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3900X + Polaris

AMD Ryzen 9 3900X 12-Core testing with a ASUS TUF GAMING X570-PLUS (WI-FI) (2203 BIOS) and MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

Linux 5.11-rc1 had the most wins, coming in first place for 39% of the tests.

Based on the geometric mean of all complete results, the fastest (Linux 5.11-rc1) was 1.008x the speed of the slowest (Linux 5.9). RRR was 0.997x the speed of Linux 5.11-rc1, Linux 5.10.4 was 0.996x the speed of RRR, Linux 5.9 was 0.999x the speed of Linux 5.10.4.

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

oneDNN (Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU) at 1.289x

oneDNN (Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU) at 1.141x

PostgreSQL pgbench (Scaling Factor: 1 - Clients: 1 - Mode: Read Only - Average Latency) at 1.111x

oneDNN (Harness: Recurrent Neural Network Inference - Data Type: f32 - Engine: CPU) at 1.098x

PostgreSQL pgbench (Scaling Factor: 100 - Clients: 50 - Mode: Read Write) at 1.085x

PostgreSQL pgbench (Scaling Factor: 100 - Clients: 50 - Mode: Read Write - Average Latency) at 1.083x

PostgreSQL pgbench (Scaling Factor: 1 - Clients: 1 - Mode: Read Only) at 1.073x

oneDNN (Harness: Recurrent Neural Network Training - Data Type: f32 - Engine: CPU) at 1.063x

WavPack Audio Encoding (WAV To WavPack) at 1.058x
NCNN (Target: CPU - Model: blazeface) at 1.056x.

Test Systems:

Linux 5.9

Processor: AMD Ryzen 9 3900X 12-Core @ 3.80GHz (12 Cores / 24 Threads), Motherboard: ASUS TUF GAMING X570-PLUS (WI-FI) (2203 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: Samsung SSD 970 EVO Plus 250GB, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1366/2000MHz), Audio: AMD Ellesmere HDMI Audio, Monitor: LG Ultra HD, Network: Realtek RTL8111/8168/8411 + Intel-AC 9260

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc6daily20200922-generic (x86_64) 20200921, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 21.0.0-devel (git-28a202f 2020-12-31 focal-oibaf-ppa) (LLVM 11.0.0), Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEA/gcc-9-9.3.0/debian/tmp-nvptx/usr.hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8701021

Graphics Notes: GLAMOR

Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retroline IPBP: conditional STIBP: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

Linux 5.10.4

Processor: AMD Ryzen 9 3900X 12-Core @ 3.80GHz (12 Cores / 24 Threads), Motherboard: ASUS TUF GAMING X570-PLUS (WI-FI) (2203 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: Samsung SSD 970 EVO Plus 250GB, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1366/2000MHz), Audio: AMD Ellesmere HDMI Audio, Monitor: LG Ultra HD, Network: Realtek RTL8111/8168/8411 + Intel-AC 9260

OS: Ubuntu 20.04, Kernel: 5.10.4-051004-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 21.0.0-devel (git-28a202f 2020-12-31 focal-oibaf-ppa) (LLVM 11.0.0), Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEA/gcc-9-9.3.0/debian/tmp-nvptx/usr.hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v

Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8701021

Graphics Notes: GLAMOR

Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retroline IPBP: conditional STIBP: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

Linux 5.11-rc1

RRR

3900X + Polaris

Processor: AMD Ryzen 9 3900X 12-Core @ 3.80GHz (12 Cores / 24 Threads), Motherboard: ASUS TUF GAMING X570-PLUS (WI-FI) (2203 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: Samsung SSD 970 EVO Plus 250GB, Graphics: MSI AMD Radeon RX 470/480/570/570X/580/580X/590 8GB (1366/2000MHz), Audio: AMD Ellesmere HDMI Audio, Monitor: LG Ultra HD, Network: Realtek RTL8111/8168/8411 + Intel-AC 9260

OS: Ubuntu 20.04, Kernel: 5.11.0-rc1-phx (x86_64) 20201228, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: modesetting 1.20.8, OpenGL: 4.6 Mesa 21.0.0-devel (git-28a202f 2020-12-31 focal-oibaf-ppa) (LLVM 11.0.0), Vulkan: 1.2.145, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
 Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0x8701021

Graphics Notes: GLAMOR

Python Notes: Python 3.8.5

Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IPBP: conditional STIBP: conditional RSB filling + srbs: Not affected + tsx_async_abort: Not affected

	Linux 5.9	Linux 5.10.4	Linux 5.11-rc1	RRR
VKMark - 1280 x 1024 (VKMark Score)	6608	6664	6576	563
Normalized	99.16%	100%	98.68%	98.48%
Standard Deviation	0.3%	0.2%	0.1%	0%
VKMark - 1920 x 1080 (VKMark Score)	4942	4975	4928	426
Normalized	99.34%	100%	99.06%	99.02%
Standard Deviation	0.1%	0.2%	0%	0.2%
CLOMP - Static OMP Speedup (Speedup)	32.2	32.1	31.5	30.9
Normalized	100%	99.69%	97.83%	95.96%
Standard Deviation	0.8%	1.5%	1.3%	2.5%
oneDNN - IP Shapes 1D - f32 - CPU (ms)	4.78459	4.30955	4.25293	4.19200
Normalized	87.61%	97.27%	98.57%	100%
Standard Deviation	0.3%	0.3%	1.4%	1.3%
oneDNN - IP Shapes 3D - f32 - CPU (ms)	10.3172	8.00465	8.00681	8.01007
Normalized	77.59%	100%	99.97%	99.93%
Standard Deviation	0.2%	0.3%	0.7%	0.2%
oneDNN - C.B.S.A - f32 - CPU (ms)	22.3272	21.7033	21.6515	21.7438
Normalized	96.97%	99.76%	100%	99.58%
Standard Deviation	0%	0.1%	0.1%	0.2%
oneDNN - D.B.s - f32 - CPU (ms)	3.57564	3.54551	3.55786	3.55338
Normalized	99.16%	100%	99.65%	99.78%
Standard Deviation	0.7%	0.5%	0.4%	0.7%
oneDNN - D.B.s - f32 - CPU (ms)	5.03296	5.05202	5.04675	5.06536
Normalized	100%	99.62%	99.73%	99.36%
Standard Deviation	0.1%	0%	0.4%	0.2%
oneDNN - R.N.N.T - f32 - CPU (ms)	3904	3678	3674	3735
Normalized	94.1%	99.9%	100%	98.38%
Standard Deviation	0.7%	0.6%	0.4%	0.1%

oneDNN - R.N.N.I - f32 - CPU (ms)	2305	2098	2159	2219
Normalized	91.03%	100%	97.15%	94.53%
Standard Deviation	0.6%	2.1%	2.9%	1.4%
oneDNN - M.M.B.S.T - f32 - CPU (ms)	0.867501	0.868645	0.857362	0.865668
Normalized	98.83%	98.7%	100%	99.04%
Standard Deviation	0.2%	1.2%	0.3%	0.7%
Build2 - Time To Compile (sec)	88.090	89.062	88.924	89.081
Normalized	100%	98.91%	99.06%	98.89%
Standard Deviation	0.1%	0.7%	0.4%	0.2%
Timed Eigen Compilation - Time To	71.658	72.245	71.313	73.338
Compile (sec)				
Normalized	99.52%	98.71%	100%	97.24%
Standard Deviation	0.1%	0.3%	0.4%	1.2%
Monkey Audio Encoding - WAV To	11.099	11.206	11.257	11.619
APE (sec)				
Normalized	100%	99.05%	98.6%	95.52%
Standard Deviation	1%	2%	2.9%	1.5%
Opus Codec Encoding - WAV To	7.107	7.080	6.972	7.069
Opus Encode (sec)				
Normalized	98.1%	98.47%	100%	98.63%
Standard Deviation	2.3%	2.3%	1.1%	2.1%
Cryptsetup - PBKDF2-sha512	1737821	1769325	1764323	1758791
(Iterations/sec)				
Normalized	98.22%	100%	99.72%	99.4%
Standard Deviation	2.6%	0.8%	0.5%	1.9%
Cryptsetup - PBKDF2-whirlpool	751194	763582	763217	758501
(Iterations/sec)				
Normalized	98.38%	100%	99.95%	99.33%
Standard Deviation	1.1%	1%	1.1%	1.6%
Cryptsetup - A.X.2.E (MiB/s)	2081	2098	2144	2112
Normalized	97.07%	97.85%	100%	98.5%
Standard Deviation	3.2%	2.4%	0.1%	1.9%
Cryptsetup - A.X.2.D (MiB/s)	2085	2110	2148	2135
Normalized	97.05%	98.2%	100%	99.38%
Standard Deviation	3%	3%	0.4%	0.2%
Cryptsetup - S.X.2.E (MiB/s)	736.8	748.2	757.5	745.1
Normalized	97.27%	98.77%	100%	98.36%
Standard Deviation	2.9%	3%	0.1%	2.4%
Cryptsetup - S.X.2.D (MiB/s)	723.7	735.1	742.3	742.8
Normalized	97.43%	98.96%	99.93%	100%
Standard Deviation	2.6%	3.3%	0.2%	0.3%
Cryptsetup - T.X.2.E (MiB/s)	428.8	435.4	441.3	442.4
Normalized	96.93%	98.42%	99.75%	100%
Standard Deviation	3%	3.1%	0.2%	0.7%
Cryptsetup - T.X.2.D (MiB/s)	427.9	434.7	440.6	441.1
Normalized	97.01%	98.55%	99.89%	100%
Standard Deviation	2.8%	3.2%	0.2%	0.6%
Cryptsetup - A.X.5.E (MiB/s)	1844	1865	1899	1896
Normalized	97.12%	98.2%	100%	99.84%
Standard Deviation	2.8%	2.9%	0.3%	0.7%
Cryptsetup - A.X.5.D (MiB/s)	1844	1869	1899	1897
Normalized	97.13%	98.45%	100%	99.89%
Standard Deviation	2.8%	3%	0.4%	0.7%
Cryptsetup - S.X.5.E (MiB/s)	740.4	749.8	758.3	760.1

	Normalized	97.41%	98.64%	99.76%	100%
	Standard Deviation	3.6%	3.2%	0.1%	0.6%
Cryptsetup - S.X.5.D (MiB/s)	723.7	735.1	743.2	744.4	
	Normalized	97.22%	98.75%	99.84%	100%
	Standard Deviation	2.6%	3.2%	0.1%	0.6%
Cryptsetup - T.X.5.E (MiB/s)	429.4	435.9	442.0	441.9	
	Normalized	97.15%	98.62%	100%	99.98%
	Standard Deviation	2.8%	3.2%	0.2%	0.7%
Cryptsetup - T.X.5.D (MiB/s)	420.7	434.7	440.4	440.6	
	Normalized	95.48%	98.66%	99.95%	100%
	Standard Deviation	1.2%	3.2%	0.2%	0.6%
NCNN - CPU - mobilenet (ms)	16.47	16.52	16.49	16.51	
	Normalized	100%	99.7%	99.88%	99.76%
	Standard Deviation	0.6%	1%	0.5%	0.4%
NCNN - CPU-v2-v2 - mobilenet-v2 (ms)	5.39	5.40	5.38	5.46	
	Normalized	99.81%	99.63%	100%	98.53%
	Standard Deviation	0.5%	0.5%	1.3%	0.3%
NCNN - CPU-v3-v3 - mobilenet-v3 (ms)	4.65	4.68	4.67	4.67	
	Normalized	100%	99.36%	99.57%	99.57%
	Standard Deviation	0.1%	0.9%	1.2%	0.2%
NCNN - CPU - shufflenet-v2 (ms)	6.32	6.31	6.29	6.27	
	Normalized	99.21%	99.37%	99.68%	100%
	Standard Deviation	1.7%	0.5%	0.7%	0.6%
NCNN - CPU - mnasnet (ms)	4.83	4.86	4.82	4.80	
	Normalized	99.38%	98.77%	99.59%	100%
	Standard Deviation	0.5%	1.1%	1.6%	0.1%
NCNN - CPU - efficientnet-b0 (ms)	7.08	7.12	7.07	7.04	
	Normalized	99.44%	98.88%	99.58%	100%
	Standard Deviation	0.8%	0.1%	0.9%	0.6%
NCNN - CPU - blazeface (ms)	2.37	2.44	2.33	2.31	
	Normalized	97.47%	94.67%	99.14%	100%
	Standard Deviation	4.1%	4%	2%	0.4%
NCNN - CPU - googlenet (ms)	16.34	16.57	16.33	16.21	
	Normalized	99.2%	97.83%	99.27%	100%
	Standard Deviation	0.9%	1.4%	2.2%	0.5%
NCNN - CPU - vgg16 (ms)	59.16	59.23	59.22	59.51	
	Normalized	100%	99.88%	99.9%	99.41%
	Standard Deviation	0.3%	0.7%	0.2%	0.3%
NCNN - CPU - resnet18 (ms)	15.97	16.18	15.98	15.99	
	Normalized	100%	98.7%	99.94%	99.87%
	Standard Deviation	0.5%	1.6%	1.7%	0.1%
NCNN - CPU - alexnet (ms)	12.28	12.23	12.30	12.24	
	Normalized	99.59%	100%	99.43%	99.92%
	Standard Deviation	0.7%	0.1%	0.4%	0.2%
NCNN - CPU - resnet50 (ms)	27.53	27.33	27.34	27.54	
	Normalized	99.27%	100%	99.96%	99.24%
	Standard Deviation	0.9%	0.5%	0.1%	0.7%
NCNN - CPU - yolov4-tiny (ms)	26.53	26.05	26.13	26.87	
	Normalized	98.19%	100%	99.69%	96.95%
	Standard Deviation	2.8%	0.7%	0.2%	3.1%
NCNN - CPU - squeezenet_ss (ms)	18.57	18.61	18.76	18.83	
	Normalized	100%	99.79%	98.99%	98.62%
	Standard Deviation	1.1%	1.1%	0.5%	0.6%
NCNN - CPU - regnety_400m (ms)	21.49	21.54	21.45	21.34	
	Normalized	99.3%	99.07%	99.49%	100%

	Standard Deviation	0.9%	0.7%	0.7%	0.4%
NCNN - Vulkan GPU - mobilenet (ms)	16.43	16.57	16.37	16.65	
	Normalized	99.63%	98.79%	100%	98.32%
	Standard Deviation	0.9%	1.6%	0.6%	0.3%
NCNN - Vulkan GPU-v2-v2 - mobilenet-v2 (ms)	5.39	5.40	5.37	5.48	
	Normalized	99.63%	99.44%	100%	97.99%
	Standard Deviation	0.6%	0.5%	0.3%	0.2%
NCNN - Vulkan GPU-v3-v3 - mobilenet-v3 (ms)	4.65	4.66	4.66	4.71	
	Normalized	100%	99.79%	99.79%	98.73%
	Standard Deviation	0.2%	0.1%	0.3%	0%
NCNN - Vulkan GPU - shufflenet-v2 (ms)	6.30	6.31	6.31	6.36	
	Normalized	100%	99.84%	99.84%	99.06%
	Standard Deviation	0.4%	0.7%	0.4%	0.1%
NCNN - Vulkan GPU - mnasnet (ms)	4.82	4.82	4.79	4.84	
	Normalized	99.38%	99.38%	100%	98.97%
	Standard Deviation	0.3%	0.4%	0.1%	0.7%
NCNN - Vulkan GPU - efficientnet-b0 (ms)	7.07	7.05	7.01	7.14	
	Normalized	99.15%	99.43%	100%	98.18%
	Standard Deviation	0.7%	0.6%	0.3%	0.6%
NCNN - Vulkan GPU - blazeface (ms)	2.32	2.33	2.32	2.33	
	Normalized	100%	99.57%	100%	99.57%
	Standard Deviation	0.2%	0.7%	0.4%	0.4%
NCNN - Vulkan GPU - googlenet (ms)	16.22	16.18	16.13	16.29	
	Normalized	99.45%	99.69%	100%	99.02%
	Standard Deviation	1%	1%	0.8%	0.7%
NCNN - Vulkan GPU - vgg16 (ms)	59.56	59.40	59.30	59.52	
	Normalized	99.56%	99.83%	100%	99.63%
	Standard Deviation	0.4%	0.3%	0.1%	0.3%
NCNN - Vulkan GPU - resnet18 (ms)	15.92	15.87	15.87	16.00	
	Normalized	99.69%	100%	100%	99.19%
	Standard Deviation	0.3%	0.2%	0.1%	0.2%
NCNN - Vulkan GPU - alexnet (ms)	12.28	12.21	12.19	12.32	
	Normalized	99.27%	99.84%	100%	98.94%
	Standard Deviation	0.8%	0.3%	0.2%	0.8%
NCNN - Vulkan GPU - resnet50 (ms)	27.75	27.81	27.38	27.67	
	Normalized	98.67%	98.45%	100%	98.95%
	Standard Deviation	1.3%	1%	0.2%	1.4%
NCNN - Vulkan GPU - yolov4-tiny (ms)	27.08	27.12	26.21	27.38	
	Normalized	96.79%	96.64%	100%	95.73%
	Standard Deviation	2.7%	2.5%	0.4%	2.9%
NCNN - Vulkan GPU - squeezenet_ss (ms)	18.66	18.76	18.69	18.98	
	Normalized	100%	99.47%	99.84%	98.31%
	Standard Deviation	0.9%	0.1%	0.6%	0.4%
NCNN - Vulkan GPU - regnety_400m (ms)	21.50	21.49	21.49	21.68	
	Normalized	99.95%	100%	100%	99.12%
	Standard Deviation	0.4%	0%	0.5%	0.5%
WavPack Audio Encoding - WAV To WavPack (sec)	12.128	12.139	11.948	12.457	
	Normalized	98.52%	98.43%	100%	95.91%

	Standard Deviation	1.5%	2.6%	0.7%	1.6%
Unpacking Firefox - firefox-84.0.source.tar.xz (sec)	Normalized	17.546	17.589	17.605	17.558
	Standard Deviation	1.1%	0.6%	0.2%	1.3%
Kvazaar - Bosphorus 4K - Medium	Normalized	7.48	7.46	7.45	7.39
	Standard Deviation	0.4%	0.3%	0.3%	0.2%
Kvazaar - Bosphorus 1080p - Medium (FPS)	Normalized	27.89	27.82	27.89	27.68
	Standard Deviation	0.2%	0.2%	0.1%	0.1%
Kvazaar - Bosphorus 4K - Very Fast (FPS)	Normalized	20.47	20.54	20.51	20.39
	Standard Deviation	0.2%	0.1%	0.3%	0.3%
Kvazaar - Bosphorus 4K - Ultra Fast (FPS)	Normalized	35.84	36.12	36.06	36.07
	Standard Deviation	0.5%	0.3%	0.5%	0.4%
Kvazaar - Bosphorus 1080p - Very Fast (FPS)	Normalized	62.03	62.24	62.71	62.45
	Standard Deviation	0.5%	0.3%	0.1%	0%
Kvazaar - Bosphorus 1080p - Ultra Fast (FPS)	Normalized	116.93	117.47	118.17	117.25
	Standard Deviation	0.5%	0.3%	0.1%	0%
x264 - H.2.V.E (FPS)	Normalized	135.58	131.47	135.43	135.40
	Standard Deviation	0.3%	0.5%	0.2%	0.3%
x265 - Bosphorus 4K (FPS)	Normalized	19.08	19.18	19.40	19.03
	Standard Deviation	2.9%	2%	2.5%	2.6%
x265 - Bosphorus 1080p (FPS)	Normalized	60.27	60.44	60.40	60.06
	Standard Deviation	0.6%	0.2%	0.6%	0.2%
PostgreSQL pgbench - 1 - 1 - Read Only (TPS)	Normalized	34776	33818	36144	36302
	Standard Deviation	0.4%	0.5%	0.7%	0.1%
PostgreSQL pgbench - 1 - 1 - Read Only - Average Latency (ms)	Normalized	0.029	0.030	0.027	0.027
	Standard Deviation	1.1%	1.5%	1.5%	1.3%
PostgreSQL pgbench - 1 - 1 - Read Write (TPS)	Normalized	911	910	915	908
	Standard Deviation	0%	1.9%	2.1%	2.1%
PostgreSQL pgbench - 1 - 1 - Read Write - Average Latency (ms)	Normalized	1.098	1.099	1.093	1.102
	Standard Deviation	0.1%	0.2%	0.3%	1.7%
PostgreSQL pgbench - 1 - 1 - Read Write - Average Latency (ms)	Normalized	1.098	1.099	1.093	1.102
	Standard Deviation	0.1%	0.2%	0.3%	1.7%

PostgreSQL pgbench - 1 - 50 - Read Only (TPS)	420576	421604	425848	428685
Normalized	98.11%	98.35%	99.34%	100%
Standard Deviation	0.7%	0.3%	1.2%	0.6%
PostgreSQL pgbench - 1 - 50 - Read Only - Average Latency (ms)	0.119	0.119	0.117	0.117
Normalized	98.32%	98.32%	100%	100%
Standard Deviation	0.8%	0.5%	1.3%	0.5%
PostgreSQL pgbench - 1 - 100 - Read Only (TPS)	453503	452199	455761	454815
Normalized	99.5%	99.22%	100%	99.79%
Standard Deviation	0.1%	0.3%	0.2%	0.5%
PostgreSQL pgbench - 1 - 100 - Read Only - Average Latency (ms)	0.221	0.221	0.219	0.220
Normalized	99.1%	99.1%	100%	99.55%
Standard Deviation	0%	0.3%	0.3%	0.5%
PostgreSQL pgbench - 1 - 50 - Read Write (TPS)	1002	986	1015	1016
Normalized	98.62%	97.05%	99.9%	100%
Standard Deviation	0.2%	2.8%	0%	0.2%
PostgreSQL pgbench - 1 - 50 - Read Write - Average Latency (ms)	49.918	50.730	49.258	49.224
Normalized	98.61%	97.03%	99.93%	100%
Standard Deviation	0.2%	2.8%	0%	0.2%
PostgreSQL pgbench - 100 - 1 - Read Only (TPS)	29761	30241	31121	31281
Normalized	95.14%	96.68%	99.49%	100%
Standard Deviation	0.9%	1.7%	0.8%	1.2%
PostgreSQL pgbench - 100 - 1 - Read Only - Average Latency (ms)	0.033	0.033	0.032	0.032
Normalized	96.97%	96.97%	100%	100%
Standard Deviation	1.7%	3%	0%	0%
PostgreSQL pgbench - 1 - 100 - Read Write (TPS)	957	959	985	974
Normalized	97.16%	97.36%	100%	98.88%
Standard Deviation	0.4%	0.2%	0.3%	0.7%
PostgreSQL pgbench - 1 - 100 - Read Write - Average Latency (ms)	104.551	104.306	101.597	102.707
Normalized	97.17%	97.4%	100%	98.92%
Standard Deviation	0.4%	0.2%	0.3%	0.7%
PostgreSQL pgbench - 100 - 1 - Read Write (TPS)	791	669	644	663
Normalized	100%	84.58%	81.42%	83.82%
Standard Deviation	0.2%	10.9%	8%	8.3%
PostgreSQL pgbench - 100 - 1 - Read Write - Average Latency (ms)	1.264	1.513	1.562	1.518
Normalized	100%	83.54%	80.92%	83.27%
Standard Deviation	0.2%	11.6%	7.6%	8.7%
PostgreSQL pgbench - 100 - 50 - Read Only (TPS)	337295	336573	339648	339732
Normalized	99.28%	99.07%	99.98%	100%
Standard Deviation	0.5%	0.3%	0.8%	0.7%

PostgreSQL pgbench - 100 - 50 - Read Only - Average Latency (ms)	0.148	0.149	0.147	0.147
Normalized	99.32%	98.66%	100%	100%
Standard Deviation	0.4%	0.4%	0.8%	0.7%
PostgreSQL pgbench - 100 - 100 - Read Only (TPS)	359412	356863	361619	360324
Normalized	99.39%	98.68%	100%	99.64%
Standard Deviation	0.2%	0.5%	0.4%	0.2%
PostgreSQL pgbench - 100 - 100 - Read Only - Average Latency (ms)	0.278	0.280	0.276	0.278
Normalized	99.28%	98.57%	100%	99.28%
Standard Deviation	0.2%	0.5%	0.4%	0.2%
PostgreSQL pgbench - 100 - 50 - Read Write (TPS)	9138	8657	8422	9052
Normalized	100%	94.74%	92.16%	99.06%
Standard Deviation	5.4%	0.8%	2.8%	5.5%
PostgreSQL pgbench - 100 - 50 - Read Write - Average Latency (ms)	5.488	5.777	5.941	5.540
Normalized	100%	95%	92.38%	99.06%
Standard Deviation	5.3%	0.8%	2.9%	5.5%
PostgreSQL pgbench - 100 - 100 - Read Write (TPS)	10881	10657	10373	10781
Normalized	100%	97.94%	95.33%	99.08%
Standard Deviation	6.5%	4.1%	4.7%	4.4%
PostgreSQL pgbench - 100 - 100 - Read Write - Average Latency (ms)	9.235	9.405	9.668	9.299
Normalized	100%	98.19%	95.52%	99.31%
Standard Deviation	6.9%	4.2%	4.9%	4.4%
OSpray - M.R - SciVis (FPS)				12.82
Standard Deviation				0%
OSpray - M.R - Path Tracer (FPS)				200
OSpray - XFrog Forest - SciVis (FPS)				3.50
Standard Deviation				0.1%
OSpray - XFrog Forest - Path Tracer (FPS)				1.83
Standard Deviation				0.1%
OSpray - NASA Streamlines - SciVis (FPS)				27.03
Standard Deviation				0%
OSpray - NASA Streamlines - Path Tracer (FPS)				5.43
Standard Deviation				0%
OSpray - San Miguel - SciVis (FPS)				18.87
Standard Deviation				0%
OSpray - San Miguel - Path Tracer (FPS)				1.45
Standard Deviation				0.2%
C-Ray - Total Time - 4.1.R.P.P (sec)				43.336
Standard Deviation				0%
Tachyon - Total Time (sec)				63.4140
Standard Deviation				0.1%
POV-Ray - Trace Time (sec)				31.619
Standard Deviation				0.1%

rays1bench - Large Scene (mrays/s)	83.66
Standard Deviation	0.1%
YafaRay - T.T.F.S.S (sec)	105.711
Standard Deviation	0.6%
Blender - BMW27 - CPU-Only (sec)	112.51
Standard Deviation	0.4%
Blender - Classroom - CPU-Only (sec)	322.05
Standard Deviation	0.1%
Blender - Fishy Cat - CPU-Only (sec)	148.56
Standard Deviation	0.2%
Blender - Pabellon Barcelona - CPU-Only (sec)	359.85
Standard Deviation	0.6%
Blender - Barbershop - CPU-Only	461.57
Standard Deviation	0.3%
Tungsten Renderer - Hair (sec)	18.2184
Standard Deviation	0.1%
Tungsten Renderer - Water Caustic (sec)	24.5054
Standard Deviation	0.4%
Tungsten Renderer - Non-Exponential (sec)	5.86974
Standard Deviation	0.3%
Tungsten Renderer - Volumetric Caustic (sec)	7.47658
Standard Deviation	0.4%
Appleseed - Emily (sec)	271.240019
Appleseed - Disney Material (sec)	167.40638
Appleseed - Material Tester (sec)	162.035966
Radiance Benchmark - Serial (sec)	552.166
Radiance Benchmark - SMP Parallel (sec)	179.453
AOBench - 2048 x 2048 - Total Time (sec)	32.315
Standard Deviation	0.5%
LuxCoreRender - DLSC (M	2.42
Standard Deviation	0.8%
LuxCoreRender - R.C.a.P (M samples/sec)	2.60
Standard Deviation	0.5%
Smallpt - G.I.R.1.S (sec)	7.179
Standard Deviation	0.1%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	660.199
Standard Deviation	0.2%
Chaos Group V-RAY - CPU	20547
Standard Deviation	0.3%
IndigoBench - CPU - Supercar (M samples/s)	5.850
Standard Deviation	0.1%

IndigoBench - CPU - Bedroom (M samples/s)	2.746
Standard Deviation	0.1%
Tesseract OCR - T.T.O.7.I (sec)	23.531
Standard Deviation	1.3%
OCRMyPDF - P.6.P.P.D (sec)	21.542
Standard Deviation	1.1%
SVT-VP9 - V.Q.O - Bosphorus 1080p (FPS)	177.64
Standard Deviation	1.3%
SVT-VP9 - P.S.O - Bosphorus 1080p (FPS)	200.65
Standard Deviation	0.4%
SVT-VP9 - VMAF Optimized - Bosphorus 1080p (FPS)	196.19
Standard Deviation	0.4%
SVT-HEVC - 1.8.b.Y.T.H.V.E (FPS)	75.96
Standard Deviation	0.2%
Kvazaar - Bosphorus 1080p - Slow (FPS)	27.09
Standard Deviation	0.1%
Kvazaar - Bosphorus 4K - Slow (FPS)	7.29
Standard Deviation	0.1%
FFmpeg - H.2.H.T.N.D (sec)	7.052
Standard Deviation	0.8%
VP9 libvpx Encoding - Speed 5 (FPS)	25.75
Standard Deviation	1.7%
VP9 libvpx Encoding - Speed 0 (FPS)	7.63
Standard Deviation	0.2%
dav1d - S.N.1 (FPS)	554.44
Standard Deviation	0.2%
dav1d - Summer Nature 4K (FPS)	195.92
Standard Deviation	0.2%
dav1d - Chimera 1080p (FPS)	590.44
Standard Deviation	0.2%
dav1d - C.1.1.b (FPS)	110.68
Standard Deviation	0.1%
AOM AV1 - Speed 8 Realtime (FPS)	38.02
Standard Deviation	0.3%
AOM AV1 - Speed 6 Realtime (FPS)	19.77
Standard Deviation	0.9%
AOM AV1 - Speed 6 Two-Pass (FPS)	4.14
Standard Deviation	0.7%
AOM AV1 - Speed 4 Two-Pass (FPS)	2.70
Standard Deviation	0.2%
AOM AV1 - Speed 0 Two-Pass (FPS)	0.33
Standard Deviation	1.7%
SVT-AV1 - Enc Mode 8 - 1080p (FPS)	36.124
Standard Deviation	1%
SVT-AV1 - Enc Mode 4 - 1080p (FPS)	4.377
Standard Deviation	0.3%
SVT-AV1 - Enc Mode 0 - 1080p (FPS)	0.120
Standard Deviation	0.5%

libgav1 - S.N.1 (FPS)	82.53
Standard Deviation	0.1%
libgav1 - Summer Nature 4K (FPS)	24.71
Standard Deviation	0.1%
libgav1 - Chimera 1080p (FPS)	53.60
Standard Deviation	0.3%
libgav1 - C.1.1.b (FPS)	21.54
Standard Deviation	0.3%
rav1e - 10 (FPS)	3.560
Standard Deviation	0.2%
rav1e - 6 (FPS)	1.607
Standard Deviation	0.1%
rav1e - 5 (FPS)	1.202
Standard Deviation	0.4%
rav1e - 1 (FPS)	0.407
Standard Deviation	0.3%
libavif avifenc - 0 (sec)	69.231
Standard Deviation	0.4%
libavif avifenc - 2 (sec)	42.020
Standard Deviation	0.4%
libavif avifenc - 8 (sec)	4.702
Standard Deviation	0.6%
libavif avifenc - 10 (sec)	4.509
Standard Deviation	0.7%
LAME MP3 Encoding - WAV To MP3 (sec)	7.160
Standard Deviation	2.8%
Ogg Audio Encoding - WAV To Ogg (sec)	18.832
Standard Deviation	1.2%
FLAC Audio Encoding - WAV To FLAC (sec)	7.752
Standard Deviation	0.9%
GraphicsMagick - HWB Color Space (Iterations/min)	1346
Standard Deviation	0.6%
GraphicsMagick - Noise-Gaussian (Iterations/min)	355
Standard Deviation	0.4%
GraphicsMagick - Enhanced (Iterations/min)	292
Standard Deviation	0.2%
GraphicsMagick - Resizing (Iterations/min)	1379
Standard Deviation	0.2%
GraphicsMagick - Rotate	730
Standard Deviation	2.5%
GraphicsMagick - Sharpen (Iterations/min)	182
Standard Deviation	0.6%
GraphicsMagick - Swirl	751
Inkscape - SVG Files To PNG (sec)	24.732

