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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
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%
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%
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%	
NAS Parallel Benchmarks - EP.D (Mop/s)	2725	**8873**	2873	**2605**	8510	
Normalized	30.71%	100%	32.38%	29.36%	95.9%	

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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%	
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%
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%
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%

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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%
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%
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%
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%
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%
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%

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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%
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%
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%
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%

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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%
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%

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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%
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%
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%
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%
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%
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%
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%

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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%
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%
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%
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%
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%
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%
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%
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%	
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%

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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%
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 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 (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 - 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%
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%
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%

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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%
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%

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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%
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%
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%
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%
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%

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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%
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%
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%
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%
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%
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%

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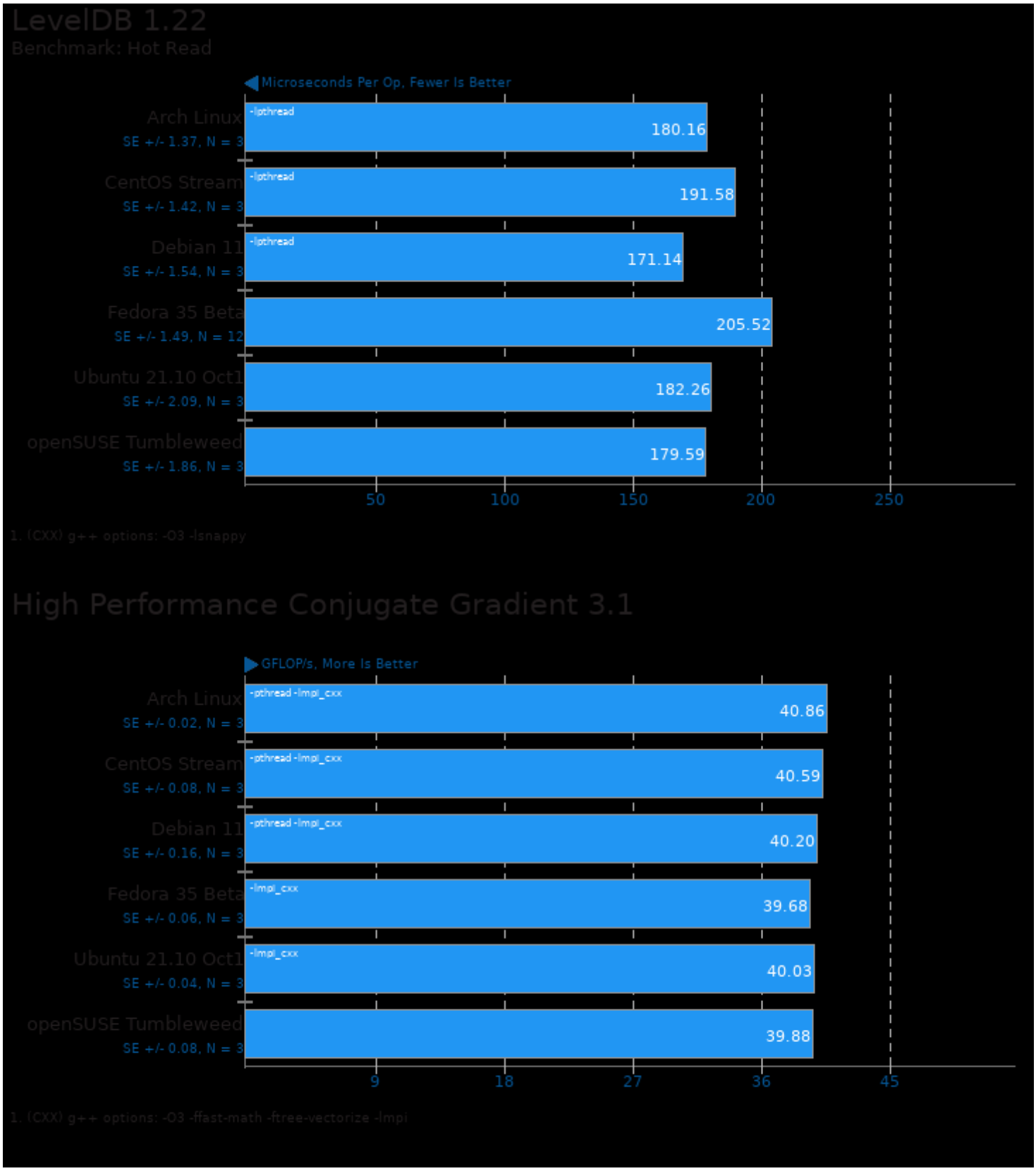
ONNX Runtime - shufflenet-v2-10 - OpenMP CPU (Inferences/min)	12630	**11943**				**12801**
Normalized	98.66%	93.3%				100%
Standard Deviation	1%	1.1%				1.5%
PyBench - T.F.A.T.T (Milliseconds)	1157	1011	**1205**	1184	**978**	1028
Normalized	84.53%	96.74%	81.16%	82.6%	100%	95.14%
Standard Deviation	0.2%	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%

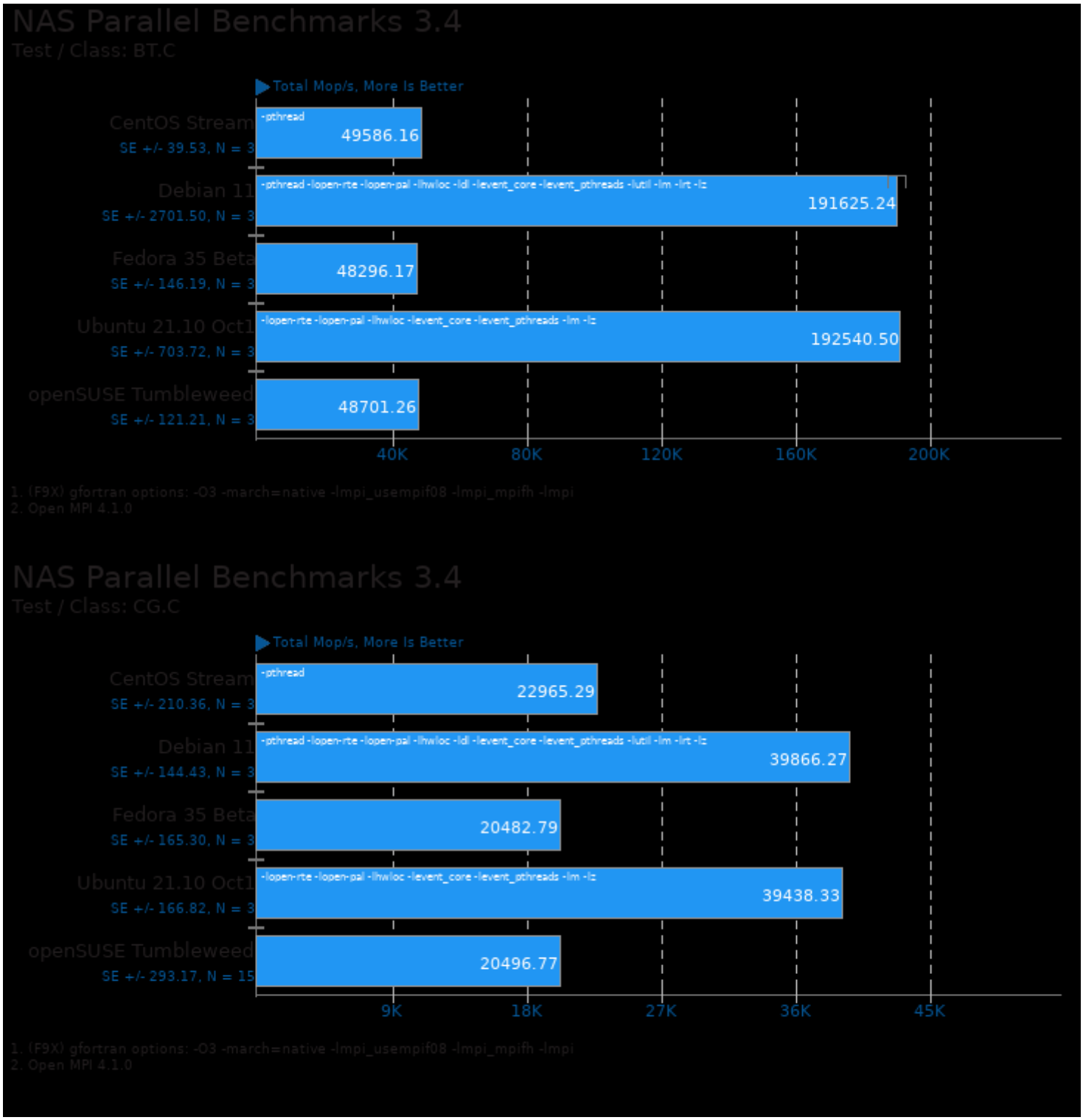
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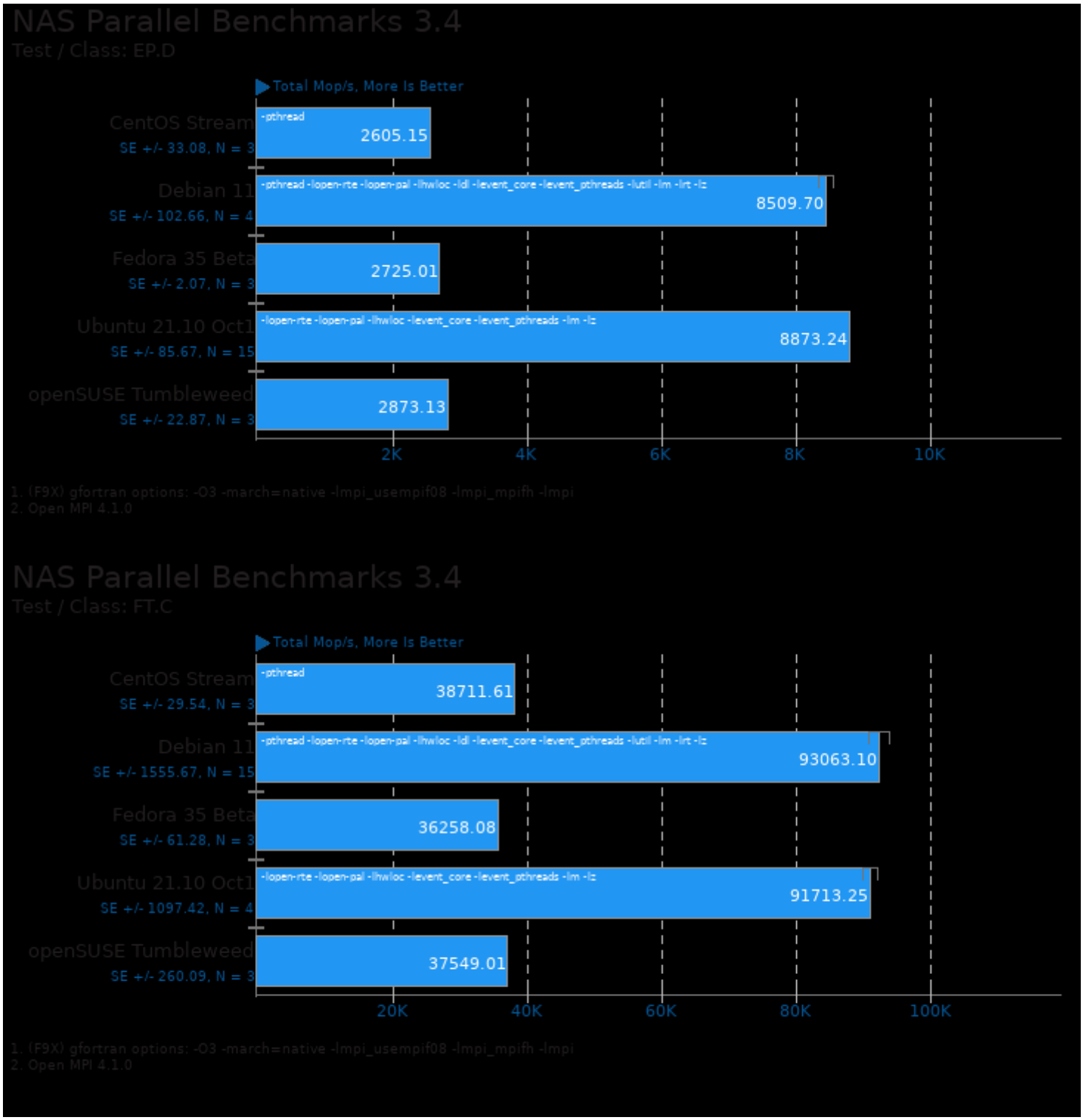
PyPerformance - pickle_pure_python (Milliseconds)	516	604	**705**	540	555	**443**
Normalized	85.85%	73.34%	62.84%	82.04%	79.82%	100%
Standard Deviation	1%	7.6%	9.5%		7.8%	0.2%
nginx - 100 (Reqs/sec)	88738	72553	78819	**213115**	74654	**63777**
Normalized	41.64%	34.04%	36.98%	100%	35.03%	29.93%
Standard 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%
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%
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%
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%
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%
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%

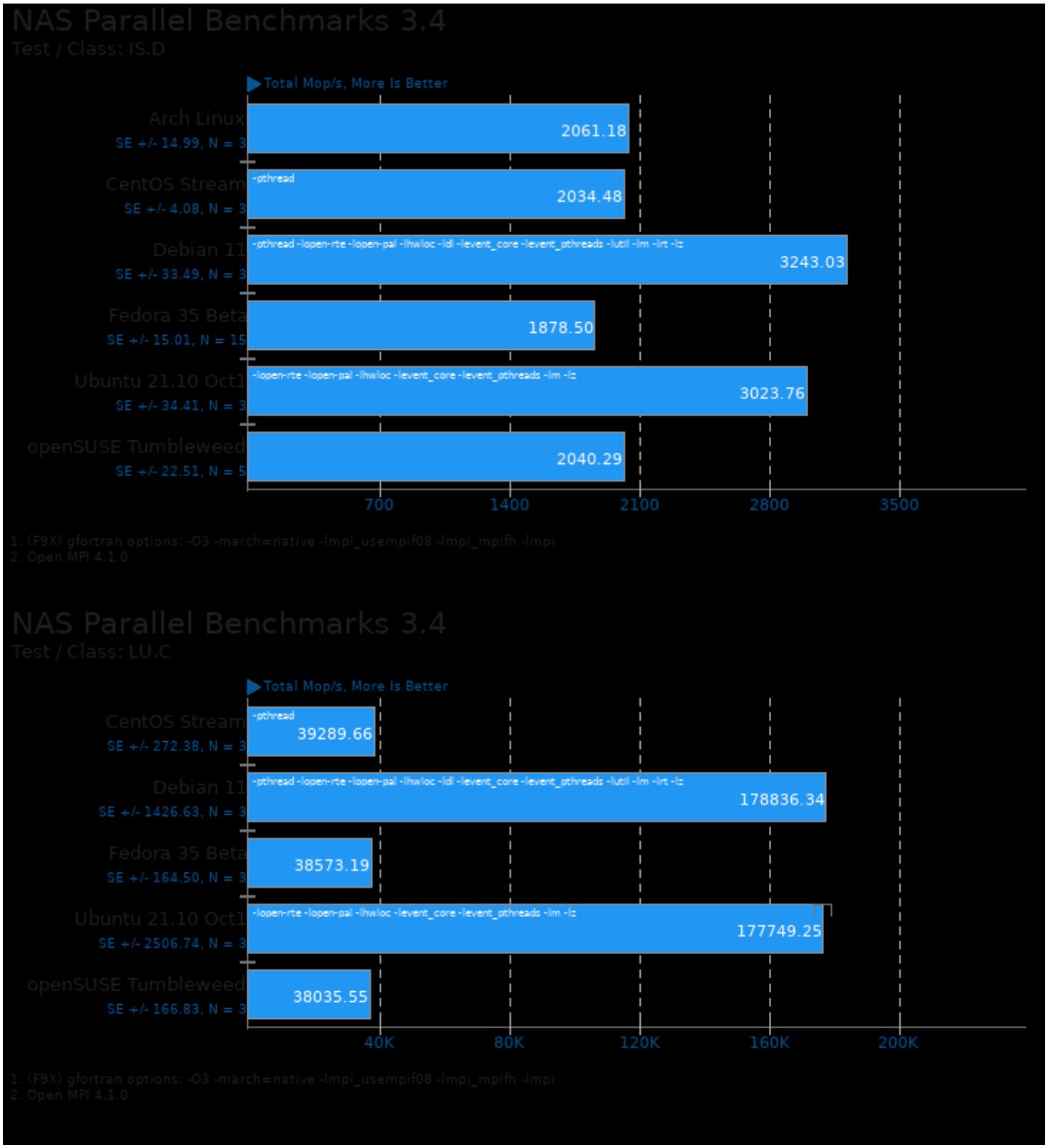
Xeon Platinum 8380 Fedora

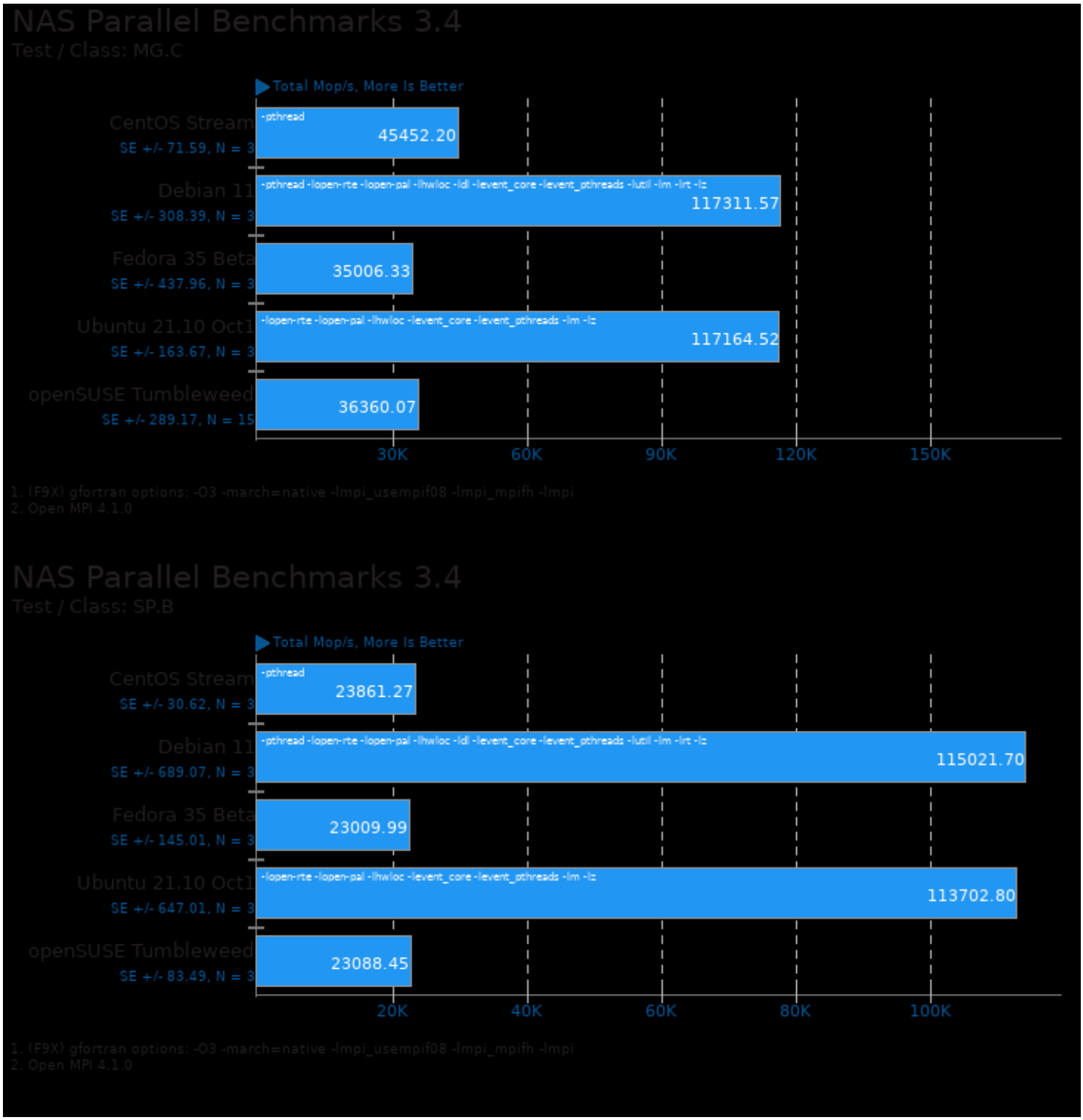
Timed LLVM Compilation - Unix Makefiles (sec)	206.063	205.281	206.827	**179.813**	207.298	**222.229**
Normalized	87.26%	87.59%	86.94%	100%	86.74%	80.91%
Standard Deviation	0.7%	1.2%	1.4%	1.3%	1.2%	0.2%
PostgreSQL pgbench - 100 - 500 - Read Only (TPS)	1875522	1859821	1794700	**329430**	**1902066**	1839998
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 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 (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%
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%

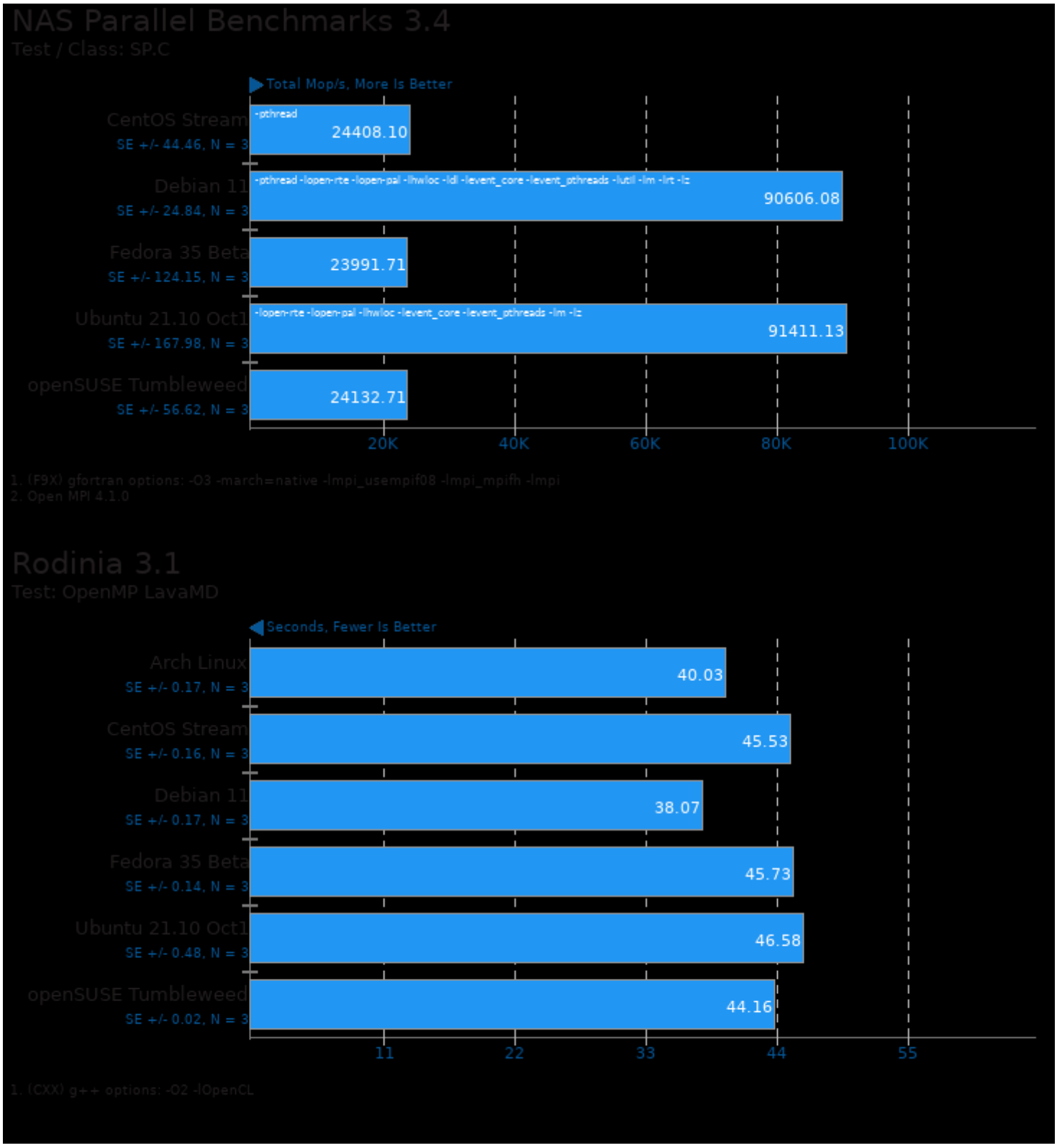

LevelDB 1.22
Benchmark: Hot Read
Microseconds Per Op, Fewer Is Better
Arch Linux
SE +/- 1.37, N = 3
-lpthread
180.16
CentOS Stream
SE +/- 1.42, N = 3
-lpthread
191.58
Debian 11
SE +/- 1.54, N = 3
-lpthread
171.14
Fedora 35 Beta
SE +/- 1.49, N = 12
205.52
Ubuntu 21.10 Oct1
SE +/- 2.09, N = 3
182.26
openSUSE Tumbleweed
SE +/- 1.86, N = 3
179.59
50
100
150
200
250
1. (CXX) g++ options: -O3 -lsnappy
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
Fedora 35 Beta
SE +/- 0.06, N = 3
-lmpi_cxx
39.68
Ubuntu 21.10 Oct1
SE +/- 0.04, N = 3
-lmpi_cxx
40.03
openSUSE Tumbleweed
SE +/- 0.08, N = 3
39.88
9
18
27
36
45
1. (CXX) g++ options: -O3 -ffast-math -ftree-vectorize -lmpi

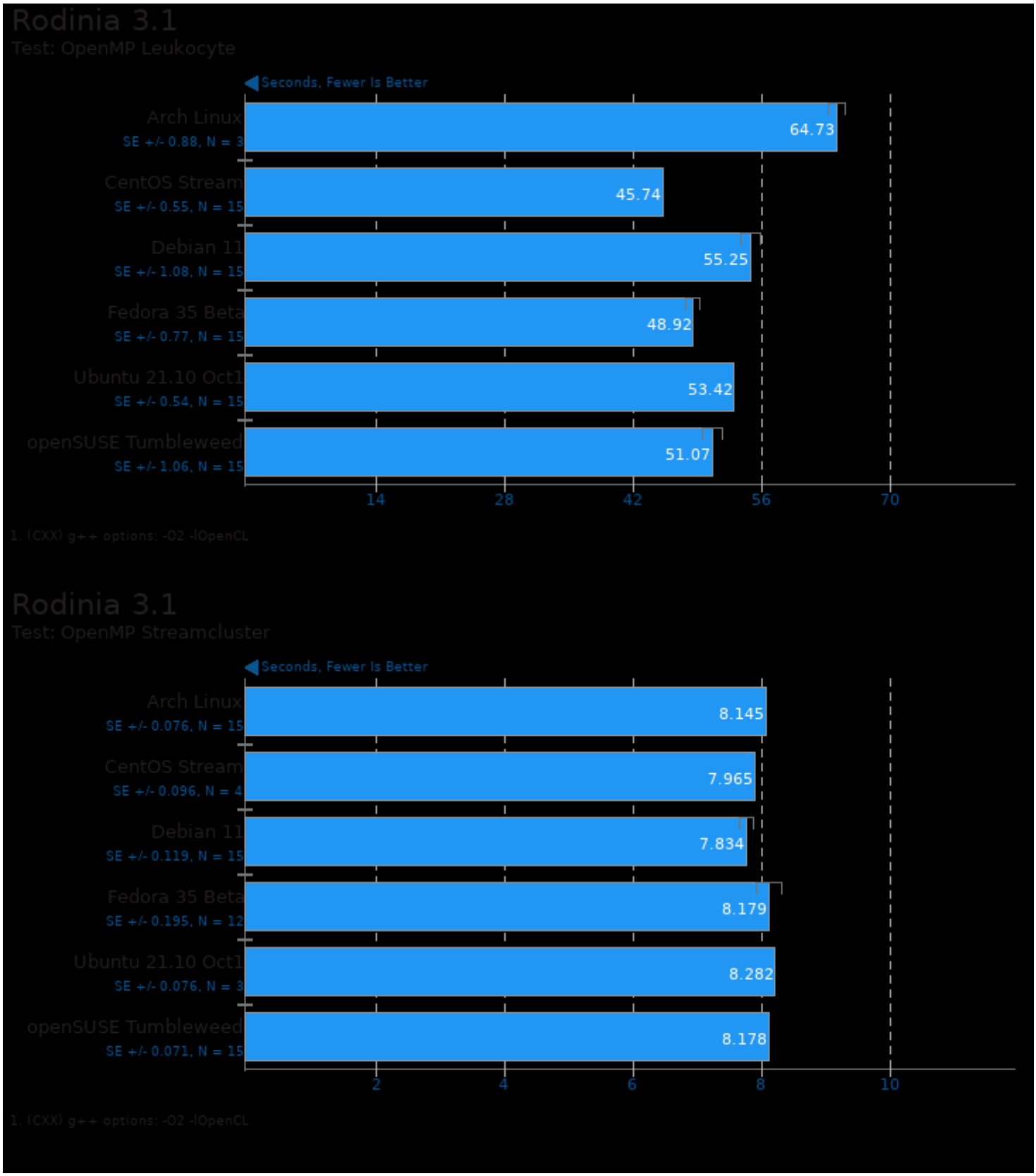

NAS Parallel Benchmarks 3.4
Test / Class: BT.C
Total Mop/s, More Is Better
CentOS Stream
SE +/- 39.53, N = 3
-pthread
49586.16
Debian 11
SE +/- 2701.50, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
191625.24
Fedora 35 Beta
SE +/- 146.19, N = 3
48296.17
Ubuntu 21.10 Oct1
SE +/- 703.72, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
192540.50
openSUSE Tumbleweed
SE +/- 121.21, N = 3
48701.26
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
CentOS Stream
SE +/- 210.36, N = 3
-pthread
22965.29
Debian 11
SE +/- 144.43, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
39866.27
Fedora 35 Beta
SE +/- 165.30, N = 3
20482.79
Ubuntu 21.10 Oct1
SE +/- 166.82, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
39438.33
openSUSE Tumbleweed
SE +/- 293.17, N = 15
20496.77
9K
18K
27K
36K
45K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

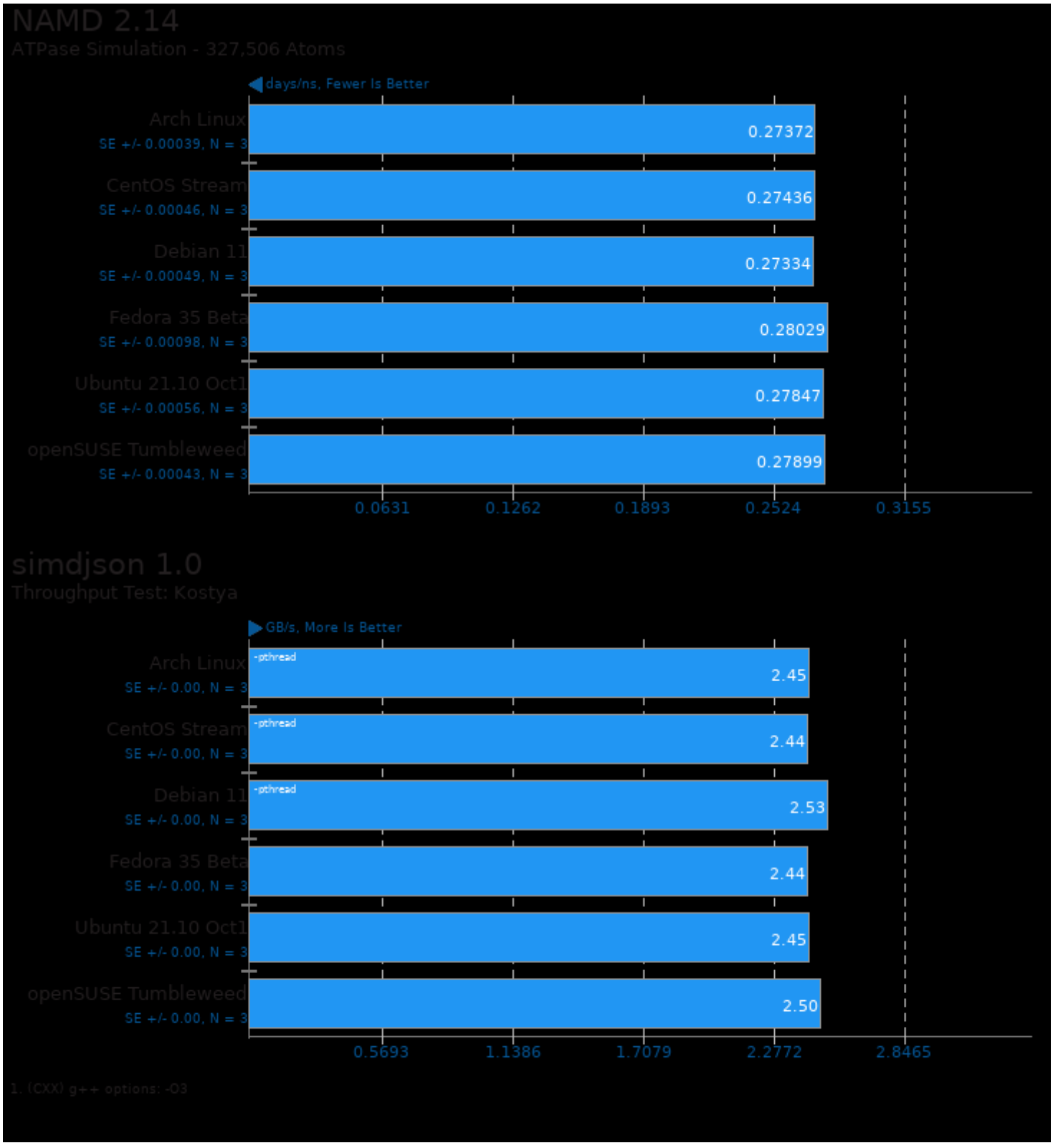

NAS Parallel Benchmarks 3.4
Test / Class: EP.D
Total Mop/s, More Is Better
CentOS Stream
SE +/- 33.08, N = 3
-pthread
2605.15
Debian 11
SE +/- 102.66, N = 4
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
8509.70
Fedora 35 Beta
SE +/- 2.07, N = 3
2725.01
Ubuntu 21.10 Oct1
SE +/- 85.67, N = 15
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
8873.24
openSUSE Tumbleweed
SE +/- 22.87, N = 3
2873.13
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
CentOS Stream
SE +/- 29.54, N = 3
-pthread
38711.61
Debian 11
SE +/- 1555.67, N = 15
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
93063.10
Fedora 35 Beta
SE +/- 61.28, N = 3
36258.08
Ubuntu 21.10 Oct1
SE +/- 1097.42, N = 4
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
91713.25
openSUSE Tumbleweed
SE +/- 260.09, N = 3
37549.01
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

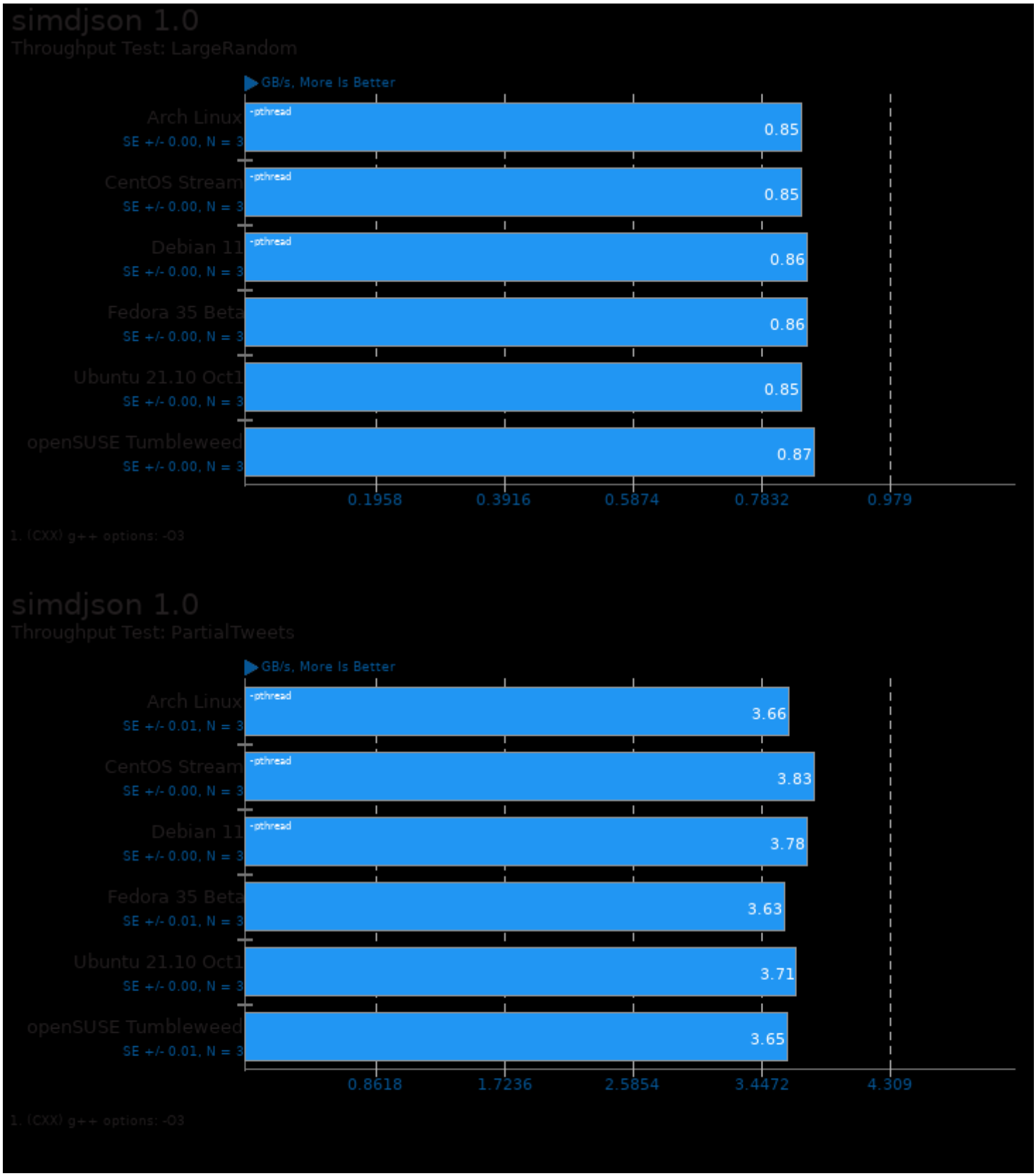

NAS Parallel Benchmarks 3.4
Test / Class: IS.D
Total Mop/s, More Is Better
Arch Linux
SE +/- 14.99, N = 3
2061.18
CentOS Stream
SE +/- 4.08, N = 3
-pthread
2034.48
Debian 11
SE +/- 33.49, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
3243.03
Fedora 35 Beta
SE +/- 15.01, N = 15
1878.50
Ubuntu 21.10 Oct1
SE +/- 34.41, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
3023.76
openSUSE Tumbleweed
SE +/- 22.51, N = 5
2040.29
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
CentOS Stream
SE +/- 272.38, N = 3
-pthread
39289.66
Debian 11
SE +/- 1426.63, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
178836.34
Fedora 35 Beta
SE +/- 164.50, N = 3
38573.19
Ubuntu 21.10 Oct1
SE +/- 2506.74, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
177749.25
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

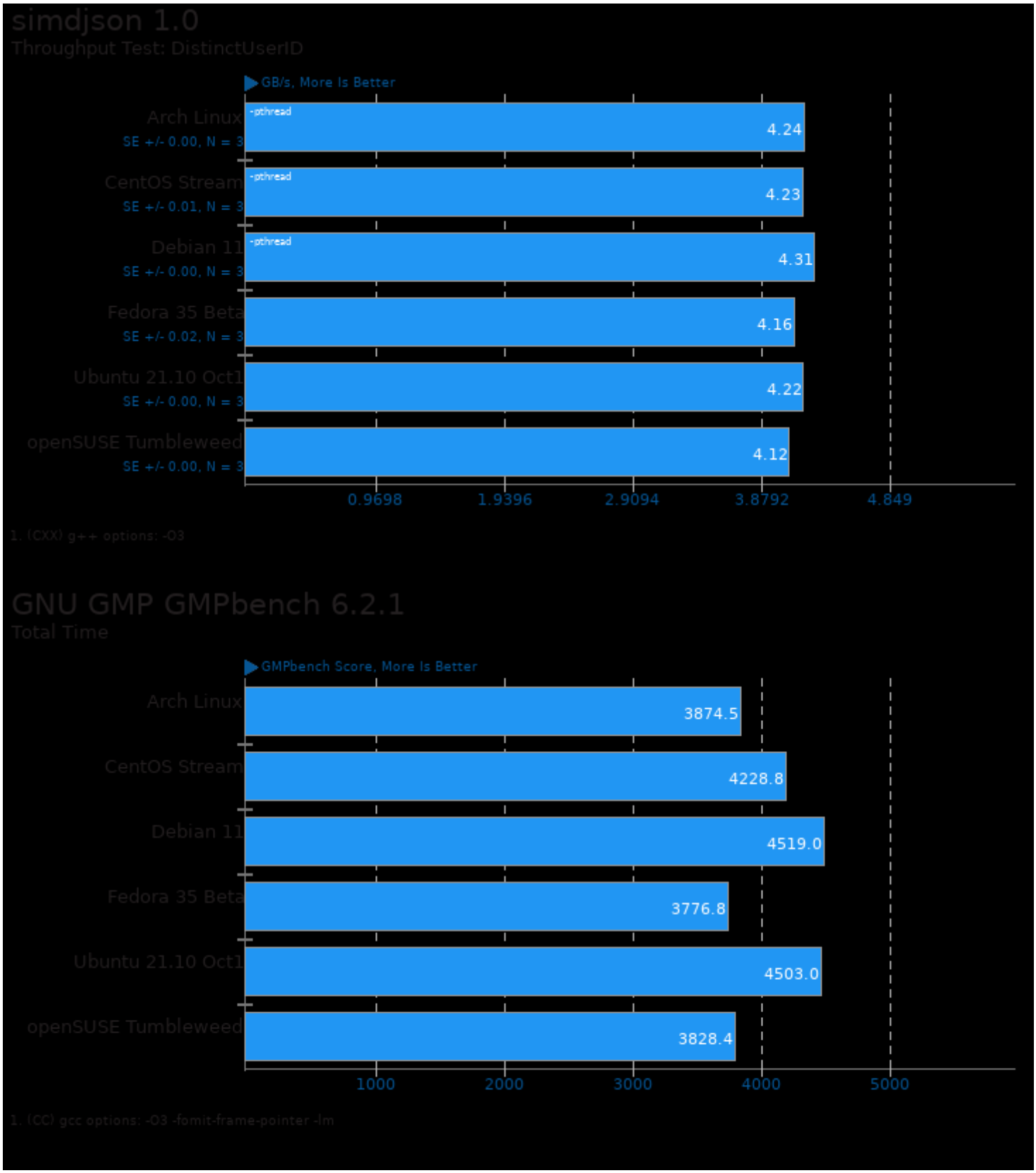

NAS Parallel Benchmarks 3.4
Test / Class: MG.C
Total Mop/s, More Is Better
CentOS Stream
SE +/- 71.59, N = 3
-pthread
45452.20
Debian 11
SE +/- 308.39, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
117311.57
Fedora 35 Beta
SE +/- 437.96, N = 3
35006.33
Ubuntu 21.10 Oct1
SE +/- 163.67, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
117164.52
openSUSE Tumbleweed
SE +/- 289.17, N = 15
36360.07
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
CentOS Stream
SE +/- 30.62, N = 3
-pthread
23861.27
Debian 11
SE +/- 689.07, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
115021.70
Fedora 35 Beta
SE +/- 145.01, N = 3
23009.99
Ubuntu 21.10 Oct1
SE +/- 647.01, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
113702.80
openSUSE Tumbleweed
SE +/- 83.49, N = 3
23088.45
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0

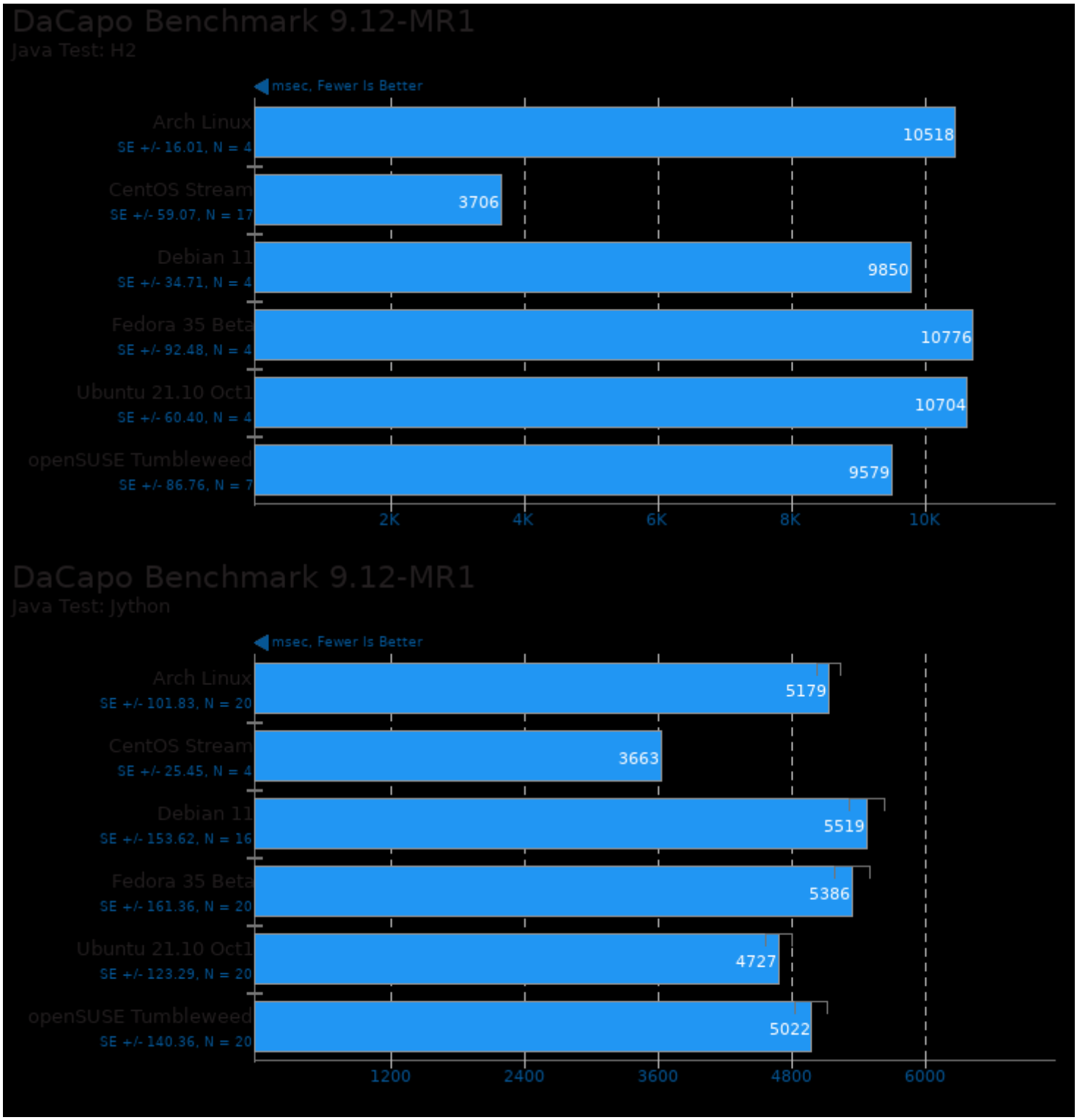

NAS Parallel Benchmarks 3.4
Test / Class: SP.C
Total Mop/s, More Is Better
CentOS Stream
SE +/- 44.46, N = 3
-pthread
24408.10
Debian 11
SE +/- 24.84, N = 3
-pthread -lopen-rte -lopen-pal -lhwloc -ldl -levent_core -levent_pthreads -lutil -lm -lrt -lz
90606.08
Fedora 35 Beta
SE +/- 124.15, N = 3
23991.71
Ubuntu 21.10 Oct1
SE +/- 167.98, N = 3
-lopen-rte -lopen-pal -lhwloc -levent_core -levent_pthreads -lm -lz
91411.13
openSUSE Tumbleweed
SE +/- 56.62, N = 3
24132.71
20K
40K
60K
80K
100K
1. (F9X) gfortran options: -O3 -march=native -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.1.0
Rodinia 3.1
Test: OpenMP LavaMD
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.17, N = 3
40.03
CentOS Stream
SE +/- 0.16, N = 3
45.53
Debian 11
SE +/- 0.17, N = 3
38.07
Fedora 35 Beta
SE +/- 0.14, N = 3
45.73
Ubuntu 21.10 Oct1
SE +/- 0.48, N = 3
46.58
openSUSE Tumbleweed
SE +/- 0.02, N = 3
44.16
11
22
33
44
55
1. (CXX) g++ options: -O2 -lOpenCL

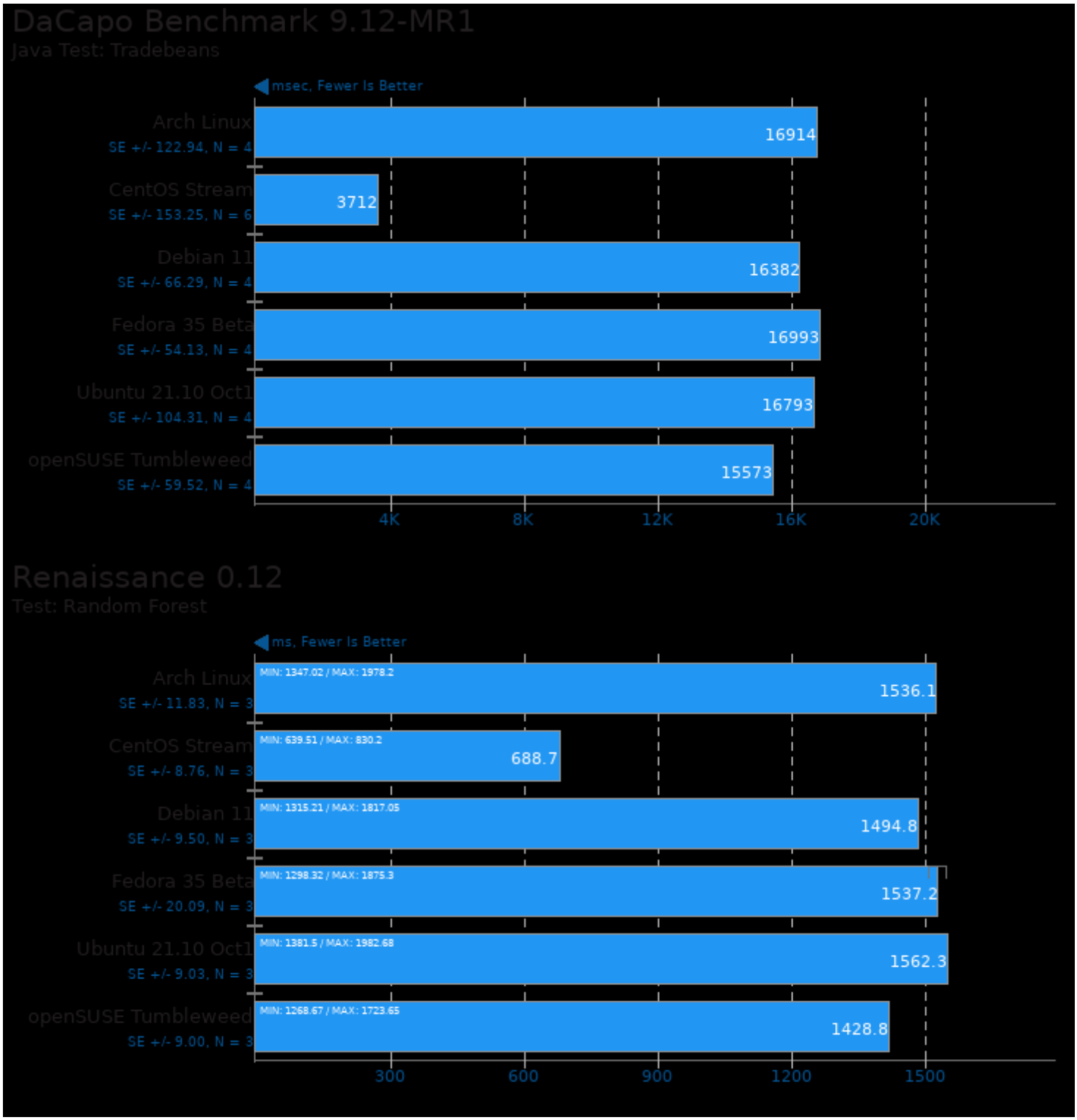

Rodinia 3.1
Test: OpenMP Leukocyte
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.88, N = 3
64.73
CentOS Stream
SE +/- 0.55, N = 15
45.74
Debian 11
SE +/- 1.08, N = 15
55.25
Fedora 35 Beta
SE +/- 0.77, N = 15
48.92
Ubuntu 21.10 Oct1
SE +/- 0.54, N = 15
53.42
openSUSE Tumbleweed
SE +/- 1.06, N = 15
51.07
14
28
42
56
70
1. (CXX) g++ options: -O2 -lOpenCL
Rodinia 3.1
Test: OpenMP Streamcluster
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.076, N = 15
8.145
CentOS Stream
SE +/- 0.096, N = 4
7.965
Debian 11
SE +/- 0.119, N = 15
7.834
Fedora 35 Beta
SE +/- 0.195, N = 12
8.179
Ubuntu 21.10 Oct1
SE +/- 0.076, N = 3
8.282
openSUSE Tumbleweed
SE +/- 0.071, N = 15
8.178
2
4
6
8
10
1. (CXX) g++ options: -O2 -lOpenCL

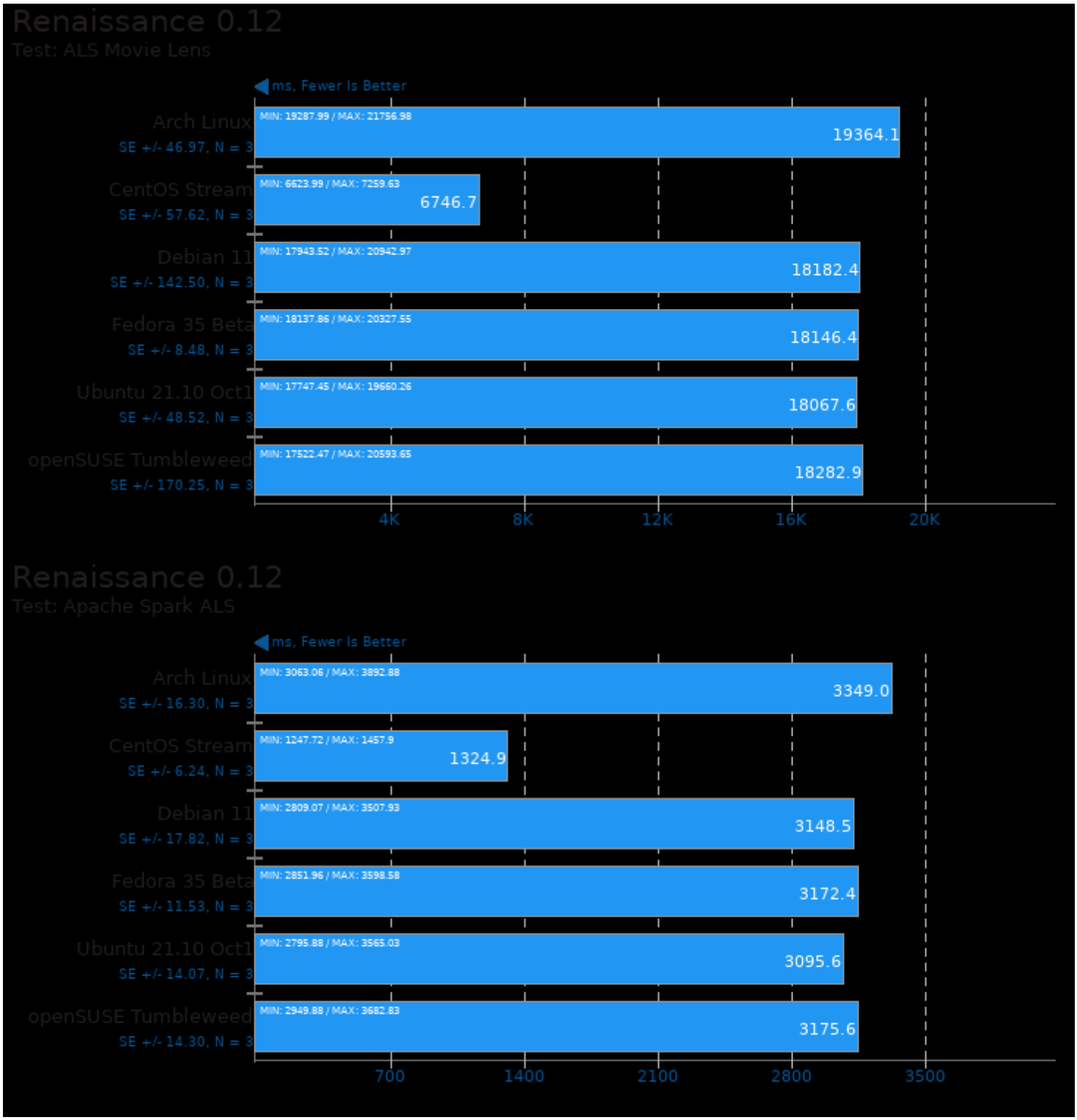

NAMD 2.14
ATPase Simulation - 327,506 Atoms
days/ns, Fewer Is Better
Arch Linux
SE +/- 0.00039, N = 3
0.27372
CentOS Stream
SE +/- 0.00046, N = 3
0.27436
Debian 11
SE +/- 0.00049, N = 3
0.27334
Fedora 35 Beta
SE +/- 0.00098, N = 3
0.28029
Ubuntu 21.10 Oct1
SE +/- 0.00056, N = 3
0.27847
openSUSE Tumbleweed
SE +/- 0.00043, N = 3
0.27899
0.0631
0.1262
0.1893
0.2524
0.3155
simdjson 1.0
Throughput Test: Kostya
GB/s, More Is Better
Arch Linux
SE +/- 0.00, N = 3
-pthread
2.45
CentOS Stream
SE +/- 0.00, N = 3
-pthread
2.44
Debian 11
SE +/- 0.00, N = 3
-pthread
2.53
Fedora 35 Beta
SE +/- 0.00, N = 3
2.44
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
2.45
openSUSE Tumbleweed
SE +/- 0.00, N = 3
2.50
0.5693
1.1386
1.7079
2.2772
2.8465
1. (CXX) g++ options: -O3

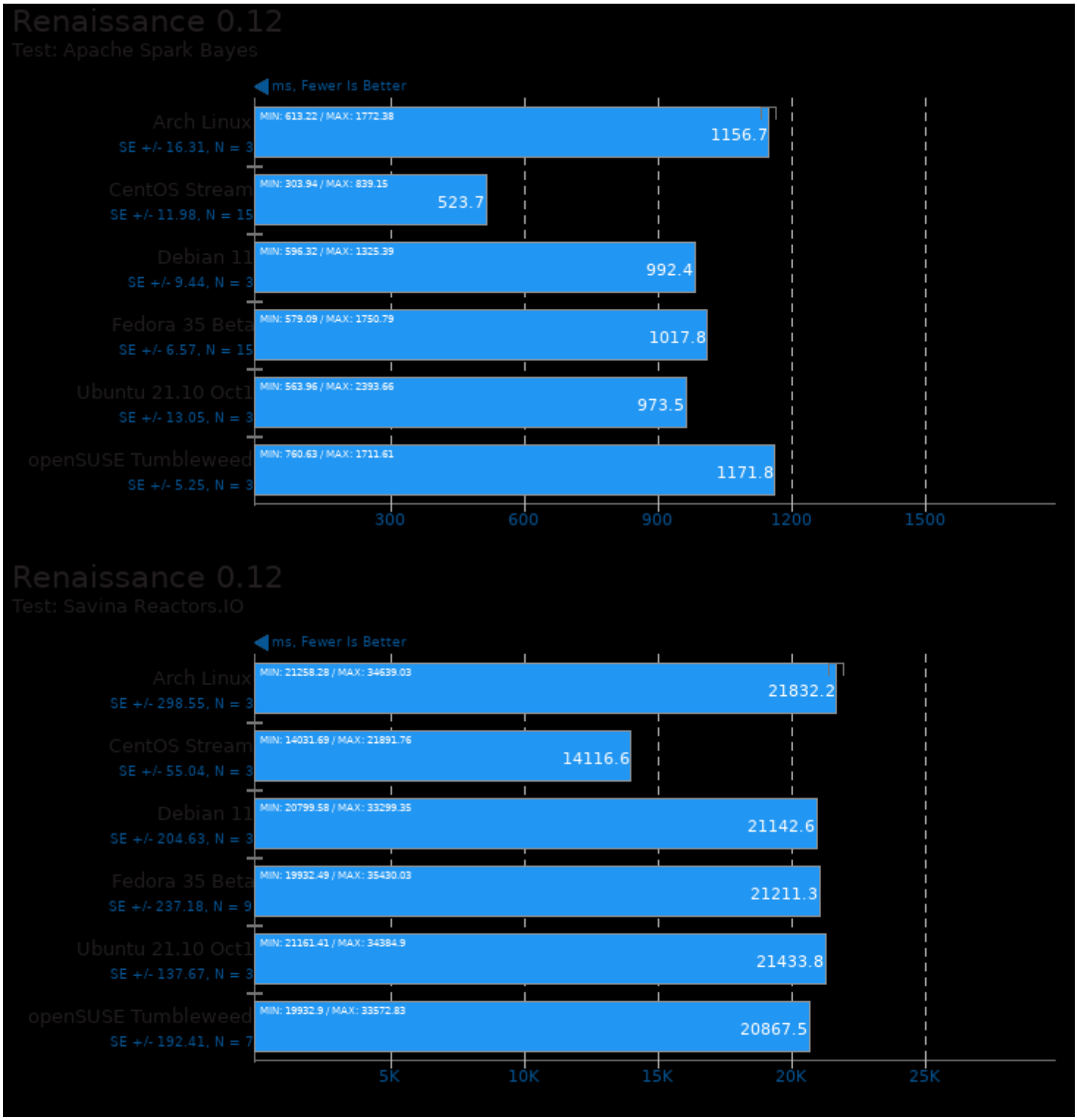

simdjson 1.0
Throughput Test: LargeRandom
GB/s, More Is Better
Arch Linux
SE +/- 0.00, N = 3
-pthread
0.85
CentOS Stream
SE +/- 0.00, N = 3
-pthread
0.85
Debian 11
SE +/- 0.00, N = 3
-pthread
0.86
Fedora 35 Beta
SE +/- 0.00, N = 3
0.86
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
0.85
openSUSE Tumbleweed
SE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

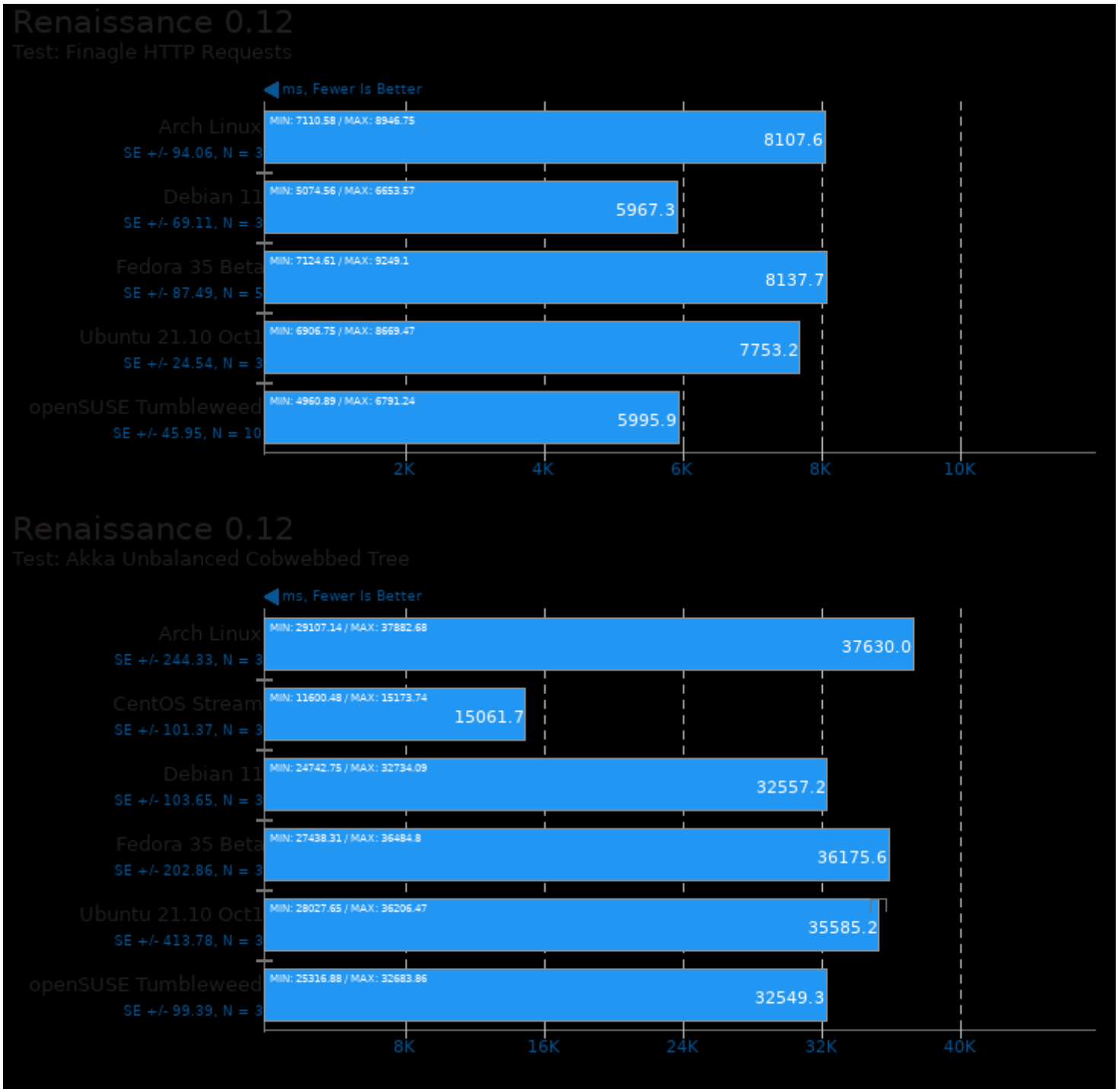

simdjson 1.0
Throughput Test: DistinctUserID
GB/s, More Is Better
Arch Linux
SE +/- 0.00, N = 3
-pthread
4.24
CentOS Stream
SE +/- 0.01, N = 3
-pthread
4.23
Debian 11
SE +/- 0.00, N = 3
-pthread
4.31
Fedora 35 Beta
SE +/- 0.02, N = 3
4.16
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
4.22
openSUSE Tumbleweed
SE +/- 0.00, N = 3
4.12
0.9698
1.9396
2.9094
3.8792
4.849
1. (CXX) g++ options: -O3
GNU GMP GMPbench 6.2.1
Total Time
GMPbench Score, More Is Better
Arch Linux
3874.5
CentOS Stream
4228.8
Debian 11
4519.0
Fedora 35 Beta
3776.8
Ubuntu 21.10 Oct1
4503.0
openSUSE Tumbleweed
3828.4
1000
2000
3000
4000
5000
1. (CC) gcc options: -O3 -fomit-frame-pointer -lm

