSUSE Tumbleweed
SE +/- 17.37, N = 15
705
150
300
450
600
750

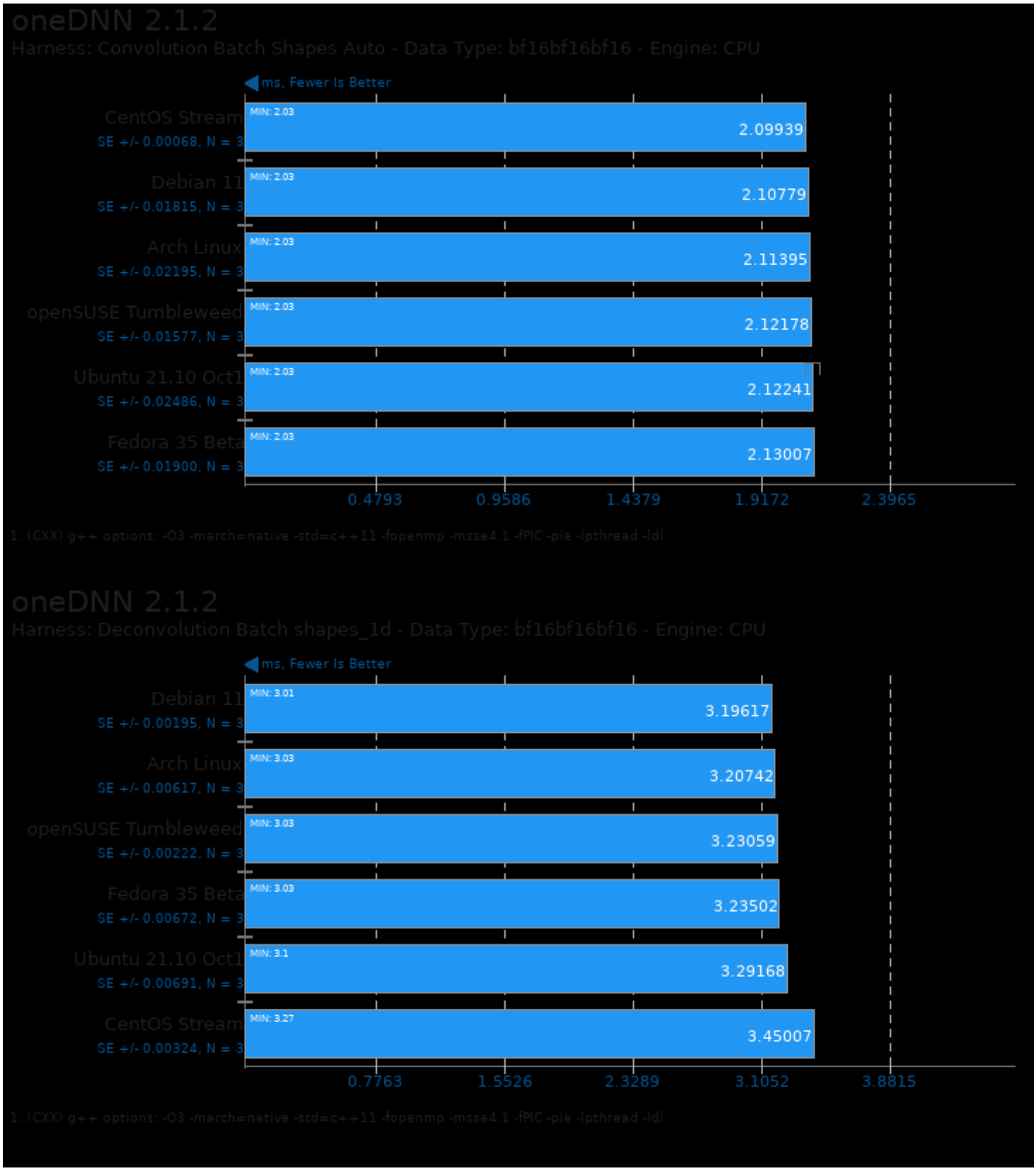

Renaissance 0.12
Test: Random Forest
ms, Fewer Is Better
CentOS Stream
SE +/- 8.76, N = 3
MIN: 639.51 / MAX: 830.2
688.7
openSUSE Tumbleweed
SE +/- 9.00, N = 3
MIN: 1268.67 / MAX: 1723.65
1428.8
Debian 11
SE +/- 9.50, N = 3
MIN: 1315.21 / MAX: 1817.05
1494.8
Arch Linux
SE +/- 11.83, N = 3
MIN: 1347.02 / MAX: 1978.2
1536.1
Fedora 35 Beta
SE +/- 20.09, N = 3
MIN: 1298.32 / MAX: 1875.3
1537.2
Ubuntu 21.10 Oct1
SE +/- 9.03, N = 3
MIN: 1381.5 / MAX: 1982.68
1562.3
300
600
900
1200
1500
Renaissance 0.12
Test: ALS Movie Lens
ms, Fewer Is Better
CentOS Stream
SE +/- 57.62, N = 3
MIN: 6623.99 / MAX: 7259.63
6746.7
Ubuntu 21.10 Oct1
SE +/- 48.52, N = 3
MIN: 17747.45 / MAX: 19660.26
18067.6
Fedora 35 Beta
SE +/- 8.48, N = 3
MIN: 18137.86 / MAX: 20327.55
18146.4
Debian 11
SE +/- 142.50, N = 3
MIN: 17943.52 / MAX: 20942.97
18182.4
openSUSE Tumbleweed
SE +/- 170.25, N = 3
MIN: 17522.47 / MAX: 20593.65
18282.9
Arch Linux
SE +/- 46.97, N = 3
MIN: 19287.99 / MAX: 21756.98
19364.1
4K
8K
12K
16K
20K

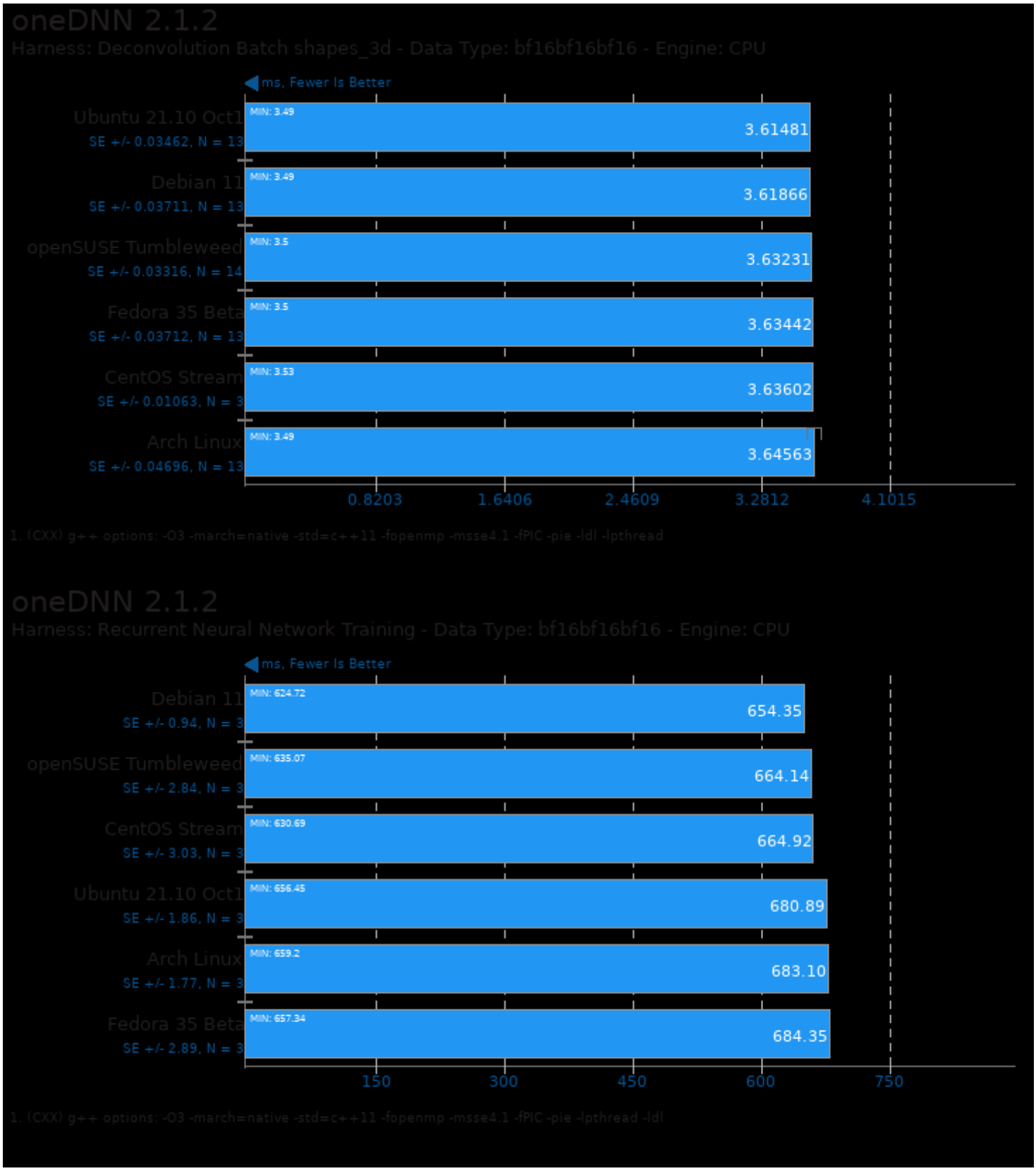

Renaissance 0.12
Test: Apache Spark ALS
ms, Fewer Is Better
CentOS Stream
SE +/- 6.24, N = 3
MIN: 1247.72 / MAX: 1457.9
1324.9
Ubuntu 21.10 Oct1
SE +/- 14.07, N = 3
MIN: 2795.88 / MAX: 3565.03
3095.6
Debian 11
SE +/- 17.82, N = 3
MIN: 2809.07 / MAX: 3507.93
3148.5
Fedora 35 Beta
SE +/- 11.53, N = 3
MIN: 2851.96 / MAX: 3598.58
3172.4
openSUSE Tumbleweed
SE +/- 14.30, N = 3
MIN: 2949.88 / MAX: 3682.83
3175.6
Arch Linux
SE +/- 16.30, N = 3
MIN: 3063.06 / MAX: 3892.88
3349.0
700
1400
2100
2800
3500
Renaissance 0.12
Test: Apache Spark Bayes
ms, Fewer Is Better
CentOS Stream
SE +/- 11.98, N = 15
MIN: 303.94 / MAX: 839.15
523.7
Ubuntu 21.10 Oct1
SE +/- 13.05, N = 3
MIN: 563.96 / MAX: 2393.66
973.5
Debian 11
SE +/- 9.44, N = 3
MIN: 596.32 / MAX: 1325.39
992.4
Fedora 35 Beta
SE +/- 6.57, N = 15
MIN: 579.09 / MAX: 1750.79
1017.8
Arch Linux
SE +/- 16.31, N = 3
MIN: 613.22 / MAX: 1772.38
1156.7
openSUSE Tumbleweed
SE +/- 5.25, N = 3
MIN: 760.63 / MAX: 1711.61
1171.8
300
600
900
1200
1500

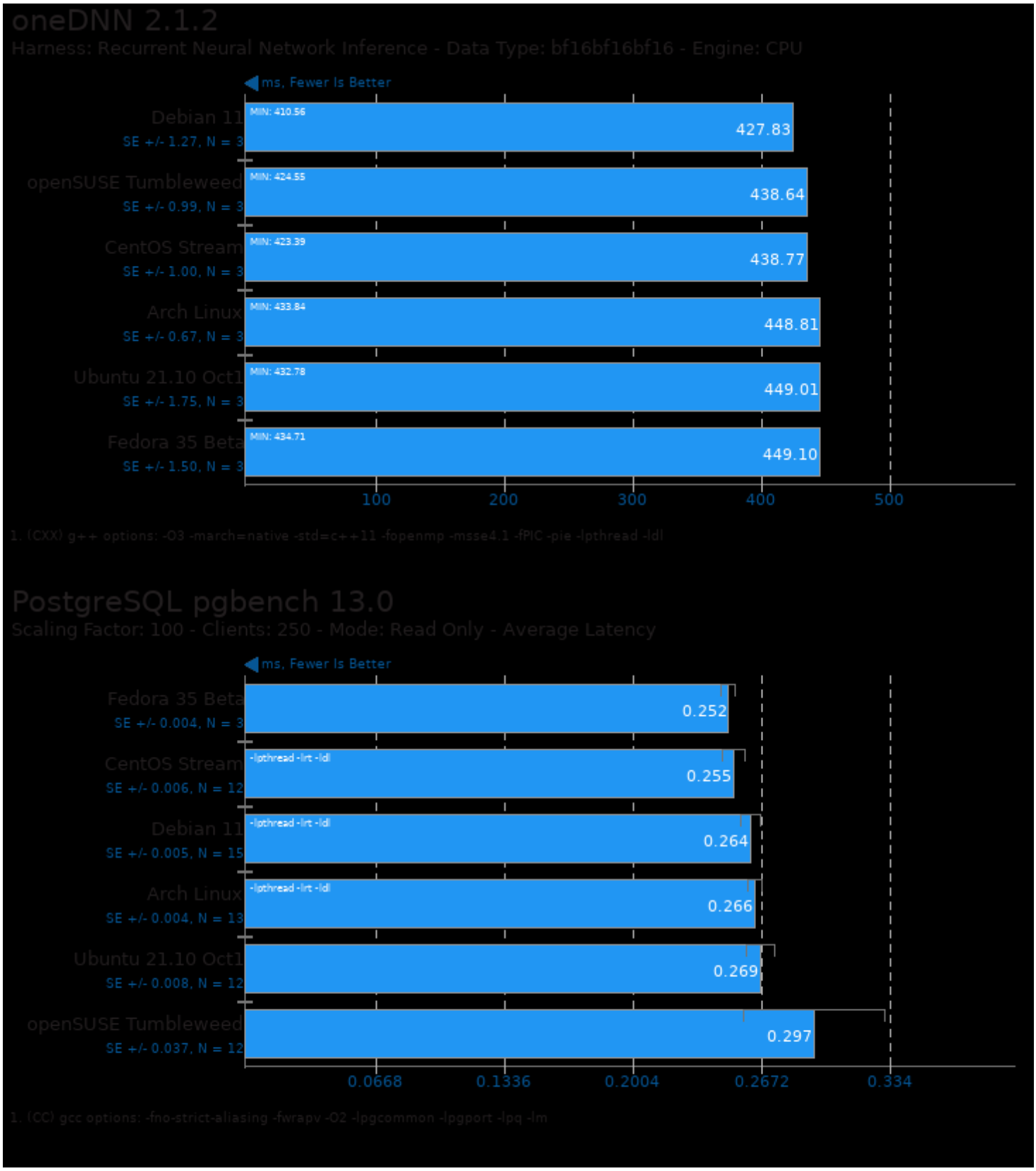

Renaissance 0.12
Test: Savina Reactors.IO
ms, Fewer Is Better
CentOS Stream
SE +/- 55.04, N = 3
MIN: 14031.69 / MAX: 21891.76
14116.6
openSUSE Tumbleweed
SE +/- 192.41, N = 7
MIN: 19932.9 / MAX: 33572.83
20867.5
Debian 11
SE +/- 204.63, N = 3
MIN: 20799.58 / MAX: 33299.35
21142.6
Fedora 35 Beta
SE +/- 237.18, N = 9
MIN: 19932.49 / MAX: 35430.03
21211.3
Ubuntu 21.10 Oct
SE +/- 137.67, N = 3
MIN: 21161.41 / MAX: 34384.9
21433.8
Arch Linux
SE +/- 298.55, N = 3
MIN: 21258.28 / MAX: 34639.03
21832.2
5K
10K
15K
20K
25K
Renaissance 0.12
Test: Finagle HTTP Requests
ms, Fewer Is Better
Debian 11
SE +/- 69.11, N = 3
MIN: 5074.56 / MAX: 6653.57
5967.3
openSUSE Tumbleweed
SE +/- 45.95, N = 10
MIN: 4960.89 / MAX: 6791.24
5995.9
Ubuntu 21.10 Oct
SE +/- 24.54, N = 3
MIN: 6906.75 / MAX: 8669.47
7753.2
Arch Linux
SE +/- 94.06, N = 3
MIN: 7110.58 / MAX: 8946.75
8107.6
Fedora 35 Beta
SE +/- 87.49, N = 5
MIN: 7124.61 / MAX: 9249.1
8137.7
2K
4K
6K
8K
10K

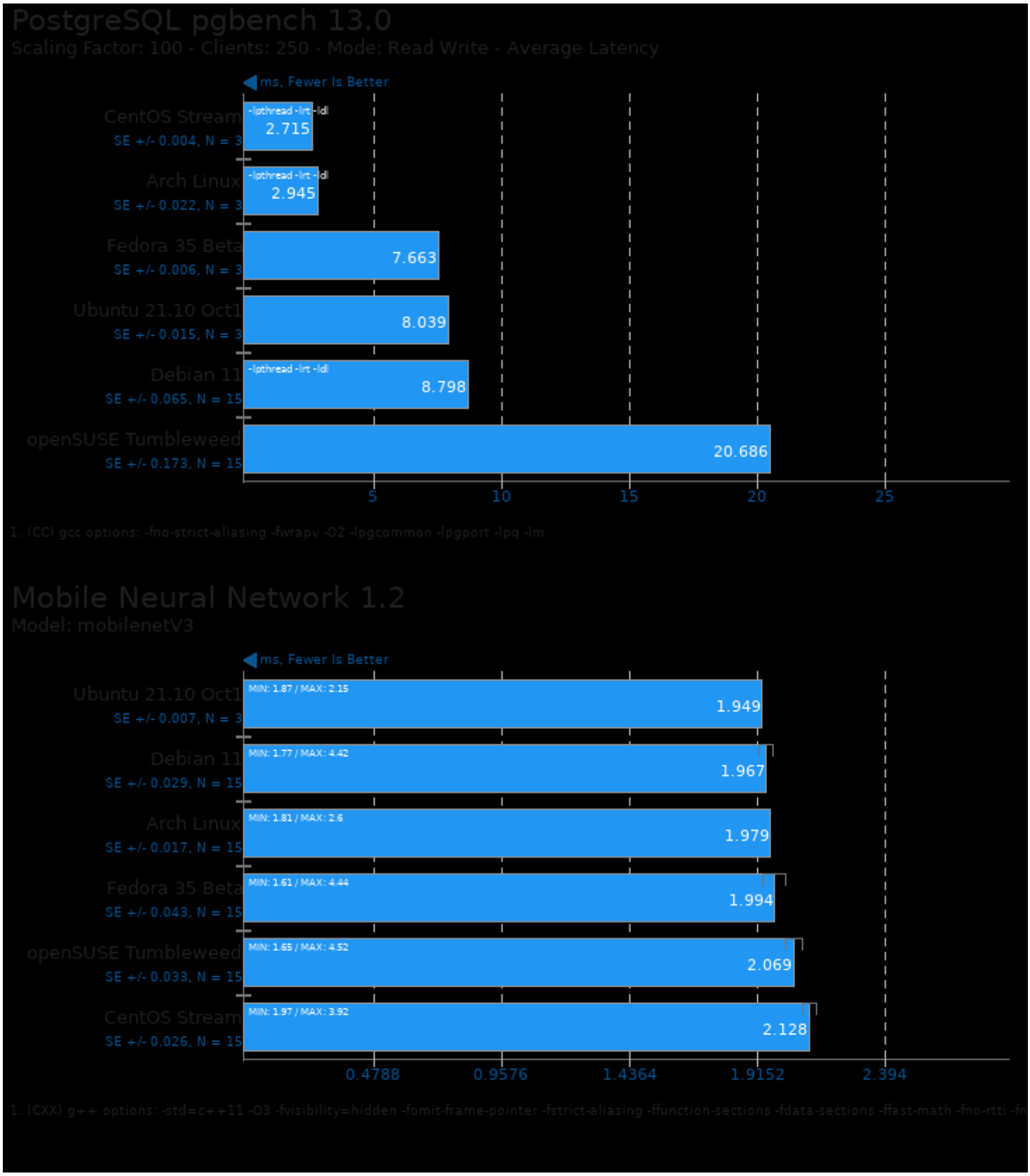

Renaissance 0.12
Test: Akka Unbalanced Cobwebbed Tree
ms, Fewer Is Better
CentOS Stream
SE +/- 101.37, N = 3
MIN: 11600.48 / MAX: 15173.74
15061.7
openSUSE Tumbleweed
SE +/- 99.39, N = 3
MIN: 25316.88 / MAX: 32683.86
32549.3
Debian 11
SE +/- 103.65, N = 3
MIN: 24742.75 / MAX: 32734.09
32557.2
Ubuntu 21.10 Oct1
SE +/- 413.78, N = 3
MIN: 28027.65 / MAX: 36206.47
35585.2
Fedora 35 Beta
SE +/- 202.86, N = 3
MIN: 27438.31 / MAX: 36484.8
36175.6
Arch Linux
SE +/- 244.33, N = 3
MIN: 29107.14 / MAX: 37882.68
37630.0
8K
16K
24K
32K
40K
Renaissance 0.12
Test: Genetic Algorithm Using Jenetics + Futures
ms, Fewer Is Better
CentOS Stream
SE +/- 18.74, N = 15
MIN: 1415.31 / MAX: 1878.53
1688.6
openSUSE Tumbleweed
SE +/- 19.46, N = 3
MIN: 6260.99 / MAX: 6606.28
6431.5
Ubuntu 21.10 Oct1
SE +/- 31.29, N = 3
MIN: 6576.23 / MAX: 7037.67
6835.2
Fedora 35 Beta
SE +/- 12.88, N = 3
MIN: 6640.26 / MAX: 7236.52
6932.1
Debian 11
SE +/- 49.23, N = 3
MIN: 6692.73 / MAX: 7243.21
6985.6
Arch Linux
SE +/- 33.89, N = 3
MIN: 6749.18 / MAX: 7309.76
7089.9
1500
3000
4500
6000
7500

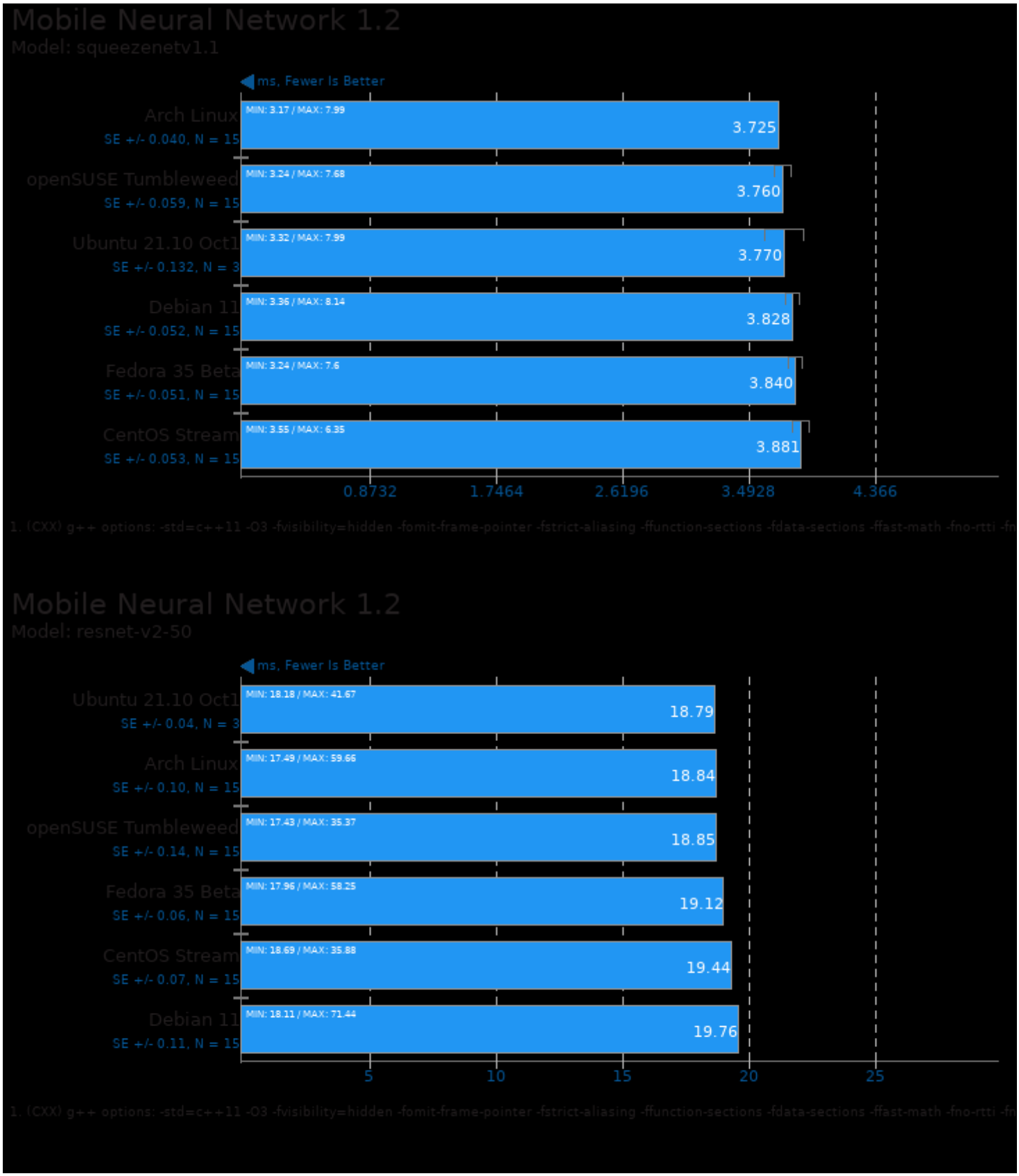

oneDNN 2.1.2
Harness: IP Shapes 1D - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Debian 11
SE +/- 0.03144, N = 3
MIN: 2.83
2.98827
CentOS Stream
SE +/- 0.00479, N = 3
MIN: 2.85
3.00178
Arch Linux
SE +/- 0.02371, N = 10
MIN: 2.87
3.04050
Fedora 35 Beta
SE +/- 0.83207, N = 15
MIN: 3.15
6.50917
Ubuntu 21.10 Oct1
SE +/- 0.68437, N = 15
MIN: 3.46
6.50961
openSUSE Tumbleweed
SE +/- 0.70452, N = 15
MIN: 3.1
6.63389
2
4
6
8
10
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: IP Shapes 3D - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Debian 11
SE +/- 0.00864, N = 3
MIN: 1.58
1.72474
CentOS Stream
SE +/- 0.00524, N = 3
MIN: 1.61
1.73826
Arch Linux
SE +/- 0.00753, N = 3
MIN: 1.69
1.83573
openSUSE Tumbleweed
SE +/- 0.07237, N = 15
MIN: 1.76
2.77560
Fedora 35 Beta
SE +/- 0.09261, N = 15
MIN: 1.97
2.99045
Ubuntu 21.10 Oct1
SE +/- 0.67784, N = 12
MIN: 2.09
3.96654
0.8925
1.785
2.6775
3.57
4.4625
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

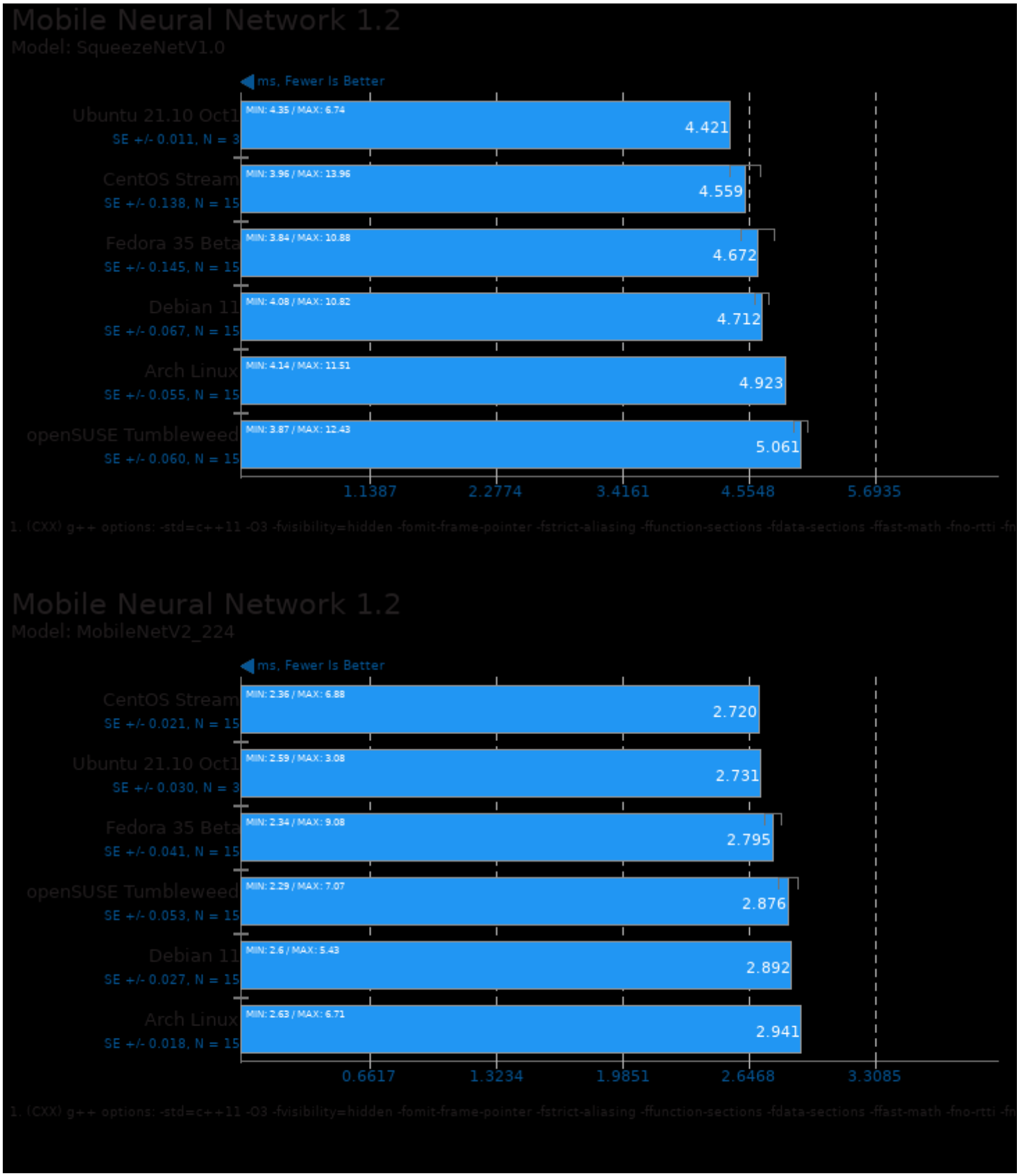

oneDNN 2.1.2
Harness: Convolution Batch Shapes Auto - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
CentOS Stream
SE +/- 0.00068, N = 3
MIN: 2.03
2.09939
Debian 11
SE +/- 0.01815, N = 3
MIN: 2.03
2.10779
Arch Linux
SE +/- 0.02195, N = 3
MIN: 2.03
2.11395
openSUSE Tumbleweed
SE +/- 0.01577, N = 3
MIN: 2.03
2.12178
Ubuntu 21.10 Oct1
SE +/- 0.02486, N = 3
MIN: 2.03
2.12241
Fedora 35 Beta
SE +/- 0.01900, N = 3
MIN: 2.03
2.13007
0.4793
0.9586
1.4379
1.9172
2.3965
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
oneDNN 2.1.2
Harness: Deconvolution Batch shapes_1d - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Debian 11
SE +/- 0.00195, N = 3
MIN: 3.01
3.19617
Arch Linux
SE +/- 0.00617, N = 3
MIN: 3.03
3.20742
openSUSE Tumbleweed
SE +/- 0.00222, N = 3
MIN: 3.03
3.23059
Fedora 35 Beta
SE +/- 0.00672, N = 3
MIN: 3.03
3.23502
Ubuntu 21.10 Oct1
SE +/- 0.00691, N = 3
MIN: 3.1
3.29168
CentOS Stream
SE +/- 0.00324, N = 3
MIN: 3.27
3.45007
0.7763
1.5526
2.3289
3.1052
3.8815
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