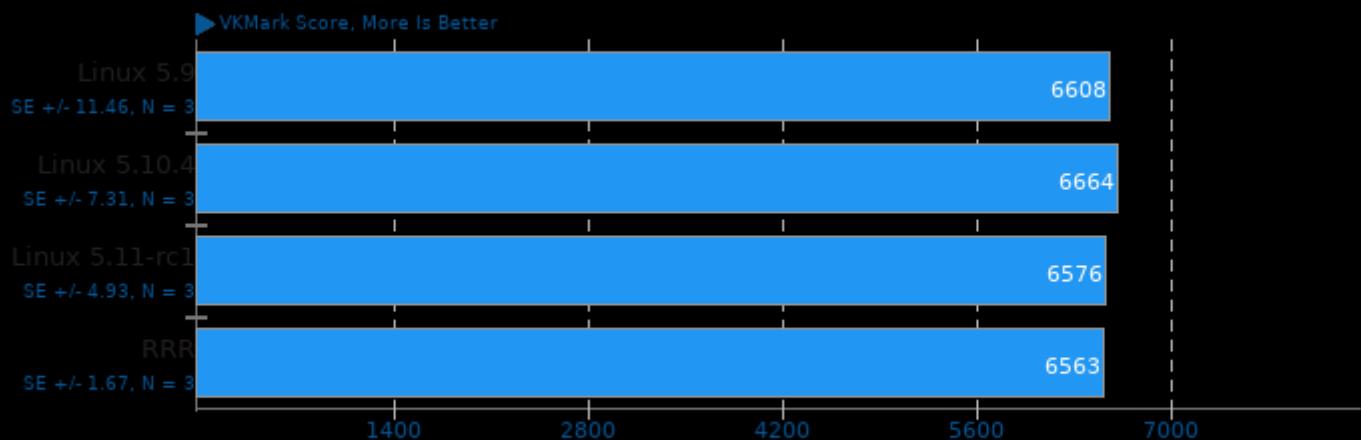
Standard Deviation	1.5%
G'MIC - 2.F.P.1.T (sec)	119.204
Standard Deviation	0.6%
G'MIC - P.I.O.A.3.V.1.T (sec)	18.824
Standard Deviation	2.7%
G'MIC - 3.E.F.I.R.C.1.T (sec)	80.670
Standard Deviation	2.5%
LibRaw - P.P.B (Mpix/sec)	42.39
Standard Deviation	0.4%
WebP Image Encode - Default (Encode Time - sec)	1.402
Standard Deviation	0.1%
WebP Image Encode - Quality 100 (Encode Time - sec)	2.198
Standard Deviation	2%
WebP Image Encode - Q.1.H.C (Encode Time - sec)	6.831
Standard Deviation	0.8%
WebP Image Encode - Q.1.L (Encode Time - sec)	15.539
Standard Deviation	2.1%
WebP Image Encode - Q.1.L.H.C (Encode Time - sec)	32.843
Standard Deviation	1.6%
RawTherapee - T.B.T (sec)	55.422
Standard Deviation	0.2%
libjpeg-turbo tbench (Megapixels/sec)	222.076471
Standard Deviation	2.7%
GIMP - unsharp-mask (sec)	15.090
Standard Deviation	1.1%
GIMP - resize (sec)	7.407
Standard Deviation	0.2%
GIMP - rotate (sec)	11.343
Standard Deviation	0.4%
GIMP - auto-levels (sec)	12.039
Standard Deviation	0.7%
drawing - R.T.P.I.C (sec)	39.848
Standard Deviation	0.1%
Montage Astronomical Image Mosaic Engine - M.o.M.K.b.1.5.d.x.1.5.d (sec)	70.715
Standard Deviation	0.7%
Hugin - P.P.A.S.T (sec)	45.743
Standard Deviation	1.4%
Darktable - Boat - CPU-only (sec)	11.813
Standard Deviation	0.1%
Darktable - Masskrug - CPU-only (sec)	4.588
Standard Deviation	0.5%
Darktable - Server Room - CPU-only (sec)	3.855
Standard Deviation	0.3%

Darktable - Server Rack - CPU-only		0.187
	(sec)	
Standard Deviation		0.3%
librsvg - SVG Files To PNG (sec)		24.317
	Standard Deviation	0.8%
GEGL - Rotate 90 Degrees (sec)		38.444
	Standard Deviation	0.8%
GEGL - Scale (sec)		5.823
	Standard Deviation	0.7%
GEGL - Antialias (sec)		37.64
	Standard Deviation	0.8%
GEGL - Cartoon (sec)		89.402
	Standard Deviation	0.7%
GEGL - Color Enhance (sec)		56.631
	Standard Deviation	0.1%
GEGL - Crop (sec)		8.382
	Standard Deviation	0.4%
GEGL - Wavelet Blur (sec)		61.616
	Standard Deviation	0.3%
GEGL - Reflect (sec)		30.445
	Standard Deviation	0.2%
GEGL - Tile Glass (sec)		29.749
	Standard Deviation	0.3%
Embree - Pathtracer - Asian Dragon		16.8105
	(FPS)	
Standard Deviation		0.6%
Embree - Pathtracer - Asian Dragon		15.3746
	Obj (FPS)	
Standard Deviation		0.2%
Embree - Pathtracer - Crown (FPS)		15.4994
	Standard Deviation	0.3%
Embree - Pathtracer ISPC - Asian		16.5260
	Dragon (FPS)	
Standard Deviation		0.6%
Embree - Pathtracer ISPC - Asian		14.7346
	Dragon Obj (FPS)	
Standard Deviation		0.6%
Embree - Pathtracer ISPC - Crown		14.8731
	(FPS)	
Standard Deviation		0.4%
oneDNN - C.B.S.A - u8s8f32 - CPU		24.7319
	Standard Deviation	0.1%
oneDNN - D.B.s - u8s8f32 - CPU (ms)		4.24124
	Standard Deviation	0.3%
oneDNN - D.B.s - u8s8f32 - CPU (ms)		3.58178
	Standard Deviation	0%
oneDNN - IP Shapes 1D - u8s8f32 -		1.92786
	CPU (ms)	
Standard Deviation		0.4%
oneDNN - IP Shapes 3D - u8s8f32 -		0.890048
	CPU (ms)	
Standard Deviation		1.4%

Standard Deviation	1.1%
NeatBench (FPS)	25.1
Standard Deviation	0.2%
Basis Universal - ETC1S (sec)	44.730
Standard Deviation	0.8%
Basis Universal - UASTC Level 0 (sec)	6.839
Standard Deviation	1.6%
Basis Universal - UASTC Level 2 (sec)	23.221
Standard Deviation	0.3%
Basis Universal - UASTC Level 3 (sec)	41.697
Standard Deviation	0.2%

VKMark 2020-05-21

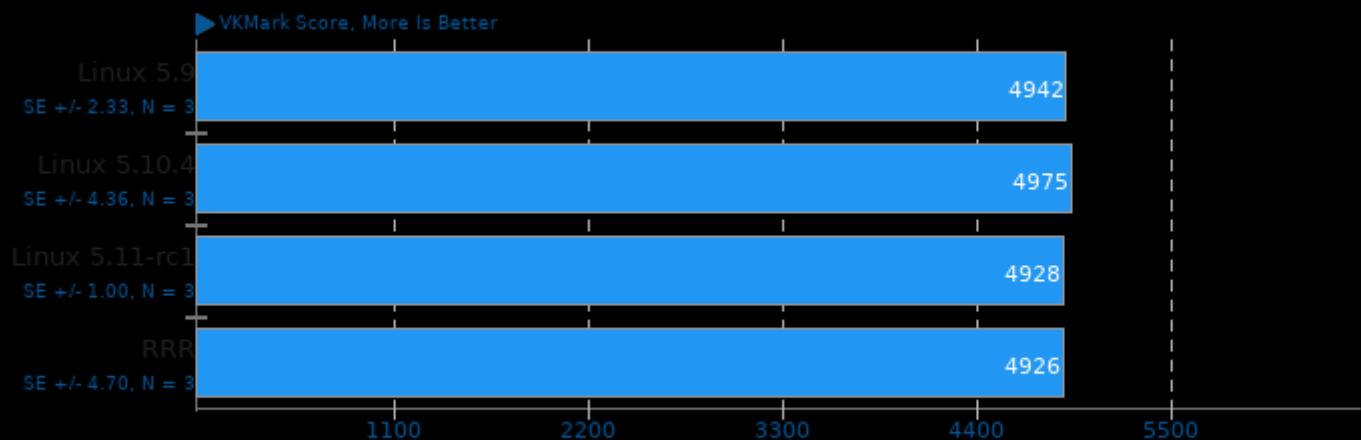
Resolution: 1280 x 1024



1. (CXX) g++ options: -pthread -ldl -pipe -std=c++14 -MD -MQ -MF

VKMark 2020-05-21

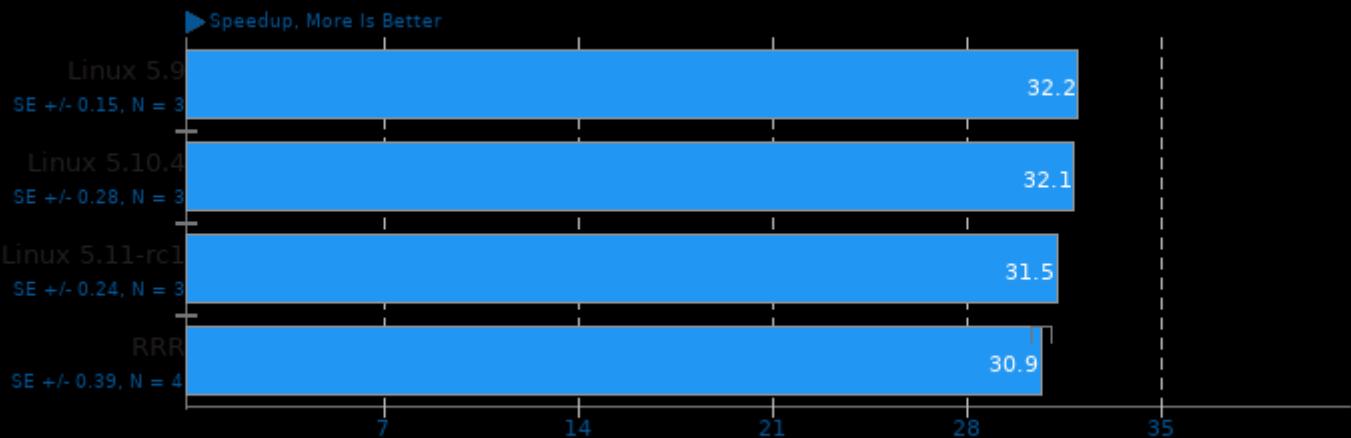
Resolution: 1920 x 1080



1. (CXX) g++ options: -pthread -ldl -pipe -std=c++14 -MD -MQ -MF

CLOMP 1.2

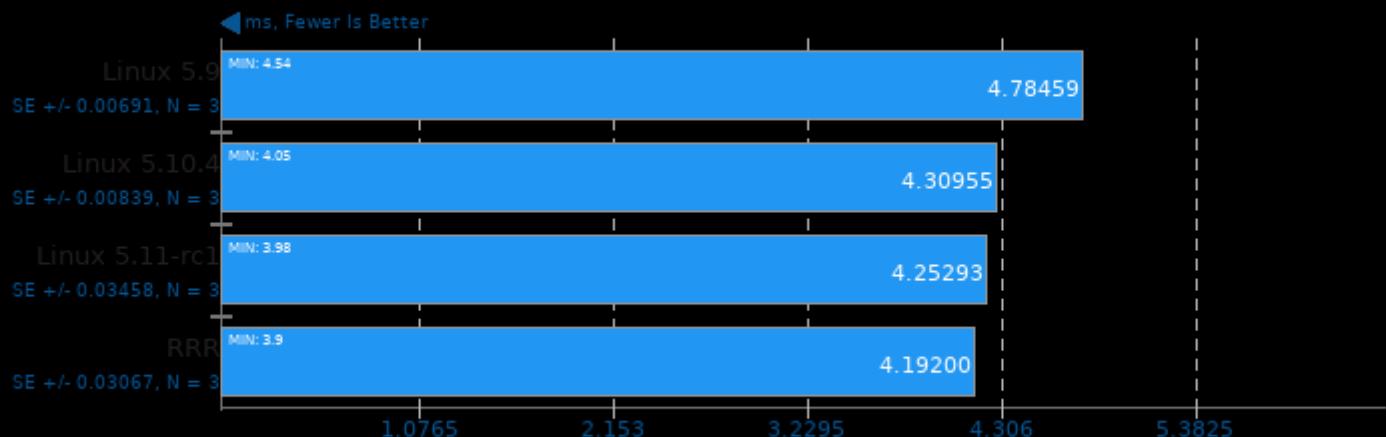
Static OMP Speedup



1. (CC) gcc options: -fopenmp -O3 -lm

oneDNN 2.0

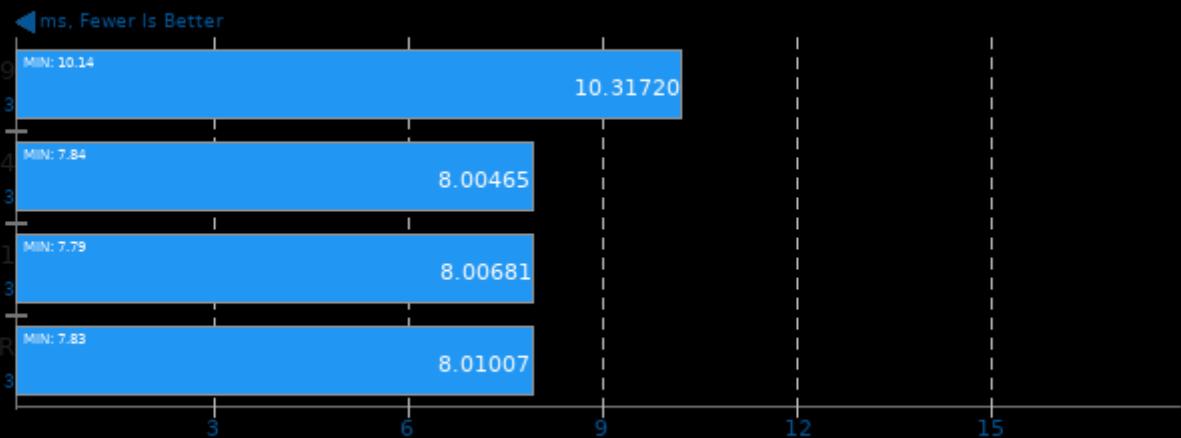
Harness: IP Shapes 1D - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

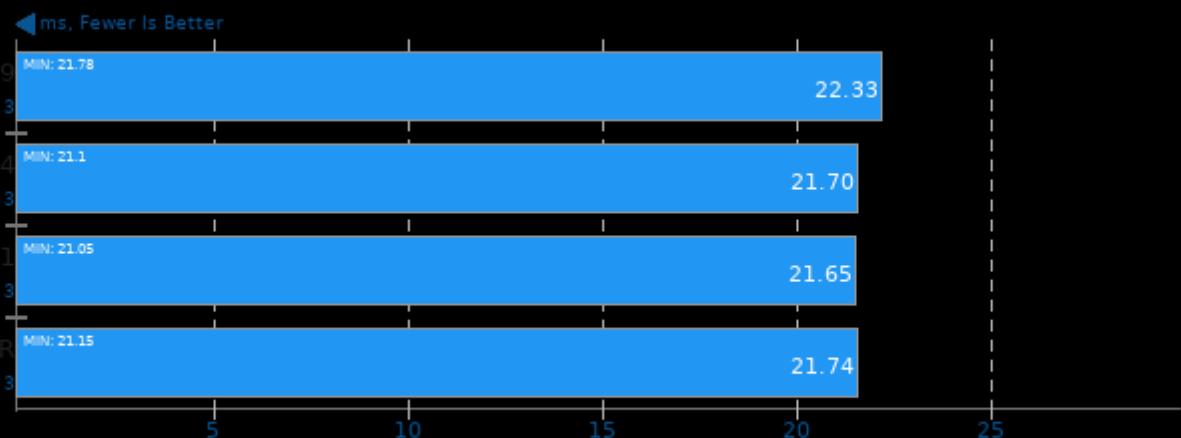
Harness: IP Shapes 3D - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

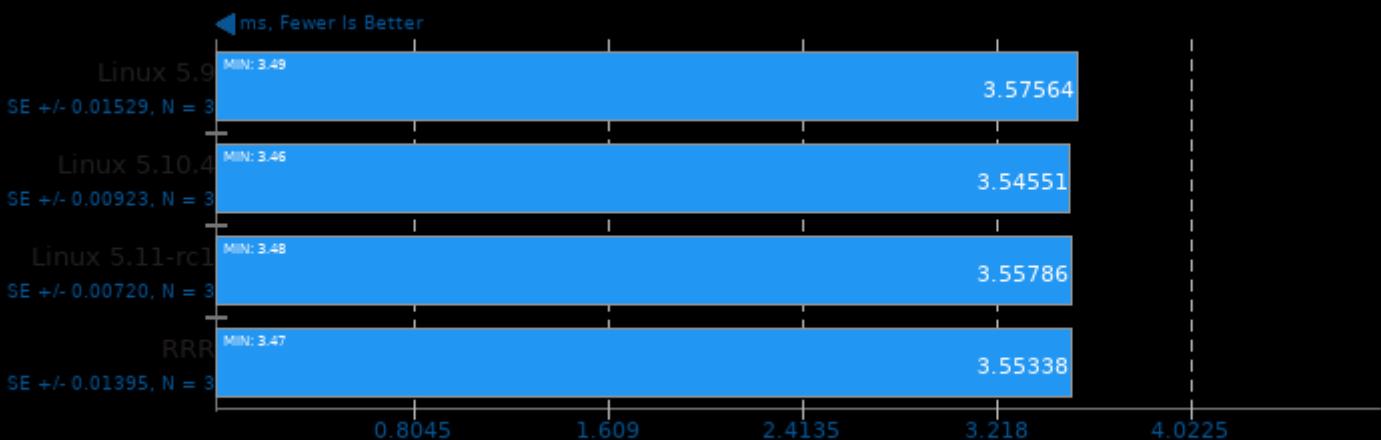
Harness: Convolution Batch Shapes Auto - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

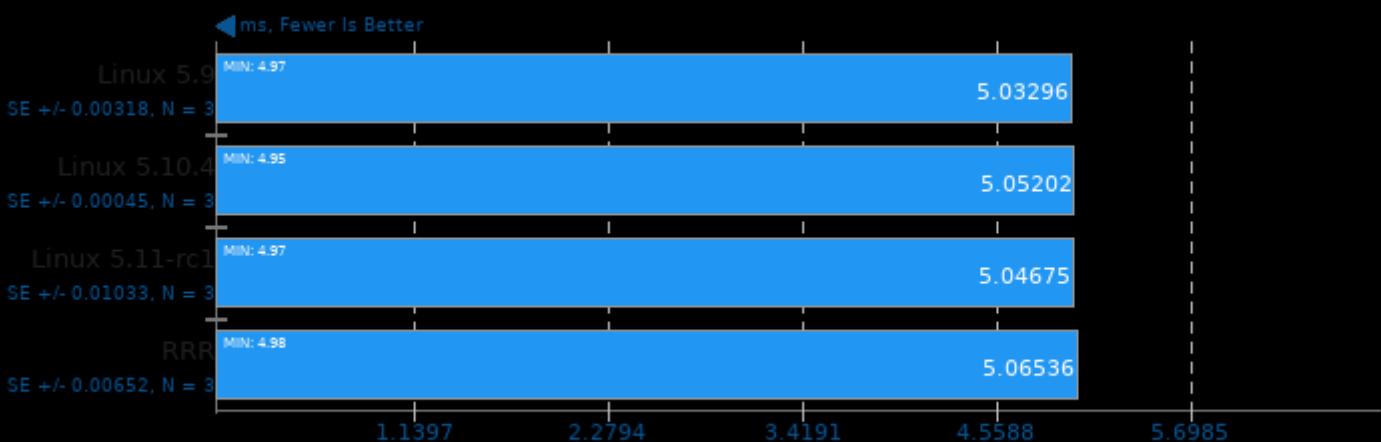
Harness: Deconvolution Batch shapes_1d - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

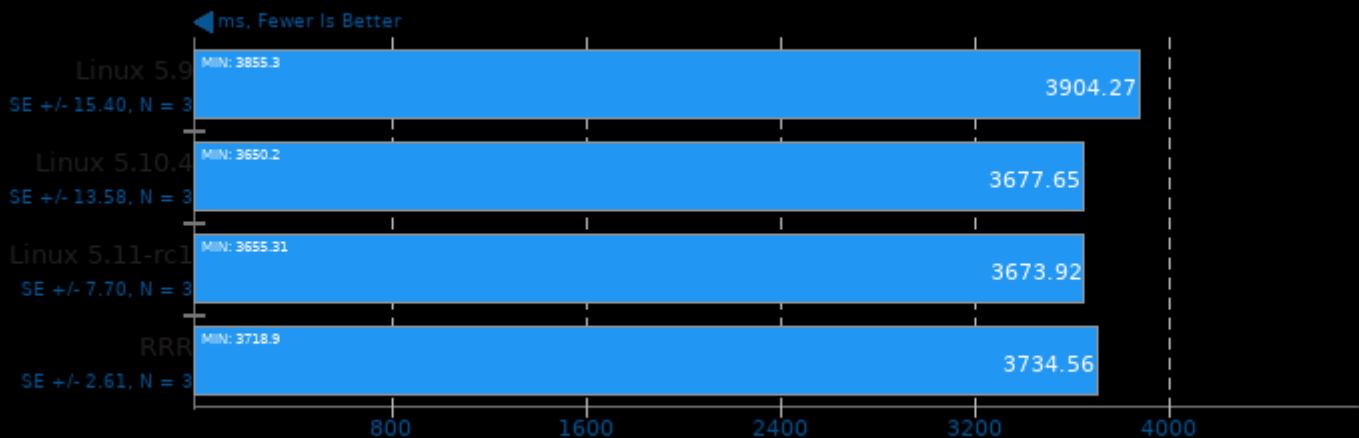
Harness: Deconvolution Batch shapes_3d - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

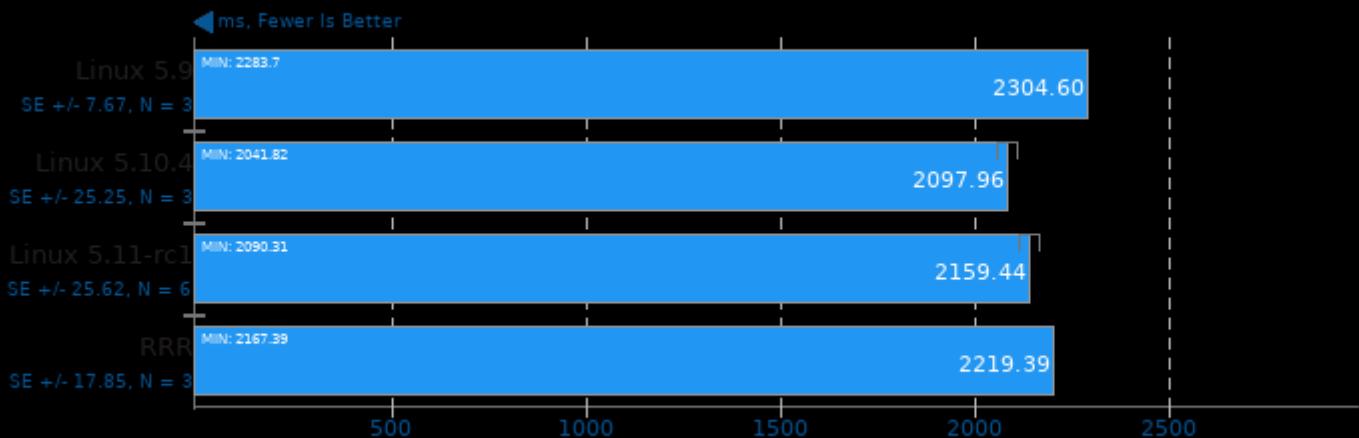
Harness: Recurrent Neural Network Training - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

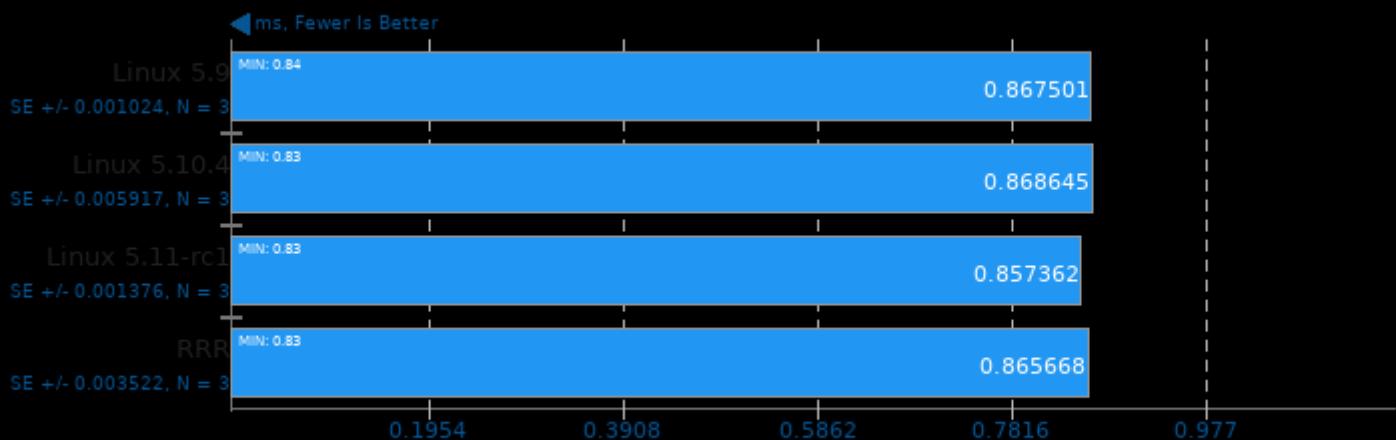
Harness: Recurrent Neural Network Inference - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

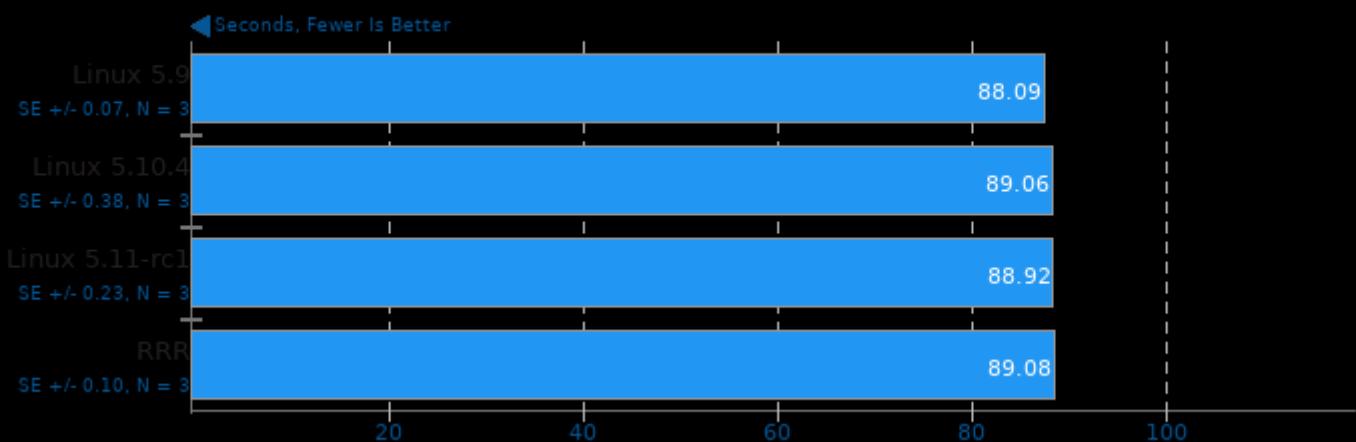
Harness: Matrix Multiply Batch Shapes Transformer - Data Type: f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