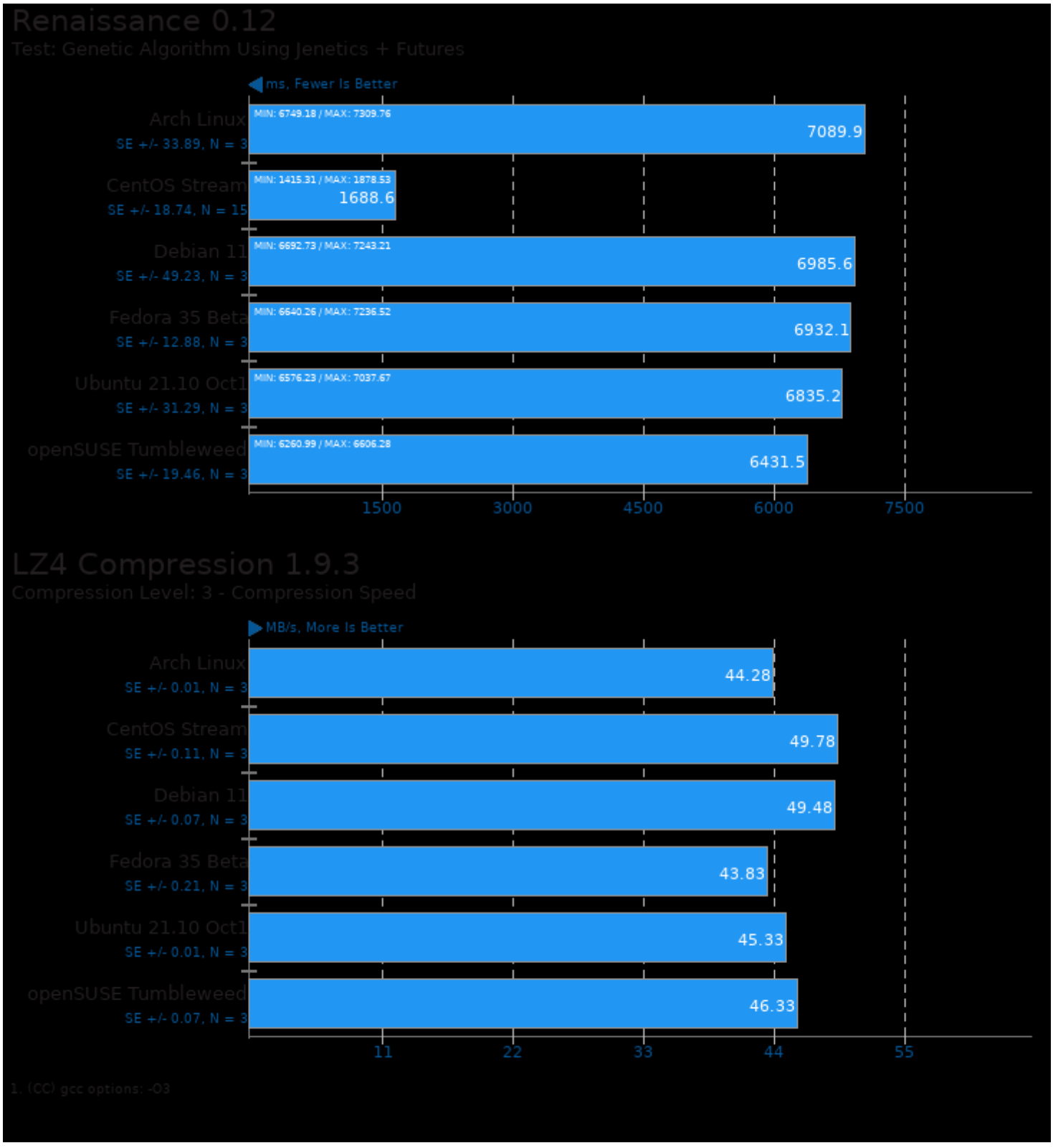

DaCapo Benchmark 9.12-MR1
Java Test: H2
msec, Fewer Is Better
Arch Linux
SE +/- 16.01, N = 4
10518
CentOS Stream
SE +/- 59.07, N = 17
3706
Debian 11
SE +/- 34.71, N = 4
9850
Fedora 35 Beta
SE +/- 92.48, N = 4
10776
Ubuntu 21.10 Oct1
SE +/- 60.40, N = 4
10704
openSUSE Tumbleweed
SE +/- 86.76, N = 7
9579
2K
4K
6K
8K
10K
DaCapo Benchmark 9.12-MR1
Java Test: Jython
msec, Fewer Is Better
Arch Linux
SE +/- 101.83, N = 20
5179
CentOS Stream
SE +/- 25.45, N = 4
3663
Debian 11
SE +/- 153.62, N = 16
5519
Fedora 35 Beta
SE +/- 161.36, N = 20
5386
Ubuntu 21.10 Oct1
SE +/- 123.29, N = 20
4727
openSUSE Tumbleweed
SE +/- 140.36, N = 20
5022
1200
2400
3600
4800
6000

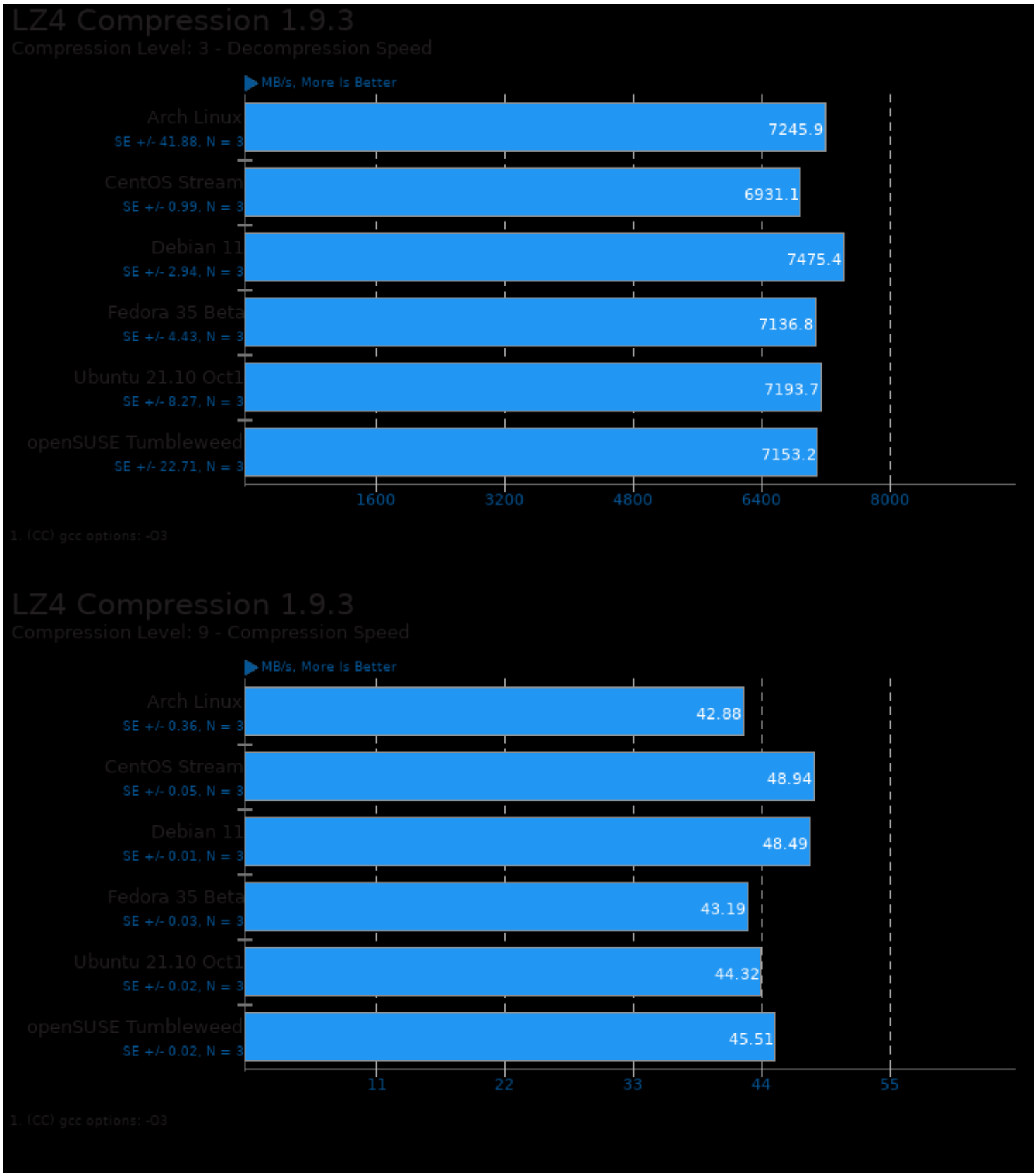

DaCapo Benchmark 9.12-MR1
Java Test: Tradebeans
msec, Fewer Is Better
Arch Linux
SE +/- 122.94, N = 4
16914
CentOS Stream
SE +/- 153.25, N = 6
3712
Debian 11
SE +/- 66.29, N = 4
16382
Fedora 35 Beta
SE +/- 54.13, N = 4
16993
Ubuntu 21.10 Oct1
SE +/- 104.31, N = 4
16793
openSUSE Tumbleweed
SE +/- 59.52, N = 4
15573
4K
8K
12K
16K
20K
Renaissance 0.12
Test: Random Forest
ms, Fewer Is Better
Arch Linux
SE +/- 11.83, N = 3
MIN: 1347.02 / MAX: 1978.2
1536.1
CentOS Stream
SE +/- 8.76, N = 3
MIN: 639.51 / MAX: 830.2
688.7
Debian 11
SE +/- 9.50, N = 3
MIN: 1315.21 / MAX: 1817.05
1494.8
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
openSUSE Tumbleweed
SE +/- 9.00, N = 3
MIN: 1268.67 / MAX: 1723.65
1428.8
300
600
900
1200
1500

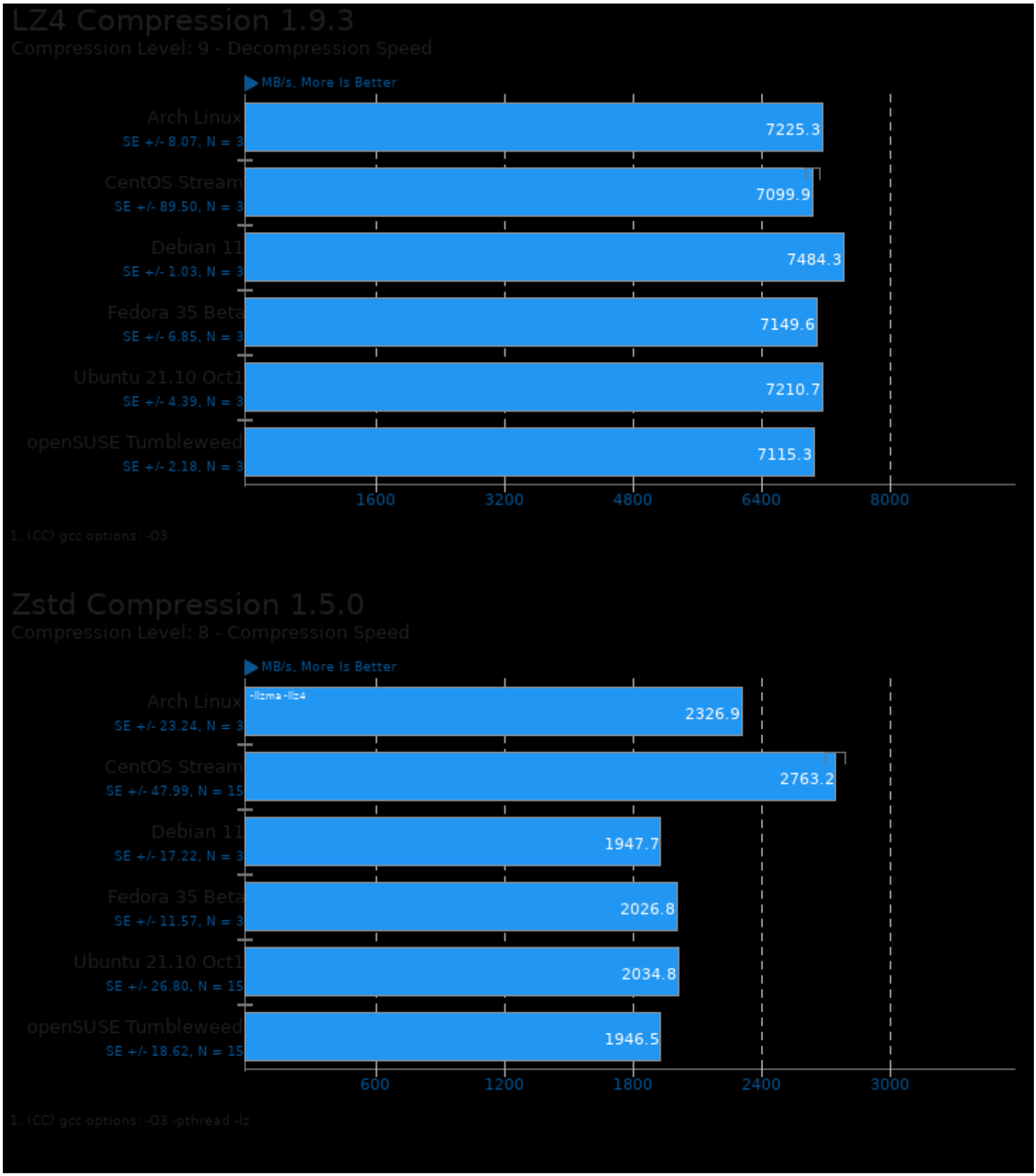

Renaissance 0.12
Test: ALS Movie Lens
ms, Fewer Is Better
Arch Linux
SE +/- 46.97, N = 3
MIN: 19287.99 / MAX: 21756.98
19364.1
CentOS Stream
SE +/- 57.62, N = 3
MIN: 6623.99 / MAX: 7259.63
6746.7
Debian 11
SE +/- 142.50, N = 3
MIN: 17943.52 / MAX: 20942.97
18182.4
Fedora 35 Beta
SE +/- 8.48, N = 3
MIN: 18137.86 / MAX: 20327.55
18146.4
Ubuntu 21.10 Oct1
SE +/- 48.52, N = 3
MIN: 17747.45 / MAX: 19660.26
18067.6
openSUSE Tumbleweed
SE +/- 170.25, N = 3
MIN: 17522.47 / MAX: 20593.65
18282.9
4K
8K
12K
16K
20K
Renaissance 0.12
Test: Apache Spark ALS
ms, Fewer Is Better
Arch Linux
SE +/- 16.30, N = 3
MIN: 3063.06 / MAX: 3892.88
3349.0
CentOS Stream
SE +/- 6.24, N = 3
MIN: 1247.72 / MAX: 1457.9
1324.9
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
Ubuntu 21.10 Oct1
SE +/- 14.07, N = 3
MIN: 2795.88 / MAX: 3565.03
3095.6
openSUSE Tumbleweed
SE +/- 14.30, N = 3
MIN: 2949.88 / MAX: 3682.83
3175.6
700
1400
2100
2800
3500

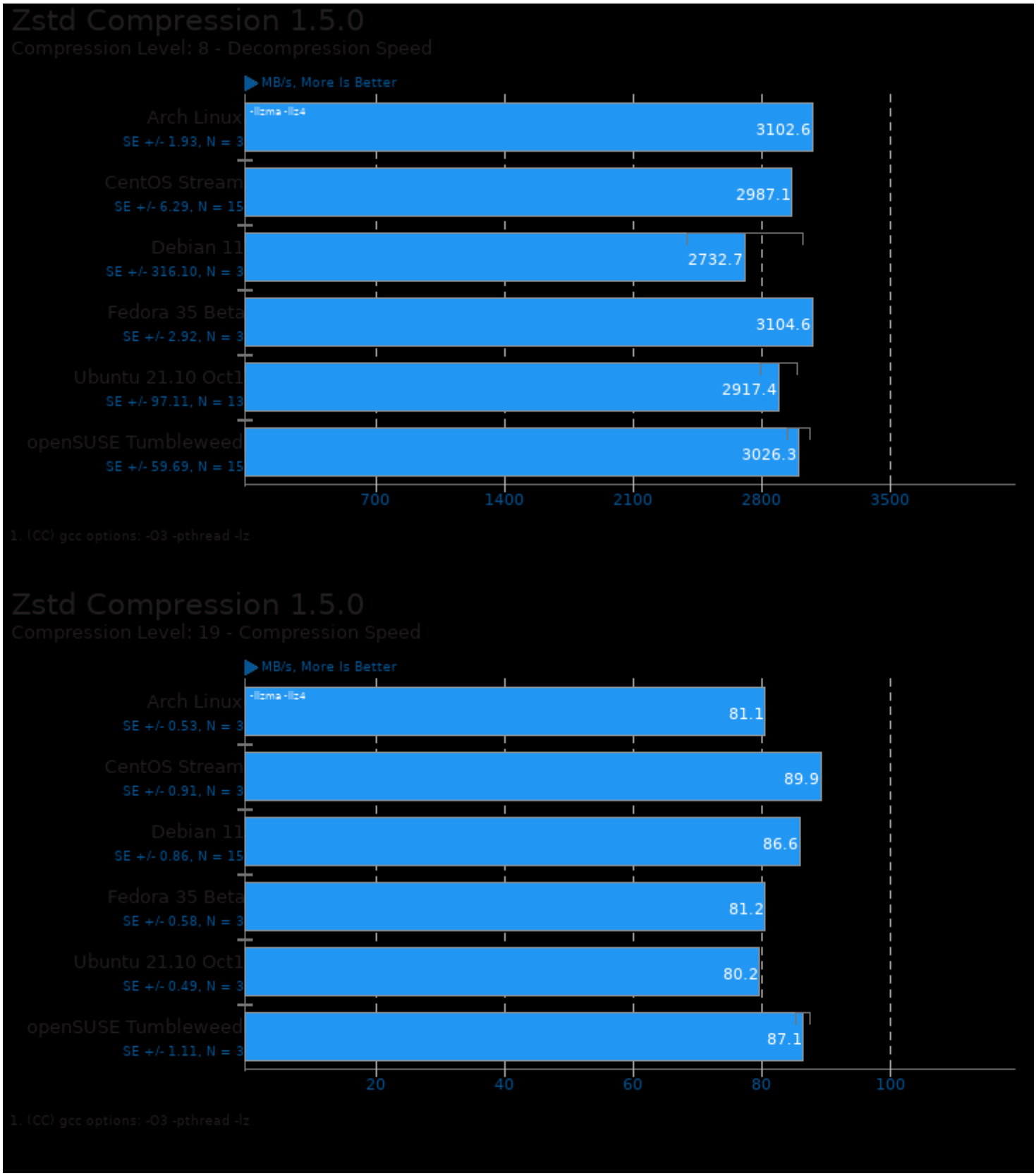

Renaissance 0.12
Test: Apache Spark Bayes
ms, Fewer Is Better
Arch Linux
SE +/- 16.31, N = 3
MIN: 613.22 / MAX: 1772.38
1156.7
CentOS Stream
SE +/- 11.98, N = 15
MIN: 303.94 / MAX: 839.15
523.7
Debian 11
SE +/- 9.44, N = 3
MIN: 596.32 / MAX: 1325.39
992.4
Fedora 35 Beta
SE +/- 6.57, N = 15
MIN: 579.09 / MAX: 1750.79
1017.8
Ubuntu 21.10 Oct1
SE +/- 13.05, N = 3
MIN: 563.96 / MAX: 2393.66
973.5
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
Arch Linux
SE +/- 298.55, N = 3
MIN: 21258.28 / MAX: 34639.03
21832.2
CentOS Stream
SE +/- 55.04, N = 3
MIN: 14031.69 / MAX: 21891.76
14116.6
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 Oct1
SE +/- 137.67, N = 3
MIN: 21161.41 / MAX: 34384.9
21433.8
openSUSE Tumbleweed
SE +/- 192.41, N = 7
MIN: 19932.9 / MAX: 33572.83
20867.5
5K
10K
15K
20K
25K

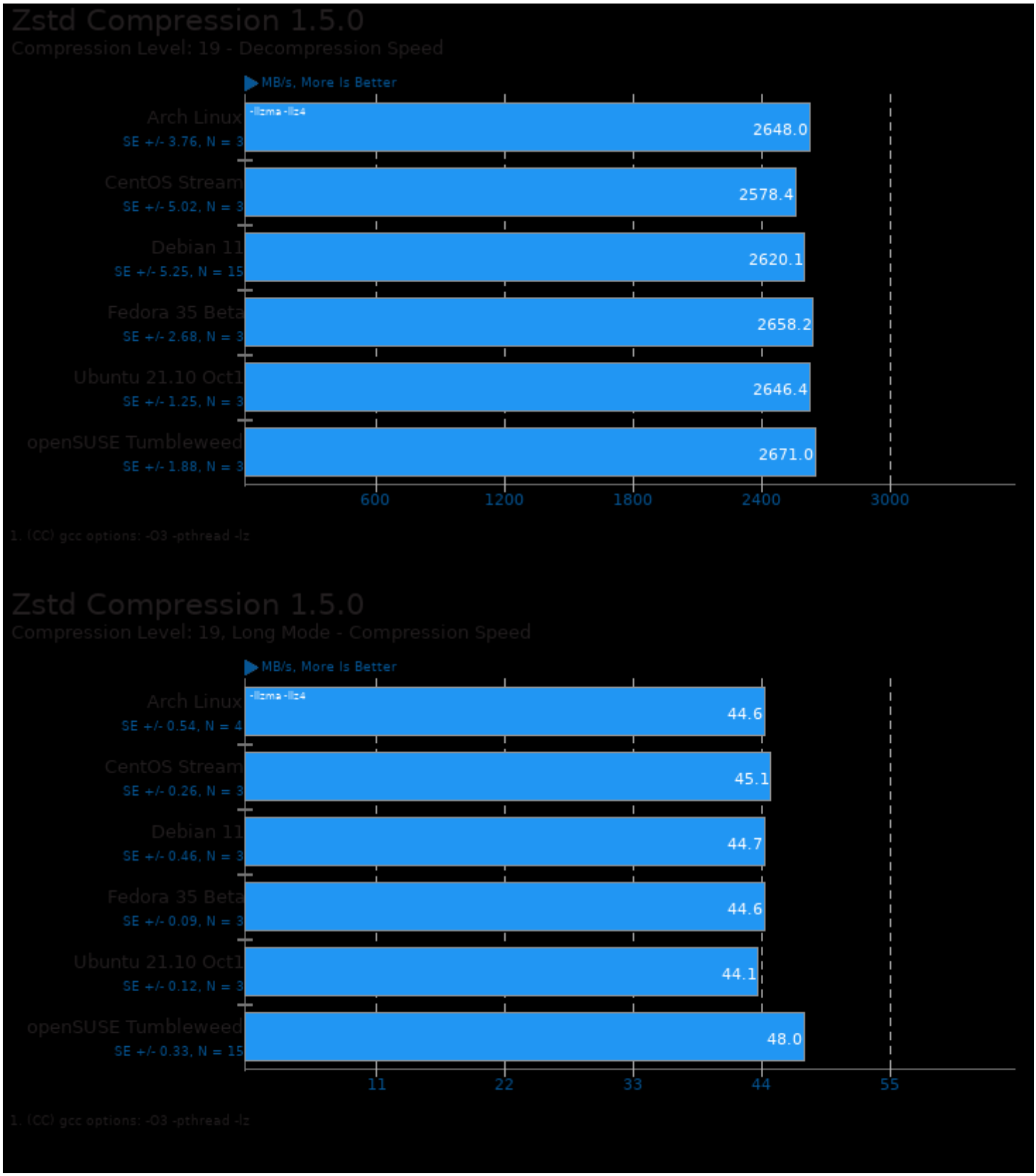

Renaissance 0.12
Test: Finagle HTTP Requests
ms, Fewer Is Better
Arch Linux
SE +/- 94.06, N = 3
MIN: 7110.58 / MAX: 8946.75
8107.6
Debian 11
SE +/- 69.11, N = 3
MIN: 5074.56 / MAX: 6653.57
5967.3
Fedora 35 Beta
SE +/- 87.49, N = 5
MIN: 7124.61 / MAX: 9249.1
8137.7
Ubuntu 21.10 Oct1
SE +/- 24.54, N = 3
MIN: 6906.75 / MAX: 8669.47
7753.2
openSUSE Tumbleweed
SE +/- 45.95, N = 10
MIN: 4960.89 / MAX: 6791.24
5995.9
2K
4K
6K
8K
10K
Renaissance 0.12
Test: Akka Unbalanced Cobwebbed Tree
ms, Fewer Is Better
Arch Linux
SE +/- 244.33, N = 3
MIN: 29107.14 / MAX: 37882.68
37630.0
CentOS Stream
SE +/- 101.37, N = 3
MIN: 11600.48 / MAX: 15173.74
15061.7
Debian 11
SE +/- 103.65, N = 3
MIN: 24742.75 / MAX: 32734.09
32557.2
Fedora 35 Beta
SE +/- 202.86, N = 3
MIN: 27438.31 / MAX: 36484.8
36175.6
Ubuntu 21.10 Oct1
SE +/- 413.78, N = 3
MIN: 28027.65 / MAX: 36206.47
35585.2
openSUSE Tumbleweed
SE +/- 99.39, N = 3
MIN: 25316.88 / MAX: 32683.86
32549.3
8K
16K
24K
32K
40K

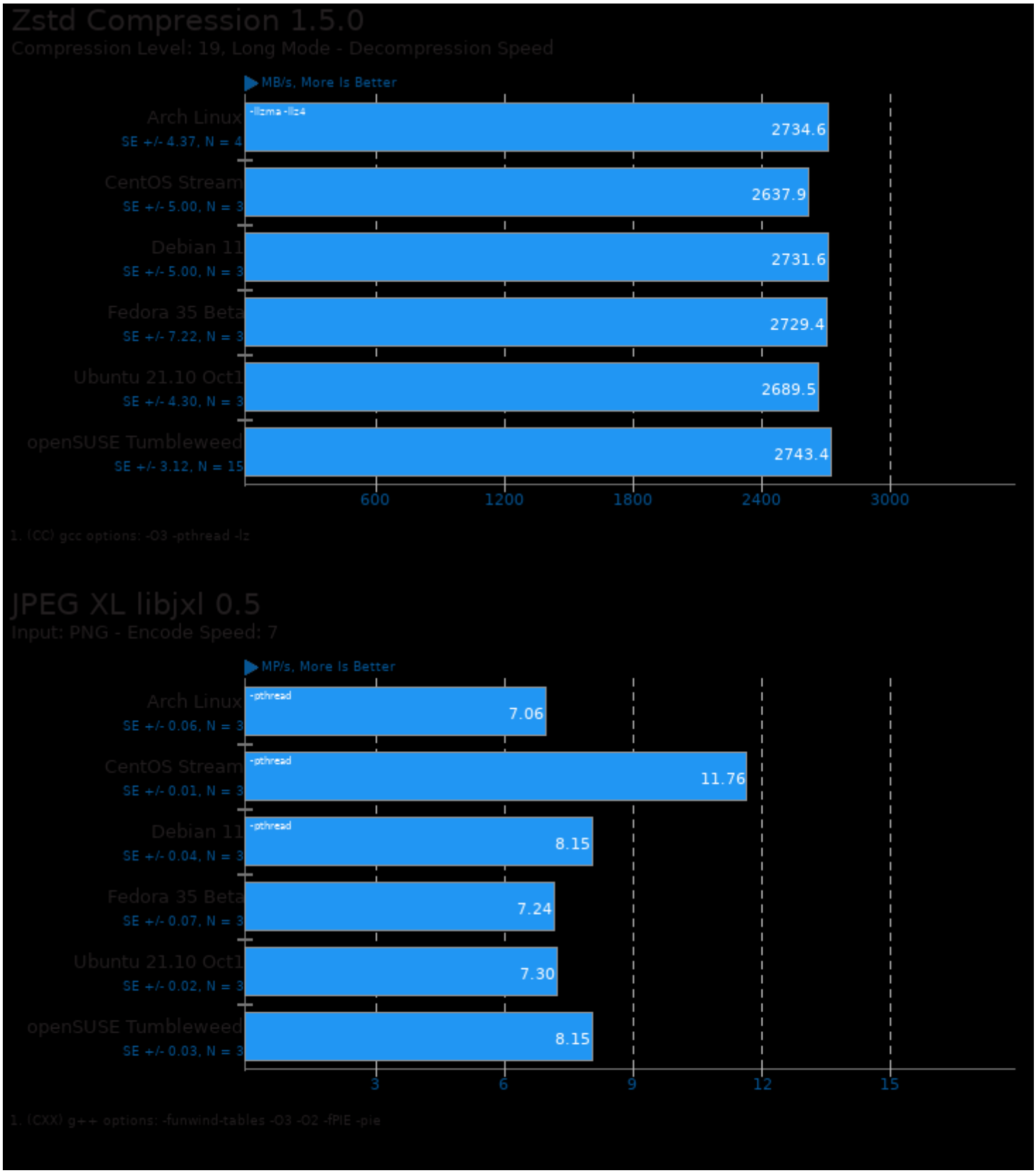

Renaissance 0.12
Test: Genetic Algorithm Using Jenetics + Futures
ms, Fewer Is Better
Arch Linux
SE +/- 33.89, N = 3
MIN: 6749.18 / MAX: 7309.76
7089.9
CentOS Stream
SE +/- 18.74, N = 15
MIN: 1415.31 / MAX: 1878.53
1688.6
Debian 11
SE +/- 49.23, N = 3
MIN: 6692.73 / MAX: 7243.21
6985.6
Fedora 35 Beta
SE +/- 12.88, N = 3
MIN: 6640.26 / MAX: 7236.52
6932.1
Ubuntu 21.10 Oct1
SE +/- 31.29, N = 3
MIN: 6576.23 / MAX: 7037.67
6835.2
openSUSE Tumbleweed
SE +/- 19.46, N = 3
MIN: 6260.99 / MAX: 6606.28
6431.5
1500
3000
4500
6000
7500
LZ4 Compression 1.9.3
Compression Level: 3 - Compression Speed
MB/s, More Is Better
Arch Linux
SE +/- 0.01, N = 3
44.28
CentOS Stream
SE +/- 0.11, N = 3
49.78
Debian 11
SE +/- 0.07, N = 3
49.48
Fedora 35 Beta
SE +/- 0.21, N = 3
43.83
Ubuntu 21.10 Oct1
SE +/- 0.01, N = 3
45.33
openSUSE Tumbleweed
SE +/- 0.07, N = 3
46.33
11
22
33
44
55
1. (CC) gcc options: -O3

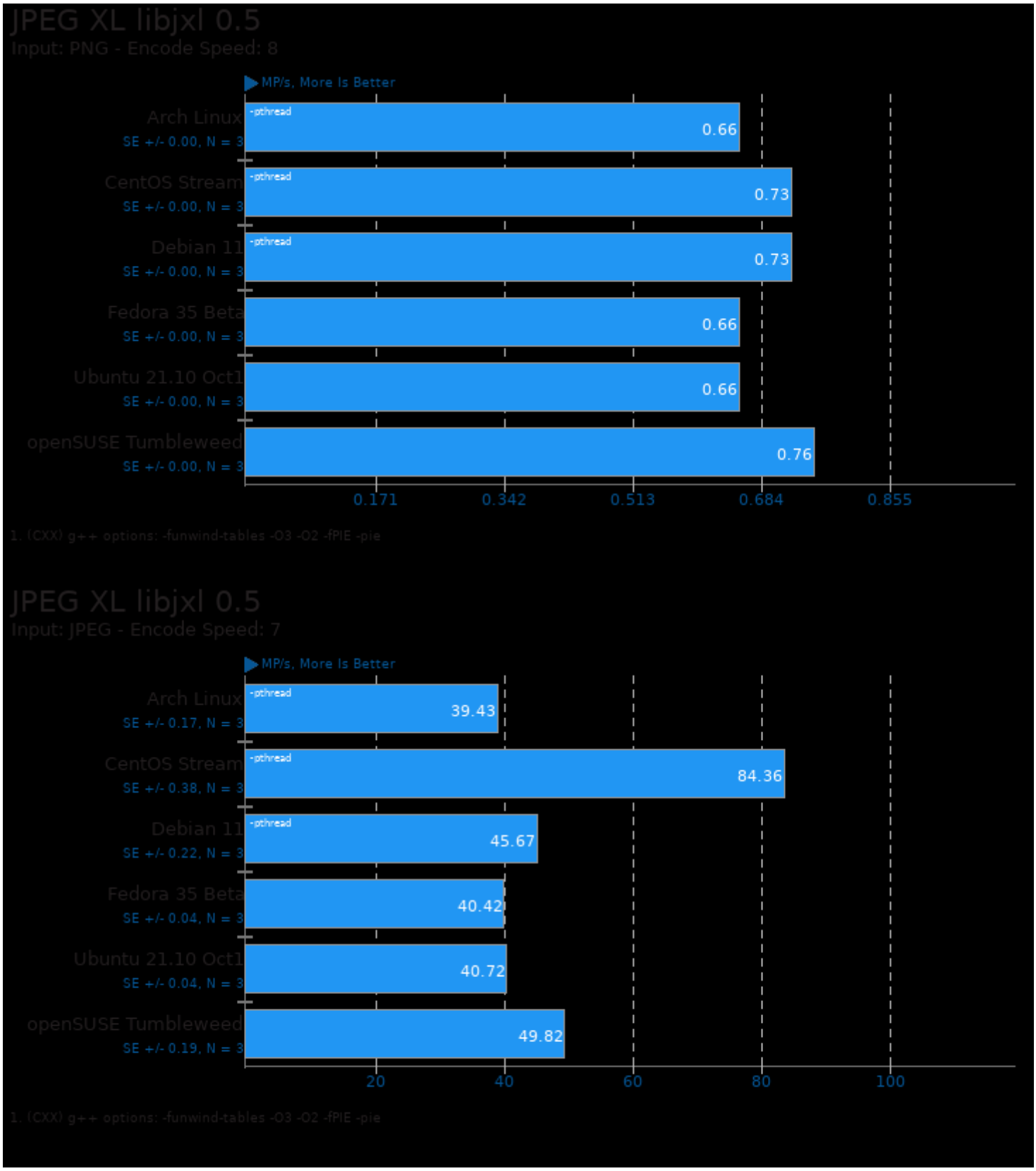

LZ4 Compression 1.9.3
Compression Level: 3 - Decompression Speed
MB/s, More Is Better
Arch Linux
SE +/- 41.88, N = 3
7245.9
CentOS Stream
SE +/- 0.99, N = 3
6931.1
Debian 11
SE +/- 2.94, N = 3
7475.4
Fedora 35 Beta
SE +/- 4.43, N = 3
7136.8
Ubuntu 21.10 Oct1
SE +/- 8.27, N = 3
7193.7
openSUSE Tumbleweed
SE +/- 22.71, N = 3
7153.2
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
Arch Linux
SE +/- 0.36, N = 3
42.88
CentOS Stream
SE +/- 0.05, N = 3
48.94
Debian 11
SE +/- 0.01, N = 3
48.49
Fedora 35 Beta
SE +/- 0.03, N = 3
43.19
Ubuntu 21.10 Oct1
SE +/- 0.02, N = 3
44.32
openSUSE Tumbleweed
SE +/- 0.02, N = 3
45.51
11
22
33
44
55
1. (CC) gcc options: -O3

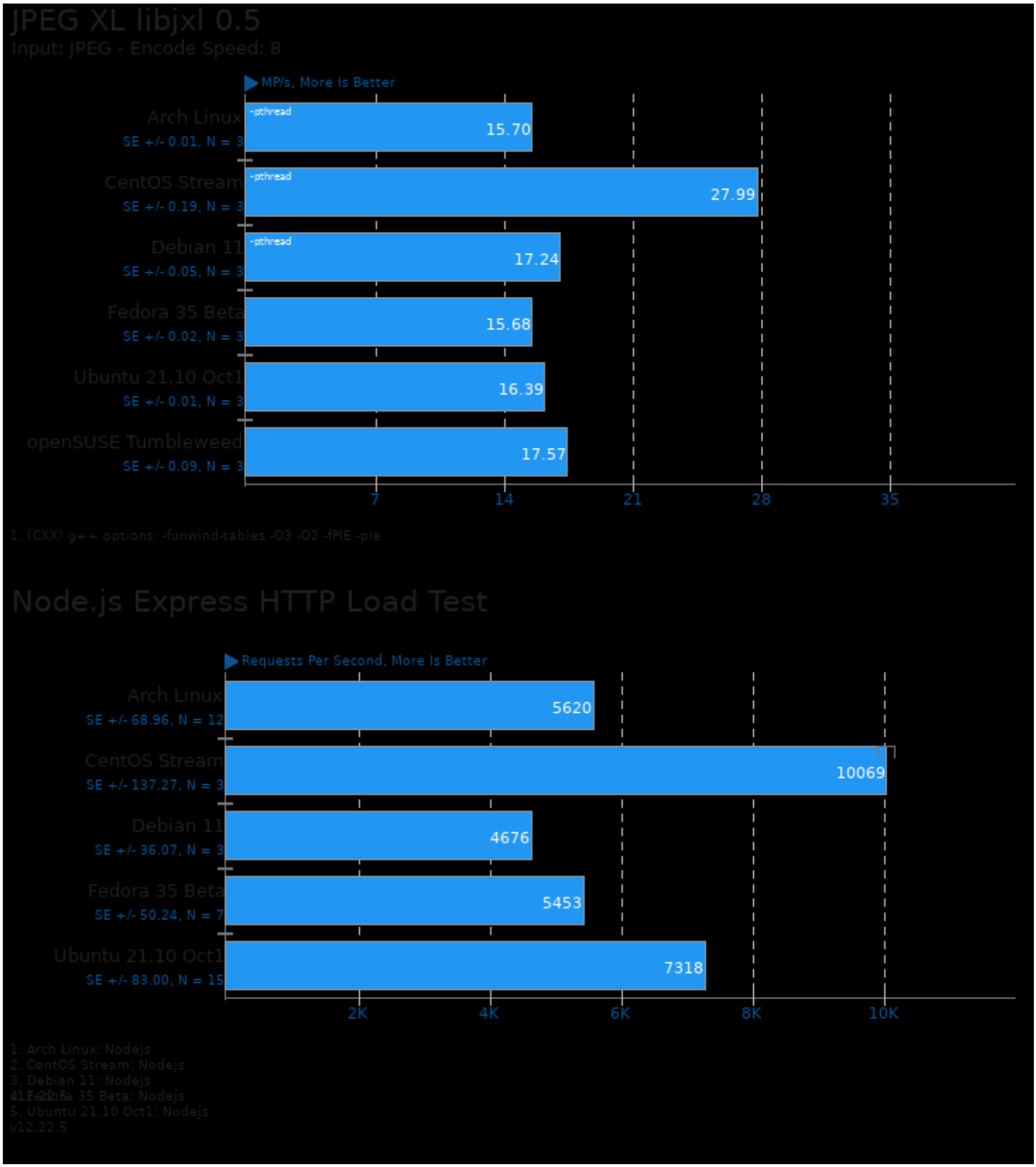

LZ4 Compression 1.9.3
Compression Level: 9 - Decompression Speed
MB/s, More Is Better
Arch Linux
SE +/- 8.07, N = 3
7225.3
CentOS Stream
SE +/- 89.50, N = 3
7099.9
Debian 11
SE +/- 1.03, N = 3
7484.3
Fedora 35 Beta
SE +/- 6.85, N = 3
7149.6
Ubuntu 21.10 Oct1
SE +/- 4.39, N = 3
7210.7
openSUSE Tumbleweed
SE +/- 2.18, N = 3
7115.3
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
-llzma -llz4
Arch Linux
SE +/- 23.24, N = 3
2326.9
CentOS Stream
SE +/- 47.99, N = 15
2763.2
Debian 11
SE +/- 17.22, N = 3
1947.7
Fedora 35 Beta
SE +/- 11.57, N = 3
2026.8
Ubuntu 21.10 Oct1
SE +/- 26.80, N = 15
2034.8
openSUSE Tumbleweed
SE +/- 18.62, N = 15
1946.5
600
1200
1800
2400
3000
1. (CC) gcc options: -O3 -pthread -lz

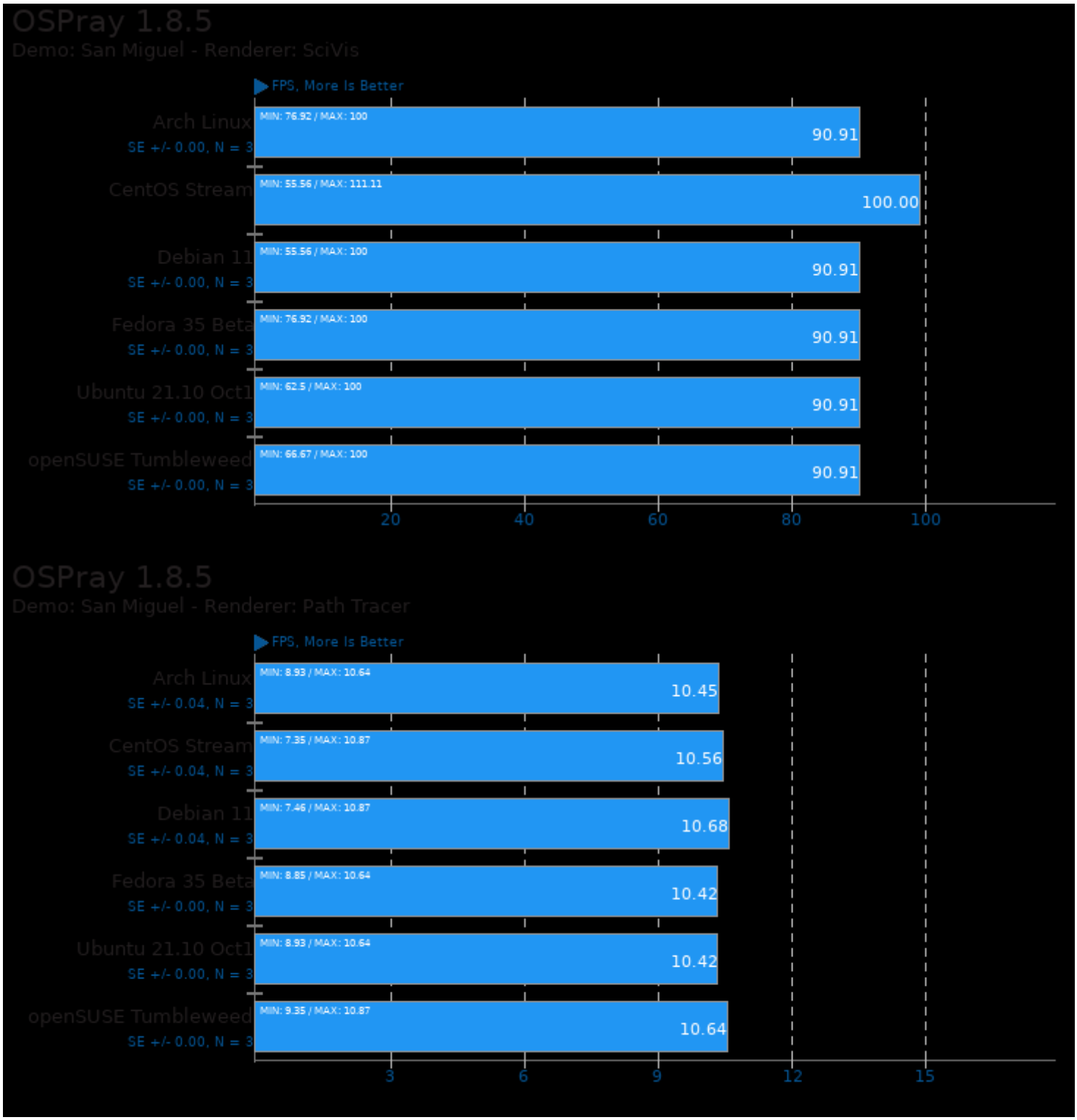

Zstd Compression 1.5.0
Compression Level: 8 - Decompression Speed
MB/s, More Is Better
-llzma -llz4
Arch Linux
SE +/- 1.93, N = 3
3102.6
CentOS Stream
SE +/- 6.29, N = 15
2987.1
Debian 11
SE +/- 316.10, N = 3
2732.7
Fedora 35 Beta
SE +/- 2.92, N = 3
3104.6
Ubuntu 21.10 Oct1
SE +/- 97.11, N = 13
2917.4
openSUSE Tumbleweed
SE +/- 59.69, N = 15
3026.3
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
-llzma -llz4
Arch Linux
SE +/- 0.53, N = 3
81.1
CentOS Stream
SE +/- 0.91, N = 3
89.9
Debian 11
SE +/- 0.86, N = 15
86.6
Fedora 35 Beta
SE +/- 0.58, N = 3
81.2
Ubuntu 21.10 Oct1
SE +/- 0.49, N = 3
80.2
openSUSE Tumbleweed
SE +/- 1.11, N = 3
87.1
20
40
60
80
100
1. (CC) gcc options: -O3 -pthread -lz

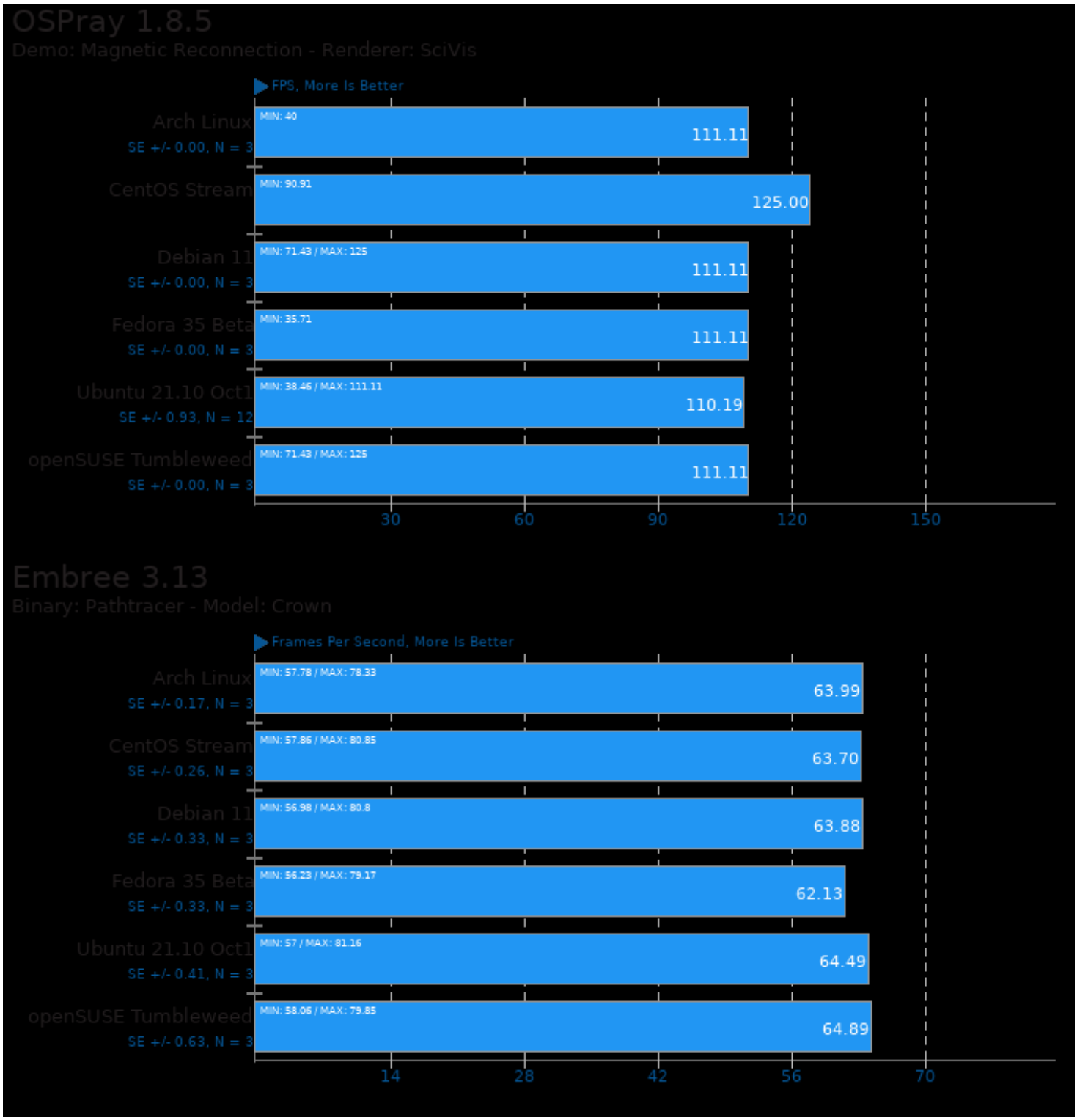

Zstd Compression 1.5.0
Compression Level: 19 - Decompression Speed
MB/s, More Is Better
-llzma -llz4
Arch Linux
SE +/- 3.76, N = 3
2648.0
CentOS Stream
SE +/- 5.02, N = 3
2578.4
Debian 11
SE +/- 5.25, N = 15
2620.1
Fedora 35 Beta
SE +/- 2.68, N = 3
2658.2
Ubuntu 21.10 Oct1
SE +/- 1.25, N = 3
2646.4
openSUSE Tumbleweed
SE +/- 1.88, N = 3
2671.0
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
-llzma -llz4
Arch Linux
SE +/- 0.54, N = 4
44.6
CentOS Stream
SE +/- 0.26, N = 3
45.1
Debian 11
SE +/- 0.46, N = 3
44.7
Fedora 35 Beta
SE +/- 0.09, N = 3
44.6
Ubuntu 21.10 Oct1
SE +/- 0.12, N = 3
44.1
openSUSE Tumbleweed
SE +/- 0.33, N = 15
48.0
11
22
33
44
55
1. (CC) gcc options: -O3 -pthread -lz

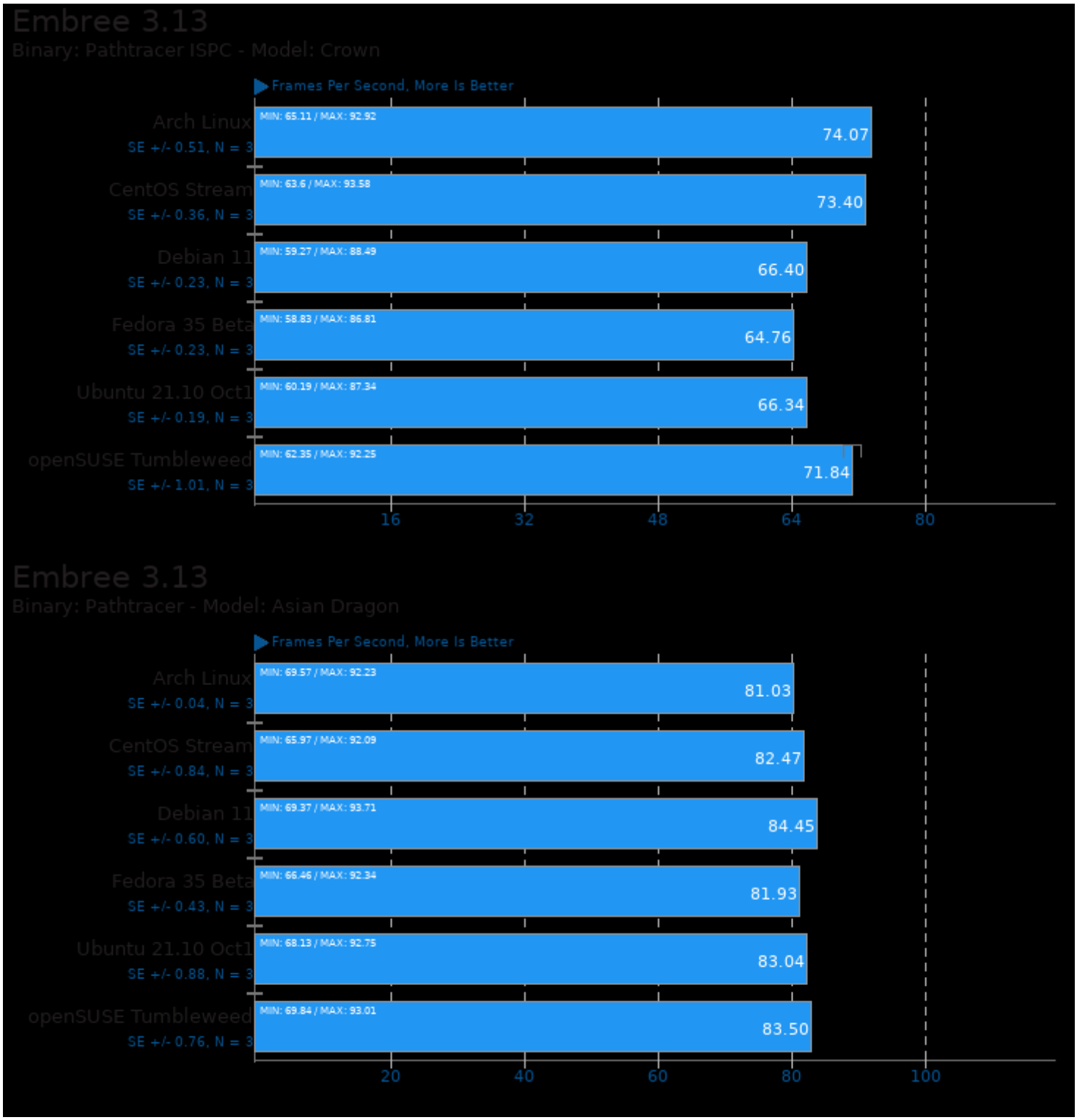

Zstd Compression 1.5.0
Compression Level: 19, Long Mode - Decompression Speed
MB/s, More Is Better
Arch Linux
SE +/- 4.37, N = 4
-llzma -llz4
2734.6
CentOS Stream
SE +/- 5.00, N = 3
2637.9
Debian 11
SE +/- 5.00, N = 3
2731.6
Fedora 35 Beta
SE +/- 7.22, N = 3
2729.4
Ubuntu 21.10 Oct1
SE +/- 4.30, N = 3
2689.5
openSUSE Tumbleweed
SE +/- 3.12, N = 15
2743.4
600
1200
1800
2400
3000
1. (CC) gcc options: -O3 -pthread -lz
JPEG XL libjxl 0.5
Input: PNG - Encode Speed: 7
MP/s, More Is Better
Arch Linux
SE +/- 0.06, N = 3
-pthread
7.06
CentOS Stream
SE +/- 0.01, N = 3
-pthread
11.76
Debian 11
SE +/- 0.04, N = 3
-pthread
8.15
Fedora 35 Beta
SE +/- 0.07, N = 3
7.24
Ubuntu 21.10 Oct1
SE +/- 0.02, N = 3
7.30
openSUSE Tumbleweed
SE +/- 0.03, N = 3
8.15
3
6
9
12
15
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie

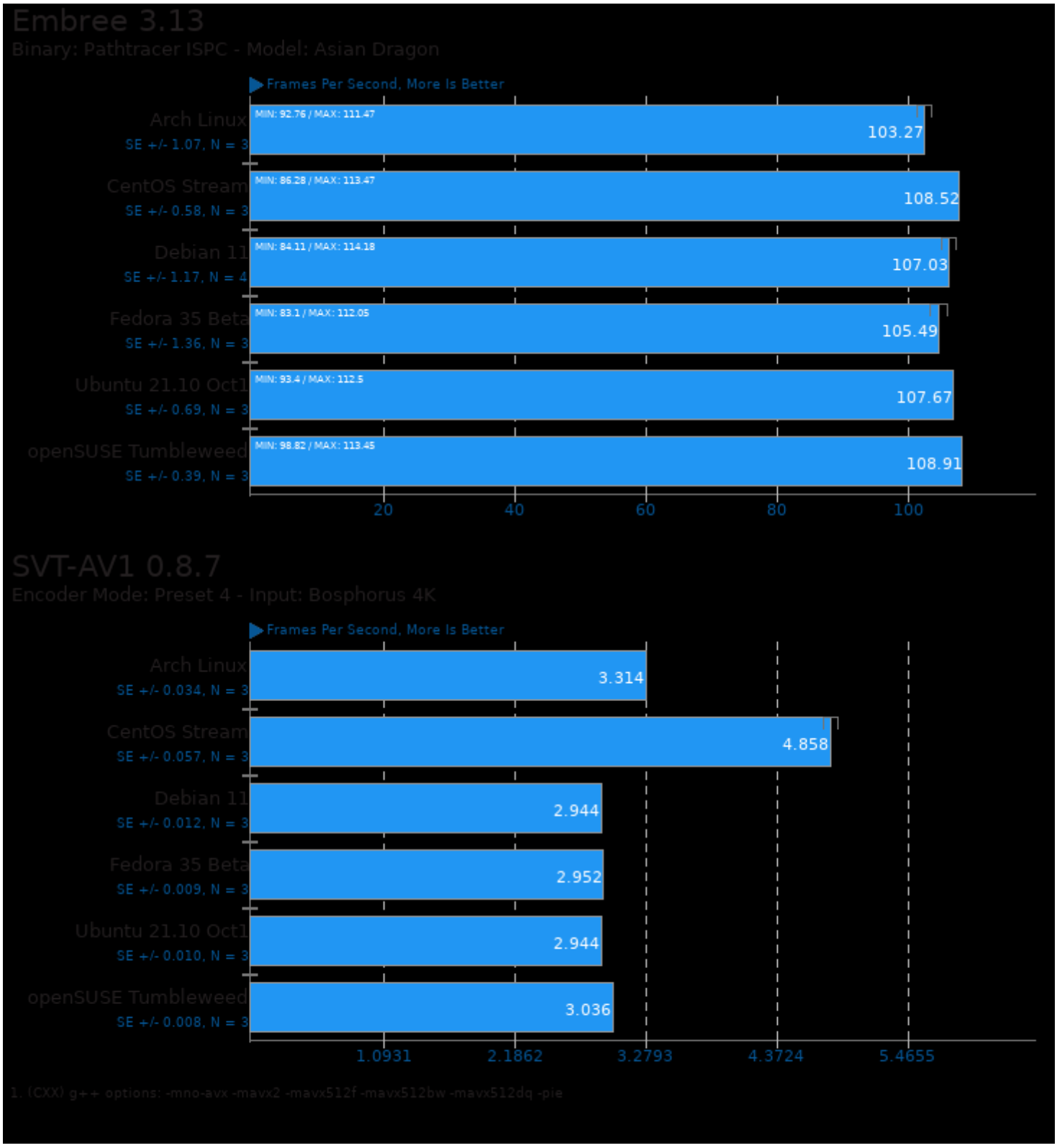

JPEG XL libjxl 0.5
Input: PNG - Encode Speed: 8
MP/s, More Is Better
Arch Linux
SE +/- 0.00, N = 3
CentOS Stream
SE +/- 0.00, N = 3
Debian 11
SE +/- 0.00, N = 3
Fedora 35 Beta
SE +/- 0.00, N = 3
Ubuntu 21.10 Oct
SE +/- 0.00, N = 3
openSUSE Tumbleweed
SE +/- 0.00, N = 3
-pthread
0.66
0.73
0.73
0.66
0.66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

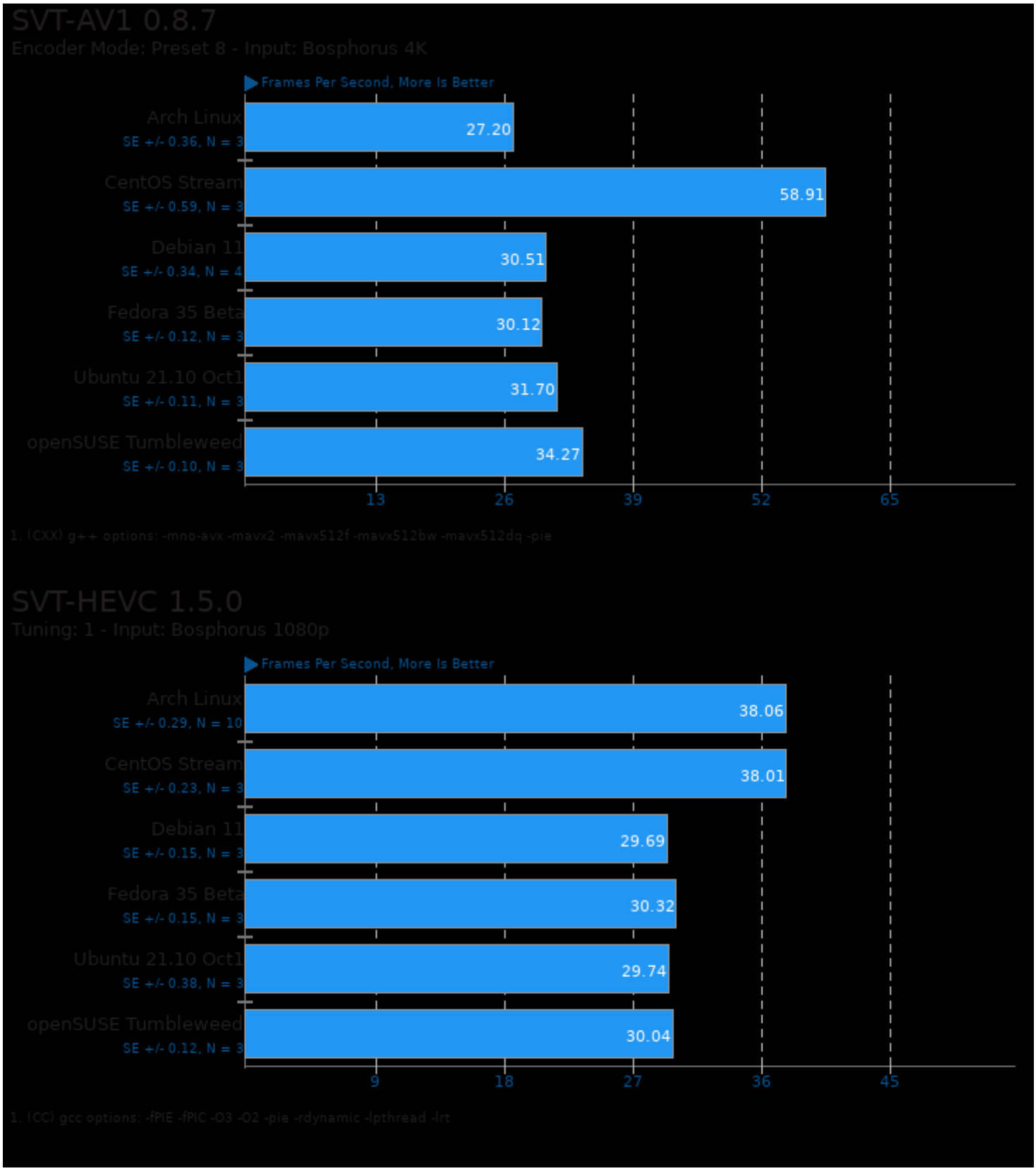

JPEG XL libjxl 0.5
Input: JPEG - Encode Speed: 8
MP/s, More Is Better
Arch Linux
SE +/- 0.01, N = 3
-pthread
15.70
CentOS Stream
SE +/- 0.19, N = 3
-pthread
27.99
Debian 11
SE +/- 0.05, N = 3
-pthread
17.24
Fedora 35 Beta
SE +/- 0.02, N = 3
15.68
Ubuntu 21.10 Oct1
SE +/- 0.01, N = 3
16.39
openSUSE Tumbleweed
SE +/- 0.09, N = 3
17.57
7
14
21
28
35
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie
Node.js Express HTTP Load Test
Requests Per Second, More Is Better
Arch Linux
SE +/- 68.96, N = 12
5620
CentOS Stream
SE +/- 137.27, N = 3
10069
Debian 11
SE +/- 36.07, N = 3
4676
Fedora 35 Beta
SE +/- 50.24, N = 7
5453
Ubuntu 21.10 Oct1
SE +/- 83.00, N = 15
7318
2K
4K
6K
8K
10K
1. Arch Linux: Nodejs
2. CentOS Stream: Nodejs
3. Debian 11: Nodejs
4. Fedora 35 Beta: Nodejs
5. Ubuntu 21.10 Oct1: Nodejs
v12.22.5