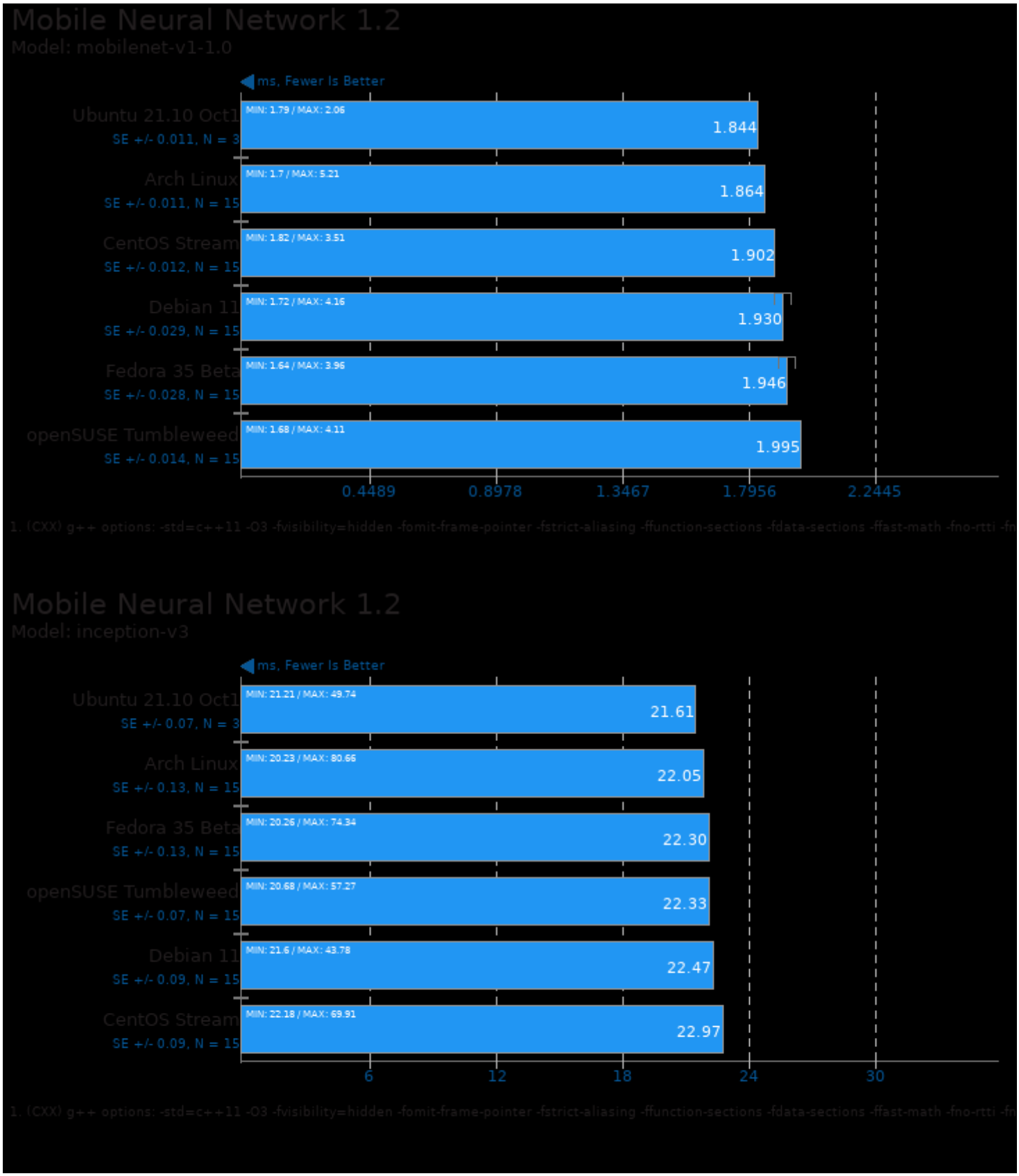

oneDNN 2.1.2
Harness: Deconvolution Batch shapes_3d - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Ubuntu 21.10 Oct1
SE +/- 0.03462, N = 13
MIN: 3.49
3.61481
Debian 11
SE +/- 0.03711, N = 13
MIN: 3.49
3.61866
openSUSE Tumbleweed
SE +/- 0.03316, N = 14
MIN: 3.5
3.63231
Fedora 35 Beta
SE +/- 0.03712, N = 13
MIN: 3.5
3.63442
CentOS Stream
SE +/- 0.01063, N = 3
MIN: 3.53
3.63602
Arch Linux
SE +/- 0.04696, N = 13
MIN: 3.49
3.64563
0.8203
1.6406
2.4609
3.2812
4.1015
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -ldl -lpthread
oneDNN 2.1.2
Harness: Recurrent Neural Network Training - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Debian 11
SE +/- 0.94, N = 3
MIN: 624.72
654.35
openSUSE Tumbleweed
SE +/- 2.84, N = 3
MIN: 635.07
664.14
CentOS Stream
SE +/- 3.03, N = 3
MIN: 630.69
664.92
Ubuntu 21.10 Oct1
SE +/- 1.86, N = 3
MIN: 656.45
680.89
Arch Linux
SE +/- 1.77, N = 3
MIN: 659.2
683.10
Fedora 35 Beta
SE +/- 2.89, N = 3
MIN: 657.34
684.35
150
300
450
600
750
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

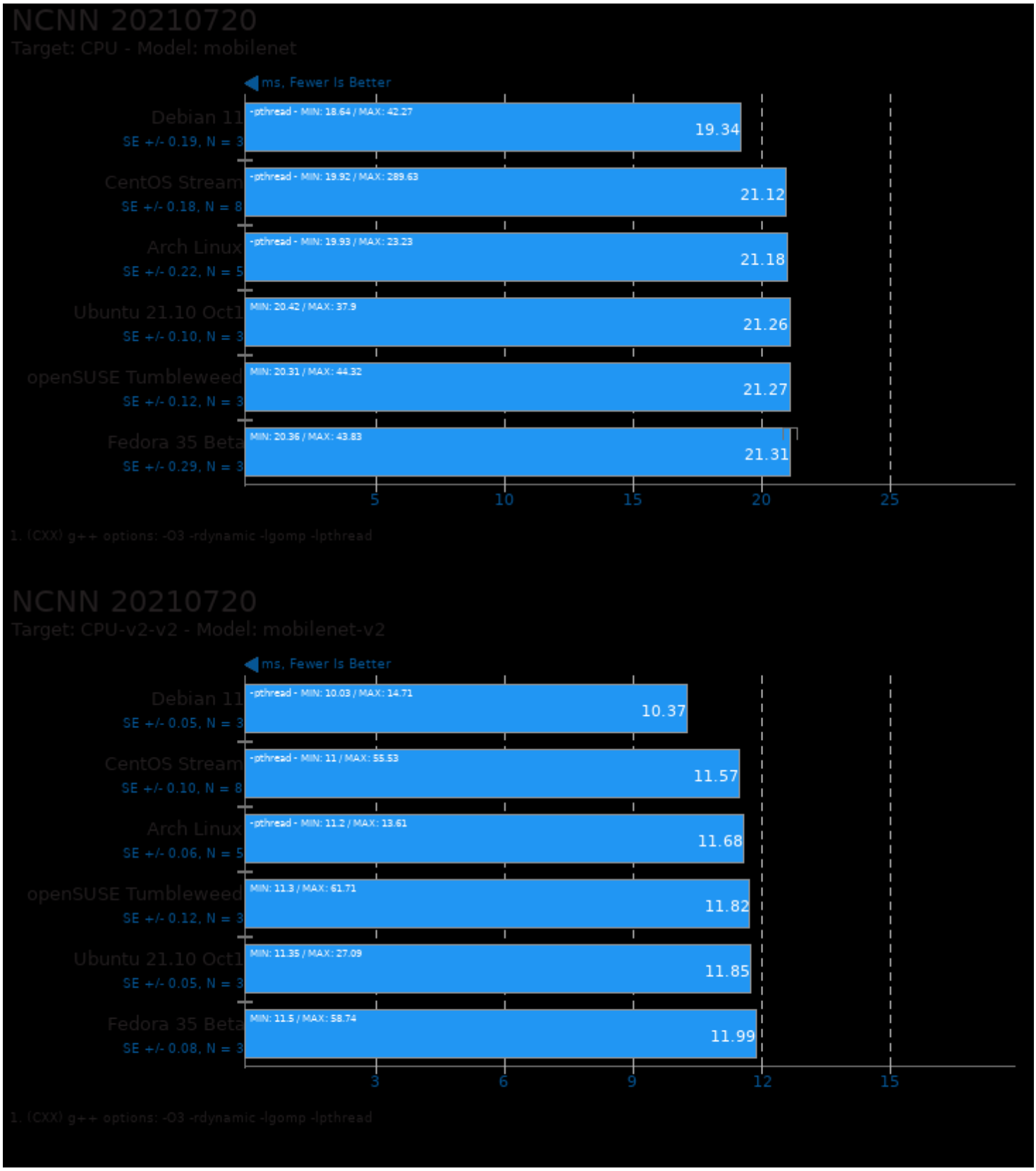

oneDNN 2.1.2
Harness: Recurrent Neural Network Inference - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Debian 11
SE +/- 1.27, N = 3
MIN: 410.56
427.83
openSUSE Tumbleweed
SE +/- 0.99, N = 3
MIN: 424.55
438.64
CentOS Stream
SE +/- 1.00, N = 3
MIN: 423.39
438.77
Arch Linux
SE +/- 0.67, N = 3
MIN: 433.84
448.81
Ubuntu 21.10 Oct1
SE +/- 1.75, N = 3
MIN: 432.78
449.01
Fedora 35 Beta
SE +/- 1.50, N = 3
MIN: 434.71
449.10
100
200
300
400
500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only - Average Latency
ms, Fewer Is Better
Fedora 35 Beta
SE +/- 0.004, N = 3
0.252
CentOS Stream
SE +/- 0.006, N = 12
-lpthread -lrt -ldl
0.255
Debian 11
SE +/- 0.005, N = 15
-lpthread -lrt -ldl
0.264
Arch Linux
SE +/- 0.004, N = 13
-lpthread -lrt -ldl
0.266
Ubuntu 21.10 Oct1
SE +/- 0.008, N = 12
0.269
openSUSE Tumbleweed
SE +/- 0.037, N = 12
0.297
0.0668
0.1336
0.2004
0.2672
0.334
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

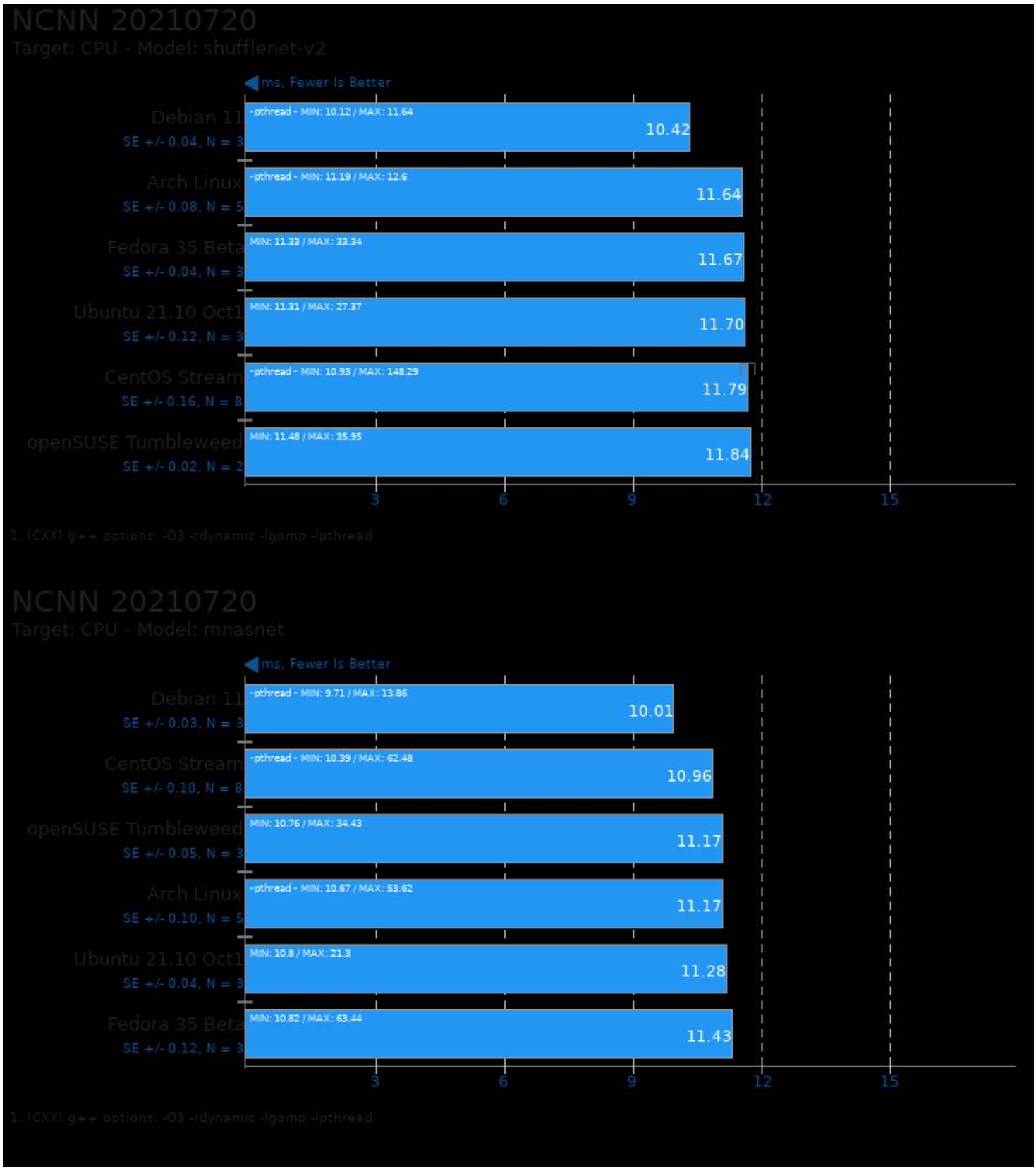

PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Write - Average Latency
ms, Fewer Is Better
CentOS Stream
SE +/- 0.004, N = 3
-lpthread -lrt -ldl
2.715
Arch Linux
SE +/- 0.022, N = 3
-lpthread -lrt -ldl
2.945
Fedora 35 Beta
SE +/- 0.006, N = 3
7.663
Ubuntu 21.10 Oct1
SE +/- 0.015, N = 3
8.039
Debian 11
SE +/- 0.065, N = 15
-lpthread -lrt -ldl
8.798
openSUSE Tumbleweed
SE +/- 0.173, N = 15
20.686
5
10
15
20
25
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm
Mobile Neural Network 1.2
Model: mobilenetV3
ms, Fewer Is Better
Ubuntu 21.10 Oct1
SE +/- 0.007, N = 3
MIN: 1.87 / MAX: 2.15
1.949
Debian 11
SE +/- 0.029, N = 15
MIN: 1.77 / MAX: 4.42
1.967
Arch Linux
SE +/- 0.017, N = 15
MIN: 1.81 / MAX: 2.6
1.979
Fedora 35 Beta
SE +/- 0.043, N = 15
MIN: 1.61 / MAX: 4.44
1.994
openSUSE Tumbleweed
SE +/- 0.033, N = 15
MIN: 1.65 / MAX: 4.52
2.069
CentOS Stream
SE +/- 0.026, N = 15
MIN: 1.97 / MAX: 3.92
2.128
0.4788
0.9576
1.4364
1.9152
2.394
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

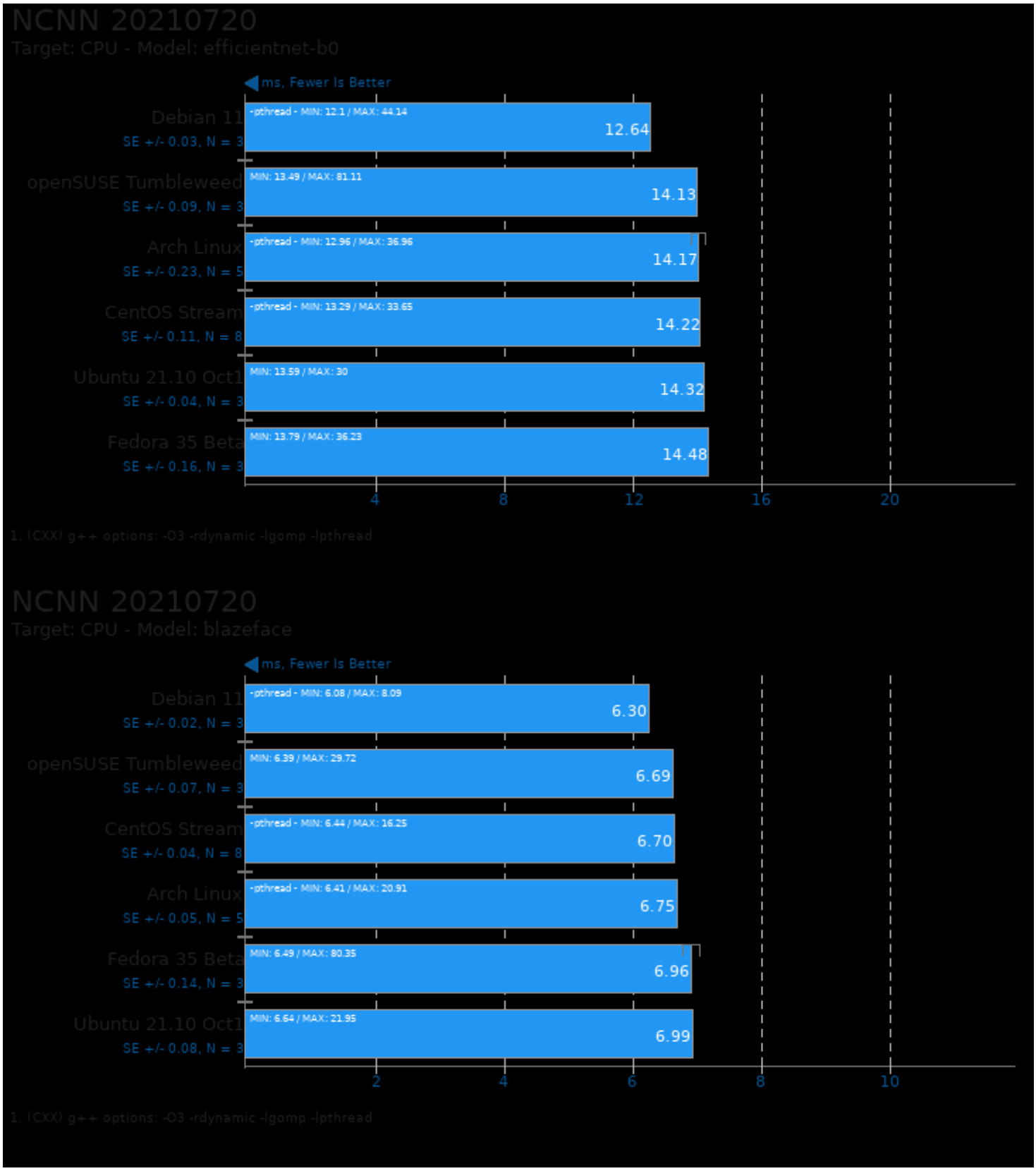

Mobile Neural Network 1.2
Model: squeezenetv1.1
ms, Fewer Is Better
Arch Linux
SE +/- 0.040, N = 15
MIN: 3.17 / MAX: 7.99
3.725
openSUSE Tumbleweed
SE +/- 0.059, N = 15
MIN: 3.24 / MAX: 7.68
3.760
Ubuntu 21.10 Oct1
SE +/- 0.132, N = 3
MIN: 3.32 / MAX: 7.99
3.770
Debian 11
SE +/- 0.052, N = 15
MIN: 3.36 / MAX: 8.14
3.828
Fedora 35 Beta
SE +/- 0.051, N = 15
MIN: 3.24 / MAX: 7.6
3.840
CentOS Stream
SE +/- 0.053, N = 15
MIN: 3.55 / MAX: 6.35
3.881
0.8732
1.7464
2.6196
3.4928
4.366
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr
Mobile Neural Network 1.2
Model: resnet-v2-50
ms, Fewer Is Better
Ubuntu 21.10 Oct1
SE +/- 0.04, N = 3
MIN: 18.18 / MAX: 41.67
18.79
Arch Linux
SE +/- 0.10, N = 15
MIN: 17.49 / MAX: 59.66
18.84
openSUSE Tumbleweed
SE +/- 0.14, N = 15
MIN: 17.43 / MAX: 35.37
18.85
Fedora 35 Beta
SE +/- 0.06, N = 15
MIN: 17.96 / MAX: 58.25
19.12
CentOS Stream
SE +/- 0.07, N = 15
MIN: 18.69 / MAX: 35.88
19.44
Debian 11
SE +/- 0.11, N = 15
MIN: 18.11 / MAX: 71.44
19.76
5
10
15
20
25
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

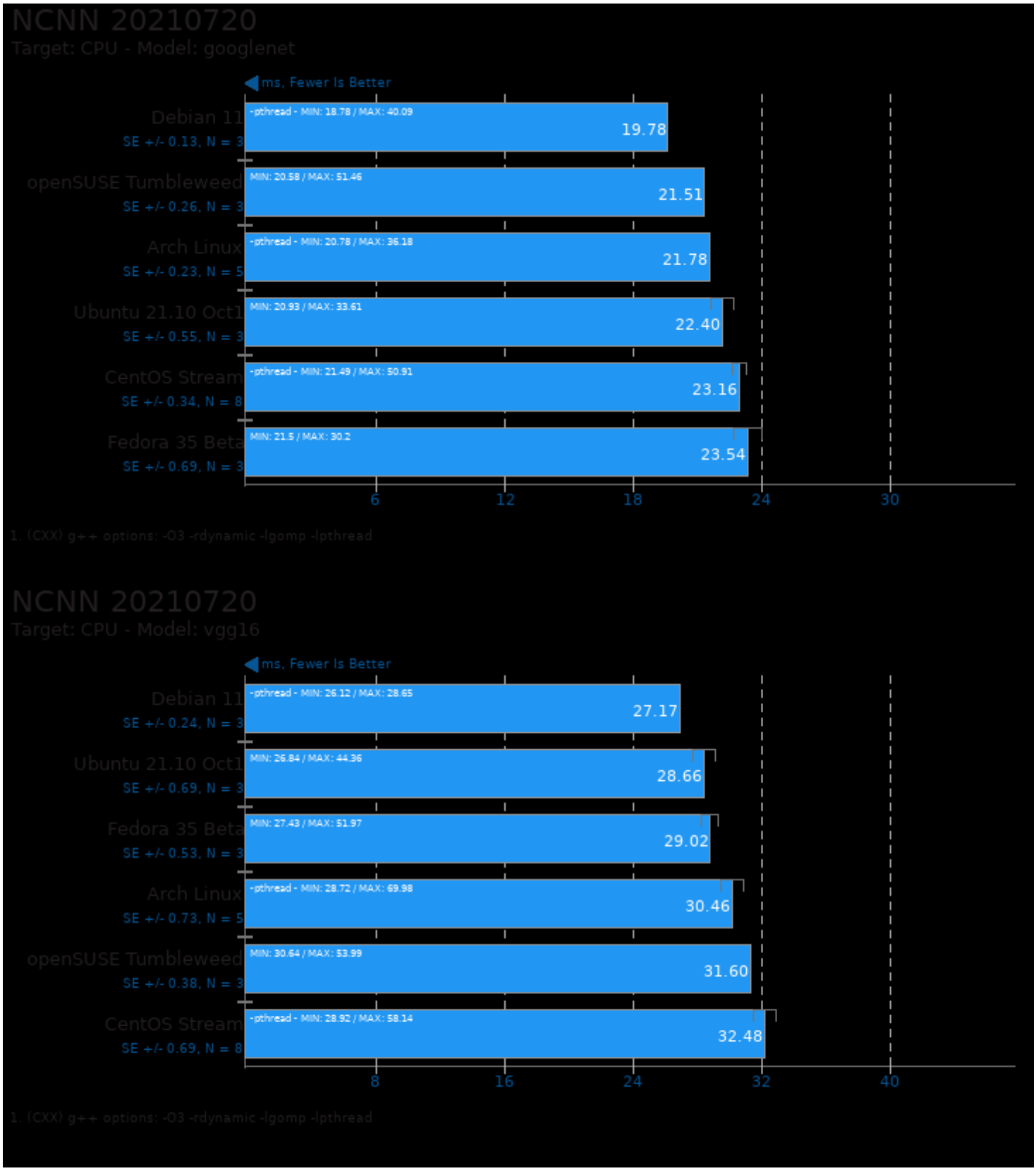

Mobile Neural Network 1.2
Model: SqueezeNetV1.0
ms, Fewer Is Better
Ubuntu 21.10 Oct1
SE +/- 0.011, N = 3
MIN: 4.35 / MAX: 6.74
4.421
CentOS Stream
SE +/- 0.138, N = 15
MIN: 3.96 / MAX: 13.96
4.559
Fedora 35 Beta
SE +/- 0.145, N = 15
MIN: 3.84 / MAX: 10.88
4.672
Debian 11
SE +/- 0.067, N = 15
MIN: 4.08 / MAX: 10.82
4.712
Arch Linux
SE +/- 0.055, N = 15
MIN: 4.14 / MAX: 11.51
4.923
openSUSE Tumbleweed
SE +/- 0.060, N = 15
MIN: 3.87 / MAX: 12.43
5.061
1.1387
2.2774
3.4161
4.5548
5.6935
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr
Mobile Neural Network 1.2
Model: MobileNetV2_224
ms, Fewer Is Better
CentOS Stream
SE +/- 0.021, N = 15
MIN: 2.36 / MAX: 6.88
2.720
Ubuntu 21.10 Oct1
SE +/- 0.030, N = 3
MIN: 2.59 / MAX: 3.08
2.731
Fedora 35 Beta
SE +/- 0.041, N = 15
MIN: 2.34 / MAX: 9.08
2.795
openSUSE Tumbleweed
SE +/- 0.053, N = 15
MIN: 2.29 / MAX: 7.07
2.876
Debian 11
SE +/- 0.027, N = 15
MIN: 2.6 / MAX: 5.43
2.892
Arch Linux
SE +/- 0.018, N = 15
MIN: 2.63 / MAX: 6.71
2.941
0.6617
1.3234
1.9851
2.6468
3.3085
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

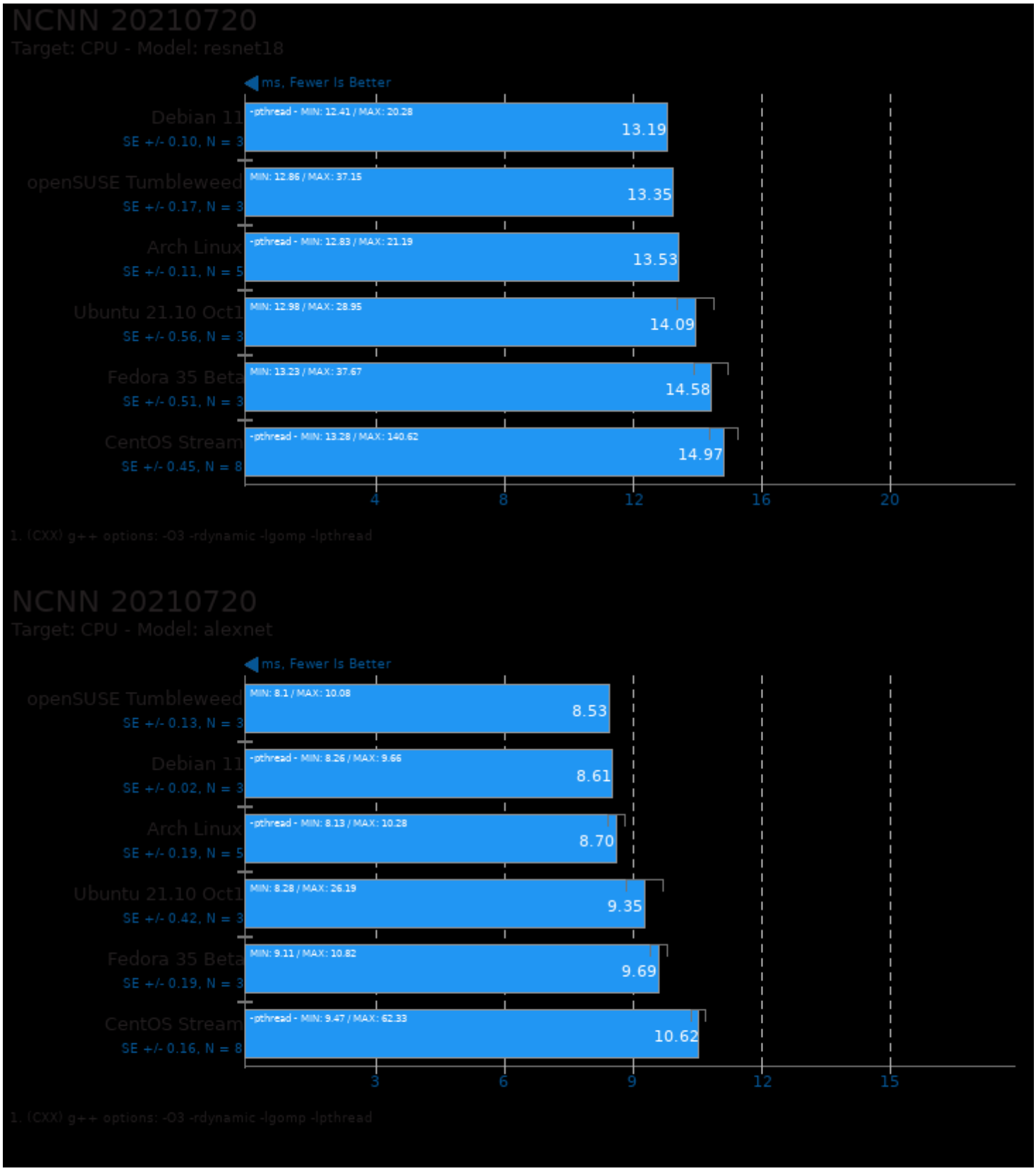

Mobile Neural Network 1.2
Model: mobilenet-v1-1.0
ms, Fewer Is Better
Ubuntu 21.10 Oct1
SE +/- 0.011, N = 3
MIN: 1.79 / MAX: 2.06
1.844
Arch Linux
SE +/- 0.011, N = 15
MIN: 1.7 / MAX: 5.21
1.864
CentOS Stream
SE +/- 0.012, N = 15
MIN: 1.82 / MAX: 3.51
1.902
Debian 11
SE +/- 0.029, N = 15
MIN: 1.72 / MAX: 4.16
1.930
Fedora 35 Beta
SE +/- 0.028, N = 15
MIN: 1.64 / MAX: 3.96
1.946
openSUSE Tumbleweed
SE +/- 0.014, N = 15
MIN: 1.68 / MAX: 4.11
1.995
0.4489
0.8978
1.3467
1.7956
2.2445
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr
Mobile Neural Network 1.2
Model: inception-v3
ms, Fewer Is Better
Ubuntu 21.10 Oct1
SE +/- 0.07, N = 3
MIN: 21.21 / MAX: 49.74
21.61
Arch Linux
SE +/- 0.13, N = 15
MIN: 20.23 / MAX: 80.66
22.05
Fedora 35 Beta
SE +/- 0.13, N = 15
MIN: 20.26 / MAX: 74.34
22.30
openSUSE Tumbleweed
SE +/- 0.07, N = 15
MIN: 20.68 / MAX: 57.27
22.33
Debian 11
SE +/- 0.09, N = 15
MIN: 21.6 / MAX: 43.78
22.47
CentOS Stream
SE +/- 0.09, N = 15
MIN: 22.18 / MAX: 69.91
22.97
6
12
18
24
30
1. (CXX) g++ options: -std=c++11 -O3 -fvisibility=hidden -fomit-frame-pointer -fstrict-aliasing -ffunction-sections -fdata-sections -ffast-math -fno-rtti -fr