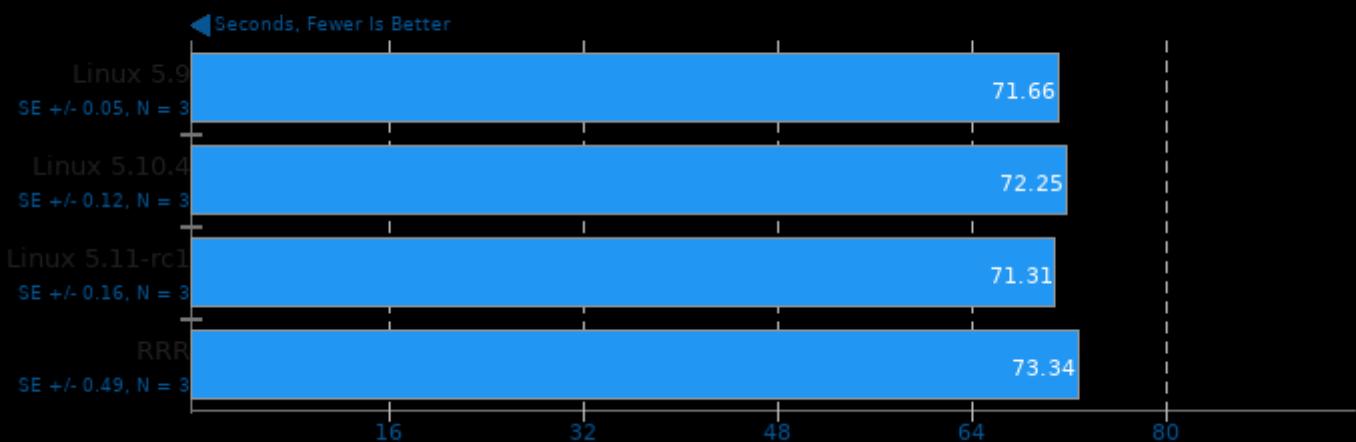
Build2 0.13

Time To Compile



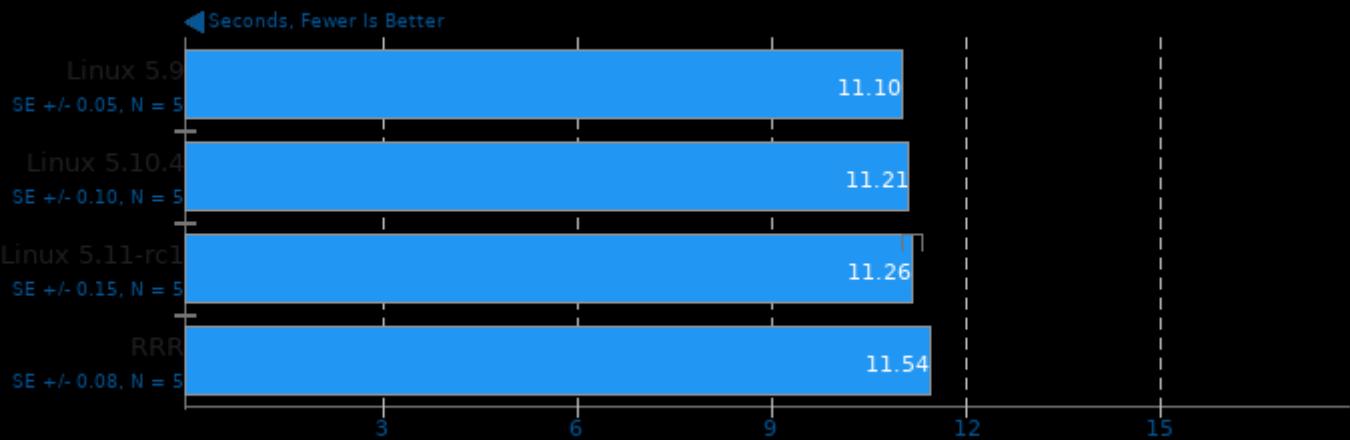
Timed Eigen Compilation 3.3.9

Time To Compile



Monkey Audio Encoding 3.99.6

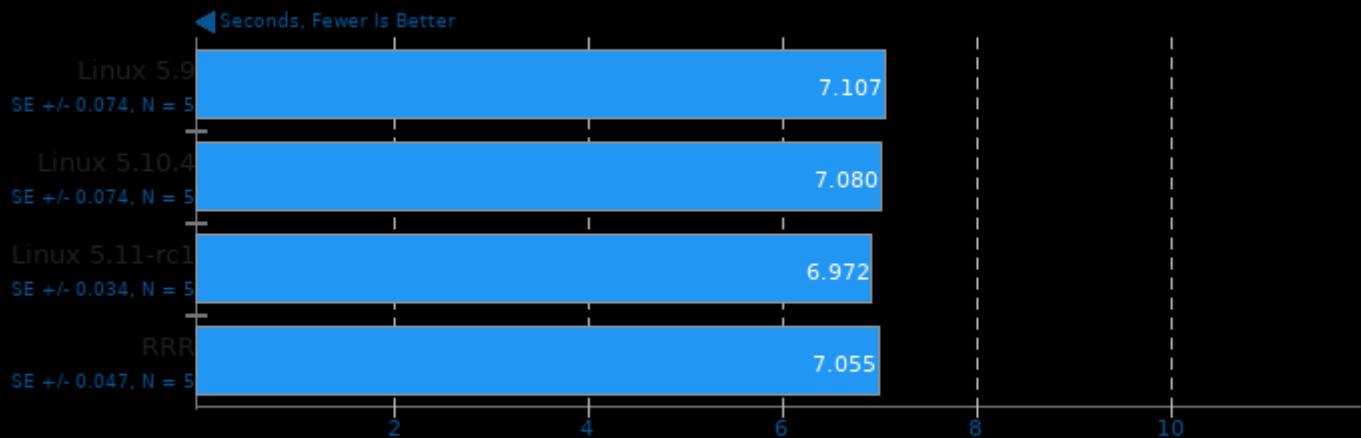
WAV To APE



1. (CXX) g++ options: -O3 -pedantic -rdynamic -lrt

Opus Codec Encoding 1.3.1

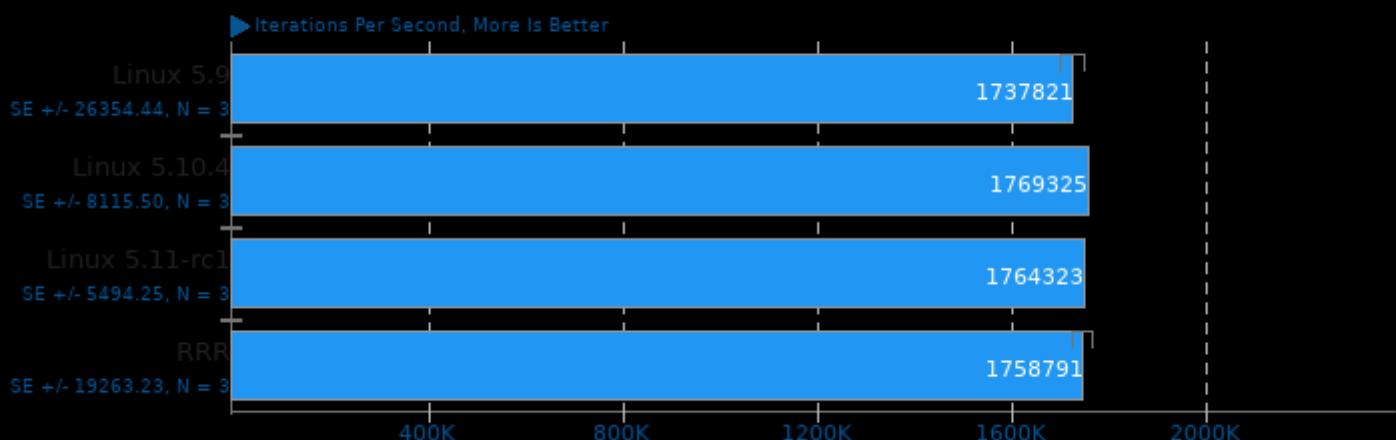
WAV To Opus Encode



1. (CXX) g++ options: -fvisibility=hidden -logg -lm

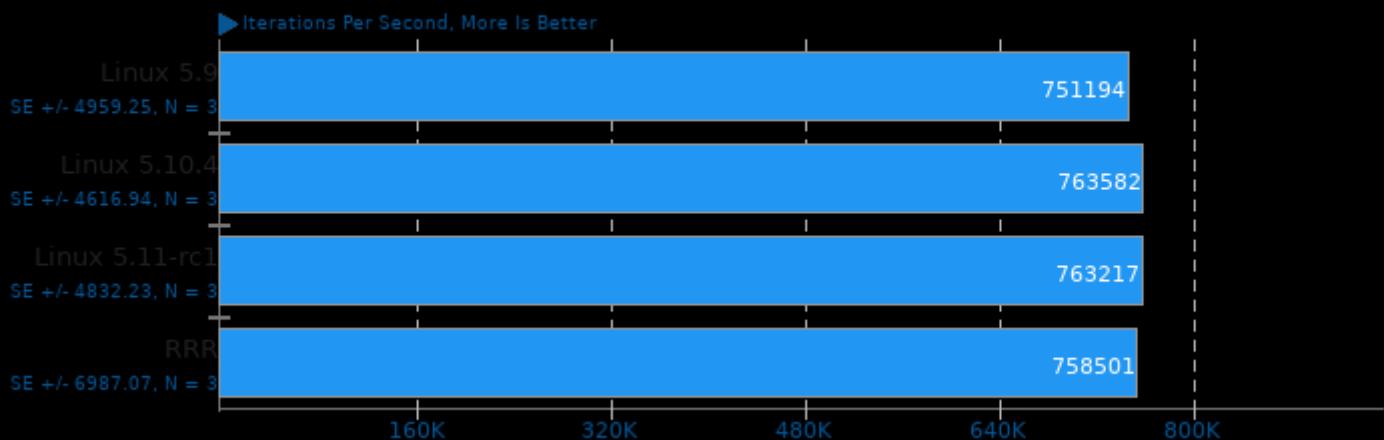
Cryptsetup

PBKDF2-sha512



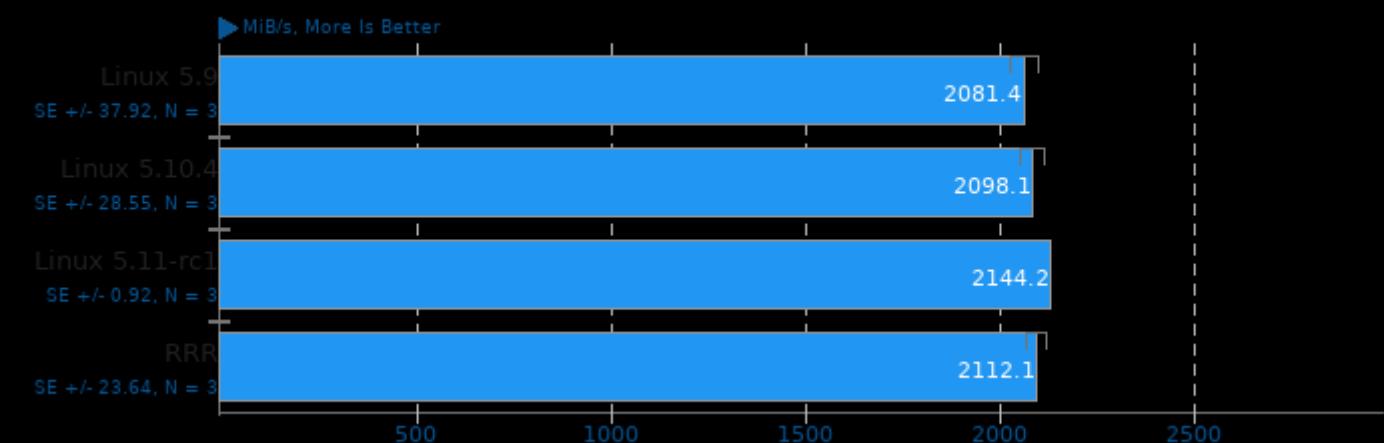
Cryptsetup

PBKDF2-whirlpool



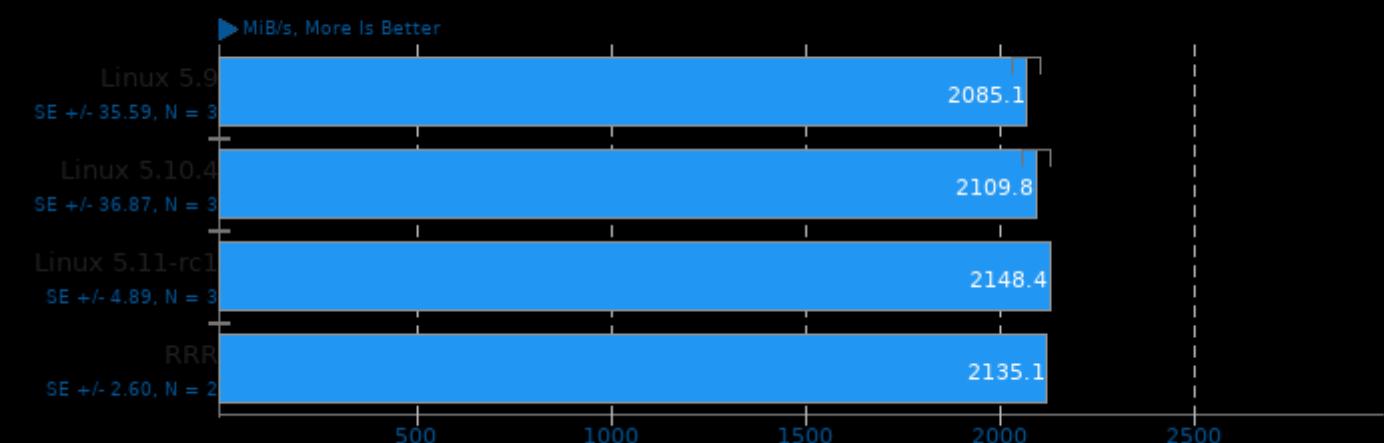
Cryptsetup

AES-XTS 256b Encryption



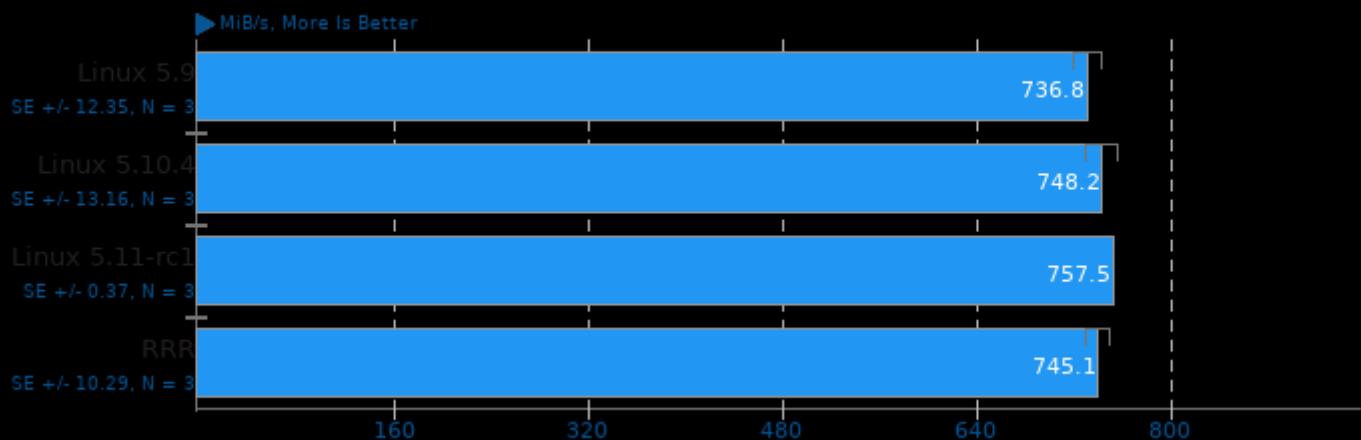
Cryptsetup

AES-XTS 256b Decryption



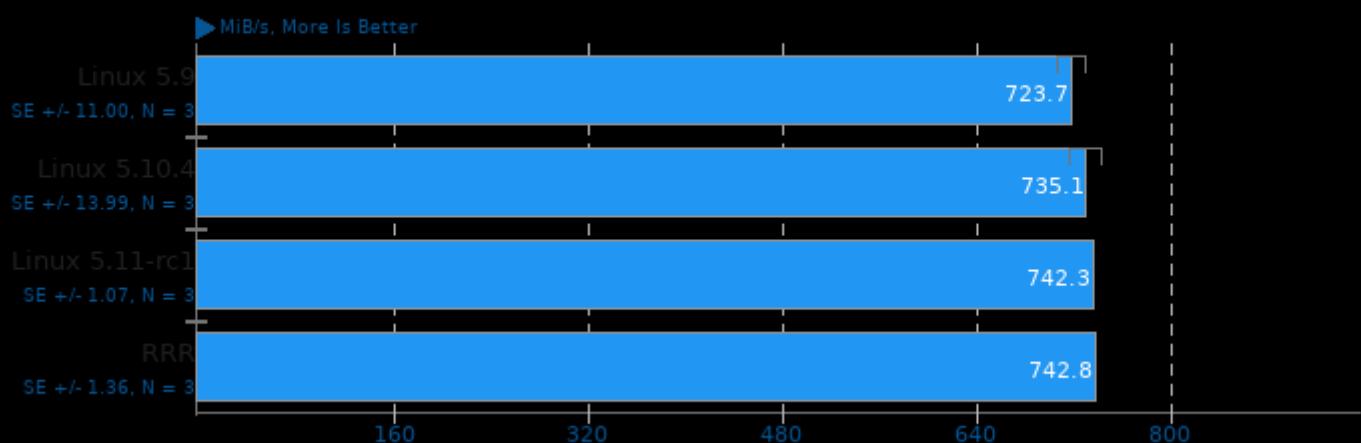
Cryptsetup

Serpent-XTS 256b Encryption



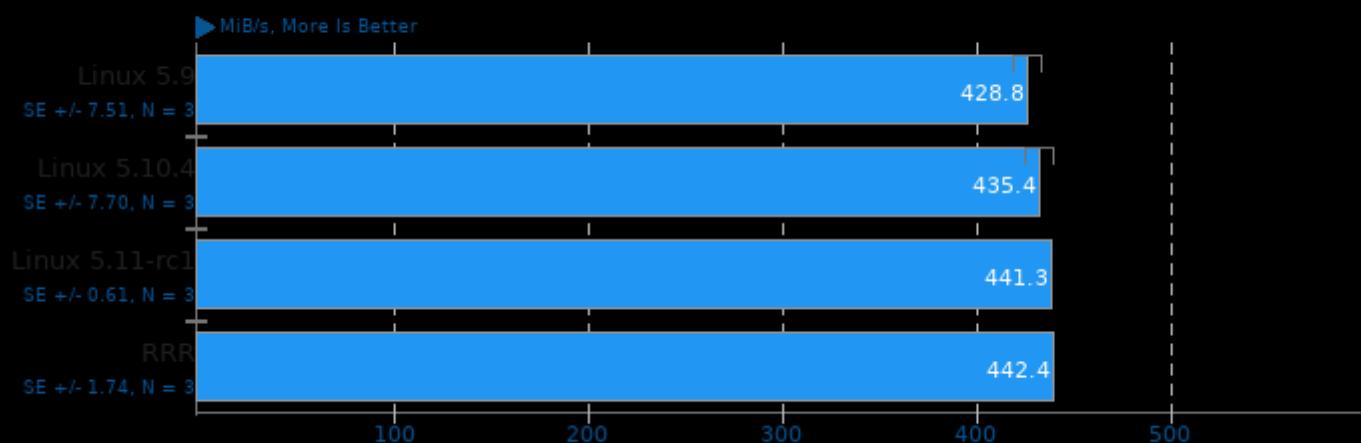
Cryptsetup

Serpent-XTS 256b Decryption



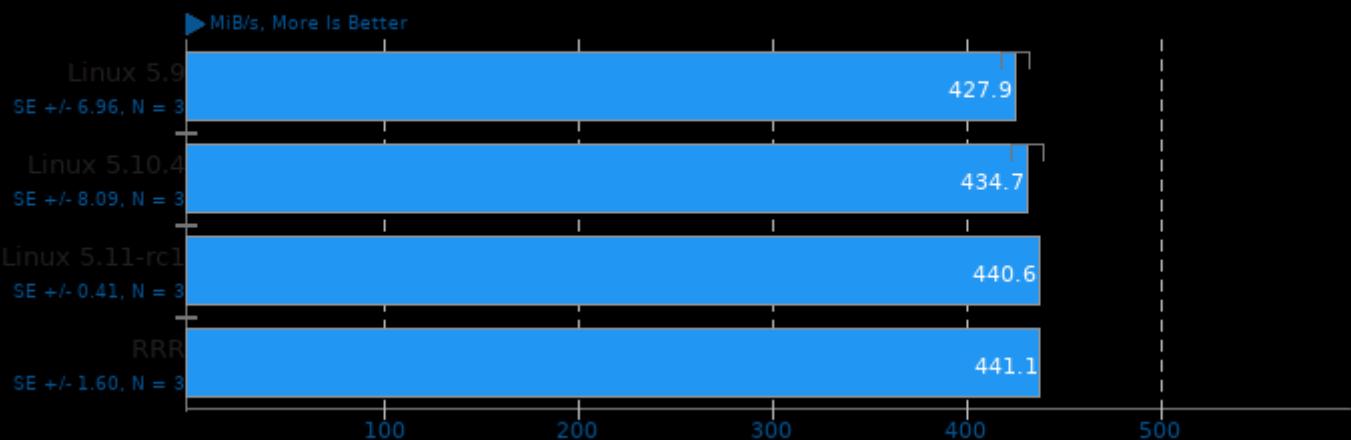
Cryptsetup

Twofish-XTS 256b Encryption



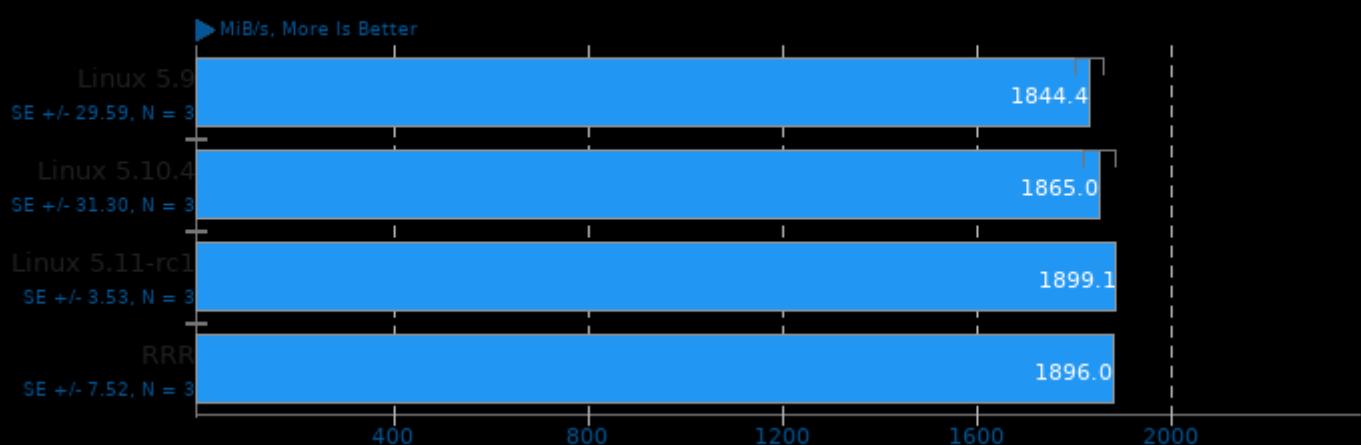
Cryptsetup

Twofish-XTS 256b Decryption



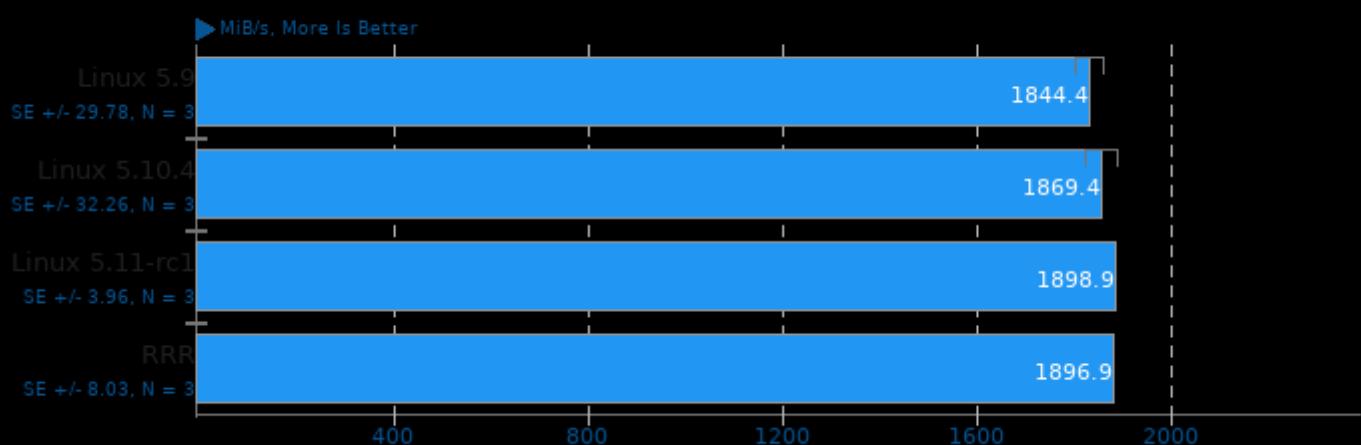
Cryptsetup

AES-XTS 512b Encryption



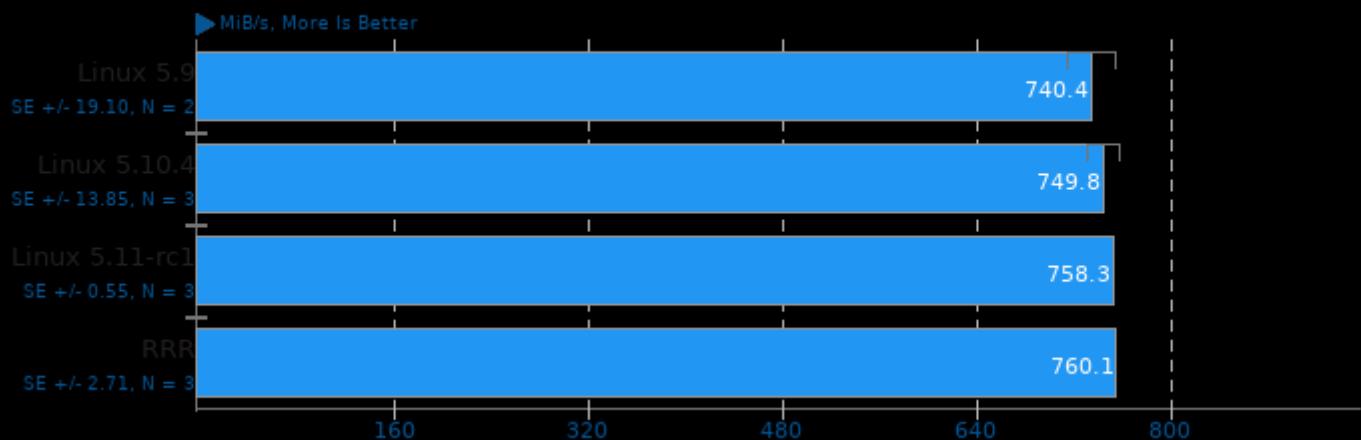
Cryptsetup

AES-XTS 512b Decryption



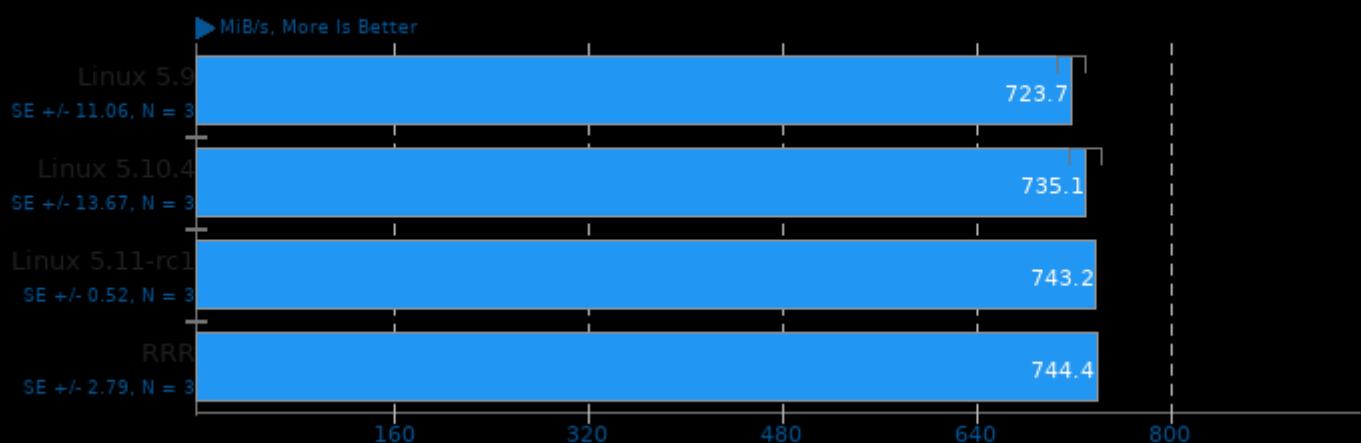
Cryptsetup

Serpent-XTS 512b Encryption



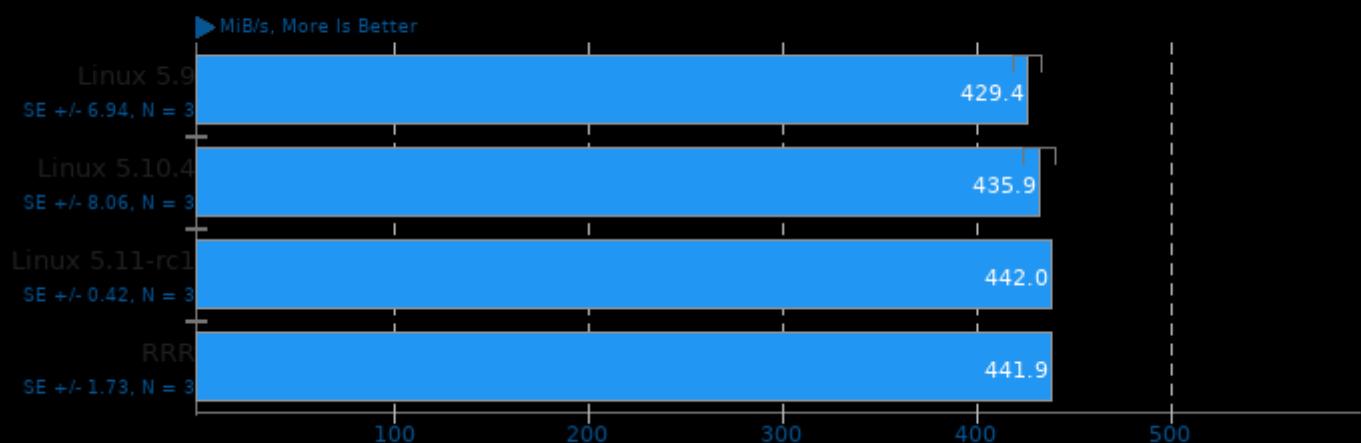
Cryptsetup

Serpent-XTS 512b Decryption



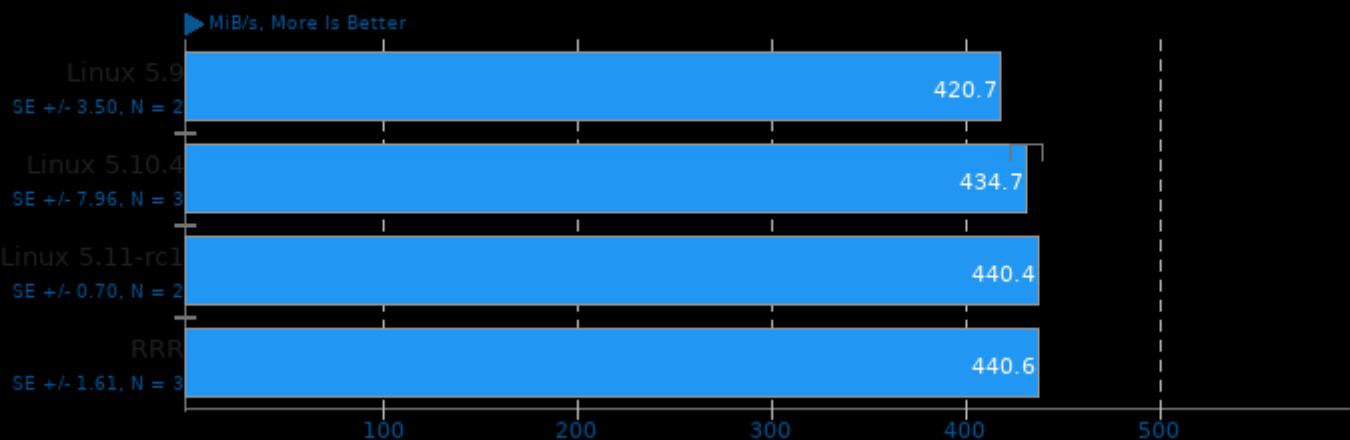
Cryptsetup

Twofish-XTS 512b Encryption



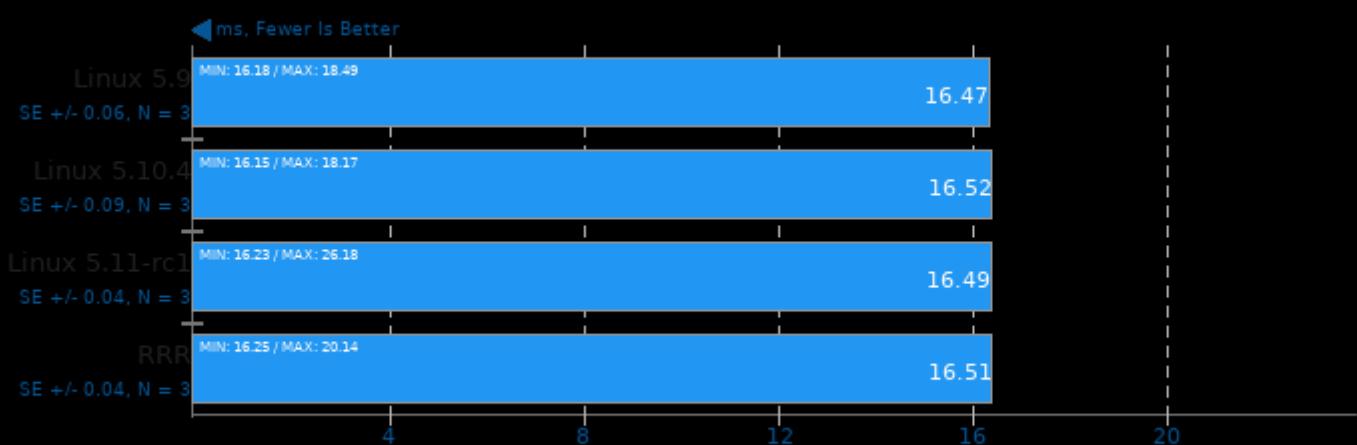
Cryptsetup

Twofish-XTS 512b Decryption



NCNN 20201218

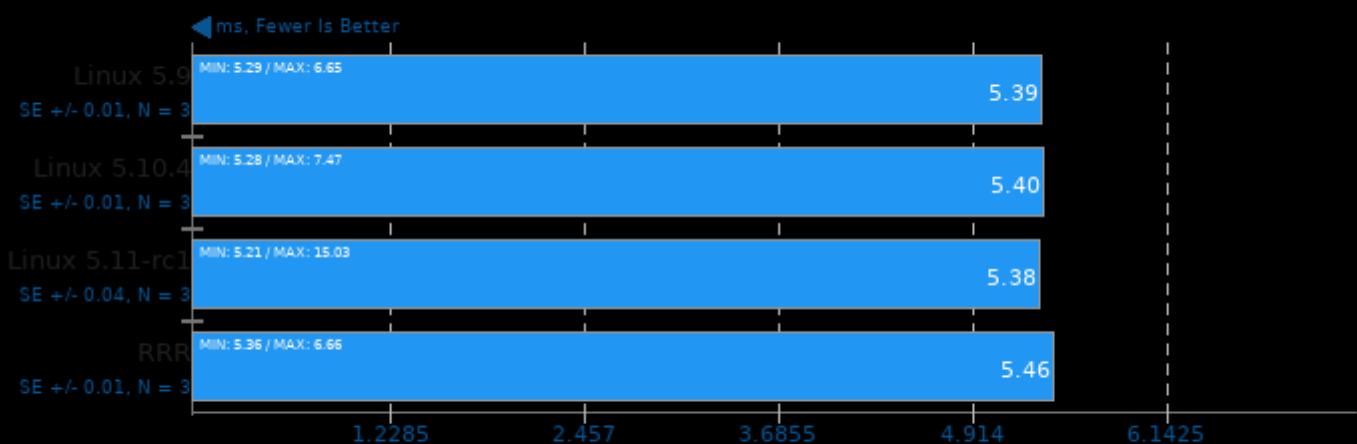
Target: CPU - Model: mobilenet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