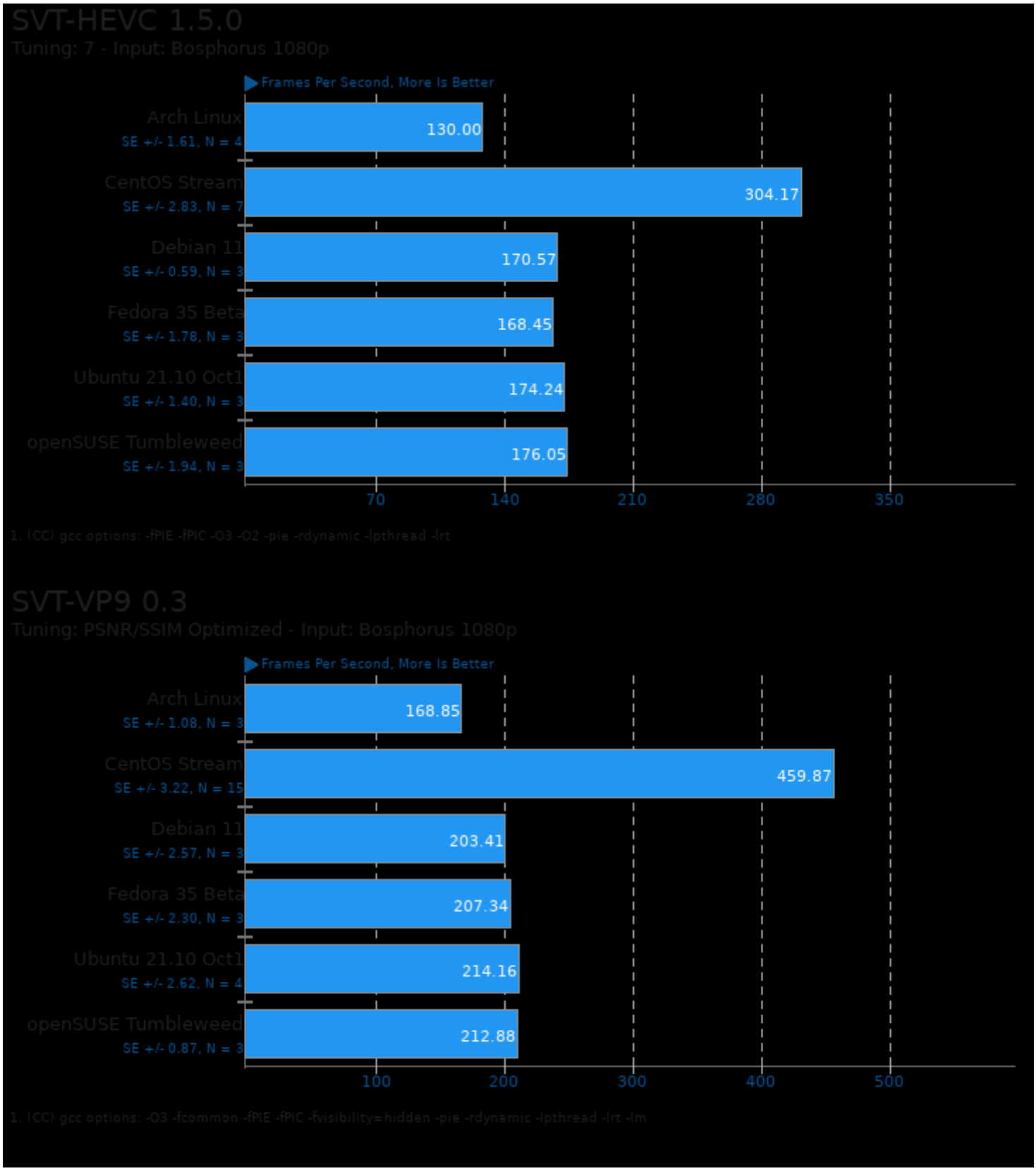

OSPray 1.8.5
Demo: San Miguel - Renderer: SciVis
FPS, More Is Better
Arch Linux
SE +/- 0.00, N = 3
MIN: 76.92 / MAX: 100
90.91
CentOS Stream
SE +/- 0.00, N = 3
MIN: 55.56 / MAX: 111.11
100.00
Debian 11
SE +/- 0.00, N = 3
MIN: 55.56 / MAX: 100
90.91
Fedora 35 Beta
SE +/- 0.00, N = 3
MIN: 76.92 / MAX: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

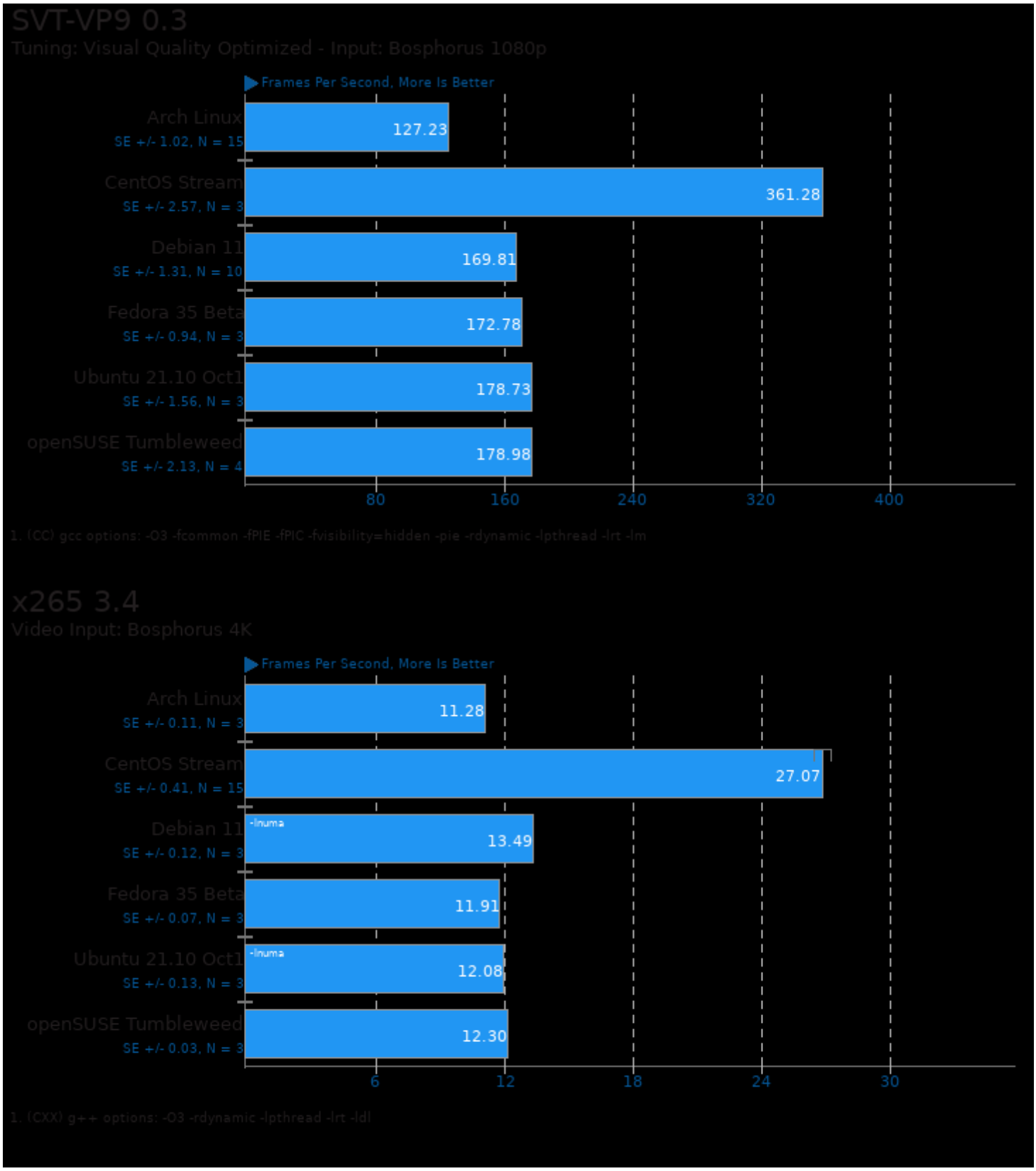

OSPray 1.8.5
Demo: Magnetic Reconnection - Renderer: SciVis
FPS, More Is Better
Arch Linux
SE +/- 0.00, N = 3
MIN: 40
111.11
CentOS Stream
MIN: 90.91
125.00
Debian 11
SE +/- 0.00, N = 3
MIN: 71.43 / MAX: 125
111.11
Fedora 35 Beta
SE +/- 0.00, N = 3
MIN: 35.71
111.11
Ubuntu 21.10 Oct1
SE +/- 0.93, N =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

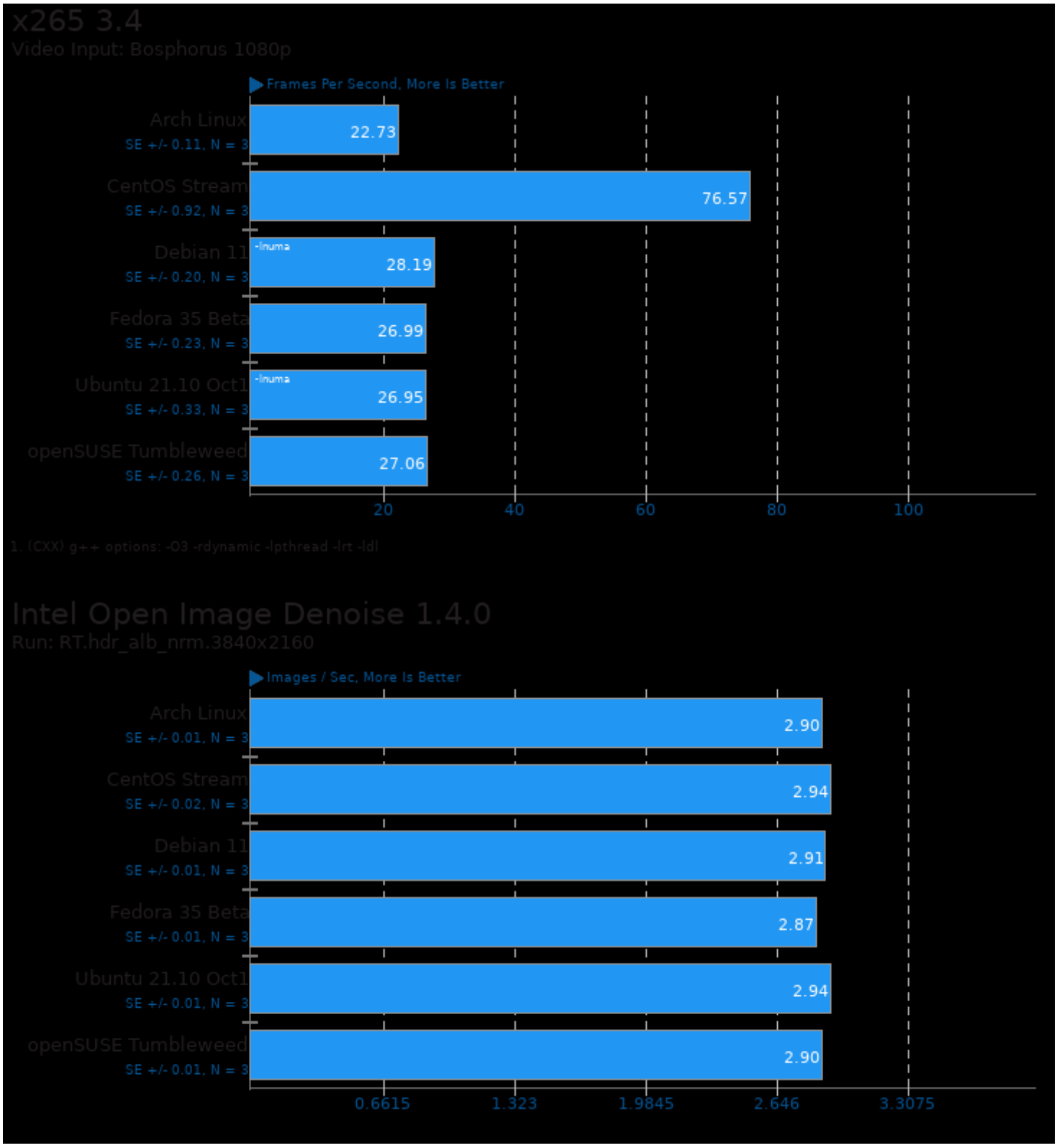

Embree 3.13
Binary: Pathtracer ISPC - Model: Crown
Frames Per Second, More Is Better
Arch Linux
SE +/- 0.51, N = 3
MIN: 65.11 / MAX: 92.92
74.07
CentOS Stream
SE +/- 0.36, N = 3
MIN: 63.6 / MAX: 93.58
73.40
Debian 11
SE +/- 0.23, N = 3
MIN: 59.27 / MAX: 88.49
66.40
Fedora 35 Beta
SE +/- 0.23, N = 3
MIN: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

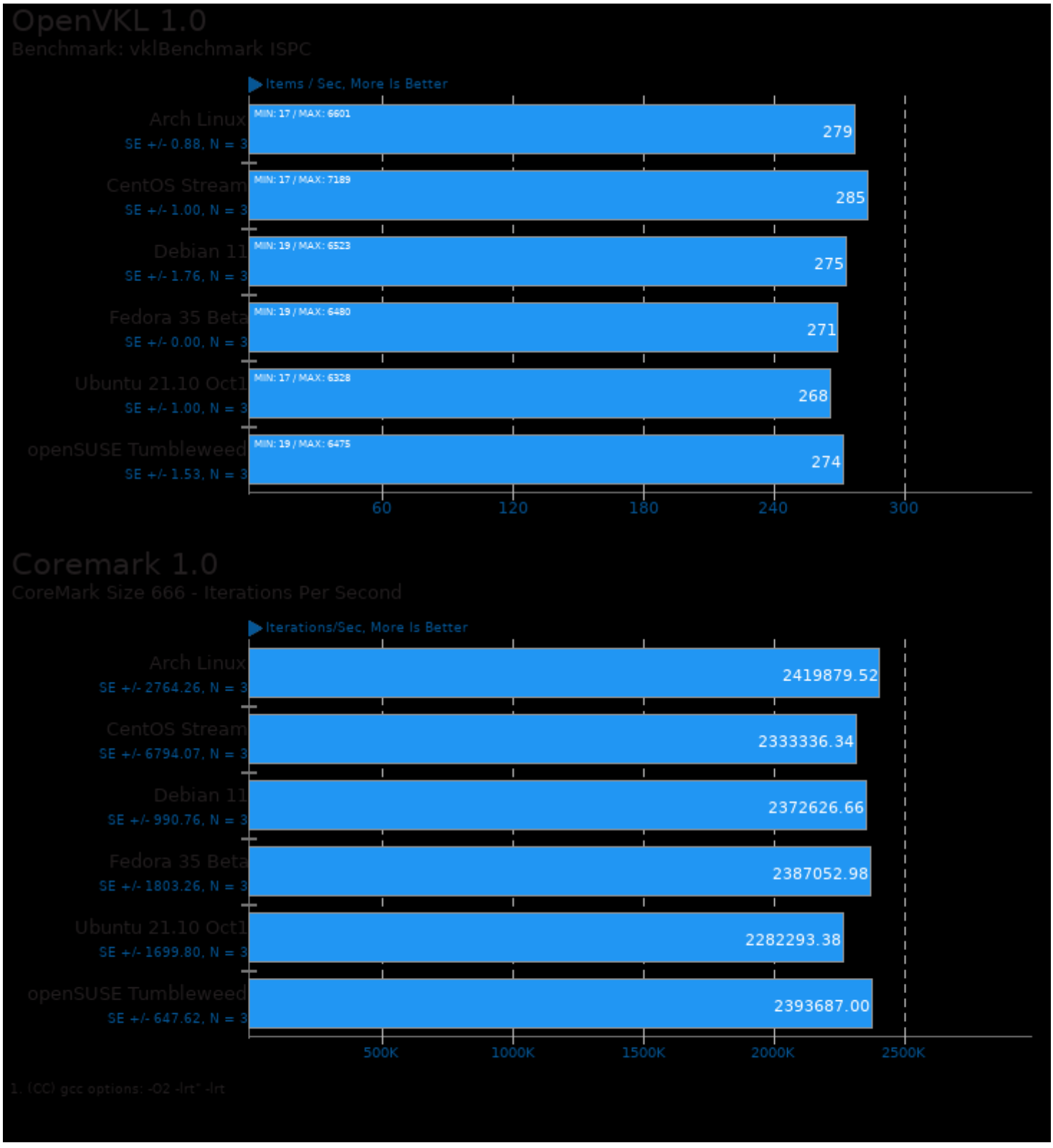

Embree 3.13
Binary: Pathtracer ISPC - Model: Asian Dragon
Frames Per Second, More Is Better
Arch Linux
SE +/- 1.07, N = 3
MIN: 92.76 / MAX: 111.47
103.27
CentOS Stream
SE +/- 0.58, N = 3
MIN: 86.28 / MAX: 113.47
108.52
Debian 11
SE +/- 1.17, N = 4
MIN: 84.11 / MAX: 114.18
107.03
Fedora 35 Beta
SE +/-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

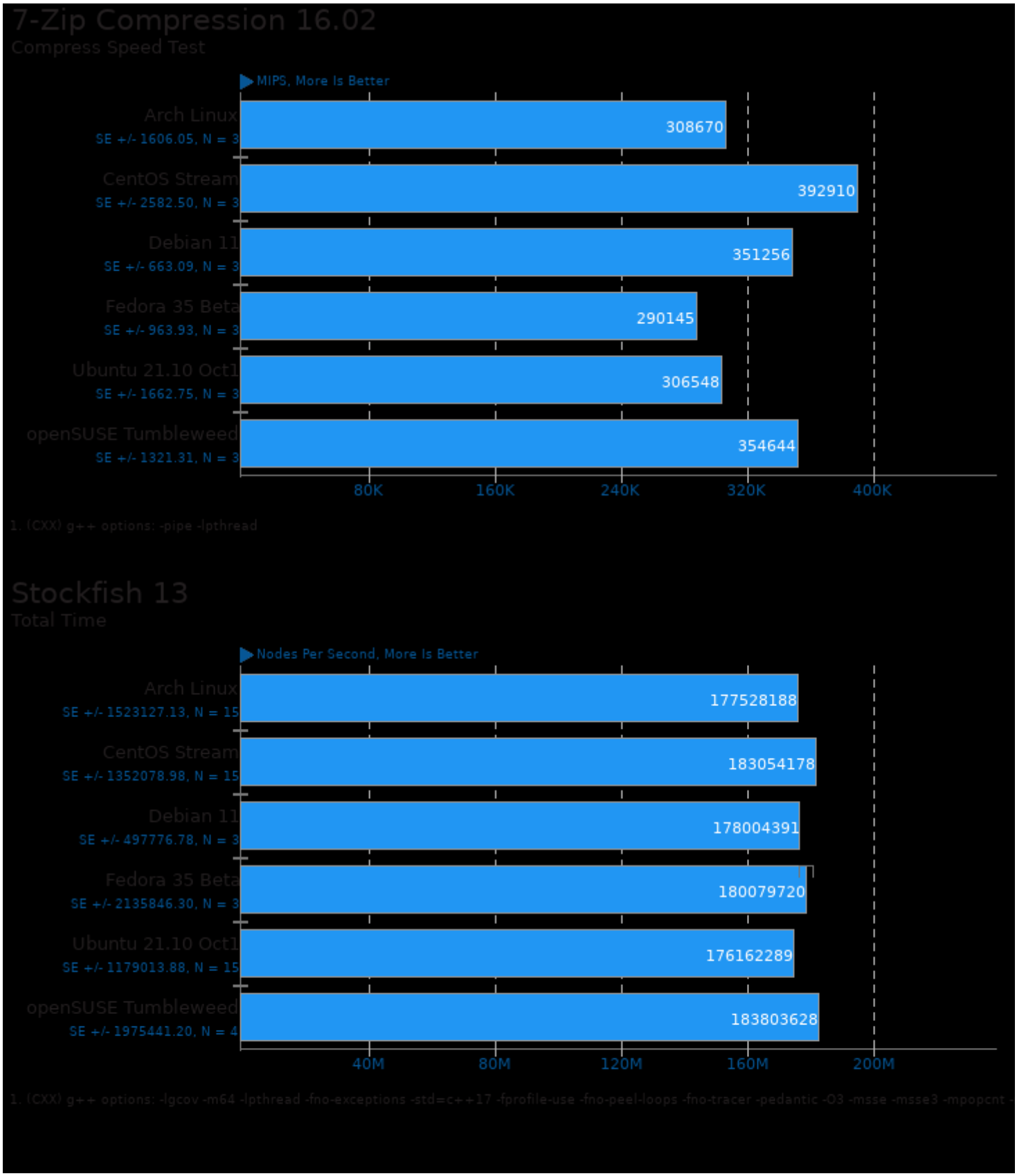

SVT-AV1 0.8.7
Encoder Mode: Preset 8 - Input: Bosphorus 4K
Frames Per Second, More Is Better
Arch Linux
SE +/- 0.36, N = 3
27.20
CentOS Stream
SE +/- 0.59, N = 3
58.91
Debian 11
SE +/- 0.34, N = 4
30.51
Fedora 35 Beta
SE +/- 0.12, N = 3
30.12
Ubuntu 21.10 Oct1
SE +/- 0.11, N = 3
31.70
openSUSE Tumbleweed
SE +/- 0.10, N = 3
34.27
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
Debian 11
SE +/- 0.15, N = 3
29.69
Fedora 35 Beta
SE +/- 0.15, N = 3
30.32
Ubuntu 21.10 Oct1
SE +/- 0.38, N = 3
29.74
openSUSE Tumbleweed
SE +/- 0.12, N = 3
30.04
9
18
27
36
45
1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt

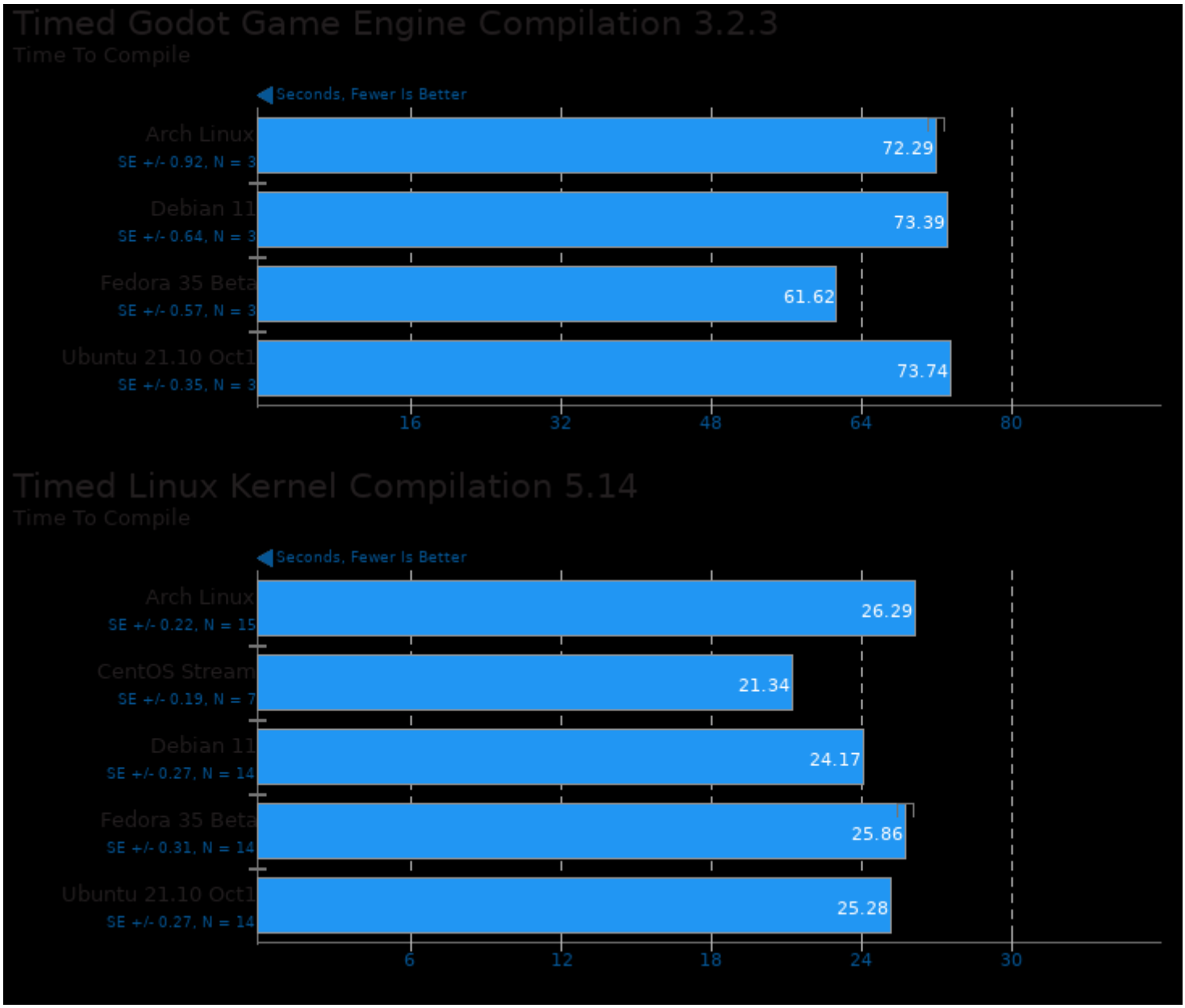

SVT-HEVC 1.5.0
Tuning: 7 - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Arch Linux
SE +/- 1.61, N = 4
130.00
CentOS Stream
SE +/- 2.83, N = 7
304.17
Debian 11
SE +/- 0.59, N = 3
170.57
Fedora 35 Beta
SE +/- 1.78, N = 3
168.45
Ubuntu 21.10 Oct1
SE +/- 1.40, N = 3
174.24
openSUSE Tumbleweed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

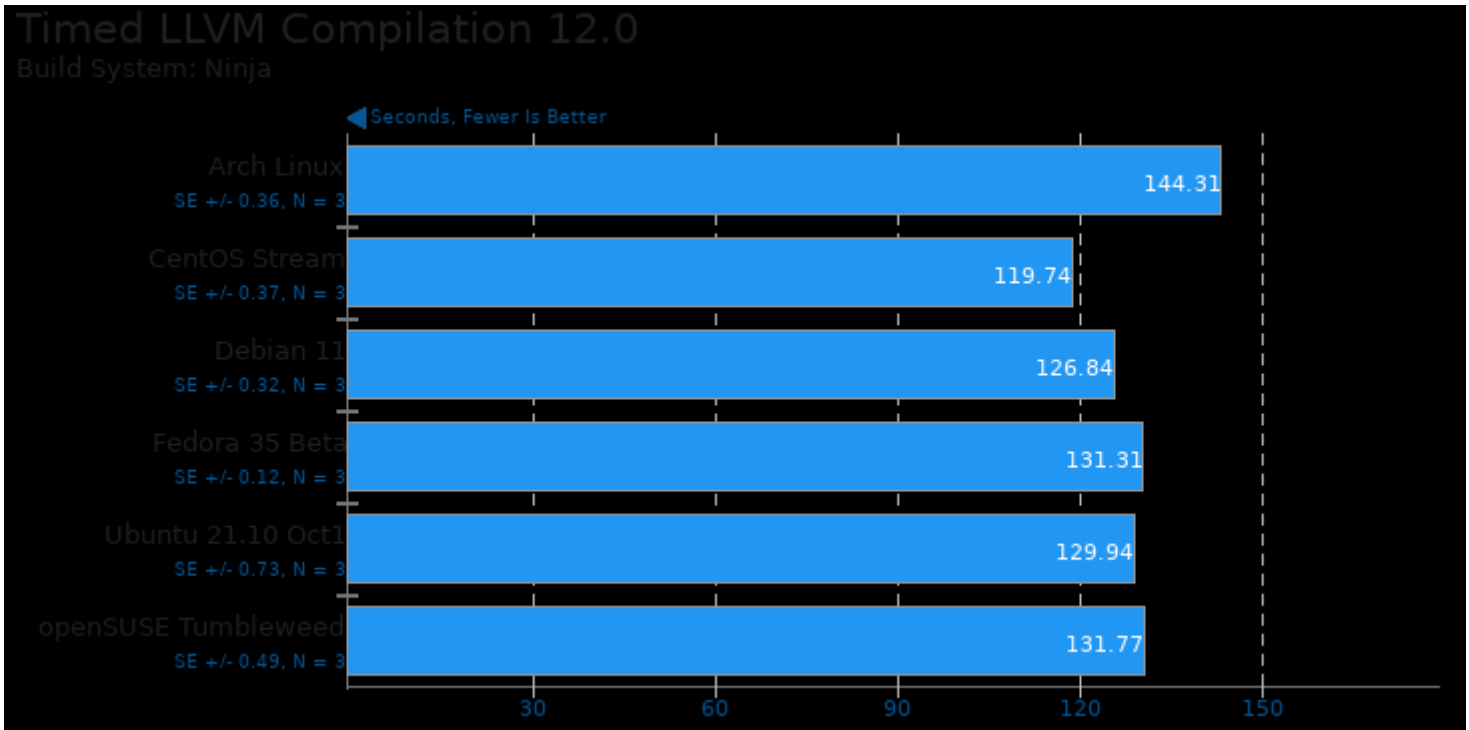

SVT-VP9 0.3
Tuning: Visual Quality Optimized - Input: Bosphorus 1080p
Frames Per Second, More Is Better
Arch Linux
SE +/- 1.02, N = 15
127.23
CentOS Stream
SE +/- 2.57, N = 3
361.28
Debian 11
SE +/- 1.31, N = 10
169.81
Fedora 35 Beta
SE +/- 0.94, N = 3
172.78
Ubuntu 21.10 Oct
SE +/- 1.56, N = 3
178.73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

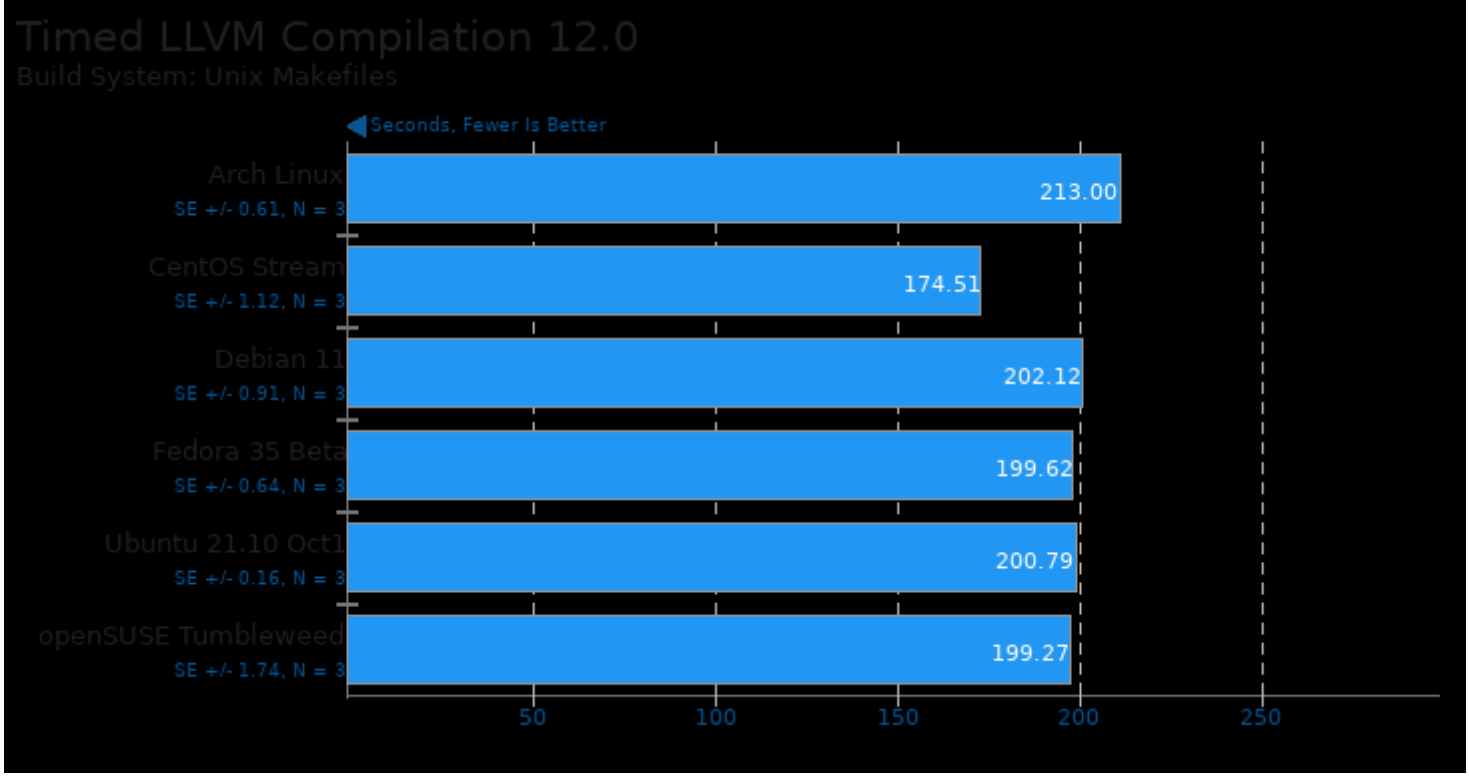

x265 3.4
Video Input: Bosphorus 1080p
Frames Per Second, More Is Better
Arch Linux
SE +/- 0.11, N = 3
22.73
CentOS Stream
SE +/- 0.92, N = 3
76.57
Debian 11
SE +/- 0.20, N = 3
-lnuma
28.19
Fedora 35 Beta
SE +/- 0.23, N = 3
26.99
Ubuntu 21.10 Oct1
SE +/- 0.33, N = 3
-lnuma
26.95
openSUSE Tumbleweed
SE +/- 0.26, N = 3
27.06
20
40
60
80
100
1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl
Intel Open Image Denoise 1.4.0
Run: RT.hdr_alb_nrm.3840x2160
Images / Sec, More Is Better
Arch Linux
SE +/- 0.01, N = 3
2.90
CentOS Stream
SE +/- 0.02, N = 3
2.94
Debian 11
SE +/- 0.01, N = 3
2.91
Fedora 35 Beta
SE +/- 0.01, N = 3
2.87
Ubuntu 21.10 Oct1
SE +/- 0.01, N = 3
2.94
openSUSE Tumbleweed
SE +/- 0.01, N = 3
2.90
0.6615
1.323
1.9845
2.646
3.3075

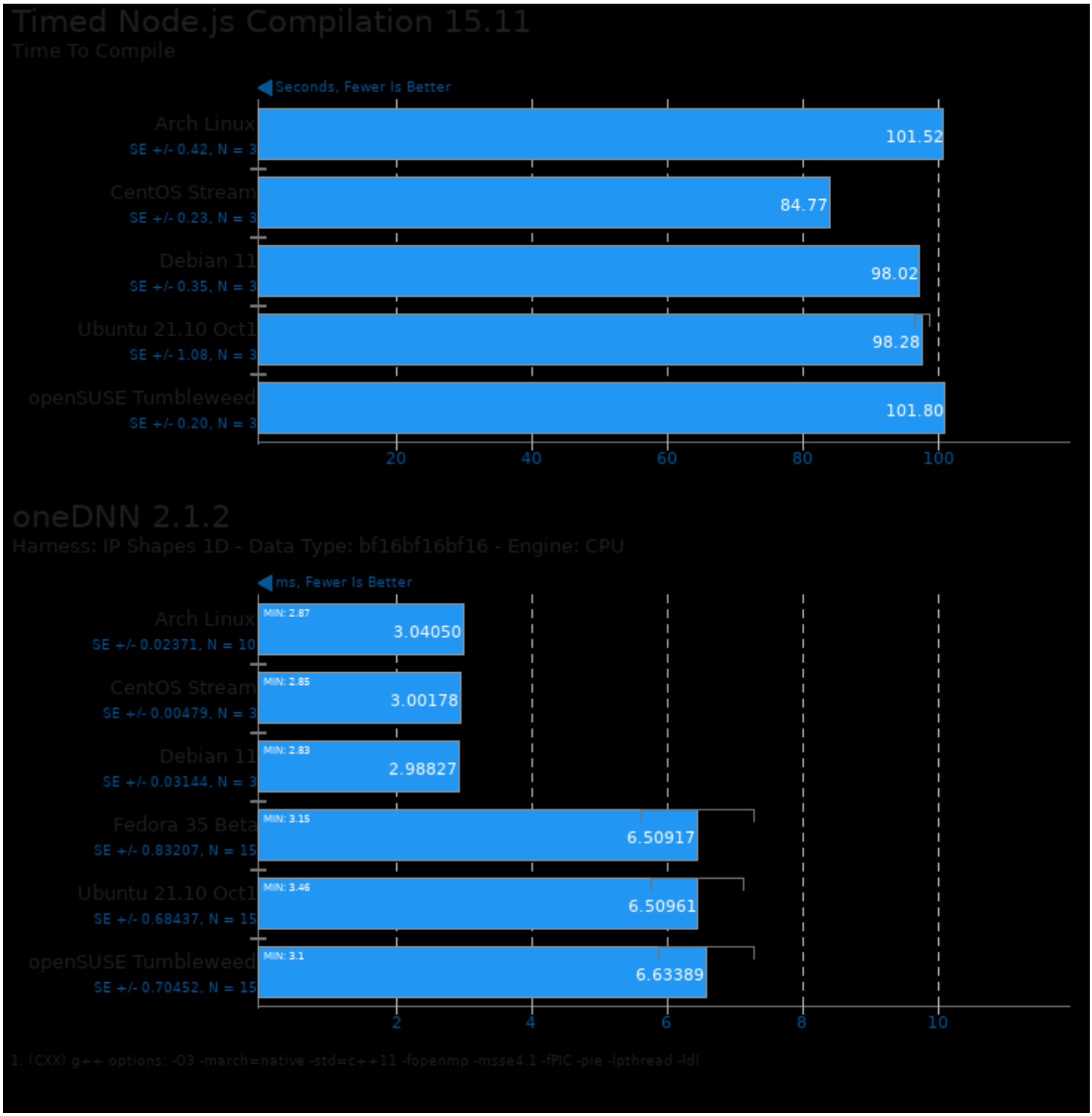

OpenVKL 1.0
Benchmark: vklBenchmark ISPC
Items / Sec, More Is Better
Arch Linux
SE +/- 0.88, N = 3
MIN: 17 / MAX: 6601
279
CentOS Stream
SE +/- 1.00, N = 3
MIN: 17 / MAX: 7189
285
Debian 11
SE +/- 1.76, N = 3
MIN: 19 / MAX: 6523
275
Fedora 35 Beta
SE +/- 0.00, N = 3
MIN: 19 / MAX: 6480
271
Ubuntu 21.10 Oct1
SE +/- 1.00, N = 3
MIN: 17 / MAX: 6328
268
openSUSE Tumbleweed
SE +/- 1.53, N = 3
MIN: 19 / MAX: 6475
274
60
120
180
240
300
Coremark 1.0
CoreMark Size 666 - Iterations Per Second
Iterations/Sec, More Is Better
Arch Linux
SE +/- 2764.26, N = 3
2419879.52
CentOS Stream
SE +/- 6794.07, N = 3
2333336.34
Debian 11
SE +/- 990.76, N = 3
2372626.66
Fedora 35 Beta
SE +/- 1803.26, N = 3
2387052.98
Ubuntu 21.10 Oct1
SE +/- 1699.80, N = 3
2282293.38
openSUSE Tumbleweed
SE +/- 647.62, N = 3
2393687.00
500K
1000K
1500K
2000K
2500K
1. (CC) gcc options: -O2 -lrt" -lrt

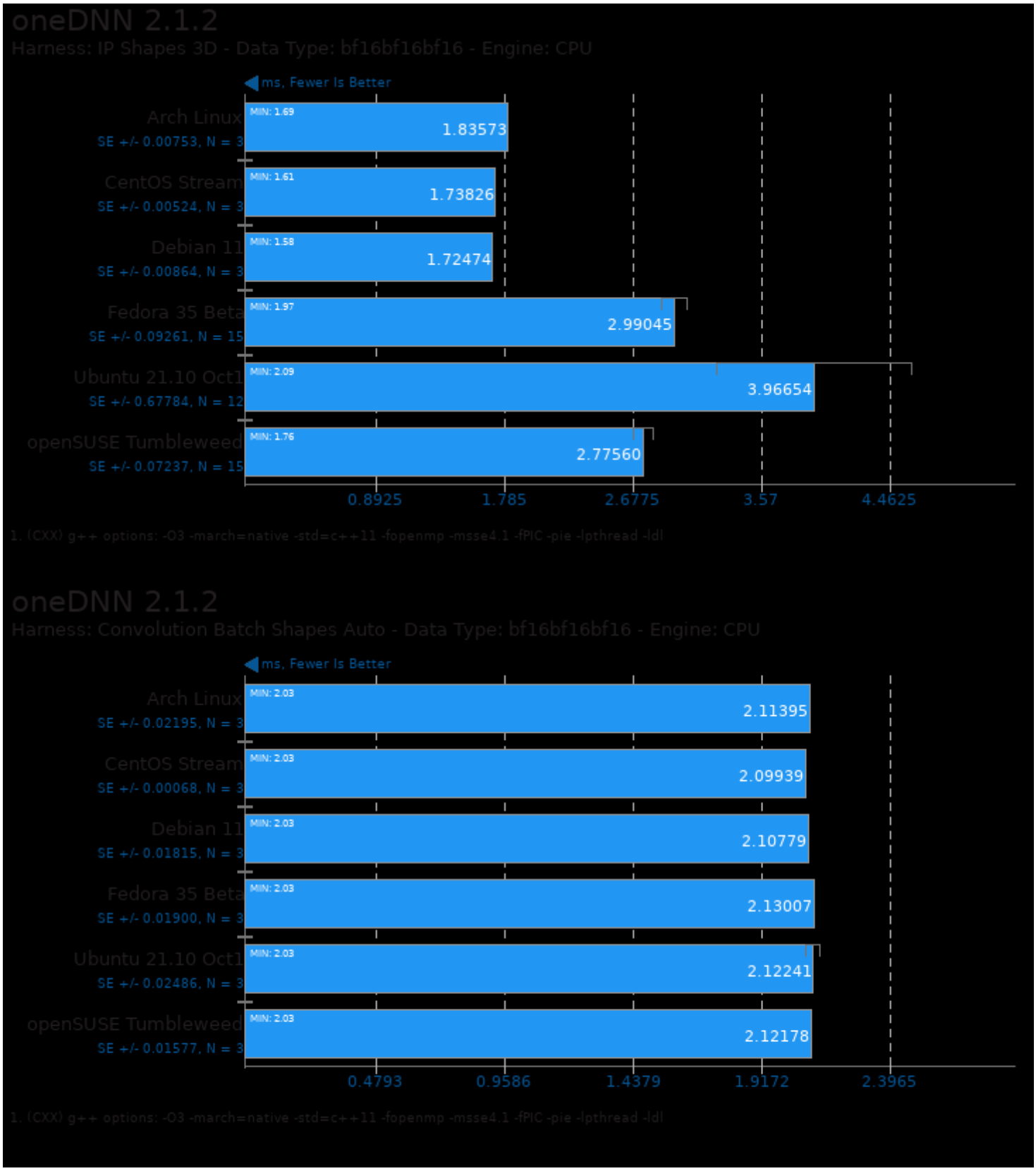

7-Zip Compression 16.02
Compress Speed Test
MIPS, More Is Better
Arch Linux
SE +/- 1606.05, N = 3
308670
CentOS Stream
SE +/- 2582.50, N = 3
392910
Debian 11
SE +/- 663.09, N = 3
351256
Fedora 35 Beta
SE +/- 963.93, N = 3
290145
Ubuntu 21.10 Oct1
SE +/- 1662.75, N = 3
306548
openSUSE Tumbleweed
SE +/- 1321.31, N = 3
354644
80K
160K
240K
320K
400K
1. (CXX) g++ options: -pipe -lpthread
Stockfish 13
Total Time
Nodes Per Second, More Is Better
Arch Linux
SE +/- 1523127.13, N = 15
177528188
CentOS Stream
SE +/- 1352078.98, N = 15
183054178
Debian 11
SE +/- 497776.78, N = 3
178004391
Fedora 35 Beta
SE +/- 2135846.30, N = 3
180079720
Ubuntu 21.10 Oct1
SE +/- 1179013.88, N = 15
176162289
openSUSE Tumbleweed
SE +/- 1975441.20, N = 4
183803628
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

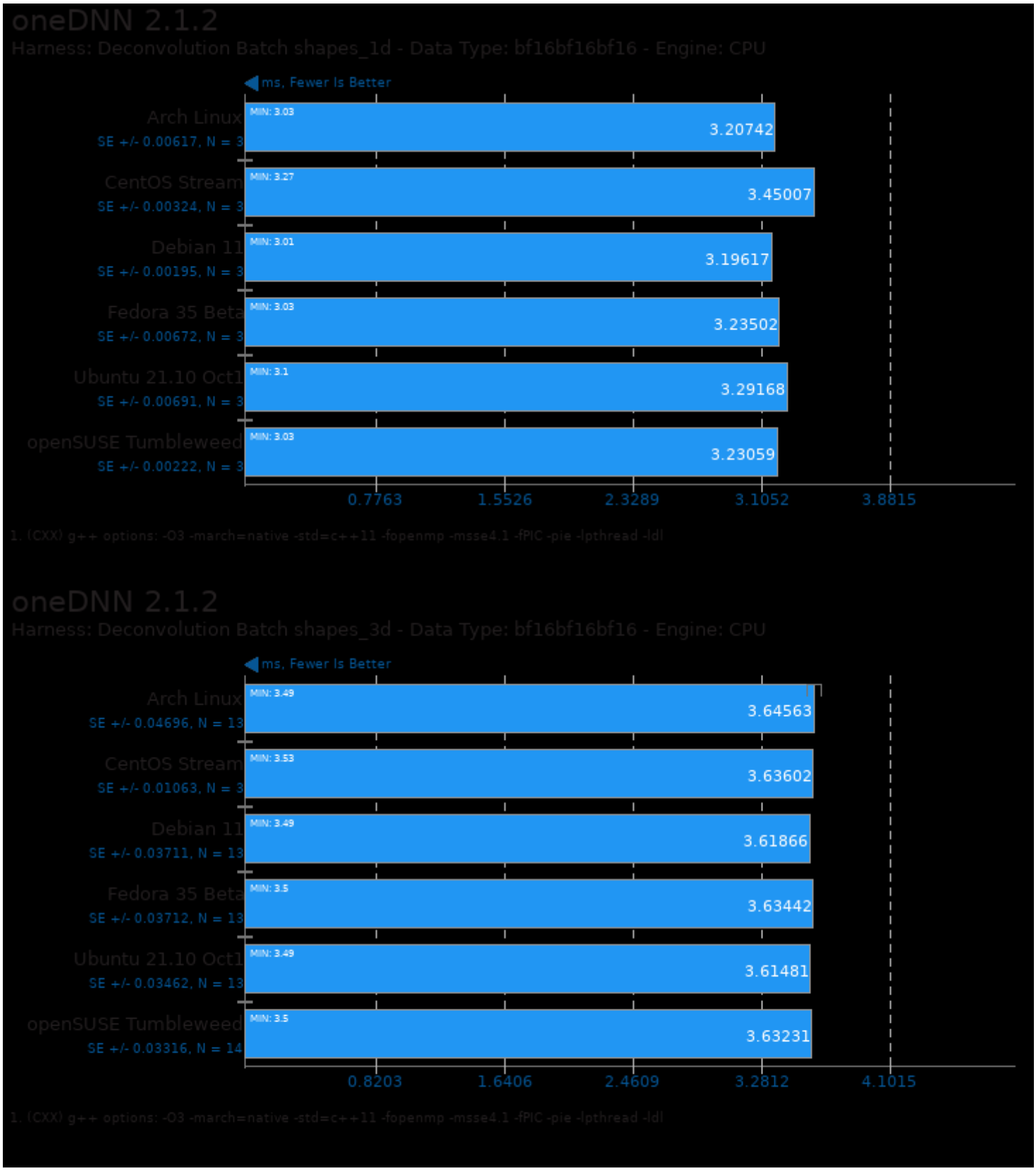

Timed Godot Game Engine Compilation 3.2.3
Time To Compile
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.92, N = 3
72.29
Debian 11
SE +/- 0.64, N = 3
73.39
Fedora 35 Beta
SE +/- 0.57, N = 3
61.62
Ubuntu 21.10 Oct1
SE +/- 0.35, N = 3
73.74
16
32
48
64
80
Timed Linux Kernel Compilation 5.14
Time To Compile
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.22, N = 15
26.29
CentOS Stream
SE +/- 0.19, N = 7
21.34
Debian 11
SE +/- 0.27, N = 14
24.17
Fedora 35 Beta
SE +/- 0.31, N = 14
25.86
Ubuntu 21.10 Oct1
SE +/- 0.27, N = 14
25.28
6
12
18
24
30

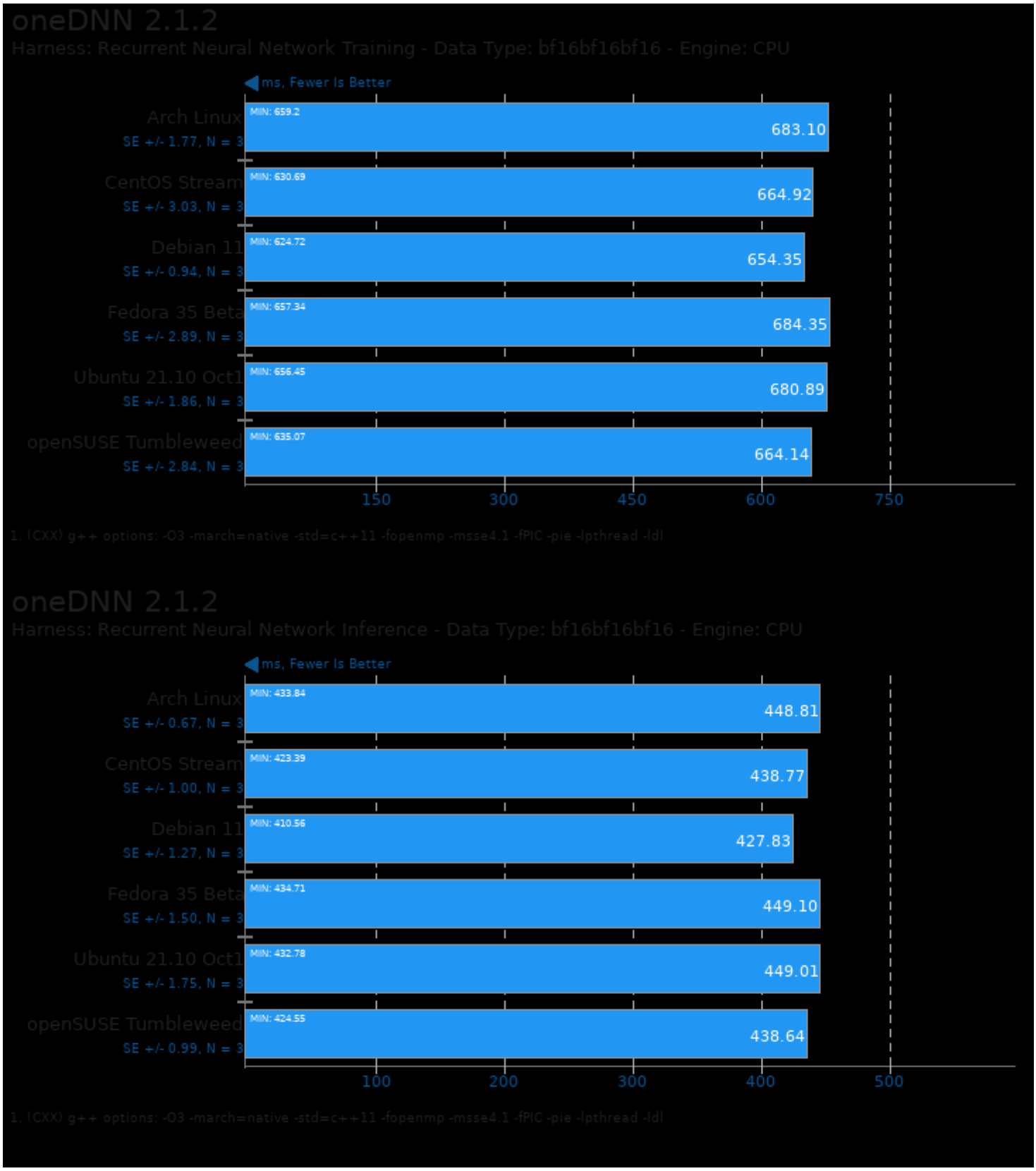

Timed LLVM Compilation 12.0
Build System: Ninja
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.36, N = 3
144.31
CentOS Stream
SE +/- 0.37, N = 3
119.74
Debian 11
SE +/- 0.32, N = 3
126.84
Fedora 35 Beta
SE +/- 0.12, N = 3
131.31
Ubuntu 21.10 Oct1
SE +/- 0.73, N = 3
129.94
openSUSE Tumbleweed
SE +/- 0.49, N = 3
131.77
30
60
90
120
150

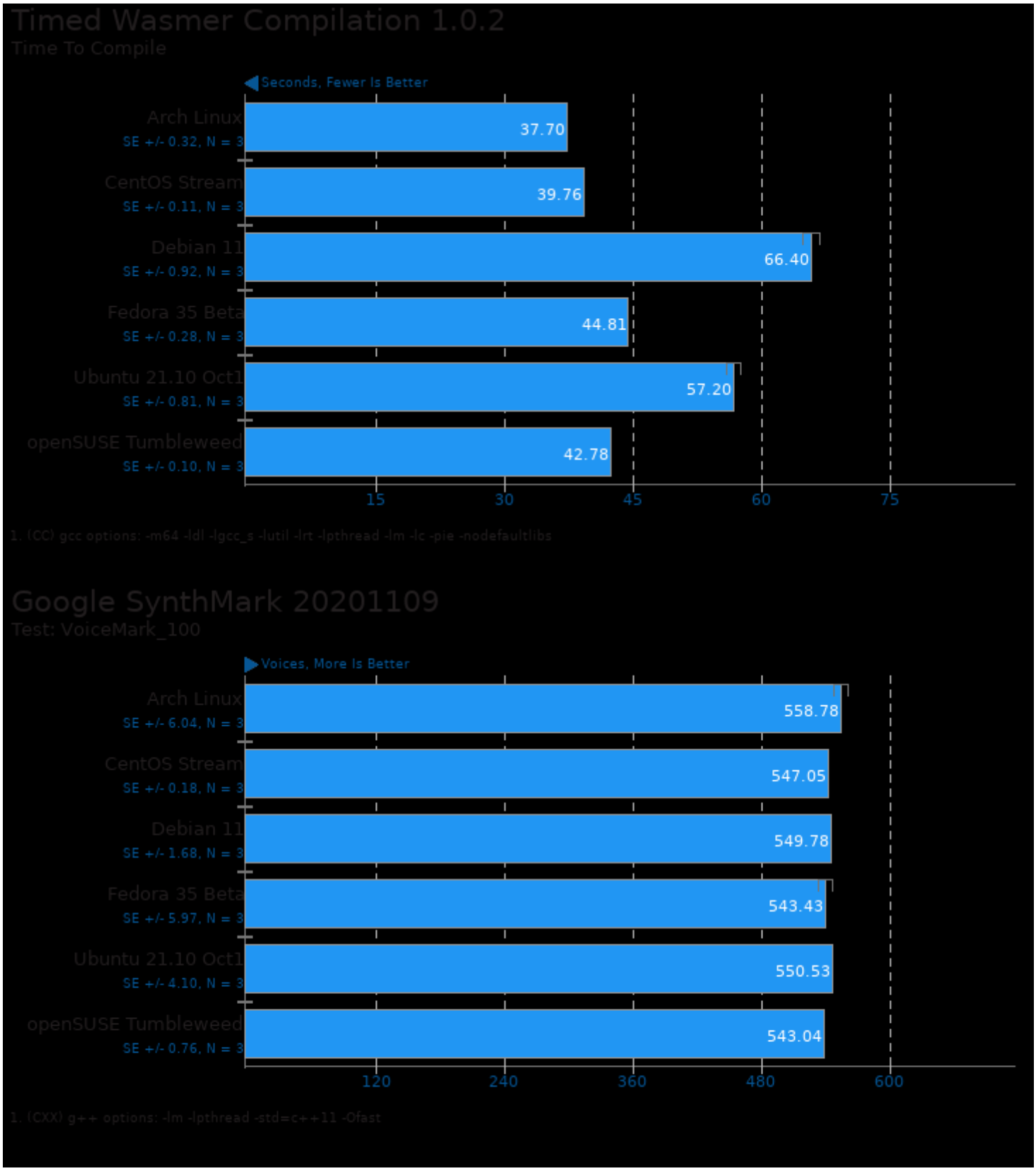

Timed LLVM Compilation 12.0
Build System: Unix Makefiles
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.61, N = 3
213.00
CentOS Stream
SE +/- 1.12, N = 3
174.51
Debian 11
SE +/- 0.91, N = 3
202.12
Fedora 35 Beta
SE +/- 0.64, N = 3
199.62
Ubuntu 21.10 Oct1
SE +/- 0.16, N = 3
200.79
openSUSE Tumbleweed
SE +/- 1.74, N = 3
199.27
50
100
150
200
250

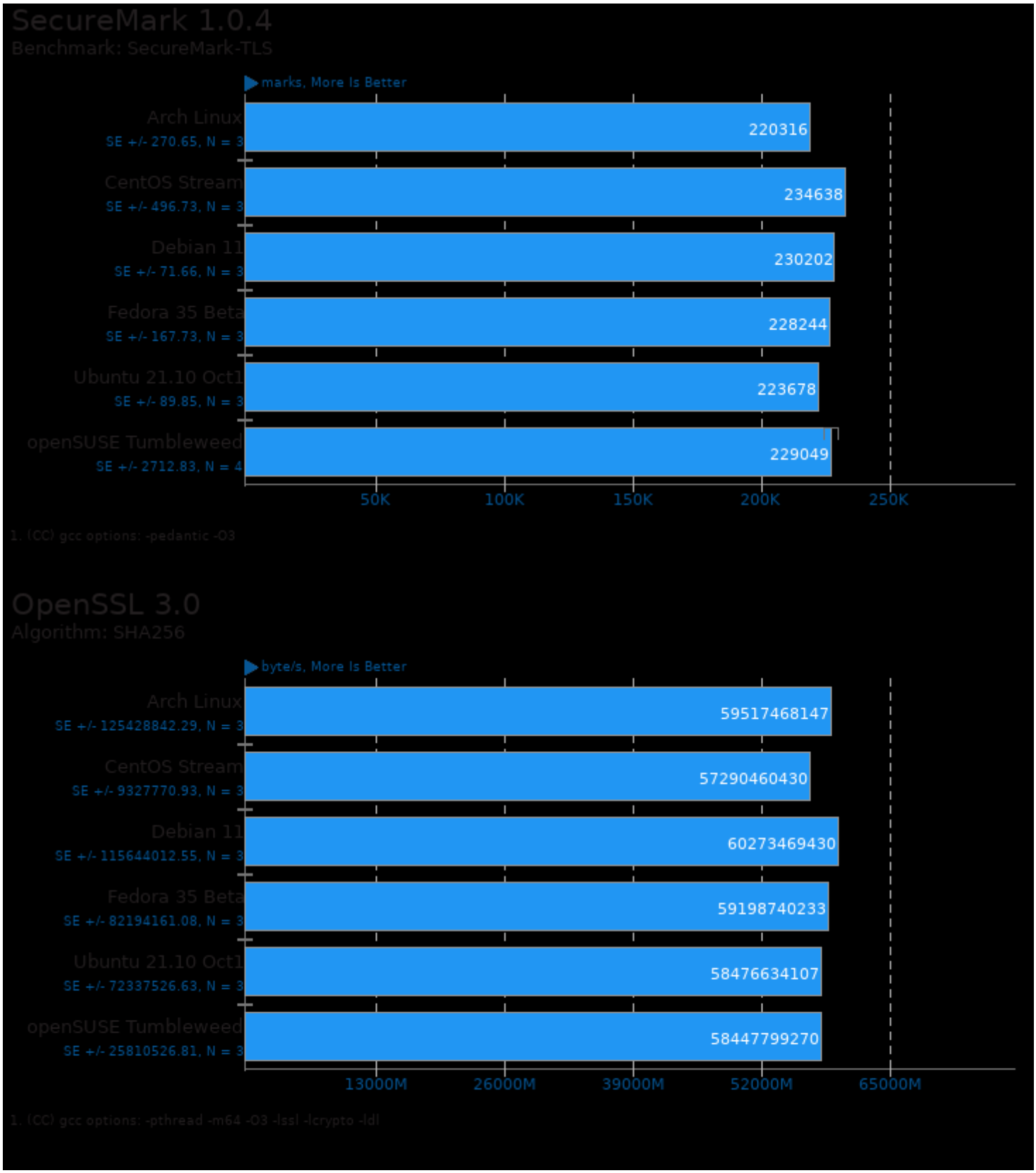

Timed Node.js Compilation 15.11
Time To Compile
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.42, N = 3
101.52
CentOS Stream
SE +/- 0.23, N = 3
84.77
Debian 11
SE +/- 0.35, N = 3
98.02
Ubuntu 21.10 Oct1
SE +/- 1.08, N = 3
98.28
openSUSE Tumbleweed
SE +/- 0.20, N = 3
101.80
20
40
60
80
100
oneDNN 2.1.2
Harness: IP Shapes 1D - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Arch Linux
SE +/- 0.02371, N = 10
MIN: 2.87
3.04050
CentOS Stream
SE +/- 0.00479, N = 3
MIN: 2.85
3.00178
Debian 11
SE +/- 0.03144, N = 3
MIN: 2.83
2.98827
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

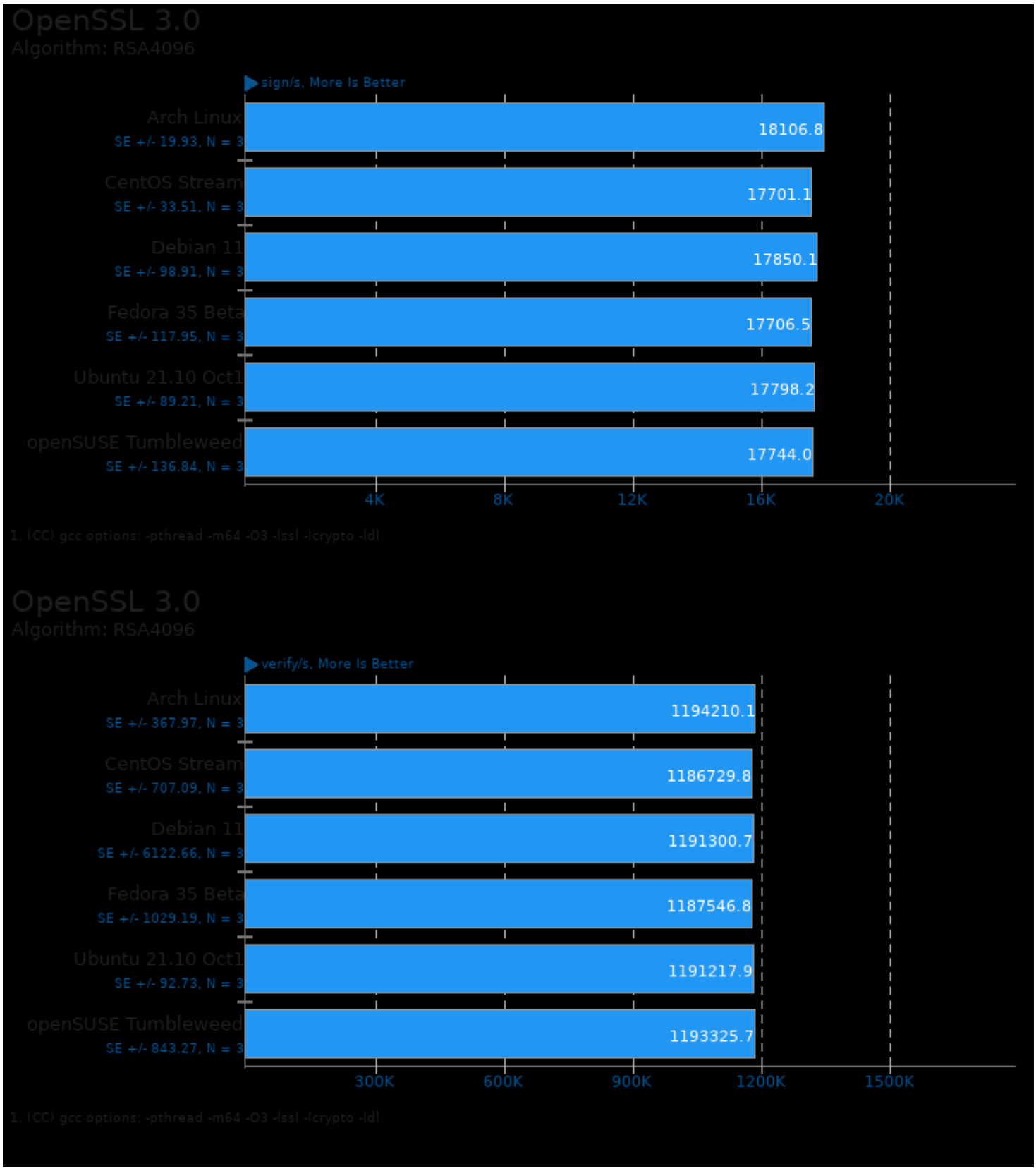

oneDNN 2.1.2
Harness: IP Shapes 3D - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Arch Linux
SE +/- 0.00753, N = 3
MIN: 1.69
1.83573
CentOS Stream
SE +/- 0.00524, N = 3
MIN: 1.61
1.73826
Debian 11
SE +/- 0.00864, N = 3
MIN: 1.58
1.72474
Fedora 35 Beta
SE +/- 0.09261, N = 15
MIN: 1.97
2.99045
Ubuntu 21.10 Oct
SE +/- 0.67784, N = 12
MIN: 2.09
3.96654
openSUSE Tumbleweed
SE +/- 0.07237, N = 15
MIN: 1.76
2.77560
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
Arch Linux
SE +/- 0.02195, N = 3
MIN: 2.03
2.11395
CentOS Stream
SE +/- 0.00068, N = 3
MIN: 2.03
2.09939
Debian 11
SE +/- 0.01815, N = 3
MIN: 2.03
2.10779
Fedora 35 Beta
SE +/- 0.01900, N = 3
MIN: 2.03
2.13007
Ubuntu 21.10 Oct
SE +/- 0.02486, N = 3
MIN: 2.03
2.12241
openSUSE Tumbleweed
SE +/- 0.01577, N = 3
MIN: 2.03
2.12178
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