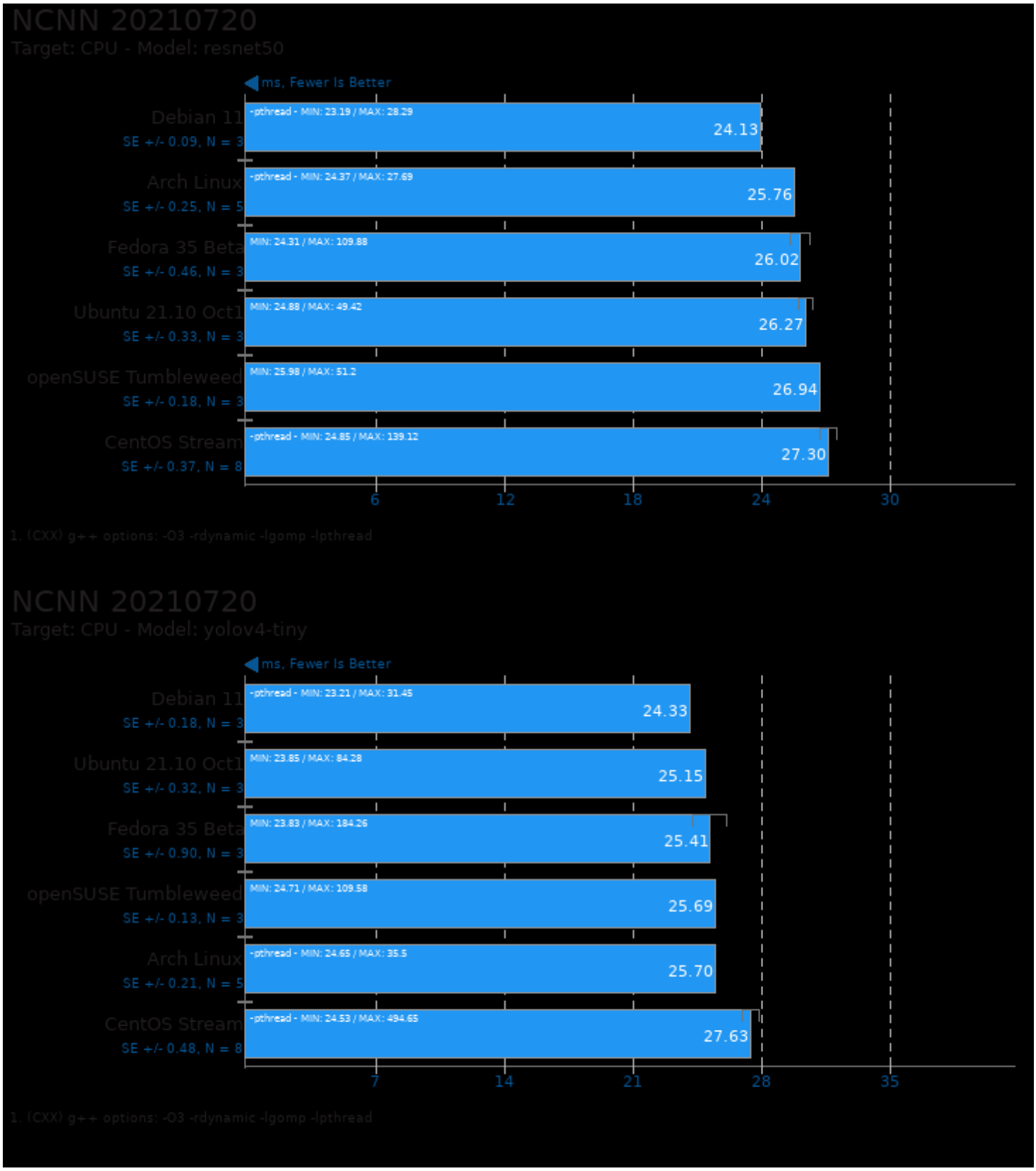

NCNN 20210720
Target: CPU - Model: mobilenet
ms, Fewer Is Better
Debian 11
SE +/- 0.19, N = 3
-pthread - MIN: 18.64 / MAX: 42.27
19.34
CentOS Stream
SE +/- 0.18, N = 8
-pthread - MIN: 19.92 / MAX: 289.63
21.12
Arch Linux
SE +/- 0.22, N = 5
-pthread - MIN: 19.93 / MAX: 23.23
21.18
Ubuntu 21.10 Oct1
SE +/- 0.10, N = 3
MIN: 20.42 / MAX: 37.9
21.26
openSUSE Tumbleweed
SE +/- 0.12, N = 3
MIN: 20.31 / MAX: 44.32
21.27
Fedora 35 Beta
SE +/- 0.29, N = 3
MIN: 20.36 / MAX: 43.83
21.31
5
10
15
20
25
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20210720
Target: CPU-v2-v2 - Model: mobilenet-v2
ms, Fewer Is Better
Debian 11
SE +/- 0.05, N = 3
-pthread - MIN: 10.03 / MAX: 14.71
10.37
CentOS Stream
SE +/- 0.10, N = 8
-pthread - MIN: 11 / MAX: 55.53
11.57
Arch Linux
SE +/- 0.06, N = 5
-pthread - MIN: 11.2 / MAX: 13.61
11.68
openSUSE Tumbleweed
SE +/- 0.12, N = 3
MIN: 11.3 / MAX: 61.71
11.82
Ubuntu 21.10 Oct1
SE +/- 0.05, N = 3
MIN: 11.35 / MAX: 27.09
11.85
Fedora 35 Beta
SE +/- 0.08, N = 3
MIN: 11.5 / MAX: 58.74
11.99
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

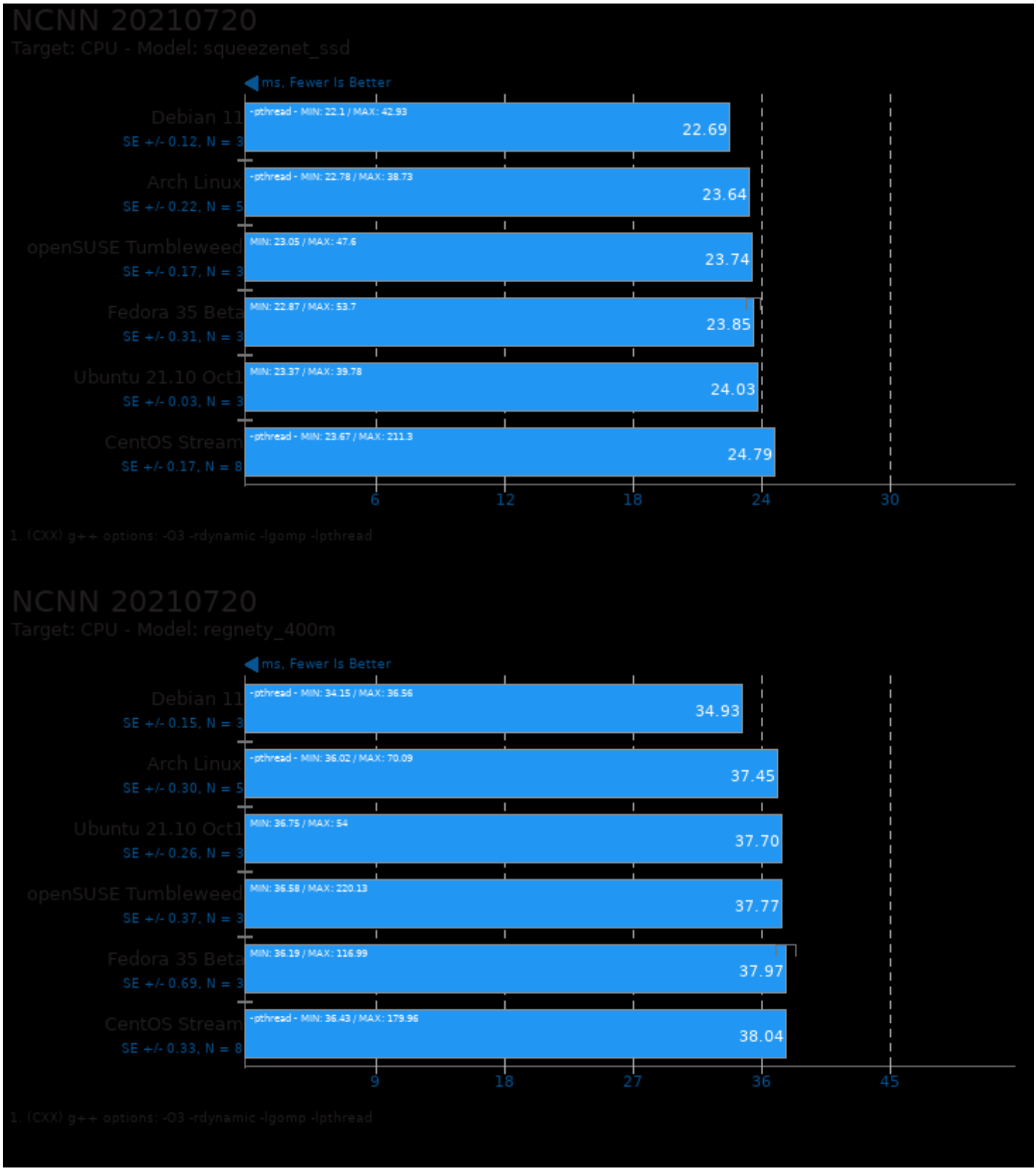

NCNN 20210720
Target: CPU - Model: shufflenet-v2
ms, Fewer Is Better
Debian 11
SE +/- 0.04, N = 3
-pthread - MIN: 10.12 / MAX: 11.64
10.42
Arch Linux
SE +/- 0.08, N = 5
-pthread - MIN: 11.19 / MAX: 12.6
11.64
Fedora 35 Beta
SE +/- 0.04, N = 3
MIN: 11.33 / MAX: 33.34
11.67
Ubuntu 21.10 Oct1
SE +/- 0.12, N = 3
MIN: 11.31 / MAX: 27.37
11.70
CentOS Stream
SE +/- 0.16, N = 8
-pthread - MIN: 10.93 / MAX: 148.29
11.79
openSUSE Tumbleweed
SE +/- 0.02, N = 2
MIN: 11.48 / MAX: 35.95
11.84
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20210720
Target: CPU - Model: mnasnet
ms, Fewer Is Better
Debian 11
SE +/- 0.03, N = 3
-pthread - MIN: 9.71 / MAX: 13.86
10.01
CentOS Stream
SE +/- 0.10, N = 8
-pthread - MIN: 10.39 / MAX: 62.48
10.96
openSUSE Tumbleweed
SE +/- 0.05, N = 3
MIN: 10.76 / MAX: 34.43
11.17
Arch Linux
SE +/- 0.10, N = 5
-pthread - MIN: 10.67 / MAX: 53.62
11.17
Ubuntu 21.10 Oct1
SE +/- 0.04, N = 3
MIN: 10.8 / MAX: 21.3
11.28
Fedora 35 Beta
SE +/- 0.12, N = 3
MIN: 10.82 / MAX: 63.44
11.43
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

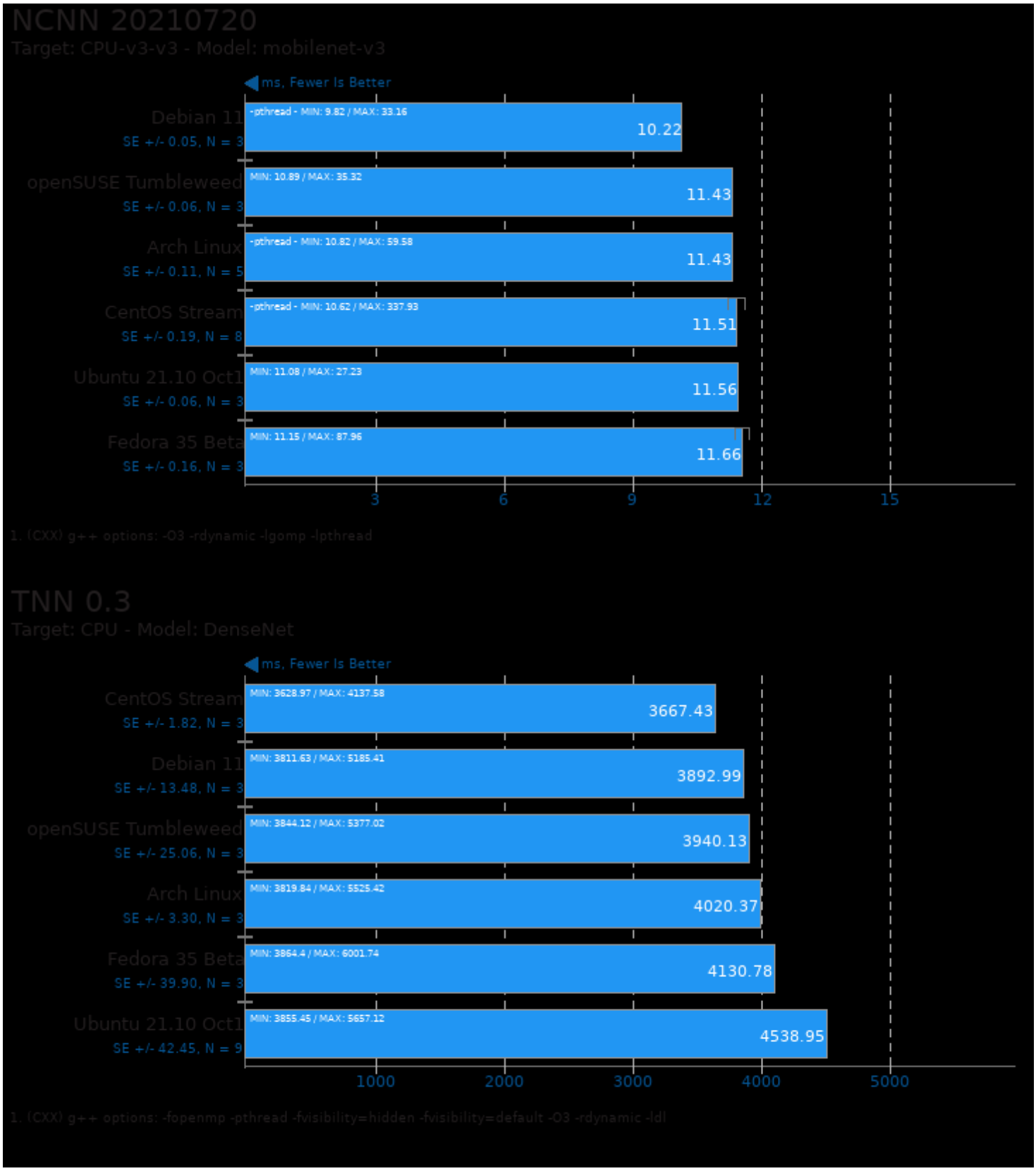

NCNN 20210720
Target: CPU - Model: efficientnet-b0
ms, Fewer Is Better
Debian 11
SE +/- 0.03, N = 3
-pthread - MIN: 12.1 / MAX: 44.14
12.64
openSUSE Tumbleweed
SE +/- 0.09, N = 3
MIN: 13.49 / MAX: 81.11
14.13
Arch Linux
SE +/- 0.23, N = 5
-pthread - MIN: 12.96 / MAX: 36.96
14.17
CentOS Stream
SE +/- 0.11, N = 8
-pthread - MIN: 13.29 / MAX: 33.65
14.22
Ubuntu 21.10 Oct1
SE +/- 0.04, N = 3
MIN: 13.59 / MAX: 30
14.32
Fedora 35 Beta
SE +/- 0.16, N = 3
MIN: 13.79 / MAX: 36.23
14.48
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20210720
Target: CPU - Model: blazeface
ms, Fewer Is Better
Debian 11
SE +/- 0.02, N = 3
-pthread - MIN: 6.08 / MAX: 8.09
6.30
openSUSE Tumbleweed
SE +/- 0.07, N = 3
MIN: 6.39 / MAX: 29.72
6.69
CentOS Stream
SE +/- 0.04, N = 8
-pthread - MIN: 6.44 / MAX: 16.25
6.70
Arch Linux
SE +/- 0.05, N = 5
-pthread - MIN: 6.41 / MAX: 20.91
6.75
Fedora 35 Beta
SE +/- 0.14, N = 3
MIN: 6.49 / MAX: 80.35
6.96
Ubuntu 21.10 Oct1
SE +/- 0.08, N = 3
MIN: 6.64 / MAX: 21.95
6.99
2
4
6
8
10
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

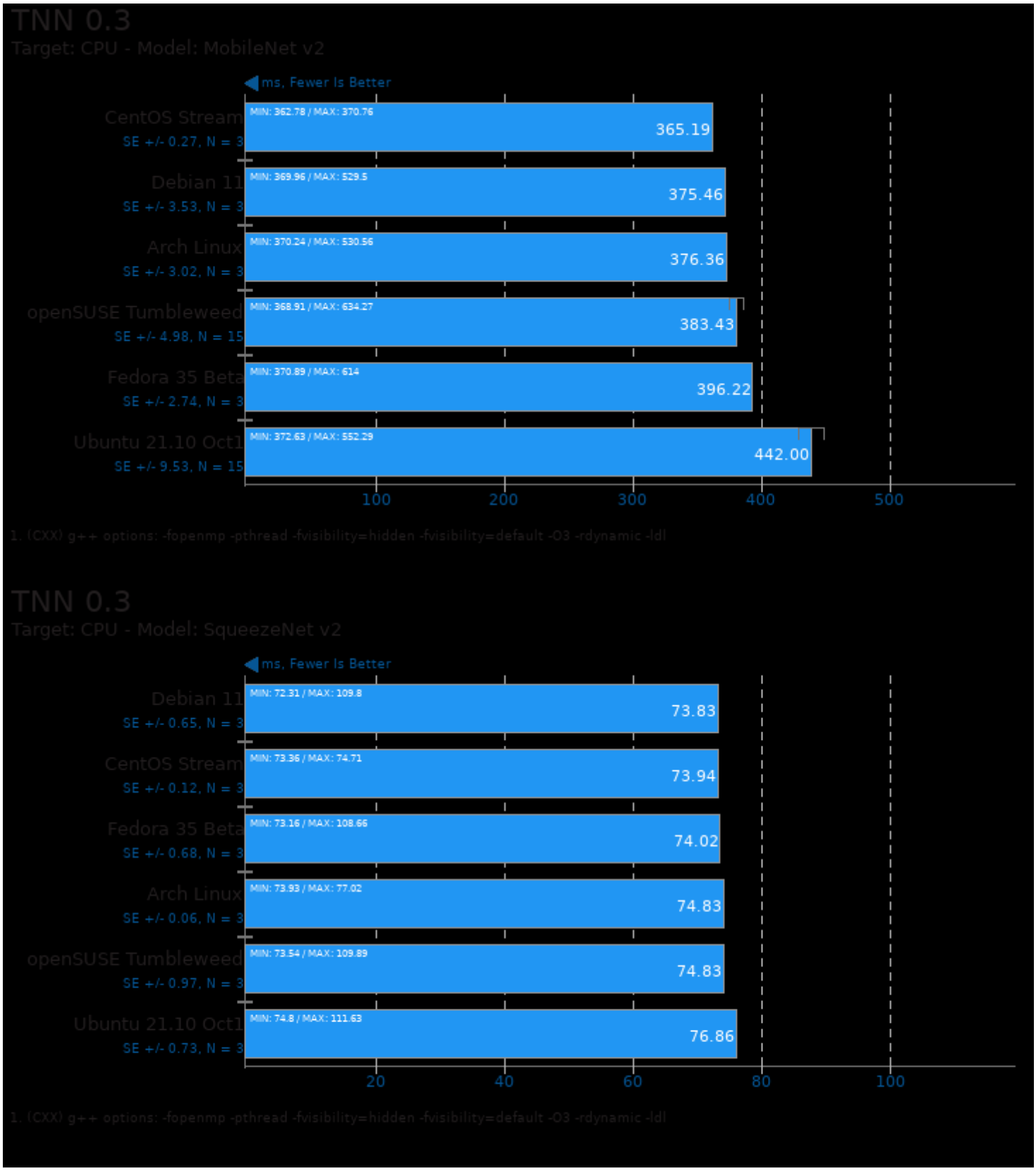

NCNN 20210720
Target: CPU - Model: googlenet
ms, Fewer Is Better
Debian 11
SE +/- 0.13, N = 3
-pthread - MIN: 18.78 / MAX: 40.09
19.78
openSUSE Tumbleweed
SE +/- 0.26, N = 3
MIN: 20.58 / MAX: 51.46
21.51
Arch Linux
SE +/- 0.23, N = 5
-pthread - MIN: 20.78 / MAX: 36.18
21.78
Ubuntu 21.10 Oct1
SE +/- 0.55, N = 3
MIN: 20.93 / MAX: 33.61
22.40
CentOS Stream
SE +/- 0.34, N = 8
-pthread - MIN: 21.49 / MAX: 50.91
23.16
Fedora 35 Beta
SE +/- 0.69, N = 3
MIN: 21.5 / MAX: 30.2
23.54
6
12
18
24
30
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20210720
Target: CPU - Model: vgg16
ms, Fewer Is Better
Debian 11
SE +/- 0.24, N = 3
-pthread - MIN: 26.12 / MAX: 28.65
27.17
Ubuntu 21.10 Oct1
SE +/- 0.69, N = 3
MIN: 26.84 / MAX: 44.36
28.66
Fedora 35 Beta
SE +/- 0.53, N = 3
MIN: 27.43 / MAX: 51.97
29.02
Arch Linux
SE +/- 0.73, N = 5
-pthread - MIN: 28.72 / MAX: 69.98
30.46
openSUSE Tumbleweed
SE +/- 0.38, N = 3
MIN: 30.64 / MAX: 53.99
31.60
CentOS Stream
SE +/- 0.69, N = 8
-pthread - MIN: 28.92 / MAX: 58.14
32.48
8
16
24
32
40
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

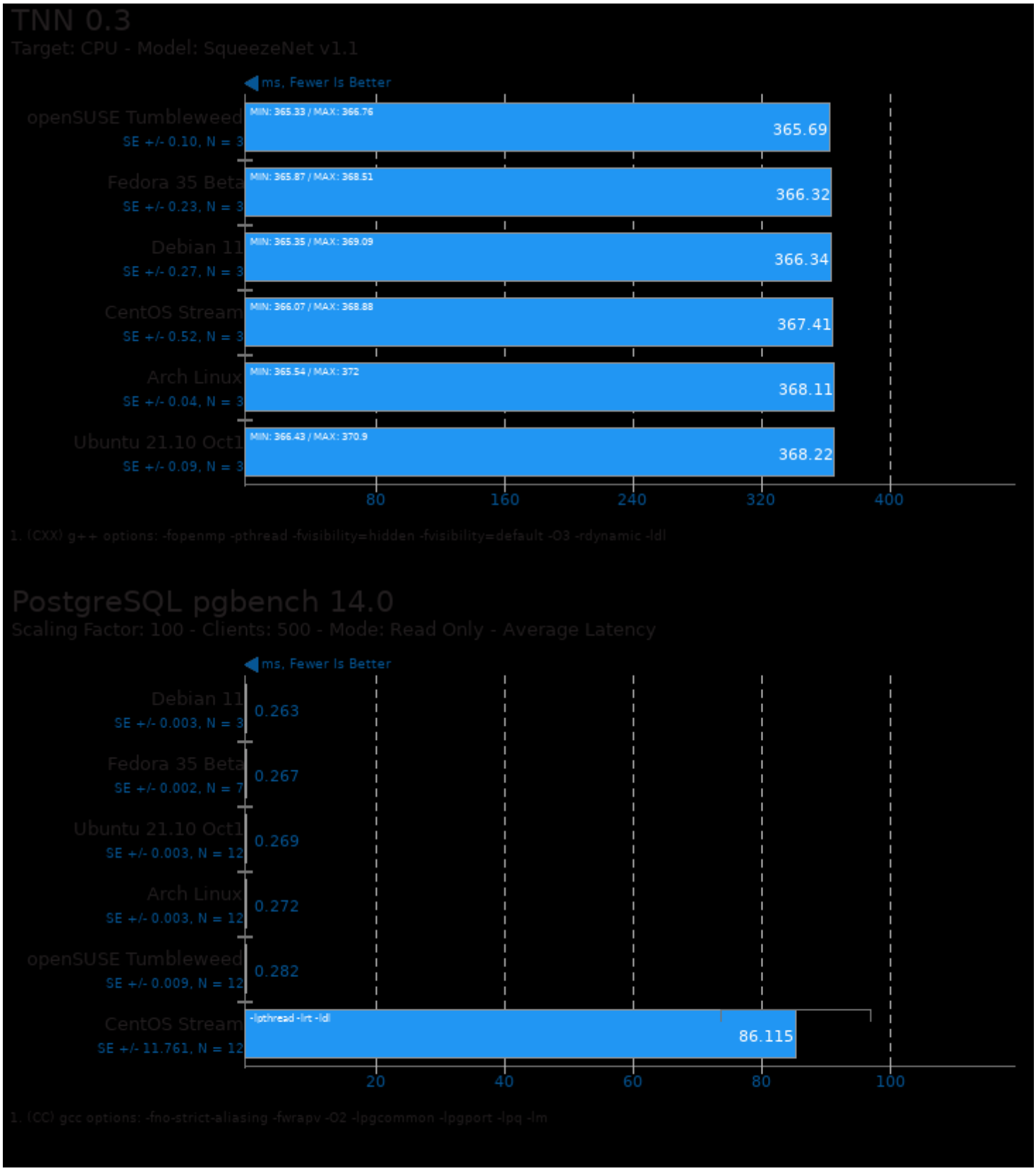

NCNN 20210720
Target: CPU - Model: resnet18
ms, Fewer Is Better
Debian 11
SE +/- 0.10, N = 3
-pthread - MIN: 12.41 / MAX: 20.28
13.19
openSUSE Tumbleweed
SE +/- 0.17, N = 3
MIN: 12.86 / MAX: 37.15
13.35
Arch Linux
SE +/- 0.11, N = 5
-pthread - MIN: 12.83 / MAX: 21.19
13.53
Ubuntu 21.10 Oct1
SE +/- 0.56, N = 3
MIN: 12.98 / MAX: 28.95
14.09
Fedora 35 Beta
SE +/- 0.51, N = 3
MIN: 13.23 / MAX: 37.67
14.58
CentOS Stream
SE +/- 0.45, N = 8
-pthread - MIN: 13.28 / MAX: 140.62
14.97
4
8
12
16
20
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20210720
Target: CPU - Model: alexnet
ms, Fewer Is Better
openSUSE Tumbleweed
SE +/- 0.13, N = 3
MIN: 8.1 / MAX: 10.08
8.53
Debian 11
SE +/- 0.02, N = 3
-pthread - MIN: 8.26 / MAX: 9.66
8.61
Arch Linux
SE +/- 0.19, N = 5
-pthread - MIN: 8.13 / MAX: 10.28
8.70
Ubuntu 21.10 Oct1
SE +/- 0.42, N = 3
MIN: 8.28 / MAX: 26.19
9.35
Fedora 35 Beta
SE +/- 0.19, N = 3
MIN: 9.11 / MAX: 10.82
9.69
CentOS Stream
SE +/- 0.16, N = 8
-pthread - MIN: 9.47 / MAX: 62.33
10.62
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