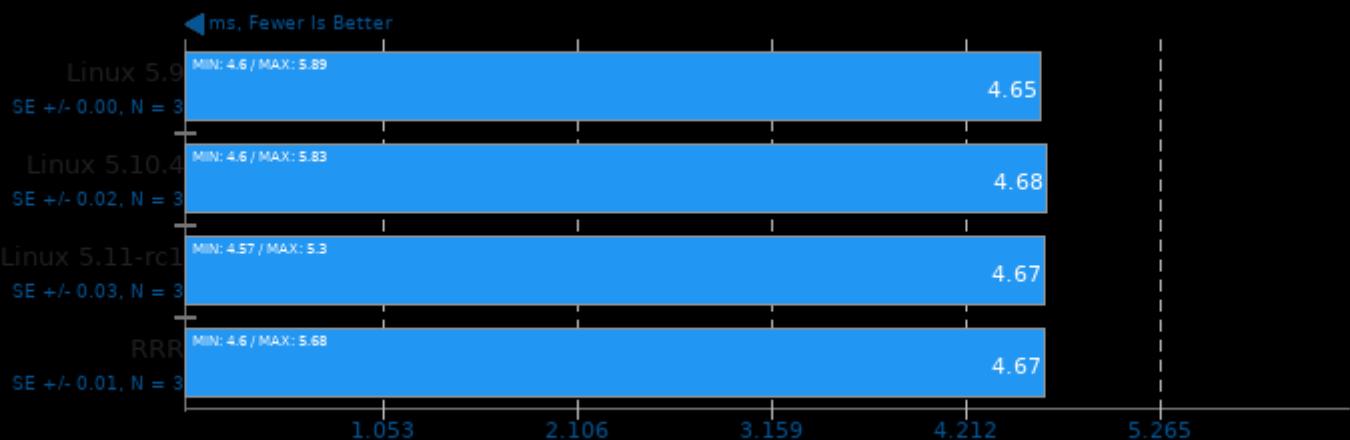
Target: CPU-v2-v2 - Model: mobilenet-v2



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

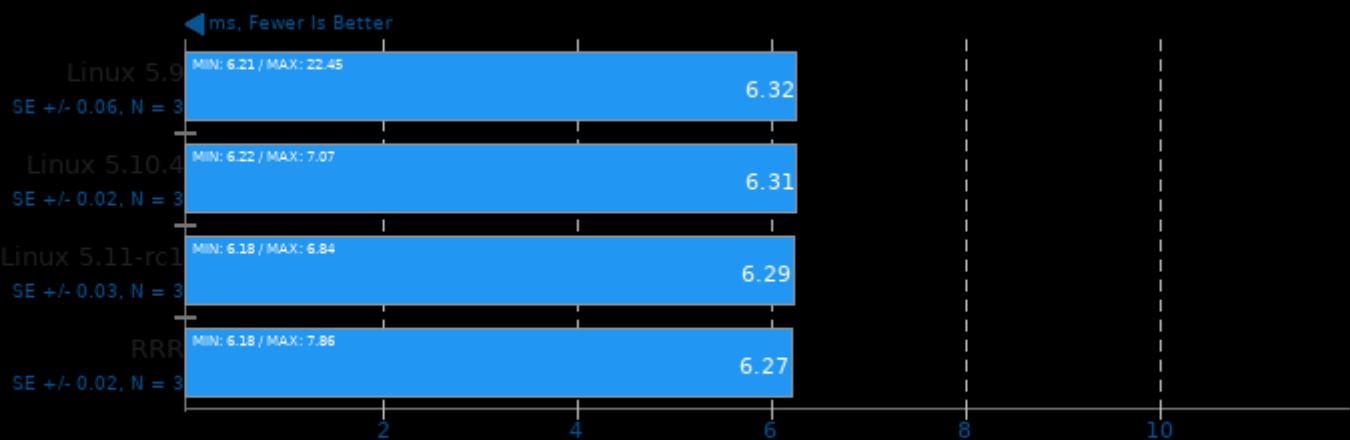
Target: CPU-v3-v3 - Model: mobilenet-v3



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

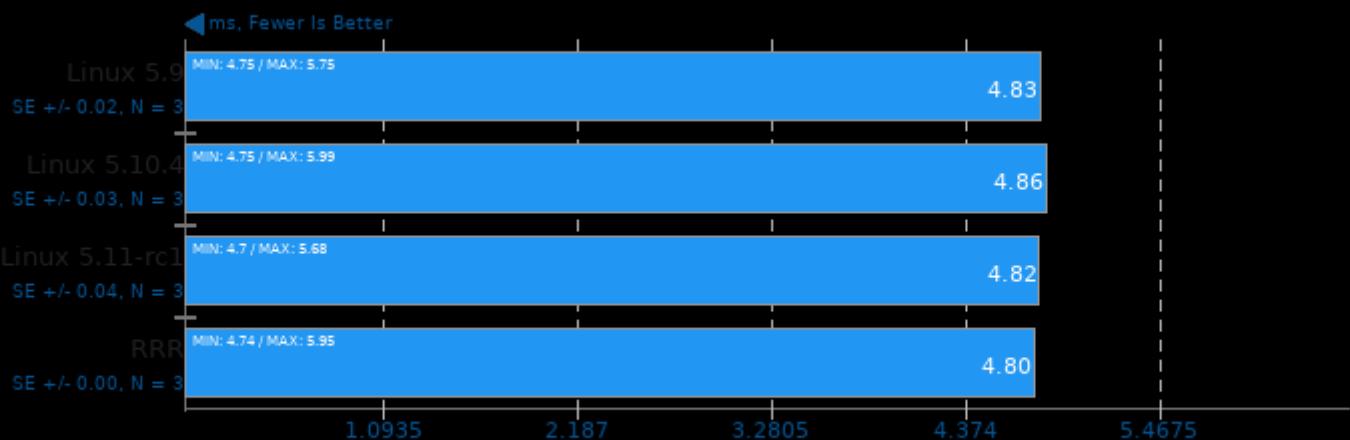
Target: CPU - Model: shufflenet-v2



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

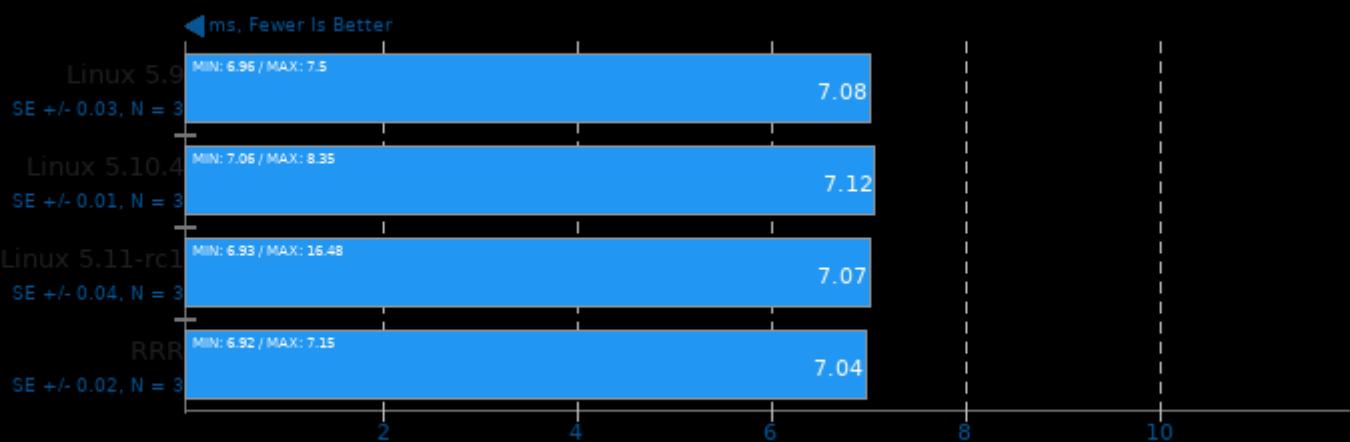
Target: CPU - Model: mnasnet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

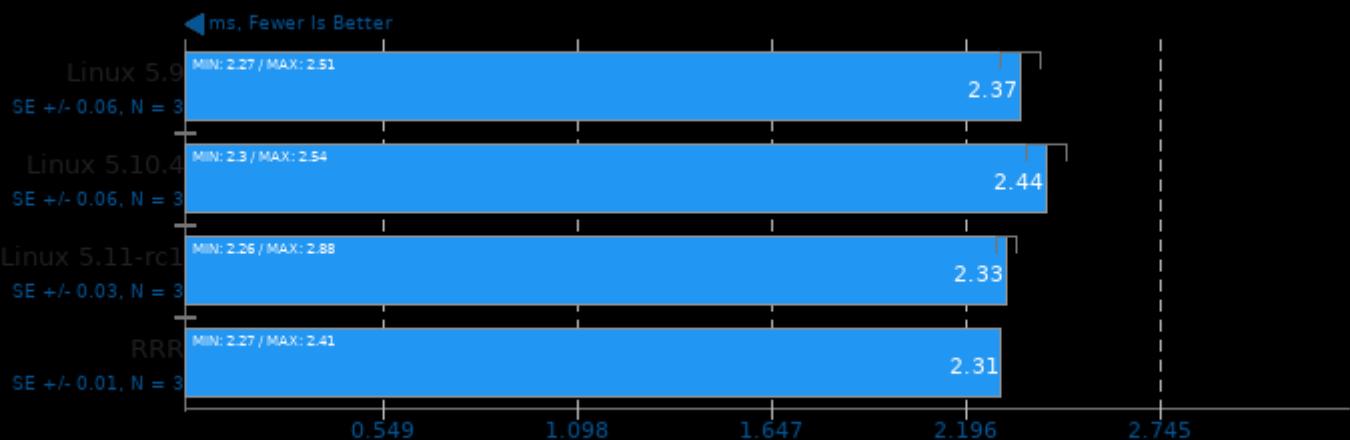
Target: CPU - Model: efficientnet-b0



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

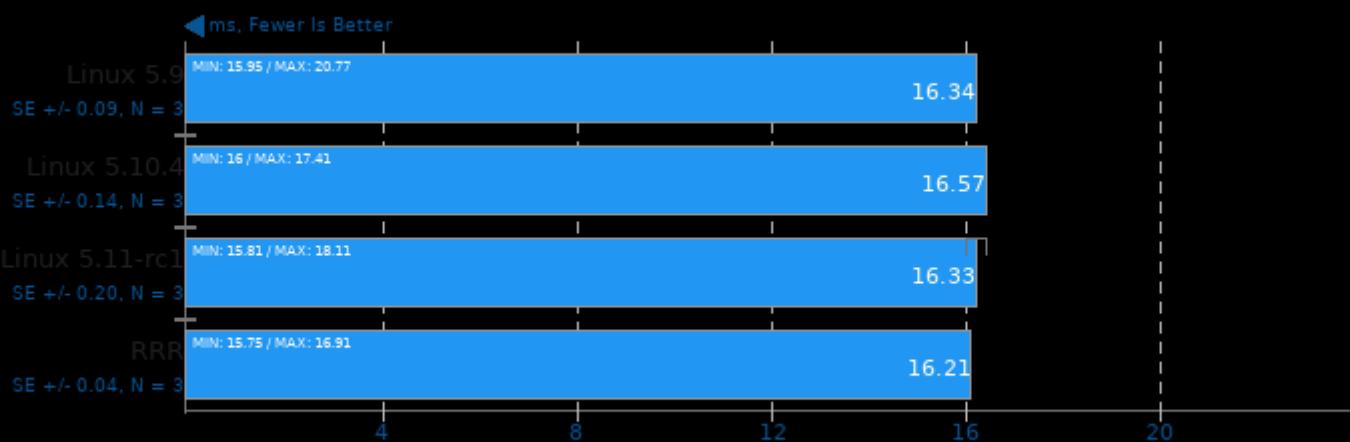
Target: CPU - Model: blazeface



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

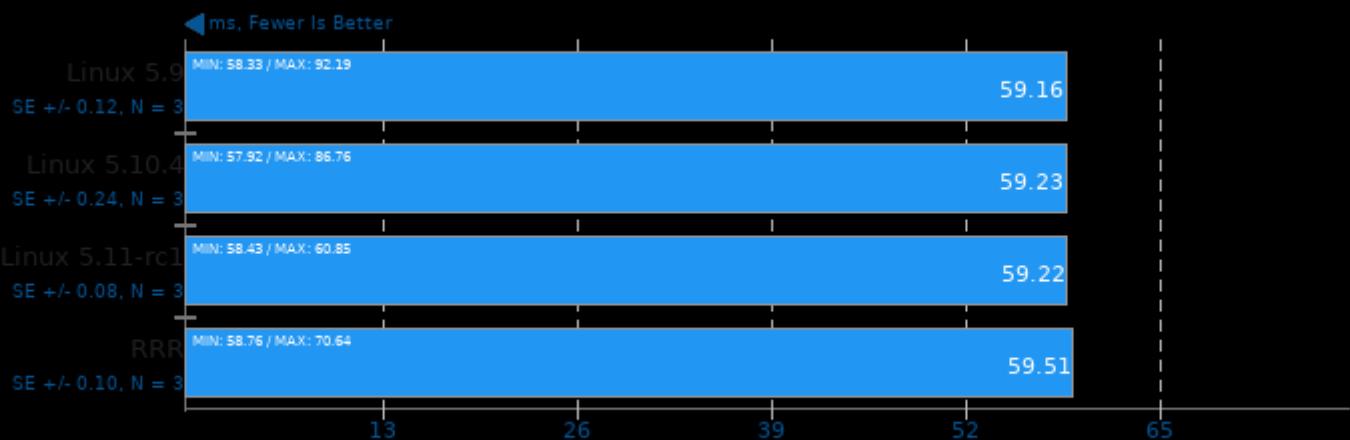
Target: CPU - Model: googlenet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

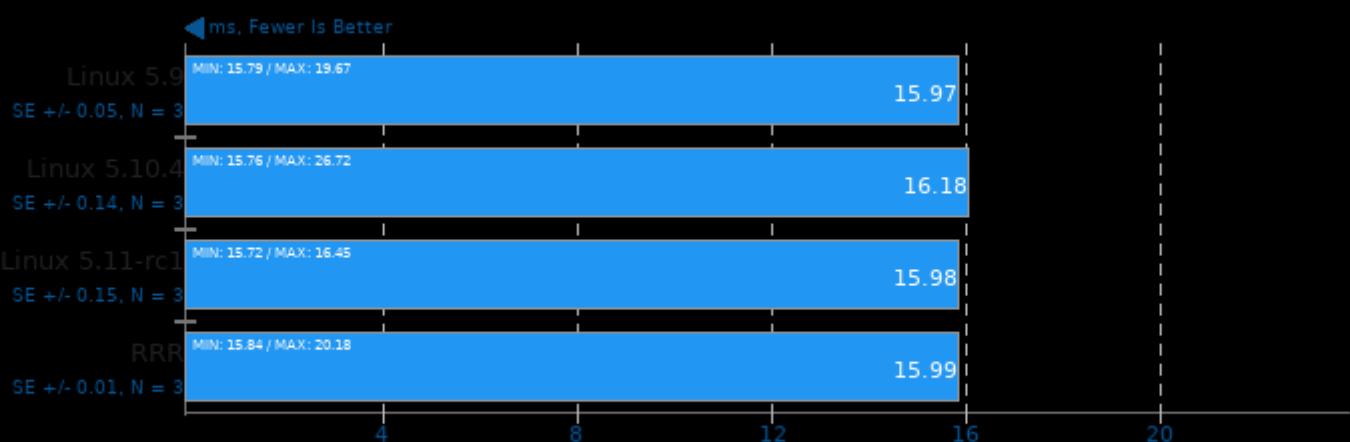
Target: CPU - Model: vgg16



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

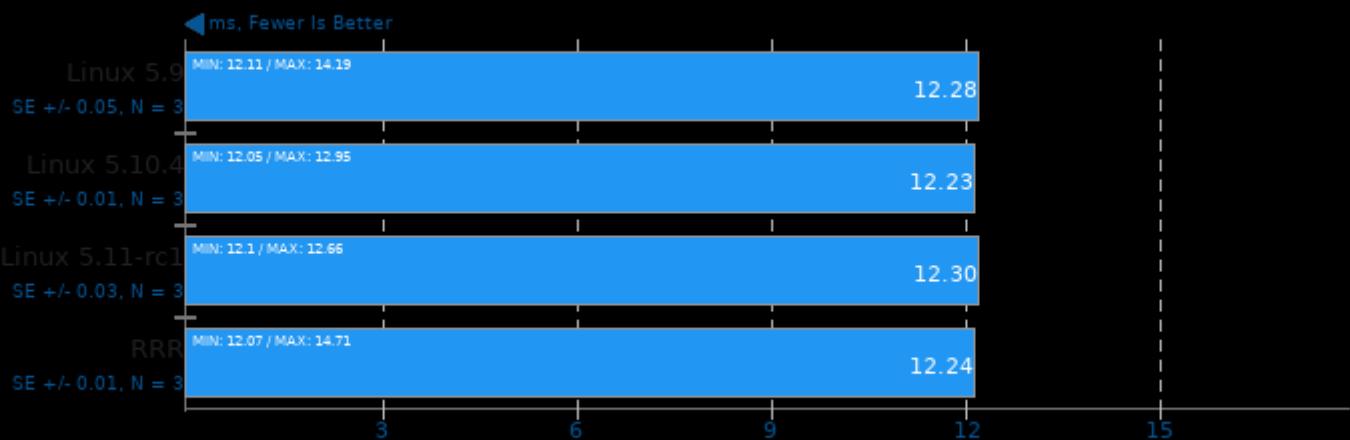
Target: CPU - Model: resnet18



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

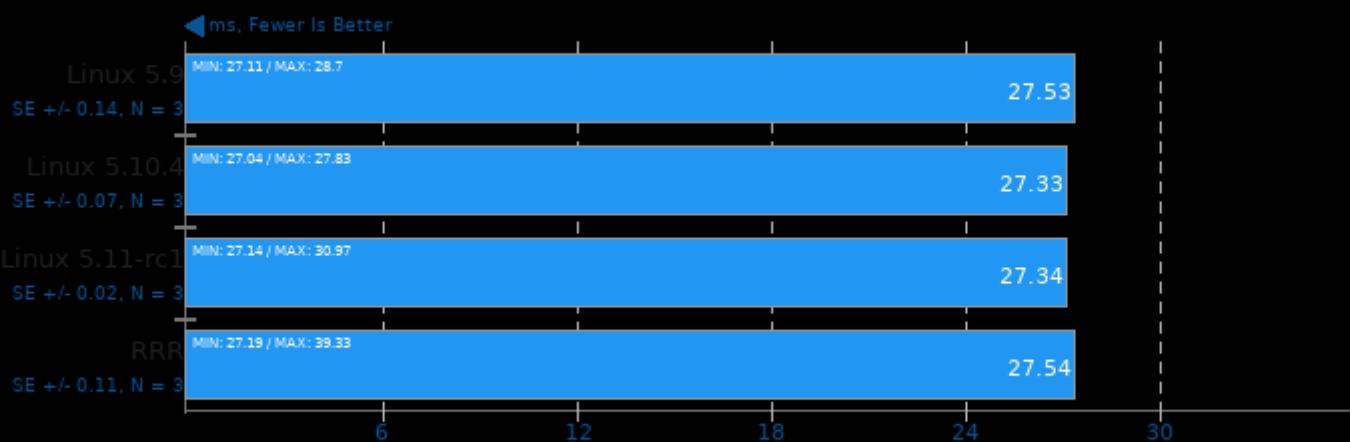
Target: CPU - Model: alexnet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

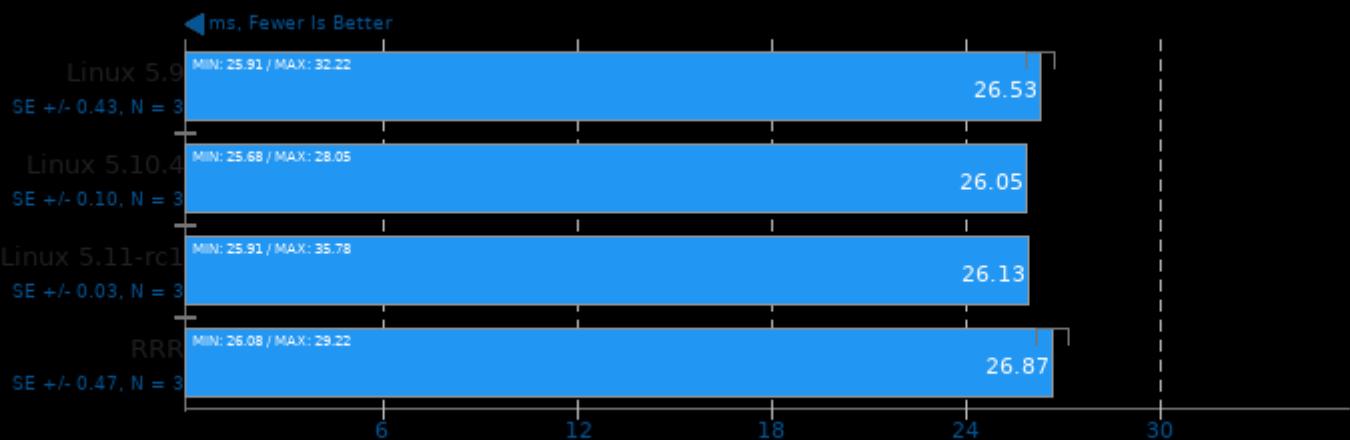
Target: CPU - Model: resnet50



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

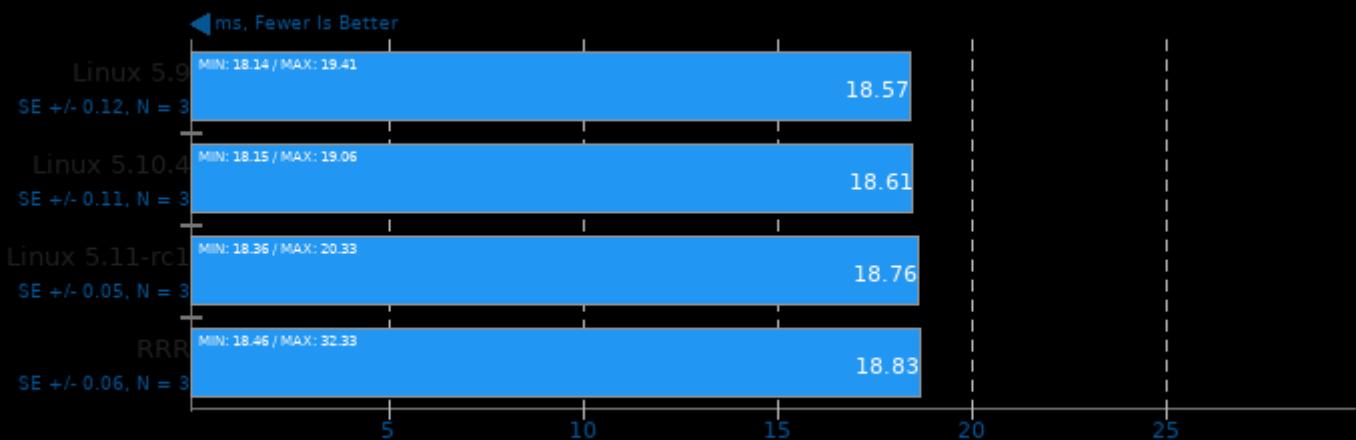
Target: CPU - Model: yolov4-tiny



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

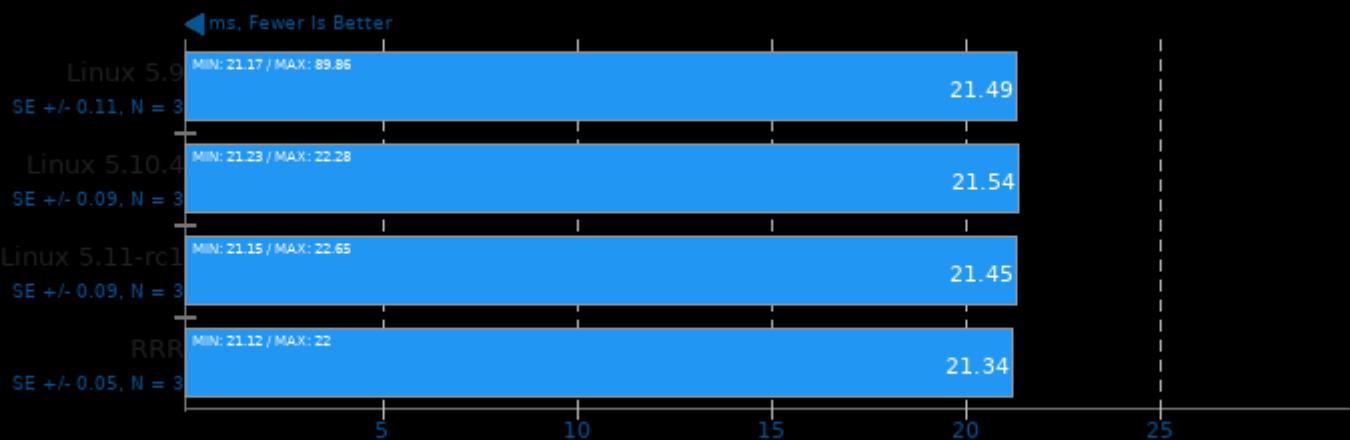
Target: CPU - Model: squeezeonnet_ssd



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

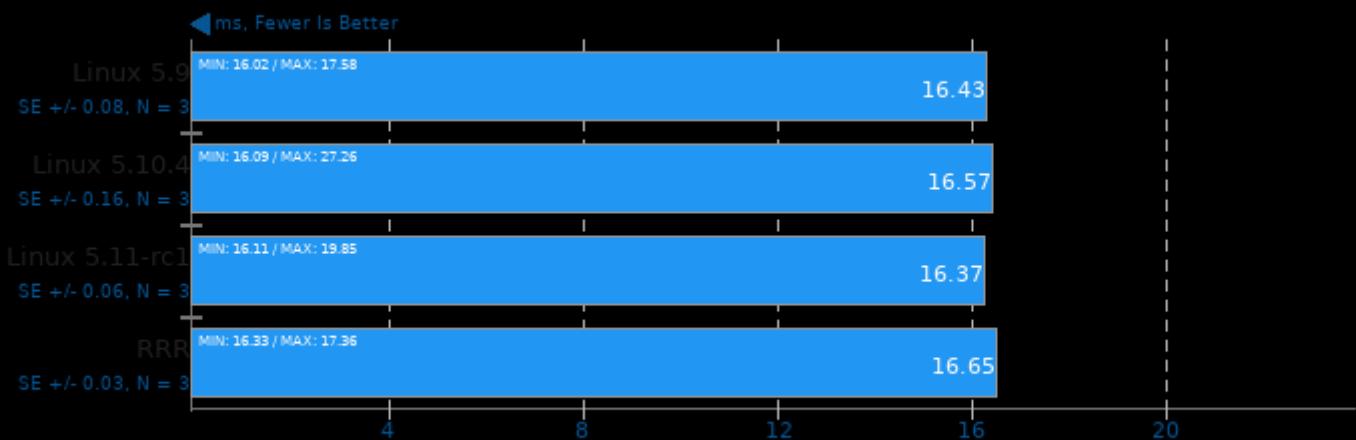
Target: CPU - Model: regnety_400m



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

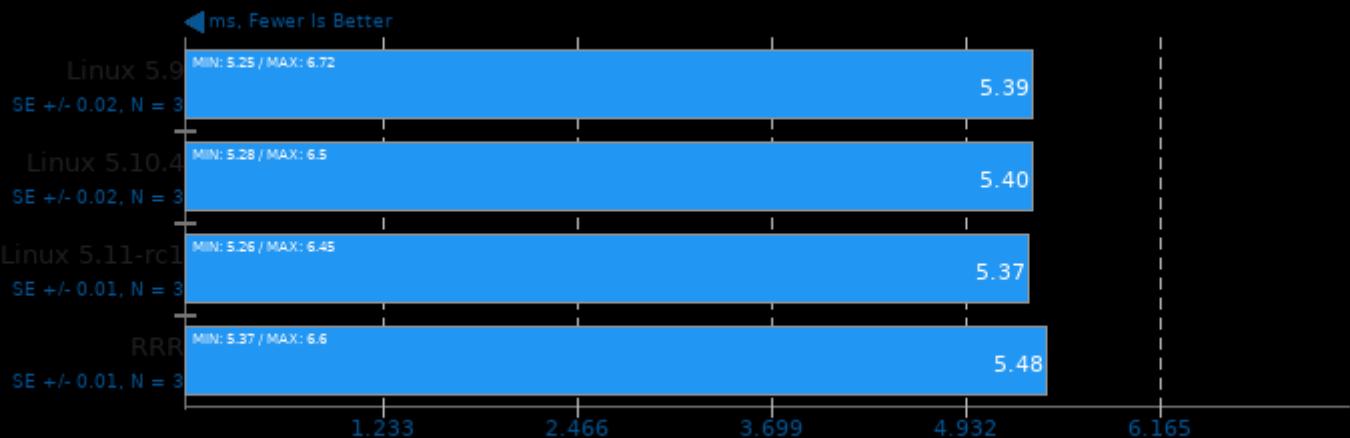
Target: Vulkan GPU - Model: mobilenet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