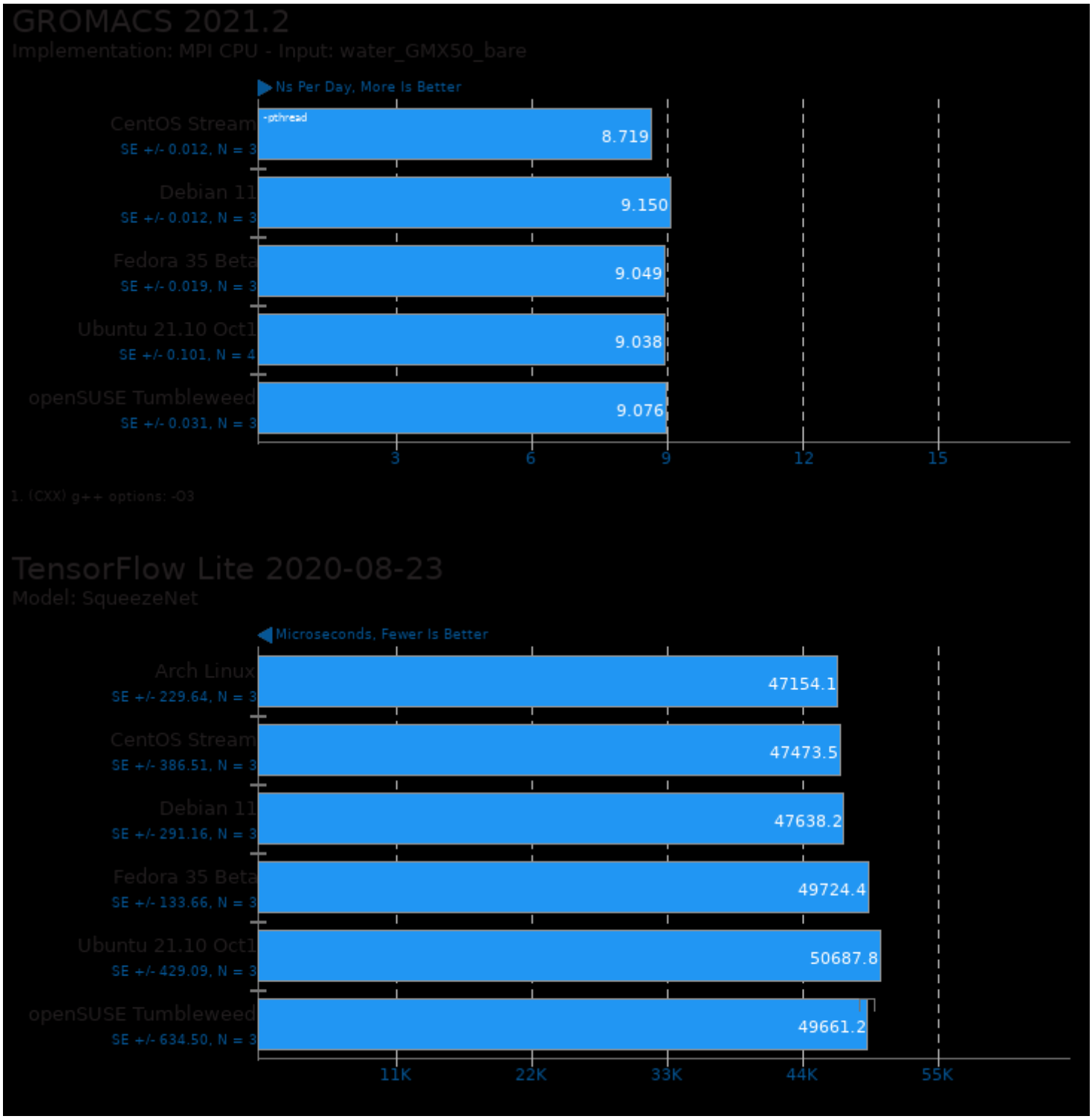

oneDNN 2.1.2
Harness: Deconvolution Batch shapes_1d - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Arch Linux
SE +/- 0.00617, N = 3
MIN: 3.03
3.20742
CentOS Stream
SE +/- 0.00324, N = 3
MIN: 3.27
3.45007
Debian 11
SE +/- 0.00195, N = 3
MIN: 3.01
3.19617
Fedora 35 Beta
SE +/- 0.00672, N = 3
MIN: 3.03
3.23502
Ubuntu 21.10 Oct1
SE +/- 0.00691, N = 3
MIN: 3.1
3.29168
openSUSE Tumbleweed
SE +/- 0.00222, N = 3
MIN: 3.03
3.23059
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
Arch Linux
SE +/- 0.04696, N = 13
MIN: 3.49
3.64563
CentOS Stream
SE +/- 0.01063, N = 3
MIN: 3.53
3.63602
Debian 11
SE +/- 0.03711, N = 13
MIN: 3.49
3.61866
Fedora 35 Beta
SE +/- 0.03712, N = 13
MIN: 3.5
3.63442
Ubuntu 21.10 Oct1
SE +/- 0.03462, N = 13
MIN: 3.49
3.61481
openSUSE Tumbleweed
SE +/- 0.03316, N = 14
MIN: 3.5
3.63231
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 -lpthread -ldl

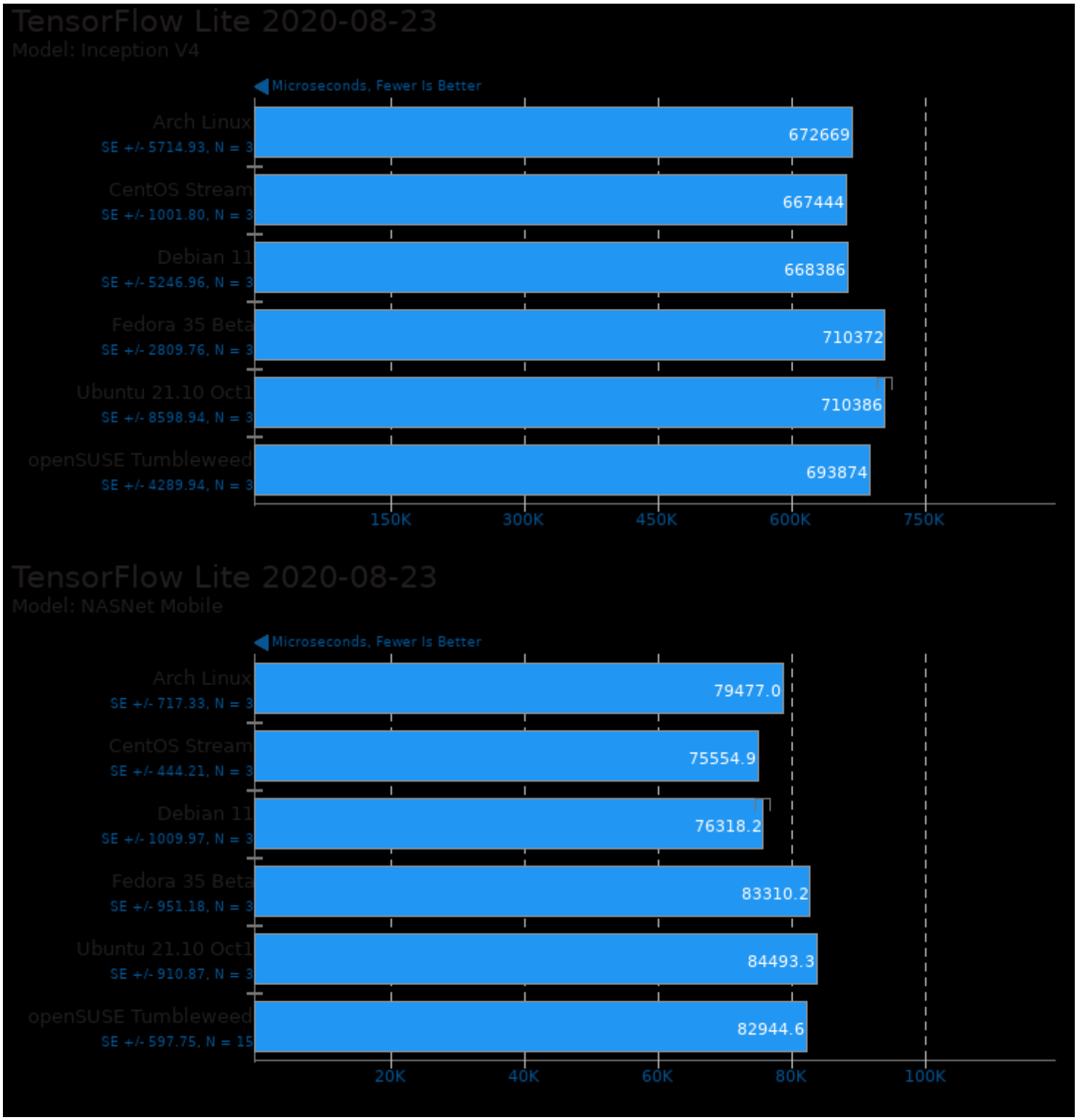

oneDNN 2.1.2
Harness: Recurrent Neural Network Training - Data Type: bf16bf16bf16 - Engine: CPU
ms, Fewer Is Better
Arch Linux
SE +/- 1.77, N = 3
MIN: 659.2
683.10
CentOS Stream
SE +/- 3.03, N = 3
MIN: 630.69
664.92
Debian 11
SE +/- 0.94, N = 3
MIN: 624.72
654.35
Fedora 35 Beta
SE +/- 2.89, N = 3
MIN: 657.34
684.35
Ubuntu 21.10 Oct1
SE +/- 1.86, N = 3
MIN: 656.45
680.89
openSUSE Tumbleweed
SE +/- 2.84, N = 3
MIN: 635.07
664.14
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
Arch Linux
SE +/- 0.67, N = 3
MIN: 433.84
448.81
CentOS Stream
SE +/- 1.00, N = 3
MIN: 423.39
438.77
Debian 11
SE +/- 1.27, N = 3
MIN: 410.56
427.83
Fedora 35 Beta
SE +/- 1.50, N = 3
MIN: 434.71
449.10
Ubuntu 21.10 Oct1
SE +/- 1.75, N = 3
MIN: 432.78
449.01
openSUSE Tumbleweed
SE +/- 0.99, N = 3
MIN: 424.55
438.64
100
200
300
400
500
1. (CXX) g++ options: -O3 -march=native -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread -ldl

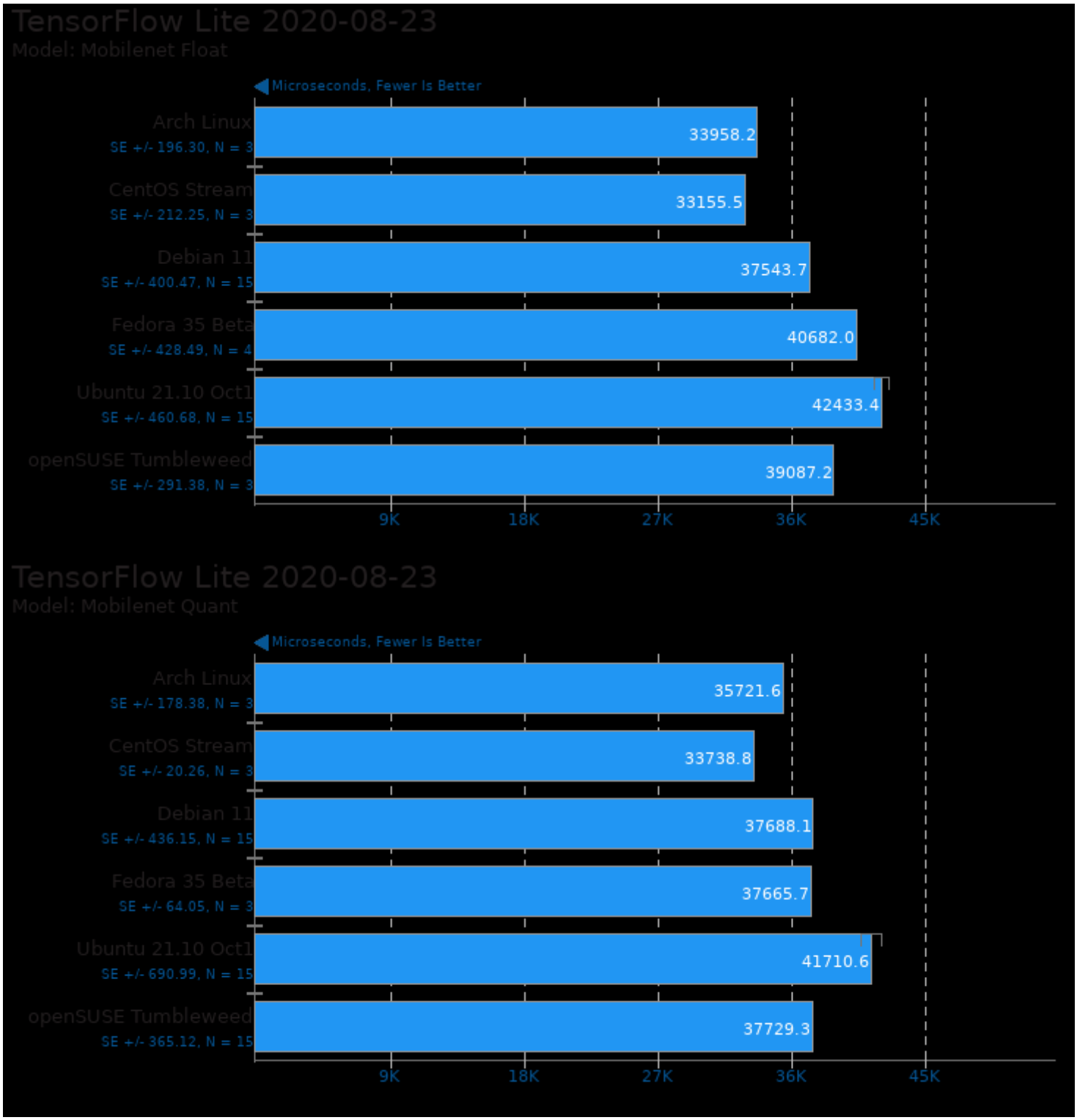

Timed Wasmer Compilation 1.0.2
Time To Compile
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.32, N = 3
37.70
CentOS Stream
SE +/- 0.11, N = 3
39.76
Debian 11
SE +/- 0.92, N = 3
66.40
Fedora 35 Beta
SE +/- 0.28, N = 3
44.81
Ubuntu 21.10 Oct1
SE +/- 0.81, N = 3
57.20
openSUSE Tumbleweed
SE +/- 0.10, N = 3
42.78
15
30
45
60
75
1. (CC) gcc options: -m64 -ldl -lgcc_s -lutil -lrt -lpthread -lm -lc -pie -nodefaultlibs
Google SynthMark 20201109
Test: VoiceMark_100
Voices, More Is Better
Arch Linux
SE +/- 6.04, N = 3
558.78
CentOS Stream
SE +/- 0.18, N = 3
547.05
Debian 11
SE +/- 1.68, N = 3
549.78
Fedora 35 Beta
SE +/- 5.97, N = 3
543.43
Ubuntu 21.10 Oct1
SE +/- 4.10, N = 3
550.53
openSUSE Tumbleweed
SE +/- 0.76, N = 3
543.04
120
240
360
480
600
1. (CXX) g++ options: -lm -lpthread -std=c++11 -Ofast

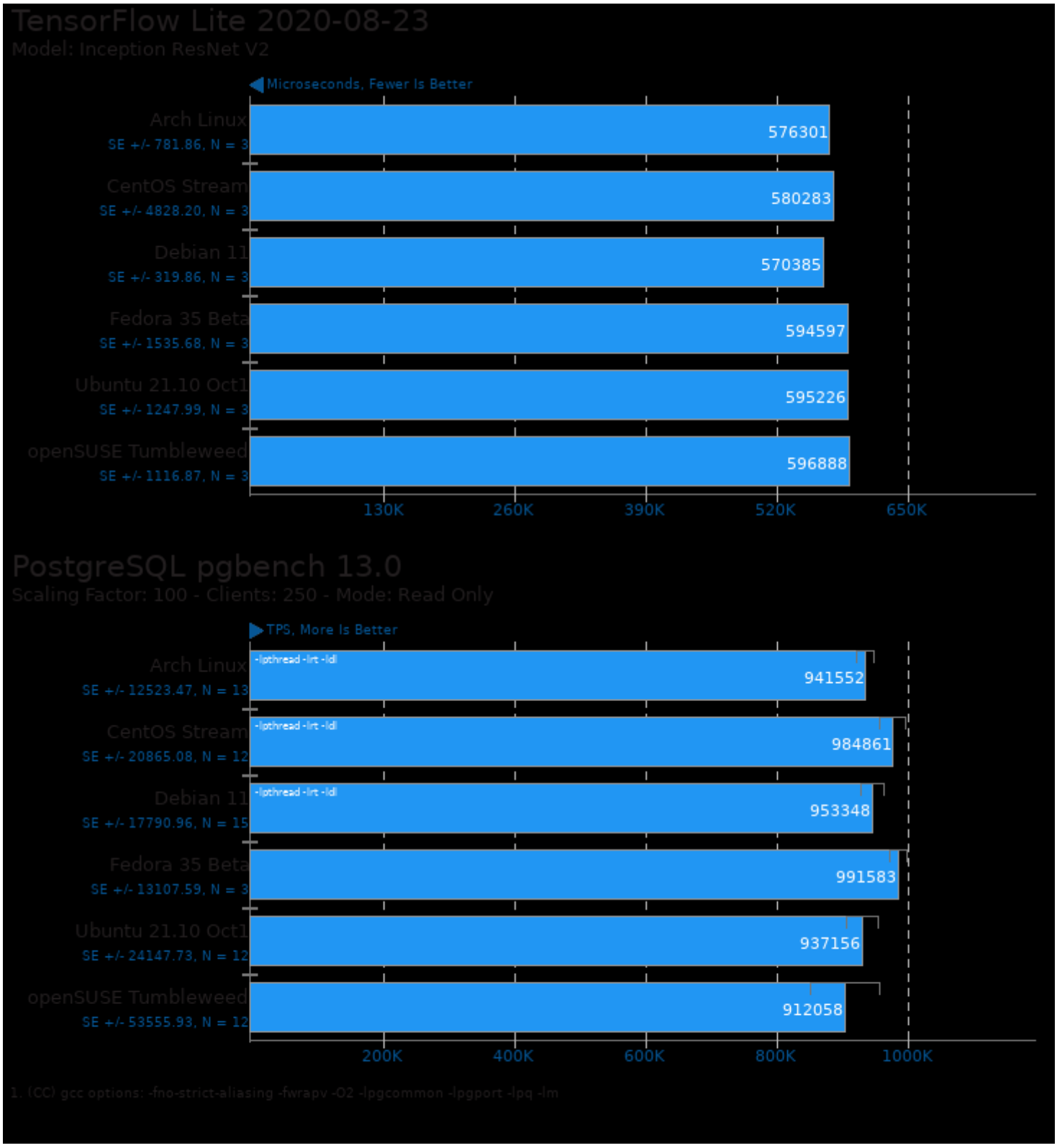

SecureMark 1.0.4
Benchmark: SecureMark-TLS
marks, More Is Better
Arch Linux
SE +/- 270.65, N = 3
220316
CentOS Stream
SE +/- 496.73, N = 3
234638
Debian 11
SE +/- 71.66, N = 3
230202
Fedora 35 Beta
SE +/- 167.73, N = 3
228244
Ubuntu 21.10 Oct1
SE +/- 89.85, N = 3
223678
openSUSE Tumbleweed
SE +/- 2712.83, N = 4
229049
50K
100K
150K
200K
250K
1. (CC) gcc options: -pedantic -O3
OpenSSL 3.0
Algorithm: SHA256
byte/s, More Is Better
Arch Linux
SE +/- 125428842.29, N = 3
59517468147
CentOS Stream
SE +/- 9327770.93, N = 3
57290460430
Debian 11
SE +/- 115644012.55, N = 3
60273469430
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
13000M
26000M
39000M
52000M
65000M
1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

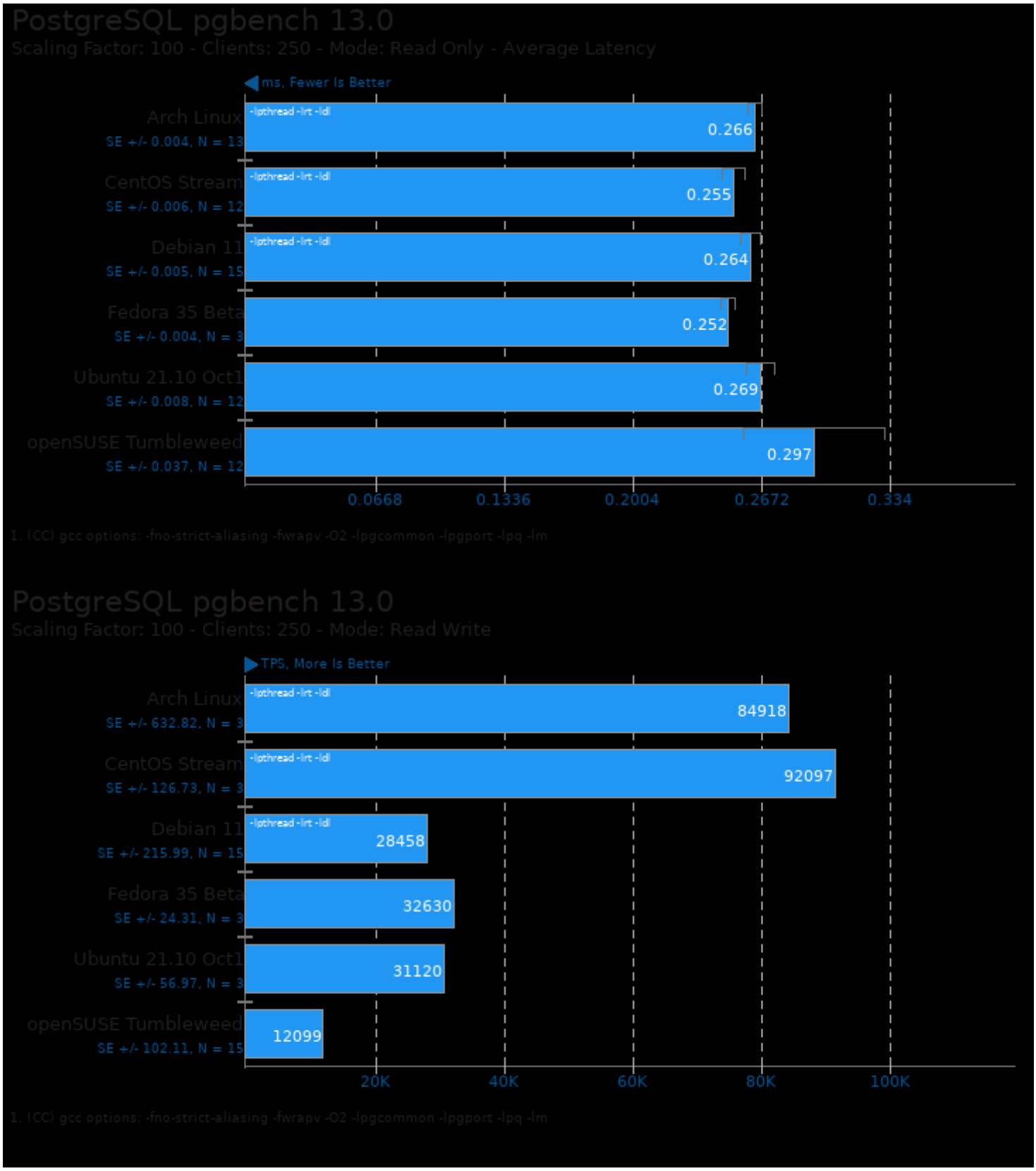

OpenSSL 3.0
Algorithm: RSA4096
sign/s, More Is Better
Arch Linux
SE +/- 19.93, N = 3
18106.8
CentOS Stream
SE +/- 33.51, N = 3
17701.1
Debian 11
SE +/- 98.91, N = 3
17850.1
Fedora 35 Beta
SE +/- 117.95, N = 3
17706.5
Ubuntu 21.10 Oct1
SE +/- 89.21, N = 3
17798.2
openSUSE Tumbleweed
SE +/- 136.84, N = 3
17744.0
4K
8K
12K
16K
20K
1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl
OpenSSL 3.0
Algorithm: RSA4096
verify/s, More Is Better
Arch Linux
SE +/- 367.97, N = 3
1194210.1
CentOS Stream
SE +/- 707.09, N = 3
1186729.8
Debian 11
SE +/- 6122.66, N = 3
1191300.7
Fedora 35 Beta
SE +/- 1029.19, N = 3
1187546.8
Ubuntu 21.10 Oct1
SE +/- 92.73, N = 3
1191217.9
openSUSE Tumbleweed
SE +/- 843.27, N = 3
1193325.7
300K
600K
900K
1200K
1500K
1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

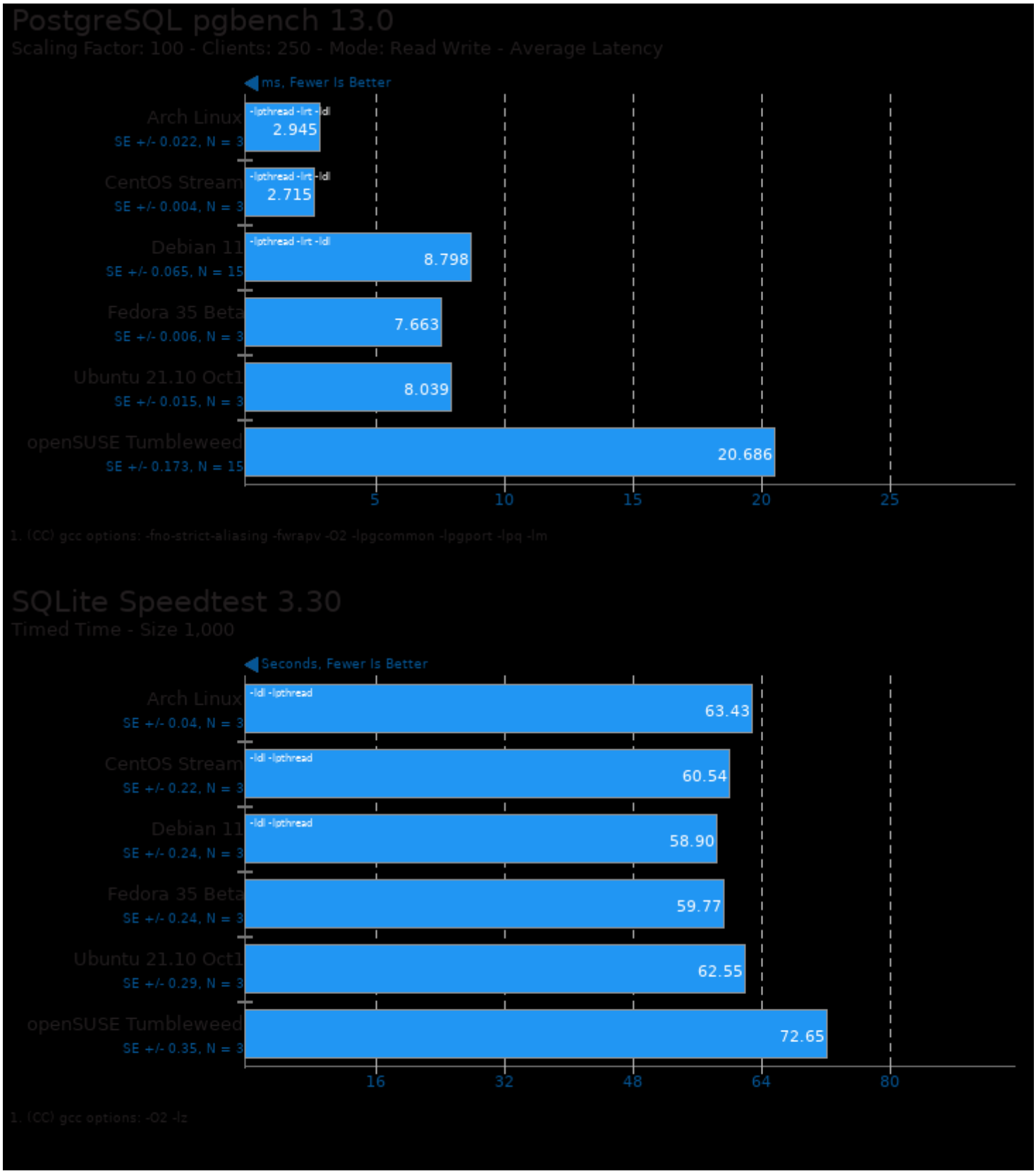

GROMACS 2021.2
Implementation: MPI CPU - Input: water_GMX50_bare
Ns Per Day, More Is Better
-pthread
CentOS Stream
SE +/- 0.012, N = 3
8.719
Debian 11
SE +/- 0.012, N = 3
9.150
Fedora 35 Beta
SE +/- 0.019, N = 3
9.049
Ubuntu 21.10 Oct1
SE +/- 0.101, N = 4
9.038
openSUSE Tumbleweed
SE +/- 0.031, N = 3
9.076
3
6
9
12
15
1. (CXX) g++ options: -O3
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
Fedora 35 Beta
SE +/- 133.66, N = 3
49724.4
Ubuntu 21.10 Oct1
SE +/- 429.09, N = 3
50687.8
openSUSE Tumbleweed
SE +/- 634.50, N = 3
49661.2
11K
22K
33K
44K
55K

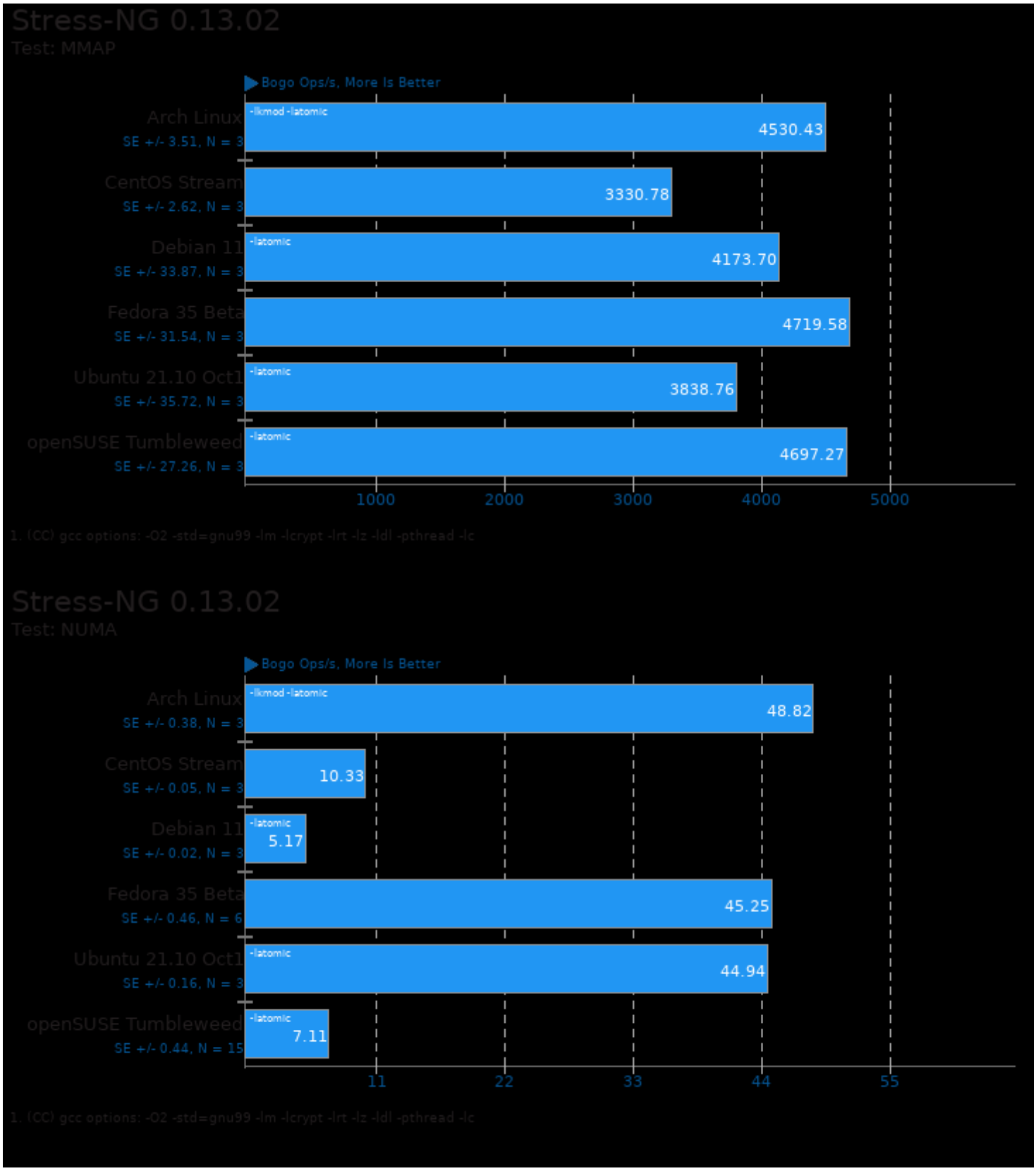

TensorFlow Lite 2020-08-23
Model: Inception V4
Microseconds, Fewer Is Better
Arch Linux
SE +/- 5714.93, N = 3
672669
CentOS Stream
SE +/- 1001.80, N = 3
667444
Debian 11
SE +/- 5246.96, N = 3
668386
Fedora 35 Beta
SE +/- 2809.76, N = 3
710372
Ubuntu 21.10 Oct1
SE +/- 8598.94, N = 3
710386
openSUSE Tumbleweed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

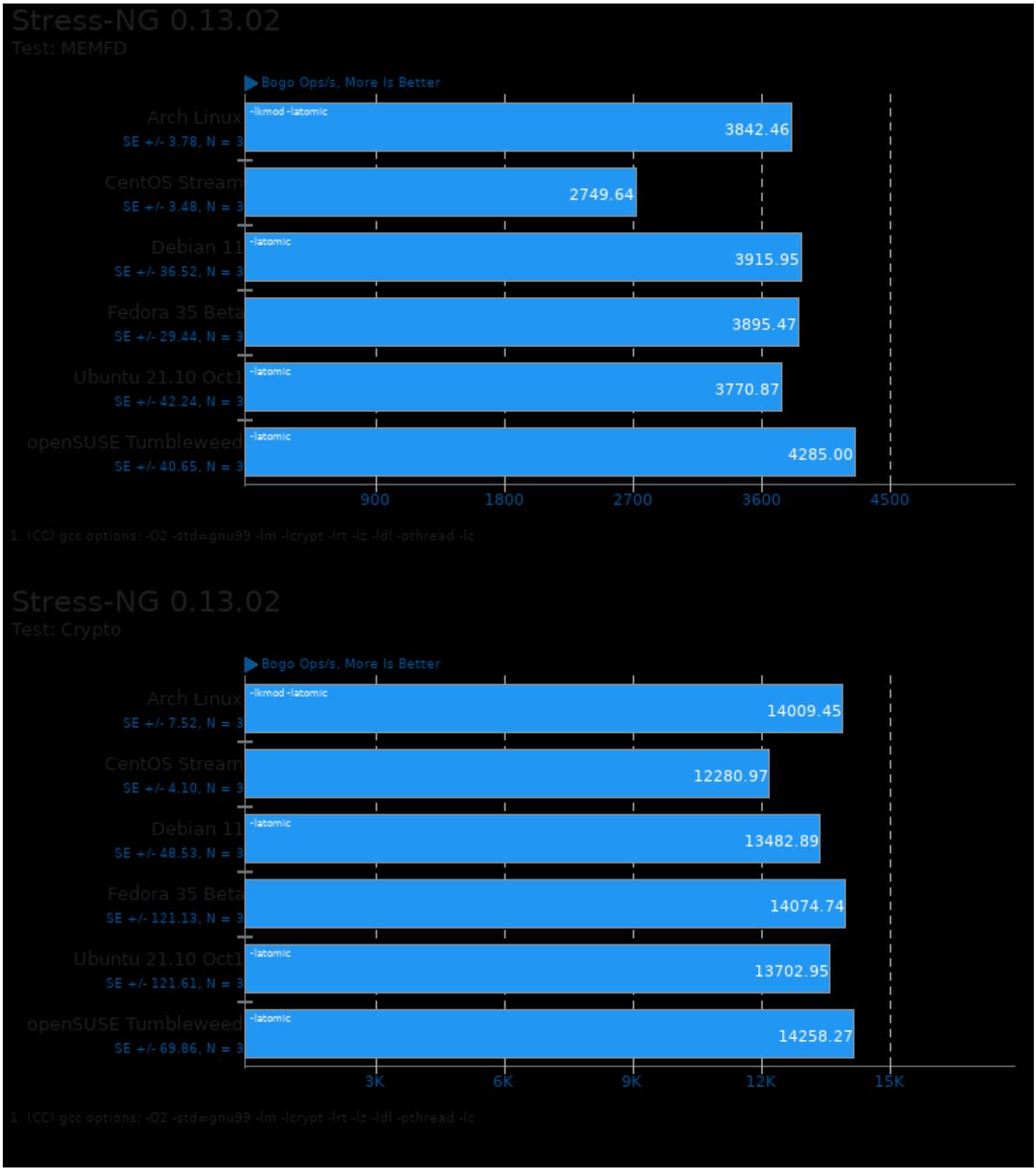

TensorFlow Lite 2020-08-23
Model: Mobilenet Float
Microseconds, Fewer Is Better
Arch Linux
SE +/- 196.30, N = 3
33958.2
CentOS Stream
SE +/- 212.25, N = 3
33155.5
Debian 11
SE +/- 400.47, N = 15
37543.7
Fedora 35 Beta
SE +/- 428.49, N = 4
40682.0
Ubuntu 21.10 Oct1
SE +/- 460.68, N = 15
42433.4
openSUSE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

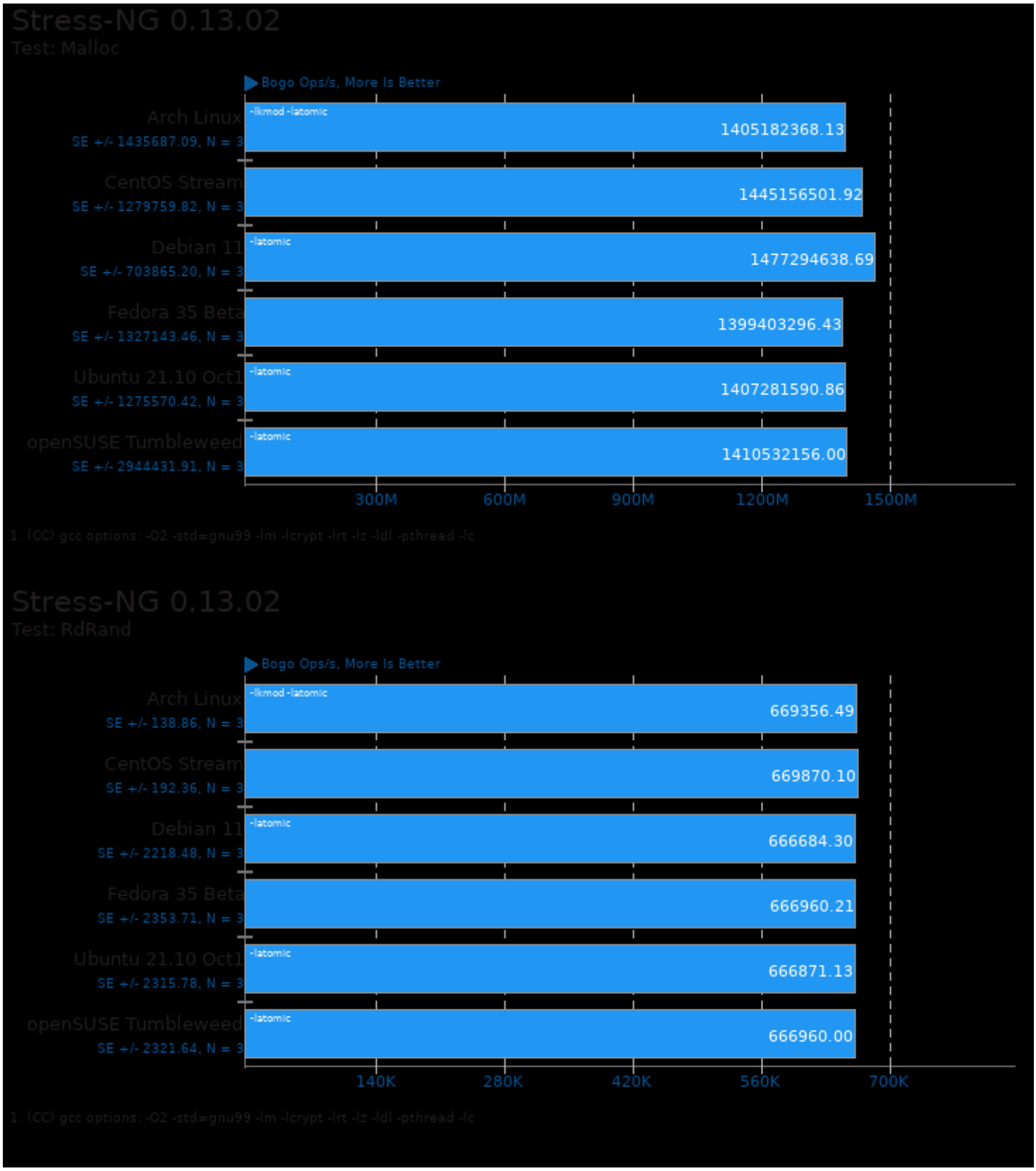

TensorFlow Lite 2020-08-23
Model: Inception ResNet V2
Microseconds, Fewer Is Better
Arch Linux
SE +/- 781.86, N = 3
576301
CentOS Stream
SE +/- 4828.20, N = 3
580283
Debian 11
SE +/- 319.86, N = 3
570385
Fedora 35 Beta
SE +/- 1535.68, N = 3
594597
Ubuntu 21.10 Oct1
SE +/- 1247.99, N = 3
595226
openSUSE Tumbleweed
SE +/- 1116.87, N = 3
596888
130K
260K
390K
520K
650K
PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only
TPS, More Is Better
Arch Linux
SE +/- 12523.47, N = 13
-lpthread -lrt -ldl
941552
CentOS Stream
SE +/- 20865.08, N = 12
-lpthread -lrt -ldl
984861
Debian 11
SE +/- 17790.96, N = 15
-lpthread -lrt -ldl
953348
Fedora 35 Beta
SE +/- 13107.59, N = 3
991583
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

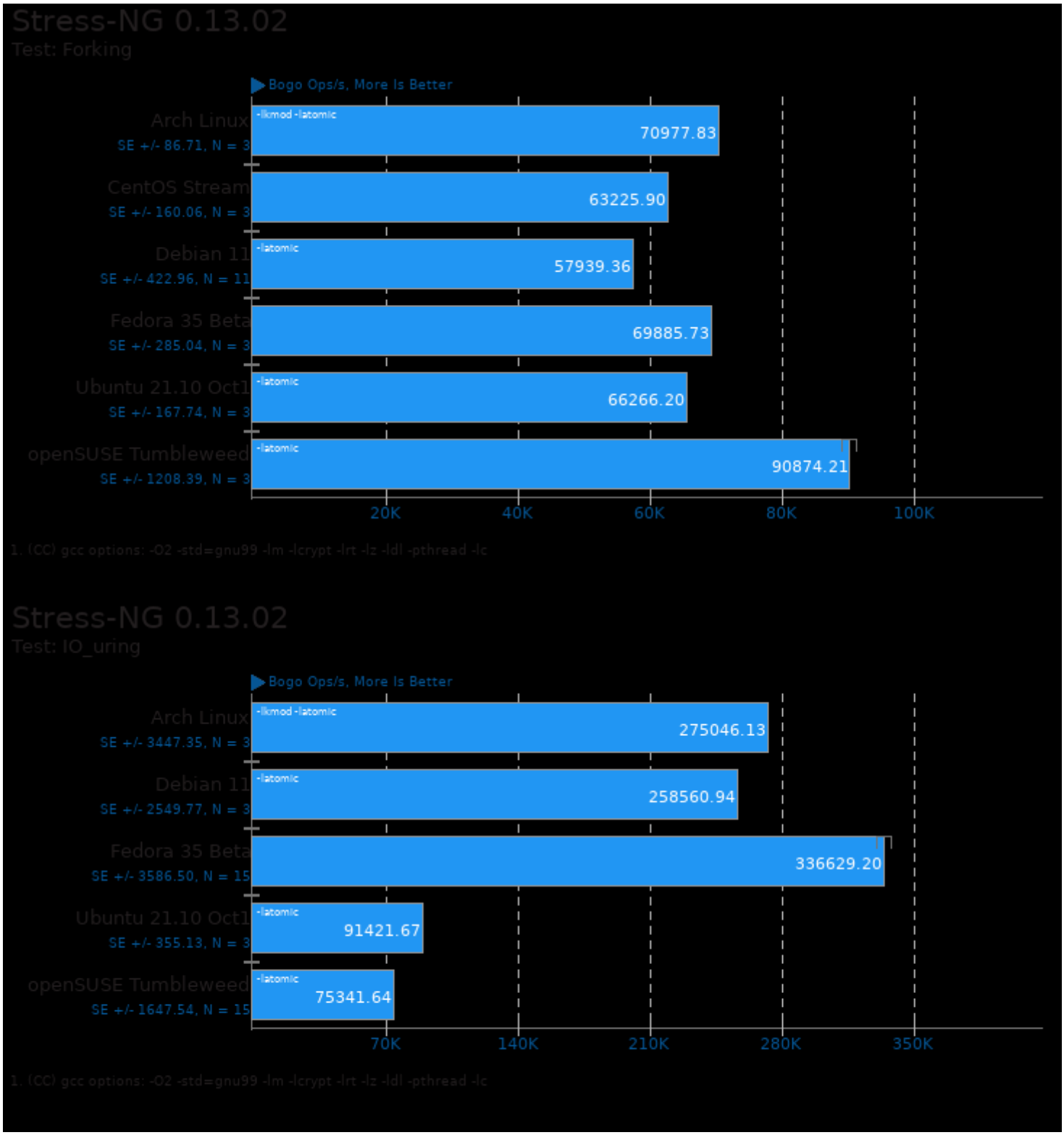

PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Only - Average Latency
ms, Fewer Is Better
Arch Linux
SE +/- 0.004, N = 13
CentOS Stream
SE +/- 0.006, N = 12
Debian 11
SE +/- 0.005, N = 15
Fedora 35 Beta
SE +/- 0.004, N = 3
Ubuntu 21.10 Oct1
SE +/- 0.008, N = 12
openSUSE Tumbleweed
SE +/- 0.037, N = 12
-lpthread -lrt -ldl
0.266
0.255
0.264
0.252
0.269
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
TPS, More Is Better
Arch Linux
SE +/- 632.82, N = 3
CentOS Stream
SE +/- 126.73, N = 3
Debian 11
SE +/- 215.99, N = 15
Fedora 35 Beta
SE +/- 24.31, N = 3
Ubuntu 21.10 Oct1
SE +/- 56.97, N = 3
openSUSE Tumbleweed
SE +/- 102.11, N = 15
-lpthread -lrt -ldl
84918
92097
28458
32630
31120
12099
20K
40K
60K
80K
100K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

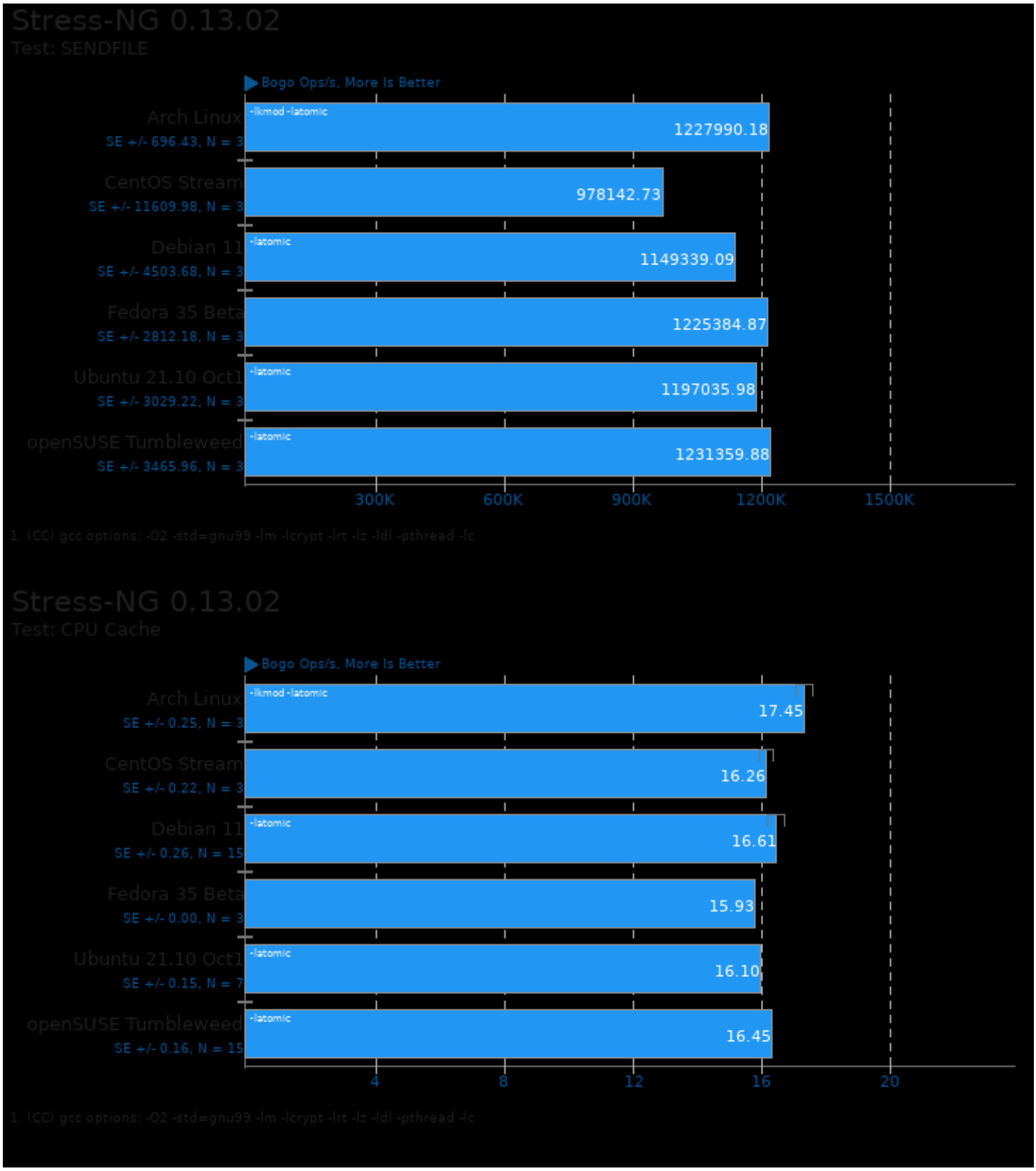

PostgreSQL pgbench 13.0
Scaling Factor: 100 - Clients: 250 - Mode: Read Write - Average Latency
ms, Fewer Is Better
Arch Linux
SE +/- 0.022, N = 3
-lpthread -lrt -ldl
2.945
CentOS Stream
SE +/- 0.004, N = 3
-lpthread -lrt -ldl
2.715
Debian 11
SE +/- 0.065, N = 15
-lpthread -lrt -ldl
8.798
Fedora 35 Beta
SE +/- 0.006, N = 3
7.663
Ubuntu 21.10 Oct
SE +/- 0.015, N = 3
8.039
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
SQLite Speedtest 3.30
Timed Time - Size 1,000
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.04, N = 3
-ldl -lpthread
63.43
CentOS Stream
SE +/- 0.22, N = 3
-ldl -lpthread
60.54
Debian 11
SE +/- 0.24, N = 3
-ldl -lpthread
58.90
Fedora 35 Beta
SE +/- 0.24, N = 3
59.77
Ubuntu 21.10 Oct
SE +/- 0.29, N = 3
62.55
openSUSE Tumbleweed
SE +/- 0.35, N = 3
72.65
16
32
48
64
80
1. (CC) gcc options: -O2 -lz

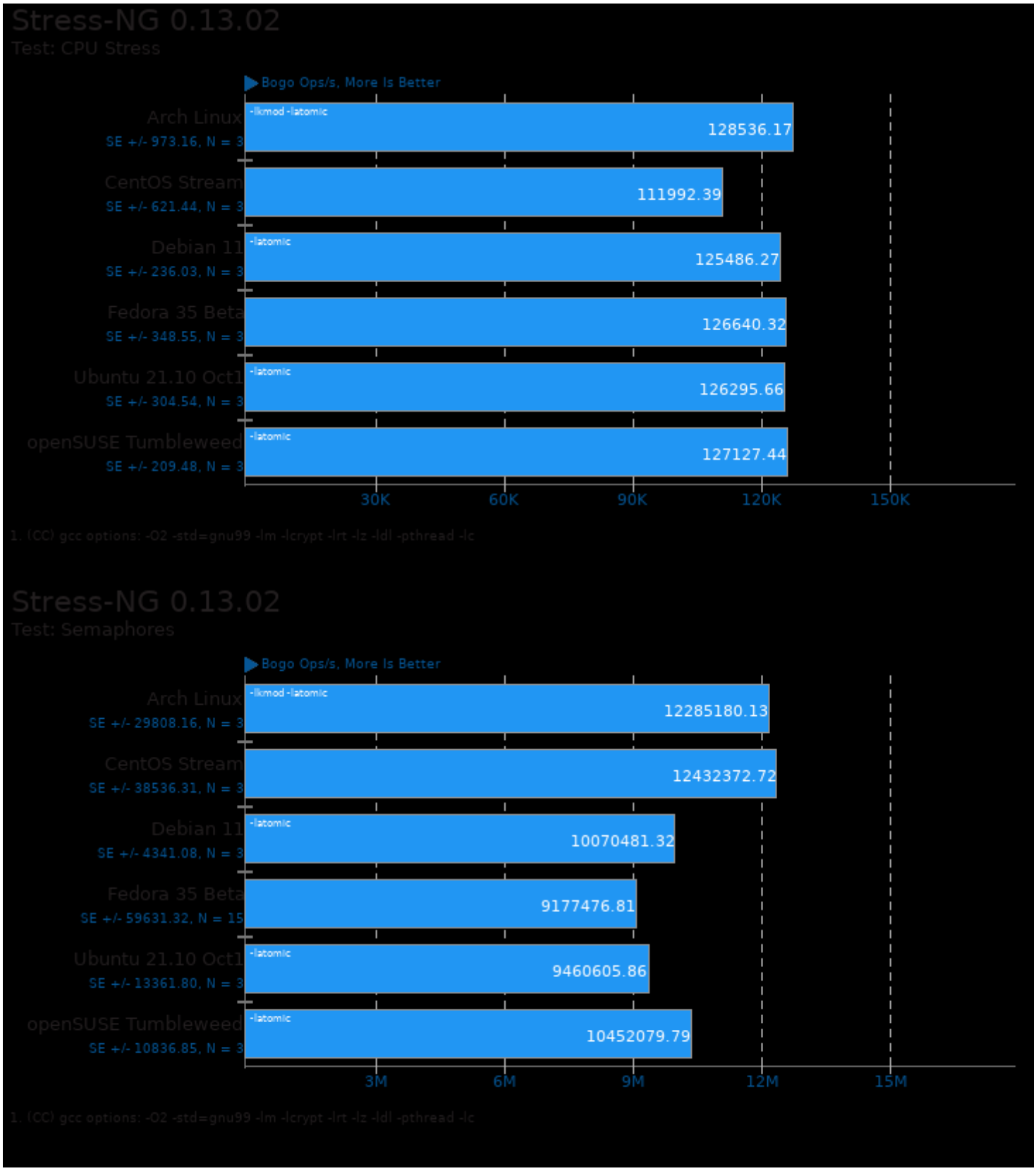

Stress-NG 0.13.02
Test: MMAP
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 3.51, N = 3
-lkmod -latomic
4530.43
CentOS Stream
SE +/- 2.62, N = 3
3330.78
Debian 11
SE +/- 33.87, N = 3
-latomic
4173.70
Fedora 35 Beta
SE +/- 31.54, N = 3
4719.58
Ubuntu 21.10 Oct
SE +/- 35.72, N = 3
-latomic
3838.76
openSUSE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

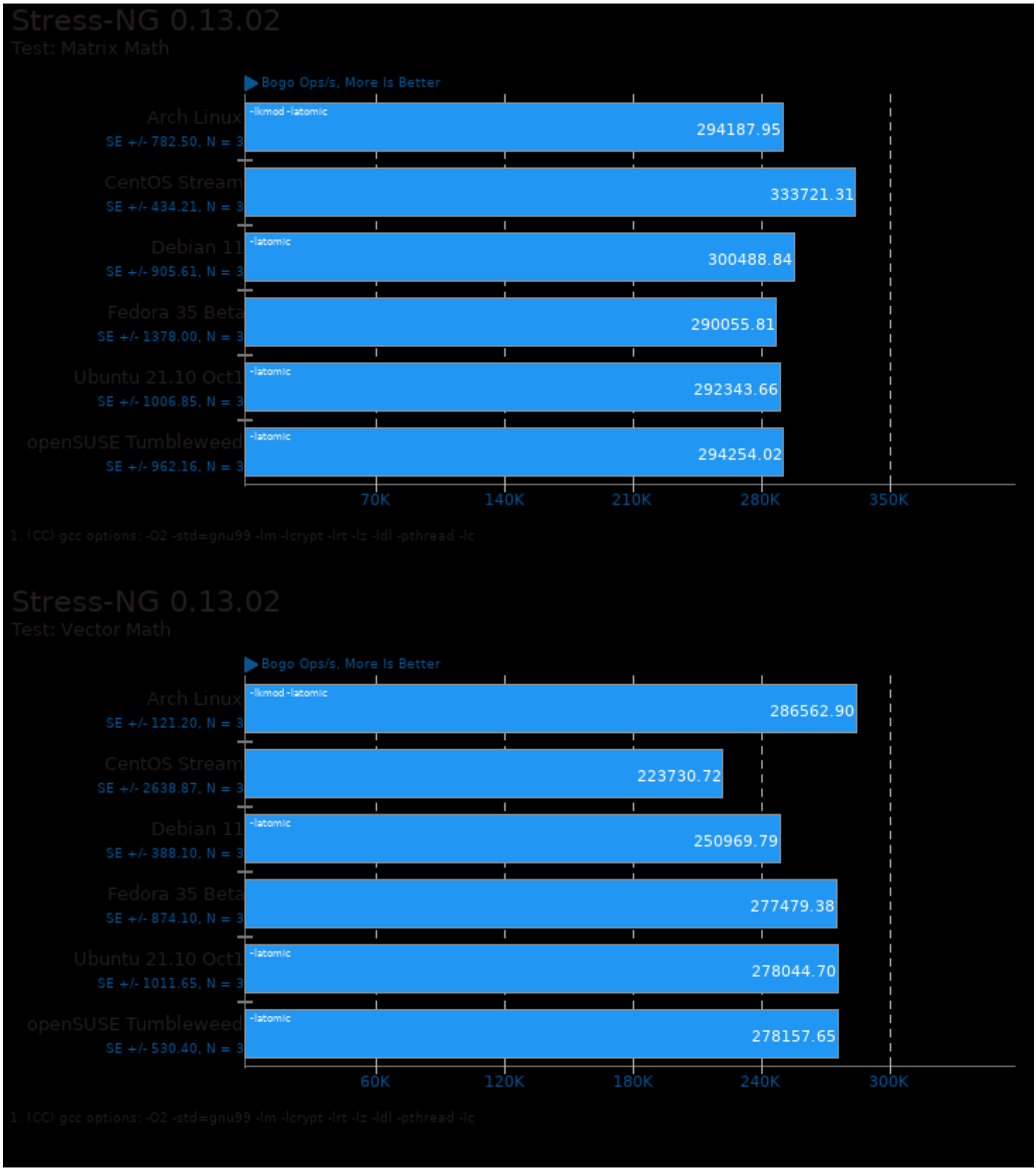

Stress-NG 0.13.02
Test: MEMFD
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 3.78, N = 3
-lkmod -latomic
3842.46
CentOS Stream
SE +/- 3.48, N = 3
2749.64
Debian 11
SE +/- 36.52, N = 3
-latomic
3915.95
Fedora 35 Beta
SE +/- 29.44, N = 3
3895.47
Ubuntu 21.10 Oct
SE +/- 42.24, N = 3
-latomic
3770.87
openSUSE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

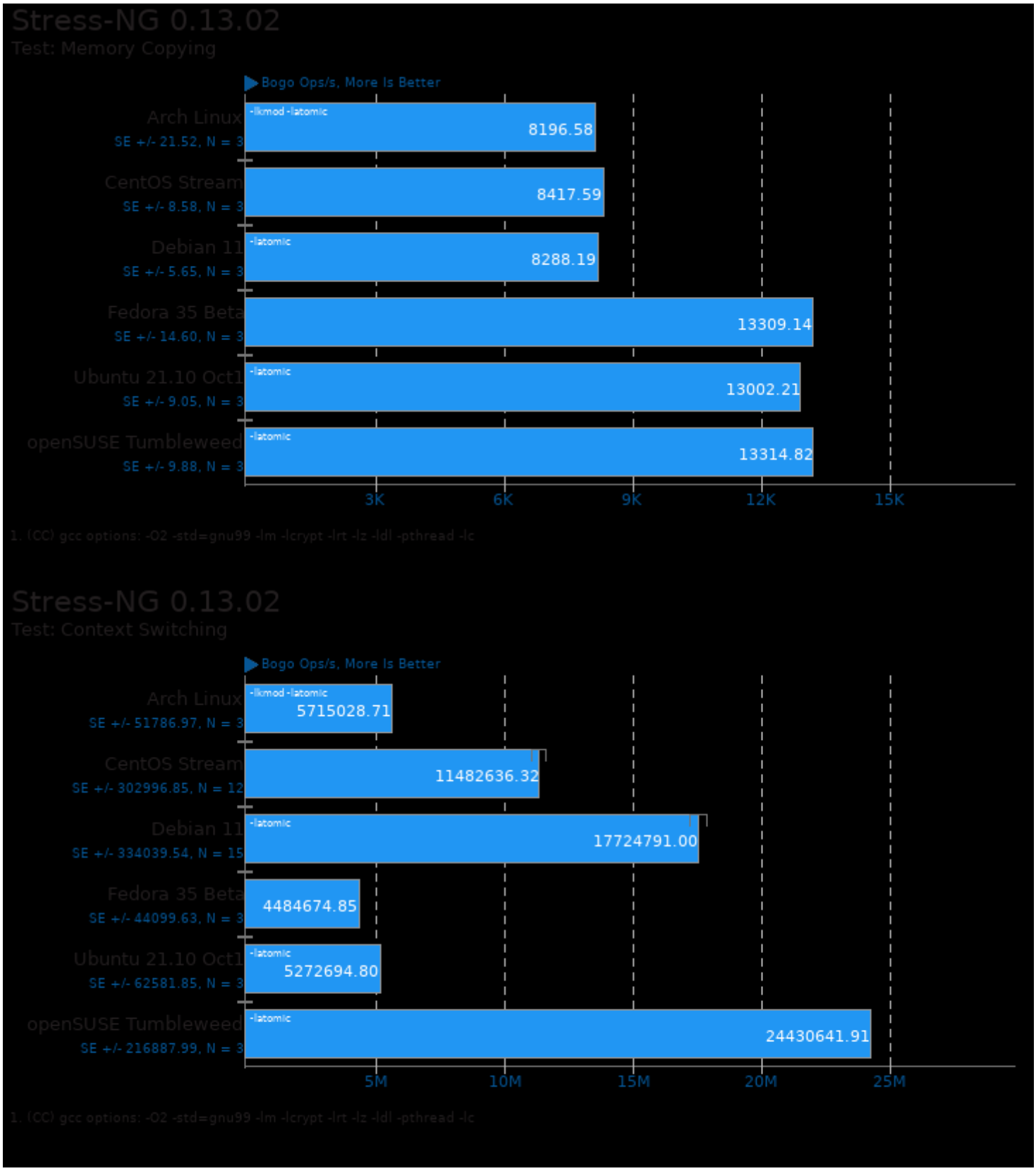

Stress-NG 0.13.02
Test: Malloc
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 1435687.09, N = 3
-lkmod -latomic
1405182368.13
CentOS Stream
SE +/- 1279759.82, N = 3
1445156501.92
Debian 11
SE +/- 703865.20, N = 3
-latomic
1477294638.69
Fedora 35 Beta
SE +/- 1327143.46, N = 3
1399403296.43
Ubuntu 21.10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