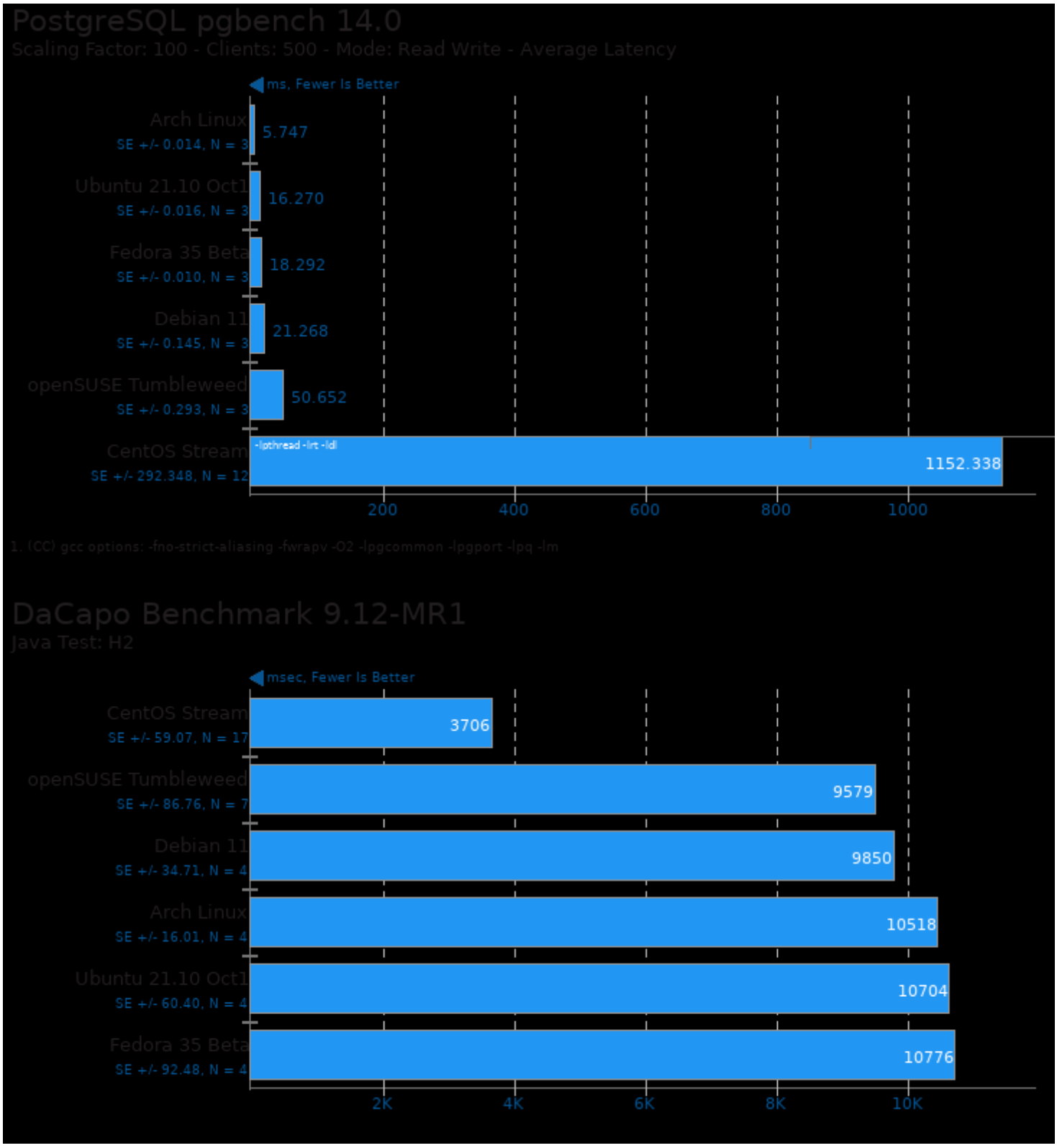

NCNN 20210720
Target: CPU - Model: resnet50
ms, Fewer Is Better
Debian 11
SE +/- 0.09, N = 3
-pthread - MIN: 23.19 / MAX: 28.29
24.13
Arch Linux
SE +/- 0.25, N = 5
-pthread - MIN: 24.37 / MAX: 27.69
25.76
Fedora 35 Beta
SE +/- 0.46, N = 3
MIN: 24.31 / MAX: 109.88
26.02
Ubuntu 21.10 Oct1
SE +/- 0.33, N = 3
MIN: 24.88 / MAX: 49.42
26.27
openSUSE Tumbleweed
SE +/- 0.18, N = 3
MIN: 25.98 / MAX: 51.2
26.94
CentOS Stream
SE +/- 0.37, N = 8
-pthread - MIN: 24.85 / MAX: 139.12
27.30
6
12
18
24
30
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20210720
Target: CPU - Model: yolov4-tiny
ms, Fewer Is Better
Debian 11
SE +/- 0.18, N = 3
-pthread - MIN: 23.21 / MAX: 31.45
24.33
Ubuntu 21.10 Oct1
SE +/- 0.32, N = 3
MIN: 23.85 / MAX: 84.28
25.15
Fedora 35 Beta
SE +/- 0.90, N = 3
MIN: 23.83 / MAX: 184.26
25.41
openSUSE Tumbleweed
SE +/- 0.13, N = 3
MIN: 24.71 / MAX: 109.58
25.69
Arch Linux
SE +/- 0.21, N = 5
-pthread - MIN: 24.65 / MAX: 35.5
25.70
CentOS Stream
SE +/- 0.48, N = 8
-pthread - MIN: 24.53 / MAX: 494.65
27.63
7
14
21
28
35
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

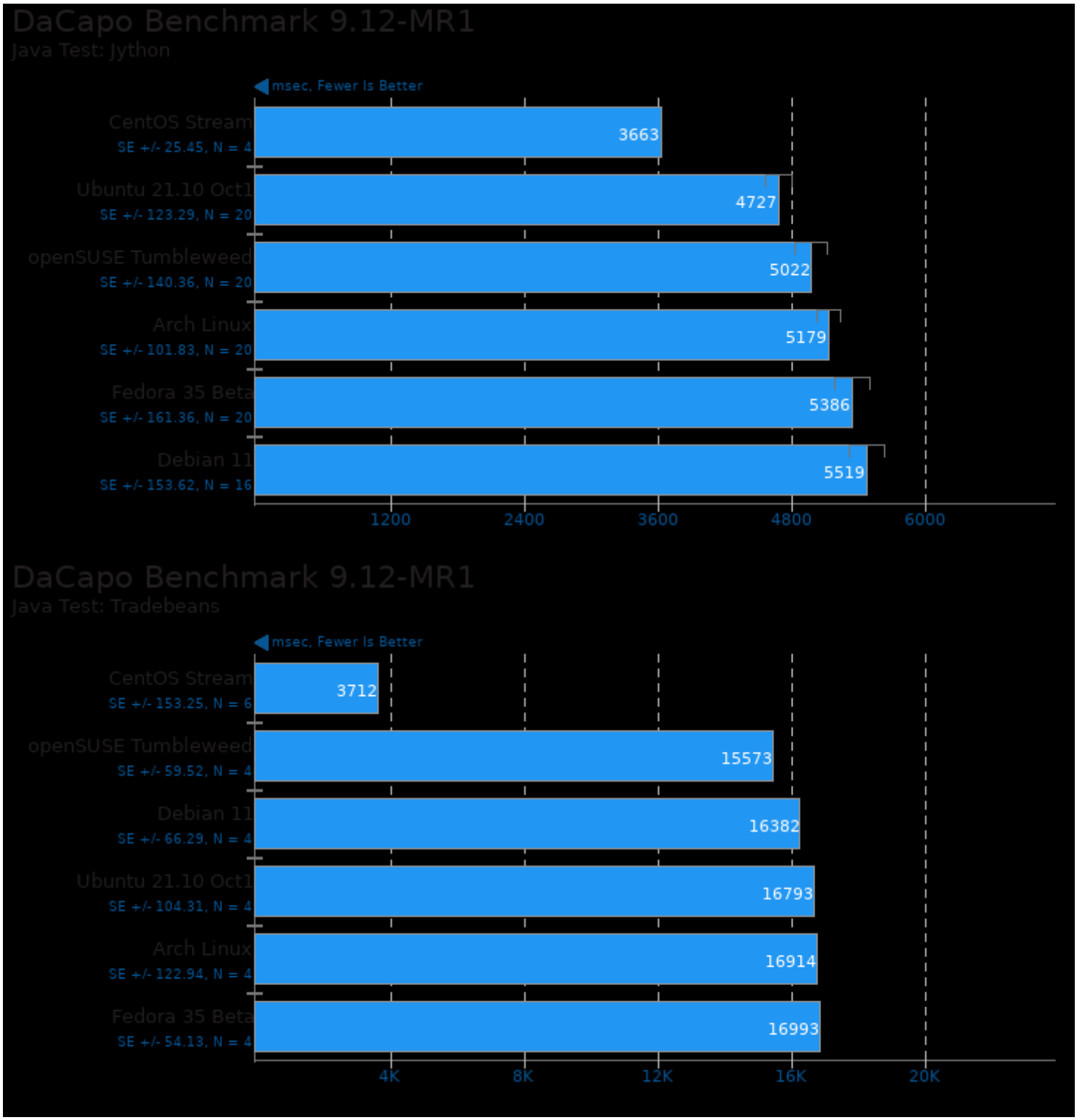

NCNN 20210720
Target: CPU - Model: squeezenet_ssd
ms, Fewer Is Better
Debian 11
SE +/- 0.12, N = 3
-pthread - MIN: 22.1 / MAX: 42.93
22.69
Arch Linux
SE +/- 0.22, N = 5
-pthread - MIN: 22.78 / MAX: 38.73
23.64
openSUSE Tumbleweed
SE +/- 0.17, N = 3
MIN: 23.05 / MAX: 47.6
23.74
Fedora 35 Beta
SE +/- 0.31, N = 3
MIN: 22.87 / MAX: 53.7
23.85
Ubuntu 21.10 Oct1
SE +/- 0.03, N = 3
MIN: 23.37 / MAX: 39.78
24.03
CentOS Stream
SE +/- 0.17, N = 8
-pthread - MIN: 23.67 / MAX: 211.3
24.79
6
12
18
24
30
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
NCNN 20210720
Target: CPU - Model: regnety_400m
ms, Fewer Is Better
Debian 11
SE +/- 0.15, N = 3
-pthread - MIN: 34.15 / MAX: 36.56
34.93
Arch Linux
SE +/- 0.30, N = 5
-pthread - MIN: 36.02 / MAX: 70.09
37.45
Ubuntu 21.10 Oct1
SE +/- 0.26, N = 3
MIN: 36.75 / MAX: 54
37.70
openSUSE Tumbleweed
SE +/- 0.37, N = 3
MIN: 36.58 / MAX: 220.13
37.77
Fedora 35 Beta
SE +/- 0.69, N = 3
MIN: 36.19 / MAX: 116.99
37.97
CentOS Stream
SE +/- 0.33, N = 8
-pthread - MIN: 36.43 / MAX: 179.96
38.04
9
18
27
36
45
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

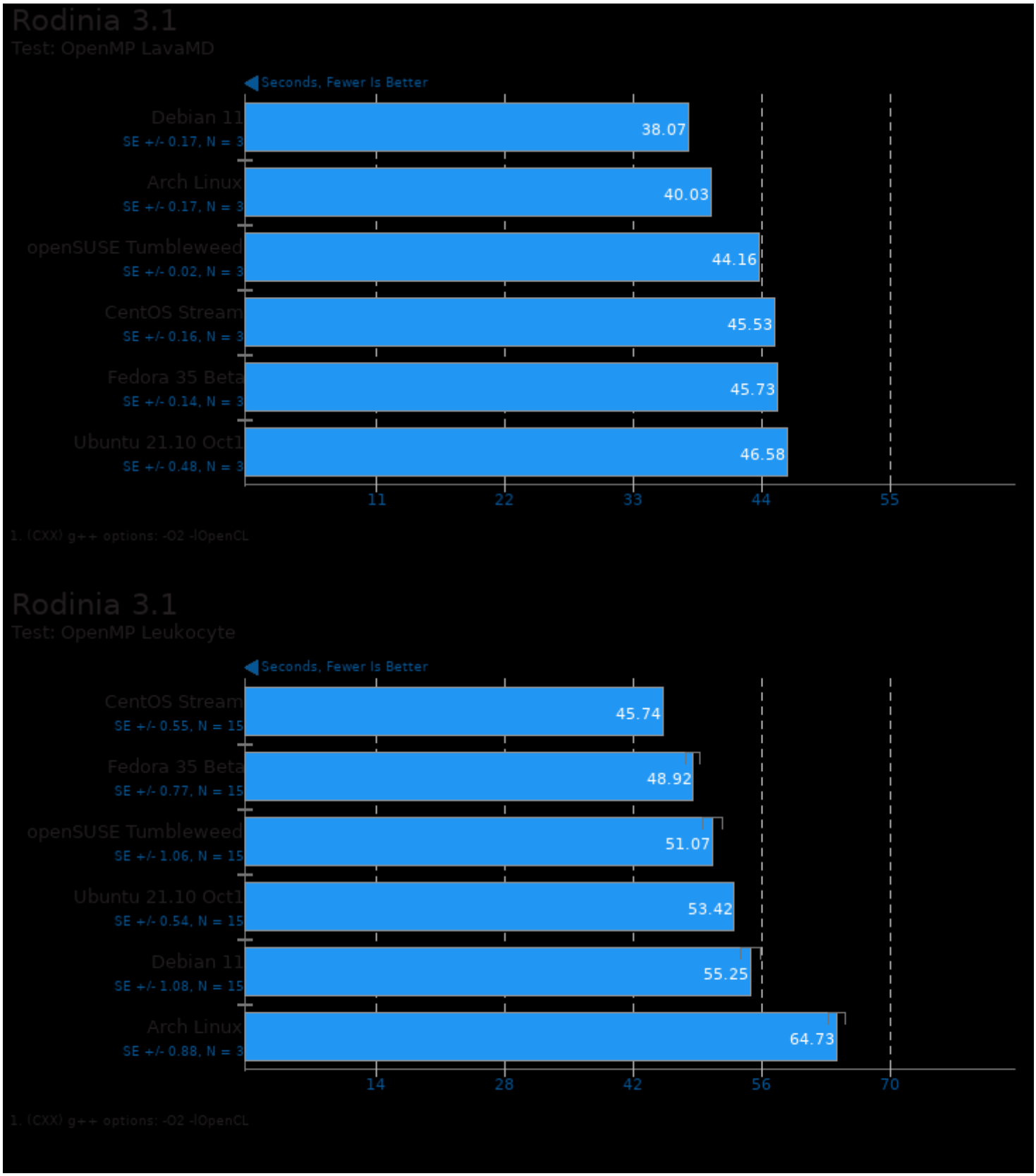

NCNN 20210720
Target: CPU-v3-v3 - Model: mobilenet-v3
ms, Fewer Is Better
Debian 11
SE +/- 0.05, N = 3
-pthread - MIN: 9.82 / MAX: 33.16
10.22
openSUSE Tumbleweed
SE +/- 0.06, N = 3
MIN: 10.89 / MAX: 35.32
11.43
Arch Linux
SE +/- 0.11, N = 5
-pthread - MIN: 10.82 / MAX: 59.58
11.43
CentOS Stream
SE +/- 0.19, N = 8
-pthread - MIN: 10.62 / MAX: 337.93
11.51
Ubuntu 21.10 Oct1
SE +/- 0.06, N = 3
MIN: 11.08 / MAX: 27.23
11.56
Fedora 35 Beta
SE +/- 0.16, N = 3
MIN: 11.15 / MAX: 87.96
11.66
3
6
9
12
15
1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread
TNN 0.3
Target: CPU - Model: DenseNet
ms, Fewer Is Better
CentOS Stream
SE +/- 1.82, N = 3
MIN: 3628.97 / MAX: 4137.58
3667.43
Debian 11
SE +/- 13.48, N = 3
MIN: 3811.63 / MAX: 5185.41
3892.99
openSUSE Tumbleweed
SE +/- 25.06, N = 3
MIN: 3844.12 / MAX: 5377.02
3940.13
Arch Linux
SE +/- 3.30, N = 3
MIN: 3819.84 / MAX: 5525.42
4020.37
Fedora 35 Beta
SE +/- 39.90, N = 3
MIN: 3864.4 / MAX: 6001.74
4130.78
Ubuntu 21.10 Oct1
SE +/- 42.45, N = 9
MIN: 3855.45 / MAX: 5657.12
4538.95
1000
2000
3000
4000
5000
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -fvisibility=default -O3 -rdynamic -ldl

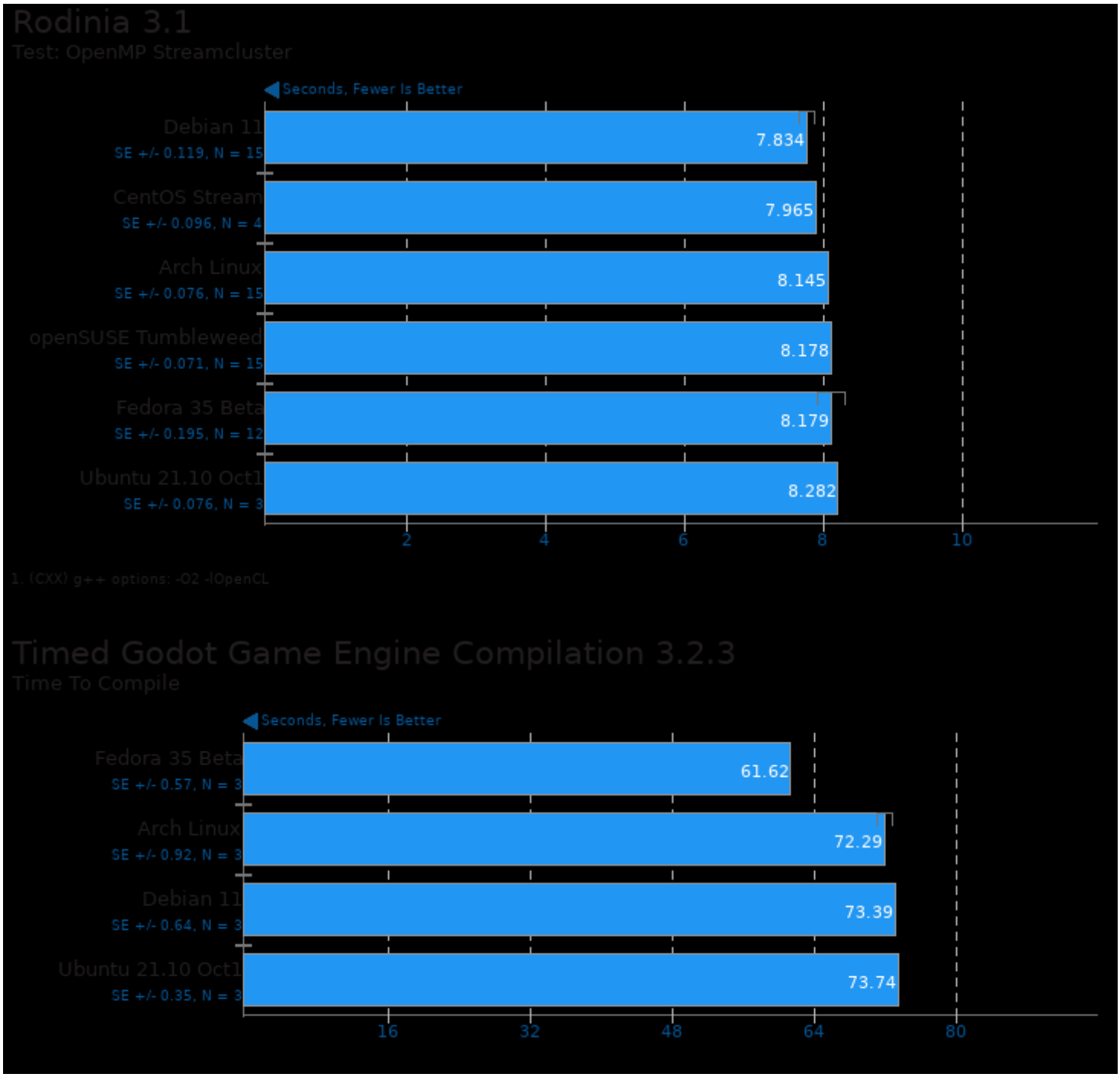

TNN 0.3
Target: CPU - Model: MobileNet v2
ms, Fewer Is Better
CentOS Stream
SE +/- 0.27, N = 3
MIN: 362.78 / MAX: 370.76
365.19
Debian 11
SE +/- 3.53, N = 3
MIN: 369.96 / MAX: 529.5
375.46
Arch Linux
SE +/- 3.02, N = 3
MIN: 370.24 / MAX: 530.56
376.36
openSUSE Tumbleweed
SE +/- 4.98, N = 15
MIN: 368.91 / MAX: 634.27
383.43
Fedora 35 Beta
SE +/- 2.74, N = 3
MIN: 370.89 / MAX: 614
396.22
Ubuntu 21.10 Oct1
SE +/- 9.53, N = 15
MIN: 372.63 / MAX: 552.29
442.00
100
200
300
400
500
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -fvisibility=default -O3 -rdynamic -ldl
TNN 0.3
Target: CPU - Model: SqueezeNet v2
ms, Fewer Is Better
Debian 11
SE +/- 0.65, N = 3
MIN: 72.31 / MAX: 109.8
73.83
CentOS Stream
SE +/- 0.12, N = 3
MIN: 73.36 / MAX: 74.71
73.94
Fedora 35 Beta
SE +/- 0.68, N = 3
MIN: 73.16 / MAX: 108.66
74.02
Arch Linux
SE +/- 0.06, N = 3
MIN: 73.93 / MAX: 77.02
74.83
openSUSE Tumbleweed
SE +/- 0.97, N = 3
MIN: 73.54 / MAX: 109.89
74.83
Ubuntu 21.10 Oct1
SE +/- 0.73, N = 3
MIN: 74.8 / MAX: 111.63
76.86
20
40
60
80
100
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -fvisibility=default -O3 -rdynamic -ldl

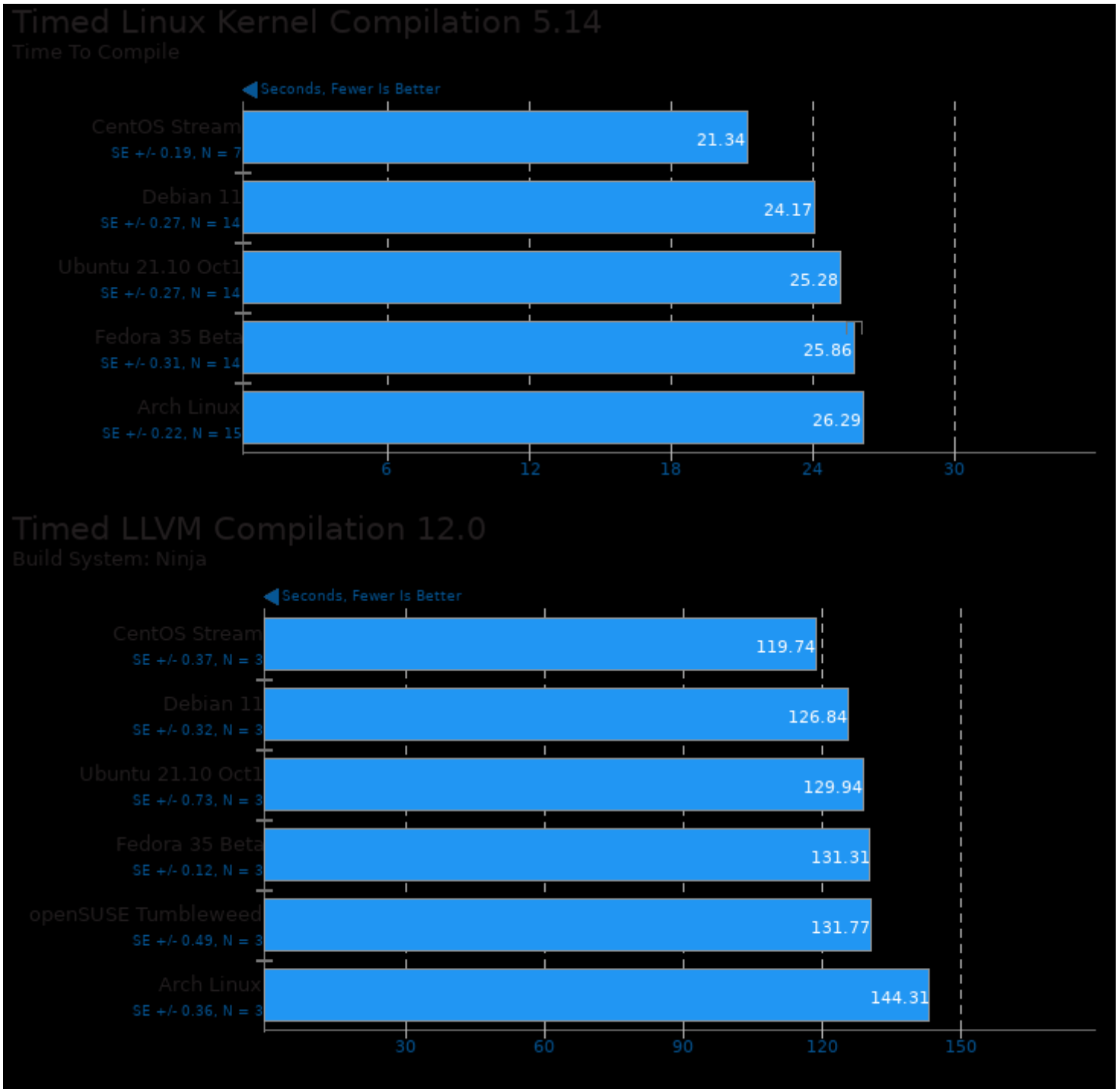

TNN 0.3
Target: CPU - Model: SqueezeNet v1.1
ms, Fewer Is Better
openSUSE Tumbleweed
SE +/- 0.10, N = 3
MIN: 365.33 / MAX: 366.76
365.69
Fedora 35 Beta
SE +/- 0.23, N = 3
MIN: 365.87 / MAX: 368.51
366.32
Debian 11
SE +/- 0.27, N = 3
MIN: 365.35 / MAX: 369.09
366.34
CentOS Stream
SE +/- 0.52, N = 3
MIN: 366.07 / MAX: 368.88
367.41
Arch Linux
SE +/- 0.04, N = 3
MIN: 365.54 / MAX: 372
368.11
Ubuntu 21.10 Oct1
SE +/- 0.09, N = 3
MIN: 366.43 / MAX: 370.9
368.22
80
160
240
320
400
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -fvisibility=default -O3 -rdynamic -ldl
PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency
ms, Fewer Is Better
Debian 11
SE +/- 0.003, N = 3
0.263
Fedora 35 Beta
SE +/- 0.002, N = 7
0.267
Ubuntu 21.10 Oct1
SE +/- 0.003, N = 12
0.269
Arch Linux
SE +/- 0.003, N = 12
0.272
openSUSE Tumbleweed
SE +/- 0.009, N = 12
0.282
CentOS Stream
SE +/- 11.761, N = 12
-lpthread -lrt -ldl
86.115
20
40
60
80
100
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

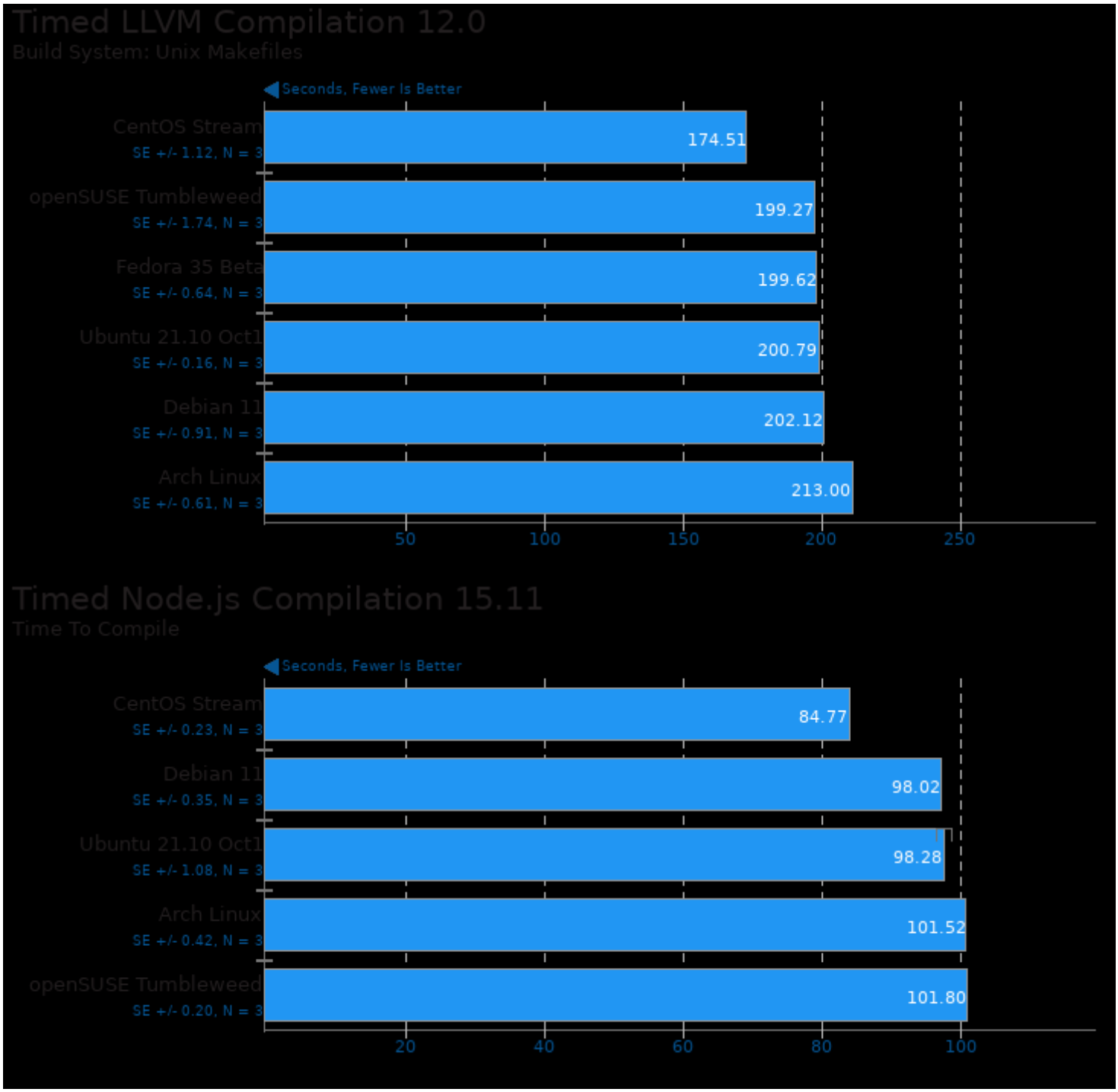

PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 500 - Mode: Read Write - Average Latency
ms, Fewer Is Better
Arch Linux
SE +/- 0.014, N = 3
5.747
Ubuntu 21.10 Oct1
SE +/- 0.016, N = 3
16.270
Fedora 35 Beta
SE +/- 0.010, N = 3
18.292
Debian 11
SE +/- 0.145, N = 3
21.268
openSUSE Tumbleweed
SE +/- 0.293, N = 3
50.652
CentOS Stream
SE +/- 292.348, N = 12
-lpthread -lrt -ldl
1152.338
200
400
600
800
1000
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm
DaCapo Benchmark 9.12-MR1
Java Test: H2
msec, Fewer Is Better
CentOS Stream
SE +/- 59.07, N = 17
3706
openSUSE Tumbleweed
SE +/- 86.76, N = 7
9579
Debian 11
SE +/- 34.71, N = 4
9850
Arch Linux
SE +/- 16.01, N = 4
10518
Ubuntu 21.10 Oct1
SE +/- 60.40, N = 4
10704
Fedora 35 Beta
SE +/- 92.48, N = 4
10776
2K
4K
6K
8K
10K