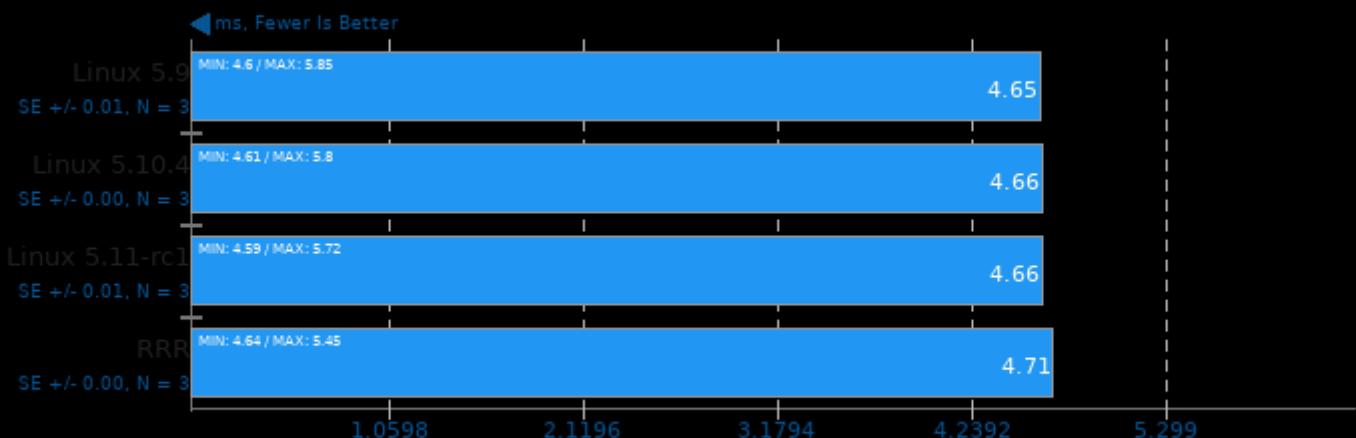
Target: Vulkan GPU-v2-v2 - Model: mobilenet-v2



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

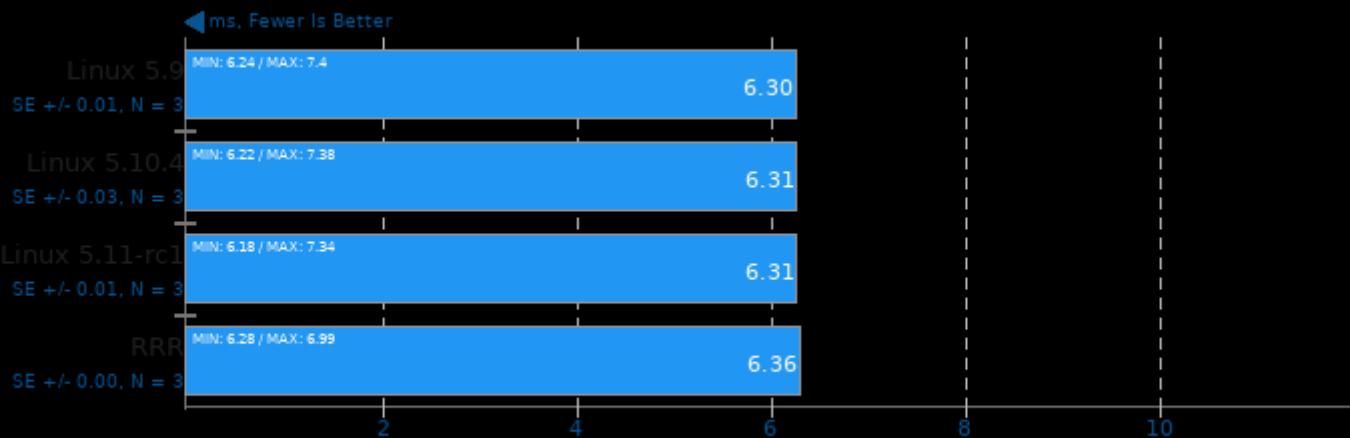
Target: Vulkan GPU-v3-v3 - Model: mobilenet-v3



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

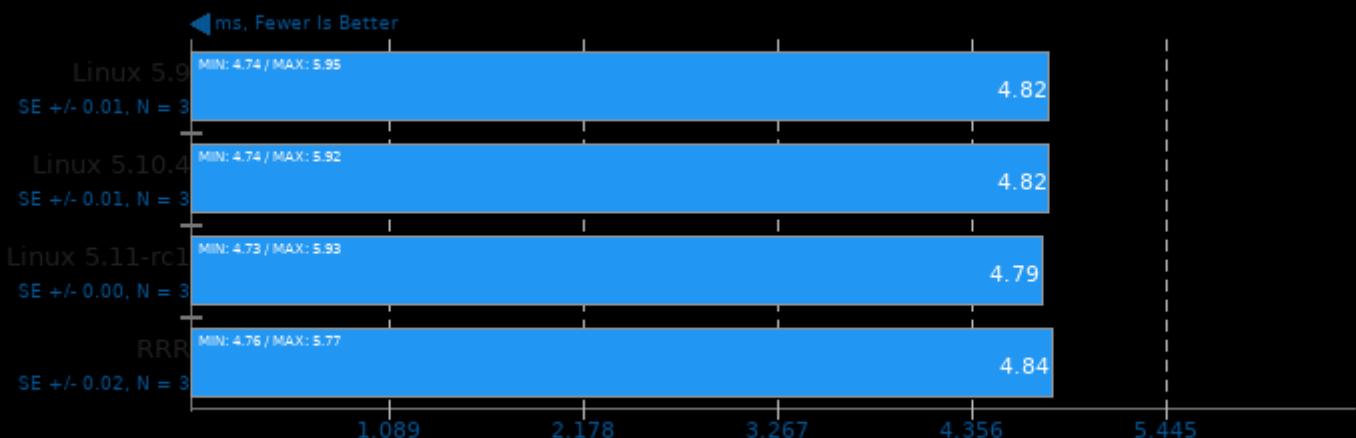
Target: Vulkan GPU - Model: shufflenet-v2



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

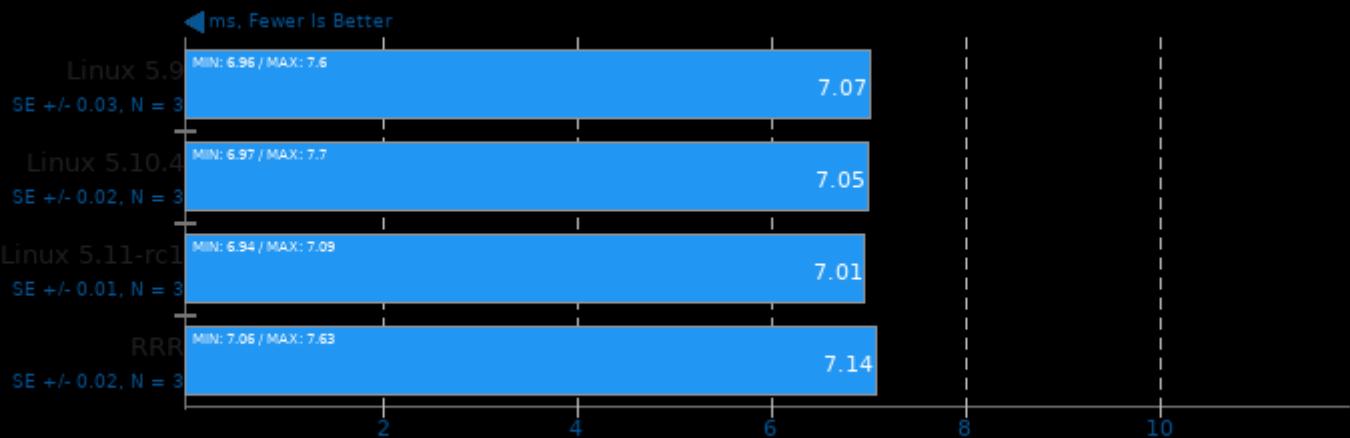
Target: Vulkan GPU - Model: mnasnet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

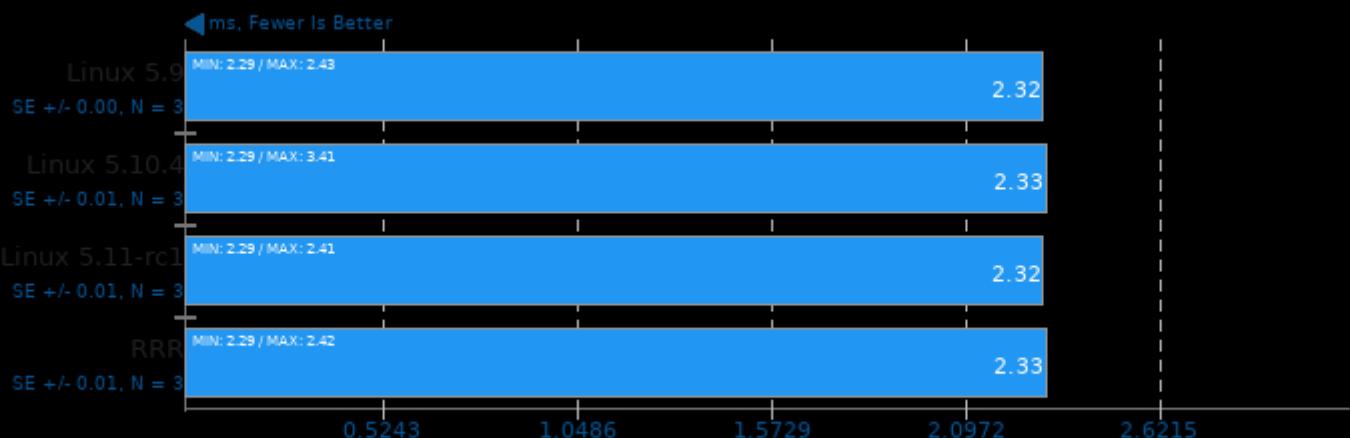
Target: Vulkan GPU - Model: efficientnet-b0



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

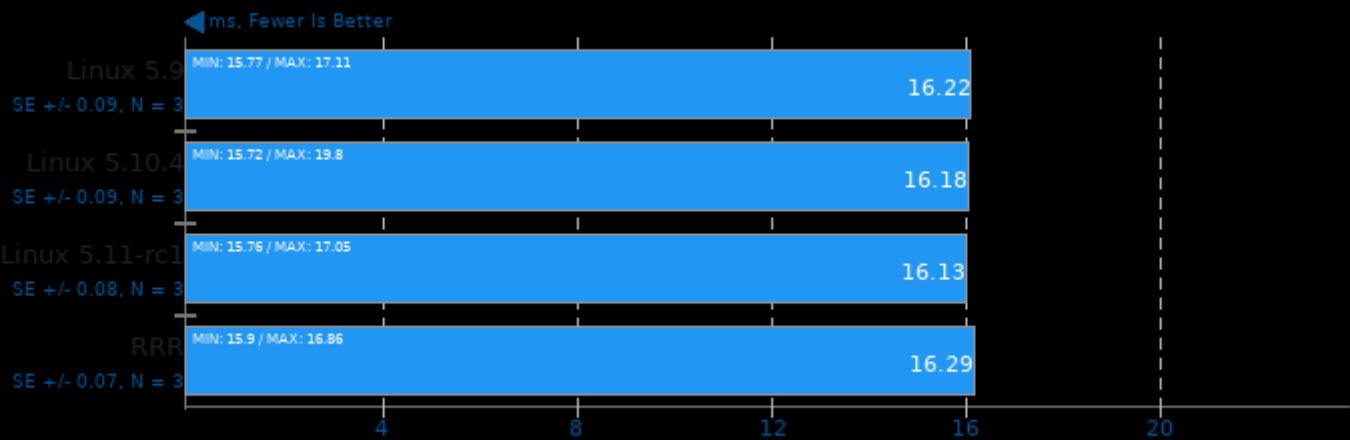
Target: Vulkan GPU - Model: blazeface



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

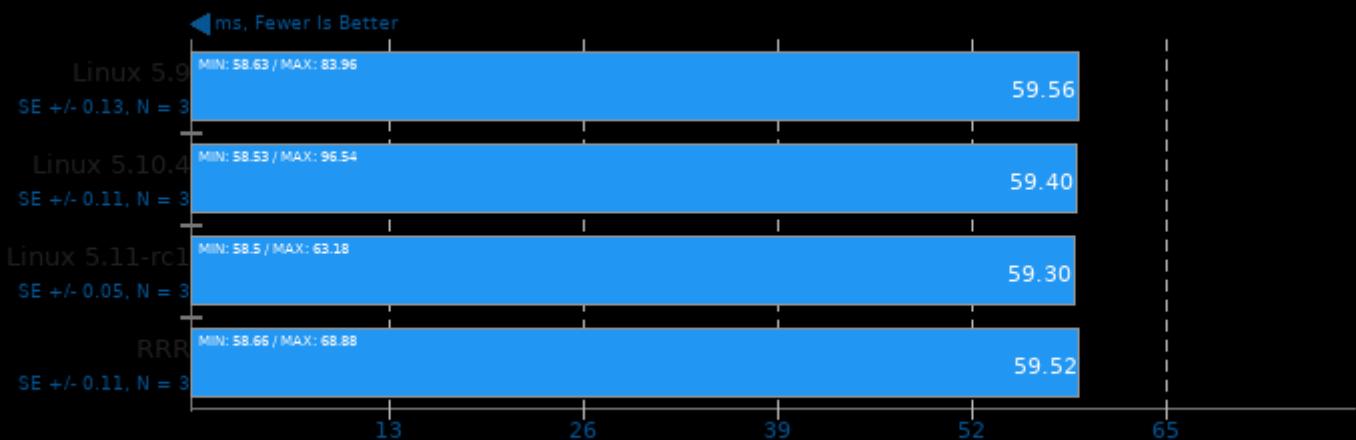
Target: Vulkan GPU - Model: googlenet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

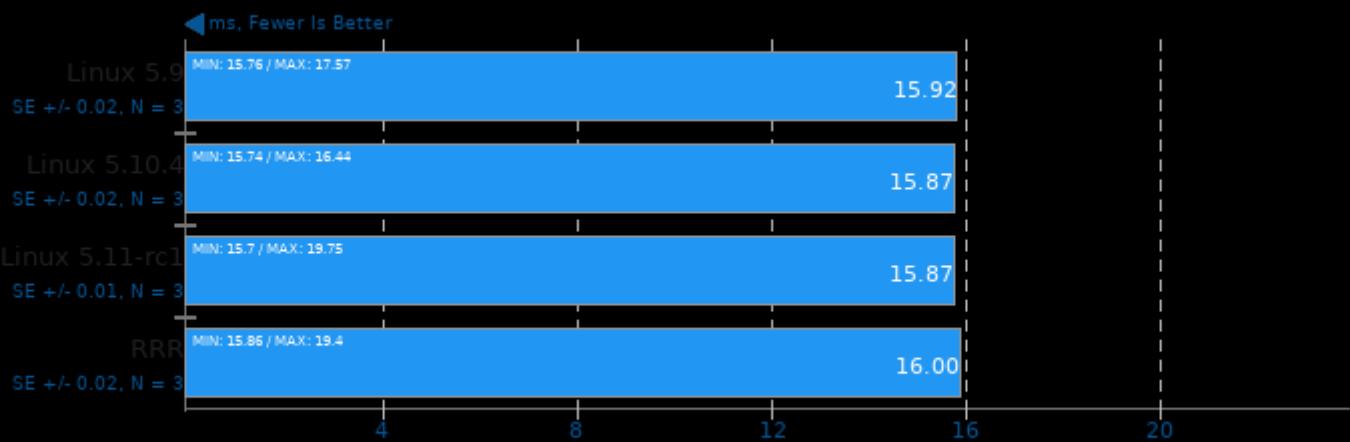
Target: Vulkan GPU - Model: vgg16



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

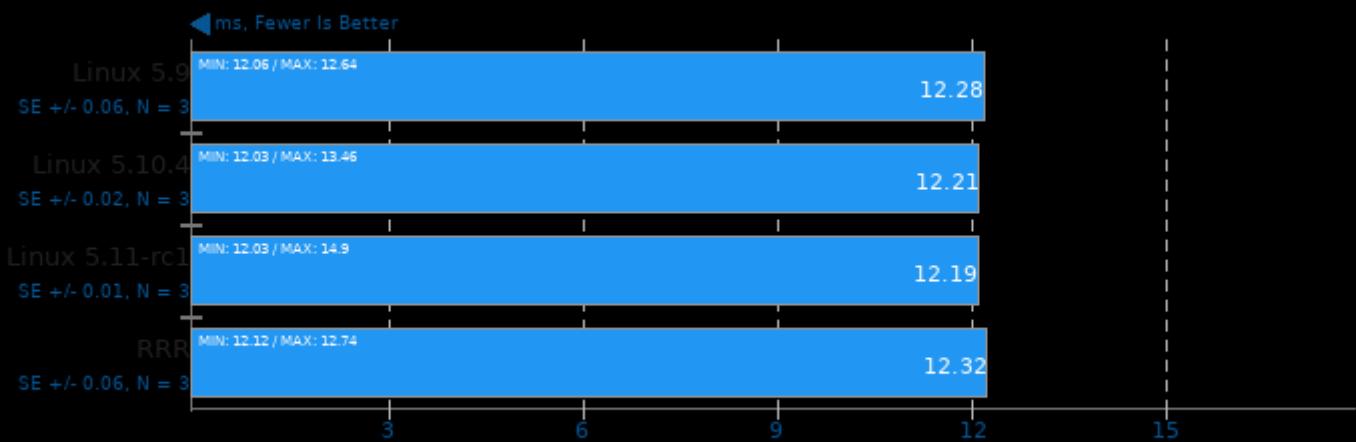
Target: Vulkan GPU - Model: resnet18



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

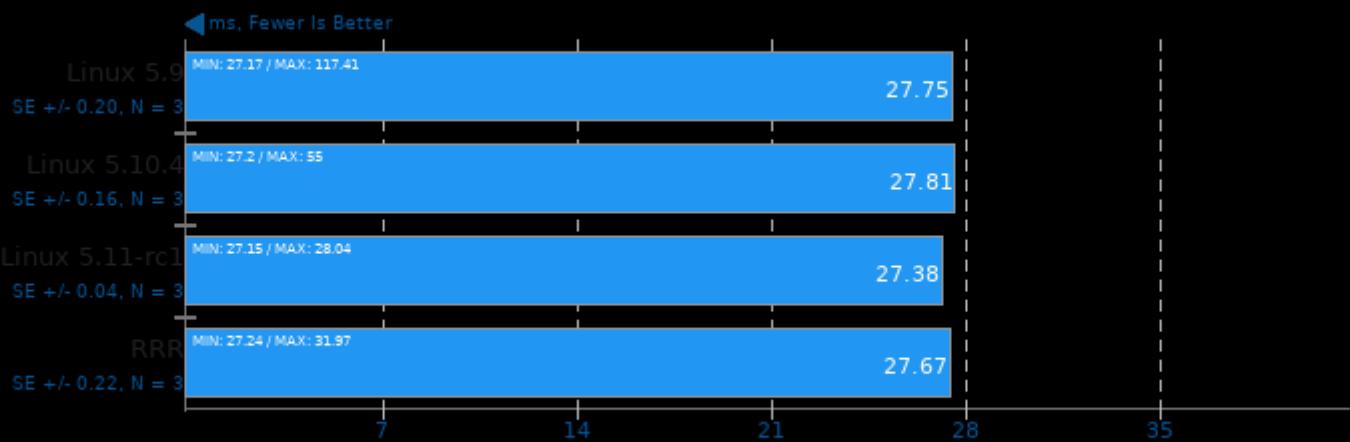
Target: Vulkan GPU - Model: alexnet



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

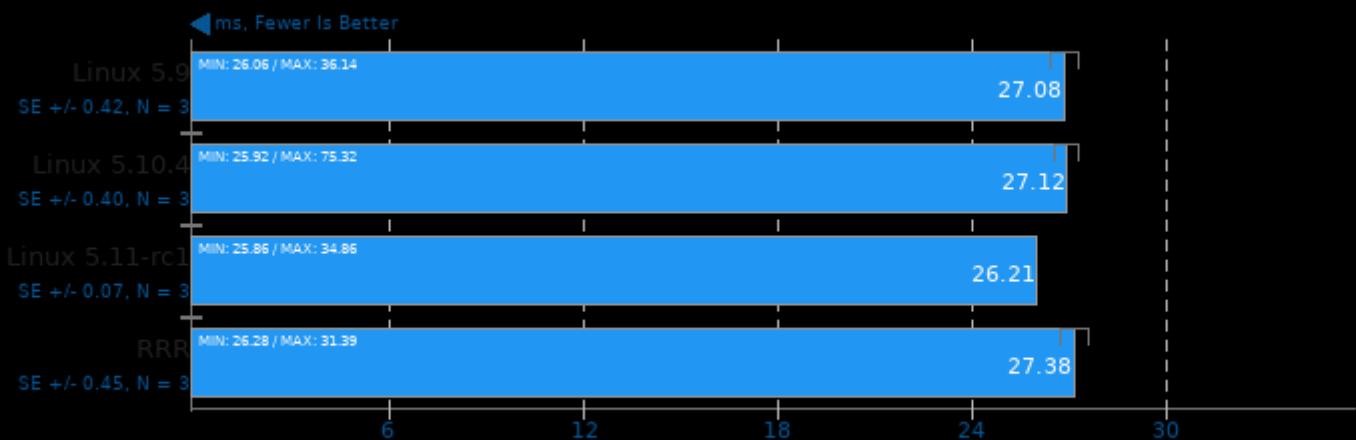
Target: Vulkan GPU - Model: resnet50



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

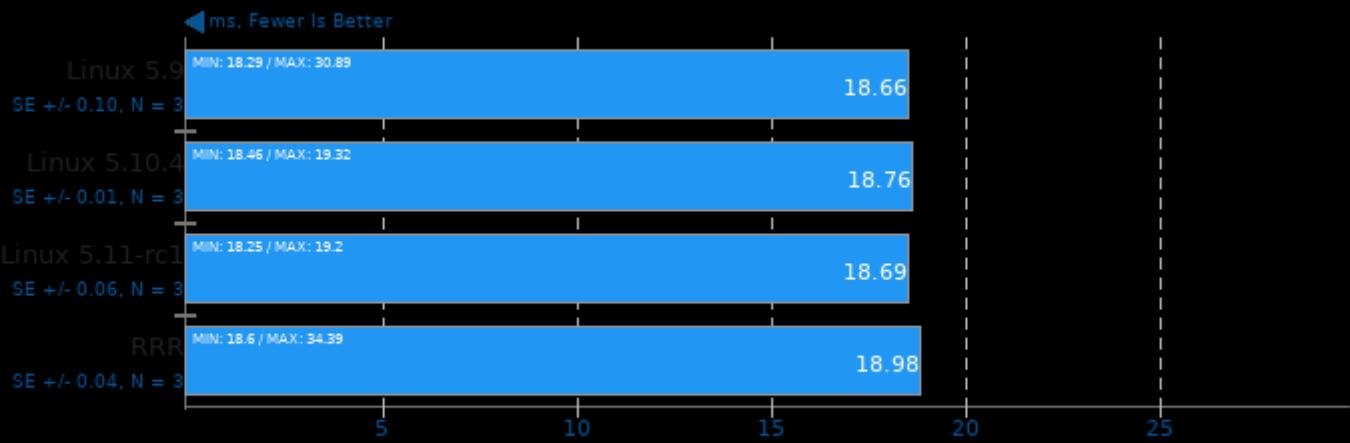
Target: Vulkan GPU - Model: yolov4-tiny



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

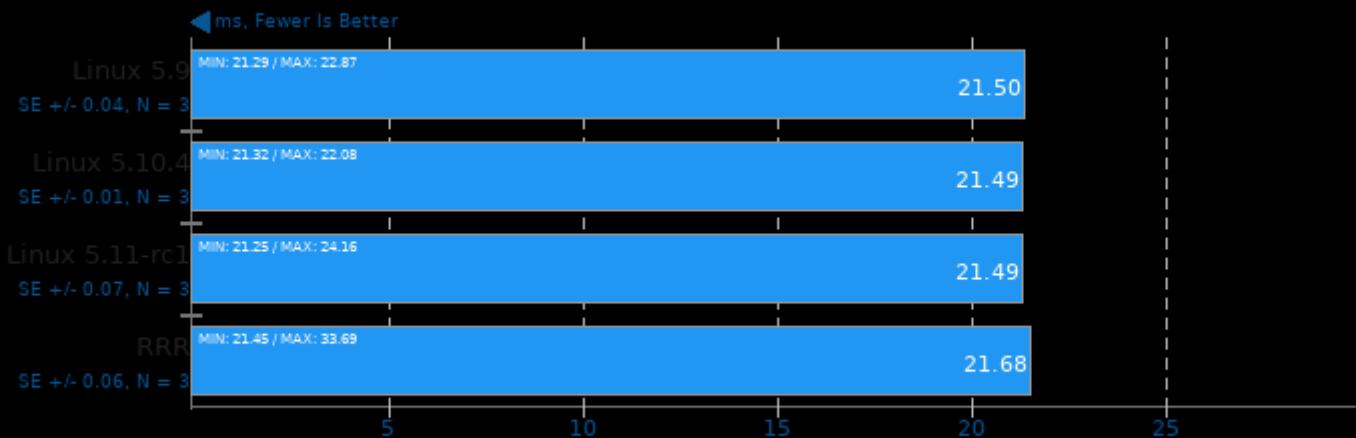
Target: Vulkan GPU - Model: squeezenet_ssd



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

NCNN 20201218

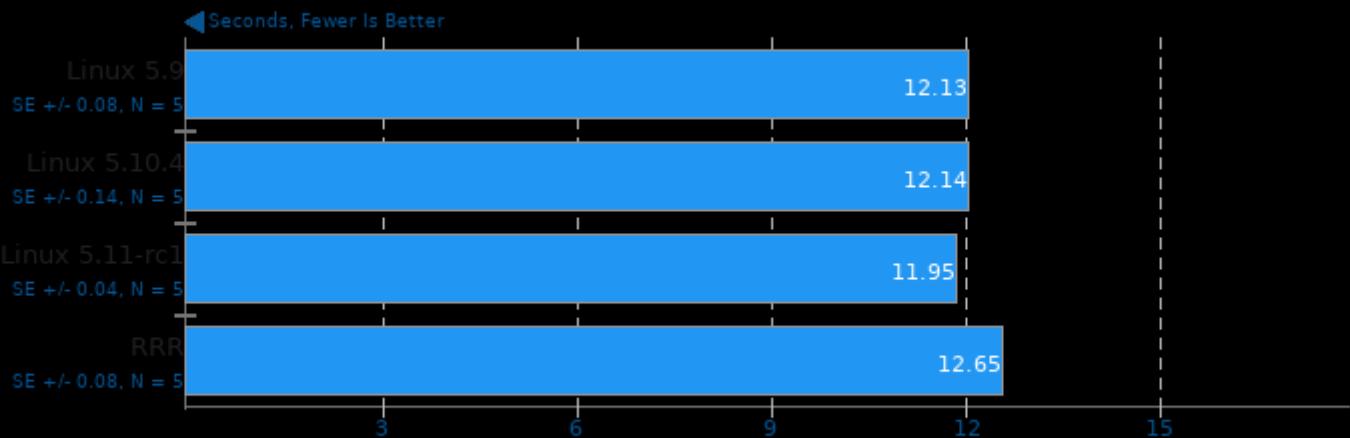
Target: Vulkan GPU - Model: regnety_400m