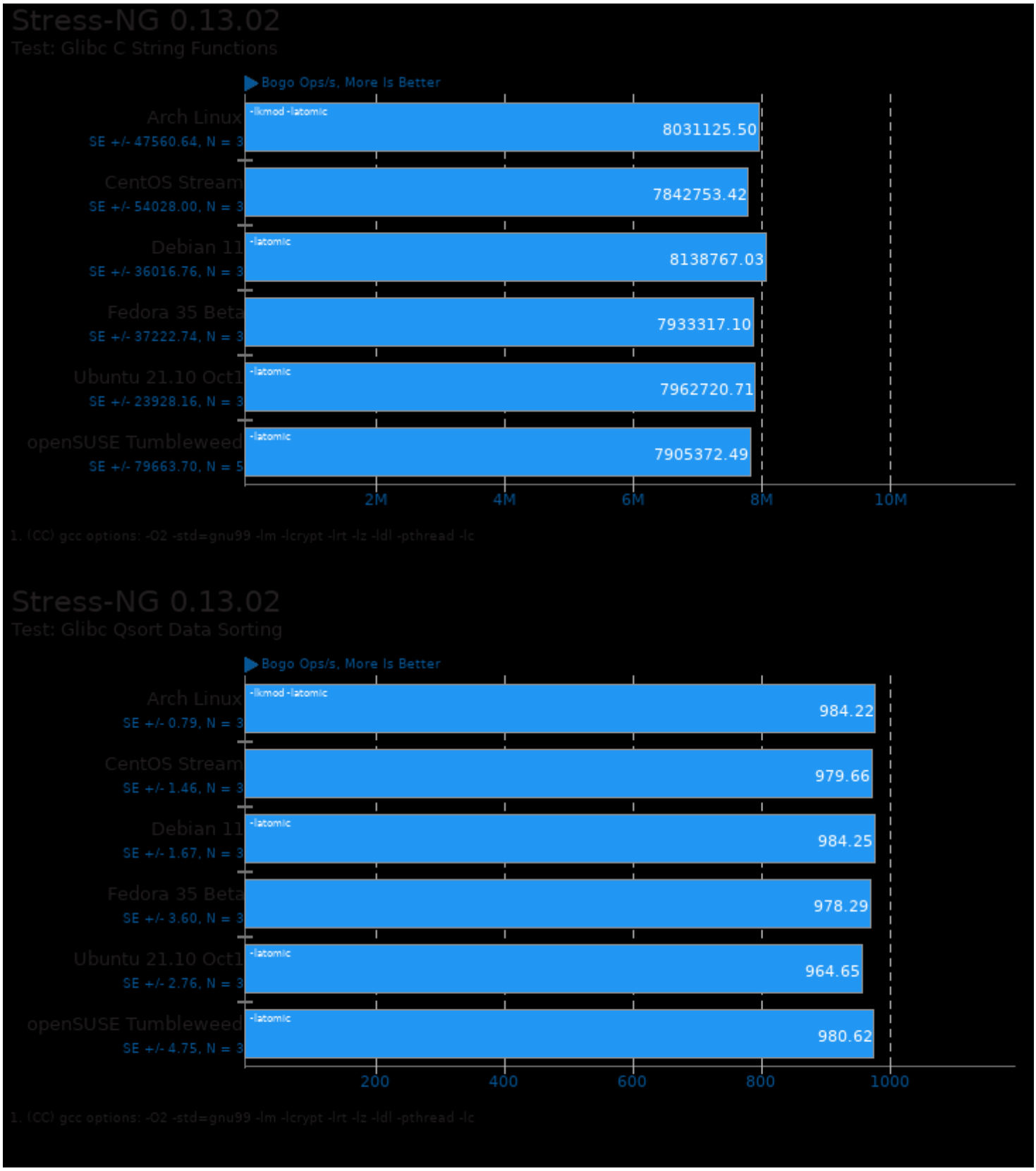

Stress-NG 0.13.02
Test: Forking
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 86.71, N = 3
-lkmod -latomic
70977.83
CentOS Stream
SE +/- 160.06, N = 3
63225.90
Debian 11
SE +/- 422.96, N = 11
-latomic
57939.36
Fedora 35 Beta
SE +/- 285.04, N = 3
69885.73
Ubuntu 21.10 Oct1
SE +/- 167.74, N = 3
-latomic
66266.20
openSUSE Tumbleweed
SE +/- 1208.39, N = 3
-latomic
90874.21
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
Arch Linux
SE +/- 3447.35, N = 3
-lkmod -latomic
275046.13
Debian 11
SE +/- 2549.77, N = 3
-latomic
258560.94
Fedora 35 Beta
SE +/- 3586.50, N = 15
336629.20
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

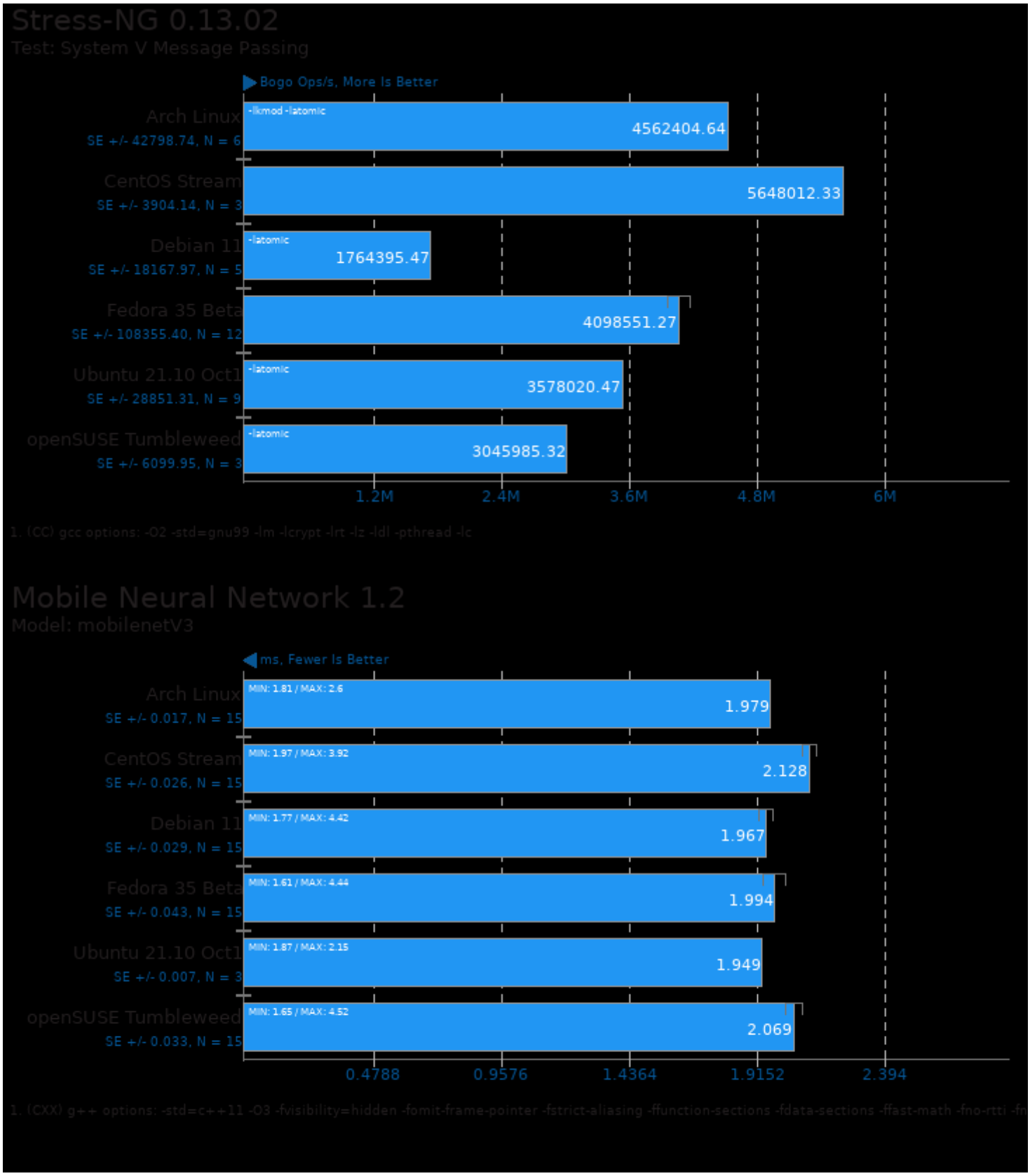

Stress-NG 0.13.02
Test: SENDFILE
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 696.43, N = 3
-lkmod -latomic
1227990.18
CentOS Stream
SE +/- 11609.98, N = 3
978142.73
Debian 11
SE +/- 4503.68, N = 3
-latomic
1149339.09
Fedora 35 Beta
SE +/- 2812.18, N = 3
1225384.87
Ubuntu 21.10 Oct1
SE +/- 3029.22, N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

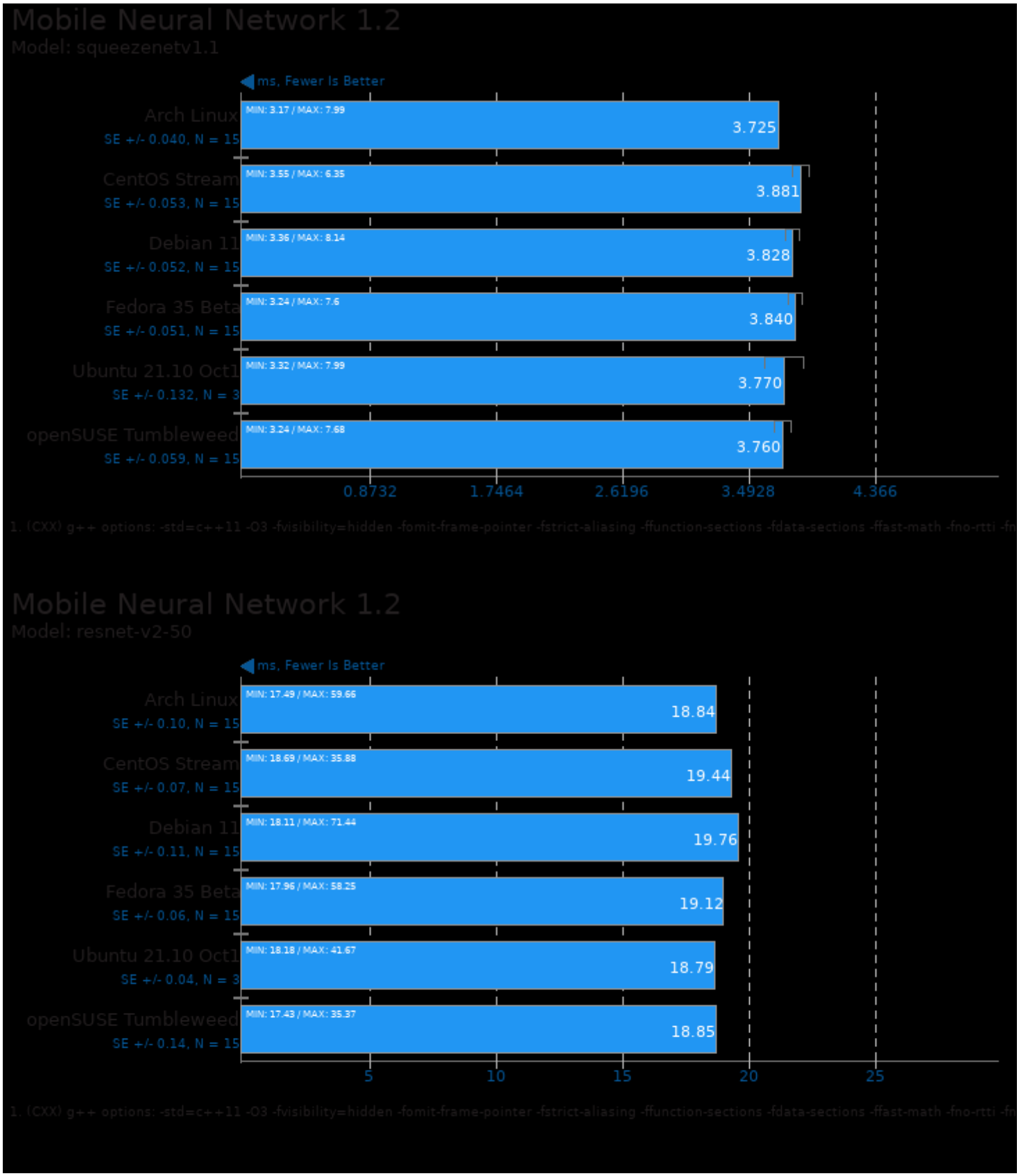

Stress-NG 0.13.02
Test: CPU Stress
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 973.16, N = 3
-lkmod -latomic
128536.17
CentOS Stream
SE +/- 621.44, N = 3
111992.39
Debian 11
SE +/- 236.03, N = 3
-latomic
125486.27
Fedora 35 Beta
SE +/- 348.55, N = 3
126640.32
Ubuntu 21.10 Oct
SE +/- 304.54, N = 3
-latomic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

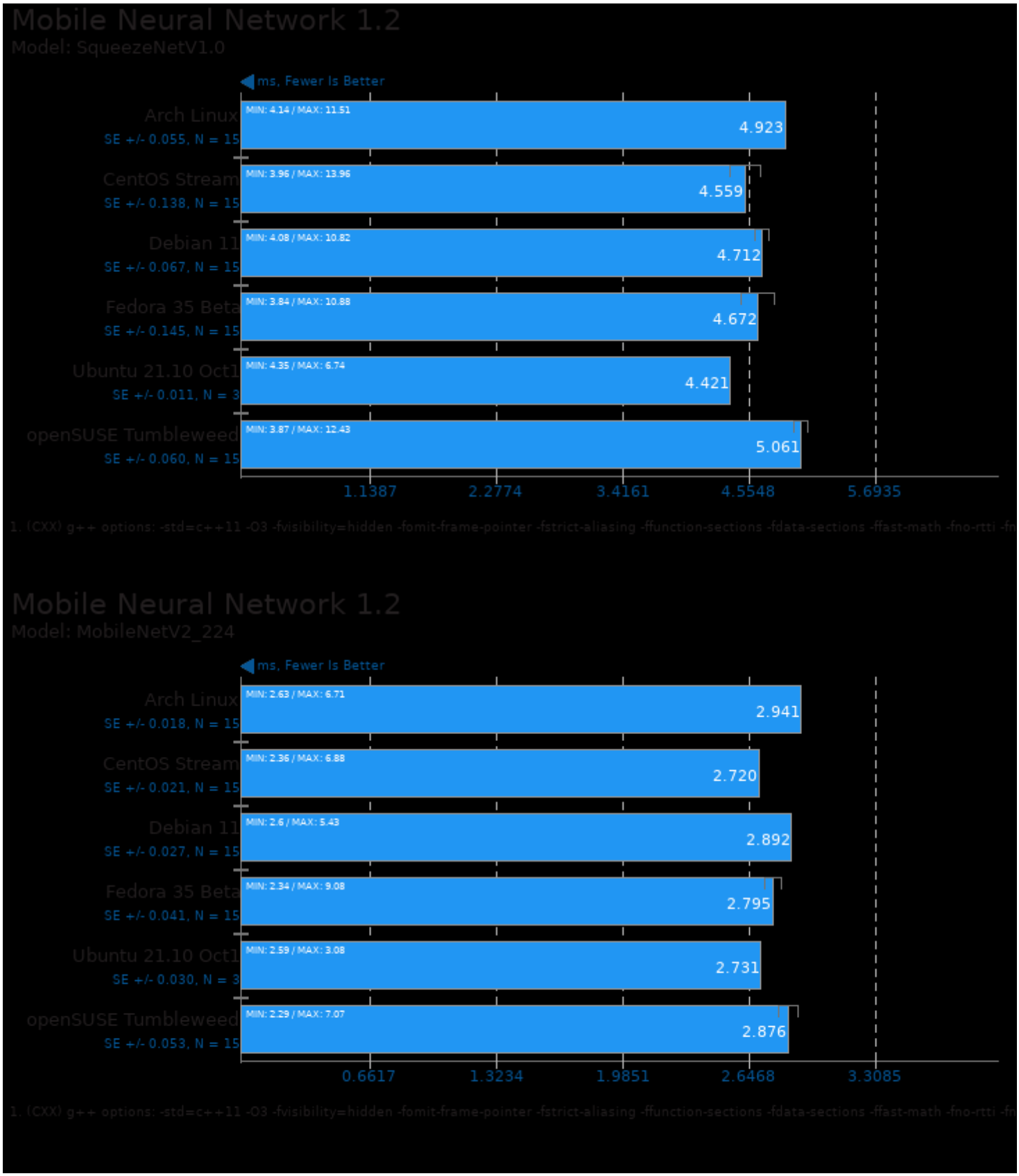

Stress-NG 0.13.02
Test: Matrix Math
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 782.50, N = 3
-lkmod -latomic
294187.95
CentOS Stream
SE +/- 434.21, N = 3
333721.31
Debian 11
SE +/- 905.61, N = 3
-latomic
300488.84
Fedora 35 Beta
SE +/- 1378.00, N = 3
290055.81
Ubuntu 21.10 Oct
SE +/- 1006.85, N = 3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

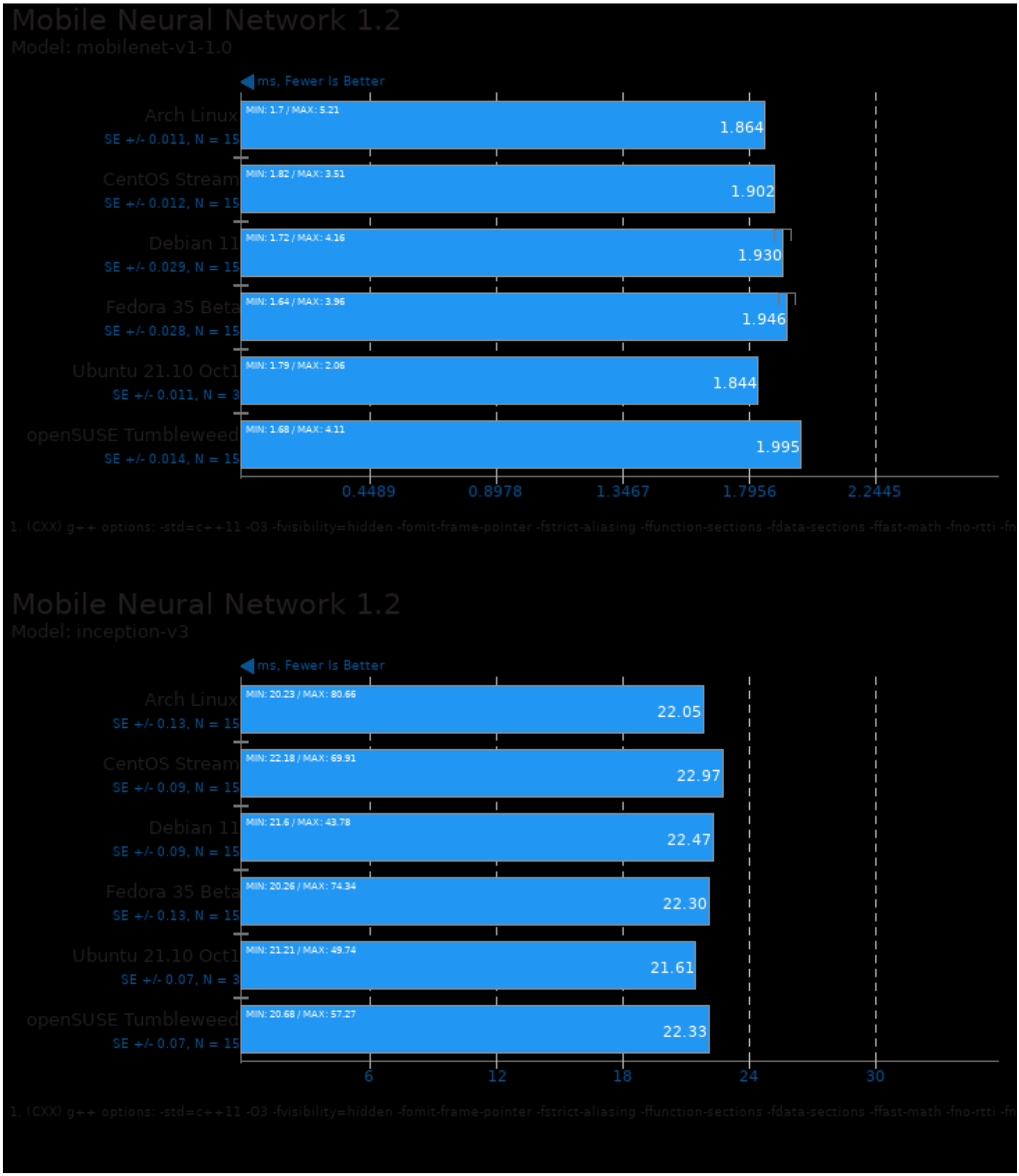

Stress-NG 0.13.02
Test: Memory Copying
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 21.52, N = 3
-lkmod -latomic
8196.58
CentOS Stream
SE +/- 8.58, N = 3
8417.59
Debian 11
SE +/- 5.65, N = 3
-latomic
8288.19
Fedora 35 Beta
SE +/- 14.60, N = 3
13309.14
Ubuntu 21.10 Oct
SE +/- 9.05, N = 3
-latomic
13002.21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

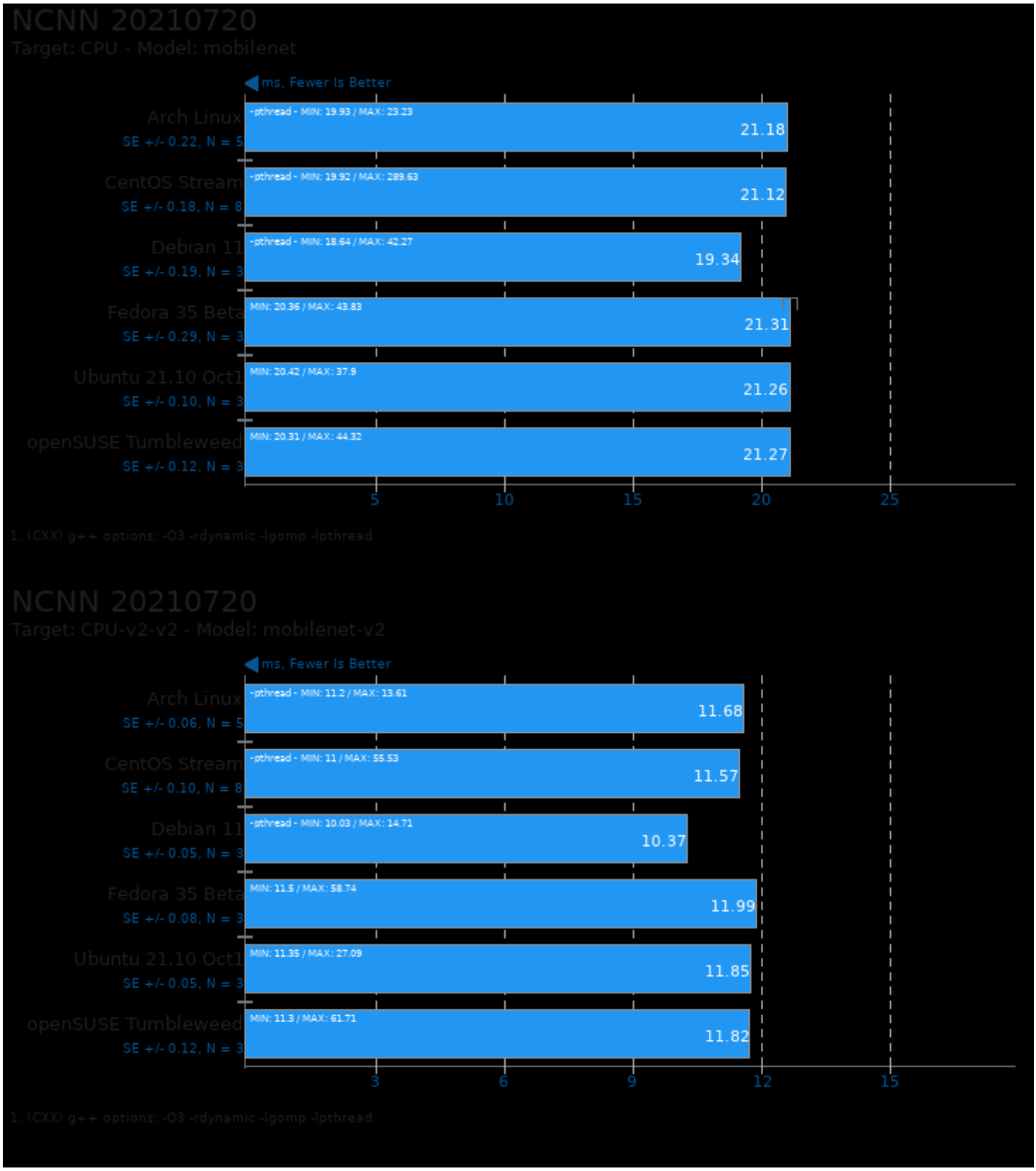

Stress-NG 0.13.02
Test: Glibc C String Functions
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 47560.64, N = 3
-lkmod -latomic
8031125.50
CentOS Stream
SE +/- 54028.00, N = 3
7842753.42
Debian 11
SE +/- 36016.76, N = 3
-latomic
8138767.03
Fedora 35 Beta
SE +/- 37222.74, N = 3
7933317.10
Ubuntu 21.10 Oct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

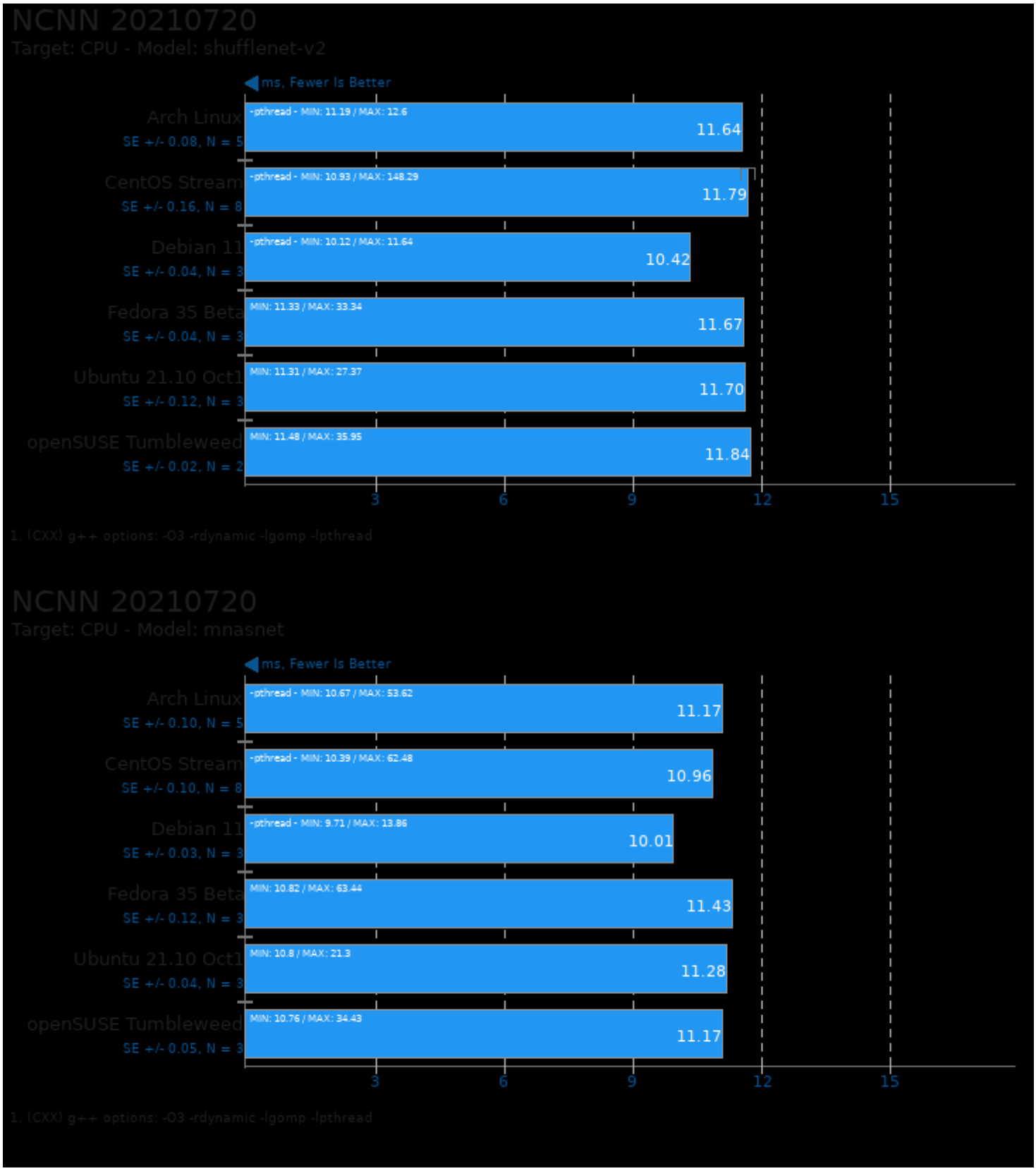

Stress-NG 0.13.02
Test: System V Message Passing
Bogo Ops/s, More Is Better
Arch Linux
SE +/- 42798.74, N = 6
-lkmod -latomic
4562404.64
CentOS Stream
SE +/- 3904.14, N = 3
5648012.33
Debian 11
SE +/- 18167.97, N = 5
-latomic
1764395.47
Fedora 35 Beta
SE +/- 108355.40, N = 12
4098551.27
Ubuntu 21.10 Oct1
SE +/- 28851.31, N = 9
-latomic
3578020.47
openSUSE Tumbleweed
SE +/- 6099.95, N = 3
-latomic
3045985.32
1.2M
2.4M
3.6M
4.8M
6M
1. (CC) gcc options: -O2 -std=gnu99 -lm -lcrypt -lrt -lz -ldl -pthread -lc
Mobile Neural Network 1.2
Model: mobilenetV3
ms, Fewer Is Better
Arch Linux
SE +/- 0.017, N = 15
MIN: 1.81 / MAX: 2.6
1.979
CentOS Stream
SE +/- 0.026, N = 15
MIN: 1.97 / MAX: 3.92
2.128
Debian 11
SE +/- 0.029, N = 15
MIN: 1.77 / MAX: 4.42
1.967
Fedora 35 Beta
SE +/- 0.043, N = 15
MIN: 1.61 / MAX: 4.44
1.994
Ubuntu 21.10 Oct1
SE +/- 0.007, N = 3
MIN: 1.87 / MAX: 2.15
1.949
openSUSE Tumbleweed
SE +/- 0.033, N = 15
MIN: 1.65 / MAX: 4.52
2.069
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 -fn

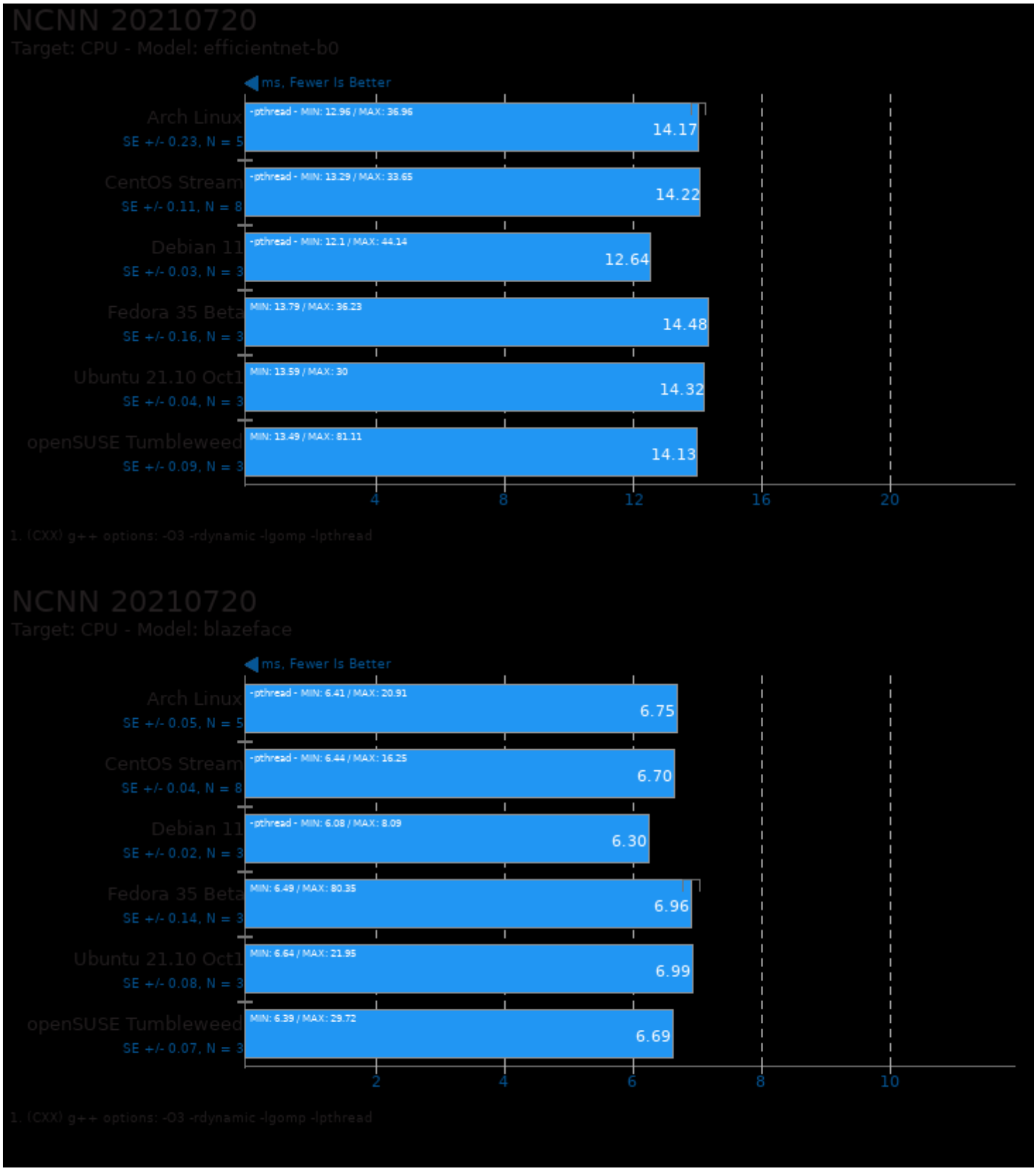

Mobile Neural Network 1.2
Model: squeezenetv1.1
ms, Fewer Is Better
Arch Linux
SE +/- 0.040, N = 15
MIN: 3.17 / MAX: 7.99
3.725
CentOS Stream
SE +/- 0.053, N = 15
MIN: 3.55 / MAX: 6.35
3.881
Debian 11
SE +/- 0.052, N = 15
MIN: 3.36 / MAX: 8.14
3.828
Fedora 35 Beta
SE +/- 0.051, N = 15
MIN: 3.24 / MAX: 7.6
3.840
Ubuntu 21.10 Oct
SE +/- 0.132, N = 3
MIN: 3.32 / MAX: 7.99
3.770
openSUSE Tumbleweed
SE +/- 0.059, N = 15
MIN: 3.24 / MAX: 7.68
3.760
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 -f
Mobile Neural Network 1.2
Model: resnet-v2-50
ms, Fewer Is Better
Arch Linux
SE +/- 0.10, N = 15
MIN: 17.49 / MAX: 59.66
18.84
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
Fedora 35 Beta
SE +/- 0.06, N = 15
MIN: 17.96 / MAX: 58.25
19.12
Ubuntu 21.10 Oct
SE +/- 0.04, N = 3
MIN: 18.18 / MAX: 41.67
18.79
openSUSE Tumbleweed
SE +/- 0.14, N = 15
MIN: 17.43 / MAX: 35.37
18.85
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 -f

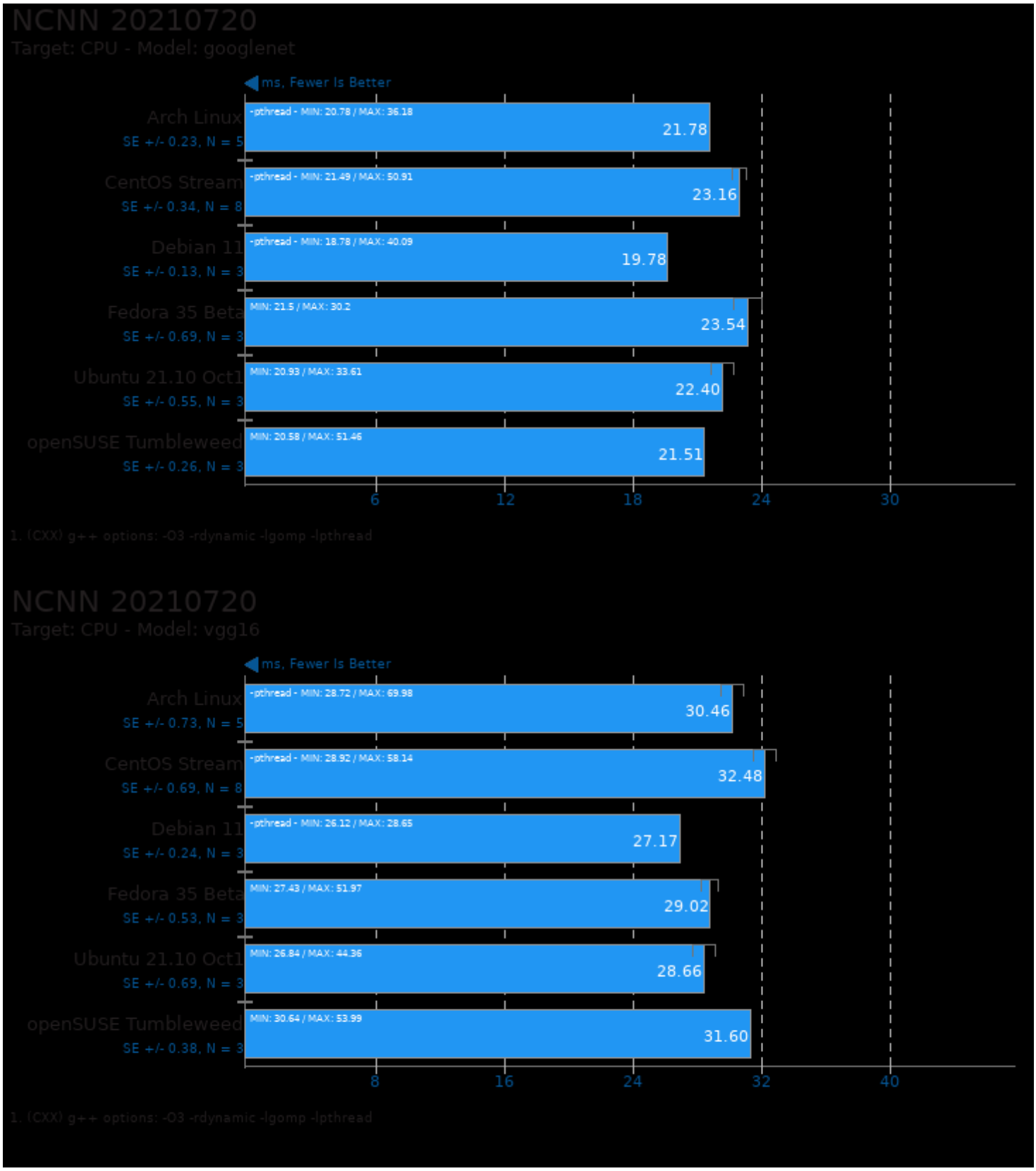

Mobile Neural Network 1.2
Model: SqueezeNetV1.0
ms, Fewer Is Better
Arch Linux
SE +/- 0.055, N = 15
MIN: 4.14 / MAX: 11.51
4.923
CentOS Stream
SE +/- 0.138, N = 15
MIN: 3.96 / MAX: 13.96
4.559
Debian 11
SE +/- 0.067, N = 15
MIN: 4.08 / MAX: 10.82
4.712
Fedora 35 Beta
SE +/- 0.145, N = 15
MIN: 3.84 / MAX: 10.88
4.672
Ubuntu 21.10 Oct1
SE +/- 0.011, N = 3
MIN: 4.35 / MAX: 6.74
4.421
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
Arch Linux
SE +/- 0.018, N = 15
MIN: 2.63 / MAX: 6.71
2.941
CentOS Stream
SE +/- 0.021, N = 15
MIN: 2.36 / MAX: 6.88
2.720
Debian 11
SE +/- 0.027, N = 15
MIN: 2.6 / MAX: 5.43
2.892
Fedora 35 Beta
SE +/- 0.041, N = 15
MIN: 2.34 / MAX: 9.08
2.795
Ubuntu 21.10 Oct1
SE +/- 0.030, N = 3
MIN: 2.59 / MAX: 3.08
2.731
openSUSE Tumbleweed
SE +/- 0.053, N = 15
MIN: 2.29 / MAX: 7.07
2.876
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

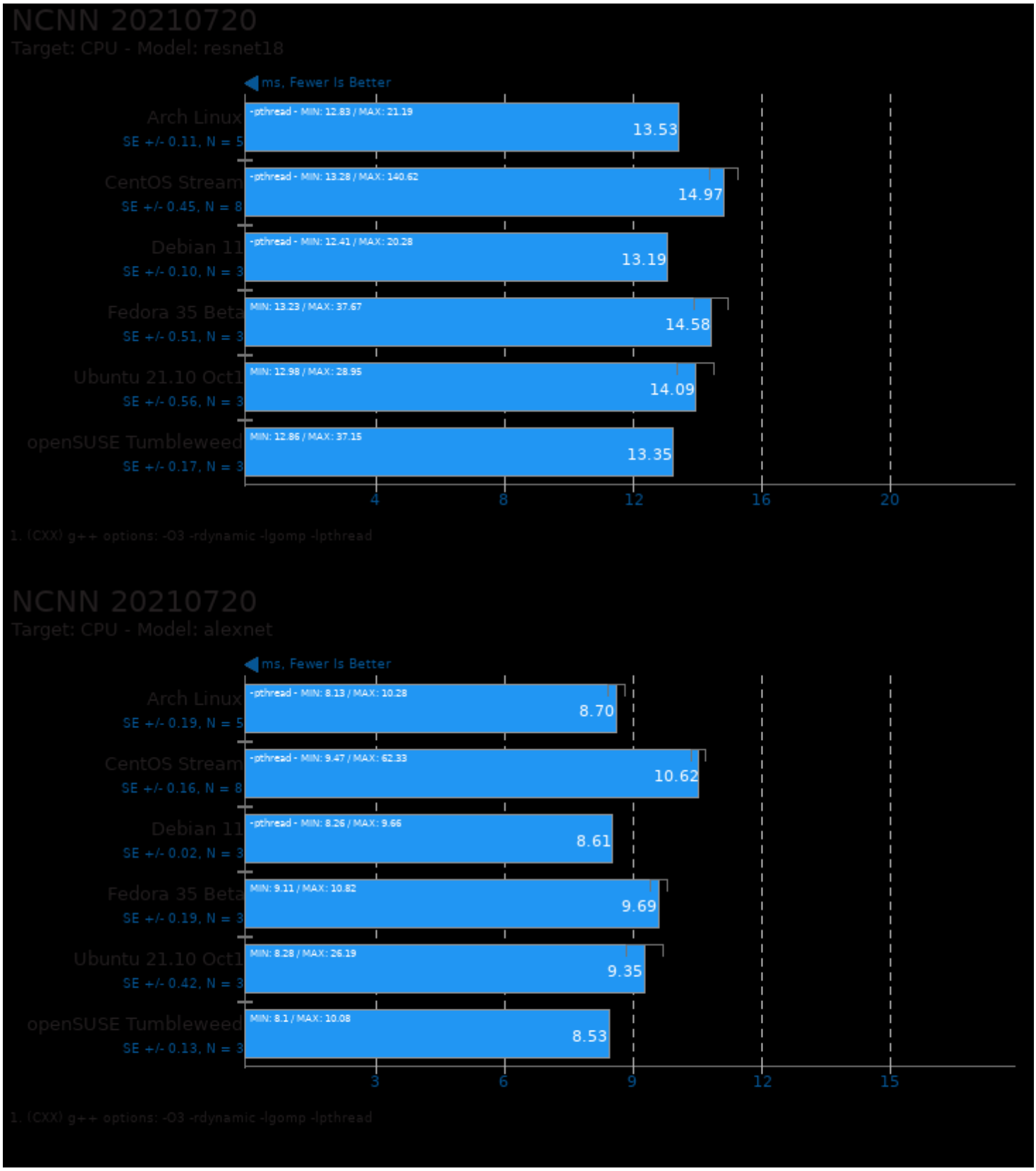

Mobile Neural Network 1.2
Model: mobilenet-v1-1.0
ms, Fewer Is Better
Arch Linux
SE +/- 0.011, N = 15
MIN: 1.7 / MAX: 5.21
1.864
CentOS Stream
SE +/- 0.012, N = 15
MIN: 1.82 / MAX: 3.51
1.902
Debian 11
SE +/- 0.029, N = 15
MIN: 1.72 / MAX: 4.16
1.930
Fedora 35 Beta
SE +/- 0.028, N = 15
MIN: 1.64 / MAX: 3.96
1.946
Ubuntu 21.10 Oct1
SE +/- 0.011, N = 3
MIN: 1.79 / MAX: 2.06
1.844
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
Arch Linux
SE +/- 0.13, N = 15
MIN: 20.23 / MAX: 80.66
22.05
CentOS Stream
SE +/- 0.09, N = 15
MIN: 22.18 / MAX: 69.91
22.97
Debian 11
SE +/- 0.09, N = 15
MIN: 21.6 / MAX: 43.78
22.47
Fedora 35 Beta
SE +/- 0.13, N = 15
MIN: 20.26 / MAX: 74.34
22.30
Ubuntu 21.10 Oct1
SE +/- 0.07, N = 3
MIN: 21.21 / MAX: 49.74
21.61
openSUSE Tumbleweed
SE +/- 0.07, N = 15
MIN: 20.68 / MAX: 57.27
22.33
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

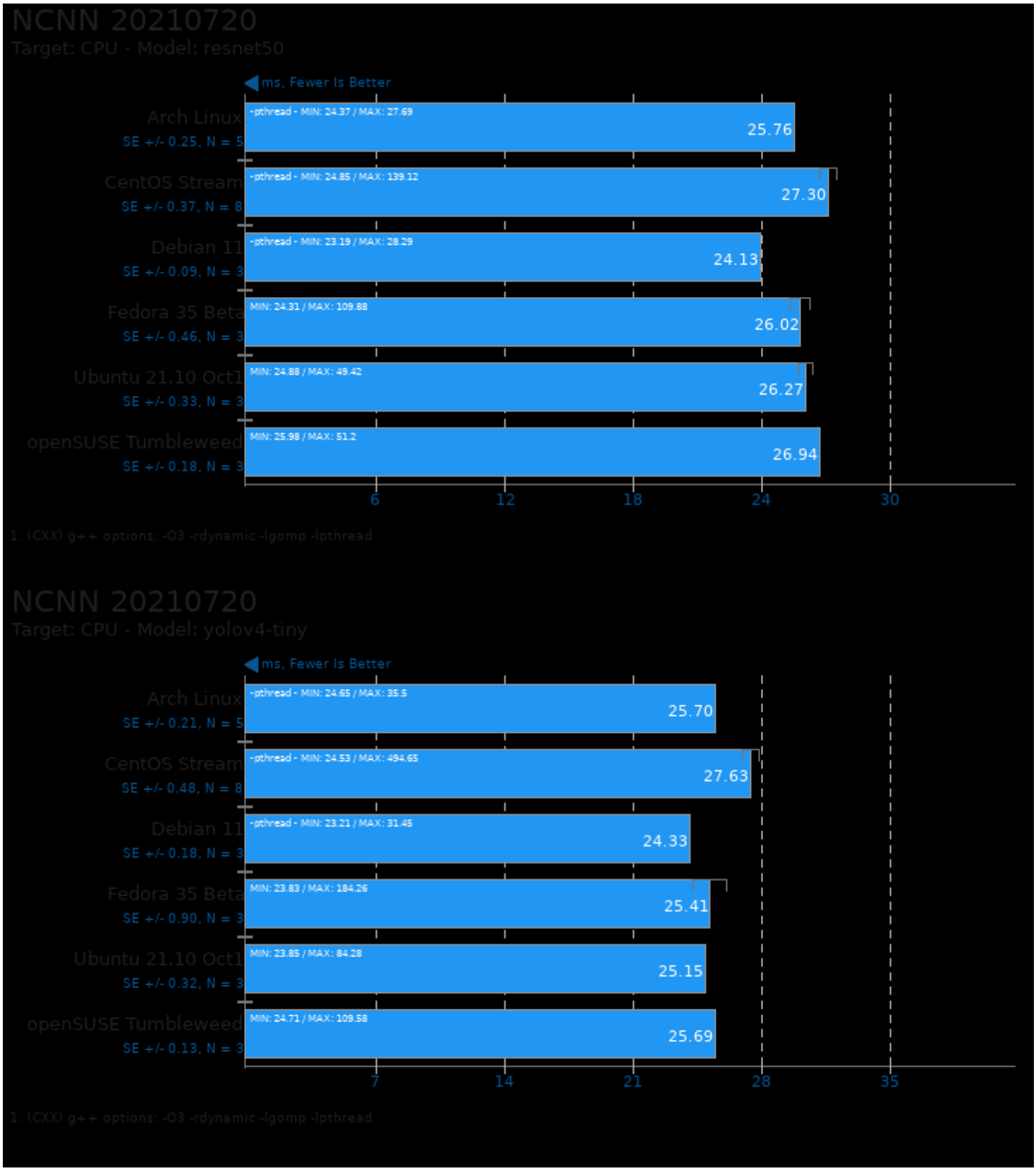

NCNN 20210720
Target: CPU - Model: mobilenet
ms, Fewer Is Better
Arch Linux
SE +/- 0.22, N = 5
-pthread - MIN: 19.93 / MAX: 23.23
21.18
CentOS Stream
SE +/- 0.18, N = 8
-pthread - MIN: 19.92 / MAX: 289.63
21.12
Debian 11
SE +/- 0.19, N = 3
-pthread - MIN: 18.64 / MAX: 42.27
19.34
Fedora 35 Beta
SE +/-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

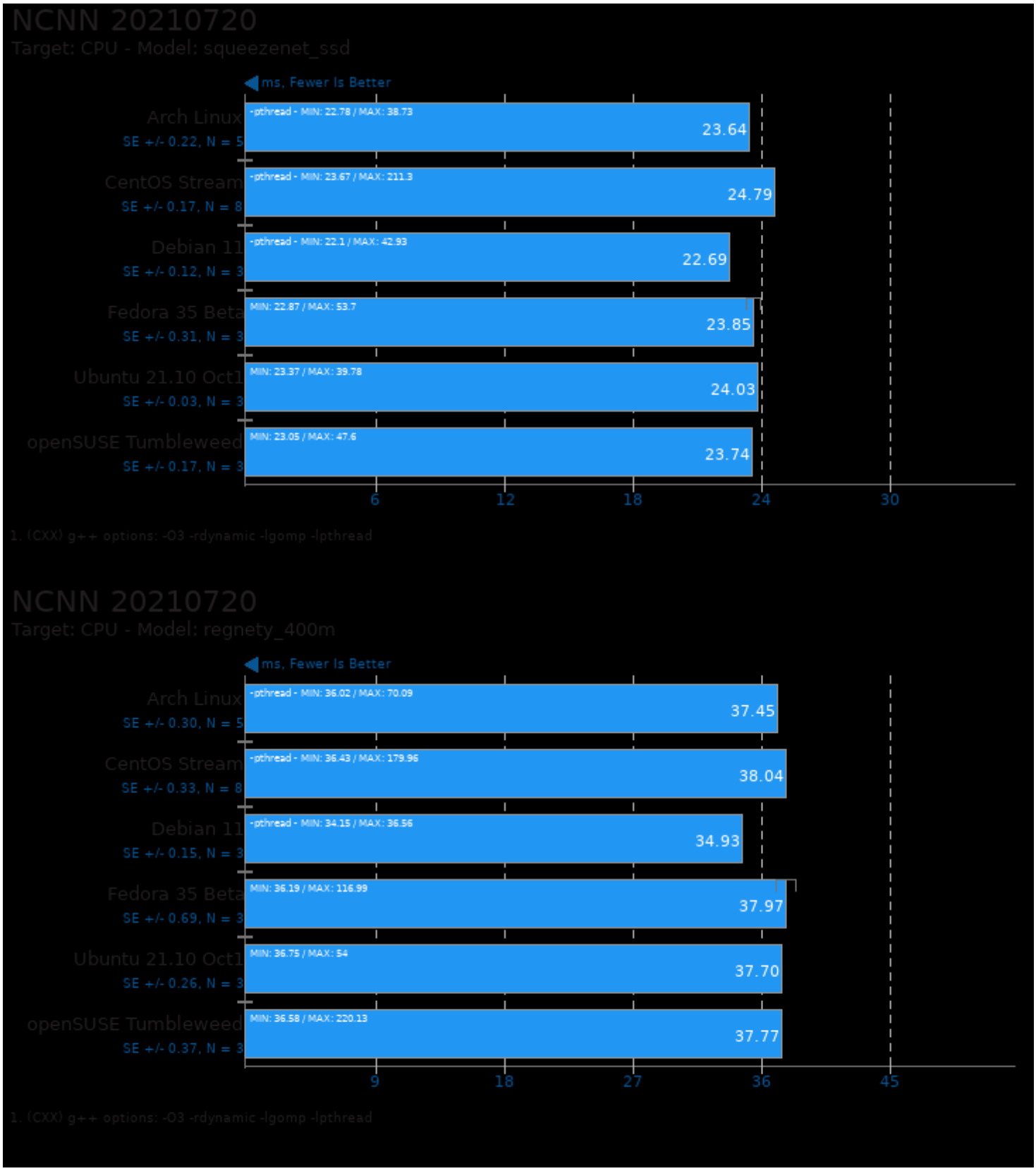

NCNN 20210720
Target: CPU - Model: shufflenet-v2
ms, Fewer Is Better
Arch Linux
SE +/- 0.08, N = 5
-pthread - MIN: 11.19 / MAX: 12.6
11.64
CentOS Stream
SE +/- 0.16, N = 8
-pthread - MIN: 10.93 / MAX: 148.29
11.79
Debian 11
SE +/- 0.04, N = 3
-pthread - MIN: 10.12 / MAX: 11.64
10.42
Fedora 35 Beta
SE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

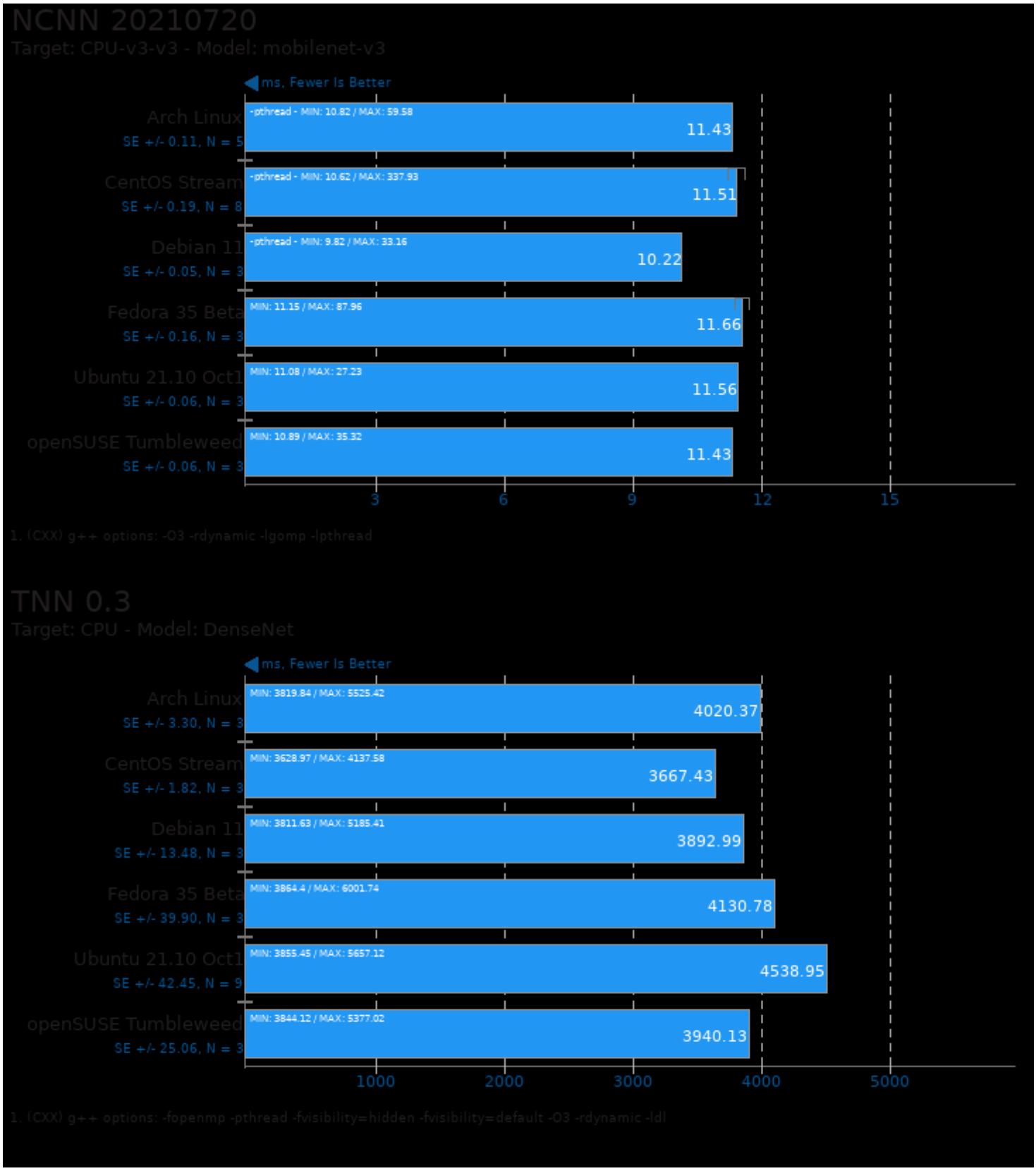

NCNN 20210720
Target: CPU - Model: efficientnet-b0
ms, Fewer Is Better
Arch Linux
SE +/- 0.23, N = 5
-pthread - MIN: 12.96 / MAX: 36.96
14.17
CentOS Stream
SE +/- 0.11, N = 8
-pthread - MIN: 13.29 / MAX: 33.65
14.22
Debian 11
SE +/- 0.03, N = 3
-pthread - MIN: 12.1 / MAX: 44.14
12.64
Fedora 35 Beta
SE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

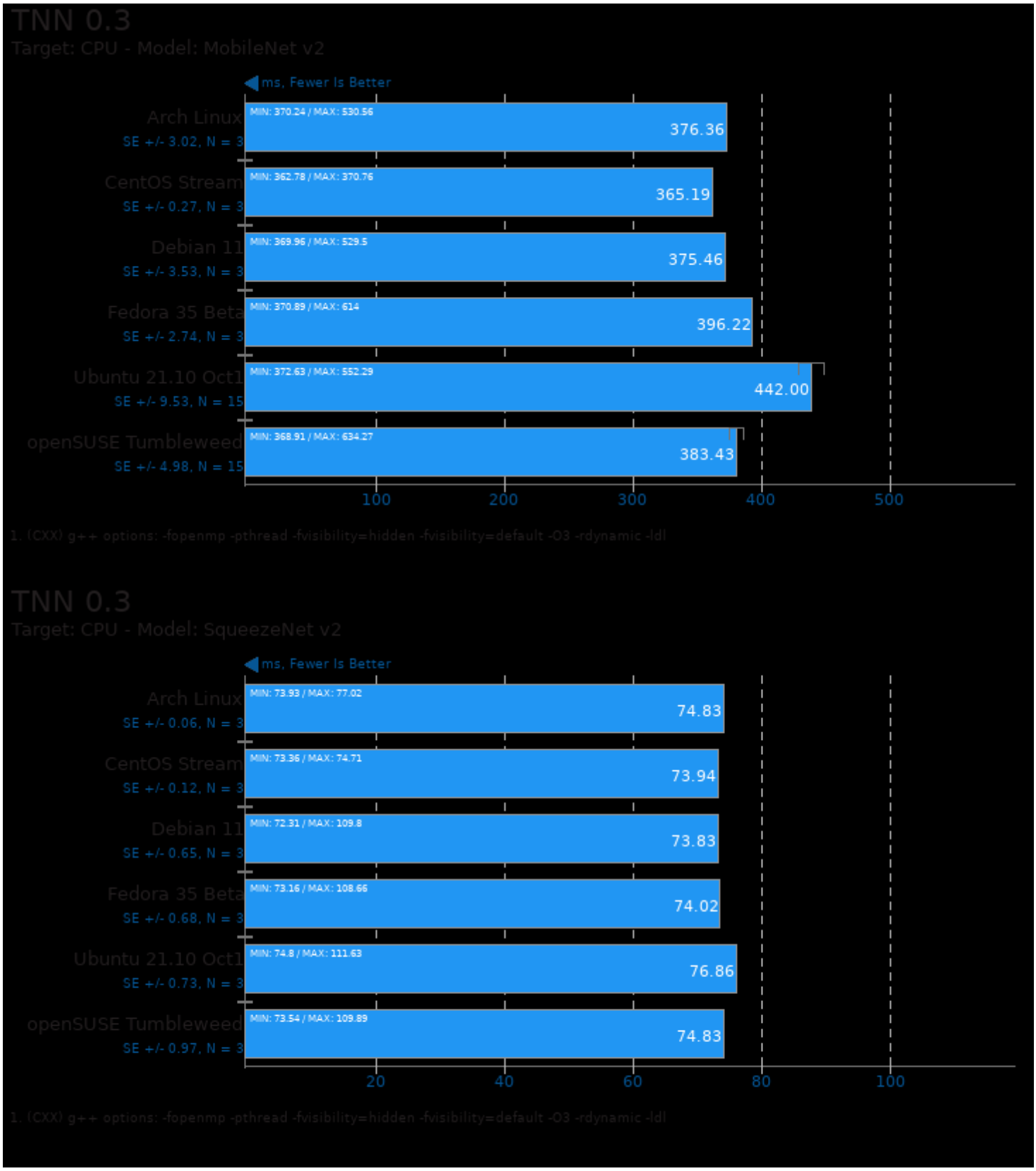

NCNN 20210720
Target: CPU - Model: googlenet
ms, Fewer Is Better
Arch Linux
SE +/- 0.23, N = 5
-pthread - MIN: 20.78 / MAX: 36.18
21.78
CentOS Stream
SE +/- 0.34, N = 8
-pthread - MIN: 21.49 / MAX: 50.91
23.16
Debian 11
SE +/- 0.13, N = 3
-pthread - MIN: 18.78 / MAX: 40.09
19.78
Fedora 35 Beta
SE +/-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