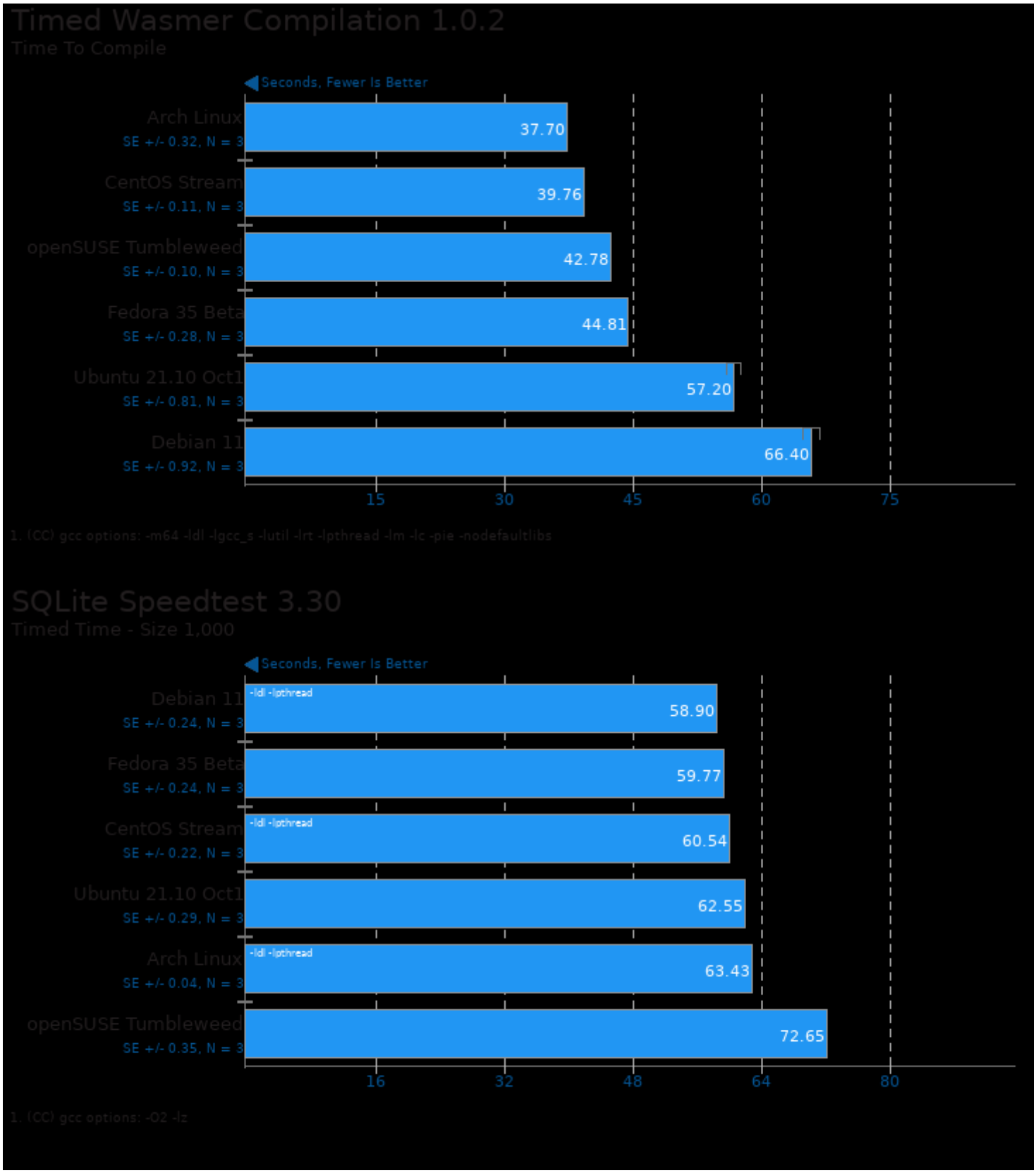

DaCapo Benchmark 9.12-MR1
Java Test: Jython
msec, Fewer Is Better
CentOS Stream
SE +/- 25.45, N = 4
3663
Ubuntu 21.10 Oct1
SE +/- 123.29, N = 20
4727
openSUSE Tumbleweed
SE +/- 140.36, N = 20
5022
Arch Linux
SE +/- 101.83, N = 20
5179
Fedora 35 Beta
SE +/- 161.36, N = 20
5386
Debian 11
SE +/- 153.62, N = 16
5519
1200
2400
3600
4800
6000
DaCapo Benchmark 9.12-MR1
Java Test: Tradebeans
msec, Fewer Is Better
CentOS Stream
SE +/- 153.25, N = 6
3712
openSUSE Tumbleweed
SE +/- 59.52, N = 4
15573
Debian 11
SE +/- 66.29, N = 4
16382
Ubuntu 21.10 Oct1
SE +/- 104.31, N = 4
16793
Arch Linux
SE +/- 122.94, N = 4
16914
Fedora 35 Beta
SE +/- 54.13, N = 4
16993
4K
8K
12K
16K
20K

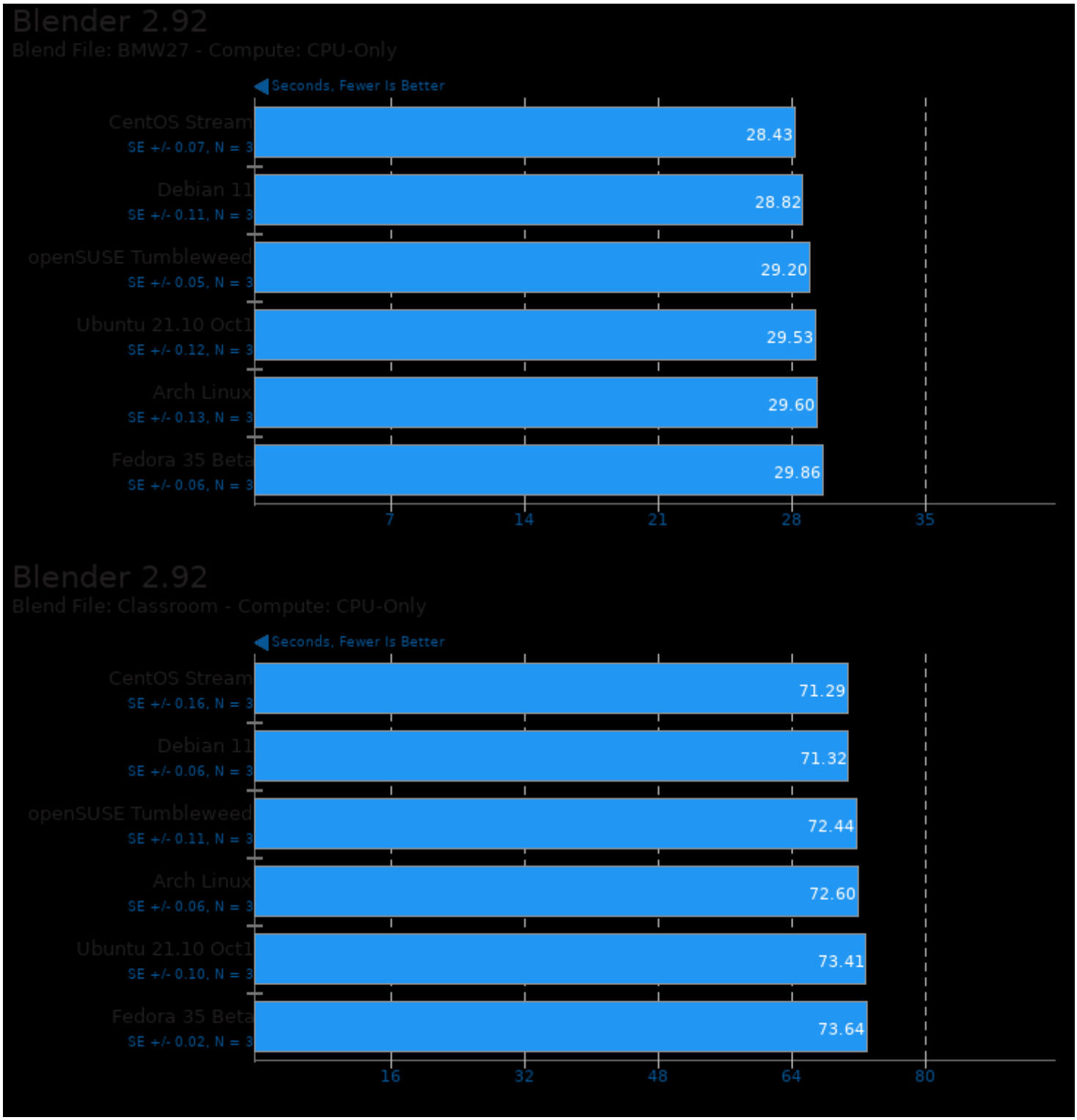

Rodinia 3.1
Test: OpenMP LavaMD
Seconds, Fewer Is Better
Debian 11
SE +/- 0.17, N = 3
38.07
Arch Linux
SE +/- 0.17, N = 3
40.03
openSUSE Tumbleweed
SE +/- 0.02, N = 3
44.16
CentOS Stream
SE +/- 0.16, N = 3
45.53
Fedora 35 Beta
SE +/- 0.14, N = 3
45.73
Ubuntu 21.10 Oct1
SE +/- 0.48, N = 3
46.58
11
22
33
44
55
1. (CXX) g++ options: -O2 -lOpenCL
Rodinia 3.1
Test: OpenMP Leukocyte
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.55, N = 15
45.74
Fedora 35 Beta
SE +/- 0.77, N = 15
48.92
openSUSE Tumbleweed
SE +/- 1.06, N = 15
51.07
Ubuntu 21.10 Oct1
SE +/- 0.54, N = 15
53.42
Debian 11
SE +/- 1.08, N = 15
55.25
Arch Linux
SE +/- 0.88, N = 3
64.73
14
28
42
56
70
1. (CXX) g++ options: -O2 -lOpenCL

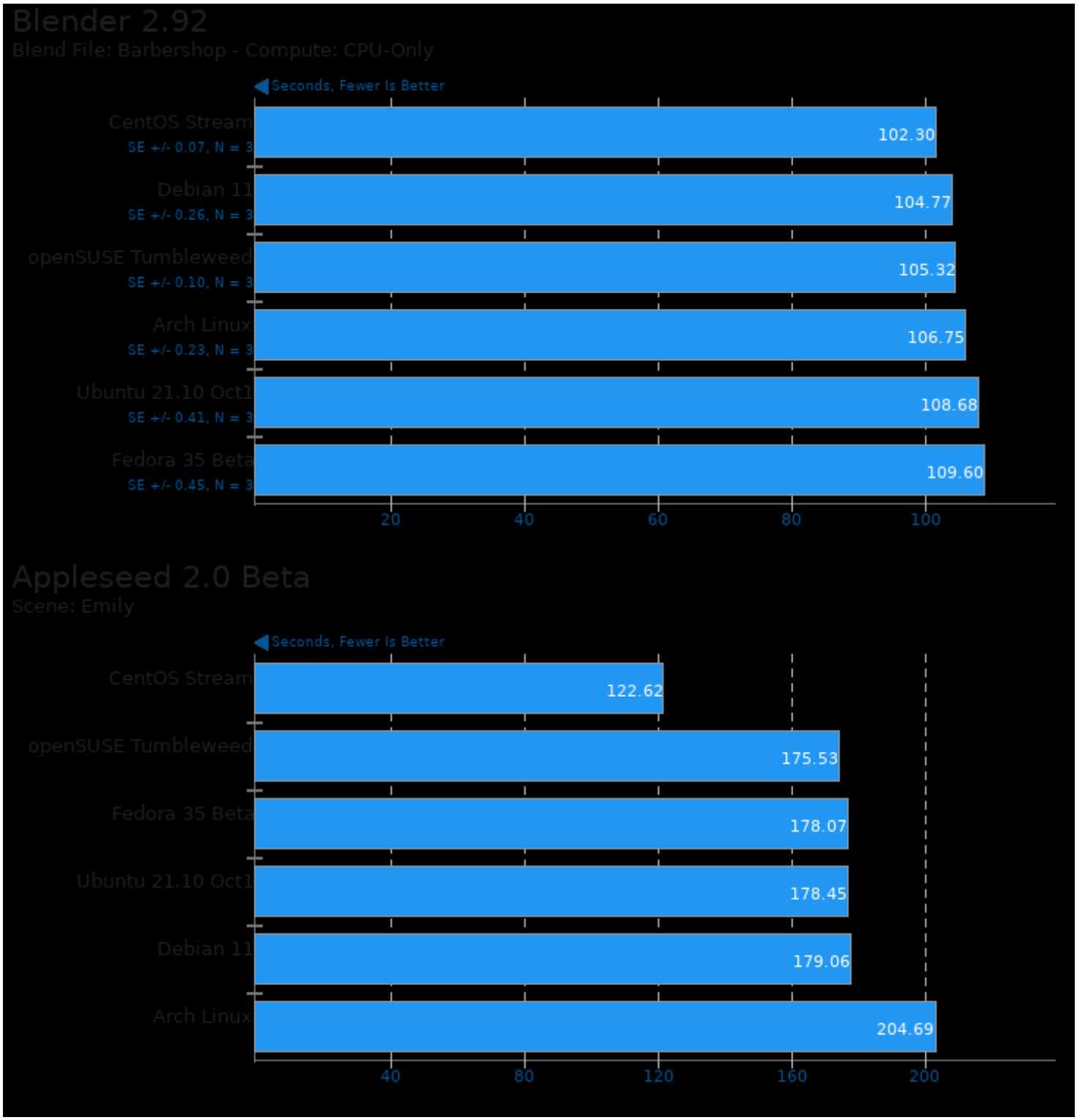

Rodinia 3.1
Test: OpenMP Streamcluster
Seconds, Fewer Is Better
Debian 11
SE +/- 0.119, N = 15
7.834
CentOS Stream
SE +/- 0.096, N = 4
7.965
Arch Linux
SE +/- 0.076, N = 15
8.145
openSUSE Tumbleweed
SE +/- 0.071, N = 15
8.178
Fedora 35 Beta
SE +/- 0.195, N = 12
8.179
Ubuntu 21.10 Oct1
SE +/- 0.076, N = 3
8.282
2
4
6
8
10
1. (CXX) g++ options: -O2 -lOpenCL
Timed Godot Game Engine Compilation 3.2.3
Time To Compile
Seconds, Fewer Is Better
Fedora 35 Beta
SE +/- 0.57, N = 3
61.62
Arch Linux
SE +/- 0.92, N = 3
72.29
Debian 11
SE +/- 0.64, N = 3
73.39
Ubuntu 21.10 Oct1
SE +/- 0.35, N = 3
73.74
16
32
48
64
80

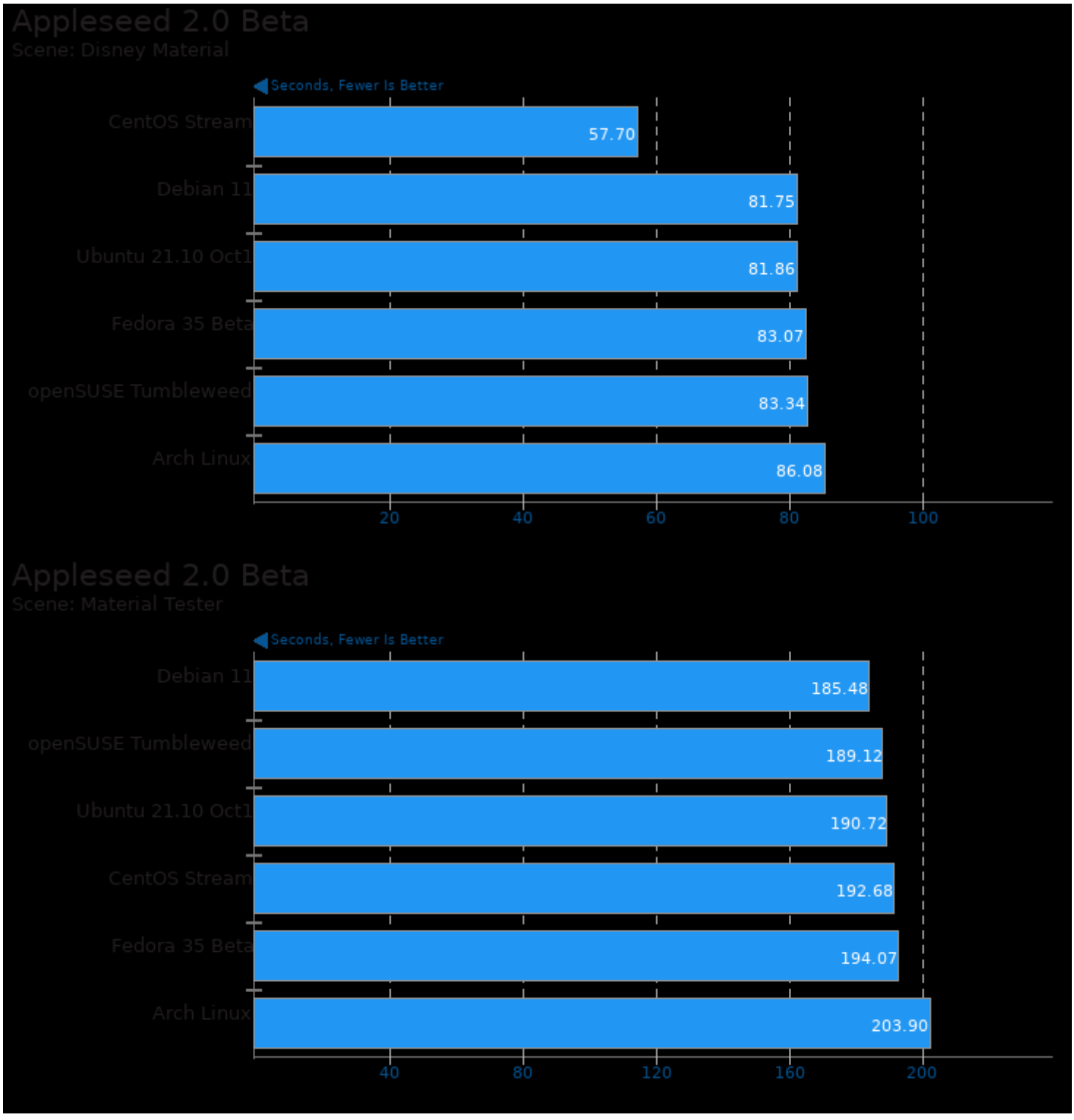

Timed Linux Kernel Compilation 5.14
Time To Compile
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.19, N = 7
21.34
Debian 11
SE +/- 0.27, N = 14
24.17
Ubuntu 21.10 Oct1
SE +/- 0.27, N = 14
25.28
Fedora 35 Beta
SE +/- 0.31, N = 14
25.86
Arch Linux
SE +/- 0.22, N = 15
26.29
6
12
18
24
30
Timed LLVM Compilation 12.0
Build System: Ninja
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.37, N = 3
119.74
Debian 11
SE +/- 0.32, N = 3
126.84
Ubuntu 21.10 Oct1
SE +/- 0.73, N = 3
129.94
Fedora 35 Beta
SE +/- 0.12, N = 3
131.31
openSUSE Tumbleweed
SE +/- 0.49, N = 3
131.77
Arch Linux
SE +/- 0.36, N = 3
144.31
30
60
90
120
150

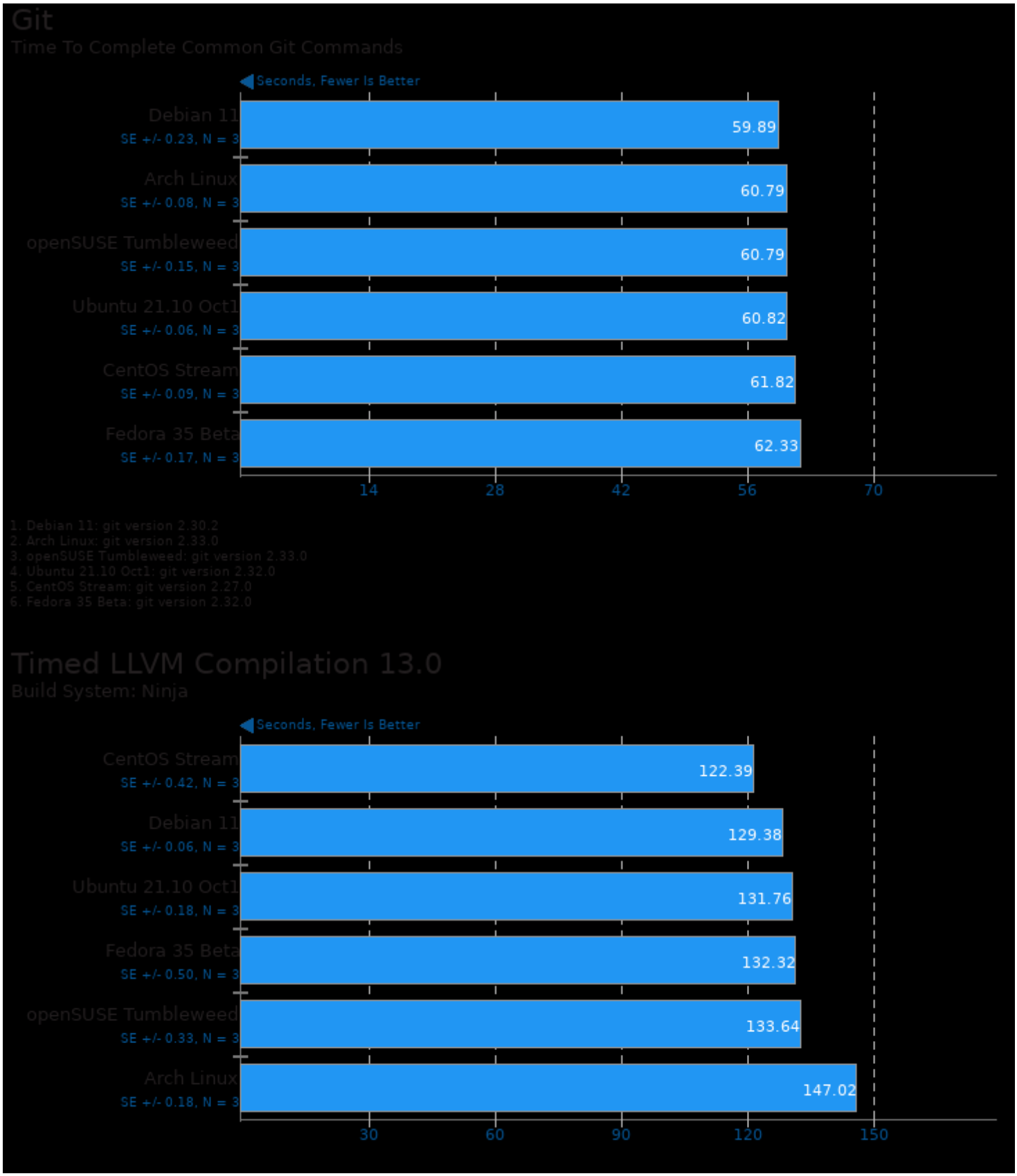

Timed LLVM Compilation 12.0
Build System: Unix Makefiles
Seconds, Fewer Is Better
CentOS Stream
SE +/- 1.12, N = 3
174.51
openSUSE Tumbleweed
SE +/- 1.74, N = 3
199.27
Fedora 35 Beta
SE +/- 0.64, N = 3
199.62
Ubuntu 21.10 Oct1
SE +/- 0.16, N = 3
200.79
Debian 11
SE +/- 0.91, N = 3
202.12
Arch Linux
SE +/- 0.61, N = 3
213.00
50
100
150
200
250
Timed Node.js Compilation 15.11
Time To Compile
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.23, N = 3
84.77
Debian 11
SE +/- 0.35, N = 3
98.02
Ubuntu 21.10 Oct1
SE +/- 1.08, N = 3
98.28
Arch Linux
SE +/- 0.42, N = 3
101.52
openSUSE Tumbleweed
SE +/- 0.20, N = 3
101.80
20
40
60
80
100

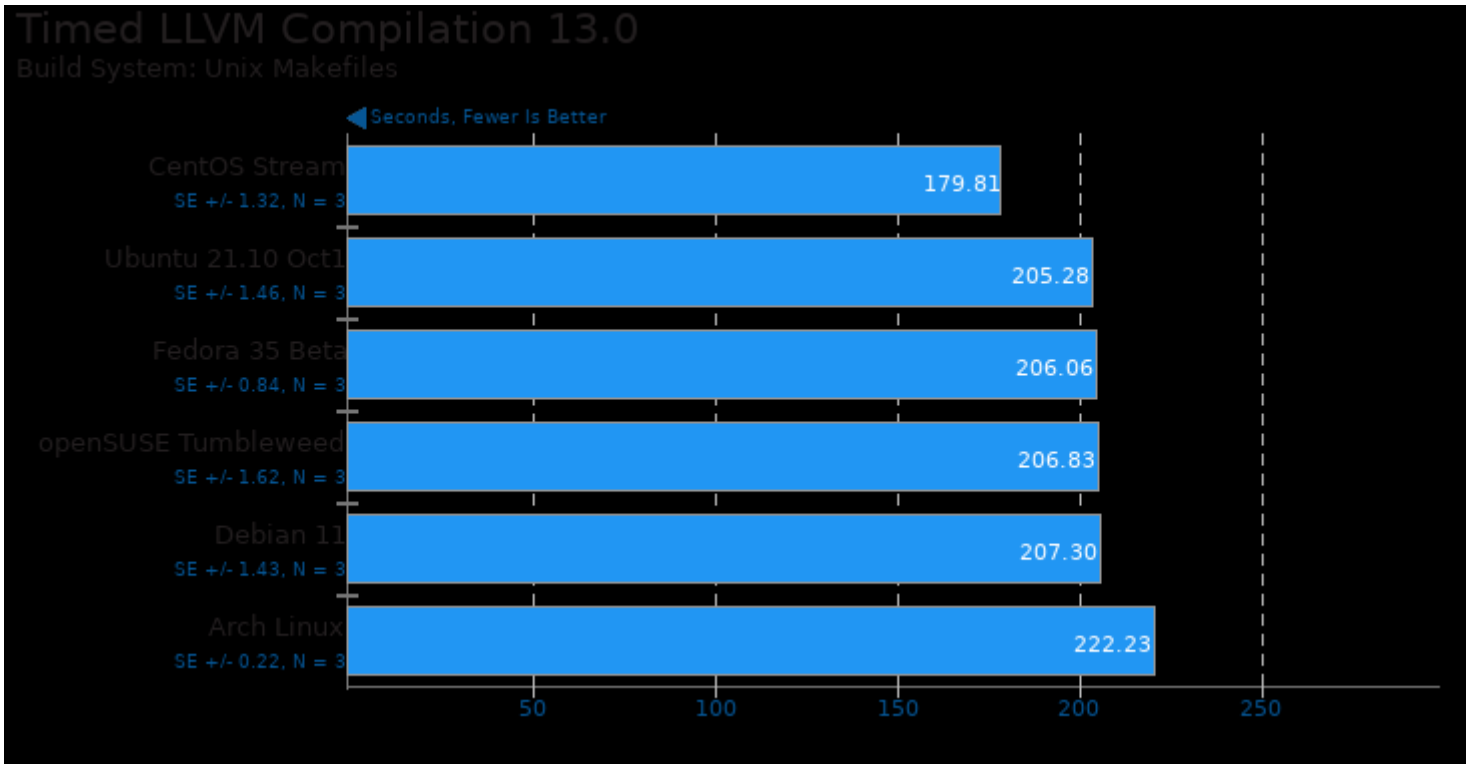

Timed Wasmer Compilation 1.0.2
Time To Compile
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.32, N = 3
37.70
CentOS Stream
SE +/- 0.11, N = 3
39.76
openSUSE Tumbleweed
SE +/- 0.10, N = 3
42.78
Fedora 35 Beta
SE +/- 0.28, N = 3
44.81
Ubuntu 21.10 Oct1
SE +/- 0.81, N = 3
57.20
Debian 11
SE +/- 0.92, N = 3
66.40
15
30
45
60
75
1. (CC) gcc options: -m64 -ldl -lgcc_s -lutil -lrt -lpthread -lm -lc -pie -nodefaultlibs
SQLite Speedtest 3.30
Timed Time - Size 1,000
Seconds, Fewer Is Better
Debian 11
SE +/- 0.24, N = 3
-ldl -lpthread
58.90
Fedora 35 Beta
SE +/- 0.24, N = 3
59.77
CentOS Stream
SE +/- 0.22, N = 3
-ldl -lpthread
60.54
Ubuntu 21.10 Oct1
SE +/- 0.29, N = 3
62.55
Arch Linux
SE +/- 0.04, N = 3
-ldl -lpthread
63.43
openSUSE Tumbleweed
SE +/- 0.35, N = 3
72.65
16
32
48
64
80
1. (CC) gcc options: -O2 -lz


Blender 2.92
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.07, N = 3
28.43
Debian 11
SE +/- 0.11, N = 3
28.82
openSUSE Tumbleweed
SE +/- 0.05, N = 3
29.20
Ubuntu 21.10 Oct1
SE +/- 0.12, N = 3
29.53
Arch Linux
SE +/- 0.13, N = 3
29.60
Fedora 35 Beta
SE +/- 0.06, N = 3
29.86
7
14
21
28
35
Blender 2.92
Blend File: Classroom - Compute: CPU-Only
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.16, N = 3
71.29
Debian 11
SE +/- 0.06, N = 3
71.32
openSUSE Tumbleweed
SE +/- 0.11, N = 3
72.44
Arch Linux
SE +/- 0.06, N = 3
72.60
Ubuntu 21.10 Oct1
SE +/- 0.10, N = 3
73.41
Fedora 35 Beta
SE +/- 0.02, N = 3
73.64
16
32
48
64
80

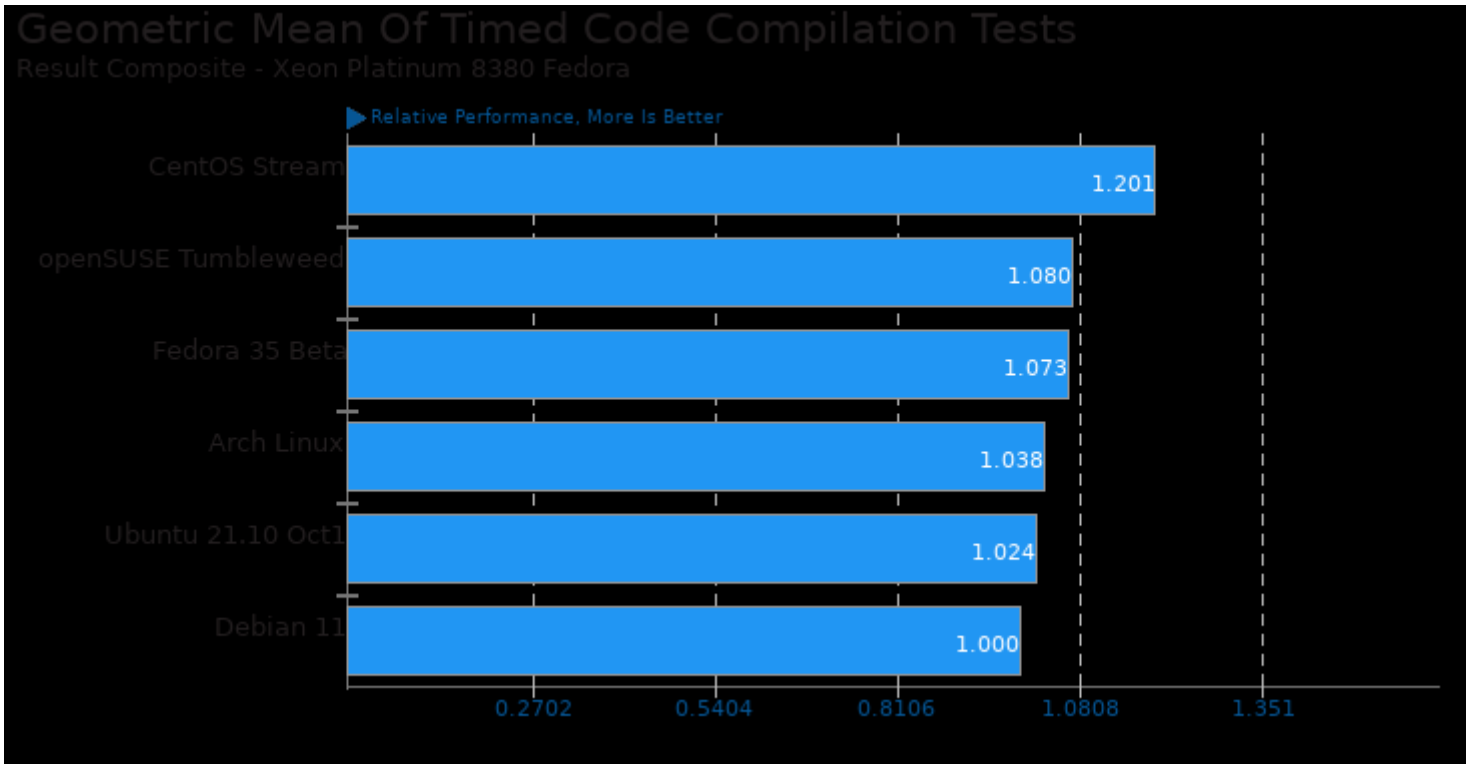

Blender 2.92
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.07, N = 3
102.30
Debian 11
SE +/- 0.26, N = 3
104.77
openSUSE Tumbleweed
SE +/- 0.10, N = 3
105.32
Arch Linux
SE +/- 0.23, N = 3
106.75
Ubuntu 21.10 Oct1
SE +/- 0.41, N = 3
108.68
Fedora 35 Beta
SE +/- 0.45, N = 3
109.60
20
40
60
80
100
Appleseed 2.0 Beta
Scene: Emily
Seconds, Fewer Is Better
CentOS Stream
122.62
openSUSE Tumbleweed
175.53
Fedora 35 Beta
178.07
Ubuntu 21.10 Oct1
178.45
Debian 11
179.06
Arch Linux
204.69
40
80
120
160
200