1. (CXX) g++ options: -O3 -rdynamic -lgomp -lpthread

WavPack Audio Encoding 5.3

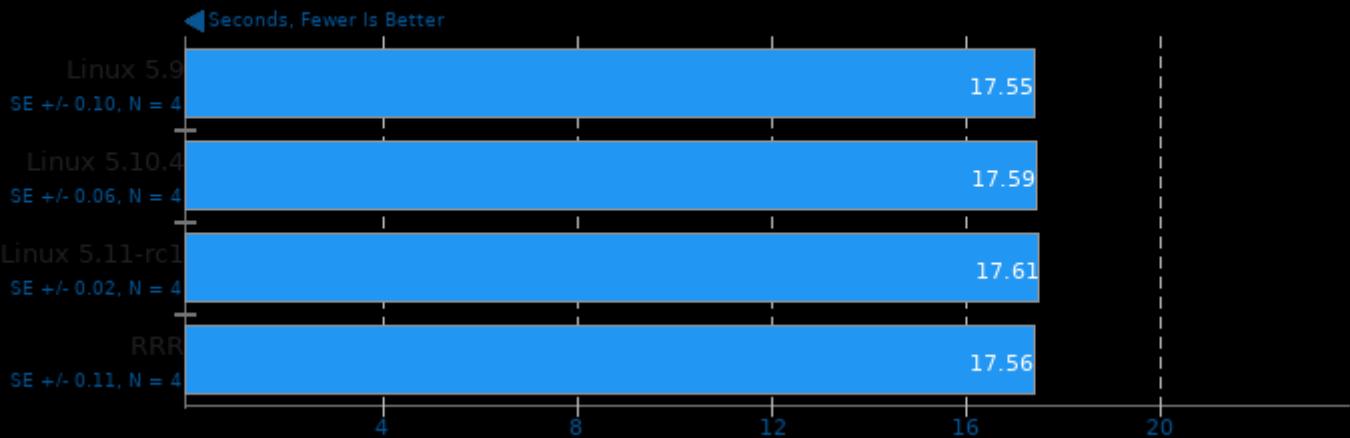
WAV To WavPack



1. (CXX) g++ options: -rdynamic

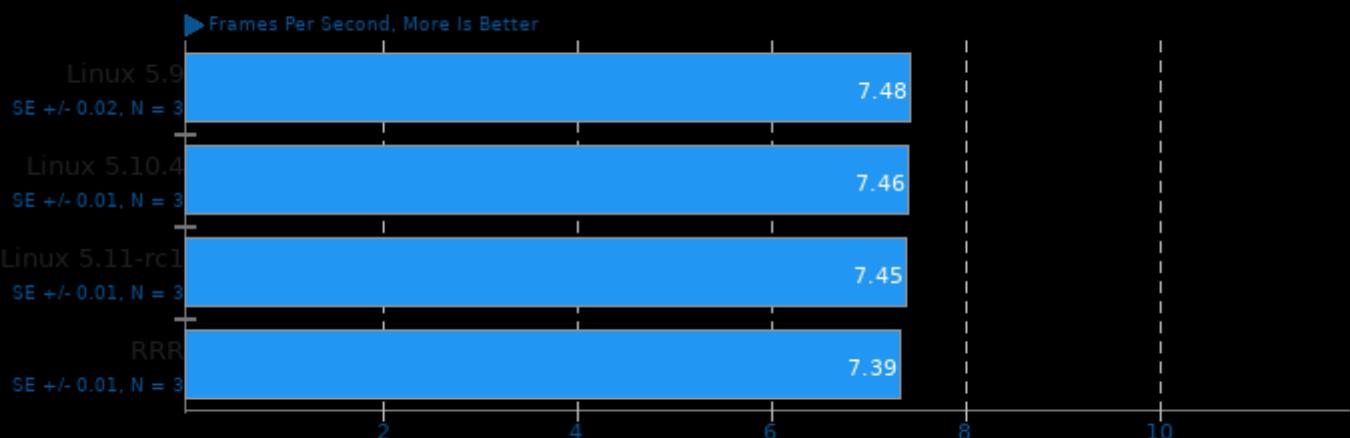
Unpacking Firefox 84.0

Extracting: firefox-84.0.source.tar.xz



Kvazaar 2.0

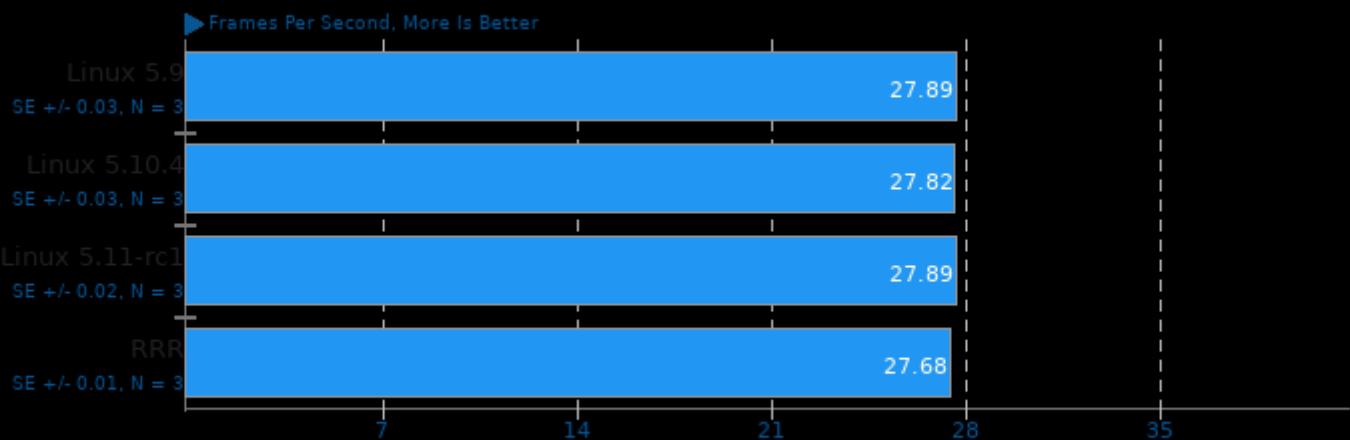
Video Input: Bosphorus 4K - Video Preset: Medium



1. (CC) gcc options: -pthread -ftracer -fvisibility=hidden -O2 -lpthread -lm -lrt

Kvazaar 2.0

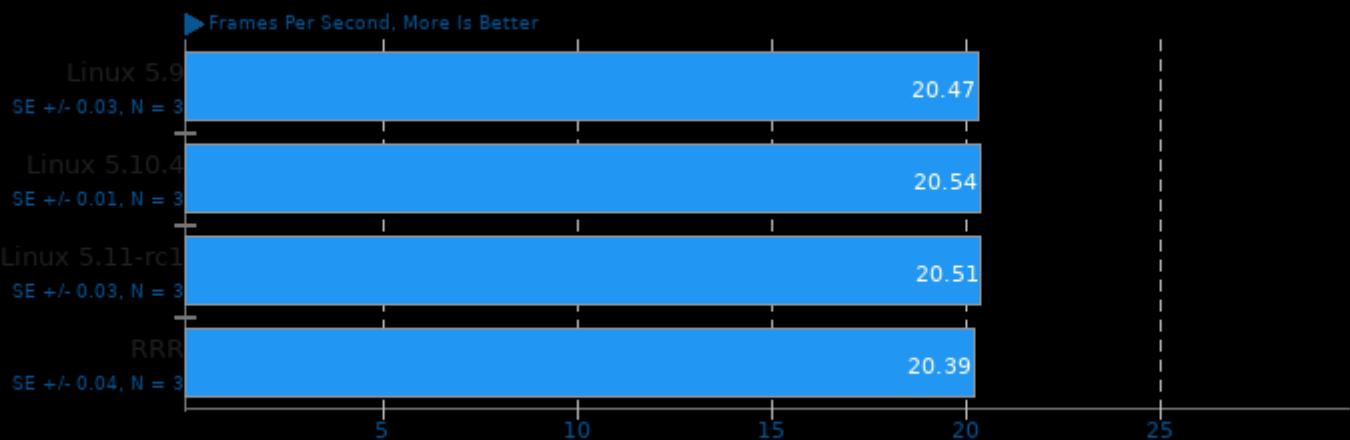
Video Input: Bosphorus 1080p - Video Preset: Medium



1. (CC) gcc options: -pthread -ftree-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

Kvazaar 2.0

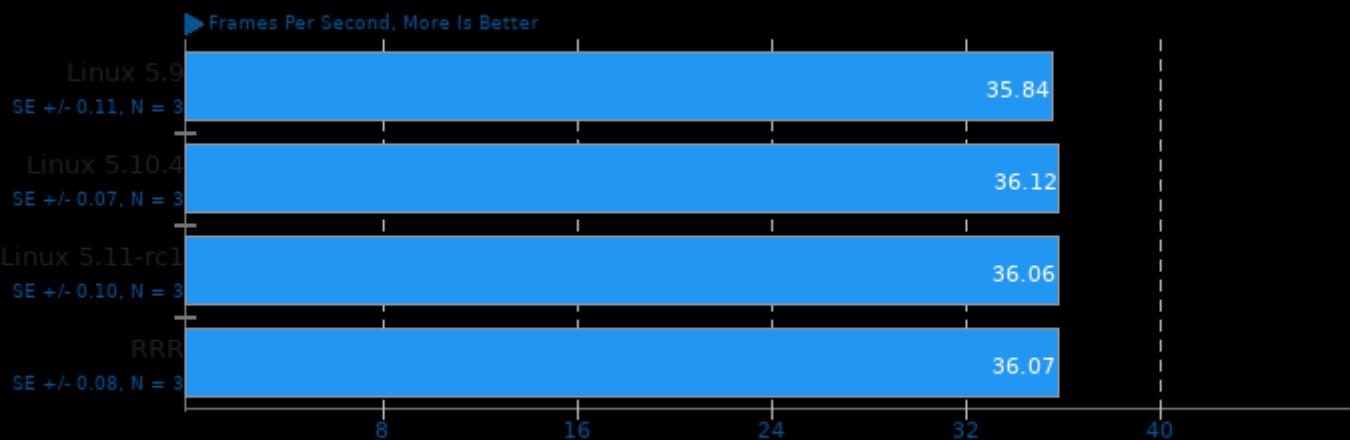
Video Input: Bosphorus 4K - Video Preset: Very Fast



1. (CC) gcc options: -pthread -ftree-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

Kvazaar 2.0

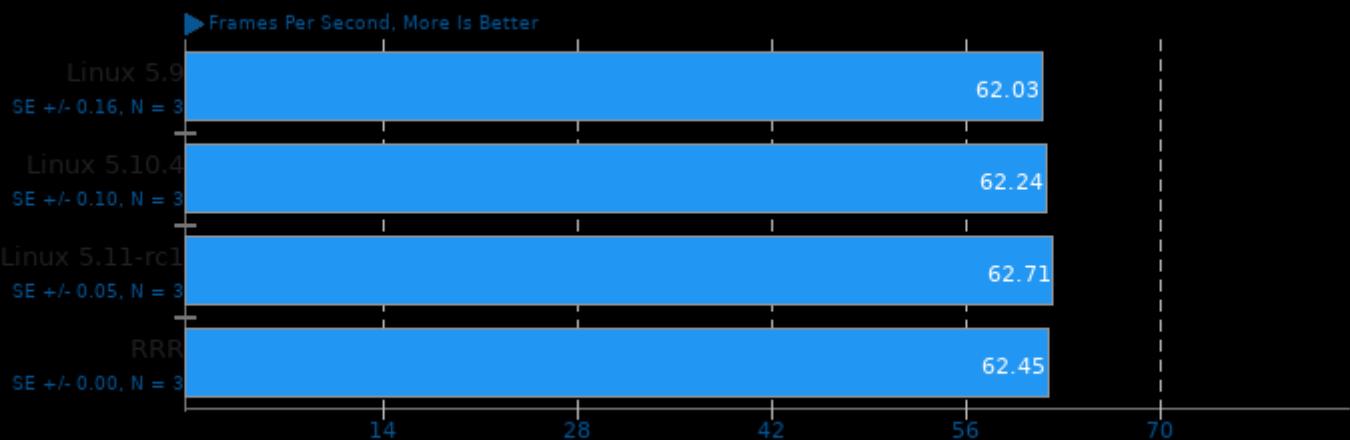
Video Input: Bosphorus 4K - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -ftree-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

Kvazaar 2.0

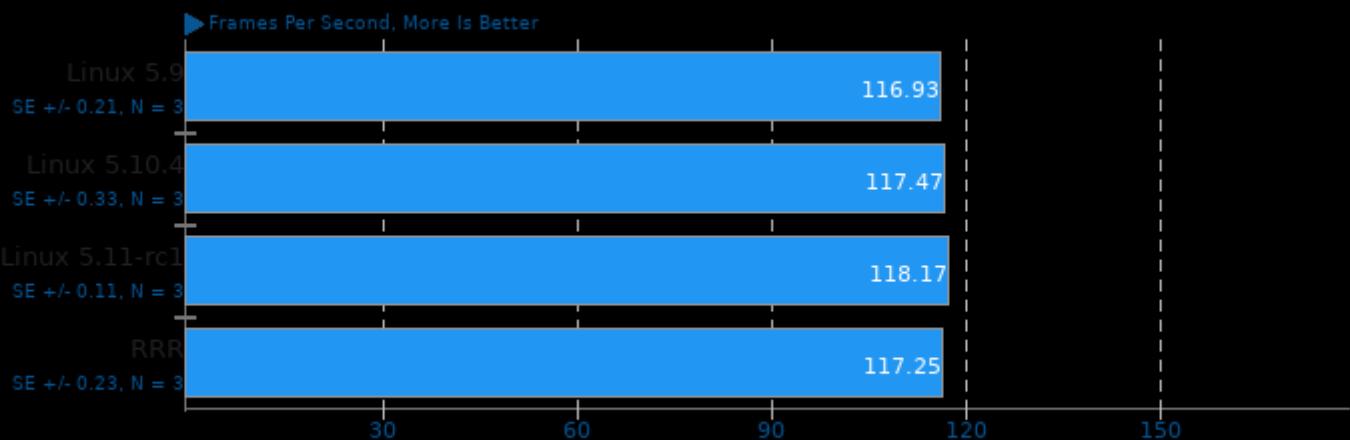
Video Input: Bosphorus 1080p - Video Preset: Very Fast



1. (CC) gcc options: -pthread -ftree-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

Kvazaar 2.0

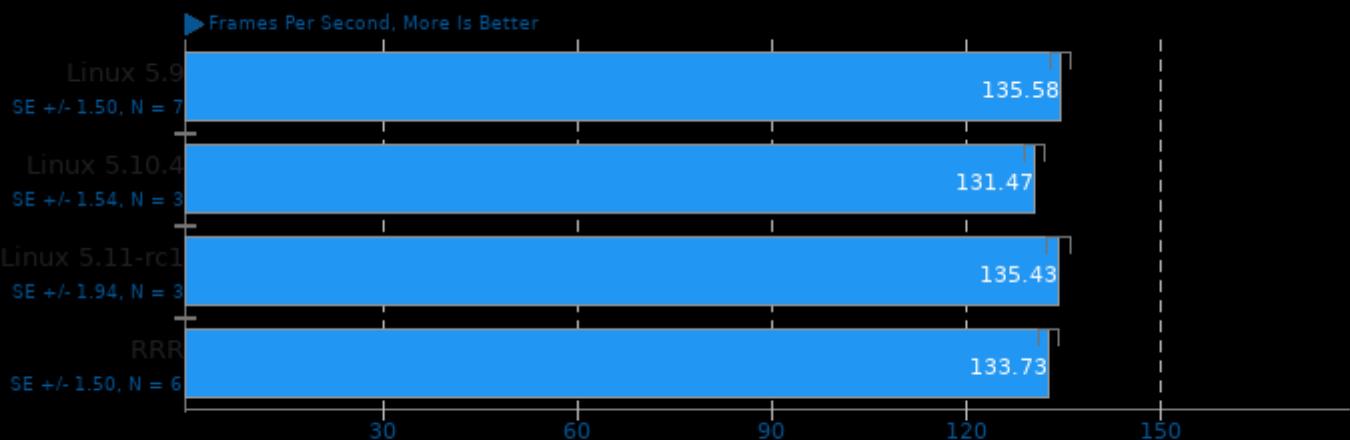
Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



1. (CC) gcc options: -pthread -fthread-vectorize -visibility=hidden -O2 -lpthread -lm -lrt

X264 2019-12-17

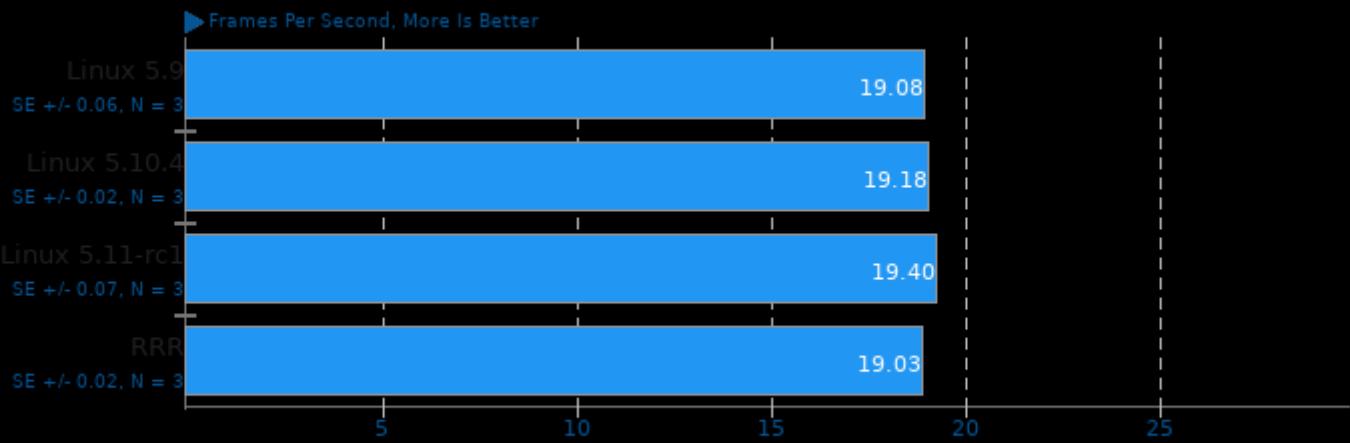
H.264 Video Encoding



1. (CC) gcc options: -ldl -lavformat -lavcodec -lavutil -lswscale -m64 -lm -lpthread -O3 -ffast-math -std=gnu99 -fPIC -fomit-frame-pointer -fno-tree-vectorize

x265 3.4

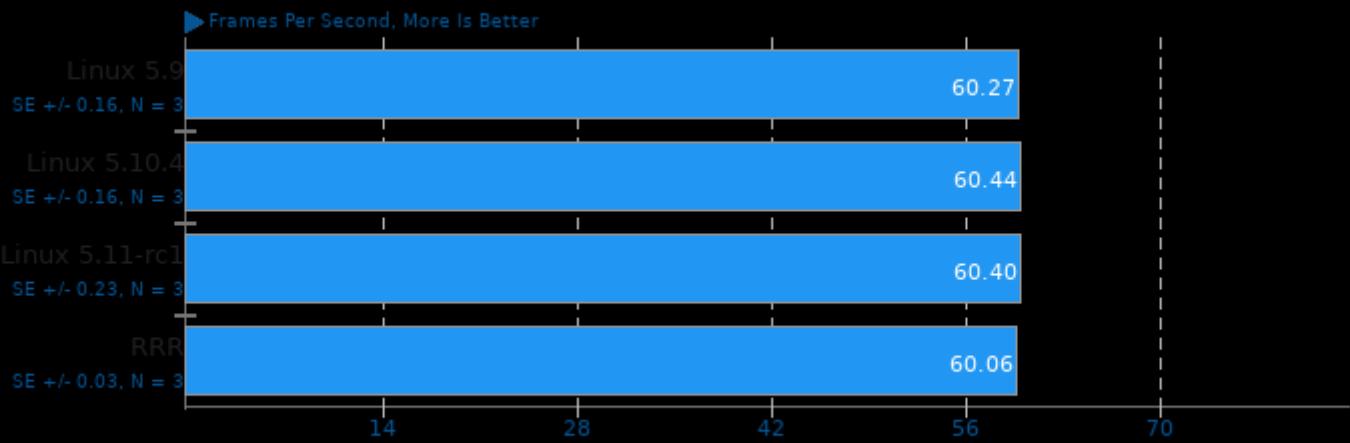
Video Input: Bosphorus 4K



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

x265 3.4

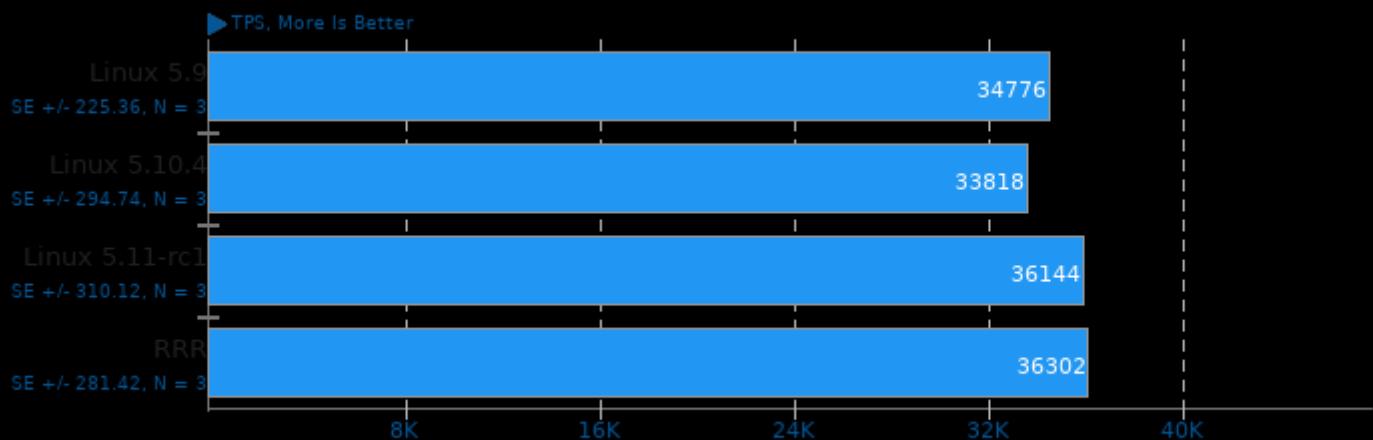
Video Input: Bosphorus 1080p



1. (CXX) g++ options: -O3 -rdynamic -lpthread -lrt -ldl -lnuma

PostgreSQL pgbench 13.0

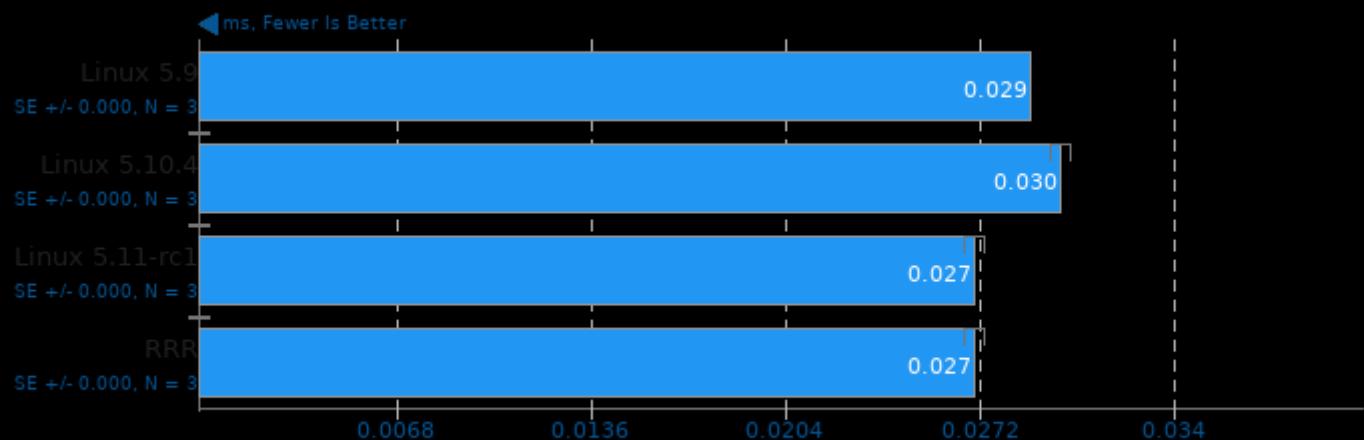
Scaling Factor: 1 - Clients: 1 - Mode: Read Only



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

PostgreSQL pgbench 13.0

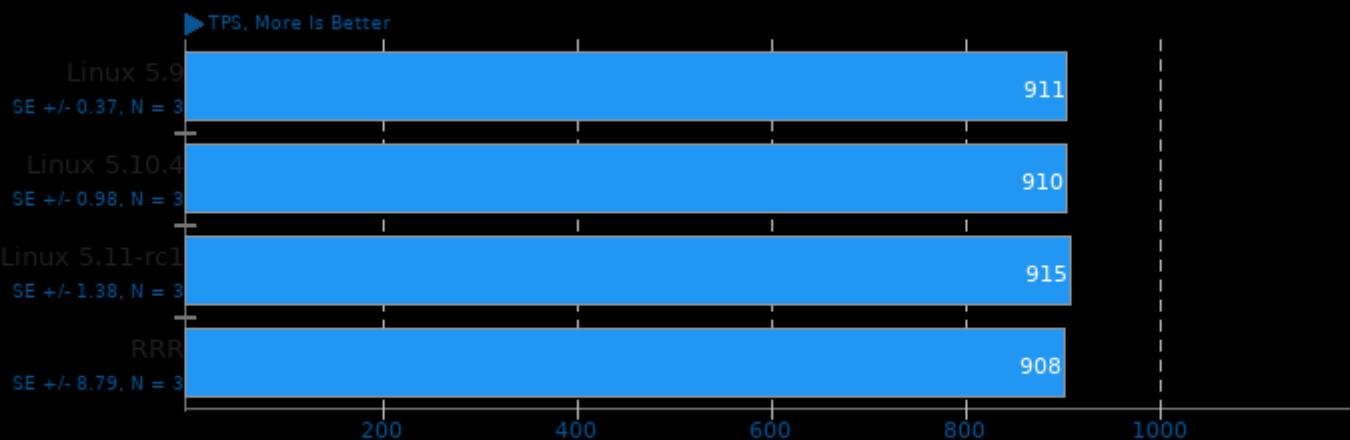
Scaling Factor: 1 - Clients: 1 - Mode: Read Only - Average Latency



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

PostgreSQL pgbench 13.0

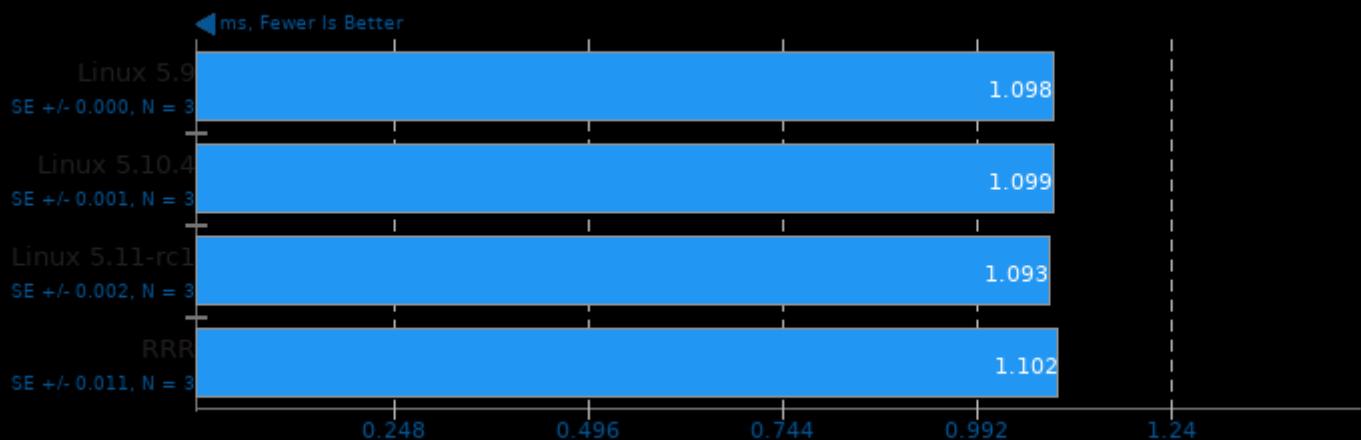
Scaling Factor: 1 - Clients: 1 - Mode: Read Write



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

PostgreSQL pgbench 13.0

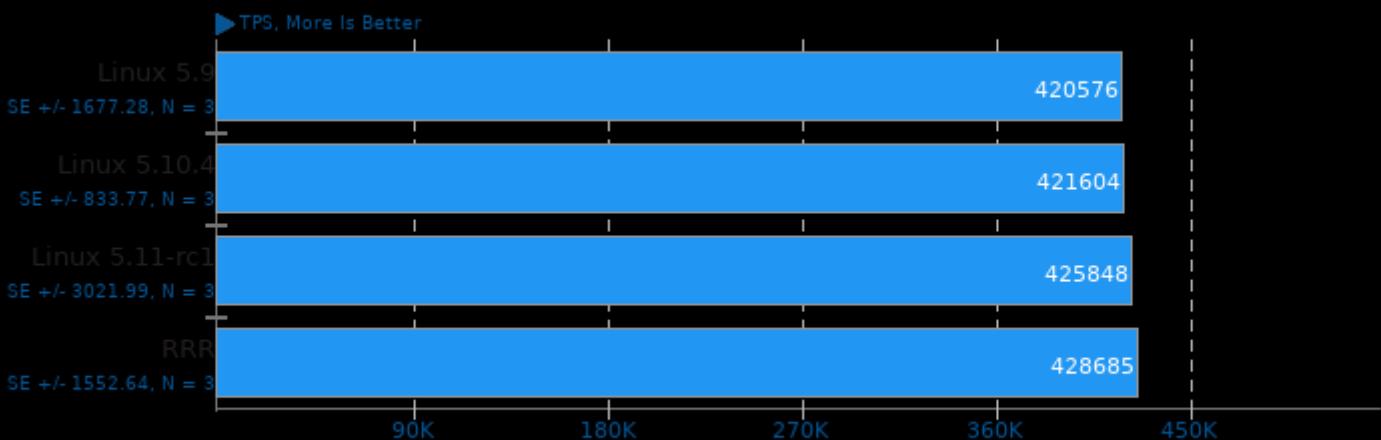
Scaling Factor: 1 - Clients: 1 - Mode: Read Write - Average Latency



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

PostgreSQL pgbench 13.0

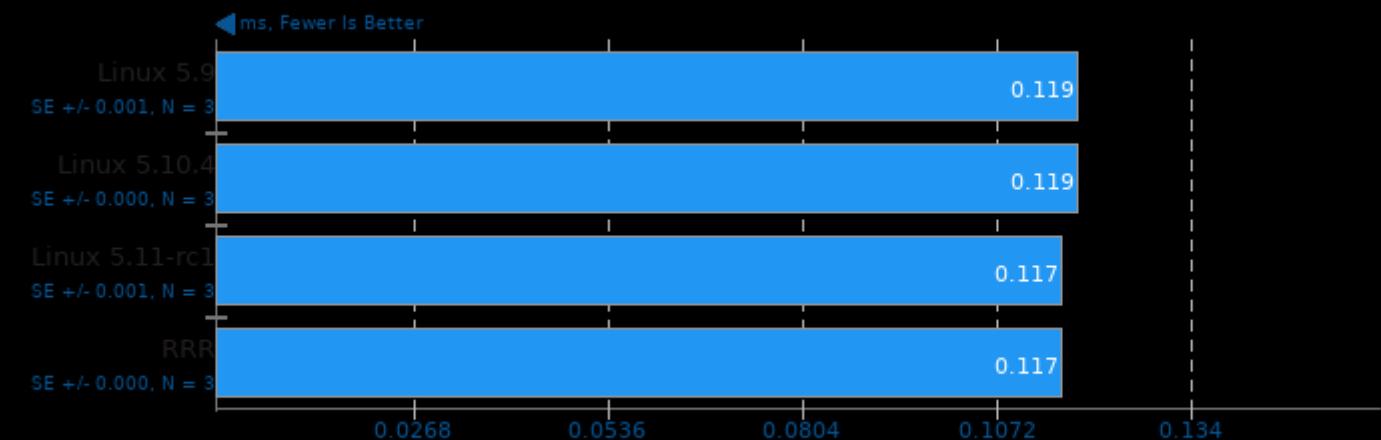
Scaling Factor: 1 - Clients: 50 - Mode: Read Only