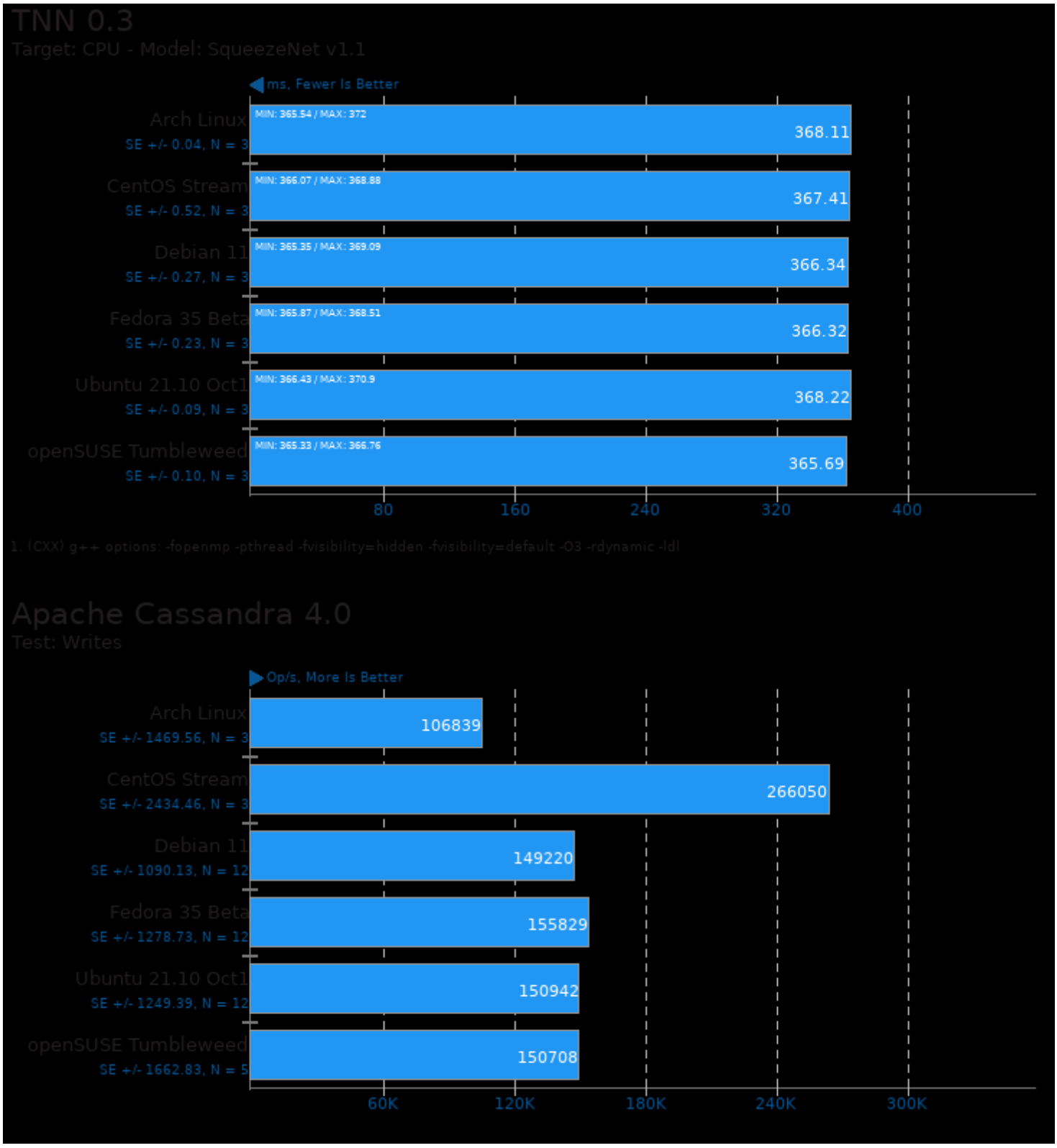

NCNN 20210720
Target: CPU - Model: resnet18
ms, Fewer Is Better
Arch Linux
SE +/- 0.11, N = 5
-pthread - MIN: 12.83 / MAX: 21.19
13.53
CentOS Stream
SE +/- 0.45, N = 8
-pthread - MIN: 13.28 / MAX: 140.62
14.97
Debian 11
SE +/- 0.10, N = 3
-pthread - MIN: 12.41 / MAX: 20.28
13.19
Fedora 35 Beta
SE +/-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

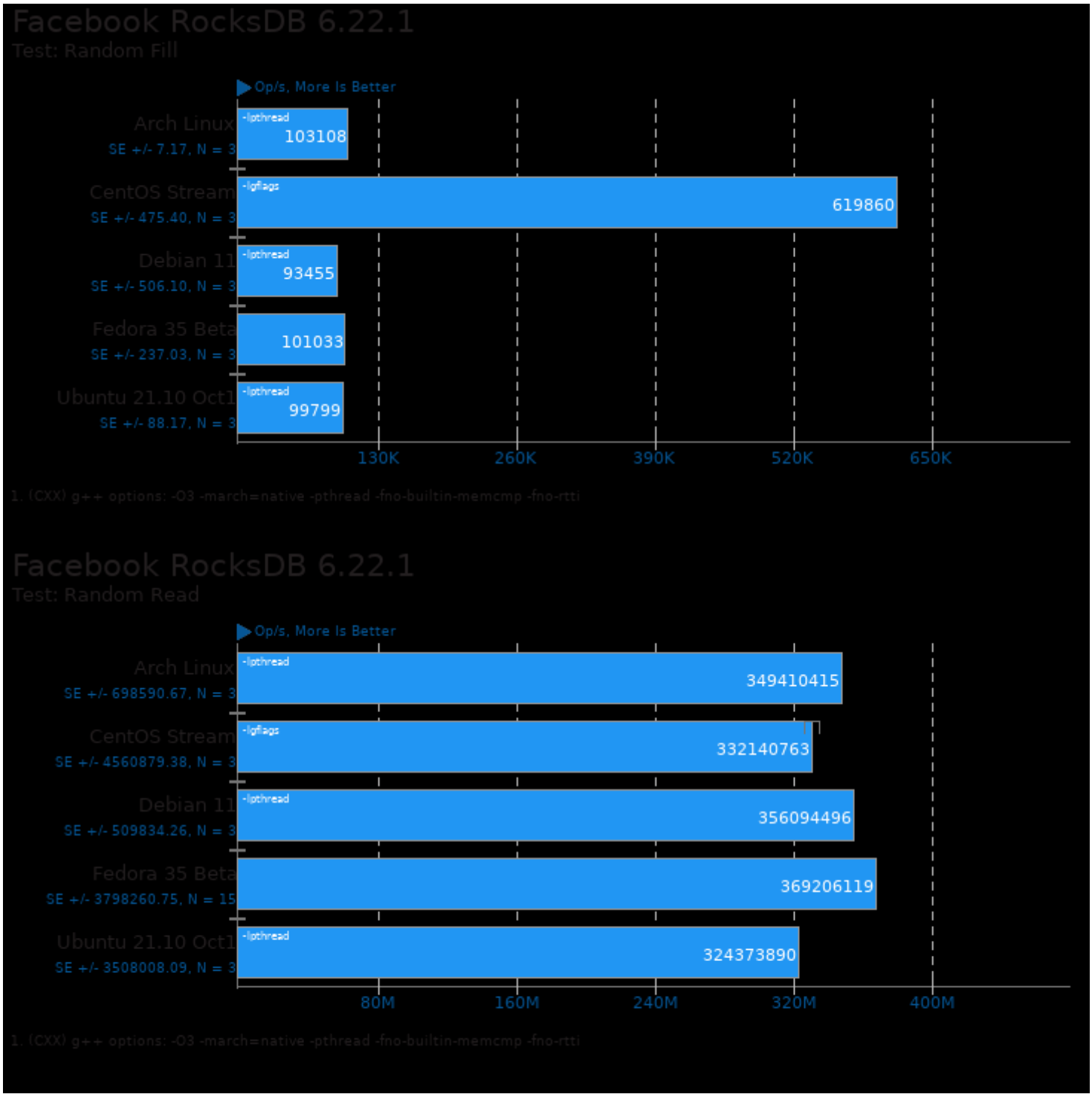

NCNN 20210720
Target: CPU - Model: resnet50
ms, Fewer Is Better
Arch Linux
SE +/- 0.25, N = 5
-pthread - MIN: 24.37 / MAX: 27.69
25.76
CentOS Stream
SE +/- 0.37, N = 8
-pthread - MIN: 24.85 / MAX: 139.12
27.30
Debian 11
SE +/- 0.09, N = 3
-pthread - MIN: 23.19 / MAX: 28.29
24.13
Fedora 35 Beta
SE +/-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

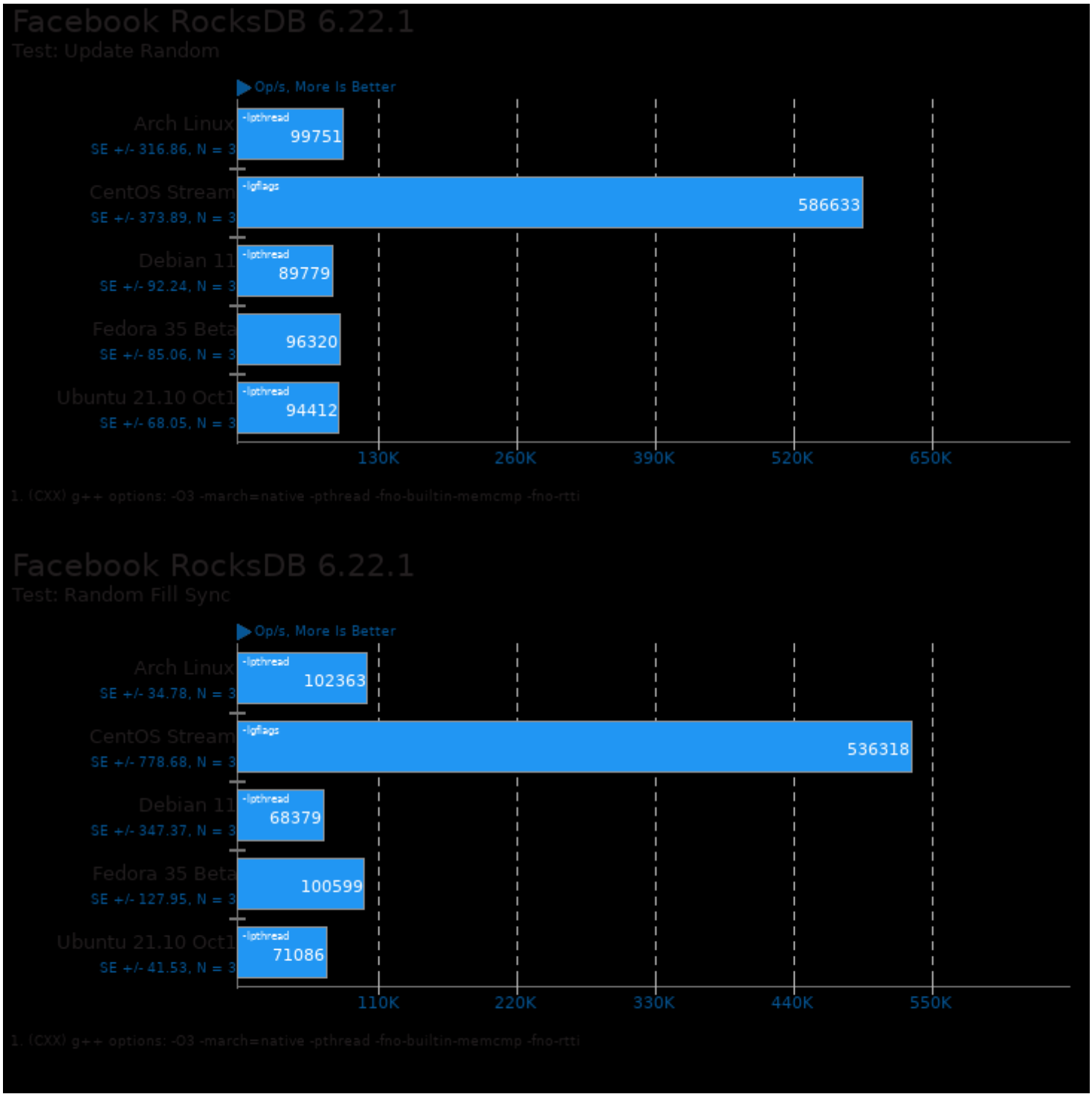

NCNN 20210720
Target: CPU - Model: squeezenet_ssd
ms, Fewer Is Better
Arch Linux
SE +/- 0.22, N = 5
-pthread - MIN: 22.78 / MAX: 38.73
23.64
CentOS Stream
SE +/- 0.17, N = 8
-pthread - MIN: 23.67 / MAX: 211.3
24.79
Debian 11
SE +/- 0.12, N = 3
-pthread - MIN: 22.1 / MAX: 42.93
22.69
Fedora 35 Beta
SE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

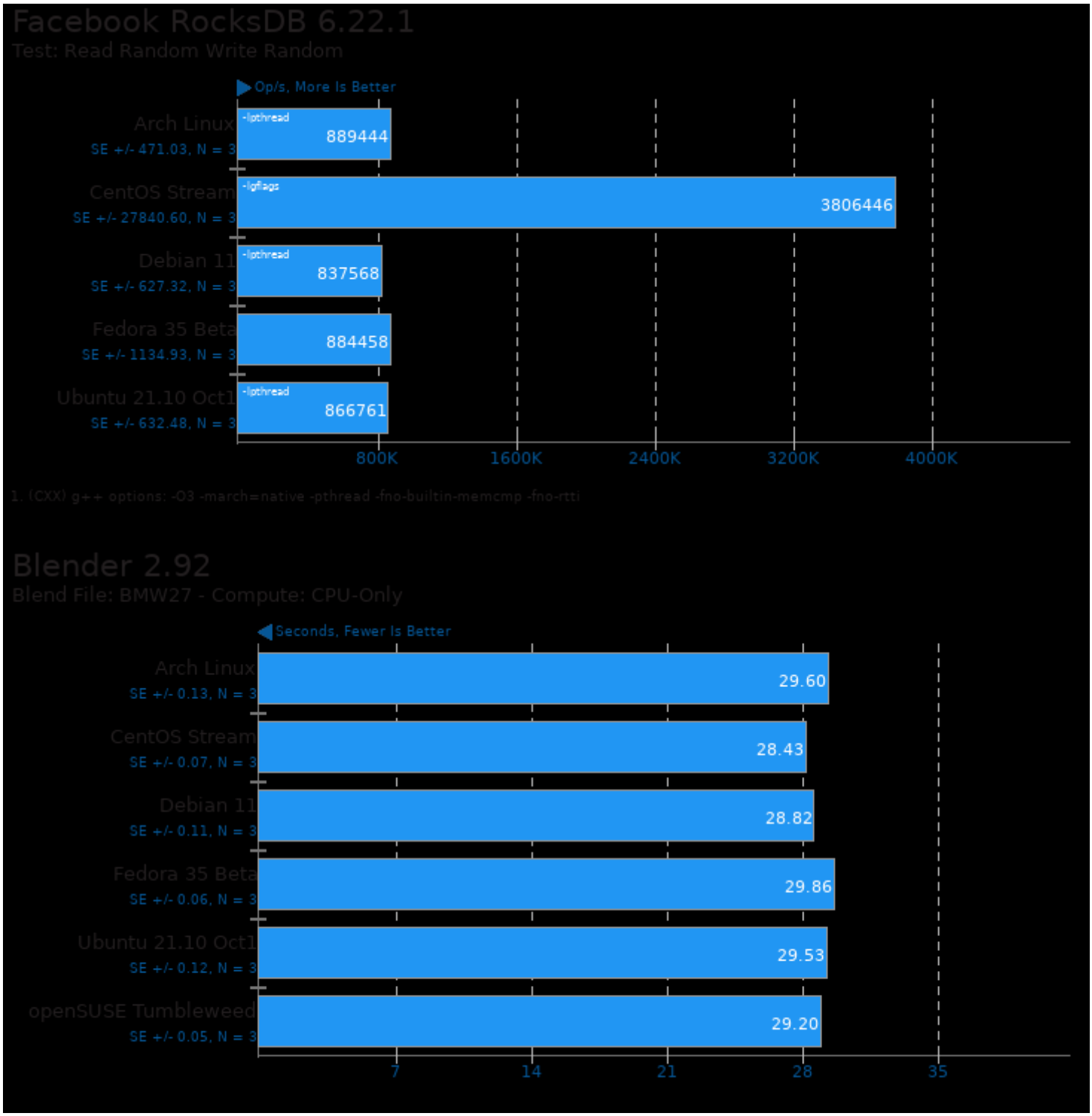

NCNN 20210720
Target: CPU-v3-v3 - Model: mobilenet-v3
ms, Fewer Is Better
Arch Linux
SE +/- 0.11, N = 5
-pthread - MIN: 10.82 / MAX: 59.58
11.43
CentOS Stream
SE +/- 0.19, N = 8
-pthread - MIN: 10.62 / MAX: 337.93
11.51
Debian 11
SE +/- 0.05, N = 3
-pthread - MIN: 9.82 / MAX: 33.16
10.22
Fedora 35 Beta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

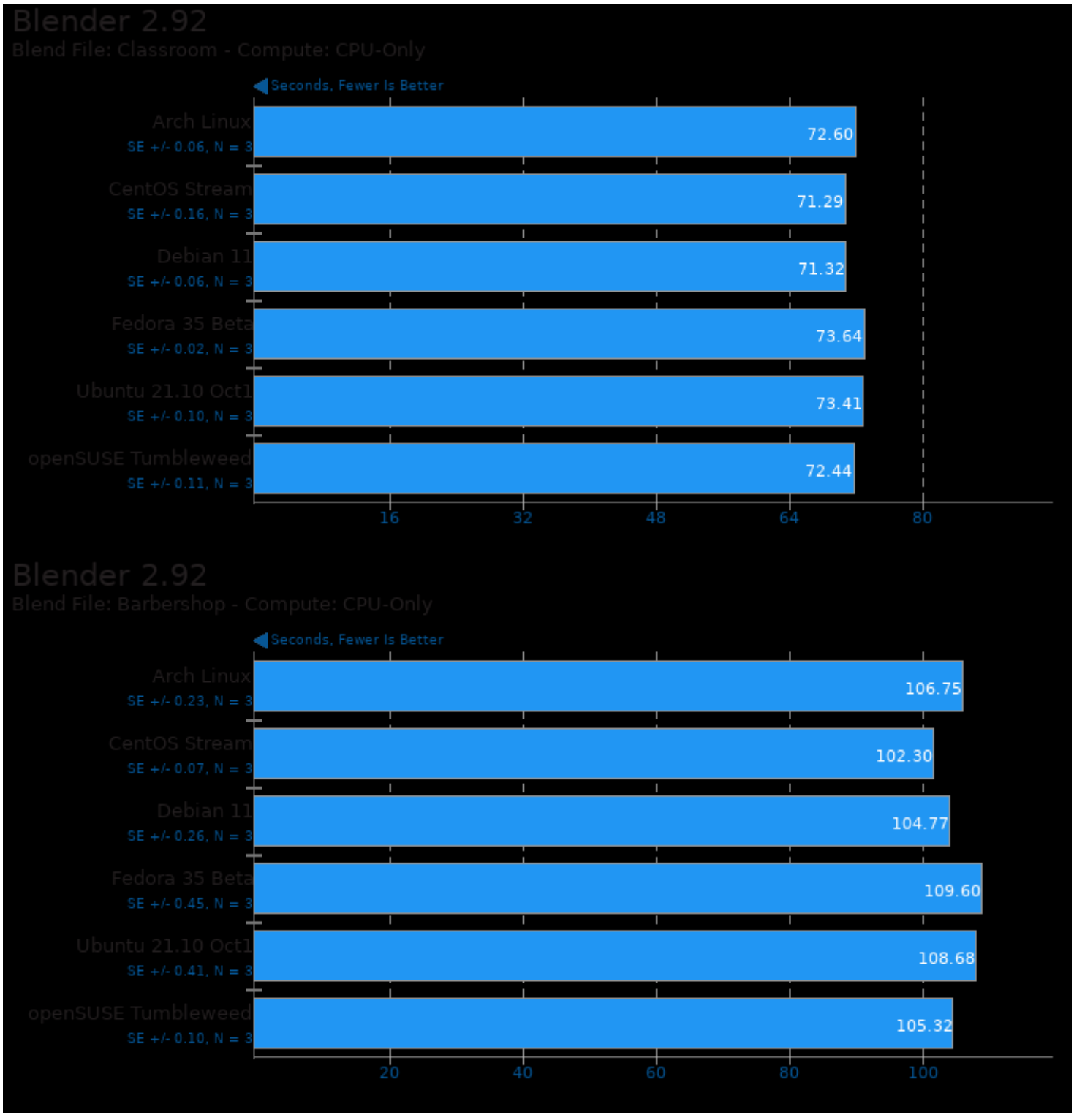

TNN 0.3
Target: CPU - Model: MobileNet v2
ms, Fewer Is Better
Arch Linux
SE +/- 3.02, N = 3
MIN: 370.24 / MAX: 530.56
376.36
CentOS Stream
SE +/- 0.27, N = 3
MIN: 362.78 / MAX: 370.76
365.19
Debian 11
SE +/- 3.53, N = 3
MIN: 369.96 / MAX: 529.5
375.46
Fedora 35 Beta
SE +/- 2.74, N = 3
MIN: 370.89 / MAX: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

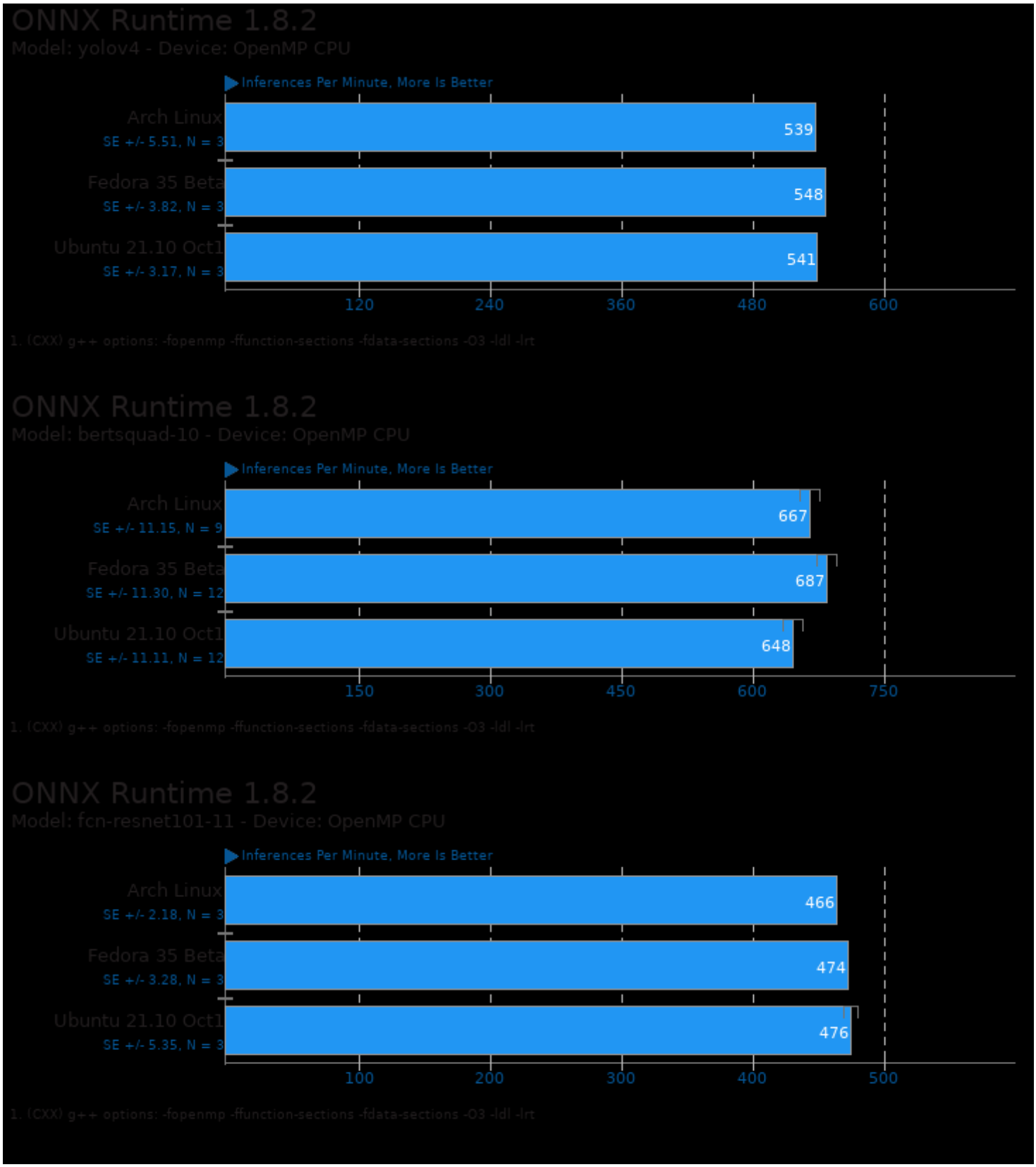

TNN 0.3
Target: CPU - Model: SqueezeNet v1.1
ms, Fewer Is Better
Arch Linux
SE +/- 0.04, N = 3
MIN: 365.54 / MAX: 372
368.11
CentOS Stream
SE +/- 0.52, N = 3
MIN: 366.07 / MAX: 368.88
367.41
Debian 11
SE +/- 0.27, N = 3
MIN: 365.35 / MAX: 369.09
366.34
Fedora 35 Beta
SE +/- 0.23, N = 3
MIN: 365.87 / MAX: 368.51
366.32
Ubuntu 21.10 Oct1
SE +/- 0.09, N = 3
MIN: 366.43 / MAX: 370.9
368.22
openSUSE Tumbleweed
SE +/- 0.10, N = 3
MIN: 365.33 / MAX: 366.76
365.69
80
160
240
320
400
1. (CXX) g++ options: -fopenmp -pthread -fvisibility=hidden -fvisibility=default -O3 -rdynamic -ldl
Apache Cassandra 4.0
Test: Writes
Op/s, More Is Better
Arch Linux
SE +/- 1469.56, N = 3
106839
CentOS Stream
SE +/- 2434.46, N = 3
266050
Debian 11
SE +/- 1090.13, N = 12
149220
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
60K
120K
180K
240K
300K

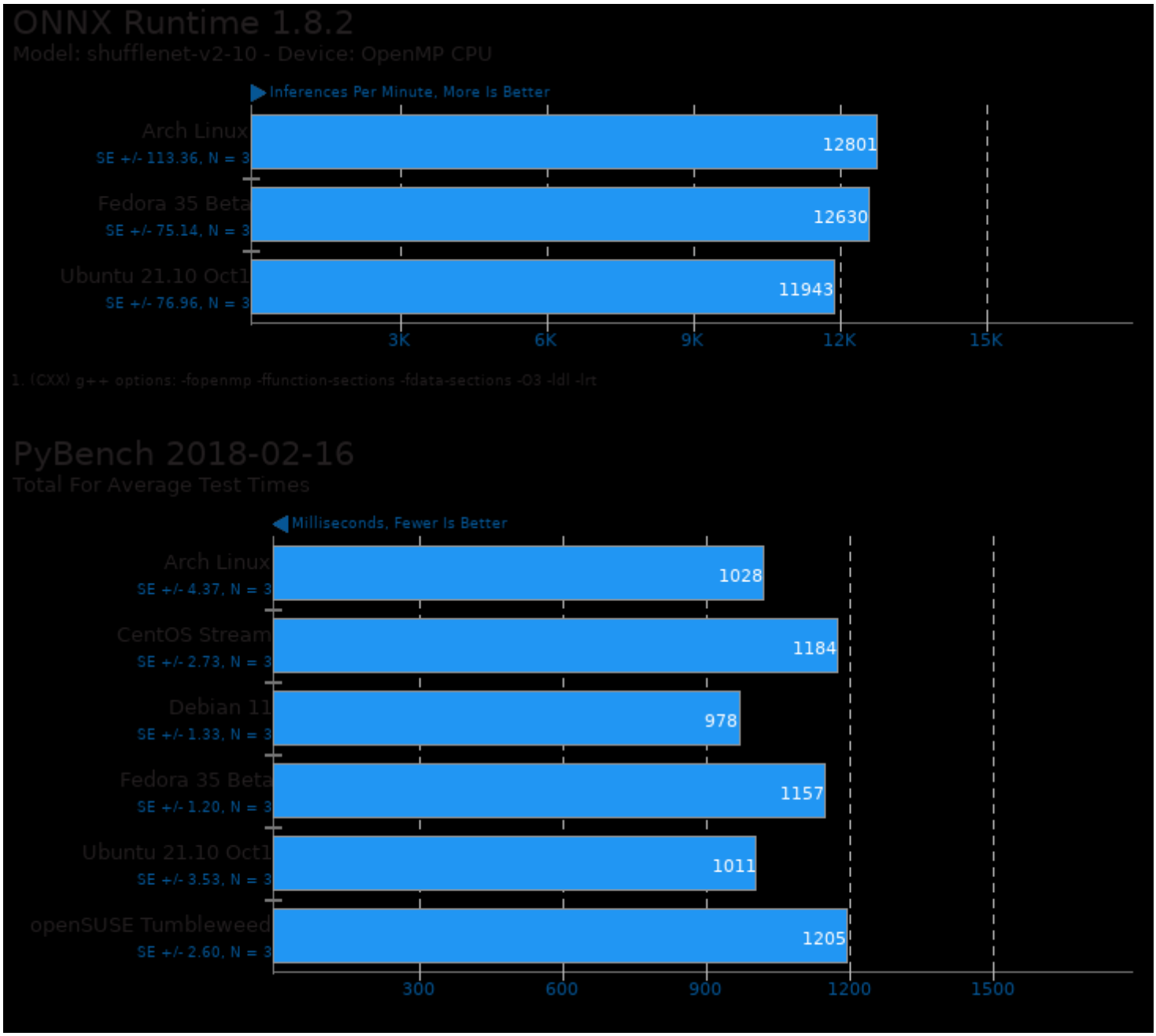

Facebook RocksDB 6.22.1
Test: Random Fill
Op/s, More Is Better
Arch Linux
SE +/- 7.17, N = 3
-lpthread
103108
CentOS Stream
SE +/- 475.40, N = 3
-lgflags
619860
Debian 11
SE +/- 506.10, N = 3
-lpthread
93455
Fedora 35 Beta
SE +/- 237.03, N = 3
101033
Ubuntu 21.10 Oct1
SE +/- 88.17, N = 3
-lpthread
99799
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
Arch Linux
SE +/- 698590.67, N = 3
-lpthread
349410415
CentOS Stream
SE +/- 4560879.38, N = 3
-lgflags
332140763
Debian 11
SE +/- 509834.26, N = 3
-lpthread
356094496
Fedora 35 Beta
SE +/- 3798260.75, N = 15
369206119
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

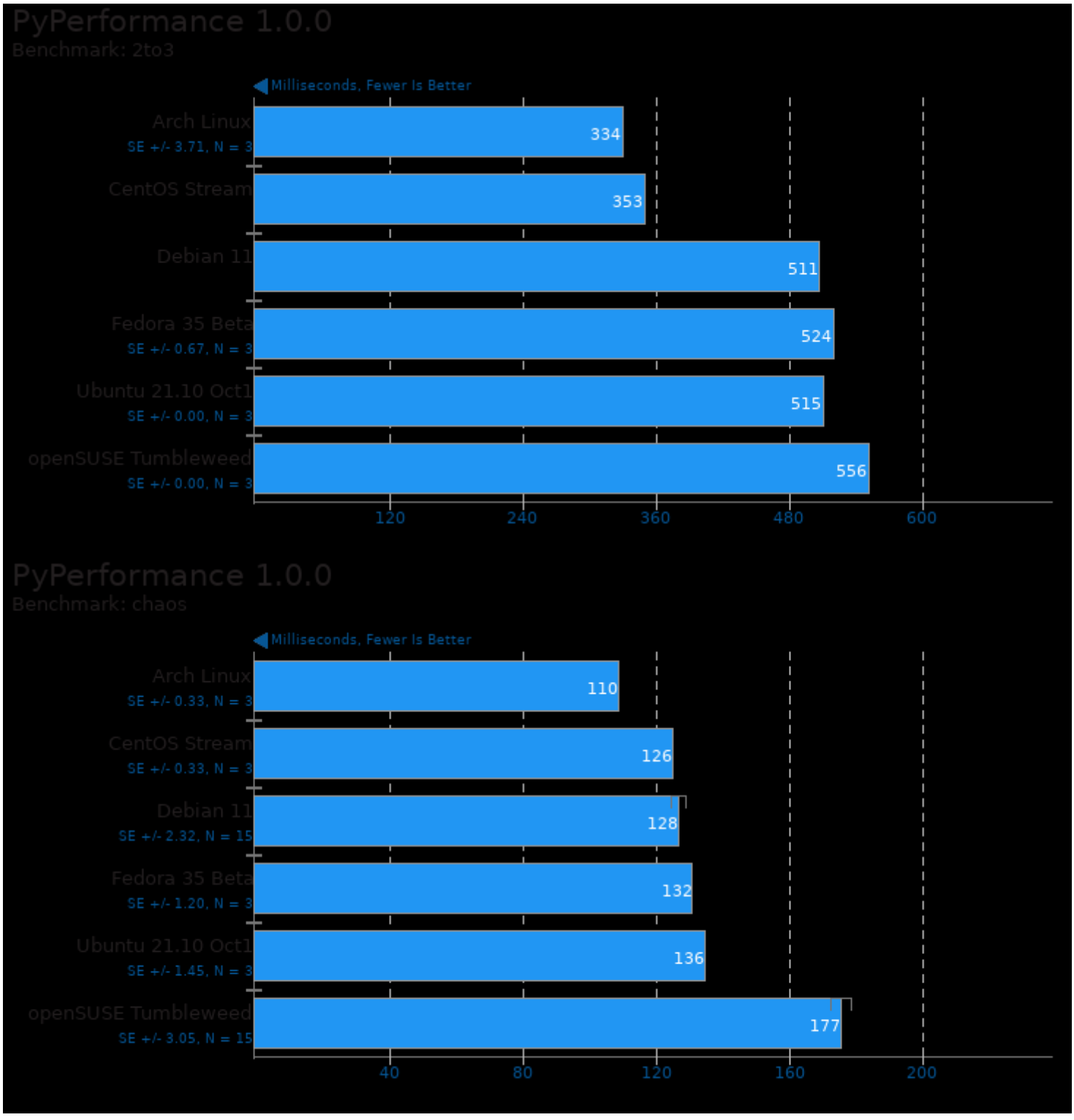

Facebook RocksDB 6.22.1
Test: Update Random
Op/s, More Is Better
Arch Linux
SE +/- 316.86, N = 3
-lpthread
99751
CentOS Stream
SE +/- 373.89, N = 3
-lgflags
586633
Debian 11
SE +/- 92.24, N = 3
-lpthread
89779
Fedora 35 Beta
SE +/- 85.06, N = 3
96320
Ubuntu 21.10 Oct1
SE +/- 68.05, N = 3
-lpthread
94412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

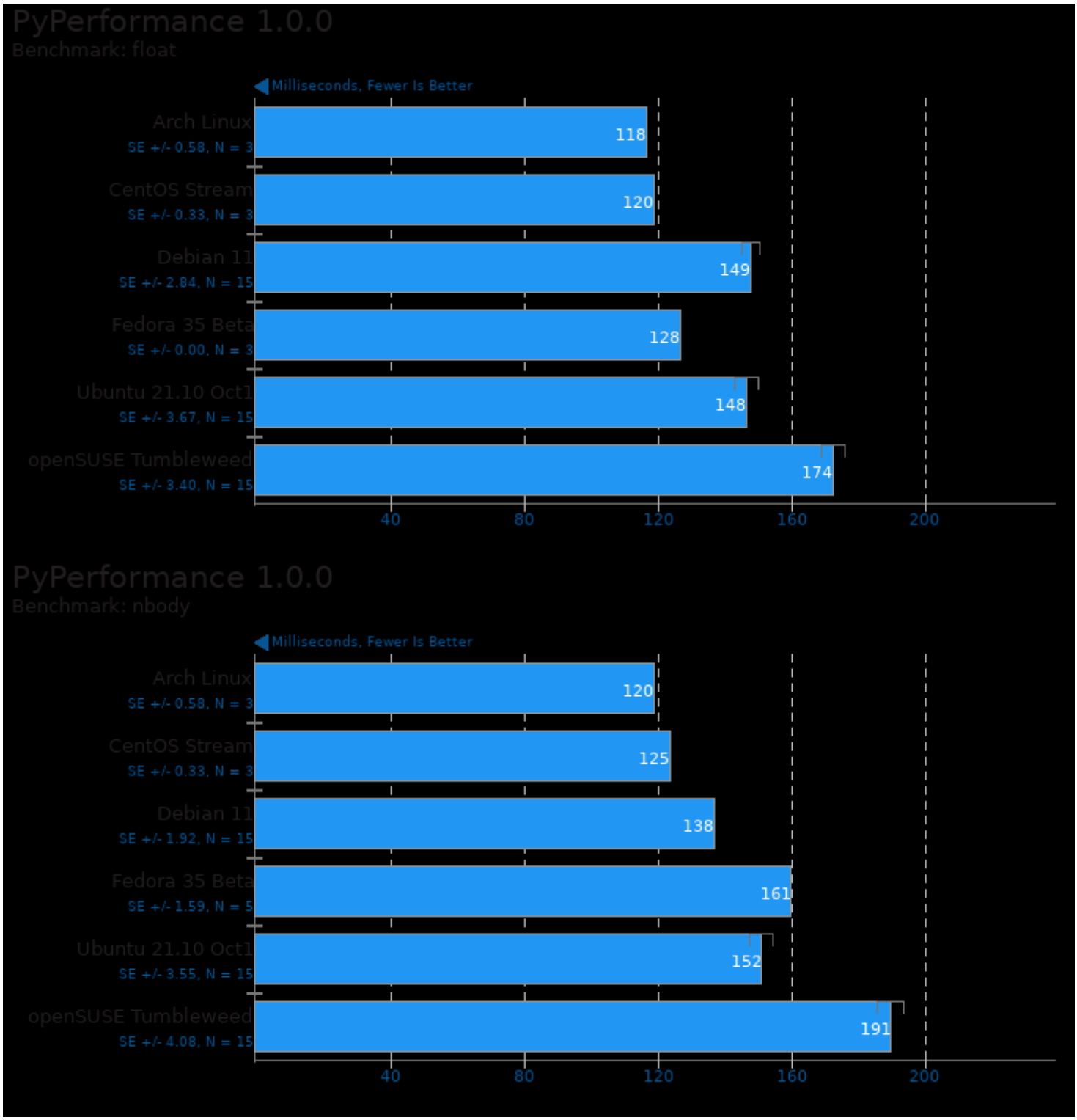

Facebook RocksDB 6.22.1
Test: Read Random Write Random
Op/s, More Is Better
Arch Linux
SE +/- 471.03, N = 3
-lpthread
889444
CentOS Stream
SE +/- 27840.60, N = 3
-lgflags
3806446
Debian 11
SE +/- 627.32, N = 3
-lpthread
837568
Fedora 35 Beta
SE +/- 1134.93, N = 3
884458
Ubuntu 21.10 Oct1
SE +/- 632.48, N = 3
-lpthread
866761
800K
1600K
2400K
3200K
4000K
1. (CXX) g++ options: -O3 -march=native -pthread -fno-builtin-memcmp -fno-rtti
Blender 2.92
Blend File: BMW27 - Compute: CPU-Only
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.13, N = 3
29.60
CentOS Stream
SE +/- 0.07, N = 3
28.43
Debian 11
SE +/- 0.11, N = 3
28.82
Fedora 35 Beta
SE +/- 0.06, N = 3
29.86
Ubuntu 21.10 Oct1
SE +/- 0.12, N = 3
29.53
openSUSE Tumbleweed
SE +/- 0.05, N = 3
29.20
7
14
21
28
35

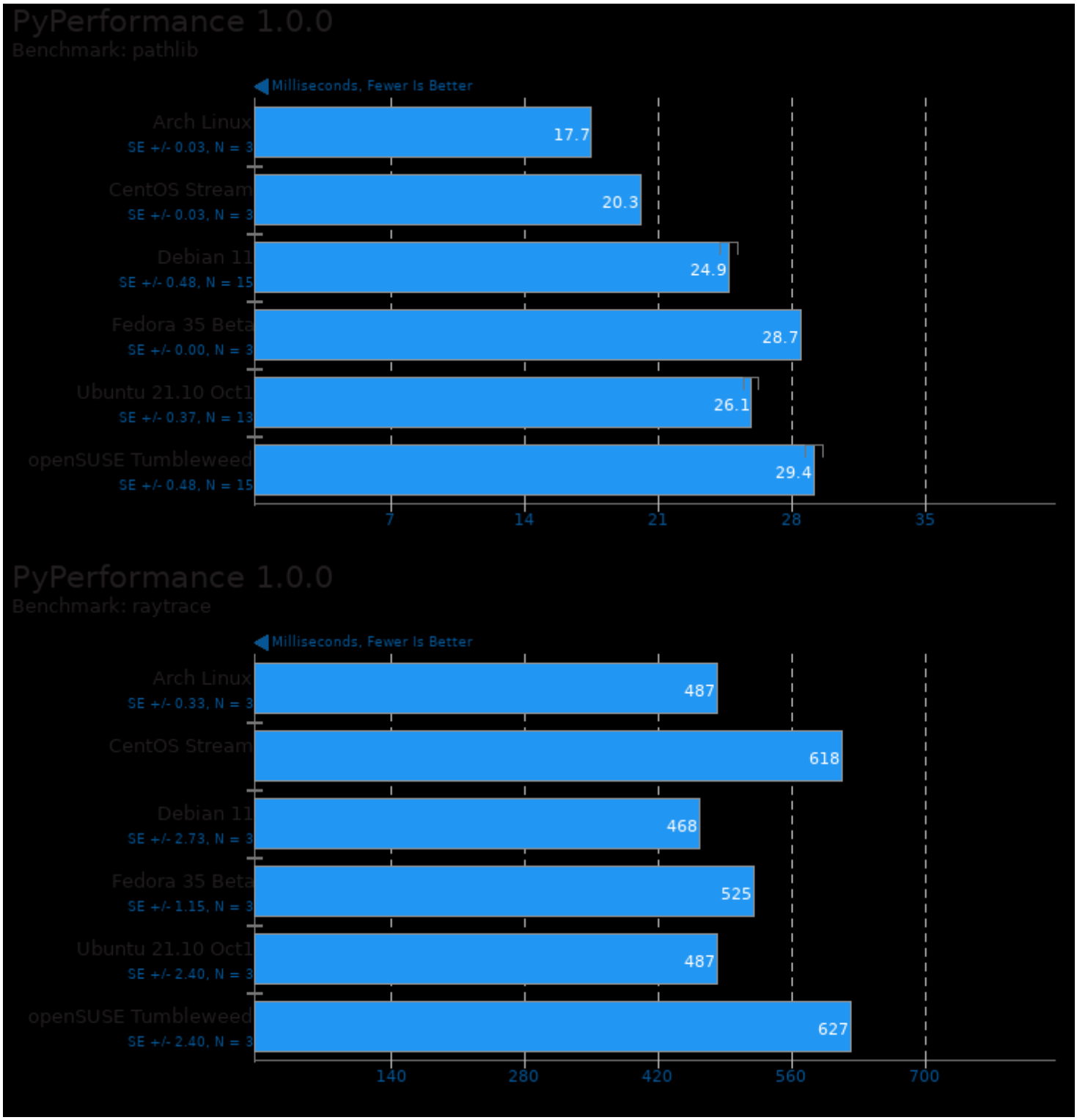

Blender 2.92
Blend File: Classroom - Compute: CPU-Only
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.06, N = 3
72.60
CentOS Stream
SE +/- 0.16, N = 3
71.29
Debian 11
SE +/- 0.06, N = 3
71.32
Fedora 35 Beta
SE +/- 0.02, N = 3
73.64
Ubuntu 21.10 Oct1
SE +/- 0.10, N = 3
73.41
openSUSE Tumbleweed
SE +/- 0.11, N = 3
72.44
16
32
48
64
80
Blender 2.92
Blend File: Barbershop - Compute: CPU-Only
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.23, N = 3
106.75
CentOS Stream
SE +/- 0.07, N = 3
102.30
Debian 11
SE +/- 0.26, N = 3
104.77
Fedora 35 Beta
SE +/- 0.45, N = 3
109.60
Ubuntu 21.10 Oct1
SE +/- 0.41, N = 3
108.68
openSUSE Tumbleweed
SE +/- 0.10, N = 3
105.32
20
40
60
80
100

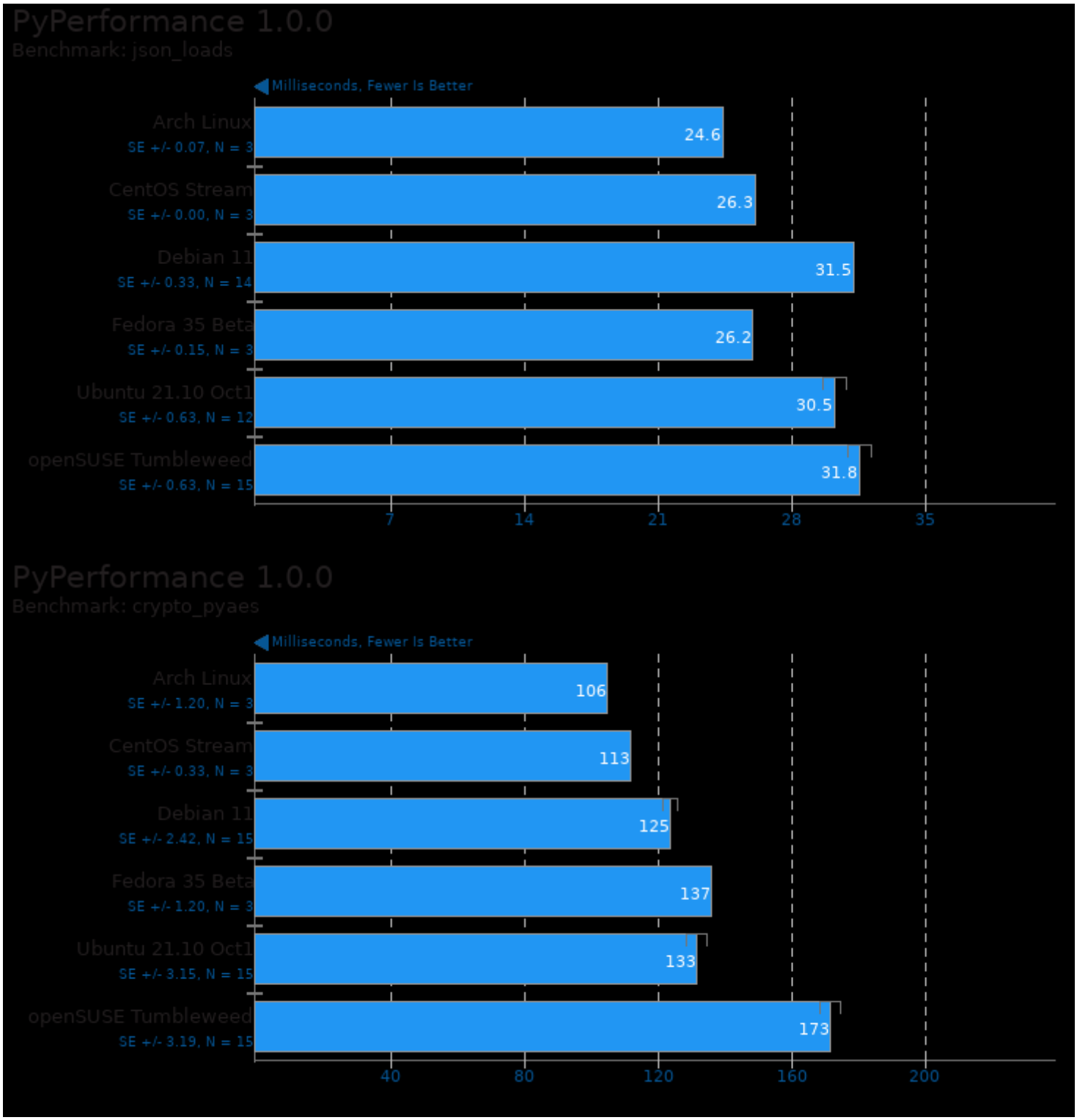

ONNX Runtime 1.8.2
Model: yolov4 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
Arch Linux
SE +/- 5.51, N = 3
539
Fedora 35 Beta
SE +/- 3.82, N = 3
548
Ubuntu 21.10 Oct1
SE +/- 3.17, N = 3
541
120
240
360
480
600
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl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

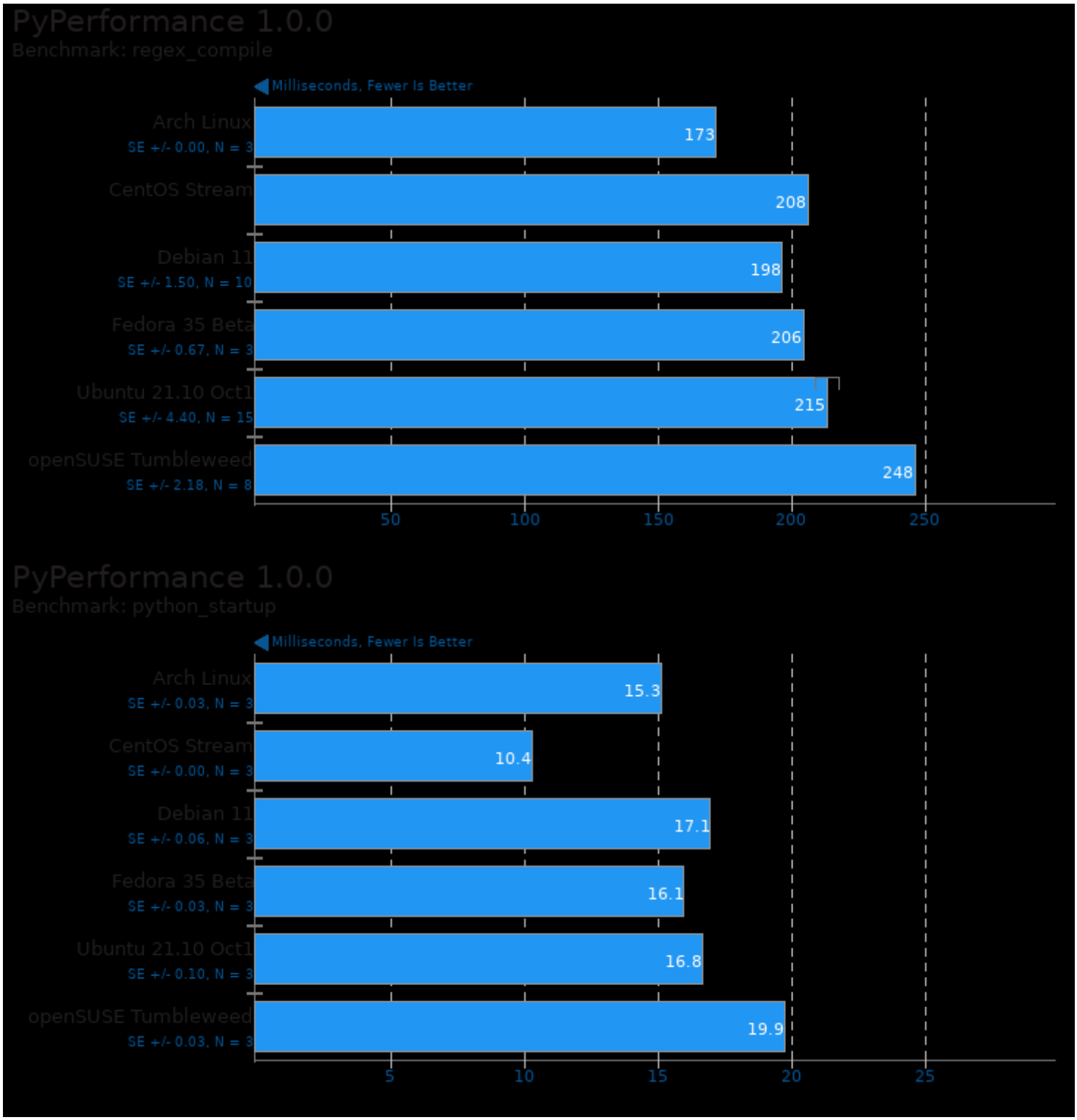

ONNX Runtime 1.8.2
Model: shufflenet-v2-10 - Device: OpenMP CPU
Inferences Per Minute, More Is Better
Arch Linux
SE +/- 113.36, N = 3
12801
Fedora 35 Beta
SE +/- 75.14, N = 3
12630
Ubuntu 21.10 Oct1
SE +/- 76.96, N = 3
11943
3K
6K
9K
12K
15K
1. (CXX) g++ options: -fopenmp -ffunction-sections -fdata-sections -O3 -ldl -lrt
PyBench 2018-02-16
Total For Average Test Times
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 4.37, N = 3
1028
CentOS Stream
SE +/- 2.73, N = 3
1184
Debian 11
SE +/- 1.33, N = 3
978
Fedora 35 Beta
SE +/- 1.20, N = 3
1157
Ubuntu 21.10 Oct1
SE +/- 3.53, N = 3
1011
openSUSE Tumbleweed
SE +/- 2.60, N = 3
1205
300
600
900
1200
1500

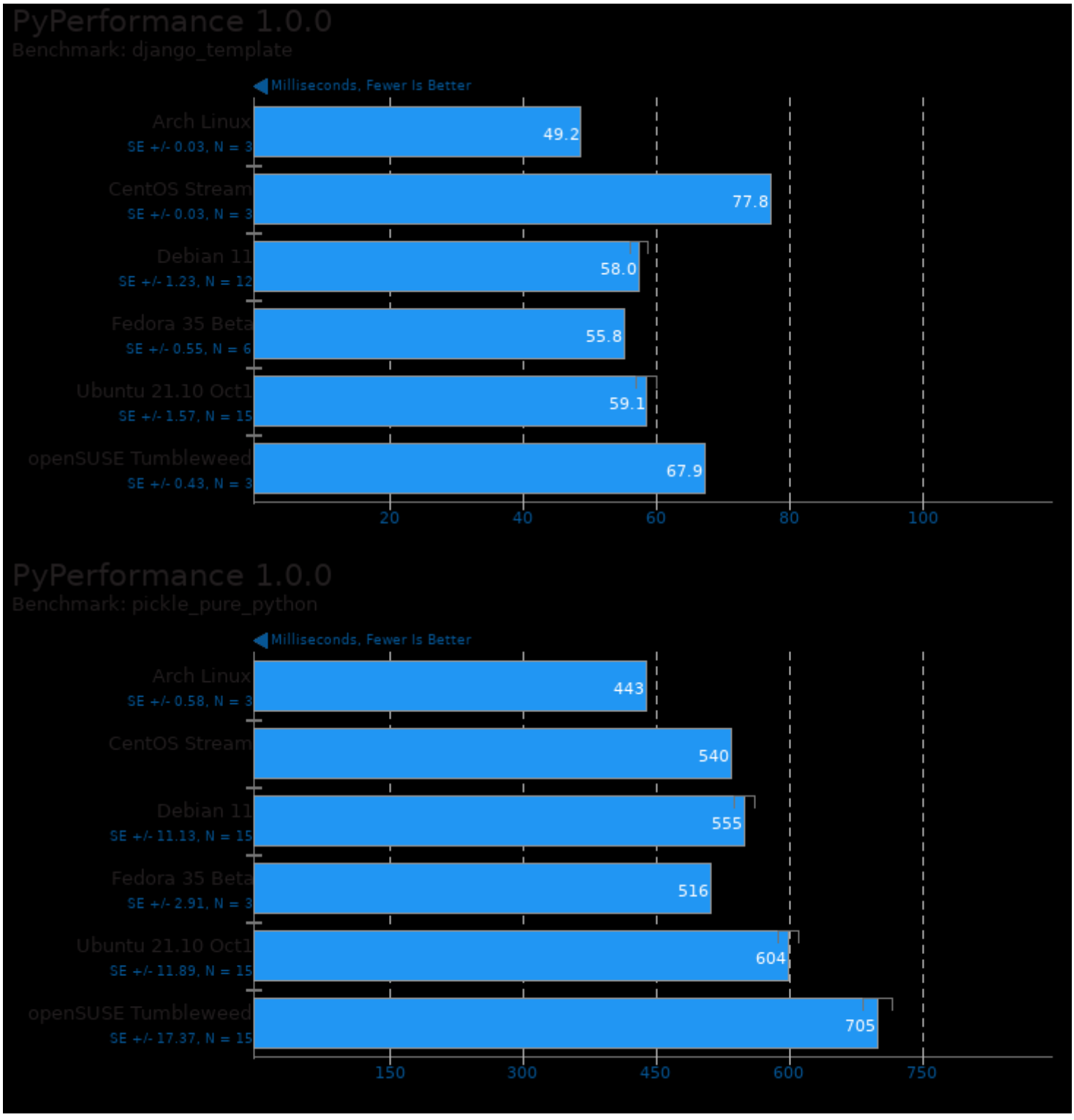

PyPerformance 1.0.0
Benchmark: 2to3
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 3.71, N = 3
334
CentOS Stream
353
Debian 11
511
Fedora 35 Beta
SE +/- 0.67, N = 3
524
Ubuntu 21.10 Oct1
SE +/- 0.00, N = 3
515
openSUSE Tumbleweed
SE +/- 0.00, N = 3
556
120
240
360
480
600
PyPerformance 1.0.0
Benchmark: 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

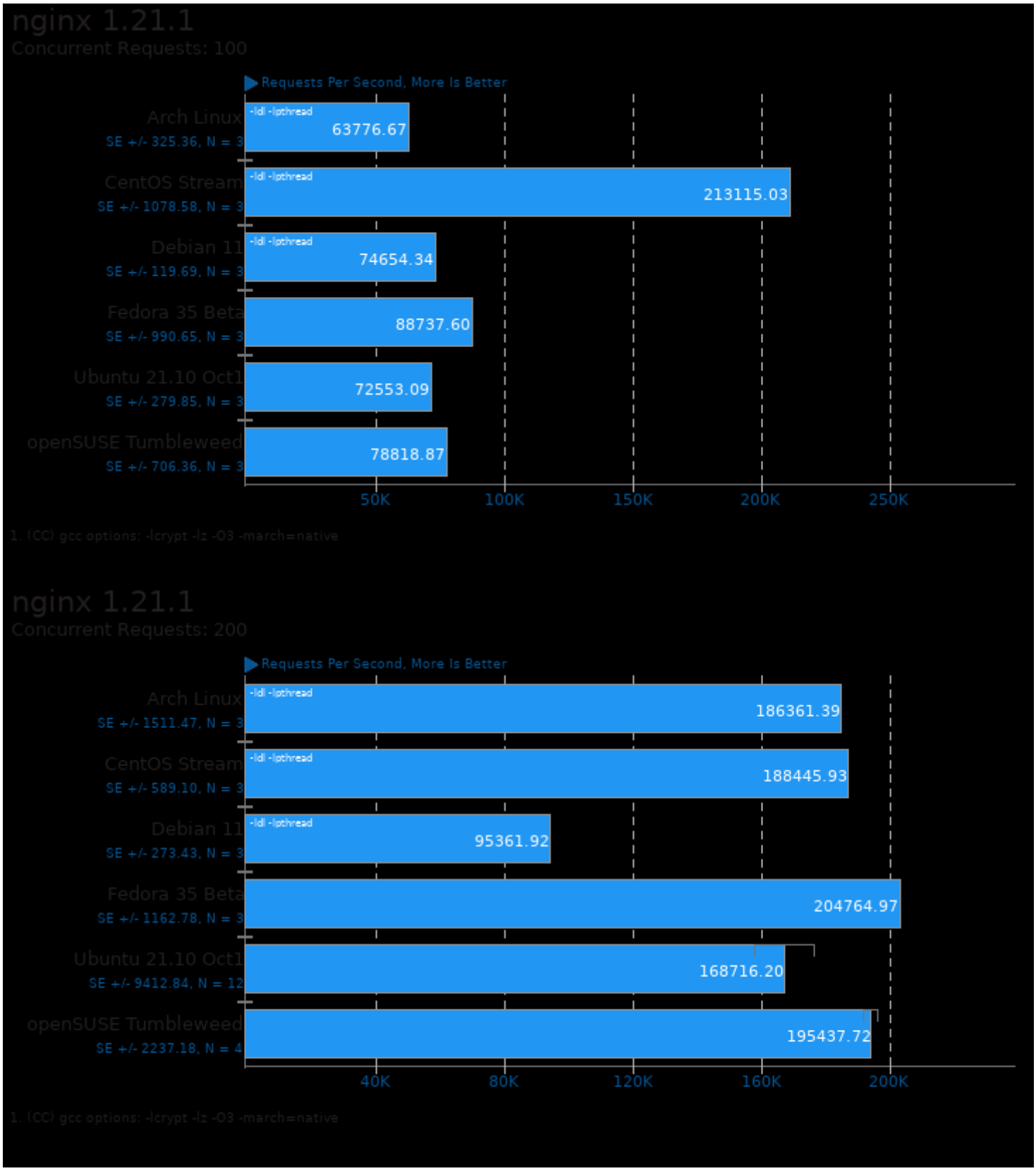

PyPerformance 1.0.0
Benchmark: float
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.58, N = 3
118
CentOS Stream
SE +/- 0.33, N = 3
120
Debian 11
SE +/- 2.84, N = 15
149
Fedora 35 Beta
SE +/- 0.00, N = 3
128
Ubuntu 21.10 Oct1
SE +/- 3.67, N = 15
148
openSUSE Tumbleweed
SE +/- 3.40, N = 15
174
40
80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

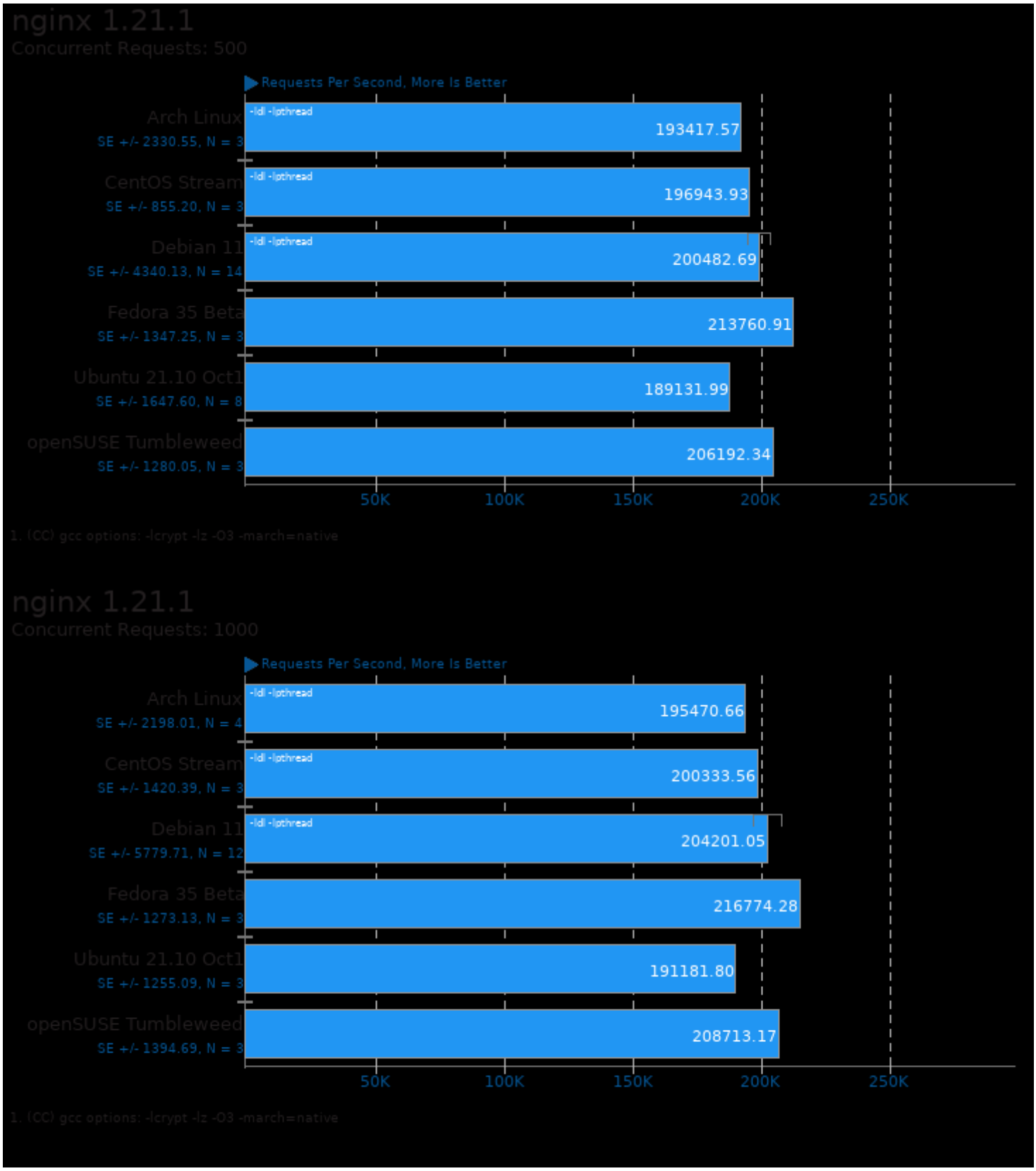

PyPerformance 1.0.0
Benchmark: pathlib
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.03, N = 3
17.7
CentOS Stream
SE +/- 0.03, N = 3
20.3
Debian 11
SE +/- 0.48, N = 15
24.9
Fedora 35 Beta
SE +/- 0.00, N = 3
28.7
Ubuntu 21.10 Oct1
SE +/- 0.37, N = 13
26.1
openSUSE Tumbleweed
SE +/- 0.48, N = 15
29.4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