Appleseed 2.0 Beta
Scene: Disney Material
Seconds, Fewer Is Better
CentOS Stream
Debian 11
Ubuntu 21.10 Oct1
Fedora 35 Beta
openSUSE Tumbleweed
Arch Linux
57.70
81.75
81.86
83.07
83.34
86.08
20
40
60
80
100
Appleseed 2.0 Beta
Scene: Material Tester
Seconds, Fewer Is Better
Debian 11
openSUSE Tumbleweed
Ubuntu 21.10 Oct1
CentOS Stream
Fedora 35 Beta
Arch Linux
185.48
189.12
190.72
192.68
194.07
203.90
40
80
120
160
200

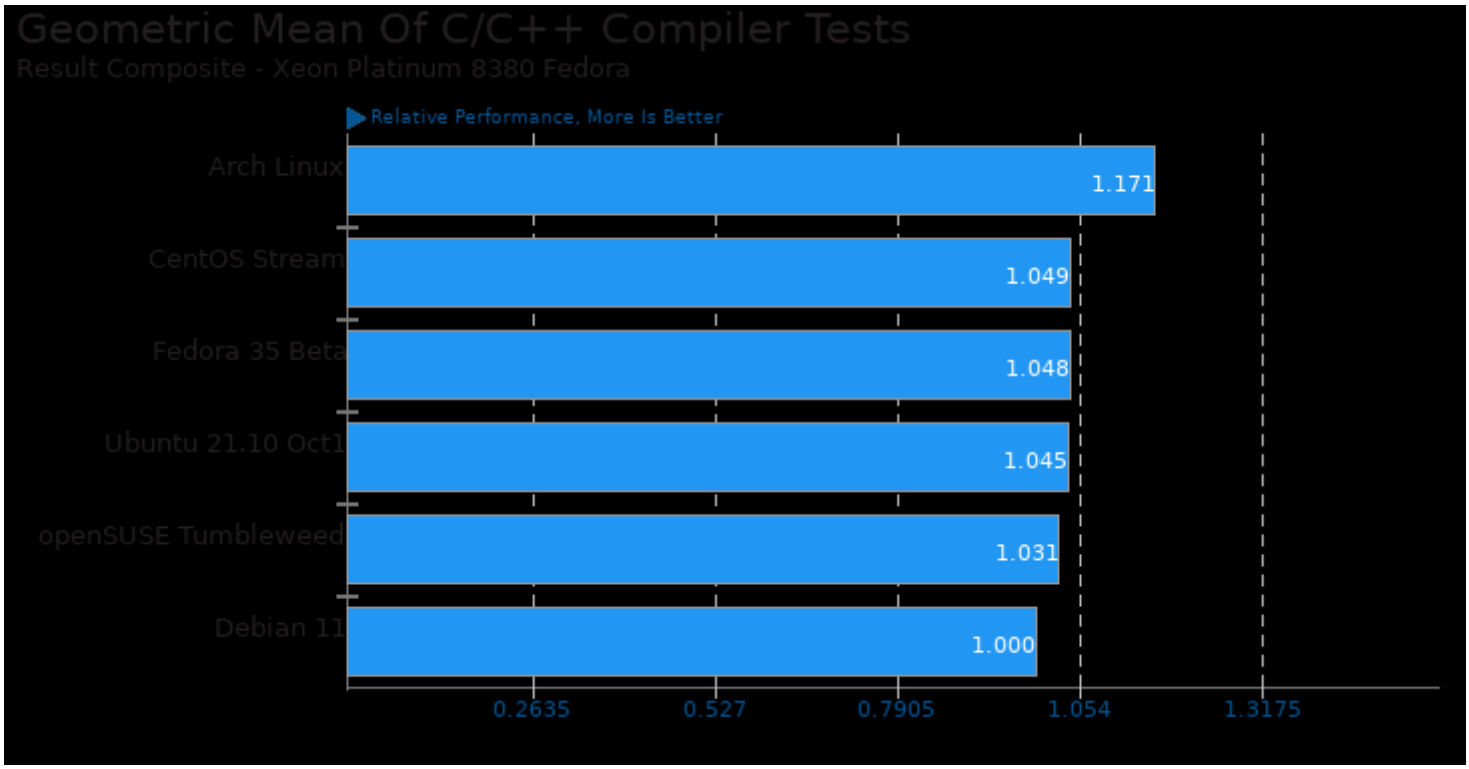

Git
Time To Complete Common Git Commands
Seconds, Fewer Is Better
Debian 11
SE +/- 0.23, N = 3
59.89
Arch Linux
SE +/- 0.08, N = 3
60.79
openSUSE Tumbleweed
SE +/- 0.15, N = 3
60.79
Ubuntu 21.10 Oct1
SE +/- 0.06, N = 3
60.82
CentOS Stream
SE +/- 0.09, N = 3
61.82
Fedora 35 Beta
SE +/- 0.17, N = 3
62.33
14
28
42
56
70
1. Debian 11: git version 2.30.2
2. Arch Linux: git version 2.33.0
3. openSUSE Tumbleweed: git version 2.33.0
4. Ubuntu 21.10 Oct1: git version 2.32.0
5. CentOS Stream: git version 2.27.0
6. Fedora 35 Beta: git version 2.32.0
Timed LLVM Compilation 13.0
Build System: Ninja
Seconds, Fewer Is Better
CentOS Stream
SE +/- 0.42, N = 3
122.39
Debian 11
SE +/- 0.06, N = 3
129.38
Ubuntu 21.10 Oct1
SE +/- 0.18, N = 3
131.76
Fedora 35 Beta
SE +/- 0.50, N = 3
132.32
openSUSE Tumbleweed
SE +/- 0.33, N = 3
133.64
Arch Linux
SE +/- 0.18, N = 3
147.02
30
60
90
120
150


Timed LLVM Compilation 13.0
Build System: Unix Makefiles
Seconds, Fewer Is Better
CentOS Stream
SE +/- 1.32, N = 3
179.81
Ubuntu 21.10 Oct1
SE +/- 1.46, N = 3
205.28
Fedora 35 Beta
SE +/- 0.84, N = 3
206.06
openSUSE Tumbleweed
SE +/- 1.62, N = 3
206.83
Debian 11
SE +/- 1.43, N = 3
207.30
Arch Linux
SE +/- 0.22, N = 3
222.23
50
100
150
200
250

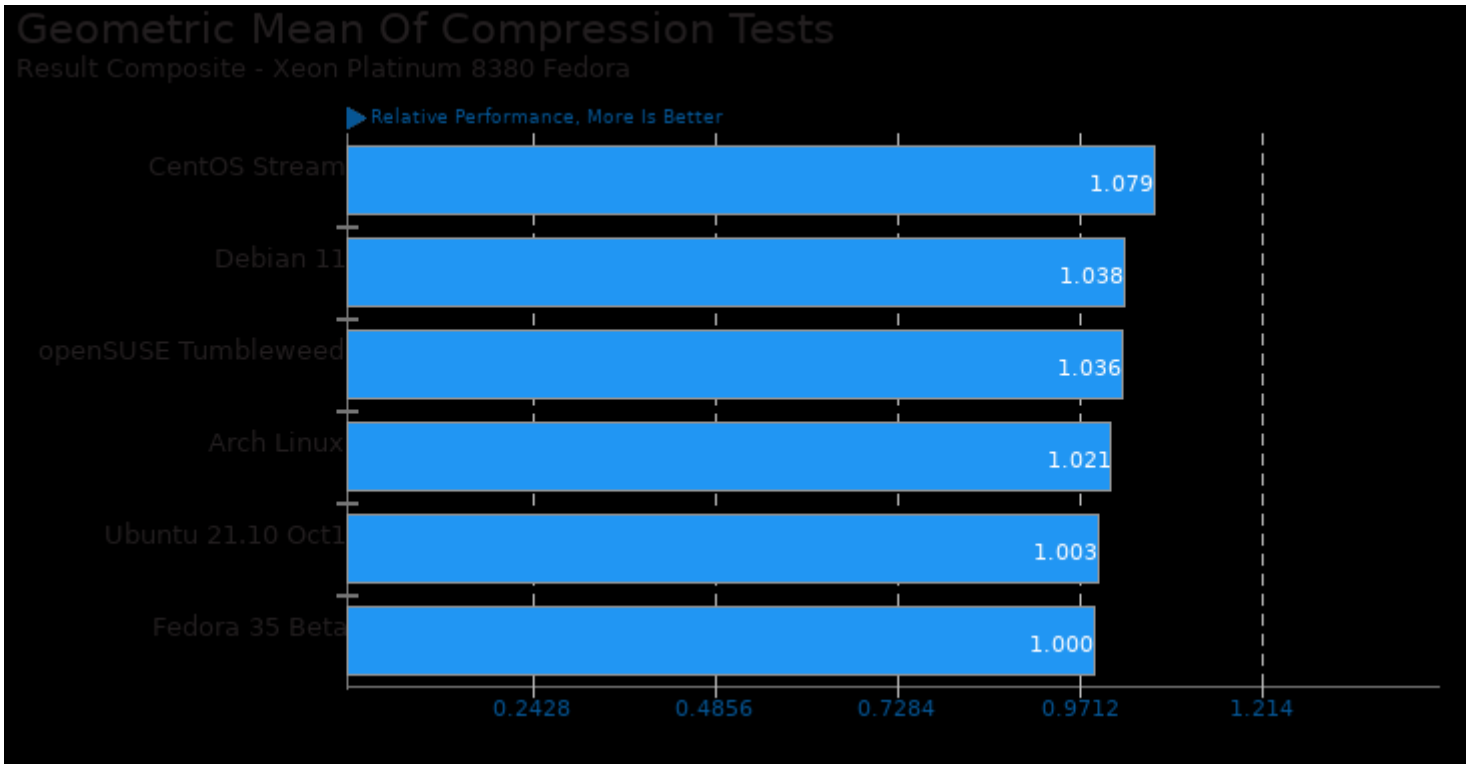
These geometric means are based upon test groupings / test suites for this result file.



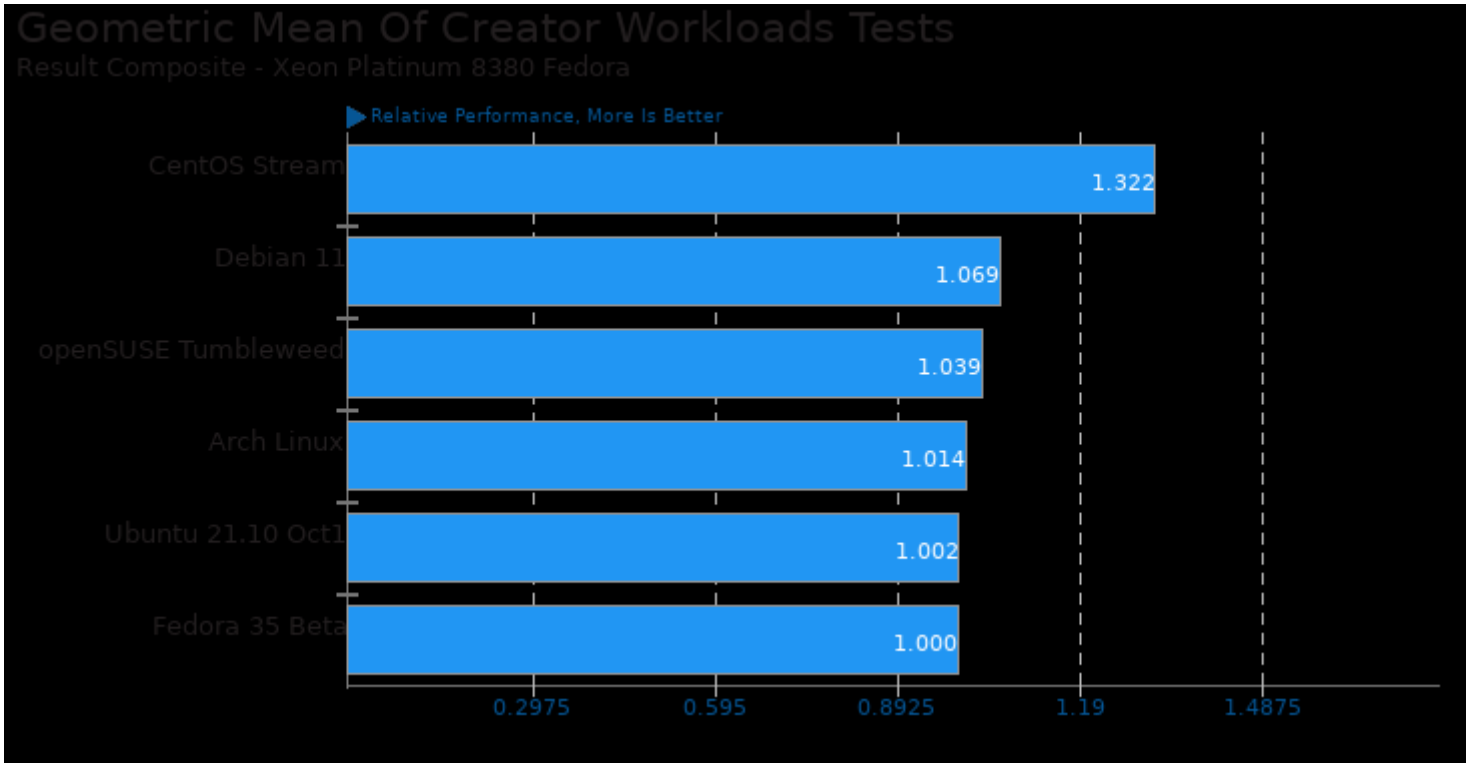
Geometric mean based upon tests: pts/build-linux-kernel, pts/build-llvm, pts/build-godot, pts/build-wasmer and pts/build-nodejs



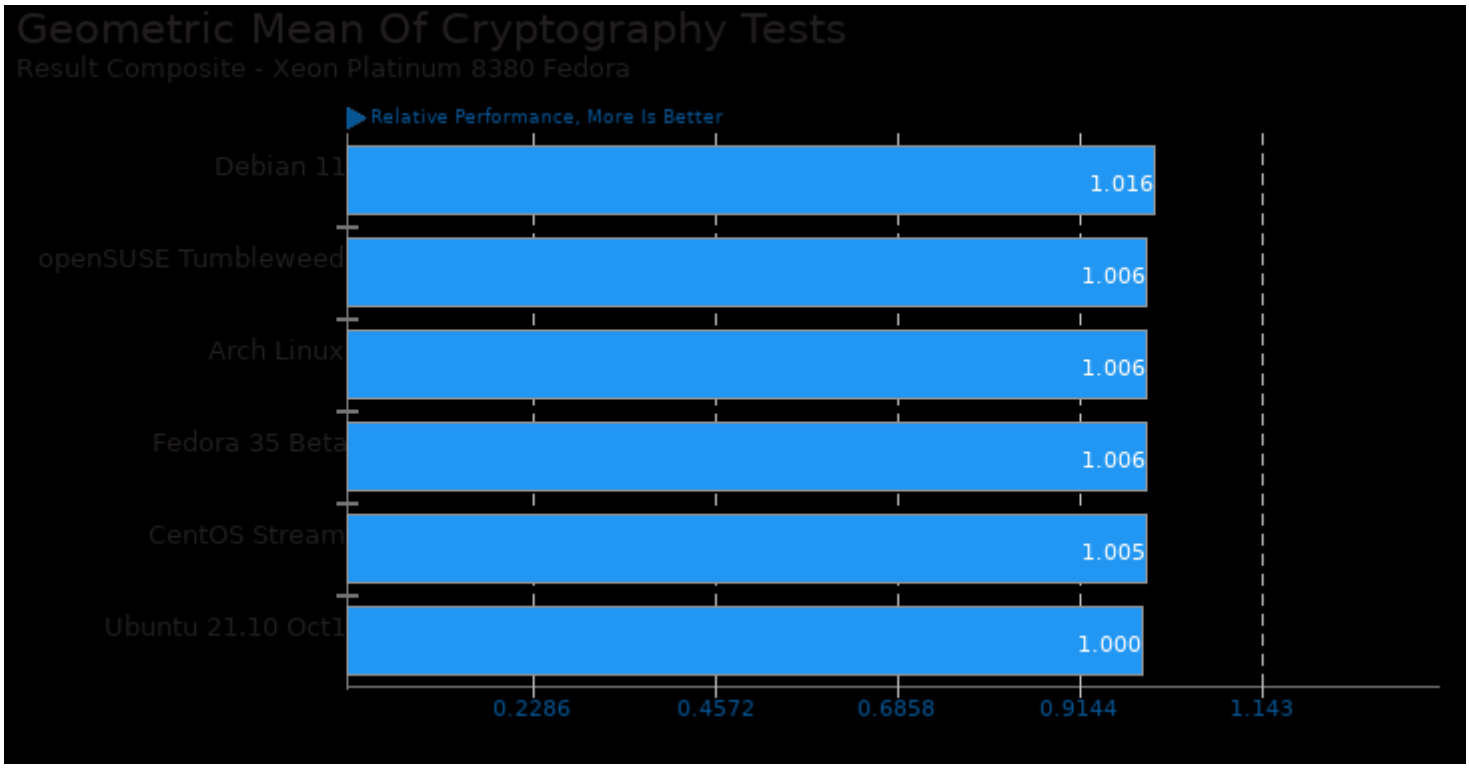
Geometric mean based upon tests: pts/stockfish, pts/build-llvm, pts/compress-7zip, pts/pgbench, pts/apache, pts/sqlite-speedtest, pts/x265, pts/compress-zstd, pts/openssl, pts/nginx, pts/svt-av1, pts/svt-vp9, pts/gromacs and pts/leveldb



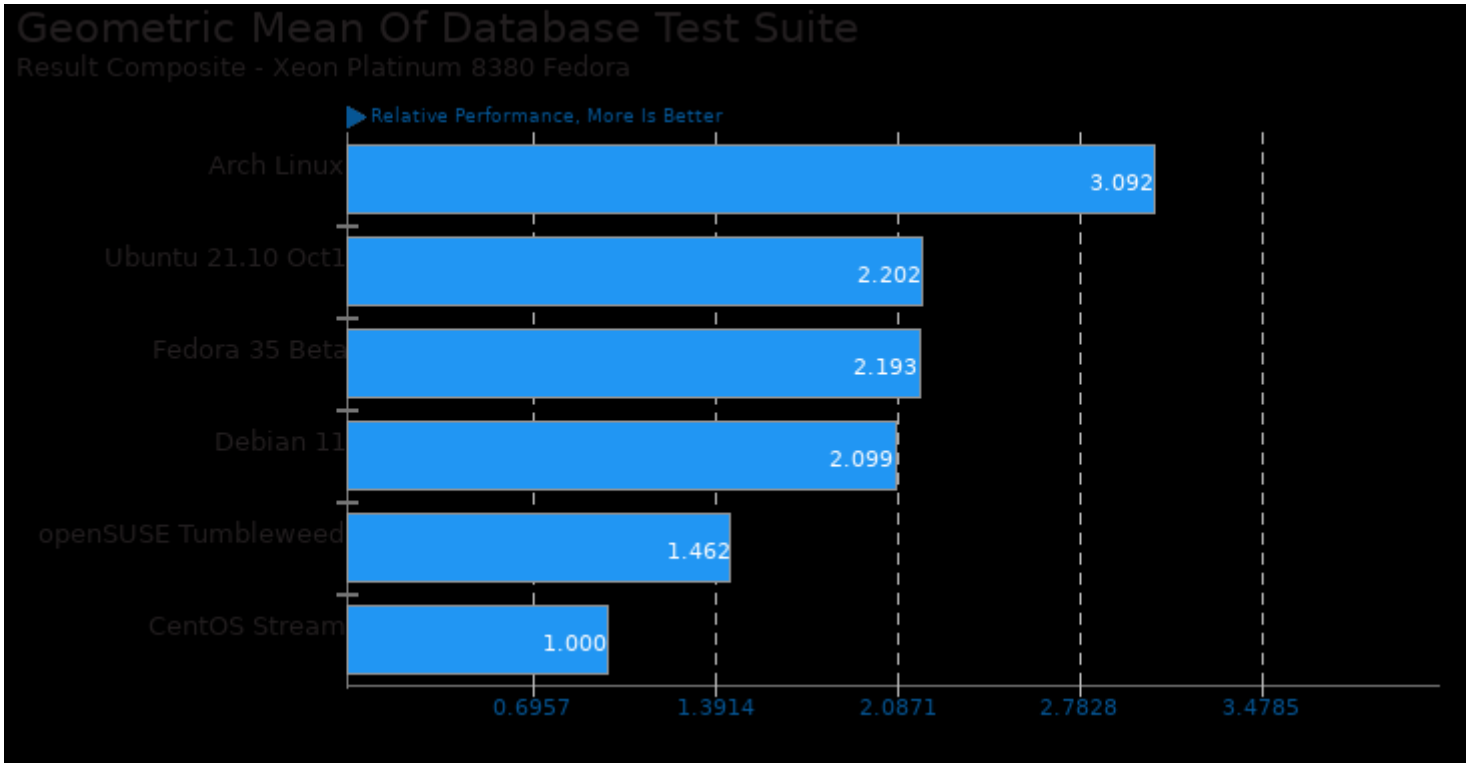
Geometric mean based upon tests: pts/compress-7zip, pts/compress-zstd and pts/compress-lz4



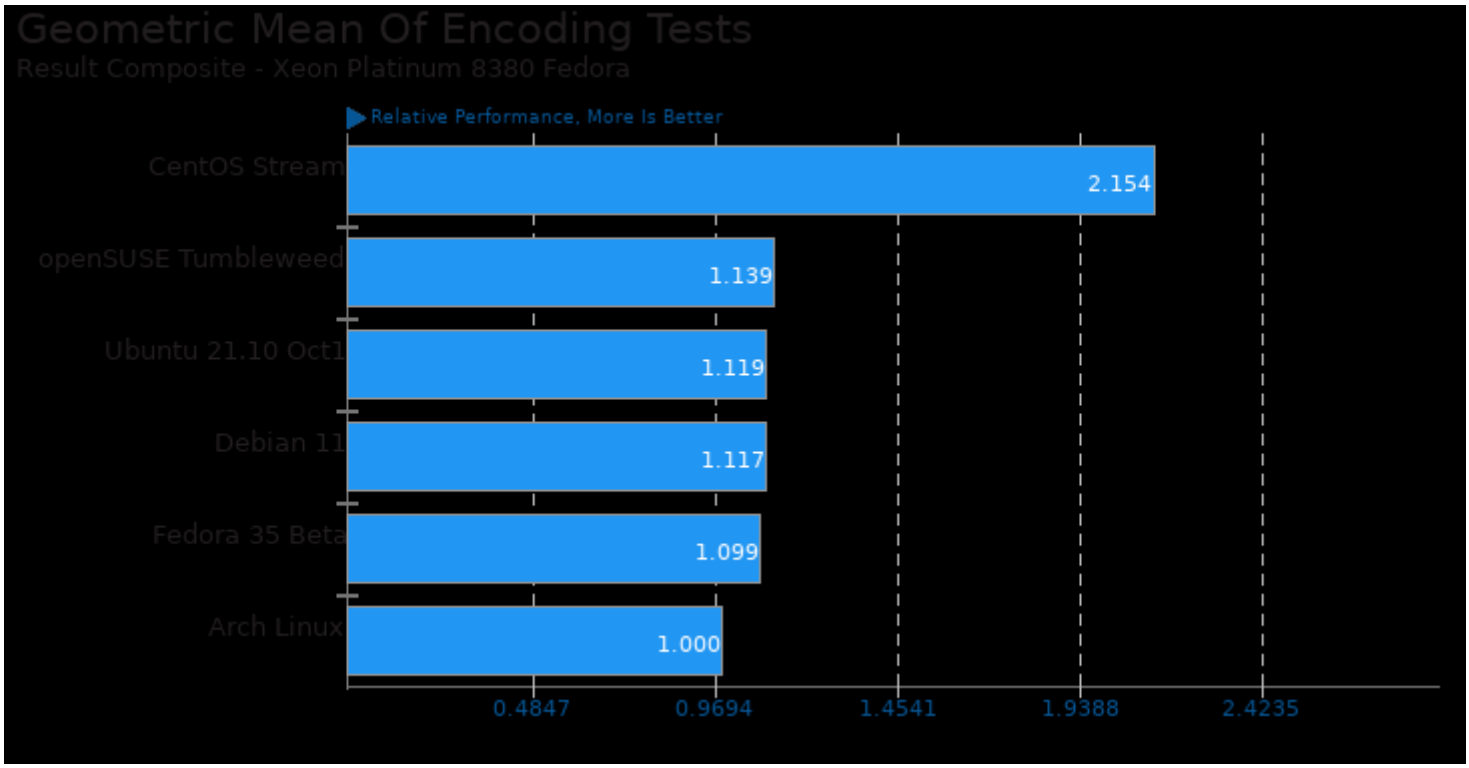
Geometric mean based upon tests: pts/ospray, pts/blender, pts/appleseed, pts/v-ray, pts/svt-vp9, pts/svt-hevc, pts/x265, pts/svt-av1, pts/jpegxl, pts/embree, pts/onednn, pts/oidn, pts/openvkl, pts/build-godot and pts/synthmark



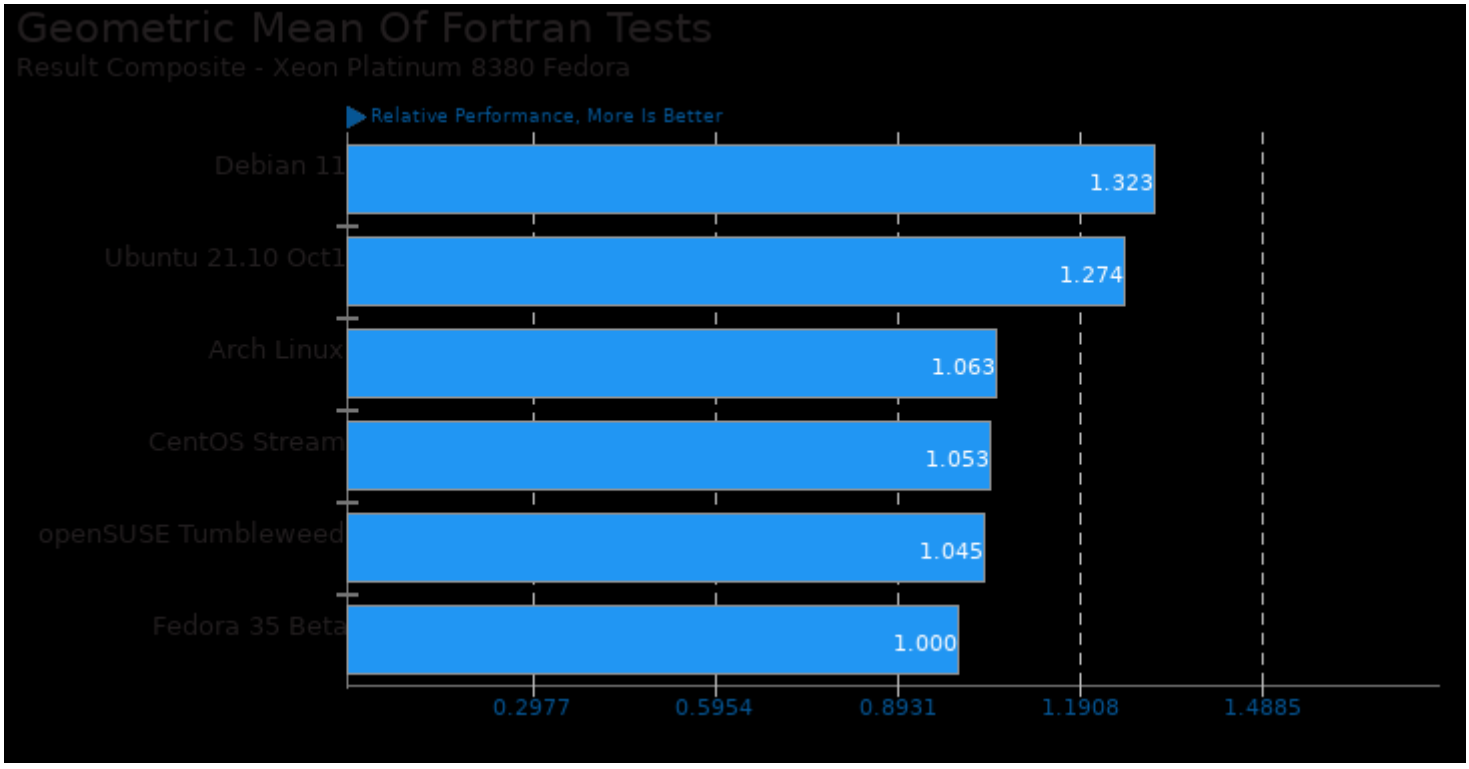
Geometric mean based upon tests: pts/openssl and pts/securemark