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

PostgreSQL pgbench 13.0

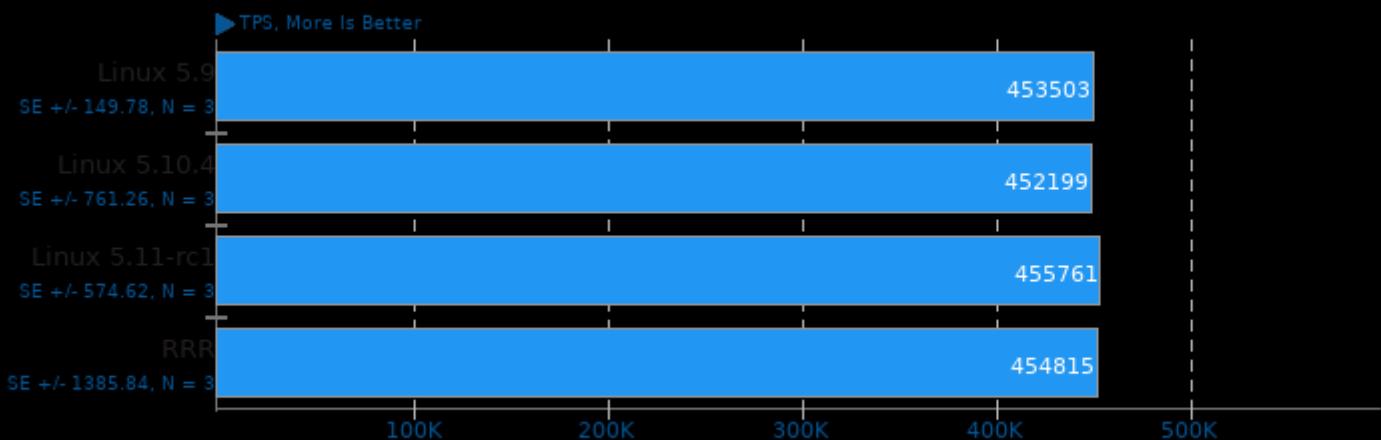
Scaling Factor: 1 - Clients: 50 - Mode: Read Only - Average Latency



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

PostgreSQL pgbench 13.0

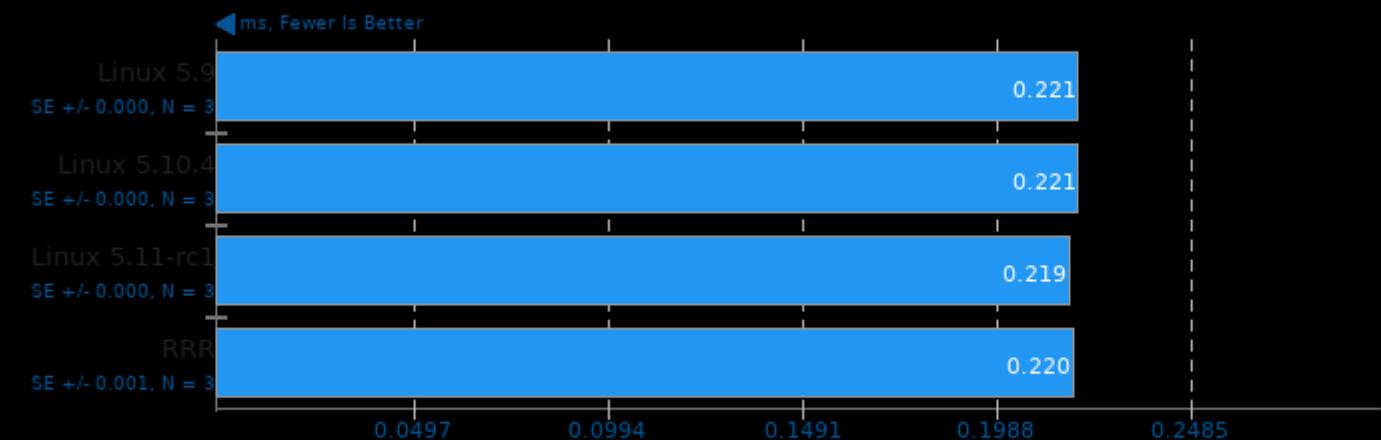
Scaling Factor: 1 - Clients: 100 - Mode: Read Only



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

PostgreSQL pgbench 13.0

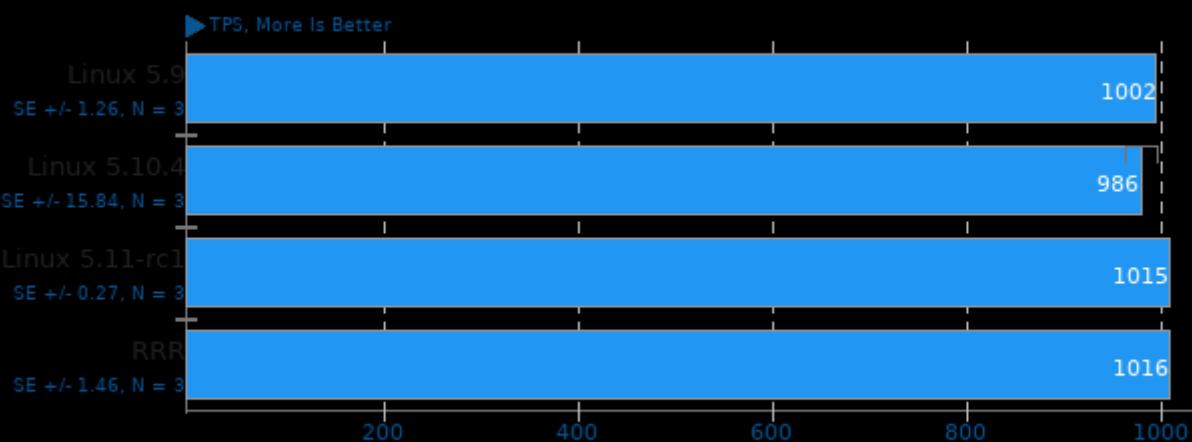
Scaling Factor: 1 - Clients: 100 - Mode: Read Only - Average Latency



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

PostgreSQL pgbench 13.0

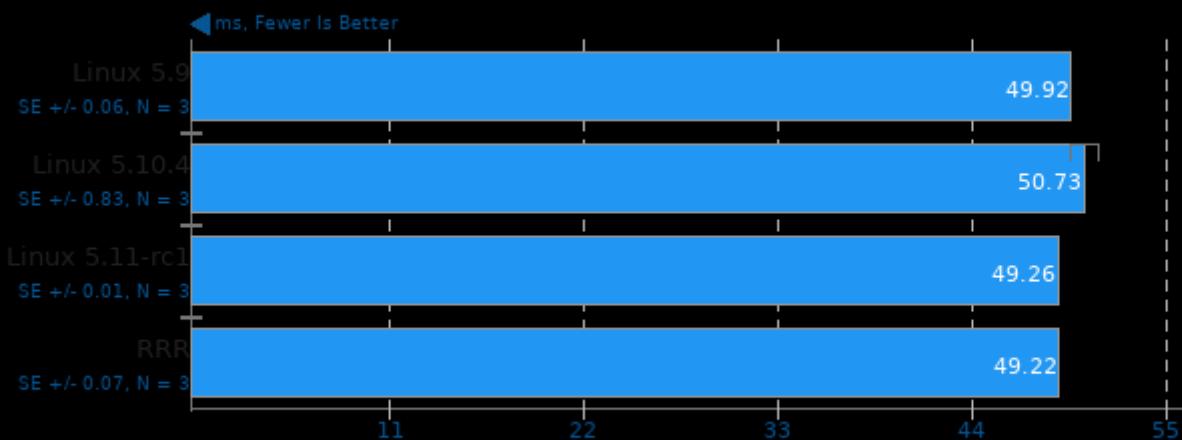
Scaling Factor: 1 - Clients: 50 - Mode: Read Write



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

PostgreSQL pgbench 13.0

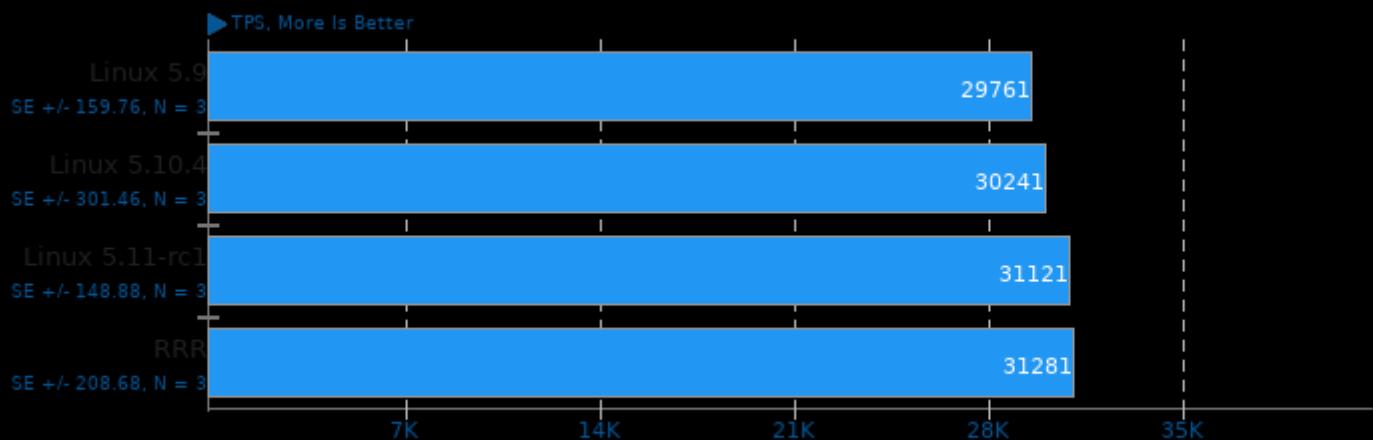
Scaling Factor: 1 - Clients: 50 - Mode: Read Write - Average Latency



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

PostgreSQL pgbench 13.0

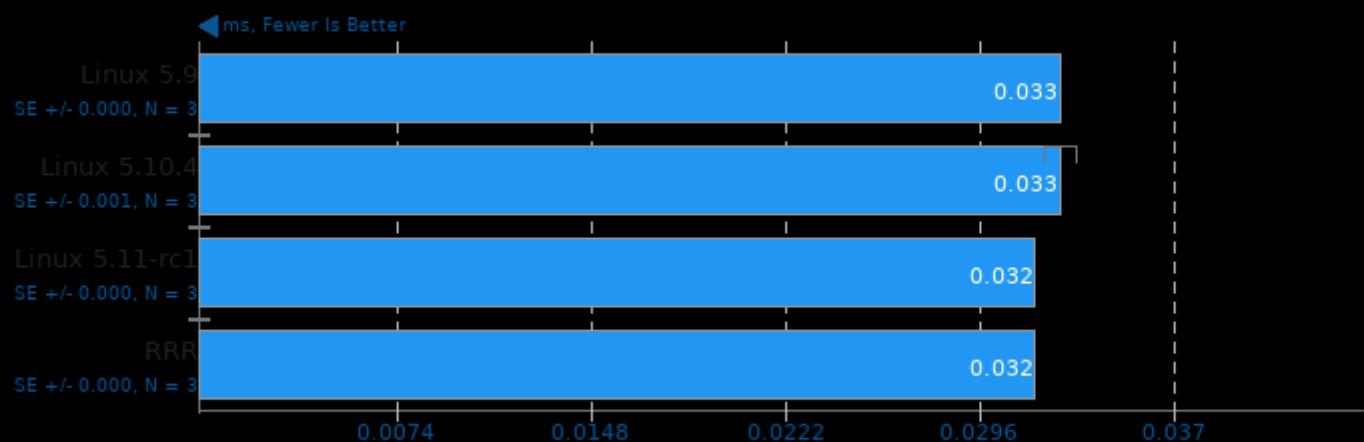
Scaling Factor: 100 - Clients: 1 - Mode: Read Only



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

PostgreSQL pgbench 13.0

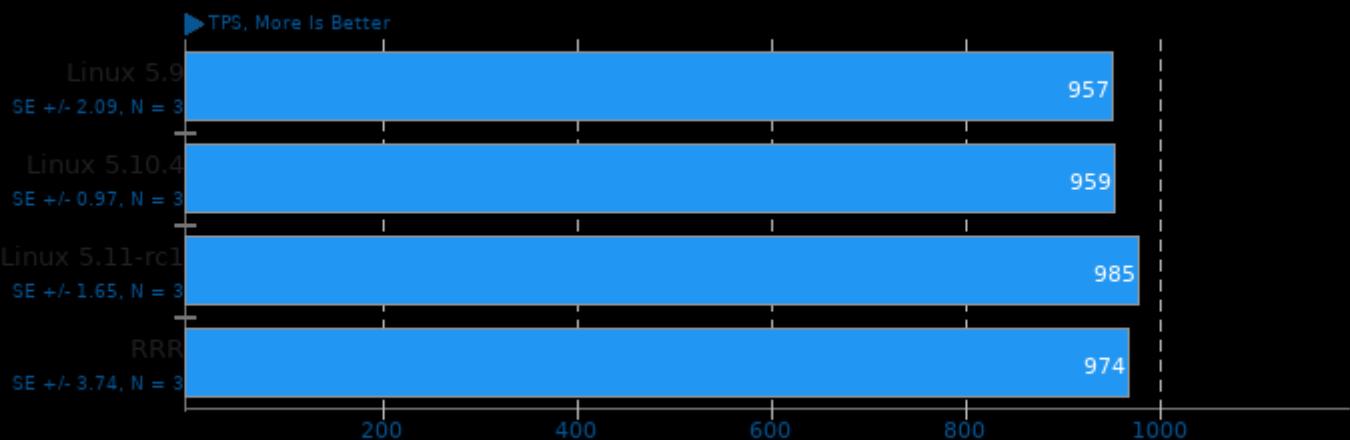
Scaling Factor: 100 - Clients: 1 - Mode: Read Only - Average Latency



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

PostgreSQL pgbench 13.0

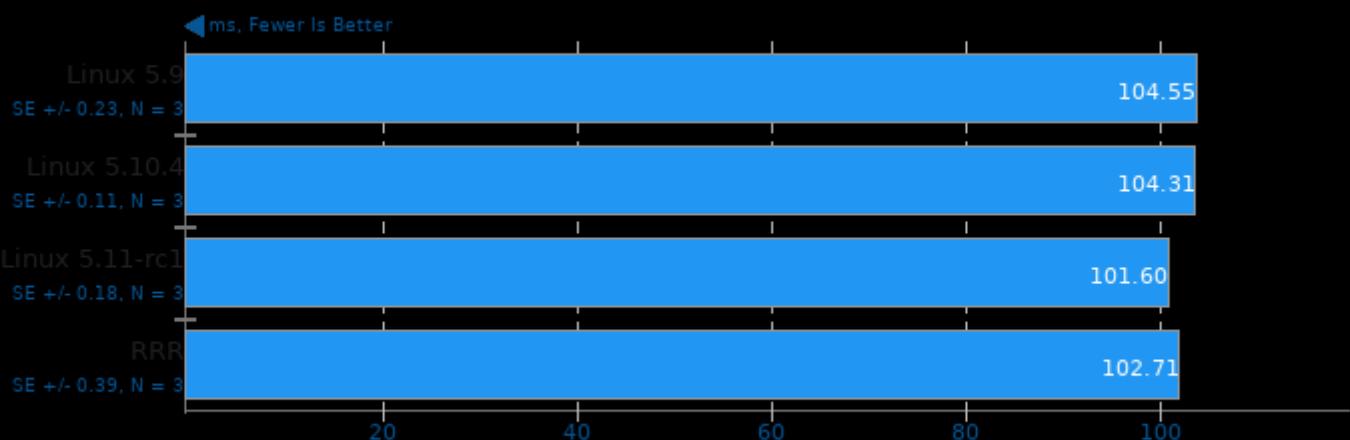
Scaling Factor: 1 - Clients: 100 - Mode: Read Write



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

PostgreSQL pgbench 13.0

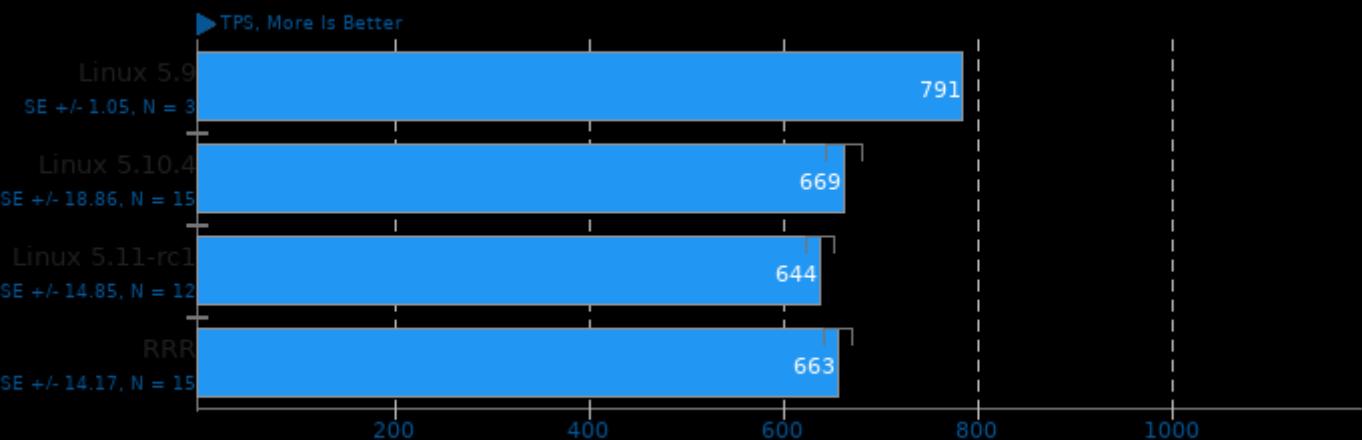
Scaling Factor: 1 - Clients: 100 - Mode: Read Write - Average Latency



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

PostgreSQL pgbench 13.0

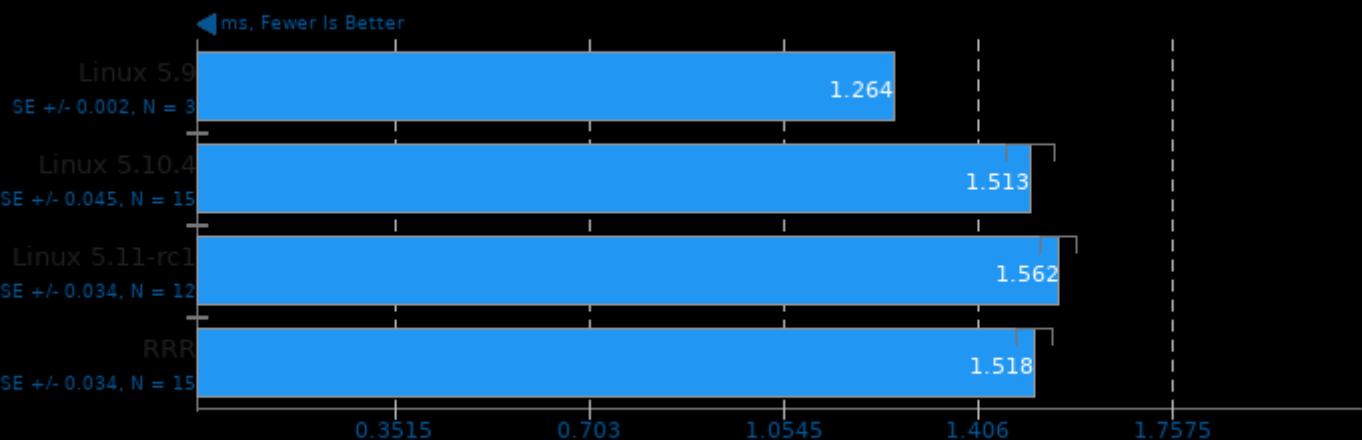
Scaling Factor: 100 - Clients: 1 - Mode: Read Write



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

PostgreSQL pgbench 13.0

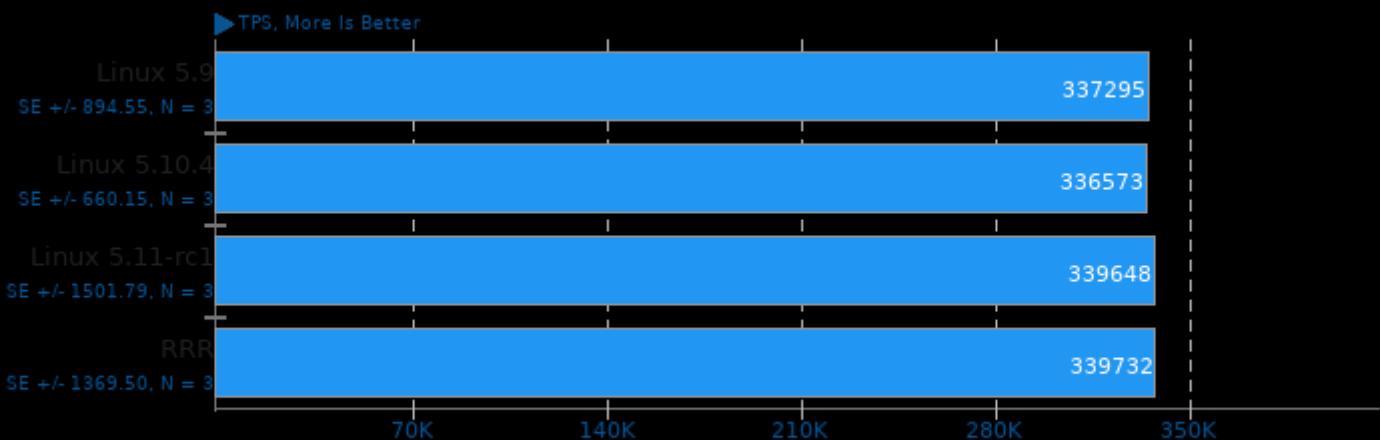
Scaling Factor: 100 - Clients: 1 - Mode: Read Write - Average Latency



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

PostgreSQL pgbench 13.0

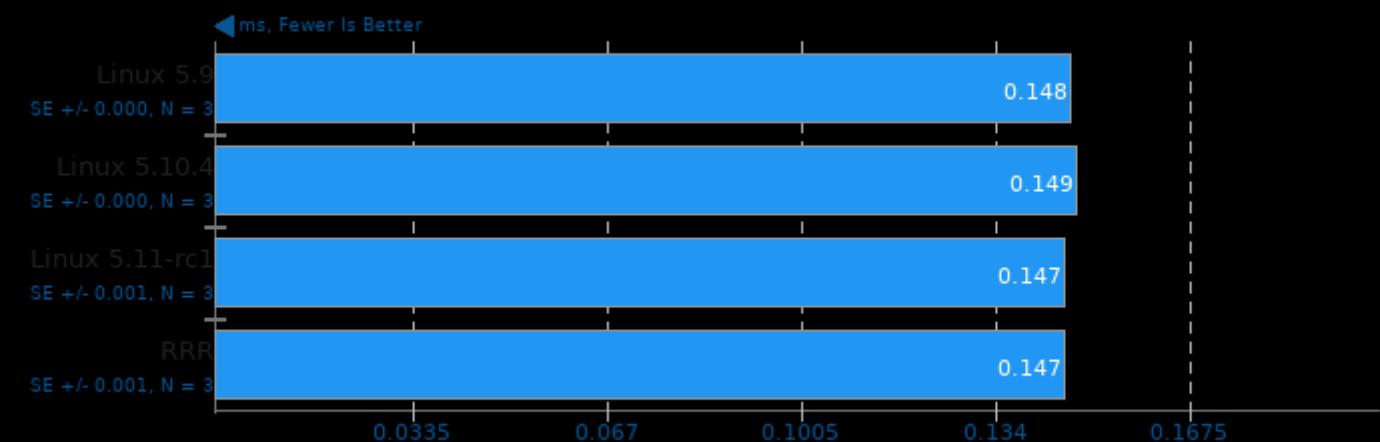
Scaling Factor: 100 - Clients: 50 - Mode: Read Only



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

PostgreSQL pgbench 13.0

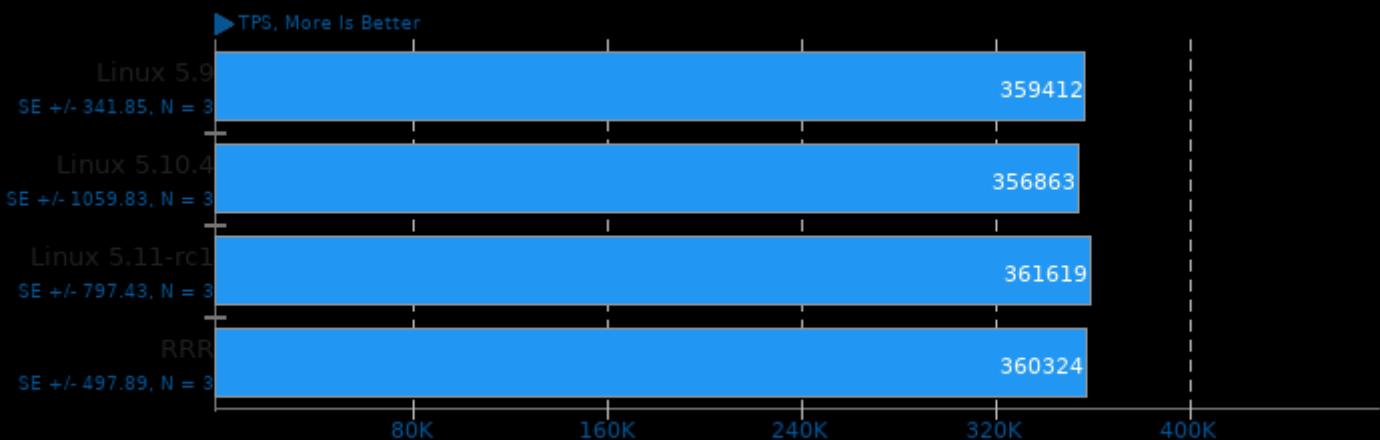
Scaling Factor: 100 - Clients: 50 - Mode: Read Only - Average Latency



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

PostgreSQL pgbench 13.0

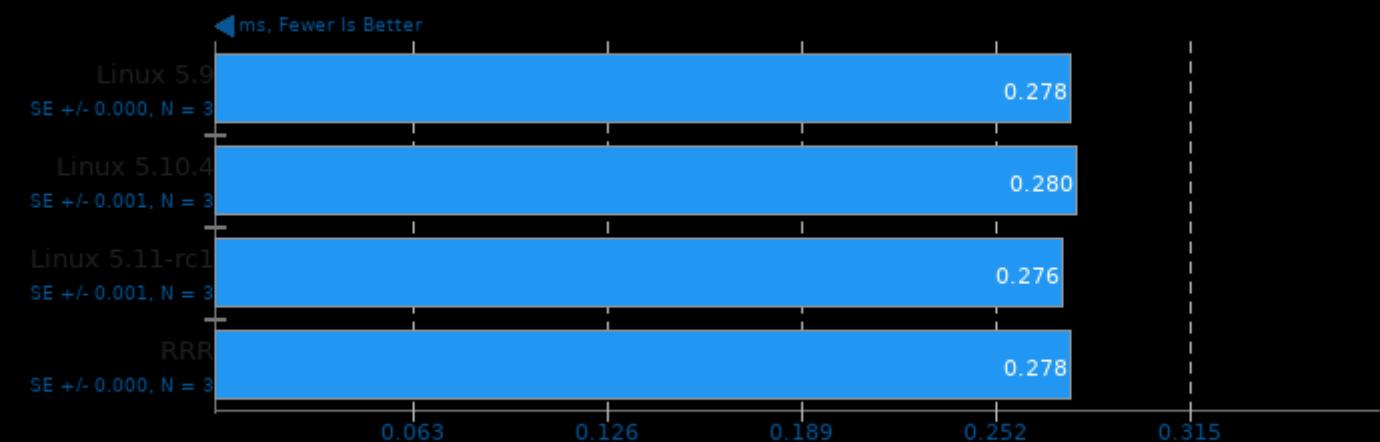
Scaling Factor: 100 - Clients: 100 - Mode: Read Only



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

PostgreSQL pgbench 13.0

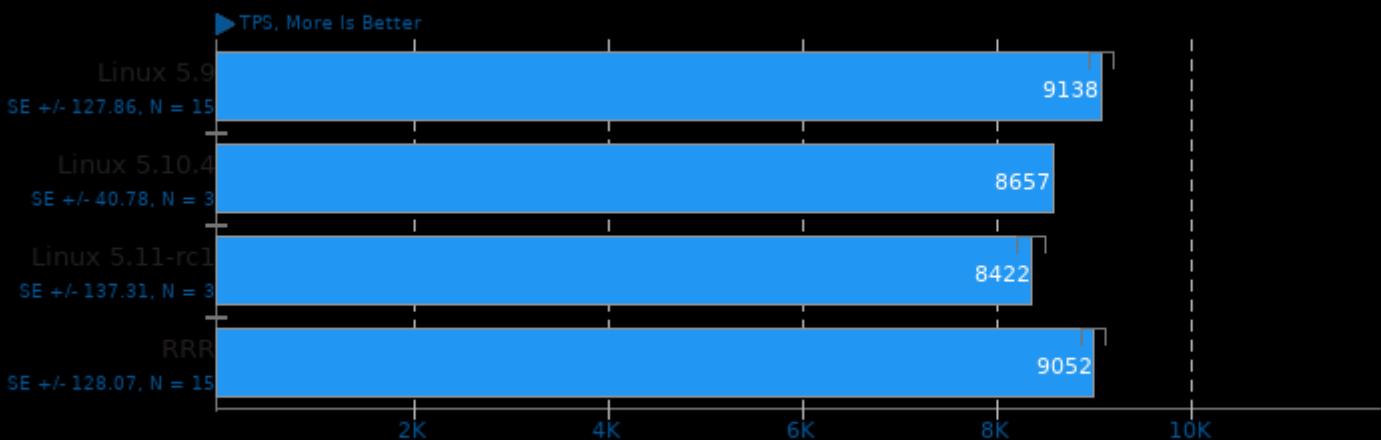
Scaling Factor: 100 - Clients: 100 - Mode: Read Only - Average Latency



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

PostgreSQL pgbench 13.0

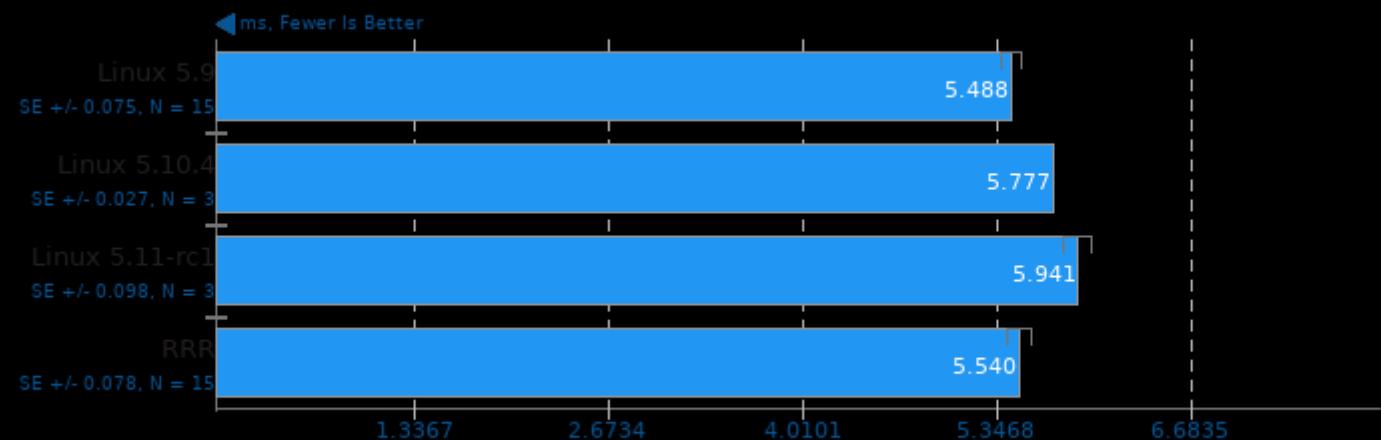
Scaling Factor: 100 - Clients: 50 - Mode: Read Write