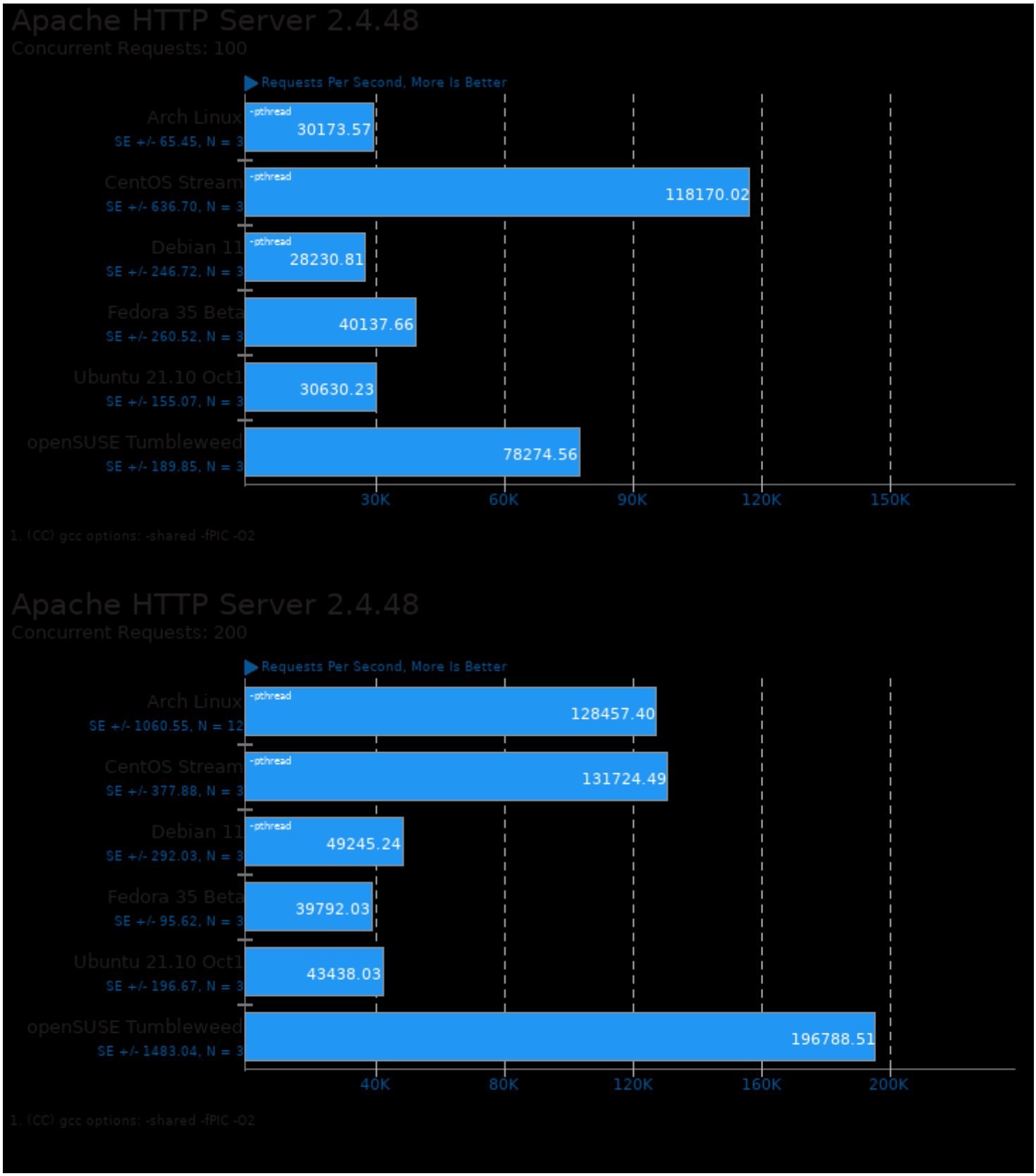

PyPerformance 1.0.0
Benchmark: json_loads
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.07, N = 3
24.6
CentOS Stream
SE +/- 0.00, N = 3
26.3
Debian 11
SE +/- 0.33, N = 14
31.5
Fedora 35 Beta
SE +/- 0.15, N = 3
26.2
Ubuntu 21.10 Oct1
SE +/- 0.63, N = 12
30.5
openSUSE Tumbleweed
SE +/- 0.63, N = 15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

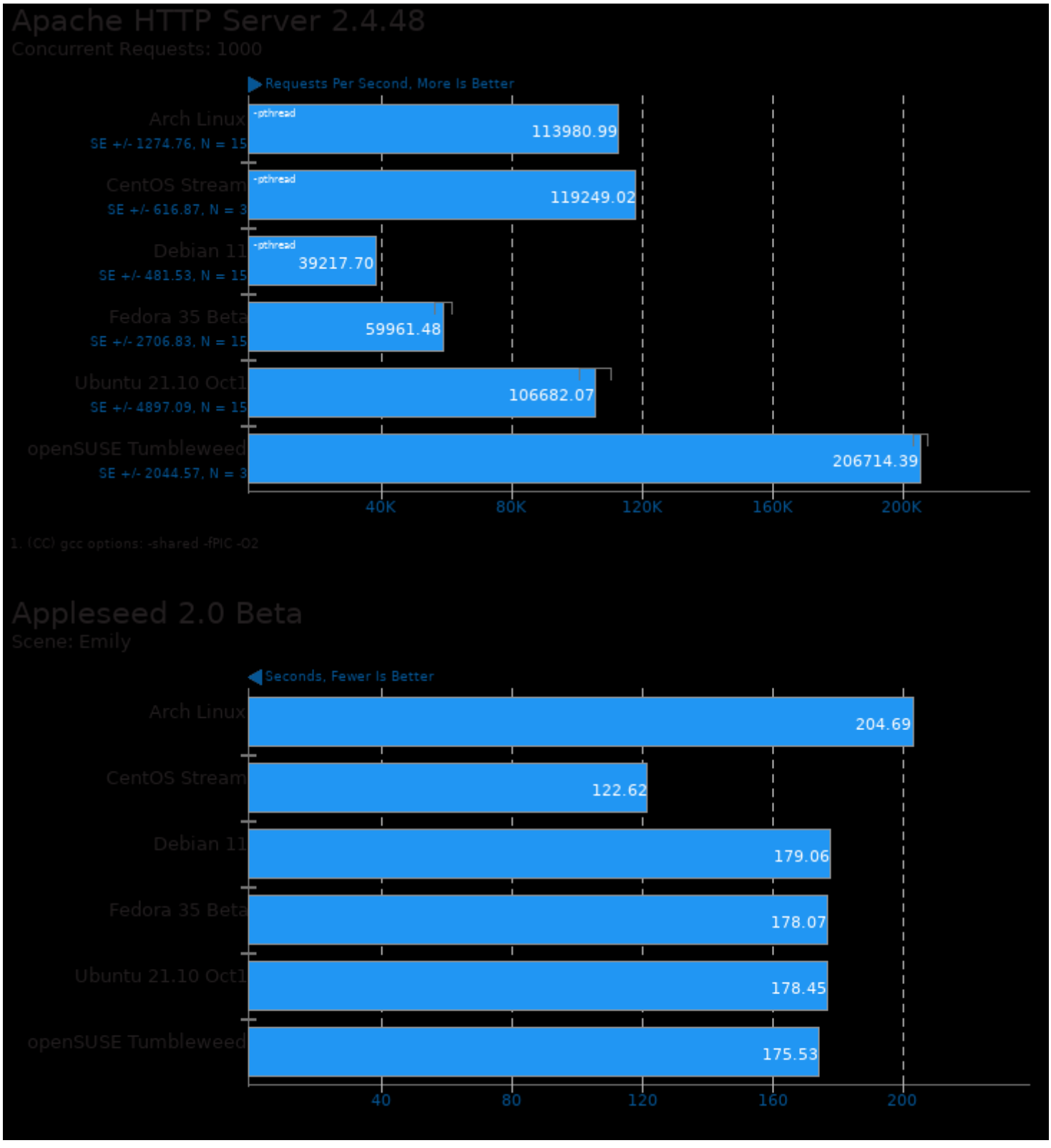

PyPerformance 1.0.0
Benchmark: regex_compile
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.00, N = 3
173
CentOS Stream
208
Debian 11
SE +/- 1.50, N = 10
198
Fedora 35 Beta
SE +/- 0.67, N = 3
206
Ubuntu 21.10 Oct1
SE +/- 4.40, N = 15
215
openSUSE Tumbleweed
SE +/- 2.18, N = 8
248
50
100
150
200
250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

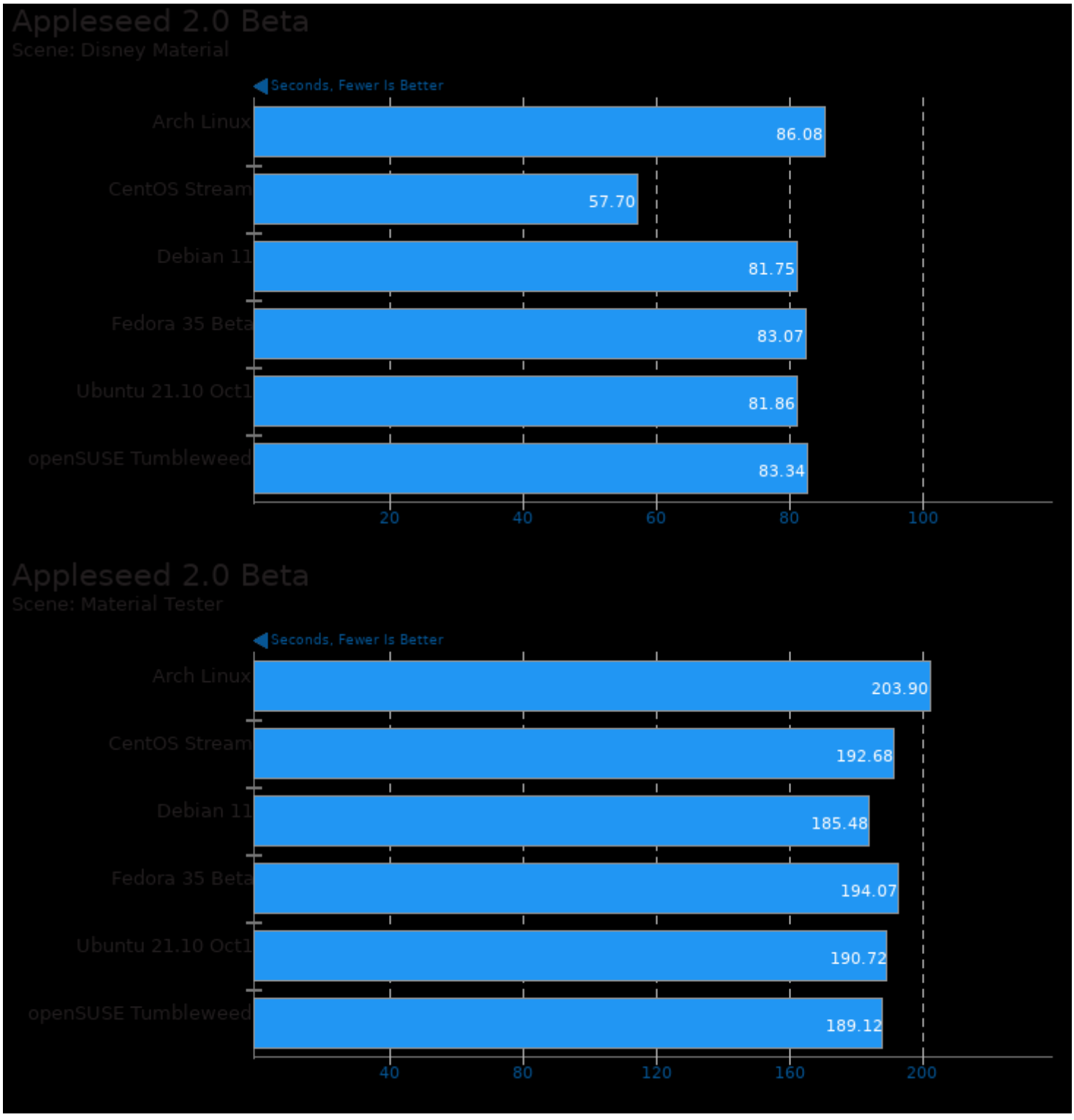

PyPerformance 1.0.0
Benchmark: django_template
Milliseconds, Fewer Is Better
Arch Linux
SE +/- 0.03, N = 3
49.2
CentOS Stream
SE +/- 0.03, N = 3
77.8
Debian 11
SE +/- 1.23, N = 12
58.0
Fedora 35 Beta
SE +/- 0.55, N = 6
55.8
Ubuntu 21.10 Oct1
SE +/- 1.57, N = 15
59.1
openSUSE Tumbleweed
SE +/- 0.43, N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

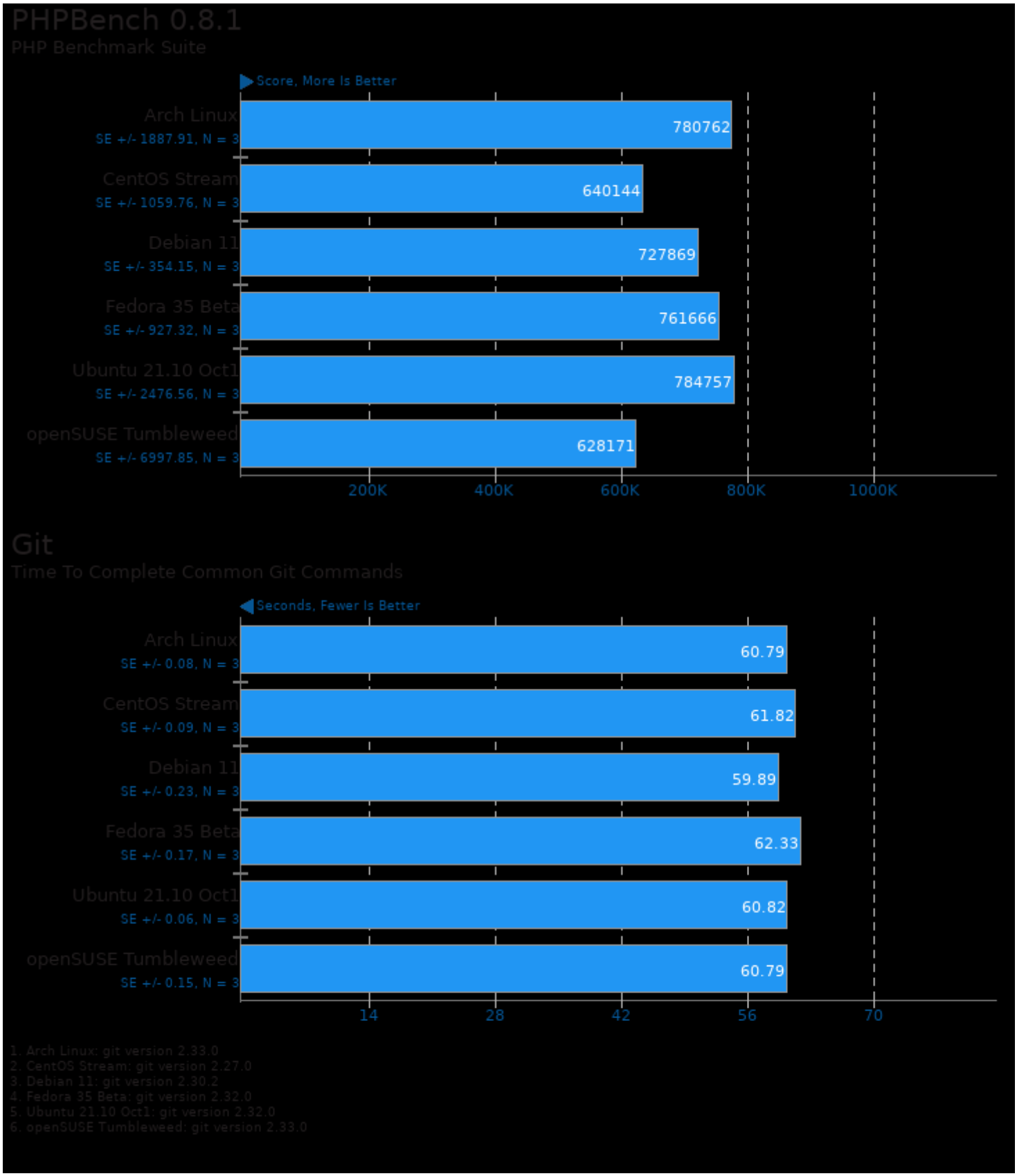

nginx 1.21.1
Concurrent Requests: 100
Requests Per Second, More Is Better
Arch Linux
SE +/- 325.36, N = 3
-ldl -lpthread
63776.67
CentOS Stream
SE +/- 1078.58, N = 3
-ldl -lpthread
213115.03
Debian 11
SE +/- 119.69, N = 3
-ldl -lpthread
74654.34
Fedora 35 Beta
SE +/- 990.65, N = 3
88737.60
Ubuntu 21.10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

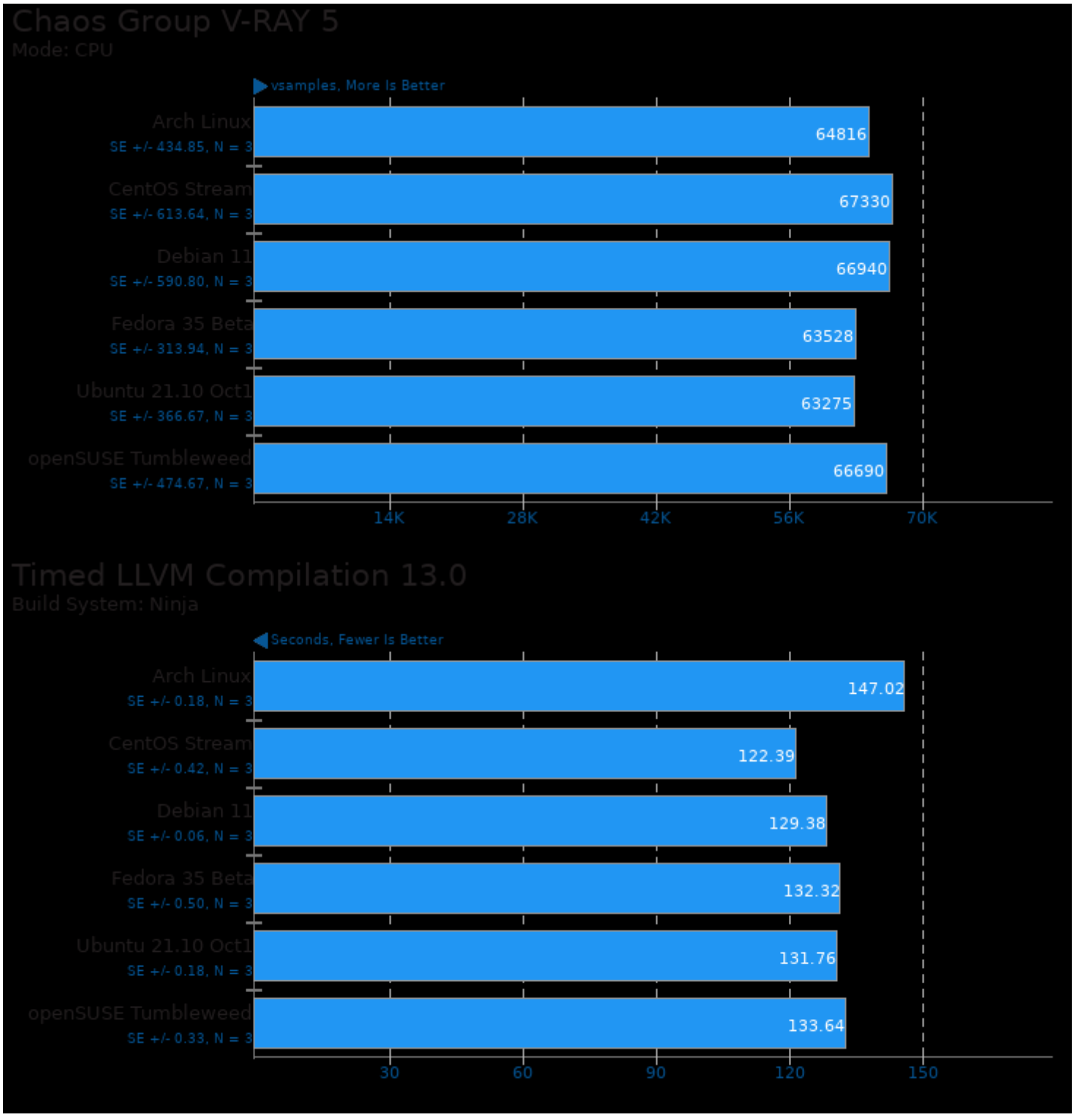

nginx 1.21.1
Concurrent Requests: 500
Requests Per Second, More Is Better
Arch Linux
SE +/- 2330.55, N = 3
-ldl -lpthread
193417.57
CentOS Stream
SE +/- 855.20, N = 3
-ldl -lpthread
196943.93
Debian 11
SE +/- 4340.13, N = 14
-ldl -lpthread
200482.69
Fedora 35 Beta
SE +/- 1347.25, N = 3
213760.91
Ubuntu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

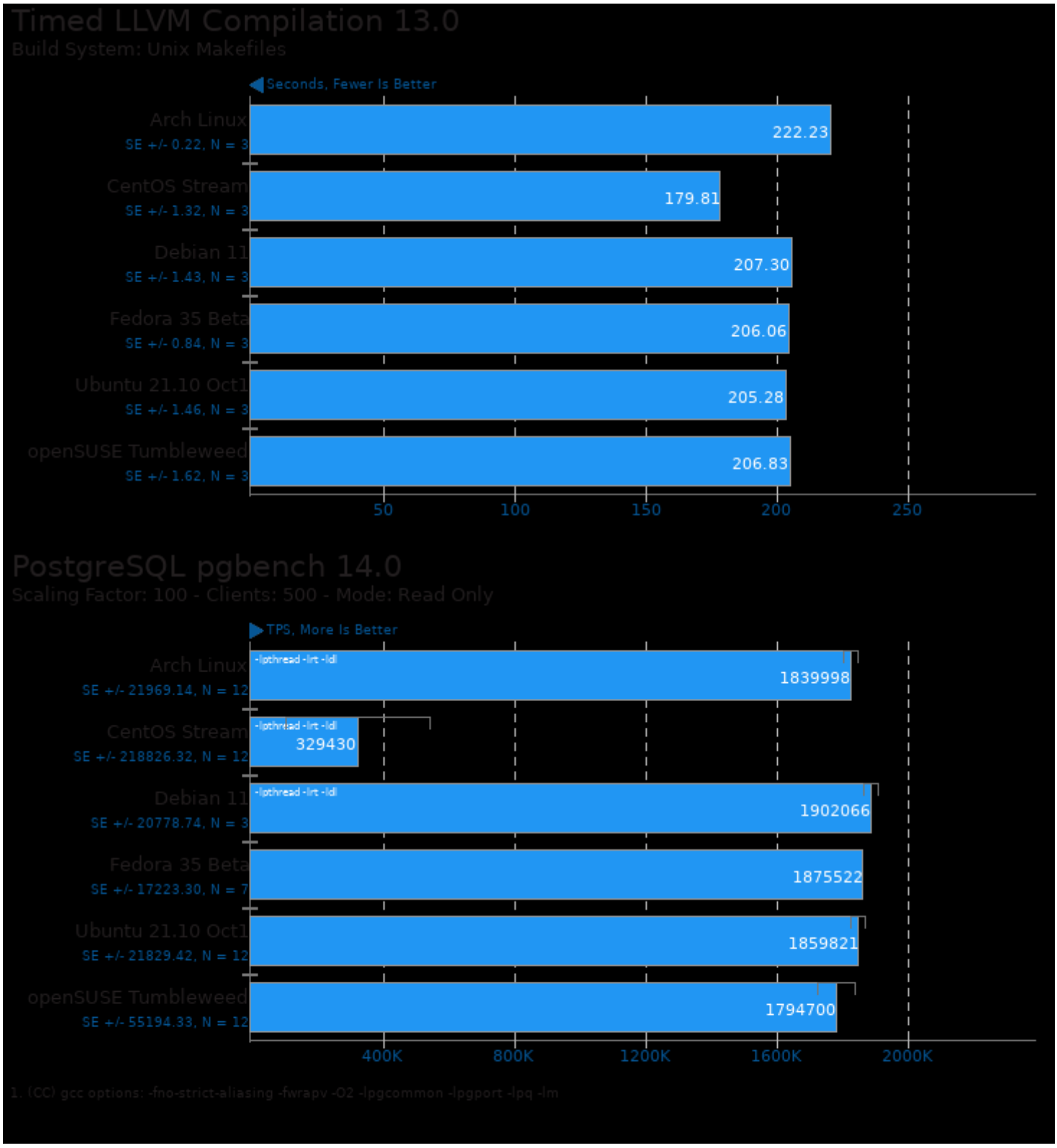

Apache HTTP Server 2.4.48
Concurrent Requests: 100
Requests Per Second, More Is Better
Arch Linux
SE +/- 65.45, N = 3
CentOS Stream
SE +/- 636.70, N = 3
Debian 11
SE +/- 246.72, N = 3
Fedora 35 Beta
SE +/- 260.52, N = 3
Ubuntu 21.10 Oct1
SE +/- 155.07, N = 3
openSUSE Tumbleweed
SE +/- 189.85, N = 3
-pthread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

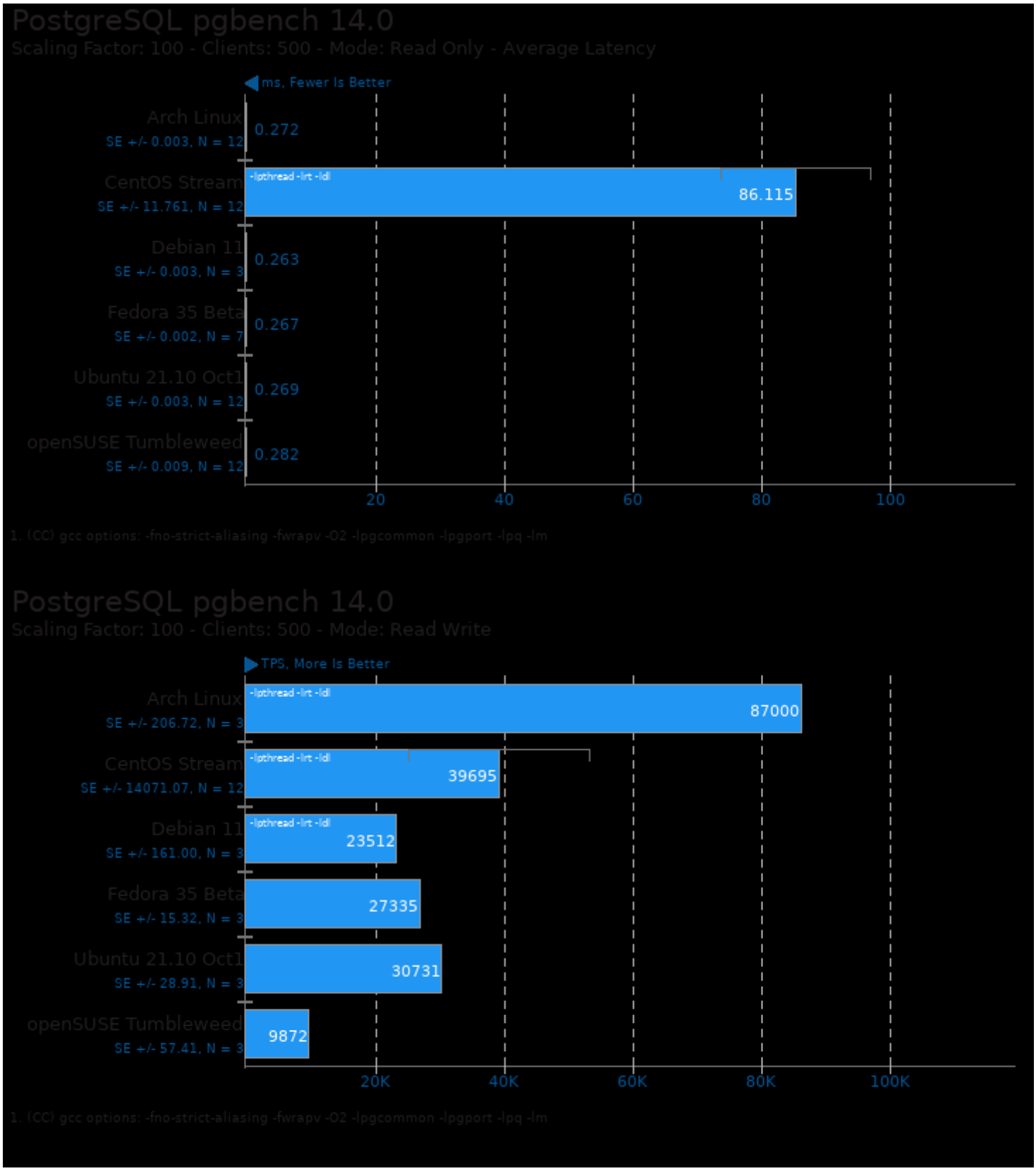

Apache HTTP Server 2.4.48
Concurrent Requests: 1000
Requests Per Second, More Is Better
Arch Linux
SE +/- 1274.76, N = 15
-pthread
113980.99
CentOS Stream
SE +/- 616.87, N = 3
-pthread
119249.02
Debian 11
SE +/- 481.53, N = 15
-pthread
39217.70
Fedora 35 Beta
SE +/- 2706.83, N = 15
59961.48
Ubuntu 21.10 Oct1
SE +/- 4897.09, N = 15
106682.07
openSUSE Tumbleweed
SE +/- 2044.57, N = 3
206714.39
40K
80K
120K
160K
200K
1. (CC) gcc options: -shared -fPIC -O2
Appleseed 2.0 Beta
Scene: Emily
Seconds, Fewer Is Better
Arch Linux
204.69
CentOS Stream
122.62
Debian 11
179.06
Fedora 35 Beta
178.07
Ubuntu 21.10 Oct1
178.45
openSUSE Tumbleweed
175.53
40
80
120
160
200

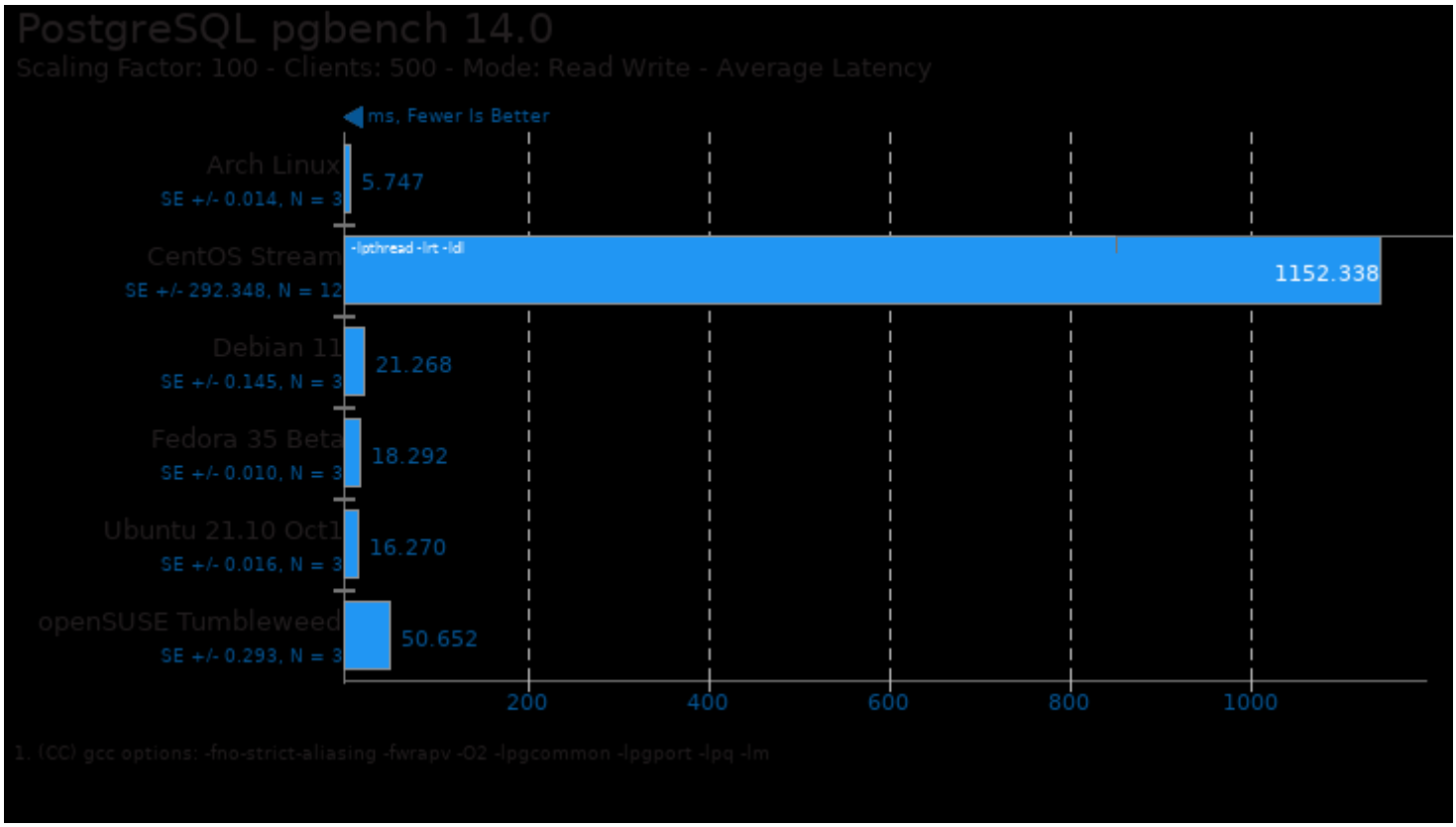

Appleseed 2.0 Beta
Scene: Disney Material
Seconds, Fewer Is Better
Arch Linux
CentOS Stream
Debian 11
Fedora 35 Beta
Ubuntu 21.10 Oct1
openSUSE Tumbleweed
86.08
57.70
81.75
83.07
81.86
83.34
20
40
60
80
100
Appleseed 2.0 Beta
Scene: Material Tester
Seconds, Fewer Is Better
Arch Linux
CentOS Stream
Debian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


PHPBench 0.8.1
PHP Benchmark Suite
Score, More Is Better
Arch Linux
SE +/- 1887.91, N = 3
780762
CentOS Stream
SE +/- 1059.76, N = 3
640144
Debian 11
SE +/- 354.15, N = 3
727869
Fedora 35 Beta
SE +/- 927.32, N = 3
761666
Ubuntu 21.10 Oct1
SE +/- 2476.56, N = 3
784757
openSUSE Tumbleweed
SE +/- 6997.85, N = 3
628171
200K
400K
600K
800K
1000K
Git
Time To Complete Common Git Commands
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.08, N = 3
60.79
CentOS Stream
SE +/- 0.09, N = 3
61.82
Debian 11
SE +/- 0.23, N = 3
59.89
Fedora 35 Beta
SE +/- 0.17, N = 3
62.33
Ubuntu 21.10 Oct1
SE +/- 0.06, N = 3
60.82
openSUSE Tumbleweed
SE +/- 0.15, N = 3
60.79
14
28
42
56
70
1. Arch Linux: git version 2.33.0
2. CentOS Stream: git version 2.27.0
3. Debian 11: git version 2.30.2
4. Fedora 35 Beta: git version 2.32.0
5. Ubuntu 21.10 Oct1: git version 2.32.0
6. openSUSE Tumbleweed: git version 2.33.0

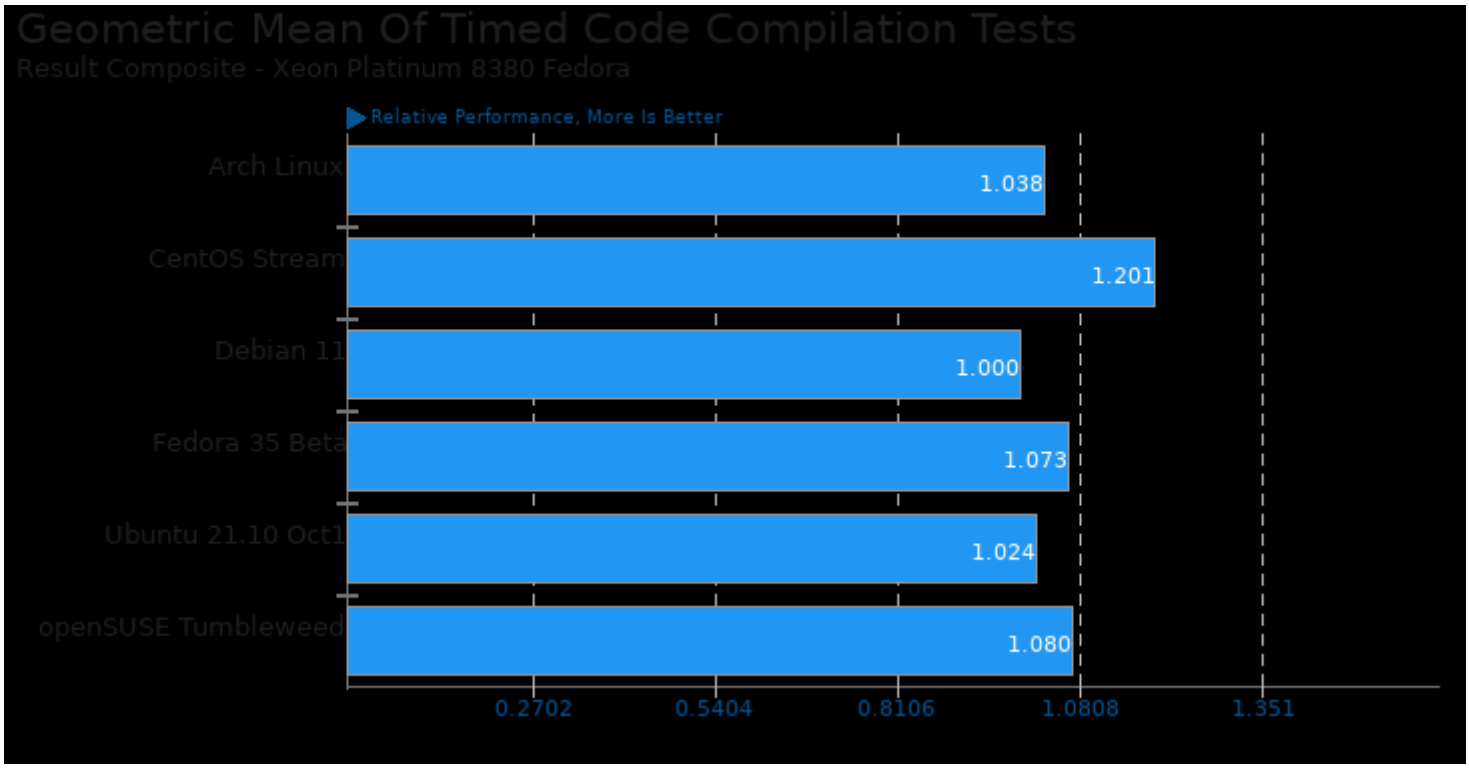

Chaos Group V-RAY 5
Mode: CPU
vsamples, More Is Better
Arch Linux
SE +/- 434.85, N = 3
64816
CentOS Stream
SE +/- 613.64, N = 3
67330
Debian 11
SE +/- 590.80, N = 3
66940
Fedora 35 Beta
SE +/- 313.94, N = 3
63528
Ubuntu 21.10 Oct1
SE +/- 366.67, N = 3
63275
openSUSE Tumbleweed
SE +/- 474.67, N = 3
66690
14K
28K
42K
56K
70K
Timed LLVM Compilation 13.0
Build System: Ninja
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.18, N = 3
147.02
CentOS Stream
SE +/- 0.42, N = 3
122.39
Debian 11
SE +/- 0.06, N = 3
129.38
Fedora 35 Beta
SE +/- 0.50, N = 3
132.32
Ubuntu 21.10 Oct1
SE +/- 0.18, N = 3
131.76
openSUSE Tumbleweed
SE +/- 0.33, N = 3
133.64
30
60
90
120
150


Timed LLVM Compilation 13.0
Build System: Unix Makefiles
Seconds, Fewer Is Better
Arch Linux
SE +/- 0.22, N = 3
222.23
CentOS Stream
SE +/- 1.32, N = 3
179.81
Debian 11
SE +/- 1.43, N = 3
207.30
Fedora 35 Beta
SE +/- 0.84, N = 3
206.06
Ubuntu 21.10 Oct1
SE +/- 1.46, N = 3
205.28
openSUSE Tumbleweed
SE +/- 1.62, N = 3
206.83
50
100
150
200
250
PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 500 - Mode: Read Only
TPS, More Is Better
Arch Linux
SE +/- 21969.14, N = 12
-lpthread -lrt -ldl
1839998
CentOS Stream
SE +/- 218826.32, N = 12
-lpthread -lrt -ldl
329430
Debian 11
SE +/- 20778.74, N = 3
-lpthread -lrt -ldl
1902066
Fedora 35 Beta
SE +/- 17223.30, N = 7
1875522
Ubuntu 21.10 Oct1
SE +/- 21829.42, N = 12
1859821
openSUSE Tumbleweed
SE +/- 55194.33, N = 12
1794700
400K
800K
1200K
1600K
2000K
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

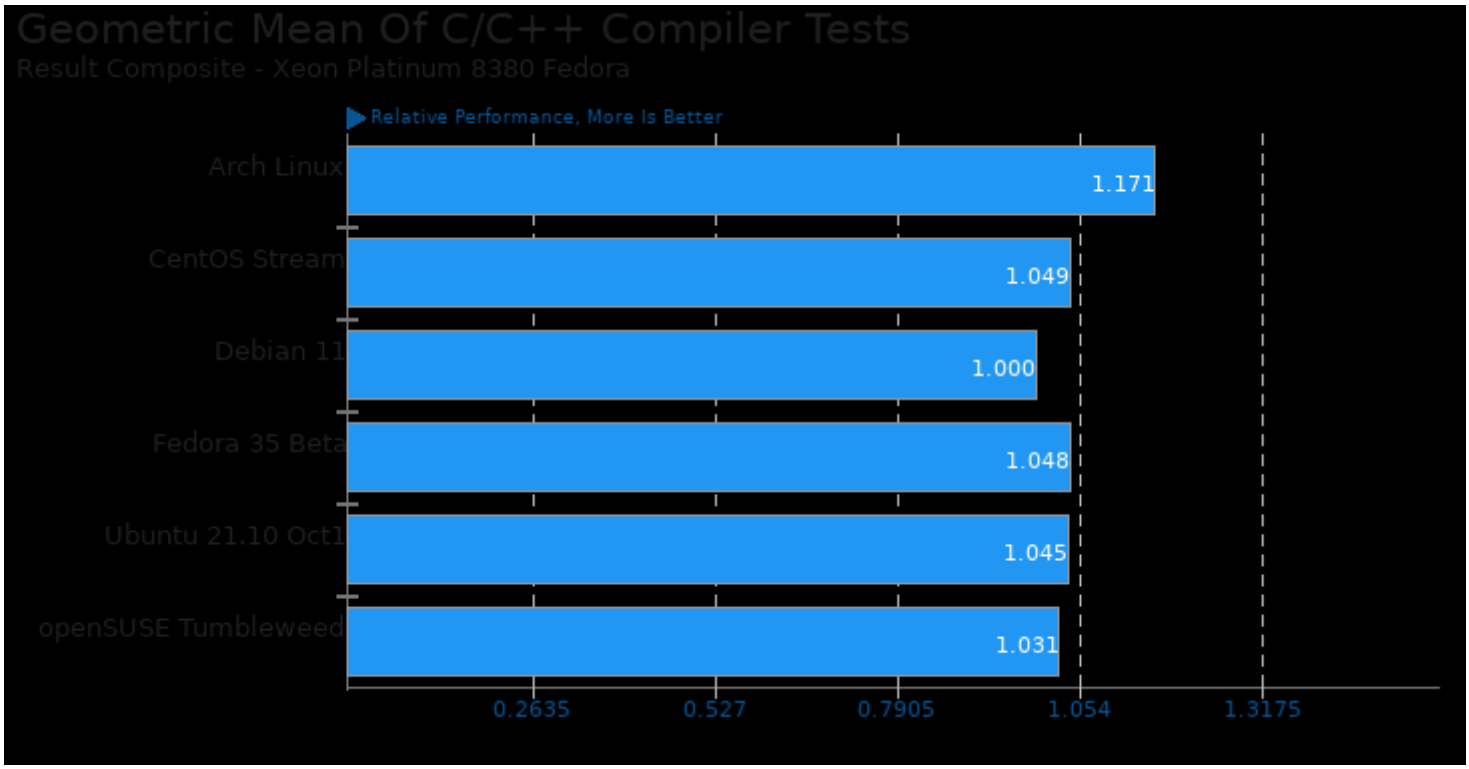

PostgreSQL pgbench 14.0
Scaling Factor: 100 - Clients: 500 - Mode: Read Only - Average Latency
ms, Fewer Is Better
Arch Linux
SE +/- 0.003, N = 12
0.272
CentOS Stream
SE +/- 11.761, N = 12
-lpthread -lrt -ldl
86.115
Debian 11
SE +/- 0.003, N = 3
0.263
Fedora 35 Beta
SE +/- 0.002, N = 7
0.267
Ubuntu 21.10 Oct
SE +/- 0.003, N = 12
0.269
openSUSE Tumbleweed
SE +/- 0.009, N = 12
0.282
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
TPS, More Is Better
Arch Linux
SE +/- 206.72, N = 3
-lpthread -lrt -ldl
87000
CentOS Stream
SE +/- 14071.07, N = 12
-lpthread -lrt -ldl
39695
Debian 11
SE +/- 161.00, N = 3
-lpthread -lrt -ldl
23512
Fedora 35 Beta
SE +/- 15.32, N = 3
27335
Ubuntu 21.10 Oct
SE +/- 28.91, N = 3
30731
openSUSE Tumbleweed
SE +/- 57.41, N = 3
9872
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 Write - Average Latency
ms, Fewer Is Better
Arch Linux
SE +/- 0.014, N = 3
5.747
CentOS Stream
SE +/- 292.348, N = 12
-lpthread -lrt -ldl
1152.338
Debian 11
SE +/- 0.145, N = 3
21.268
Fedora 35 Beta
SE +/- 0.010, N = 3
18.292
Ubuntu 21.10 Oct
SE +/- 0.016, N = 3
16.270
openSUSE Tumbleweed
SE +/- 0.293, N = 3
50.652
200
400
600
800
1000
1. (CC) gcc options: -fno-strict-aliasing -fwrapv -O2 -lpgcommon -lpgport -lpq -lm

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

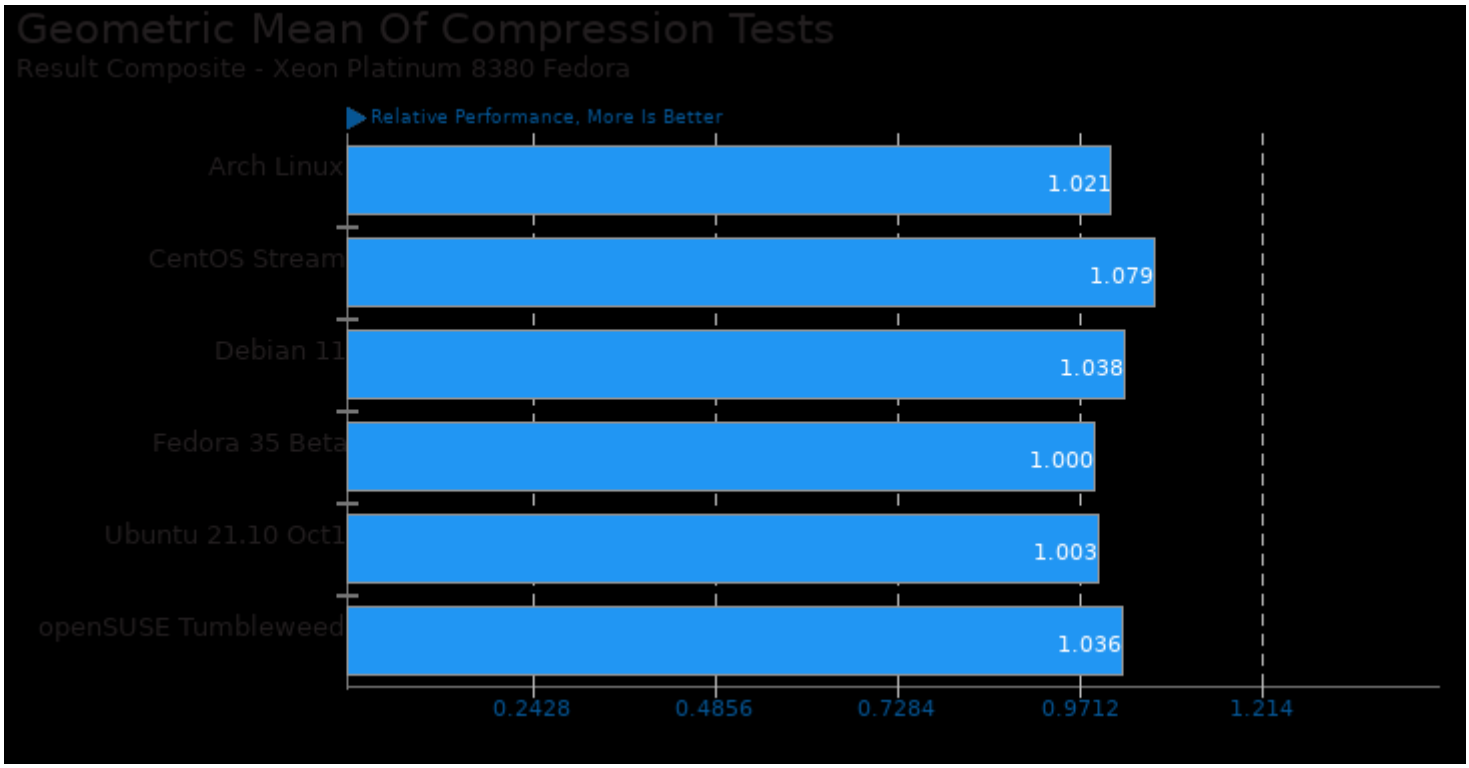


Geometric mean based upon tests: pts/build-linux-kernel, pts/build-llvm, pts/build-godot, pts/build-wasmer and pts/build-nodejs

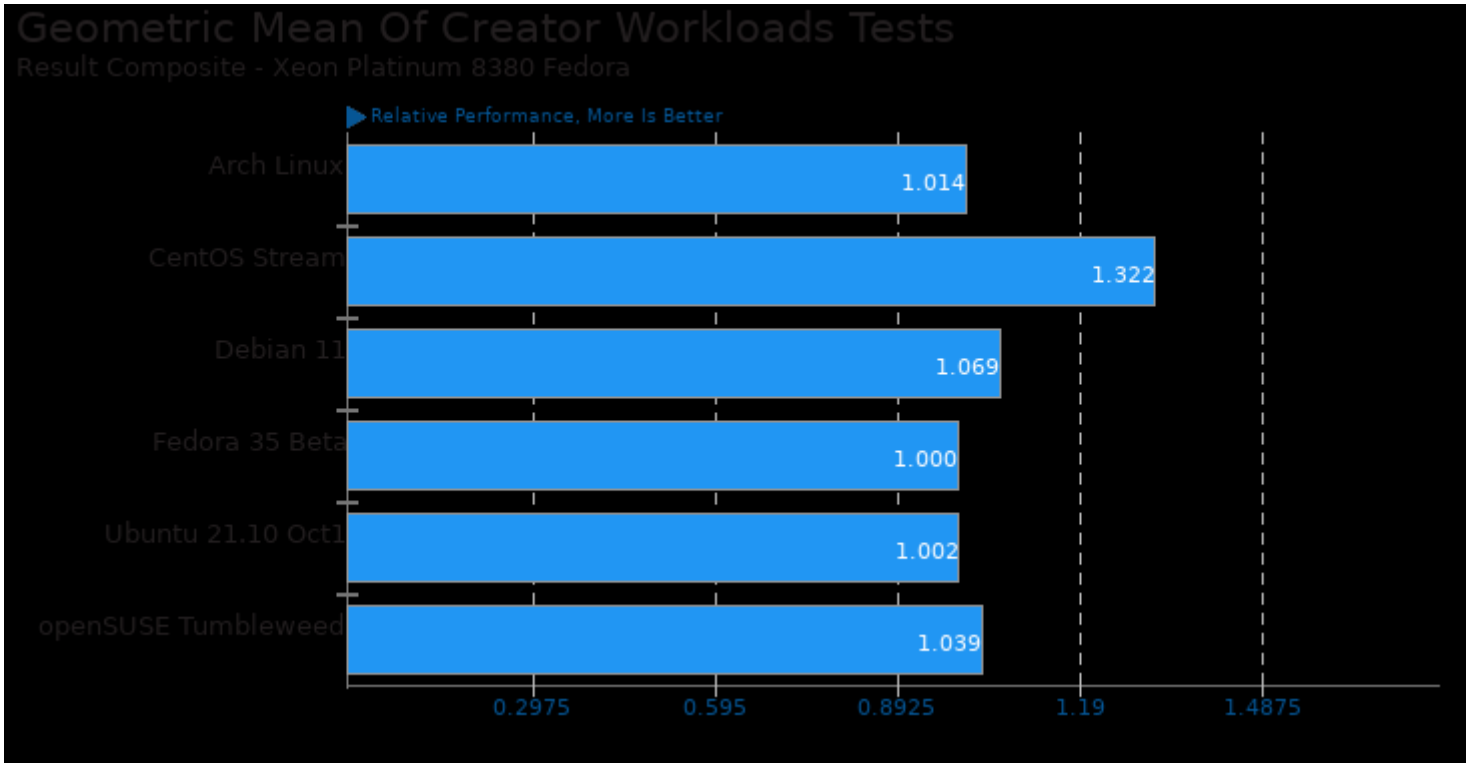


Geometric mean based upon tests: pts/stockfish, pts/build-llvm, pts/compress-7zip, pts/pgbench, pts/apache, pts/sqlite-speedtest, pts/x265, pts/compress-zstd, pts/openssl, pts/nginx, pts/svt-av1, pts/svt-vp9, pts/gromacs and pts/leveldb

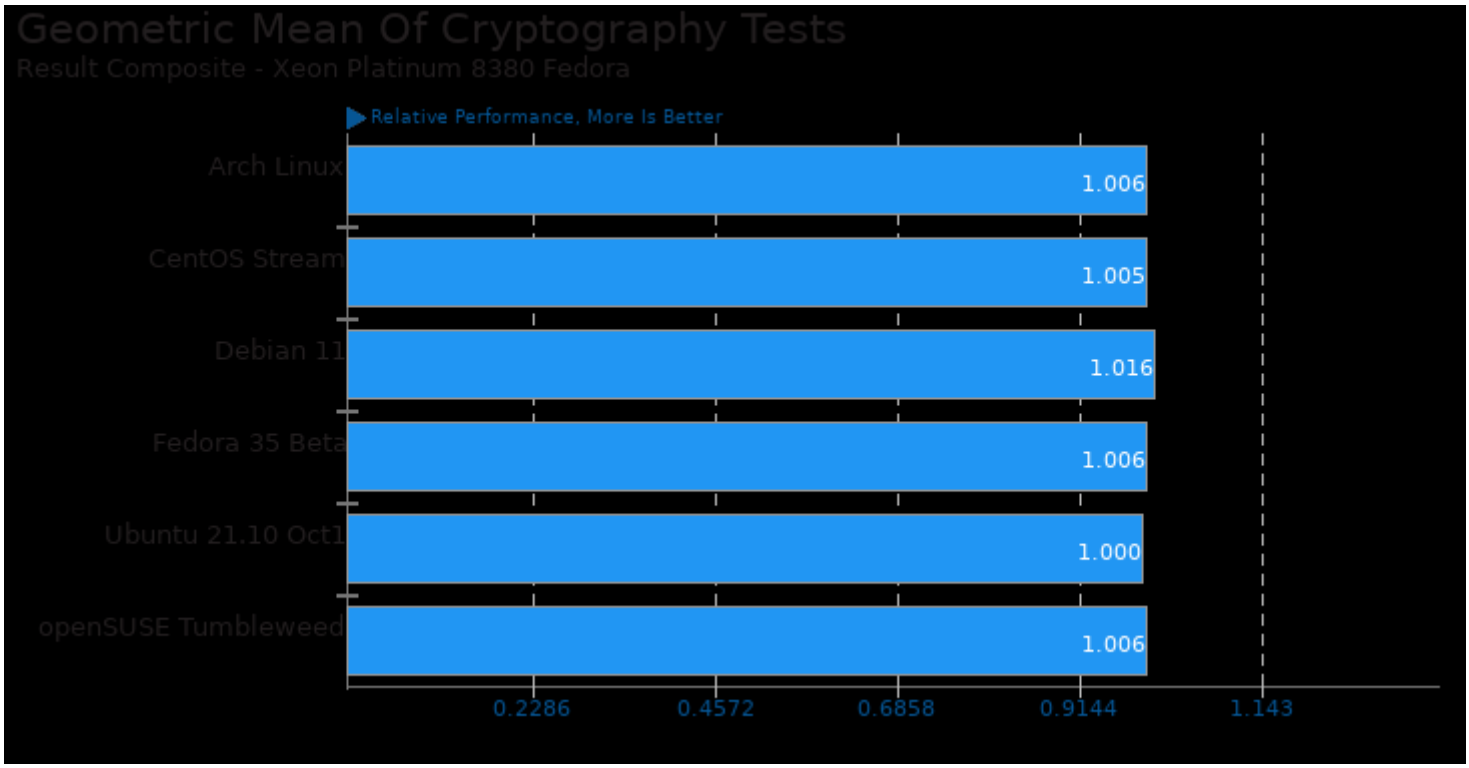
Xeon Platinum 8380 Fedora



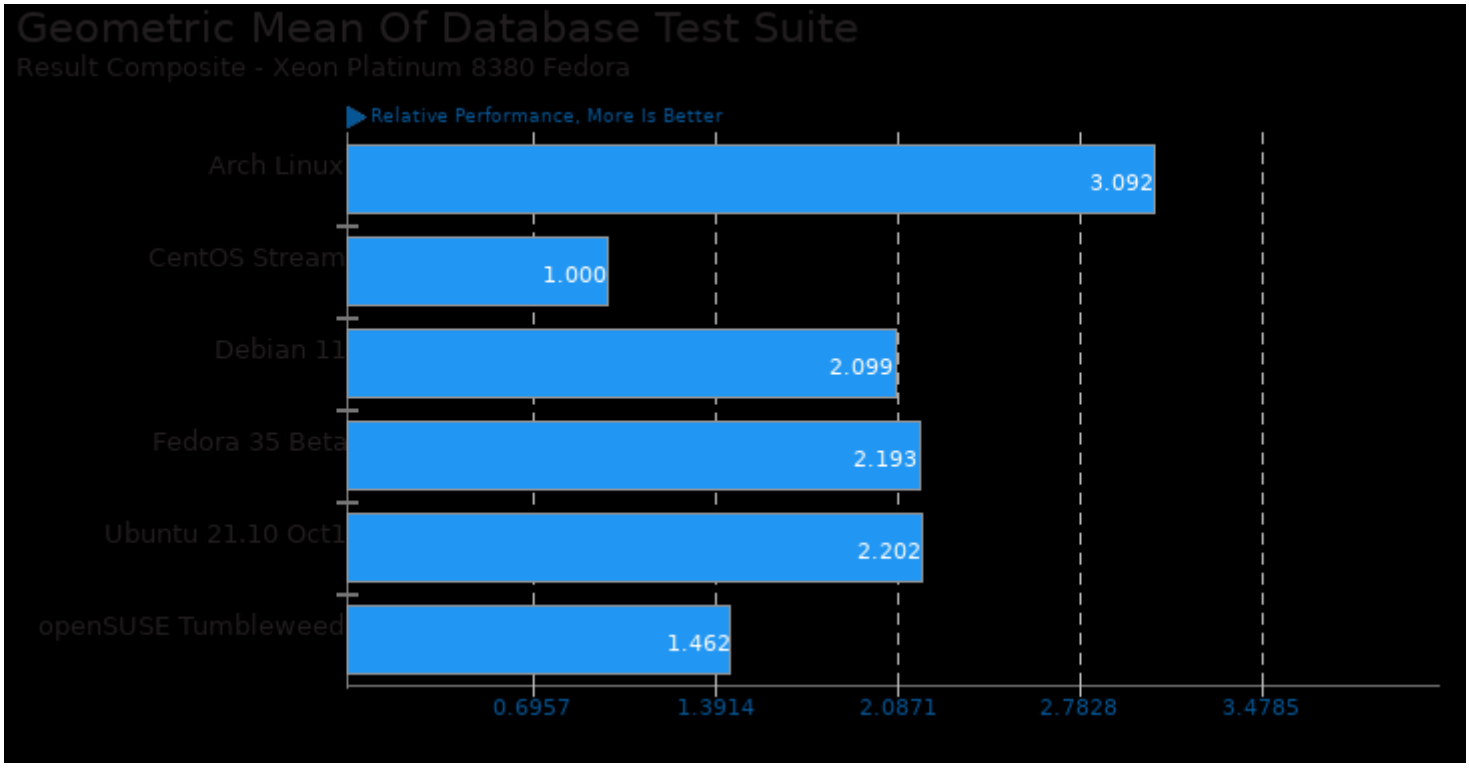
Geometric mean based upon tests: pts/compress-7zip, pts/compress-zstd and pts/compress-lz4



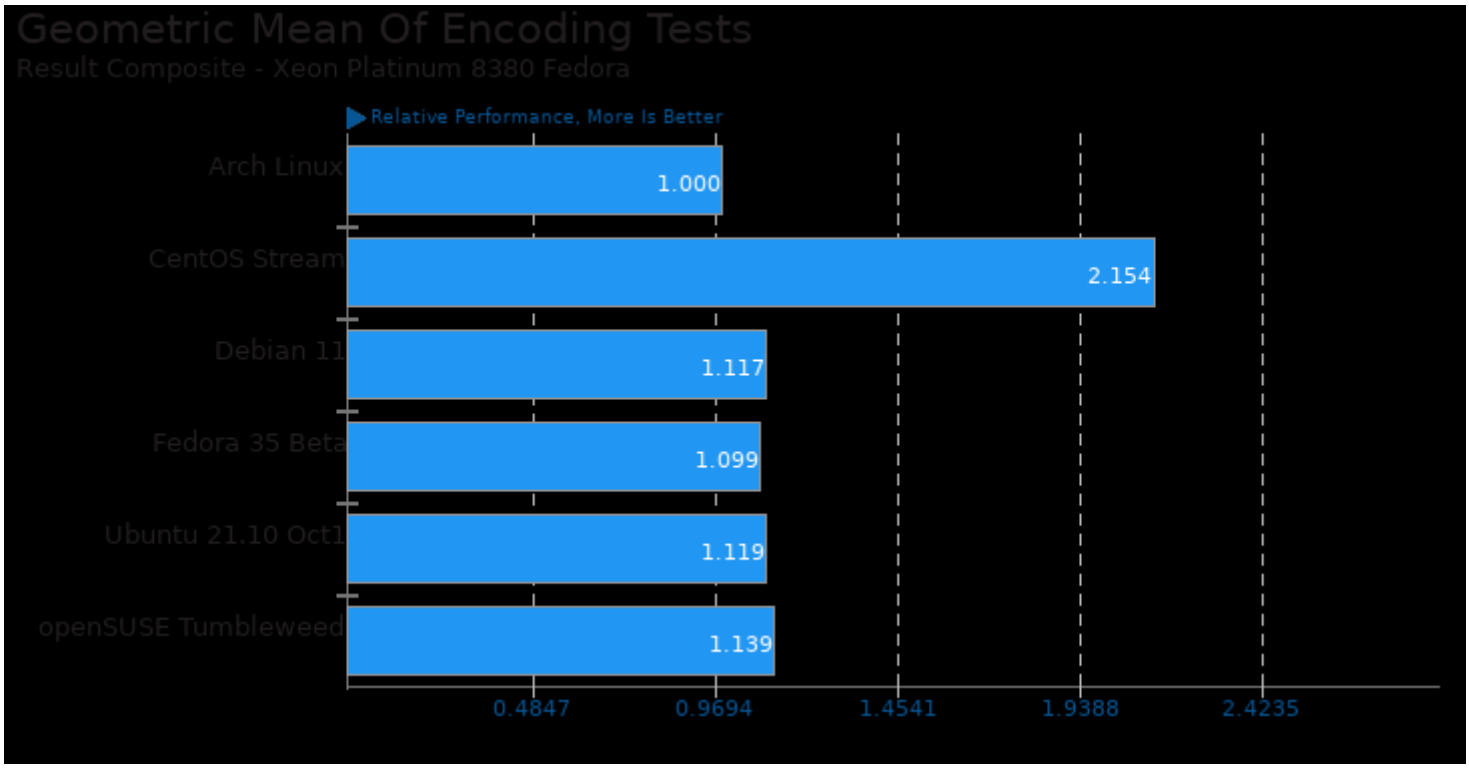
Geometric mean based upon tests: pts/ospray, pts/blender, pts/appleseed, pts/v-ray, pts/svt-vp9, pts/svt-hevc, pts/x265, pts/svt-av1, pts/jpegxl, pts/embree, pts/onednn, pts/oidn, pts/openvkl, pts/build-godot and pts/synthmark