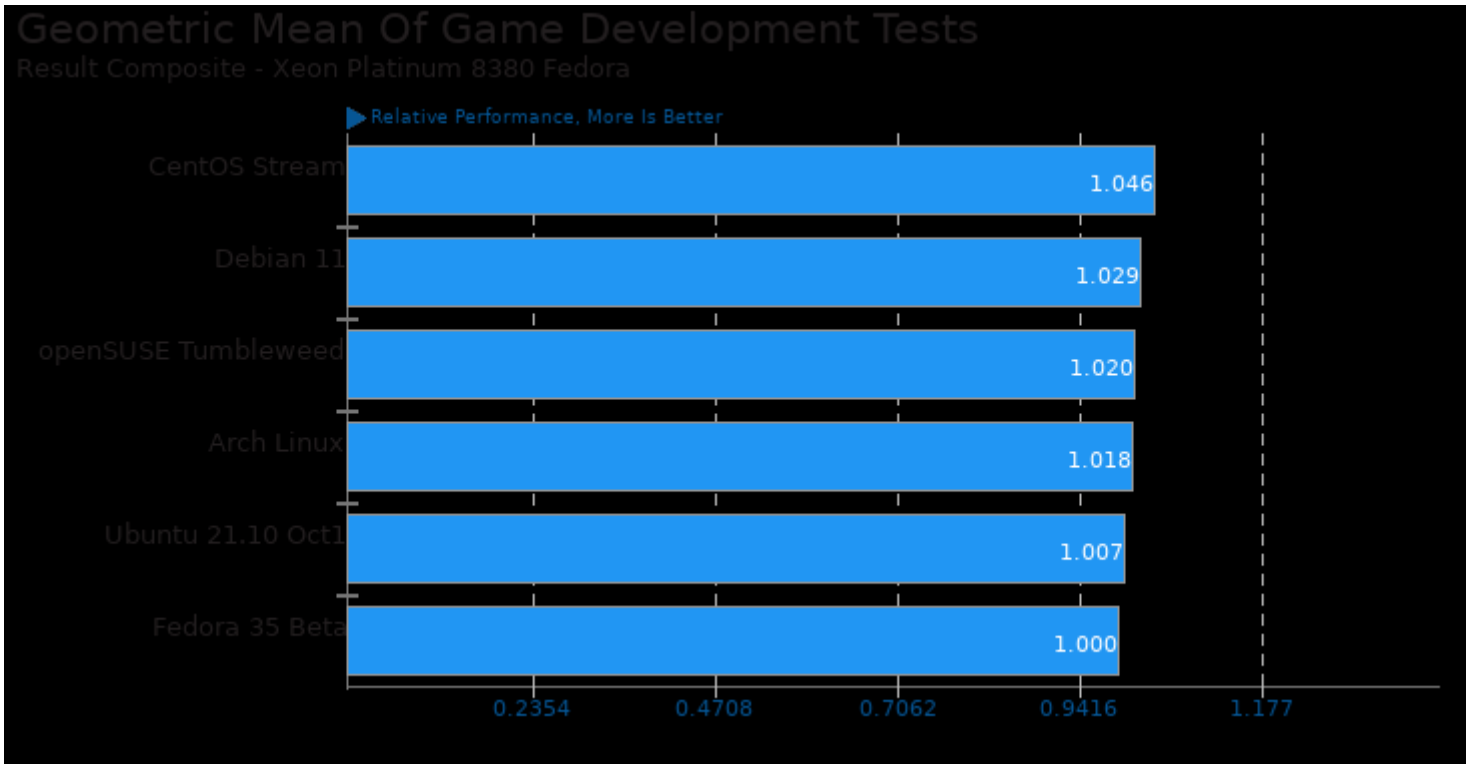
Geometric mean based upon tests: pts/sqlite-speedtest, pts/leveldb, pts/rocksdb, pts/cassandra and pts/pgbench



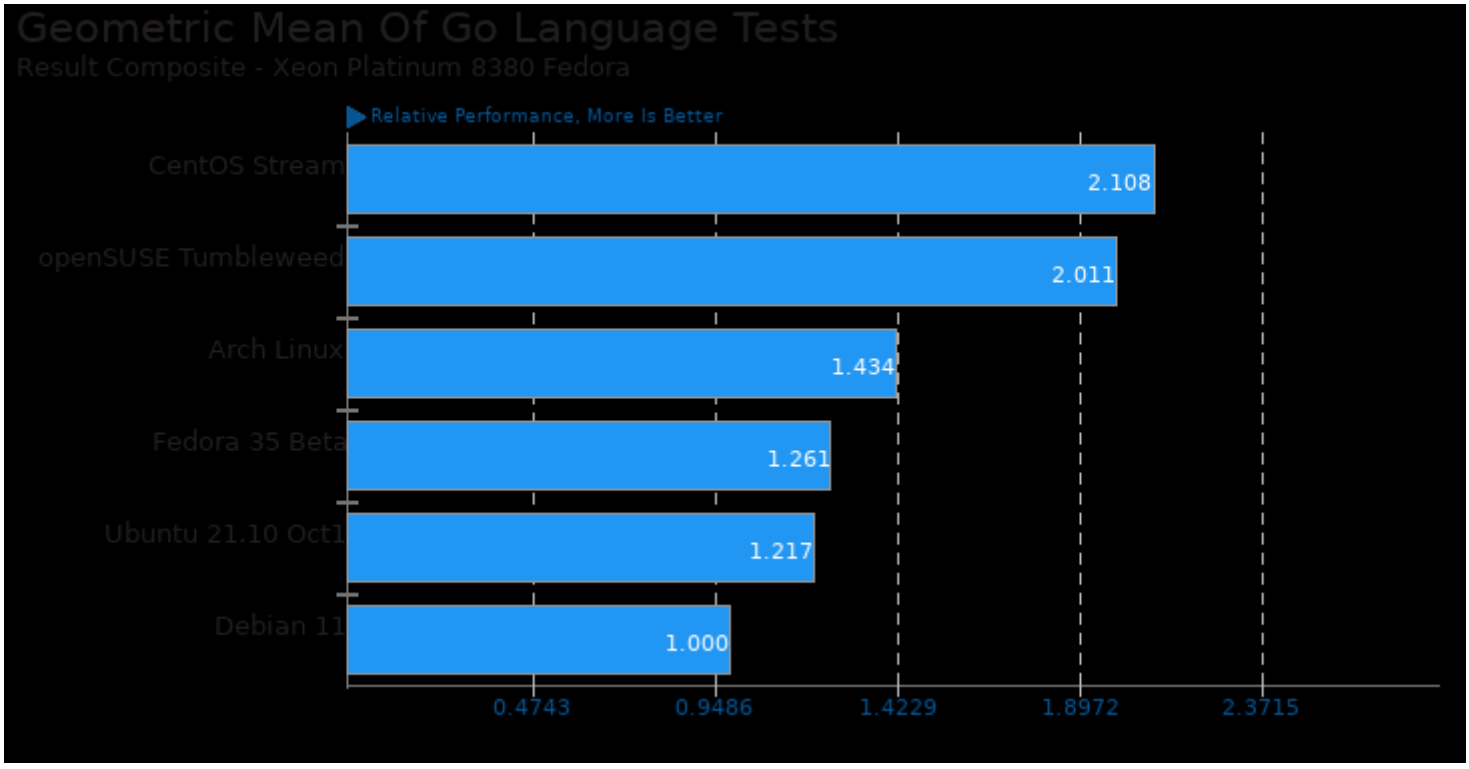
Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x265 and pts/svt-av1



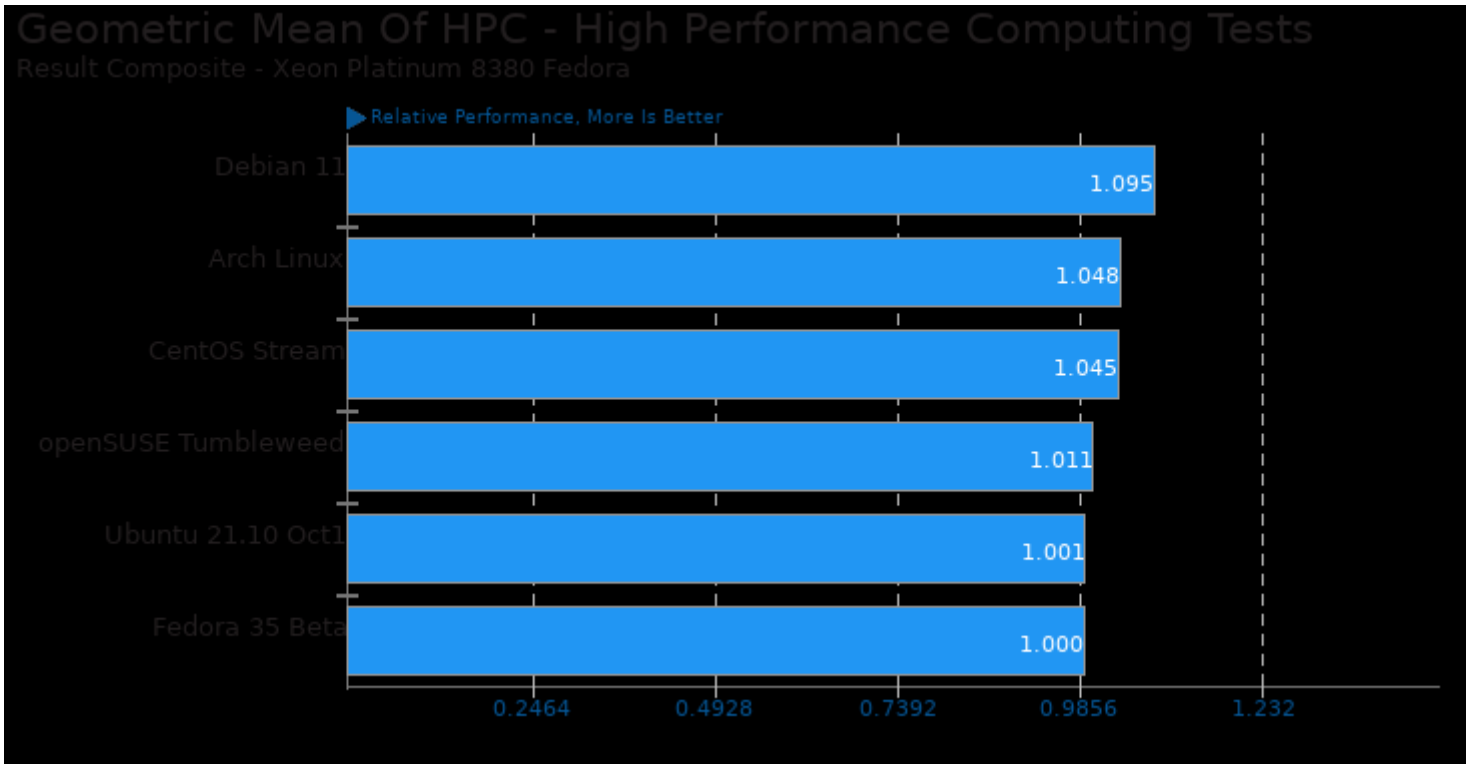
Geometric mean based upon tests: pts/hpcg and pts/npb



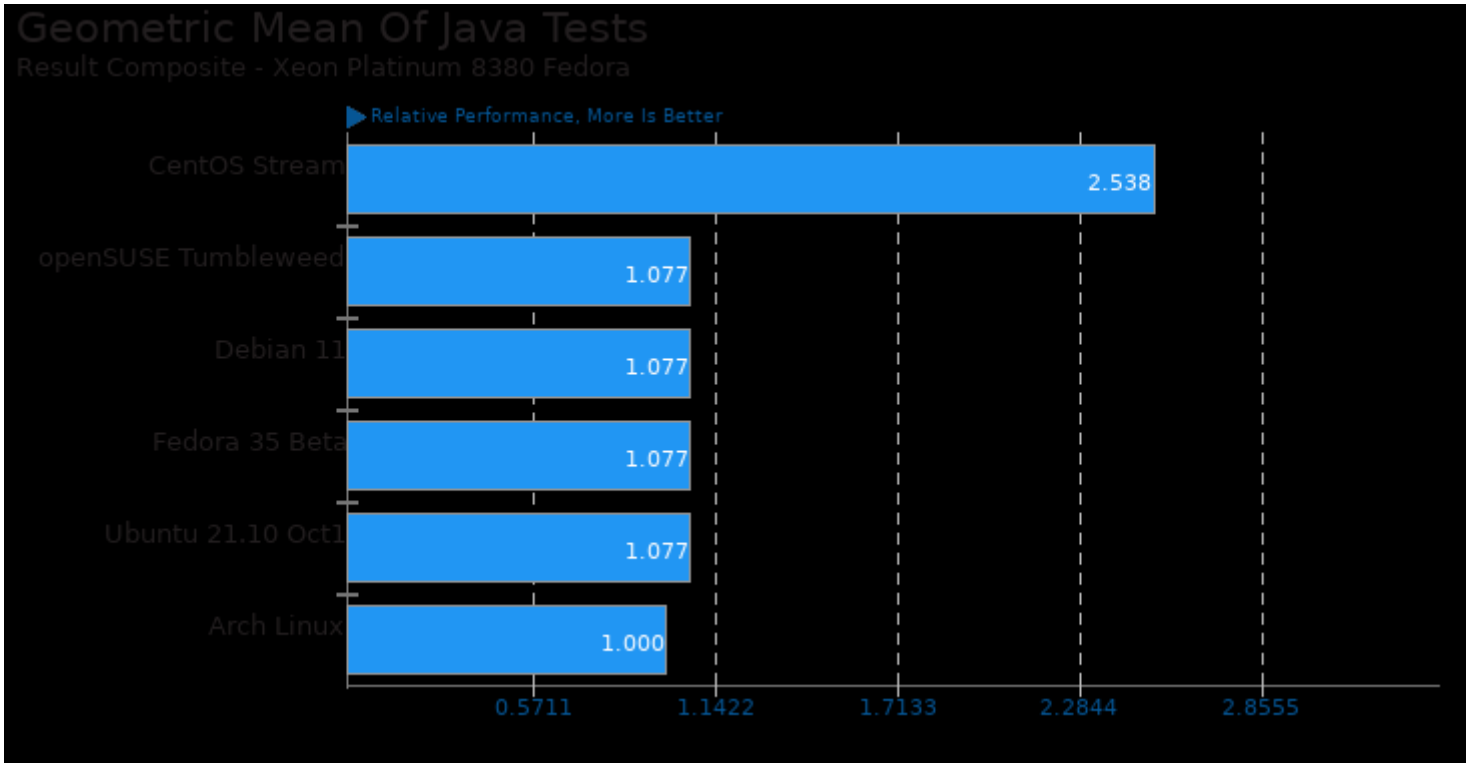
Geometric mean based upon tests: pts/build-godot, pts/blender, pts/oidn and pts/openvkl



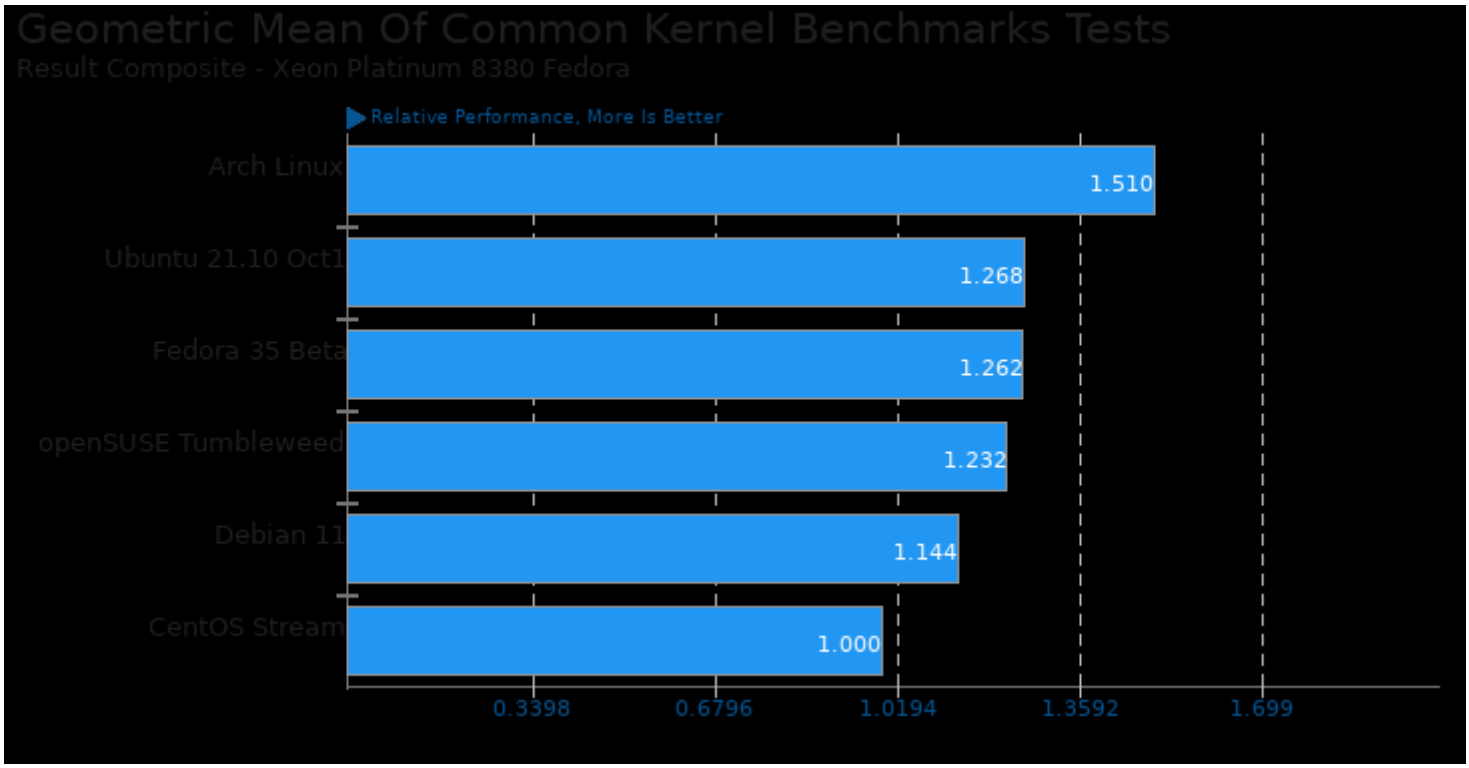
Geometric mean based upon tests: pts/nginx and pts/apache



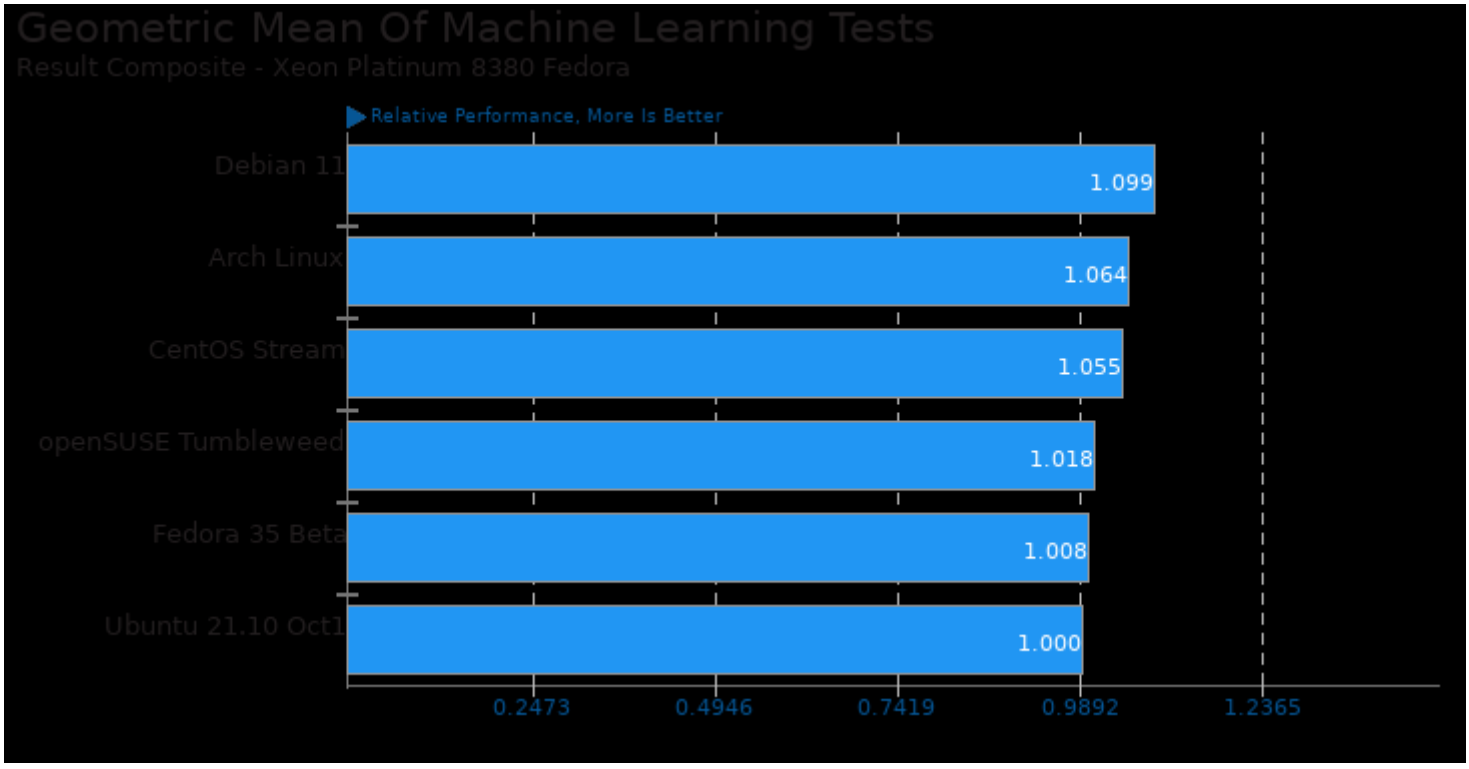
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/hpcg, pts/namd, pts/gromacs, pts/mnn, pts/ncnn, pts/tnn, pts/tensorflow-lite, pts/onednn and pts/onnx



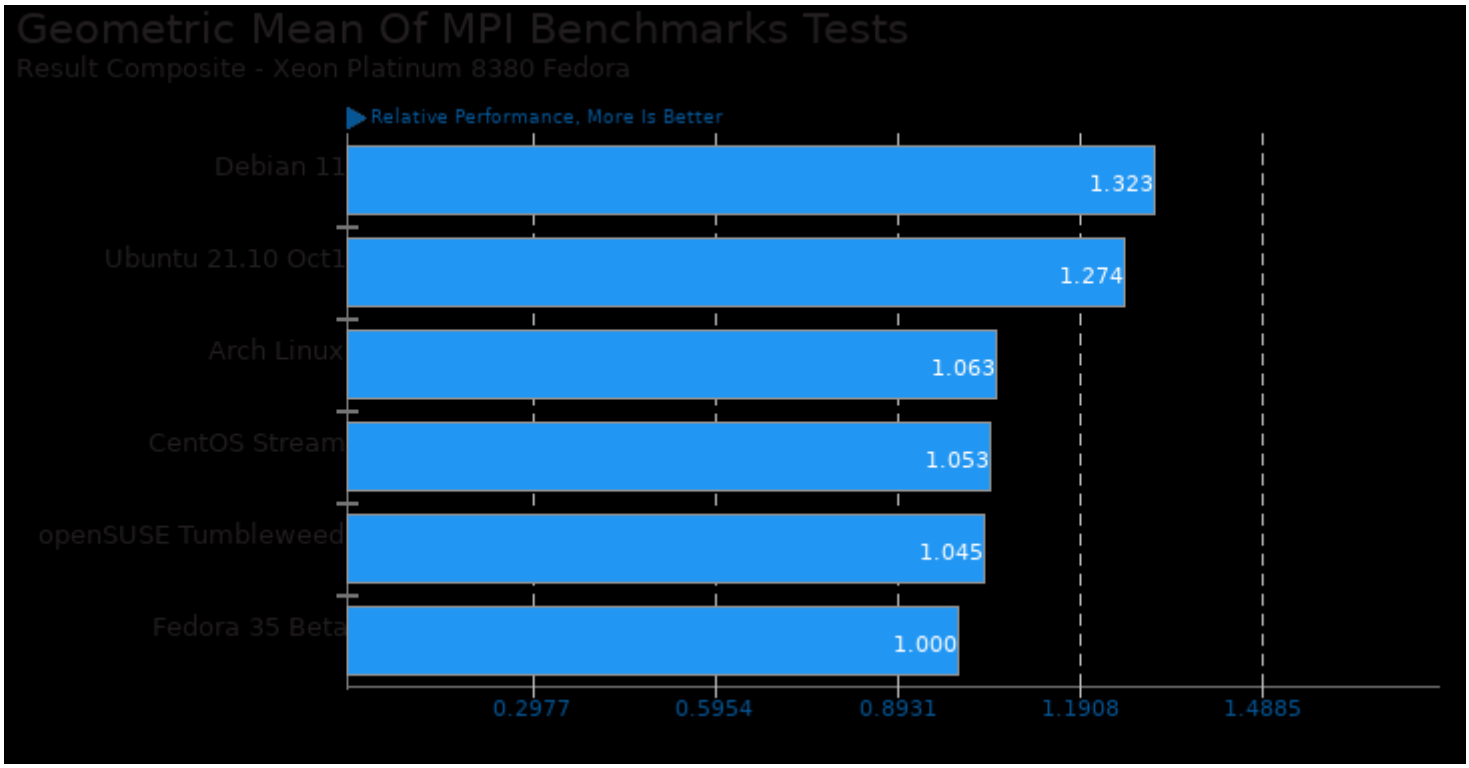
Geometric mean based upon tests: pts/dacapobench and pts/renaissance



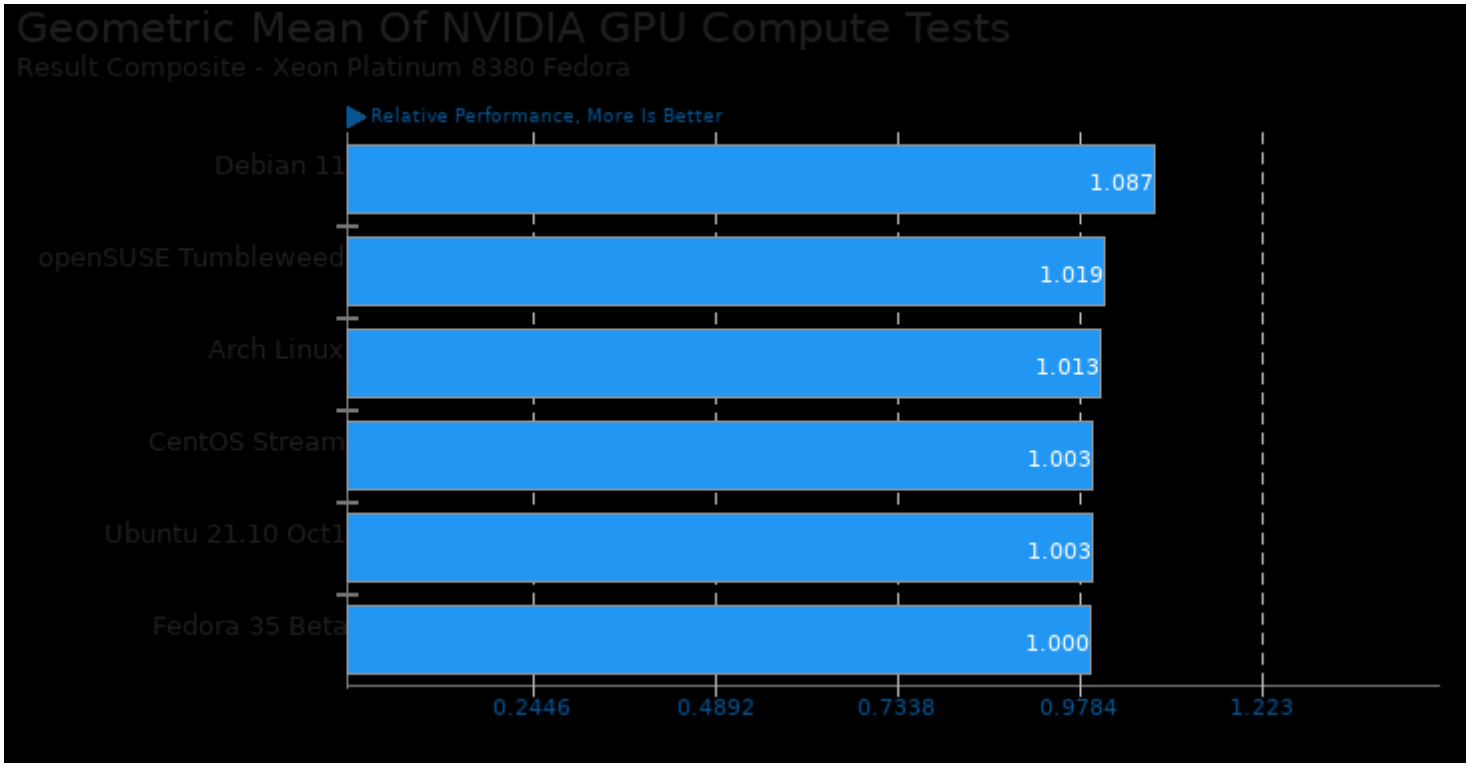
Geometric mean based upon tests: pts/apache, pts/sqlite-speedtest, pts/pgbench, pts/openssl, pts/stress-ng, pts/rocksdb and pts/leveldb



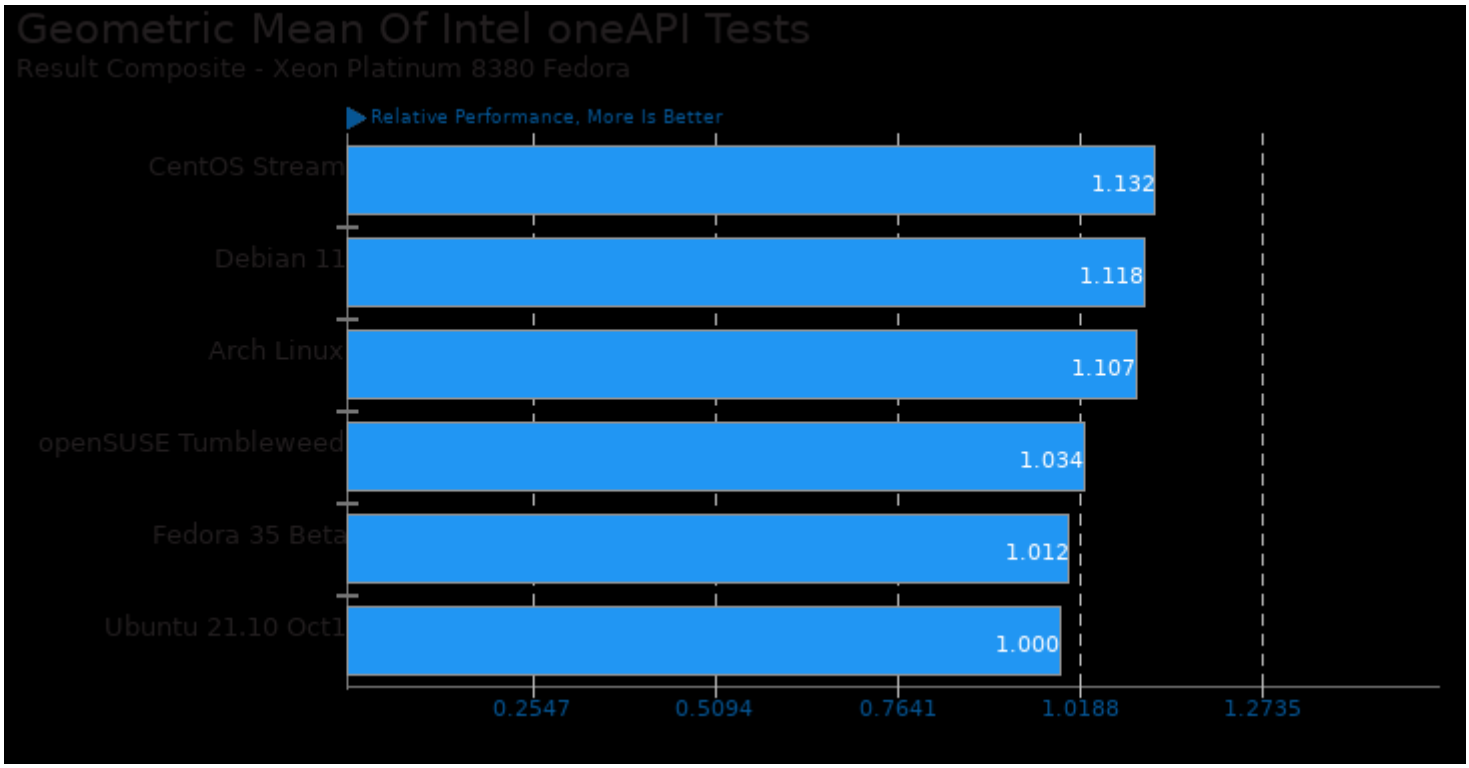
Geometric mean based upon tests: pts/mnn, pts/ncnn, pts/tnn, pts/tensorflow-lite, pts/onednn and pts/onnx



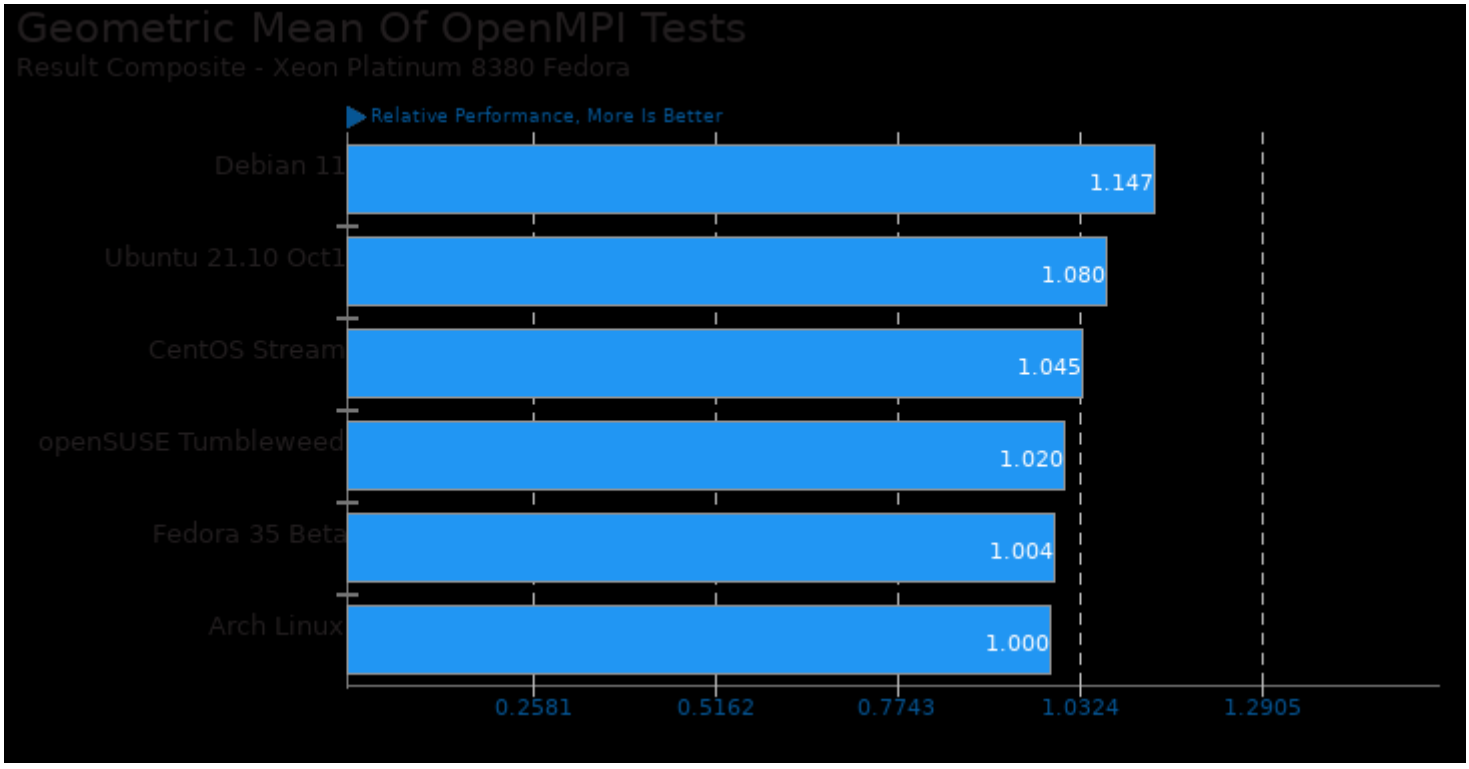
Geometric mean based upon tests: pts/gromacs, pts/hpcg and pts/npb



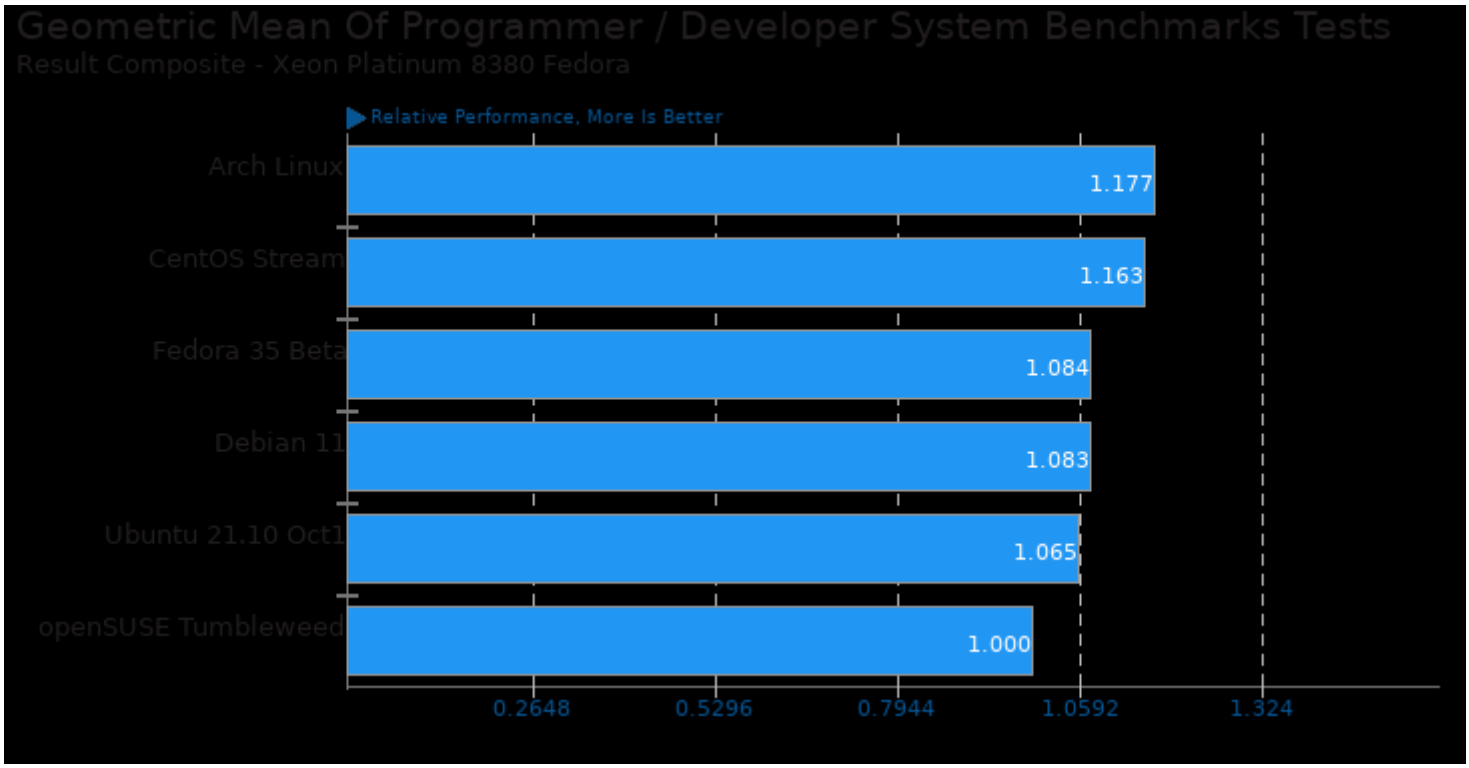
Geometric mean based upon tests: pts/gromacs, pts/rodinia, pts/v-ray, pts/blender and pts/ncnn



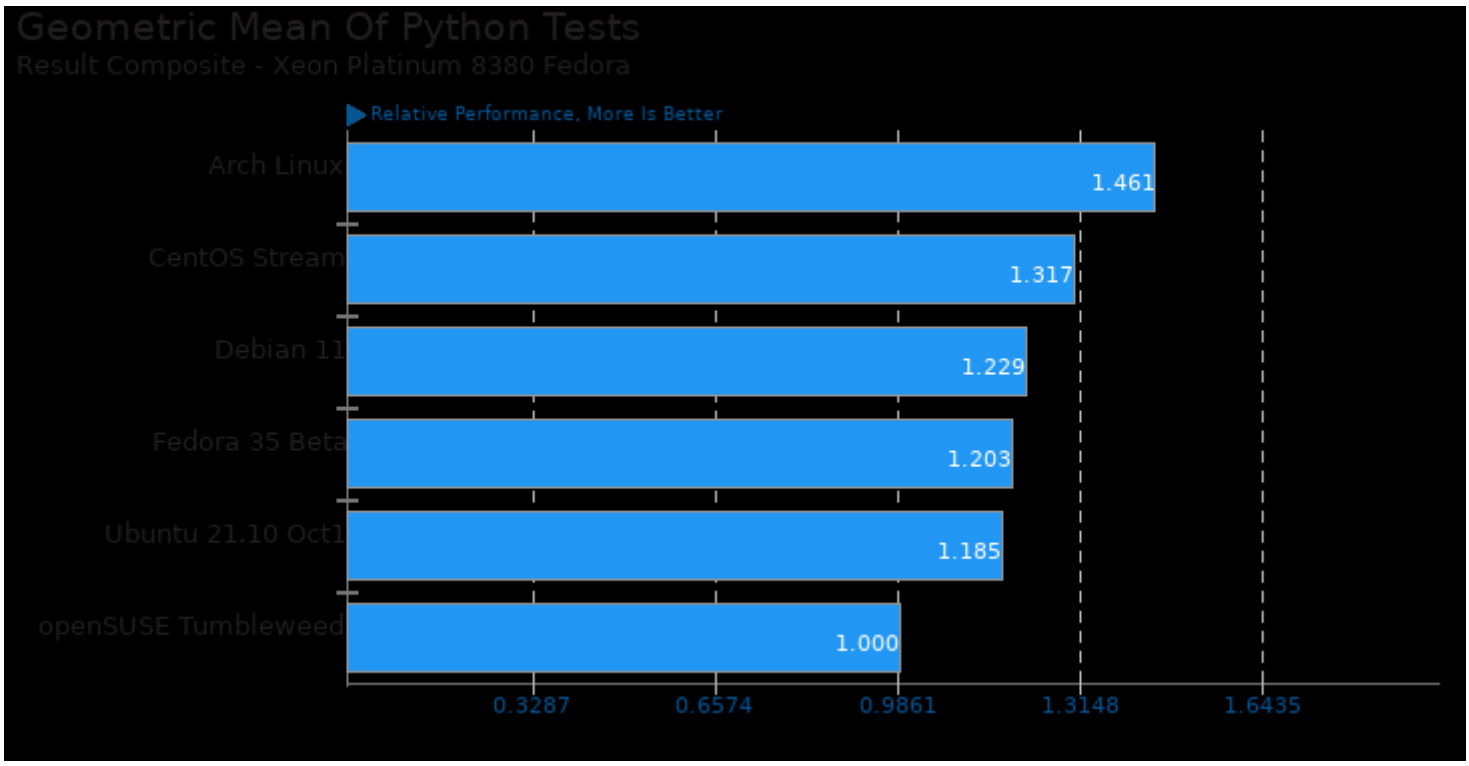
Geometric mean based upon tests: pts/embree, pts/onednn, pts/oidn, pts/ospray and pts/openvkl



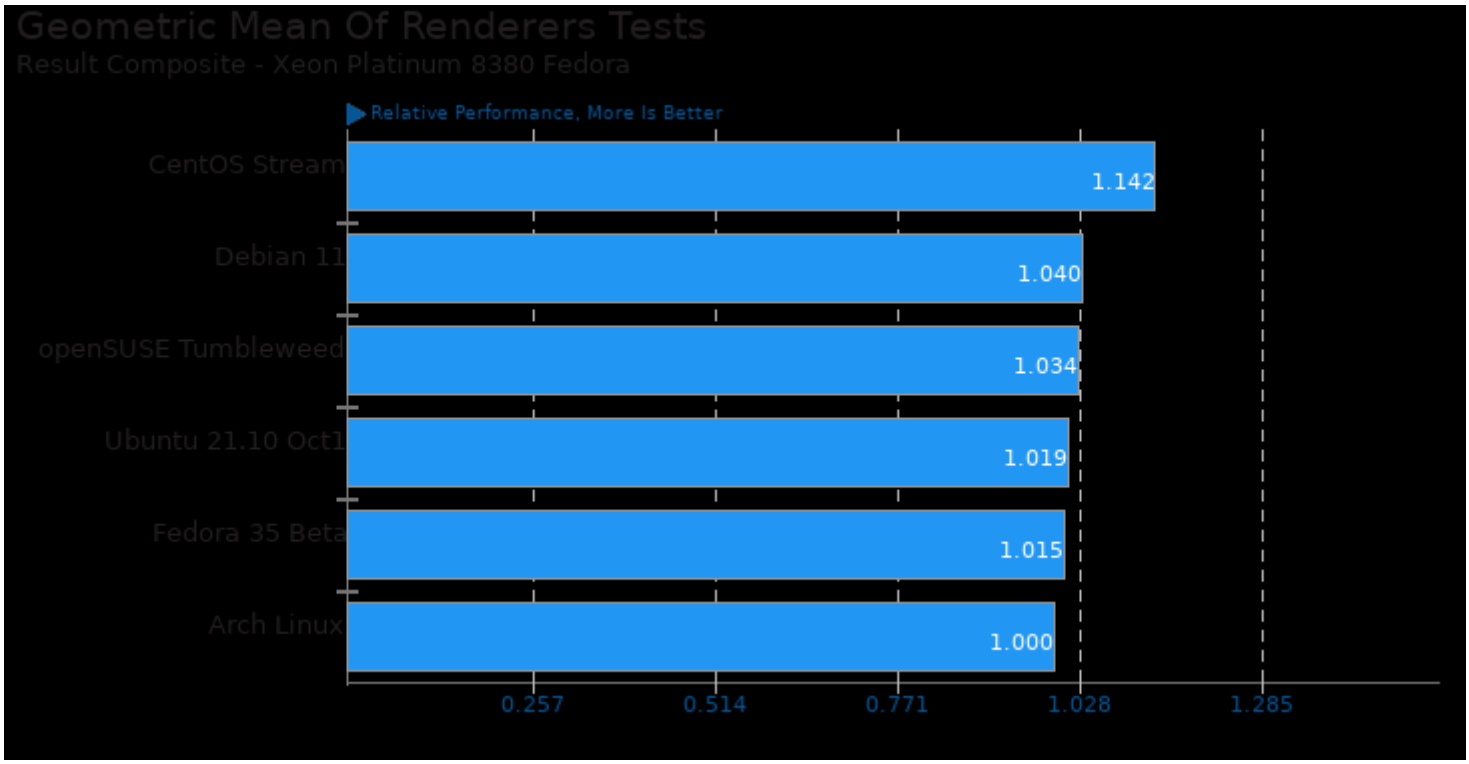
Geometric mean based upon tests: pts/hpcg, pts/gromacs, pts/npb and pts/rodinia



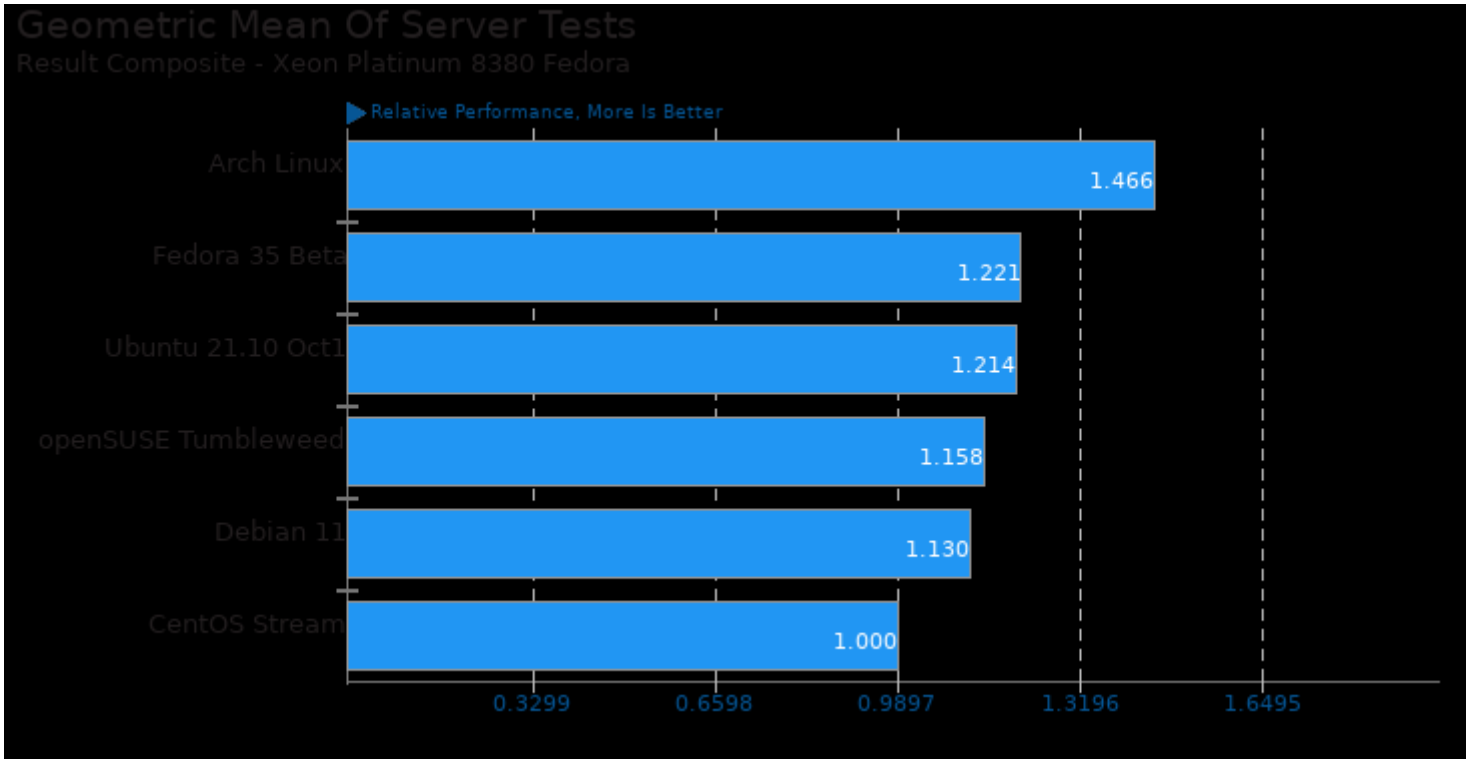
Geometric mean based upon tests: pts/simdjson, pts/sqlite-speedtest, pts/git, pts/compress-zstd, pts/pyperformance, pts/pybench, pts/build-linux-kernel, pts/build-llvm, pts/build-godot, pts/build-wasmer and pts/build-nodejs



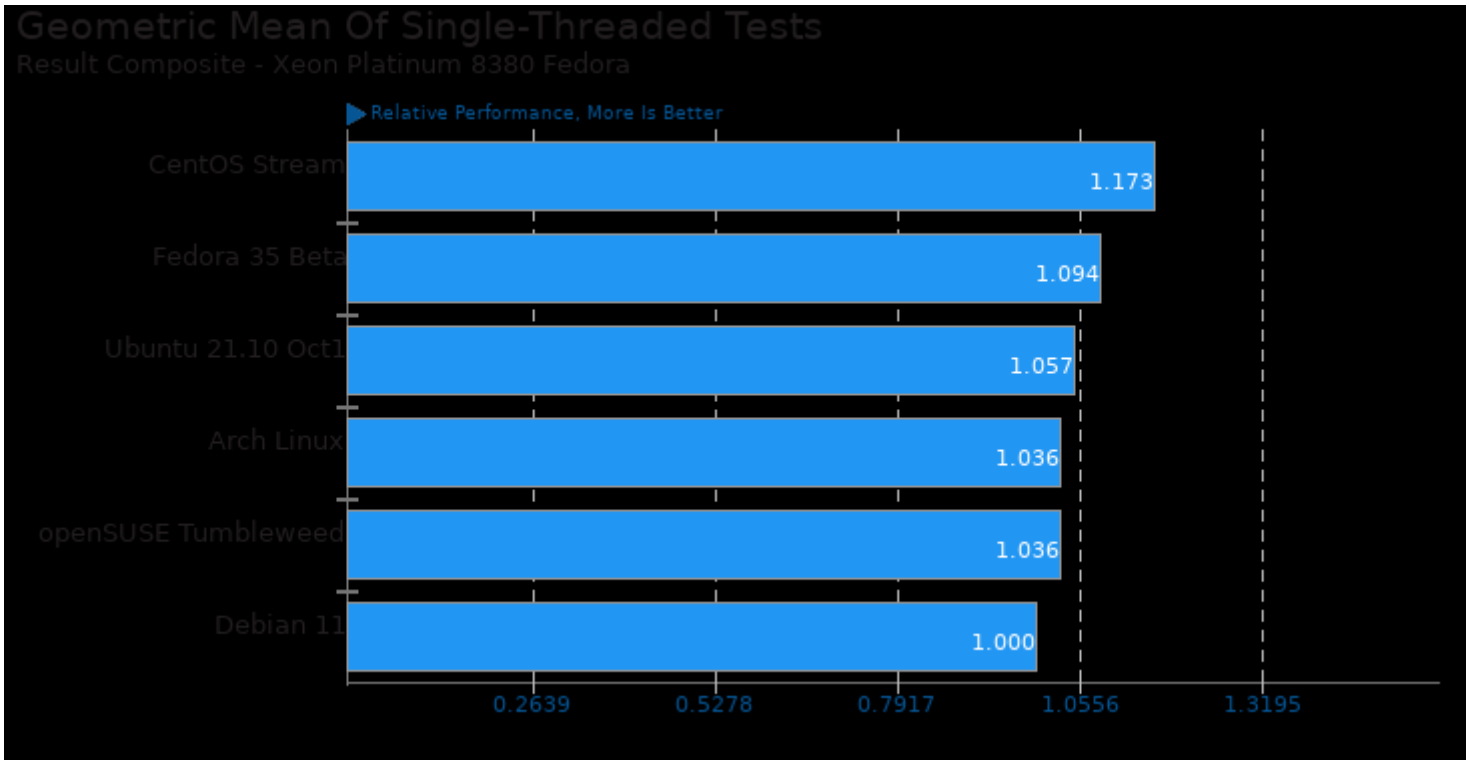
Geometric mean based upon tests: pts/pybench and pts/pyperformance



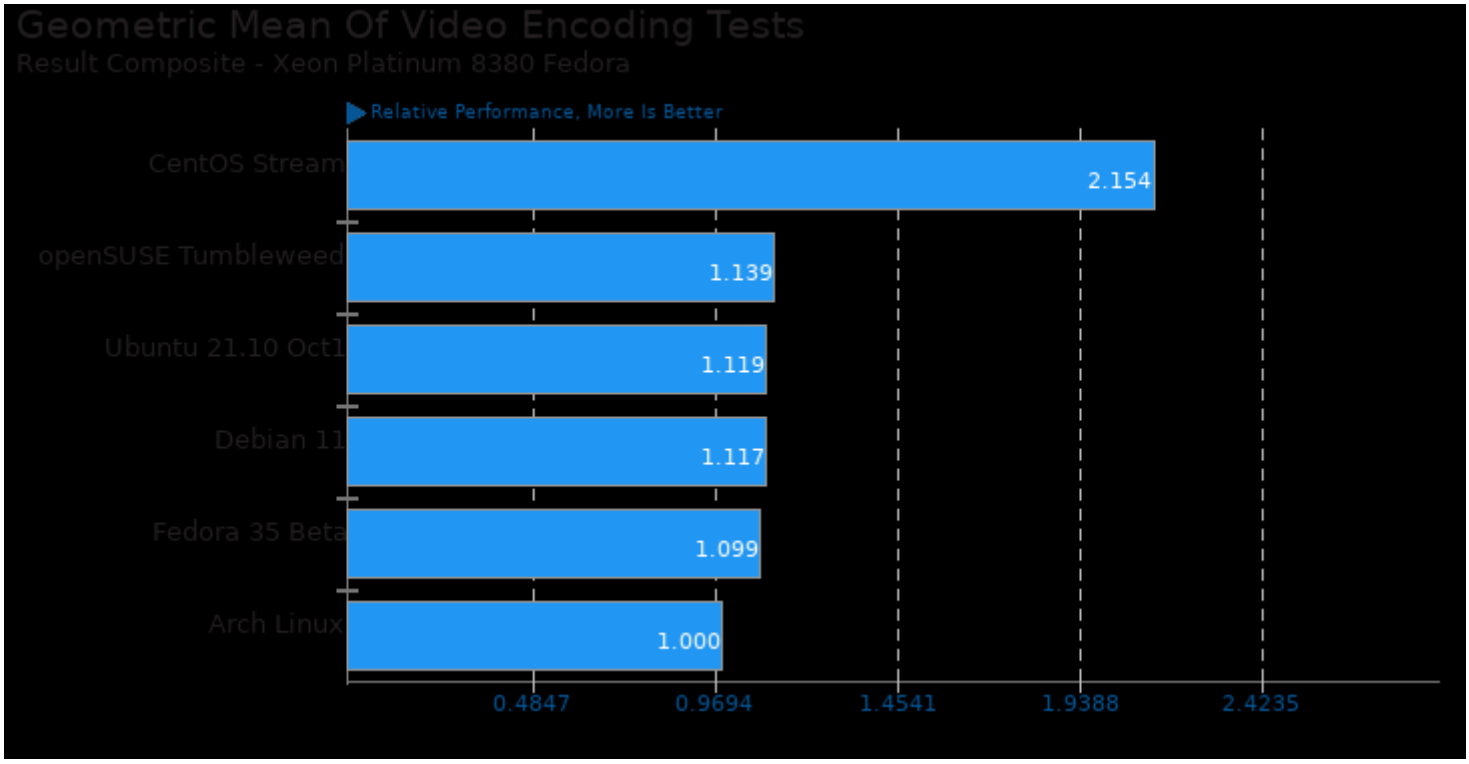
Geometric mean based upon tests: pts/ospray, pts/blender, pts/appleseed and pts/v-ray



Geometric mean based upon tests: pts/apache, pts/nginx, pts/pgbench, pts/cassandra, pts/rocksdb, pts/phpbench, pts/node-express-loadtest, pts/openssl, pts/simdjson, pts/sqlite-speedtest and pts/leveldb

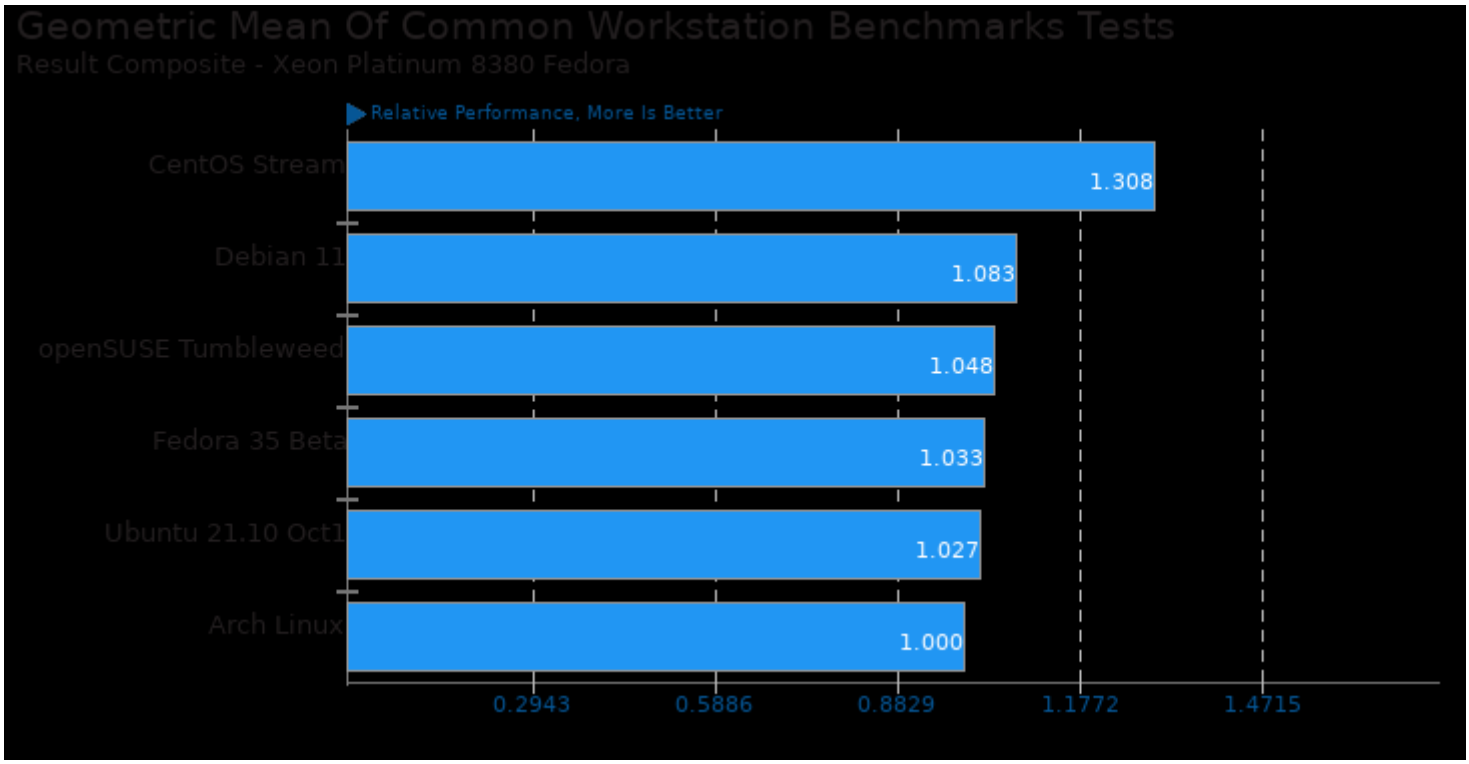


Geometric mean based upon tests: pts/gmpbench, pts/node-express-loadtest, pts/pybench, pts/phpbench, pts/nginx and pts/git



Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x265 and pts/svt-av1

Xeon Platinum 8380 Fedora



Geometric mean based upon tests: pts/blender, pts/rodinia, pts/x265 and pts/git

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