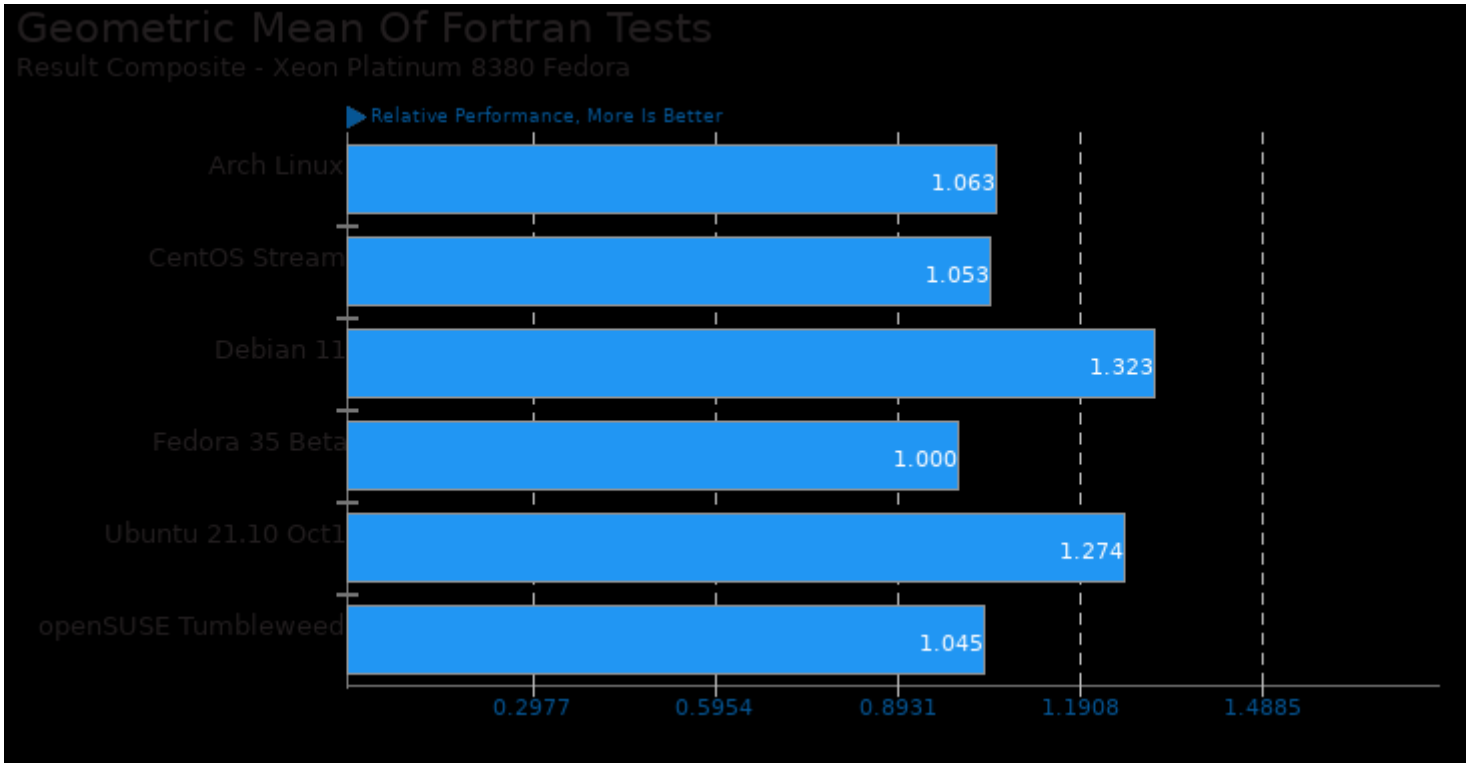
Geometric mean based upon tests: pts/openssl and pts/securemark



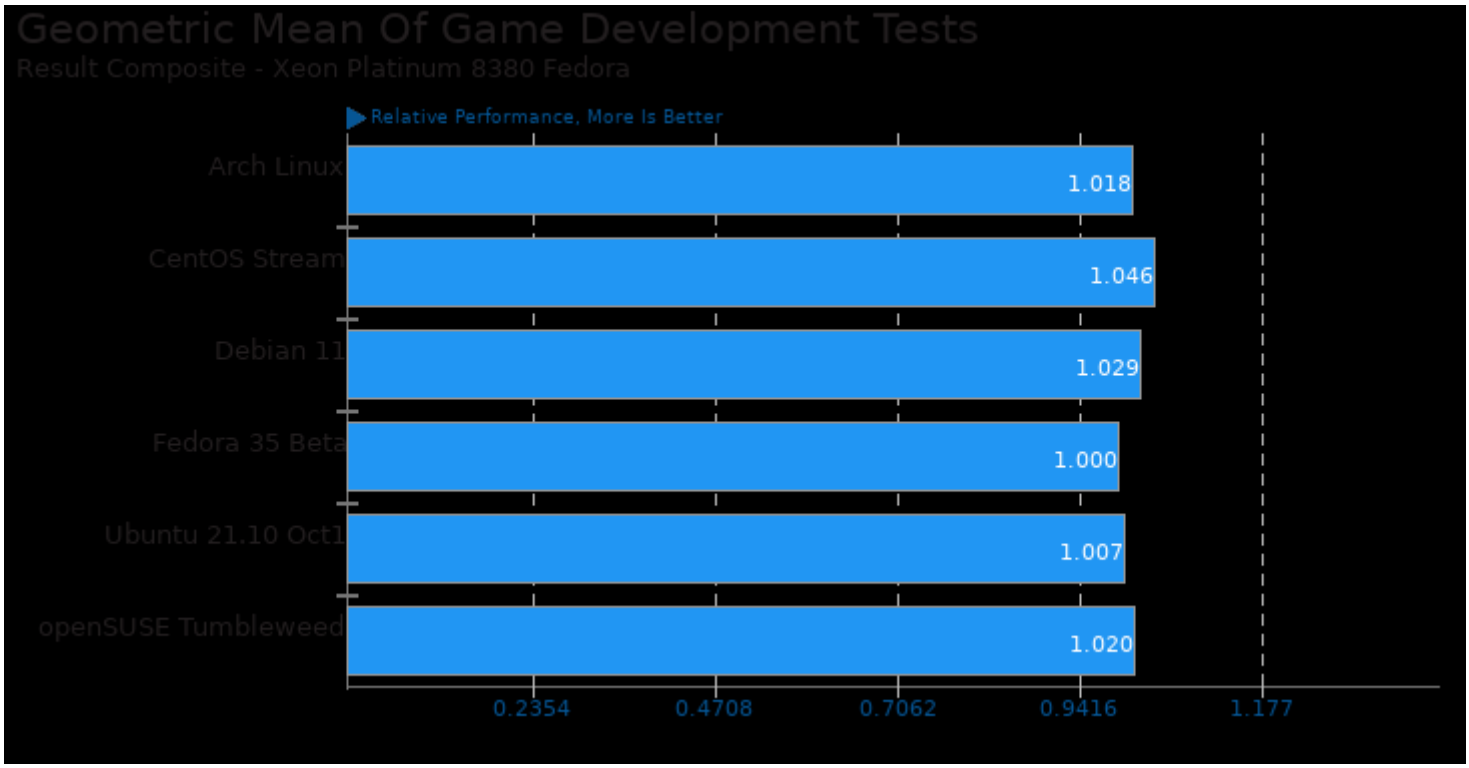
Geometric mean based upon tests: pts/sqlite-speedtest, pts/leveldb, pts/rocksdb, pts/cassandra and pts/pgbench



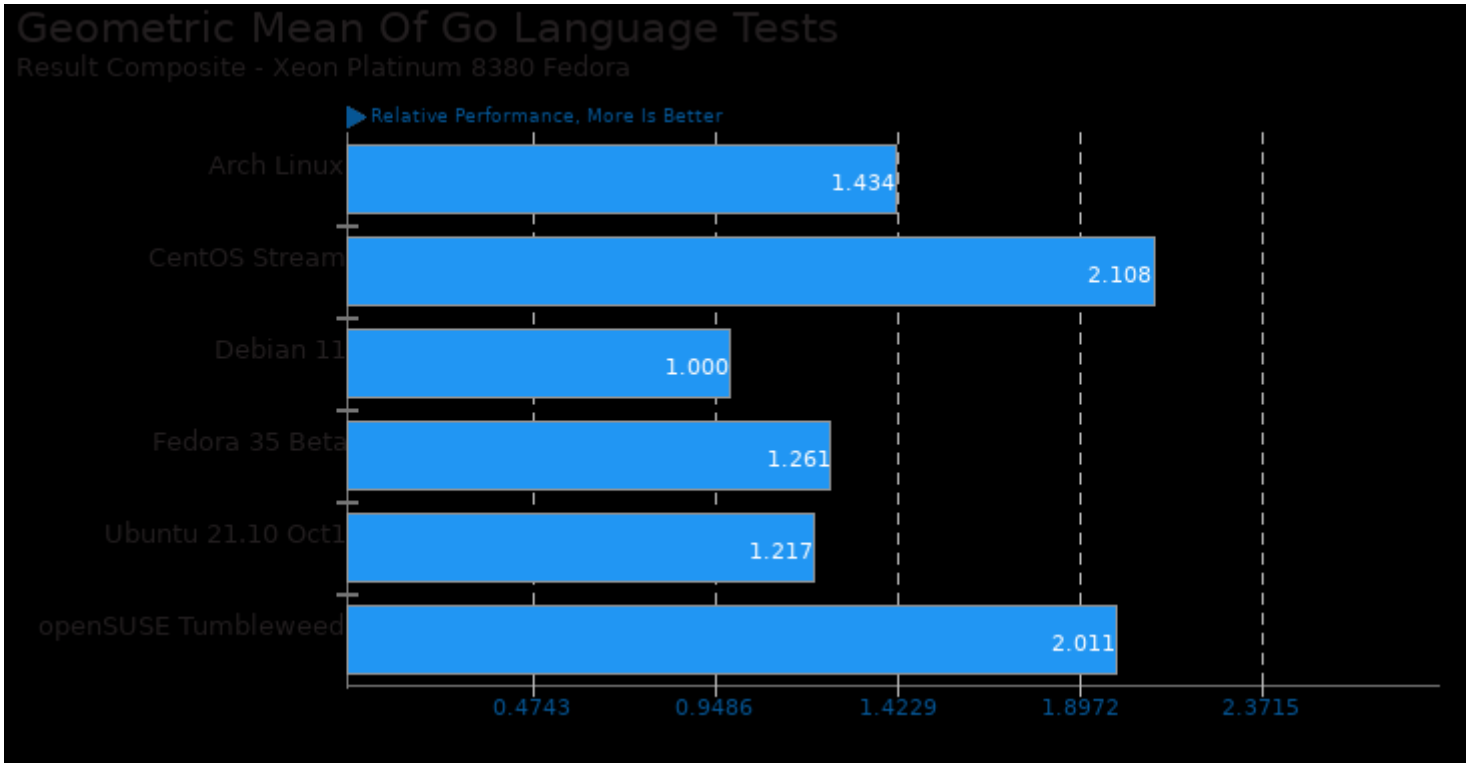
Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x265 and pts/svt-av1



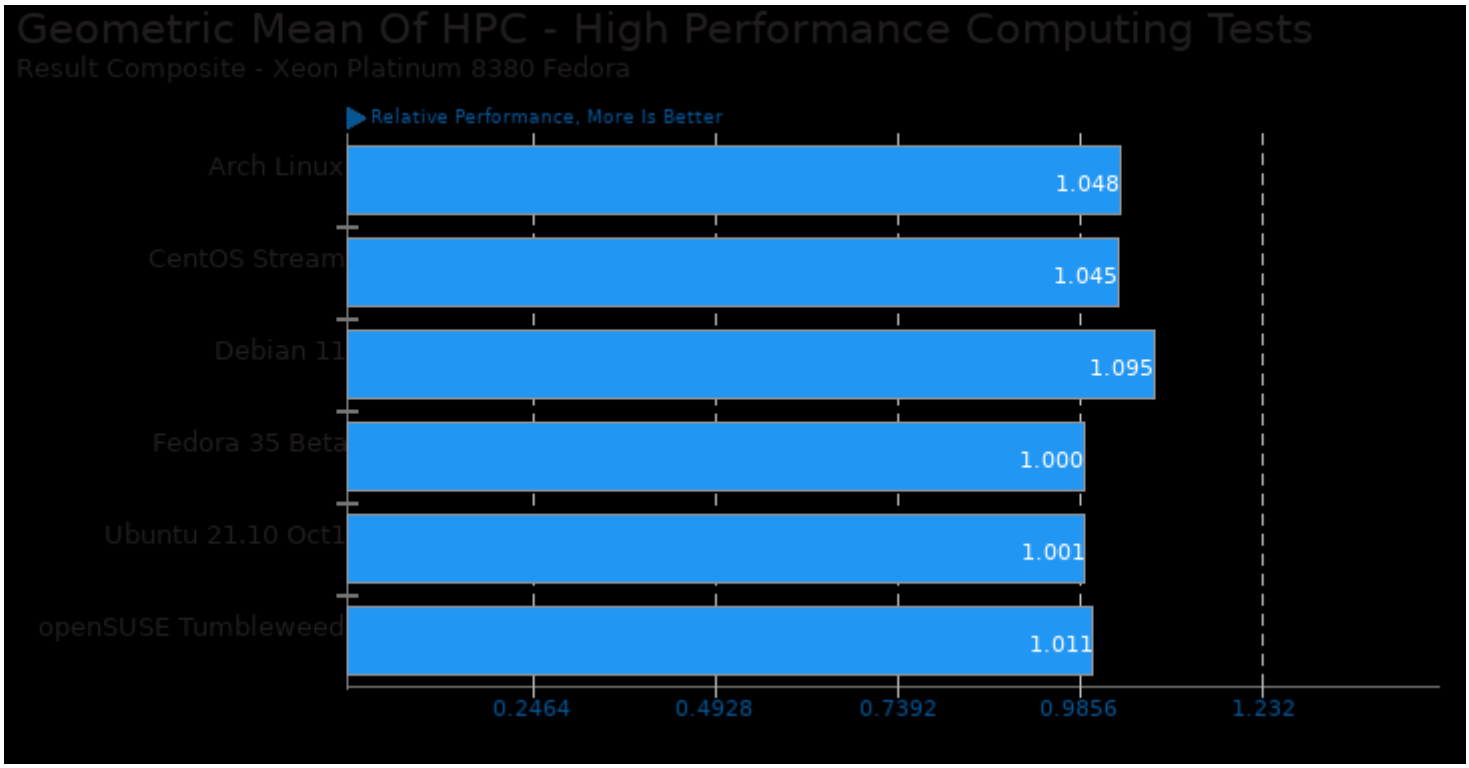
Geometric mean based upon tests: pts/hpcg and pts/npb



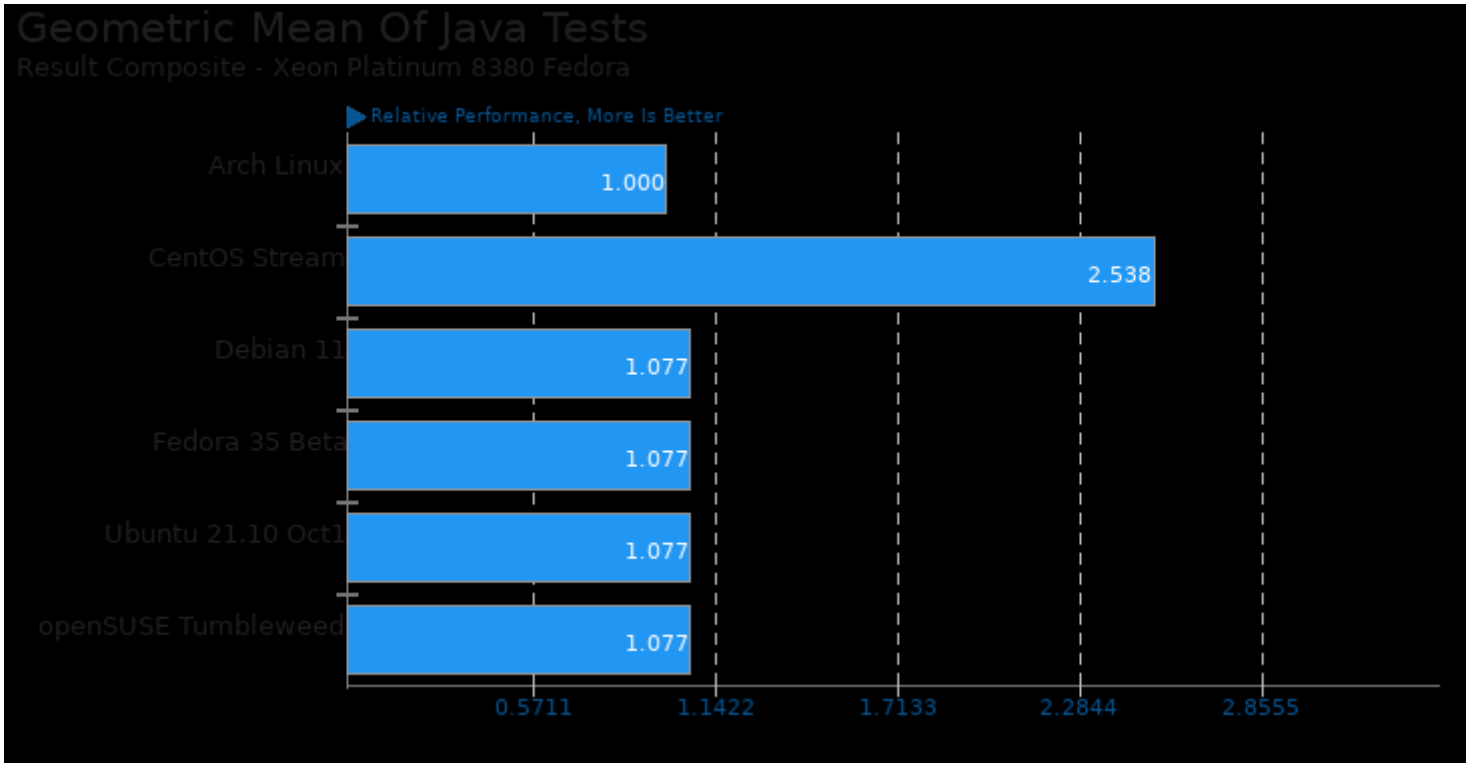
Geometric mean based upon tests: pts/build-godot, pts/blender, pts/oidn and pts/openvkl



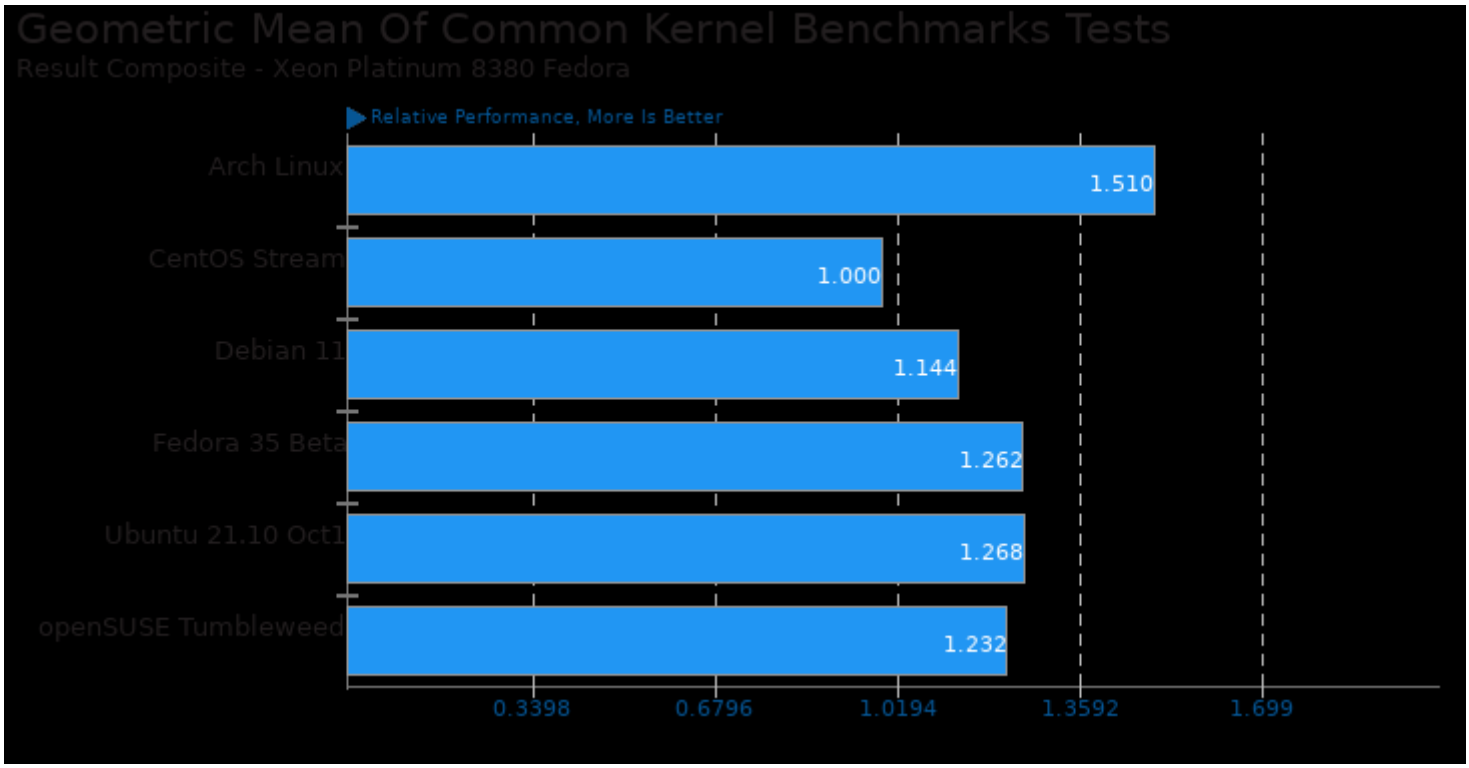
Geometric mean based upon tests: pts/nginx and pts/apache



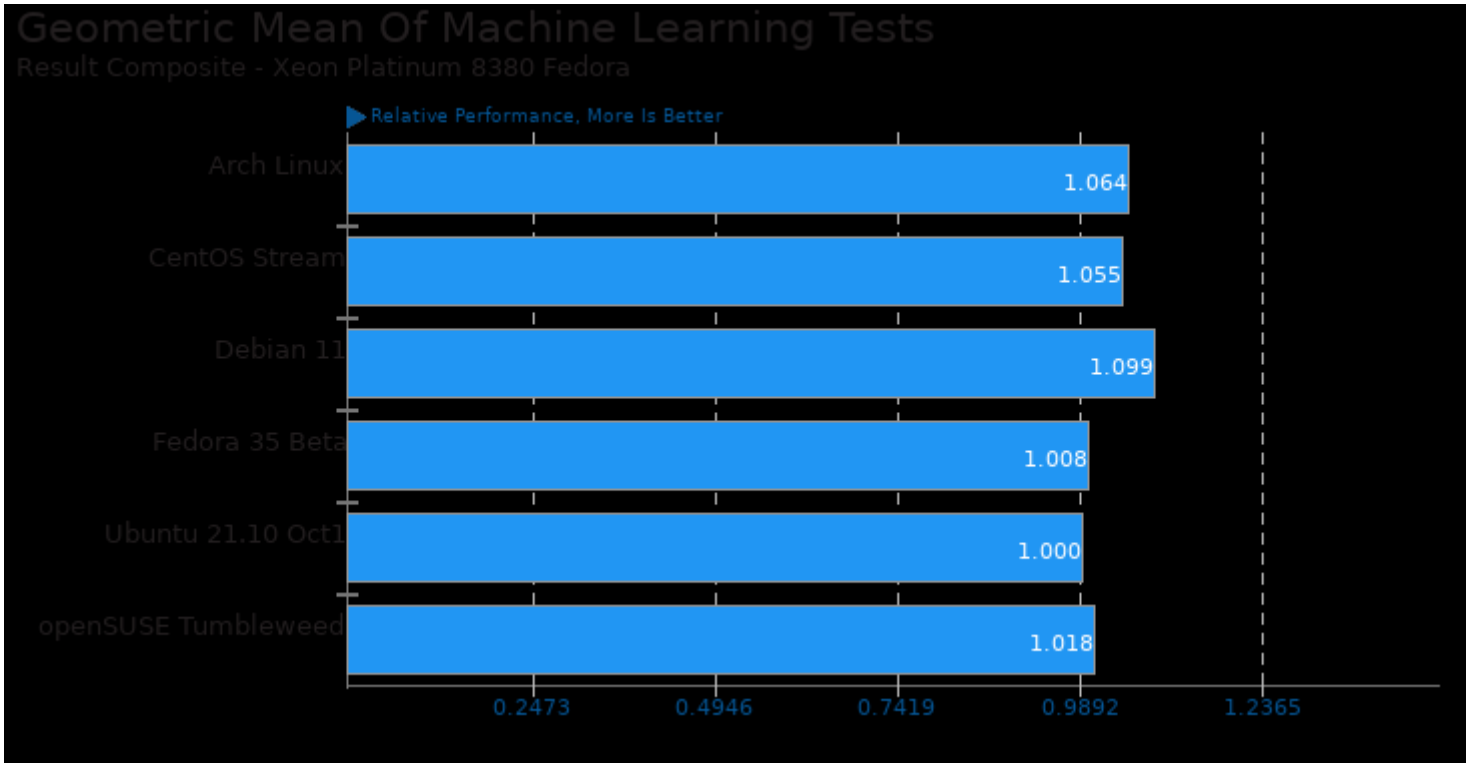
Geometric mean based upon tests: pts/npb, pts/rodinia, pts/hpcg, pts/namd, pts/gromacs, pts/mnn, pts/ncnn, pts/tnn, pts/tensorflow-lite, pts/onednn and pts/onnx



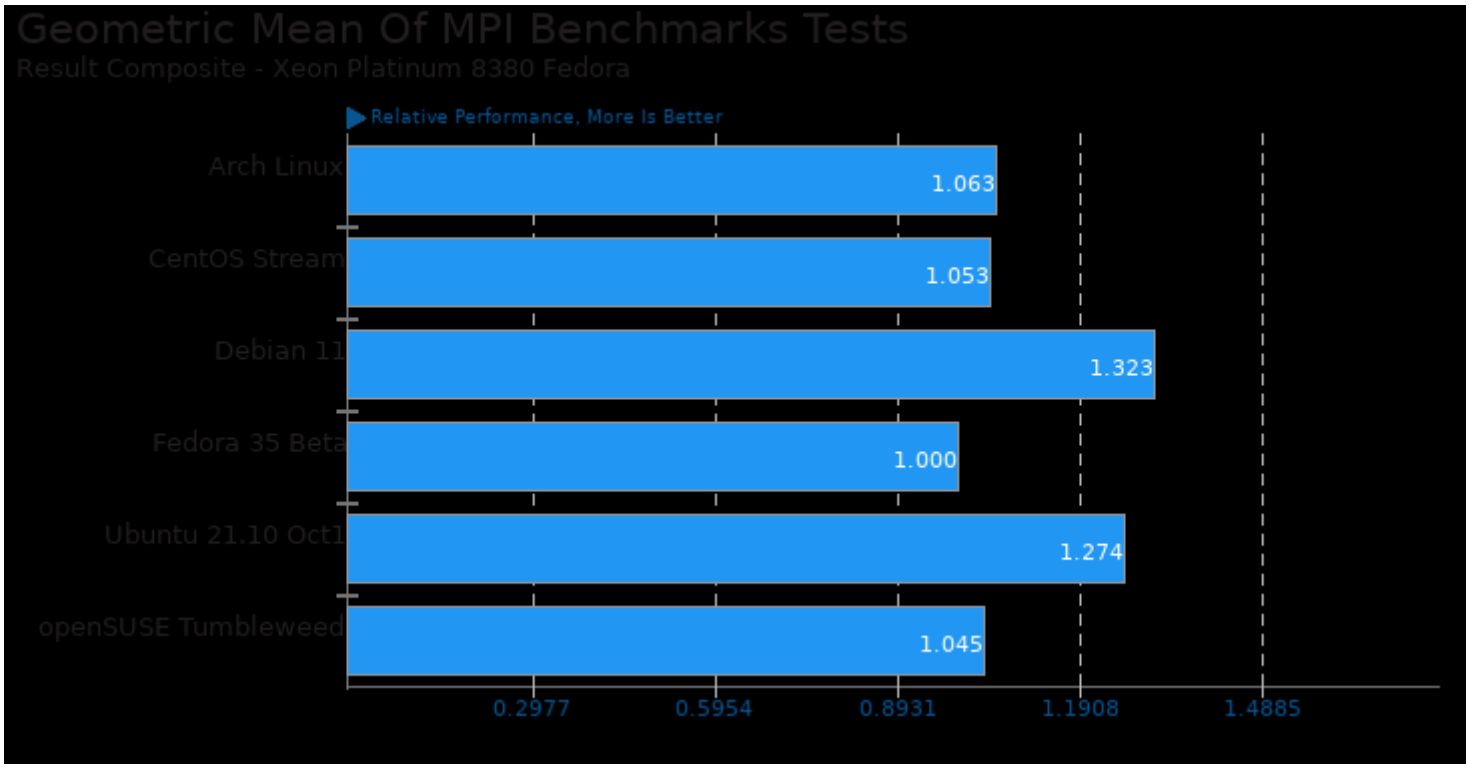
Geometric mean based upon tests: pts/dacapobench and pts/renaissance



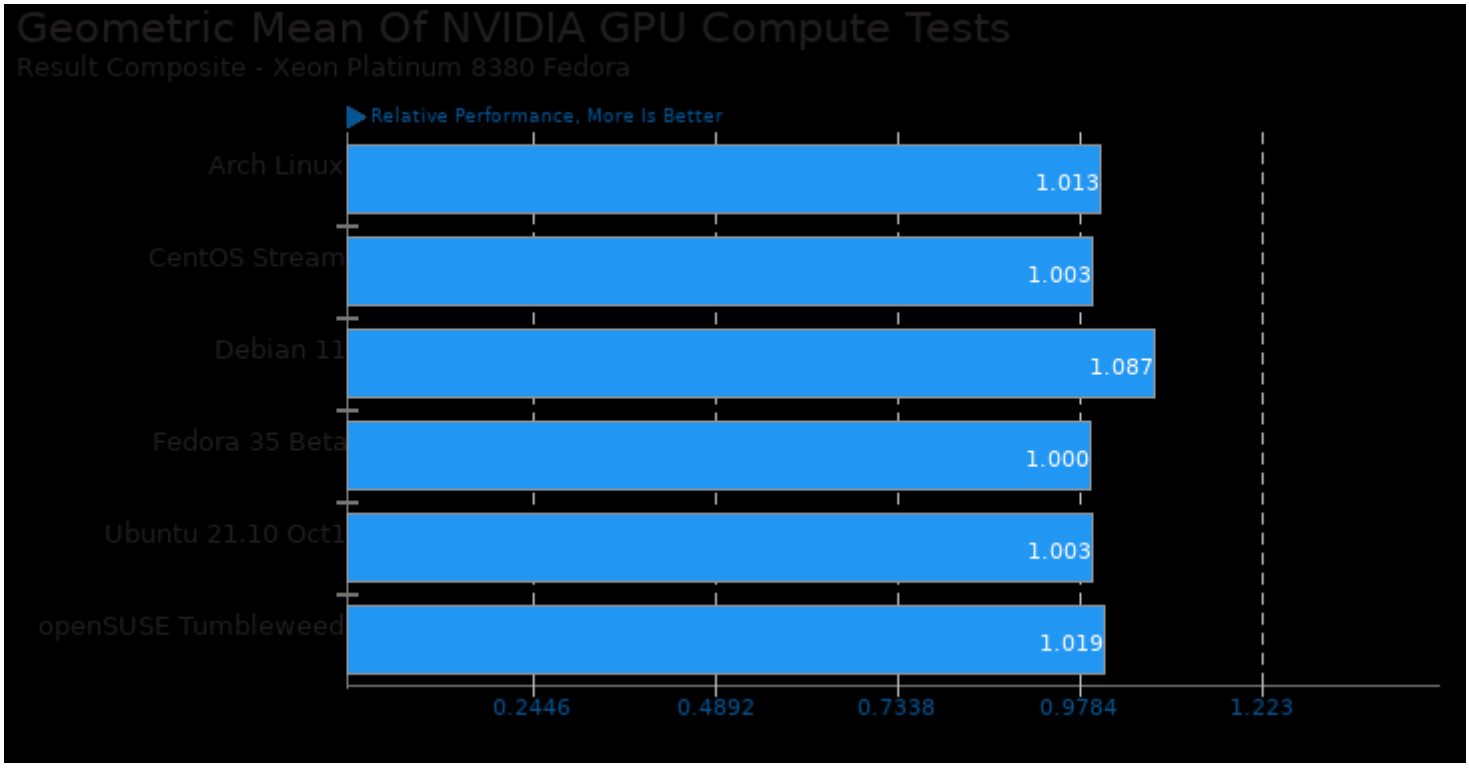
Geometric mean based upon tests: pts/apache, pts/sqlite-speedtest, pts/pgbench, pts/openssl, pts/stress-ng, pts/rocksdb and pts/leveldb



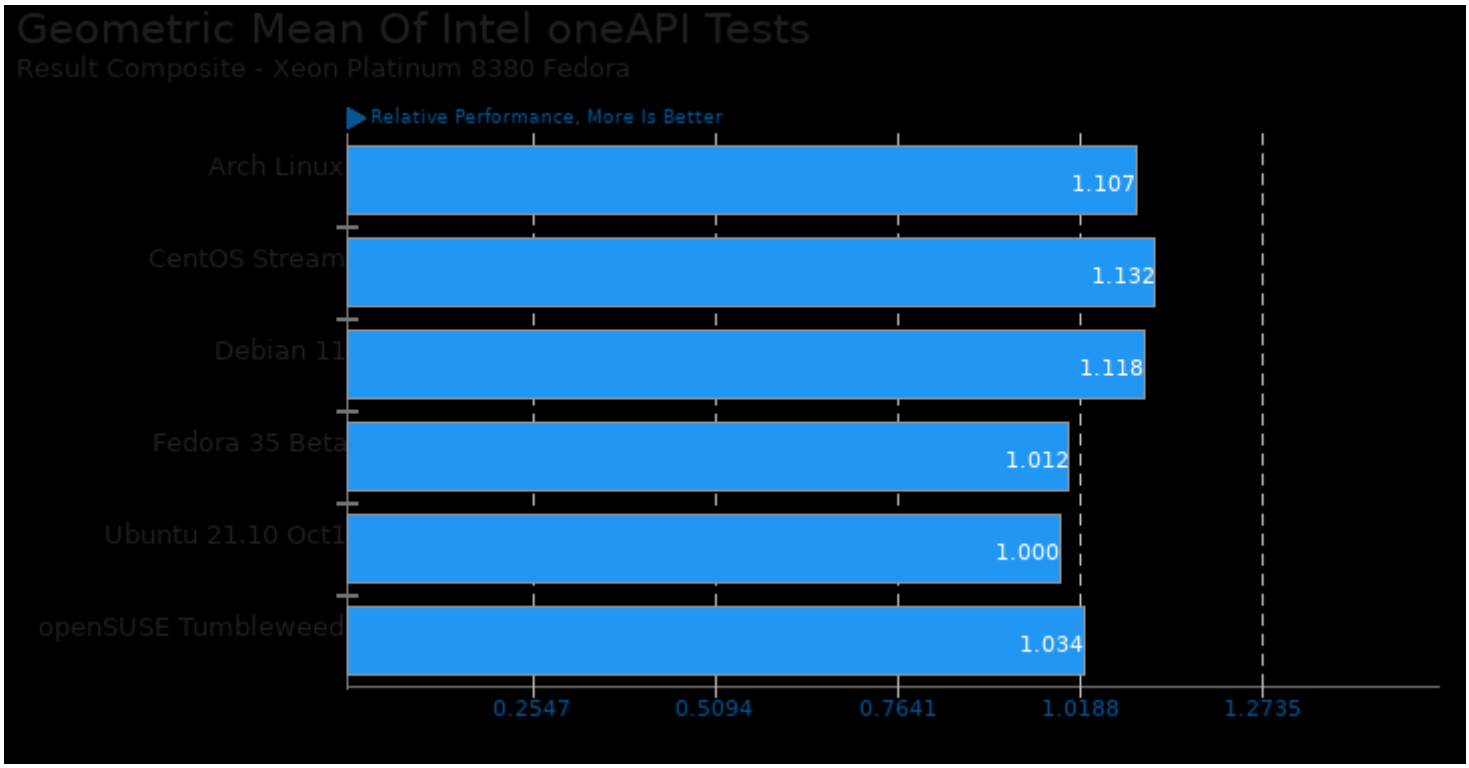
Geometric mean based upon tests: pts/mnn, pts/ncnn, pts/tnn, pts/tensorflow-lite, pts/onednn and pts/onnx



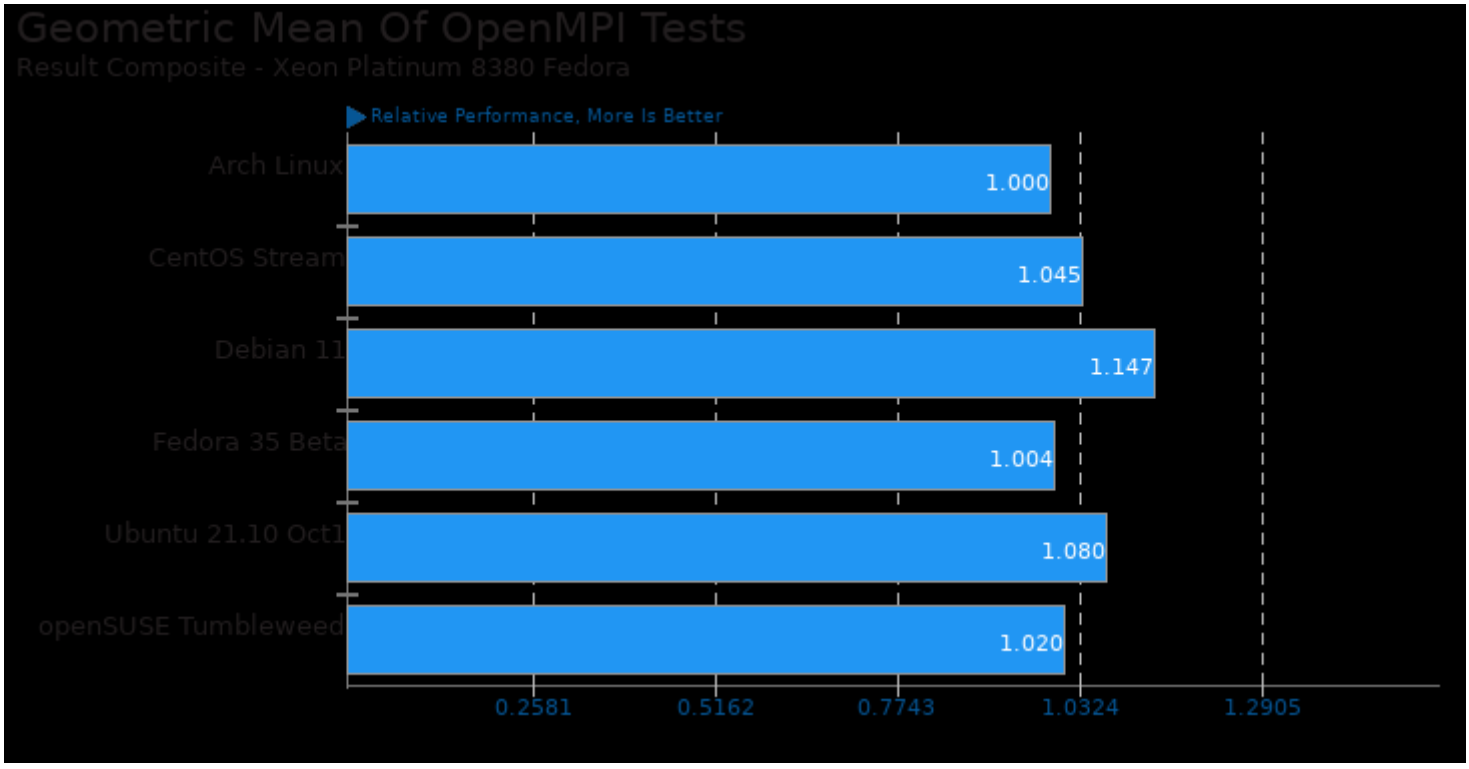
Geometric mean based upon tests: pts/gromacs, pts/hpcg and pts/npb



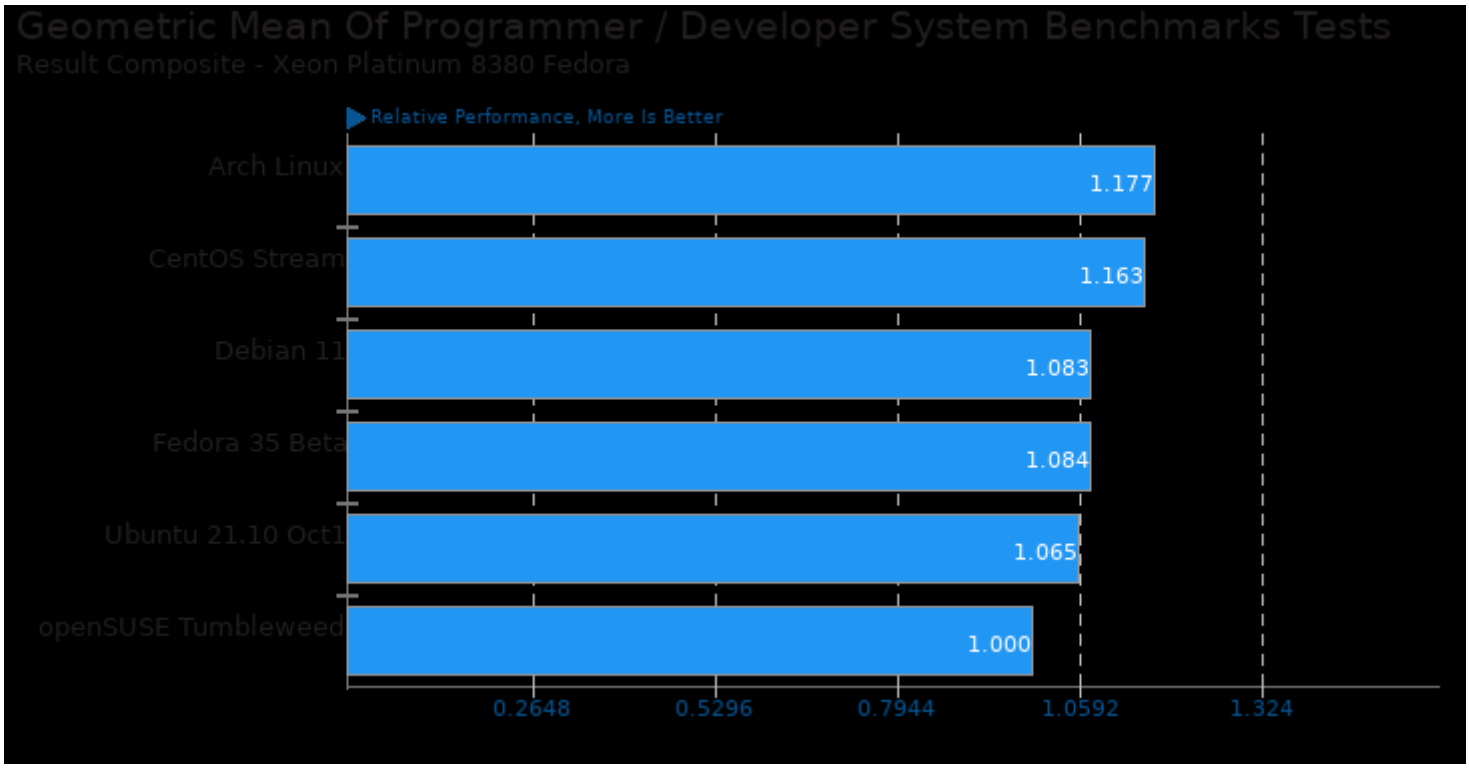
Geometric mean based upon tests: pts/gromacs, pts/rodinia, pts/v-ray, pts/blender and pts/ncnn



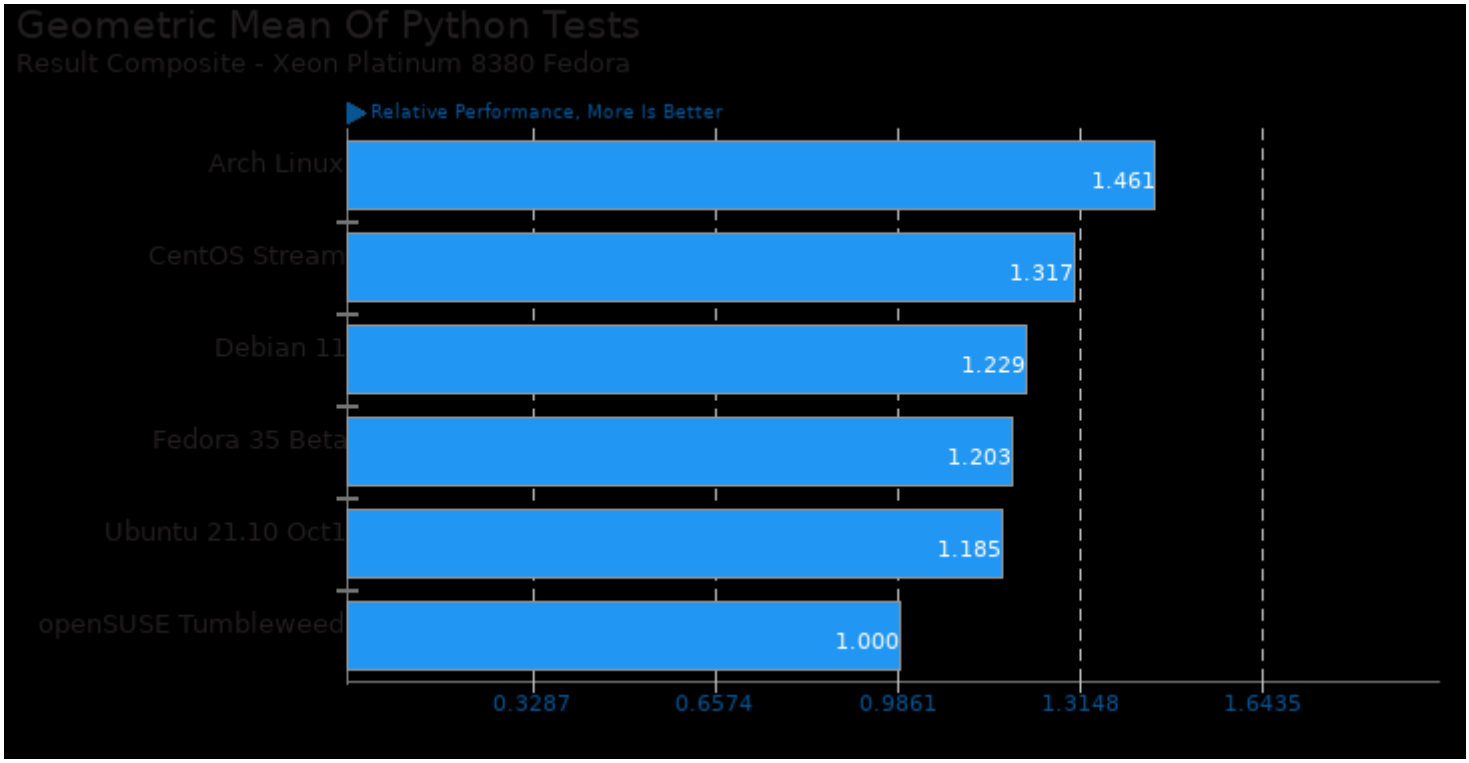
Geometric mean based upon tests: pts/embree, pts/onednn, pts/oidn, pts/ospray and pts/openvkl



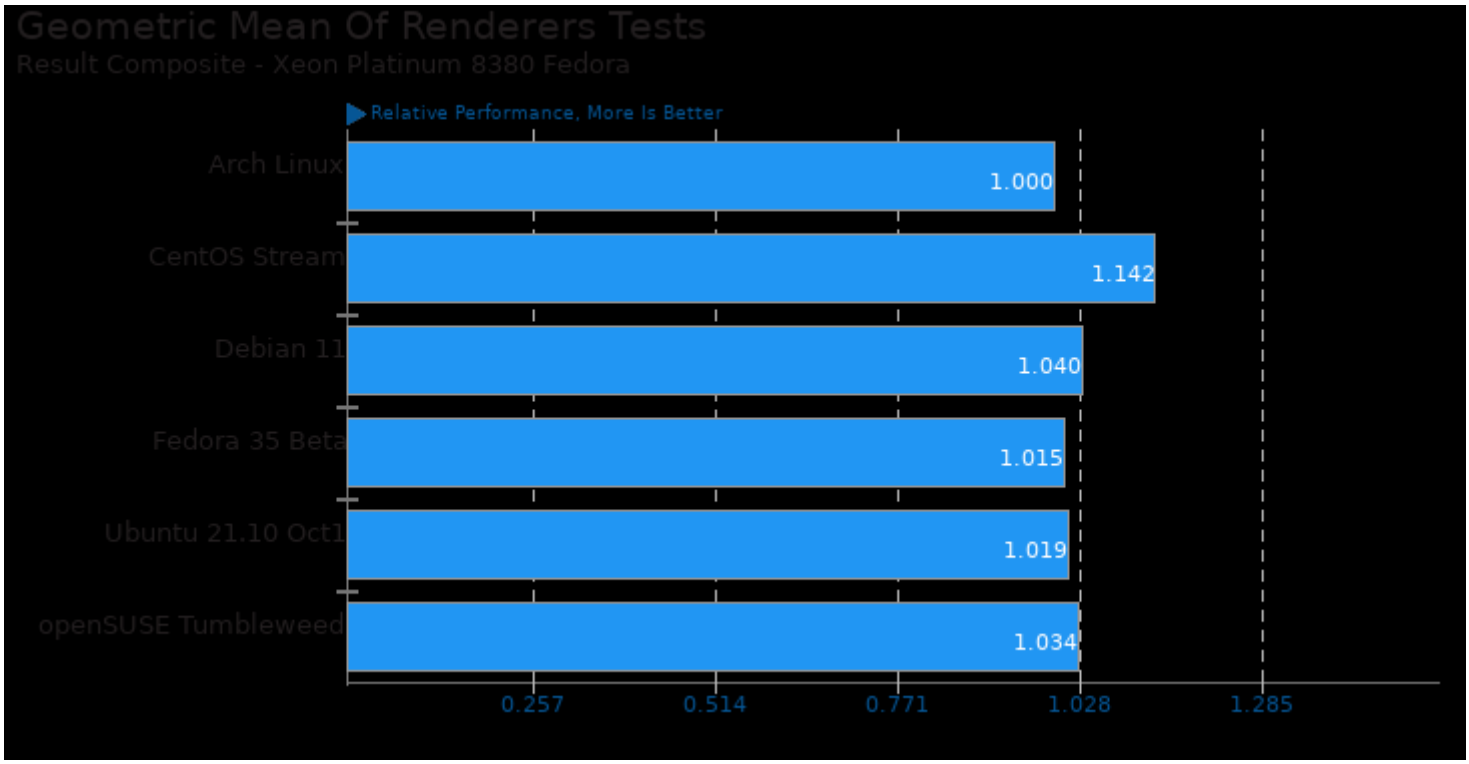
Geometric mean based upon tests: pts/hpcg, pts/npb, pts/rodinia and pts/gromacs



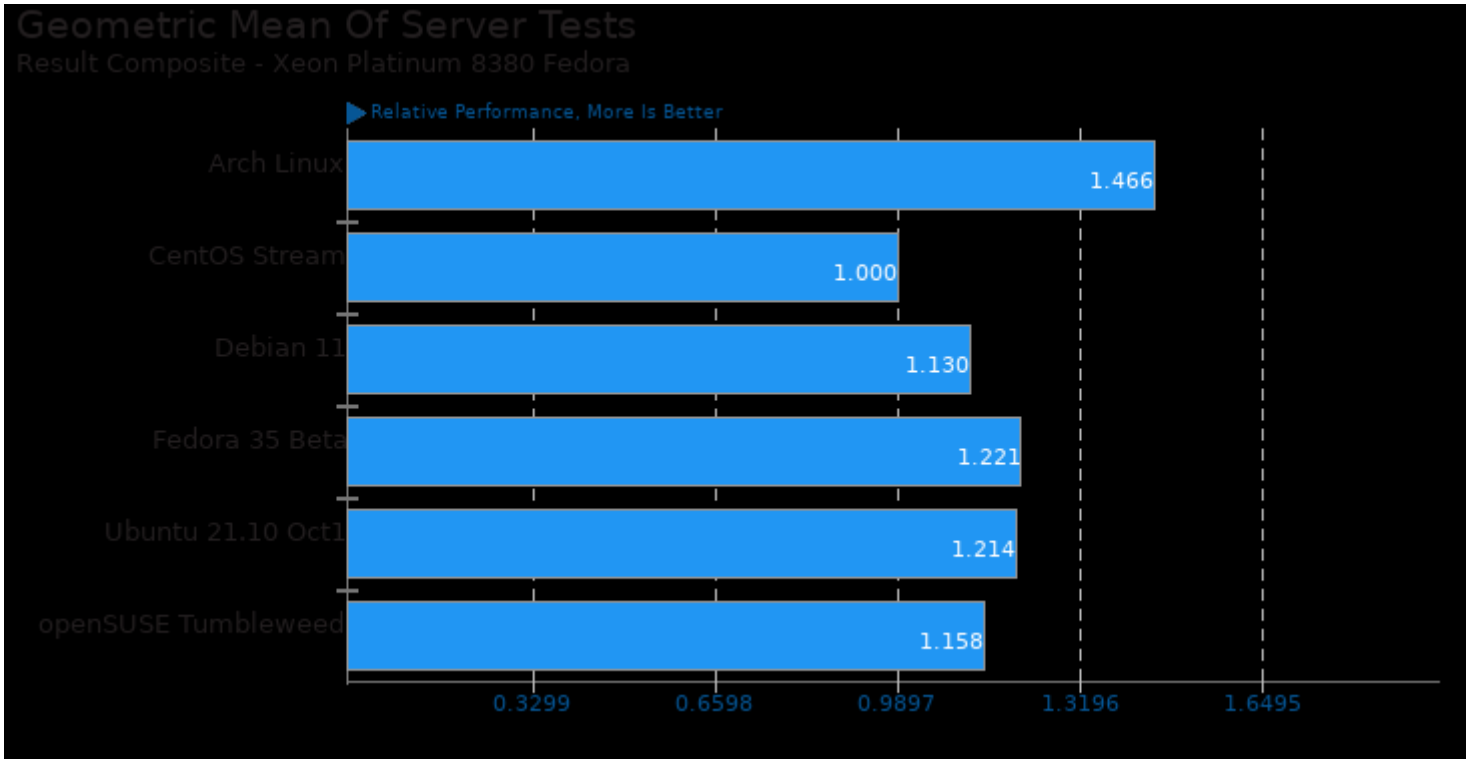
Geometric mean based upon tests: pts/simdjson, pts/sqlite-speedtest, pts/git, pts/compress-zstd, pts/pyperformance, pts/pybench, pts/build-linux-kernel, pts/build-llvm, pts/build-godot, pts/build-wasmer and pts/build-nodejs



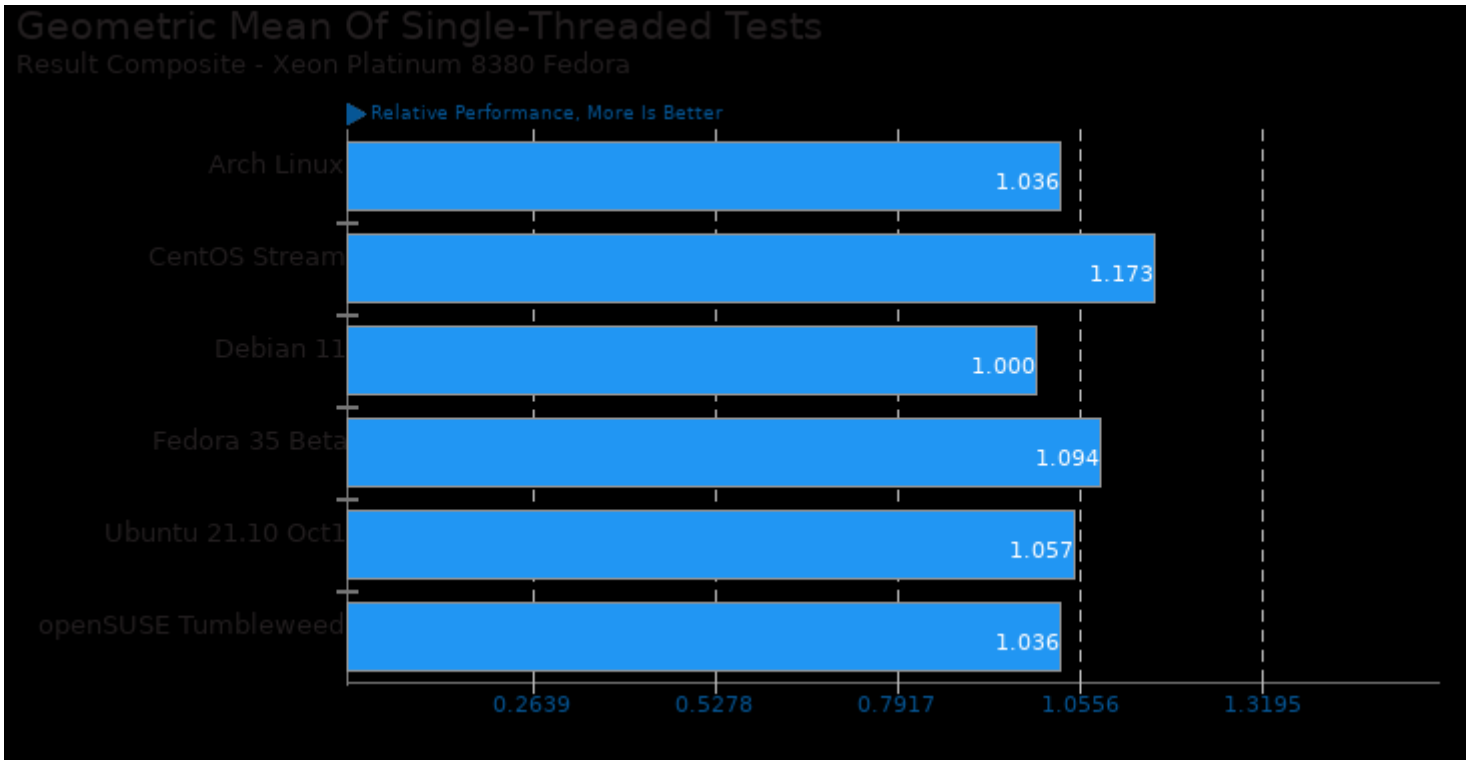
Geometric mean based upon tests: pts/pybench and pts/pyperformance



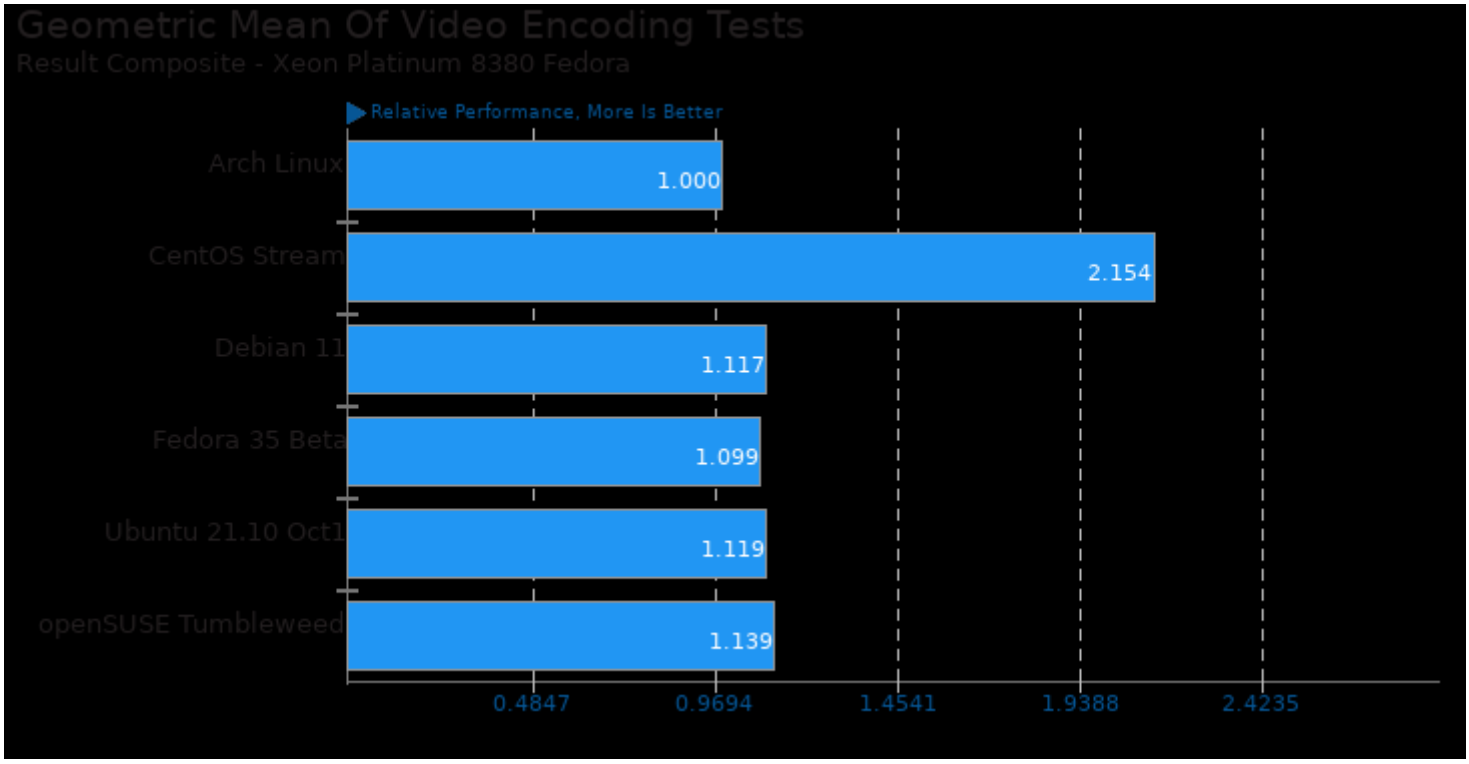
Geometric mean based upon tests: pts/ospray, pts/blender, pts/appleseed and pts/v-ray



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

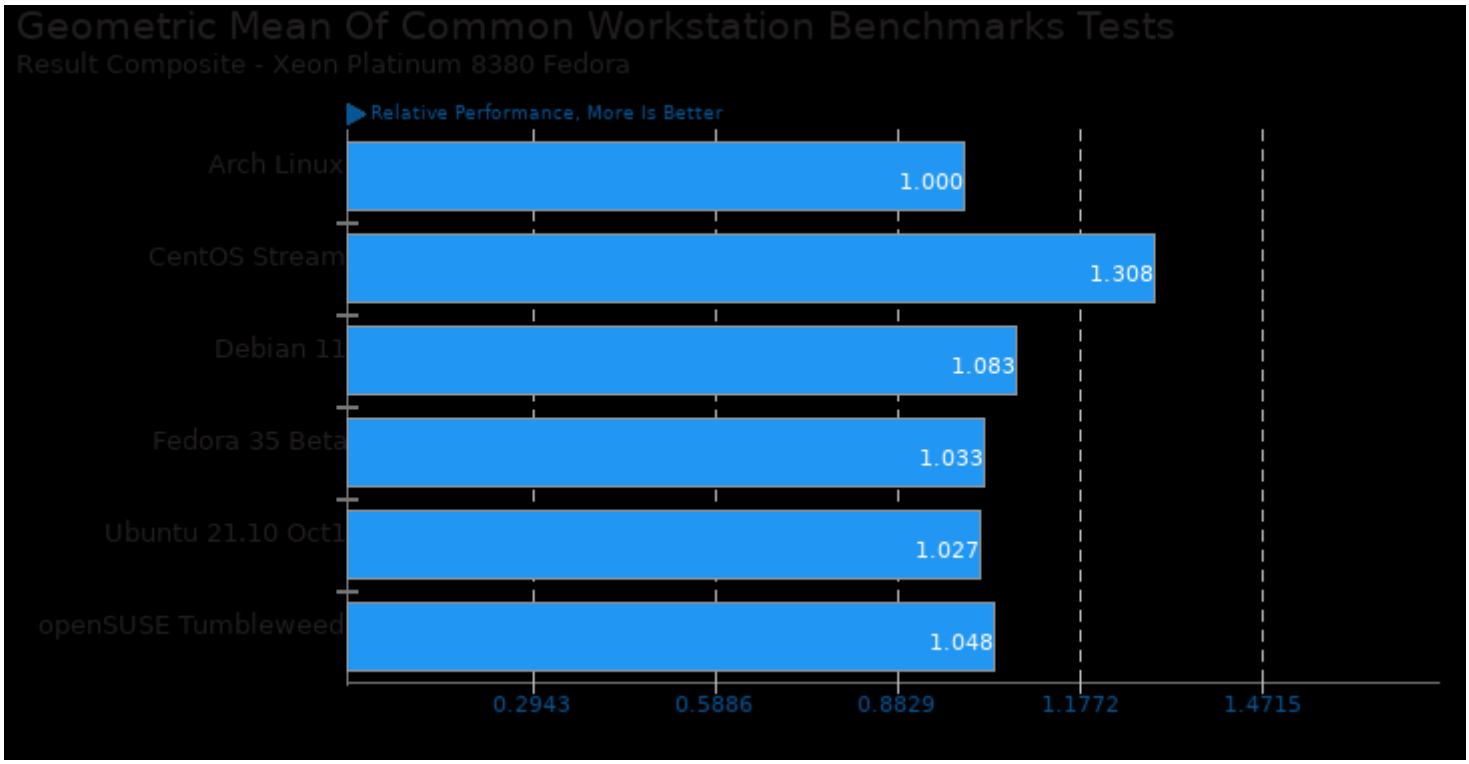


Geometric mean based upon tests: pts/gmpbench, pts/node-express-loadtest, pts/pybench, pts/phpbench, pts/nginx and pts/git



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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