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

PostgreSQL pgbench 13.0

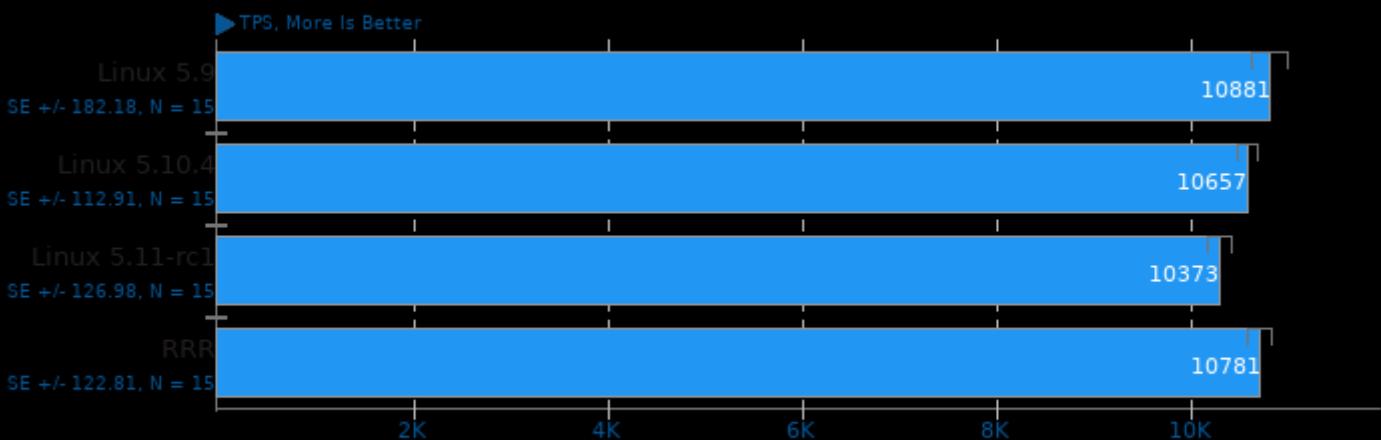
Scaling Factor: 100 - Clients: 50 - Mode: Read Write - Average Latency



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

PostgreSQL pgbench 13.0

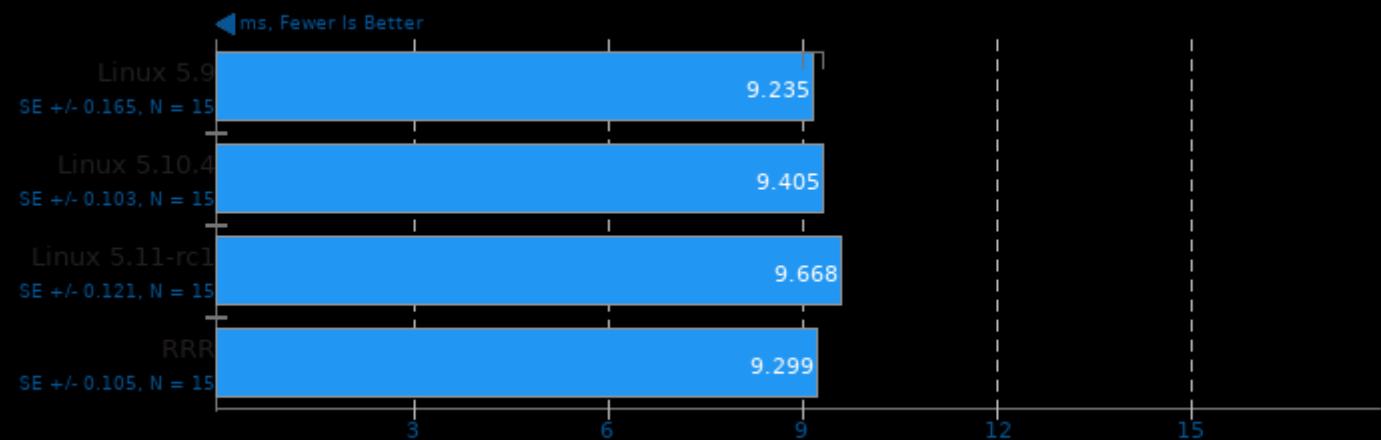
Scaling Factor: 100 - Clients: 100 - Mode: Read Write



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

PostgreSQL pgbench 13.0

Scaling Factor: 100 - Clients: 100 - Mode: Read Write - Average Latency



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

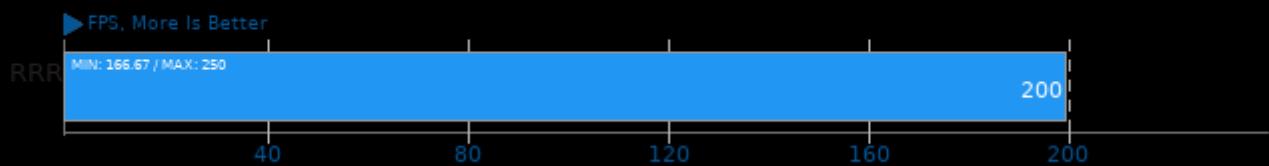
OSpray 1.8.5

Demo: Magnetic Reconnection - Renderer: SciVis



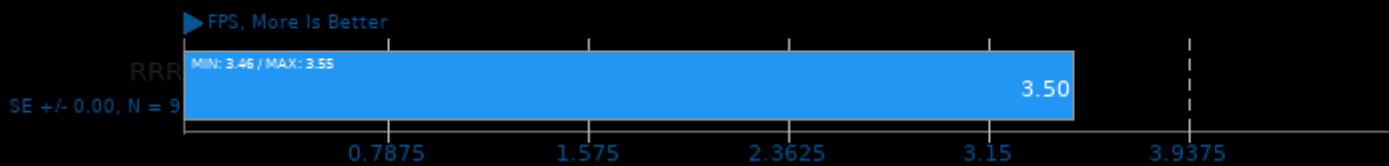
OSPray 1.8.5

Demo: Magnetic Reconnection - Renderer: Path Tracer



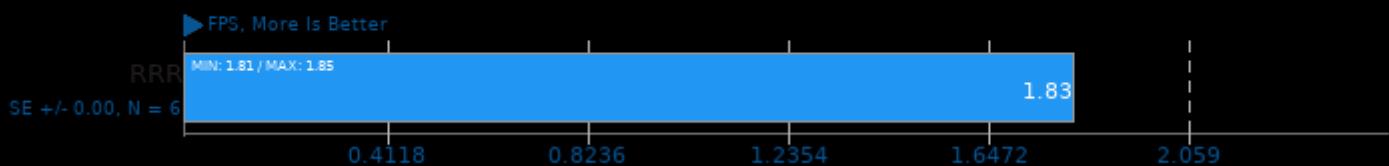
OSPray 1.8.5

Demo: XFrog Forest - Renderer: SciVis



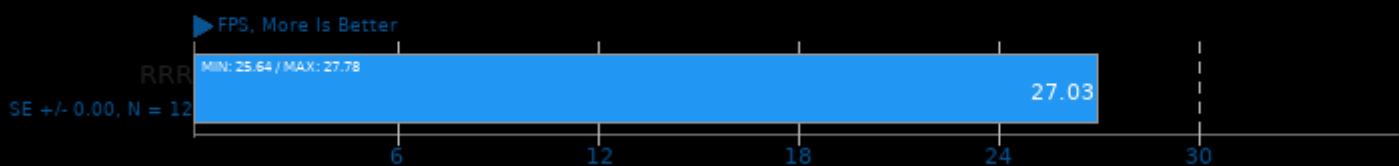
OSPray 1.8.5

Demo: XFrog Forest - Renderer: Path Tracer



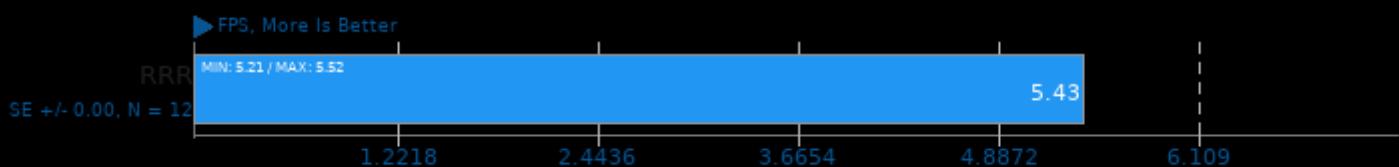
OSPray 1.8.5

Demo: NASA Streamlines - Renderer: SciVis



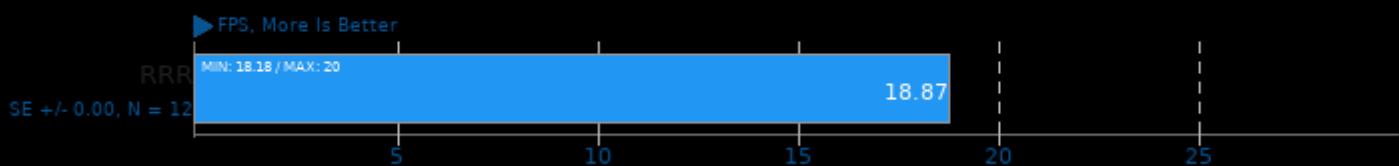
OSPray 1.8.5

Demo: NASA Streamlines - Renderer: Path Tracer



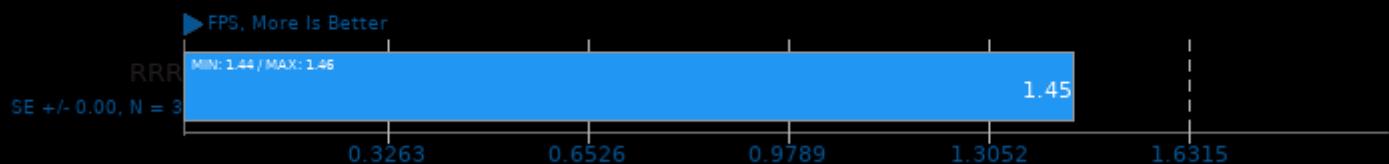
OSPray 1.8.5

Demo: San Miguel - Renderer: SciVis



OSPray 1.8.5

Demo: San Miguel - Renderer: Path Tracer



C-Ray 1.1

Total Time - 4K, 16 Rays Per Pixel



1. (CC) gcc options: -lm -lpthread -O3

Tachyon 0.99b6

Total Time



1. (CC) gcc options: -m64 -O3 -fomit-frame-pointer -ffast-math -ltachyon -lm -lpthread

POV-Ray 3.7.0.7

Trace Time



1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -pthread -lSDL -lSM -ICE -lXi11 -lImImf -lImath -lHalf -llex -llexMath -lImThread -lpthread -ltif

rays1bench 2020-01-09

Large Scene



YafaRay 3.4.1

Total Time For Sample Scene



1. (CXX) g++ options: -std=c++11 -O3 -ffast-math -rdynamic -ldl -lmath -lilm -lmf -lex -lHalf -lz -lilmThread -lxm12 -lfreetype -lpthread

Blender 2.90

Blend File: BMW27 - Compute: CPU-Only



Blender 2.90

Blend File: Classroom - Compute: CPU-Only



Blender 2.90

Blend File: Fishy Cat - Compute: CPU-Only



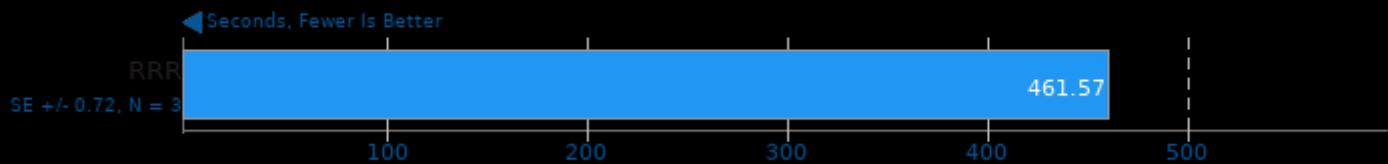
Blender 2.90

Blend File: Pabellon Barcelona - Compute: CPU-Only



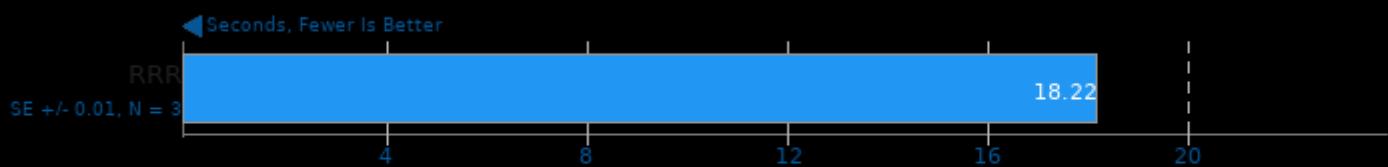
Blender 2.90

Blend File: Barbershop - Compute: CPU-Only



Tungsten Renderer 0.2.2

Scene: Hair



1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

Tungsten Renderer 0.2.2

Scene: Water Caustic



1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

Tungsten Renderer 0.2.2

Scene: Non-Exponential

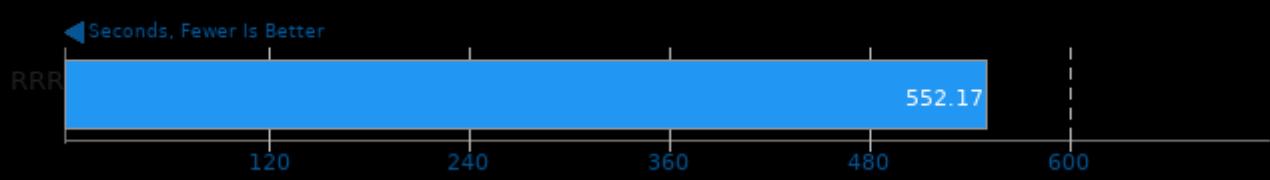
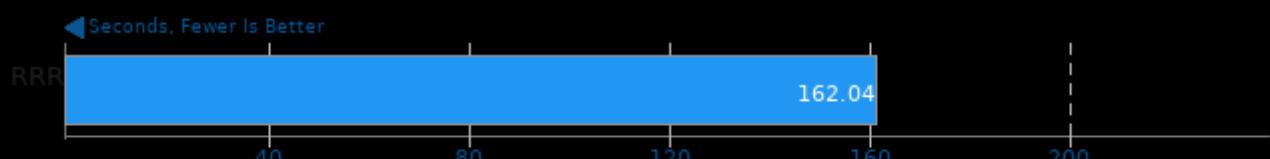
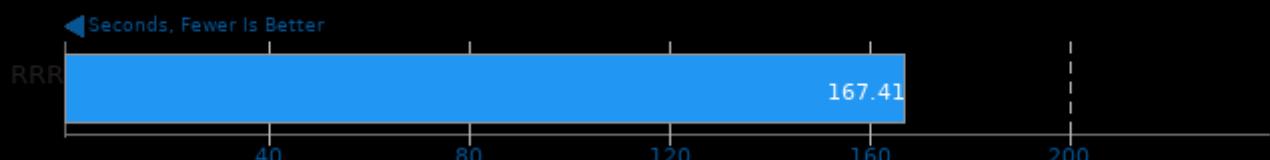
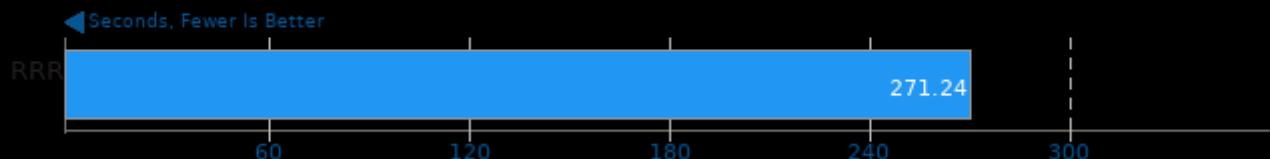


1. (CXX) g++ options: -std=c++0x -march=znver1 -msse2 -msse3 -mssse3 -msse4.1 -msse4.2 -msse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -m

Tungsten Renderer 0.2.2

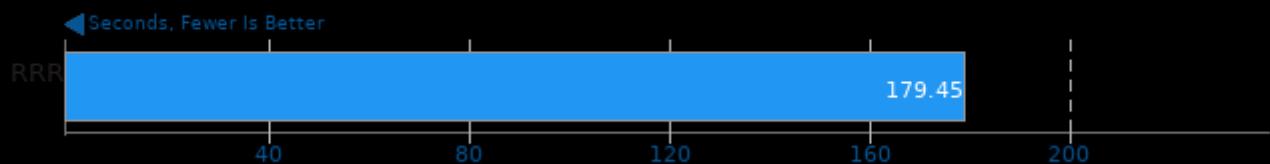


1. (CXX) g++ options: -std=c++0x -march=znver1 -mssse2 -mssse3 -mssse3 -mssse4_1 -mssse4_2 -mssse4a -mfma -mbmi2 -mno-avx -mno-avx2 -mno-xop -mno-



Radiance Benchmark 5.0

Test: SMP Parallel



AOBench

Size: 2048 x 2048 - Total Time



1. (CC) gcc options: -lm -O3

LuxCoreRender 2.3

Scene: DLSC



LuxCoreRender 2.3

Scene: Rainbow Colors and Prism



Smallpt 1.0

Global Illumination Renderer; 128 Samples



1. (CXX) g++ options: -fopenmp -O3

TTSIOD 3D Renderer 2.3b

Phong Rendering With Soft-Shadow Mapping



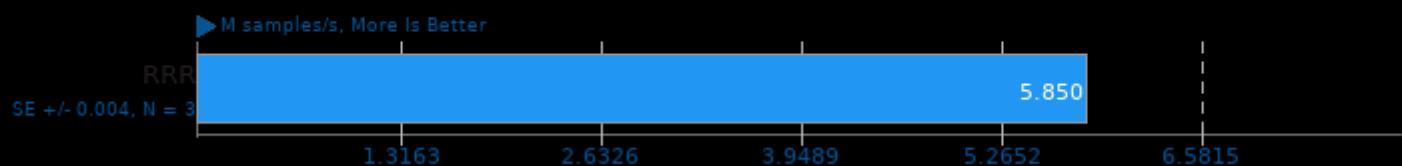
1. (CXX) g++ options: -O3 -fomit-frame-pointer -ffast-math -mtune=native -fno -msse -mrecip -mfpmath=sse -msse2 -msse3 -fSSE -fopenmp -fwhole-pr

Chaos Group V-RAY 4.10.07

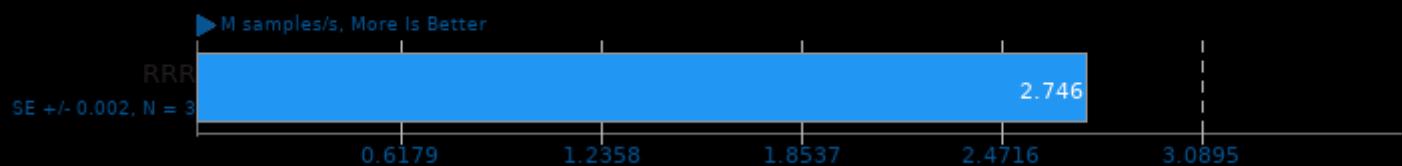
Mode: CPU

**IndigoBench 4.4**

Acceleration: CPU - Scene: Supercar

**IndigoBench 4.4**

Acceleration: CPU - Scene: Bedroom

**Tesseract OCR 4.1.1**

Time To OCR 7 Images



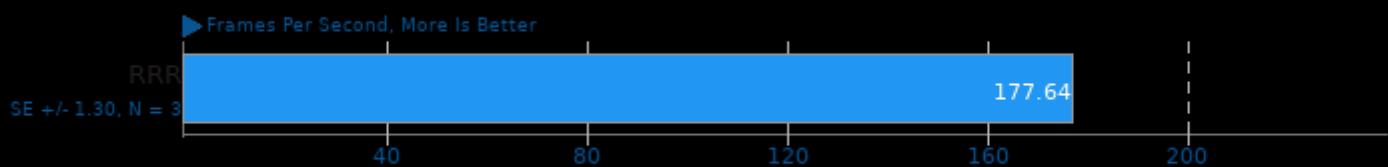
OCRMyPDF 9.6.0+dfsg

Processing 60 Page PDF Document



SVT-VP9 0.1

Tuning: Visual Quality Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

SVT-VP9 0.1

Tuning: PSNR/SSIM Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

SVT-VP9 0.1

Tuning: VMAF Optimized - Input: Bosphorus 1080p



1. (CC) gcc options: -O3 -fcommon -fPIE -fPIC -fvisibility=hidden -pie -rdynamic -lpthread -lrt -lm

SVT-HEVC 1.4.1

1080p 8-bit YUV To HEVC Video Encode



1. (CC) gcc options: -fPIE -fPIC -O3 -O2 -pie -rdynamic -lpthread -lrt

Kvazaar 2.0

Video Input: Bosphorus 1080p - Video Preset: Slow



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

Kvazaar 2.0

Video Input: Bosphorus 4K - Video Preset: Slow



1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -lpthread -lm -lrt

FFmpeg 4.0.2

H.264 HD To NTSC DV



1. (CC) gcc options: -lavdevice -lavfilter -lavformat -lavcodec -lswresample -lswscale -lavutil -lXv -lX11 -lXext -lm -lxcb -lasound -lSDL2 -lsndio -pthread -lv

VP9 libvpx Encoding 1.8.2

Speed: Speed 5



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

VP9 libvpx Encoding 1.8.2

Speed: Speed 0



1. (CXX) g++ options: -m64 -lm -lpthread -O3 -fPIC -U_FORTIFY_SOURCE -std=c++11

dav1d 0.7.0

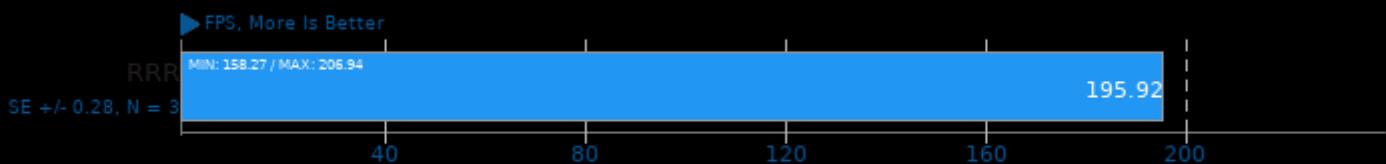
Video Input: Summer Nature 1080p



1. (CC) gcc options: -pthread

dav1d 0.7.0

Video Input: Summer Nature 4K



1. (CC) gcc options: -pthread

dav1d 0.7.0

Video Input: Chimera 1080p



1. (CC) gcc options: -pthread

dav1d 0.7.0

Video Input: Chimera 1080p 10-bit



1. (CC) gcc options: -pthread

AOM AV1 2.0

Encoder Mode: Speed 8 Realtime



1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

AOM AV1 2.0

Encoder Mode: Speed 6 Realtime



1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

AOM AV1 2.0

Encoder Mode: Speed 6 Two-Pass



1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

AOM AV1 2.0

Encoder Mode: Speed 4 Two-Pass



1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

AOM AV1 2.0

Encoder Mode: Speed 0 Two-Pass



1. (CXX) g++ options: -O3 -std=c++11 -U_FORTIFY_SOURCE -lm -lpthread

SVT-AV1 0.8

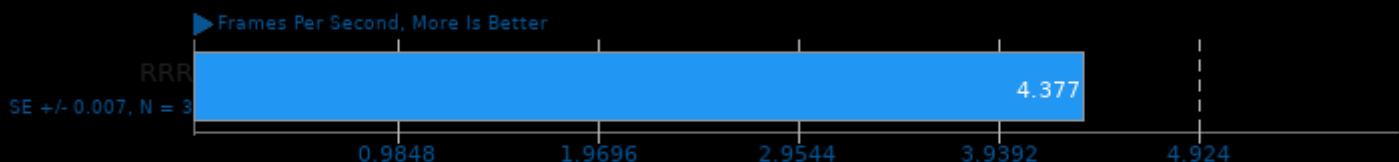
Encoder Mode: Enc Mode 8 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

SVT-AV1 0.8

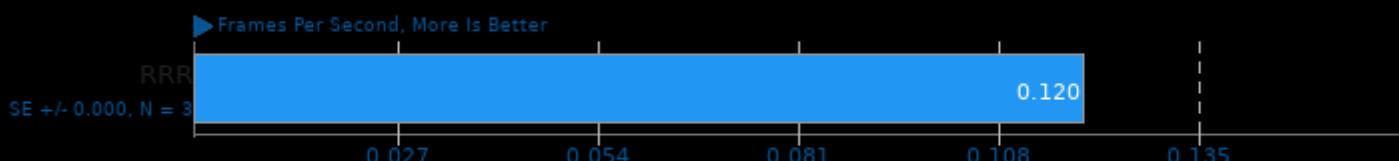
Encoder Mode: Enc Mode 4 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

SVT-AV1 0.8

Encoder Mode: Enc Mode 0 - Input: 1080p



1. (CXX) g++ options: -O3 -fcommon -fPIE -fPIC -pie

libgav1 2019-10-05

Video Input: Summer Nature 1080p



1. (CXX) g++ options: -O3 -lpthread

libgav1 2019-10-05

Video Input: Summer Nature 4K



1. (CXX) g++ options: -O3 -lpthread

libgav1 2019-10-05

Video Input: Chimera 1080p



1. (CXX) g++ options: -O3 -lpthread

libgavl 2019-10-05

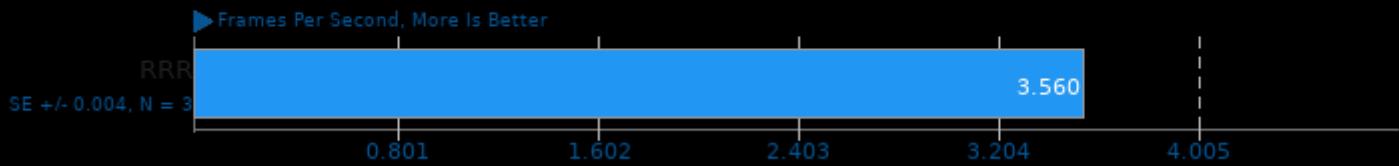
Video Input: Chimera 1080p 10-bit



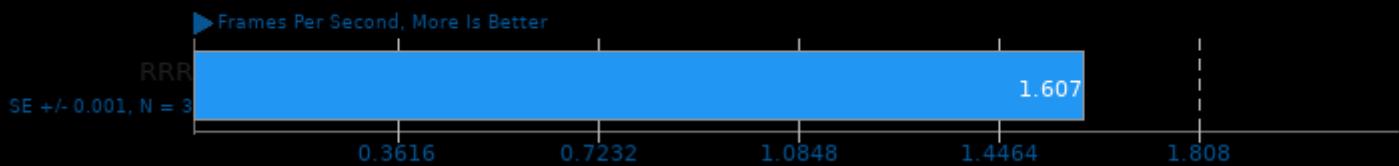
1. (CXX) g++ options: -O3 -lpthread

rav1e 0.4 Alpha

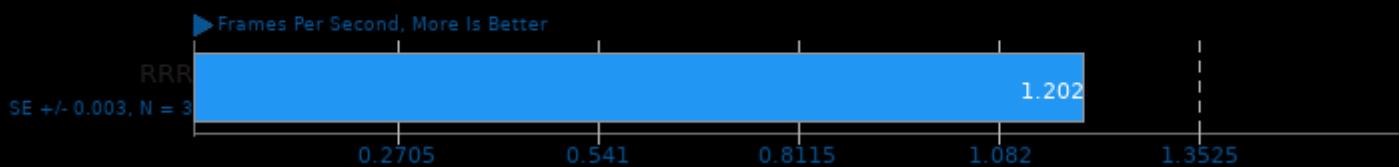
Speed: 10

**rav1e 0.4 Alpha**

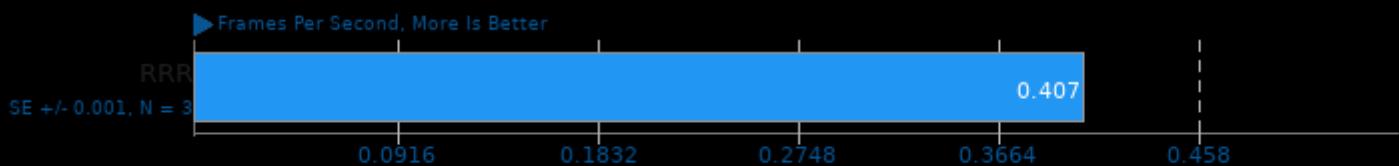
Speed: 6

**rav1e 0.4 Alpha**

Speed: 5

**rav1e 0.4 Alpha**

Speed: 1



libavif avifenc 0.7.3

Encoder Speed: 0



1. (CXX) g++ options: -O3 -fPIC

libavif avifenc 0.7.3

Encoder Speed: 2



1. (CXX) g++ options: -O3 -fPIC

libavif avifenc 0.7.3

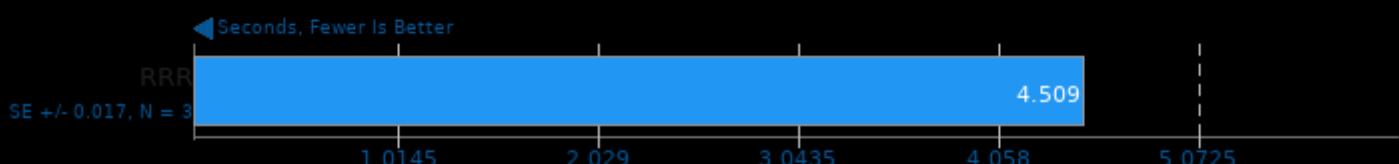
Encoder Speed: 8



1. (CXX) g++ options: -O3 -fPIC

libavif avifenc 0.7.3

Encoder Speed: 10



1. (CXX) g++ options: -O3 -fPIC

LAME MP3 Encoding 3.100

WAV To MP3



1. (CC) gcc options: -O3 -ffast-math -funroll-loops -fschedule-insns2 -fbranch-count-reg -fforce-addr -pipe -fincruste -fim

Ogg Audio Encoding 1.3.4

WAV To Ogg



1. (CC) gcc options: -O2 -ffast-math -fsigned-char

FLAC Audio Encoding 1.3.2

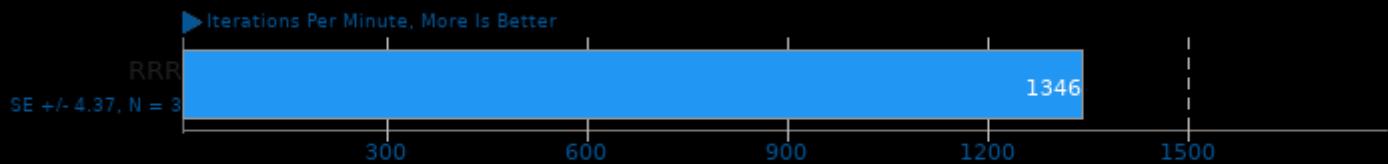
WAV To FLAC



1. (CXX) g++ options: -O2 -fvisibility=hidden -log -lm

GraphicsMagick 1.3.33

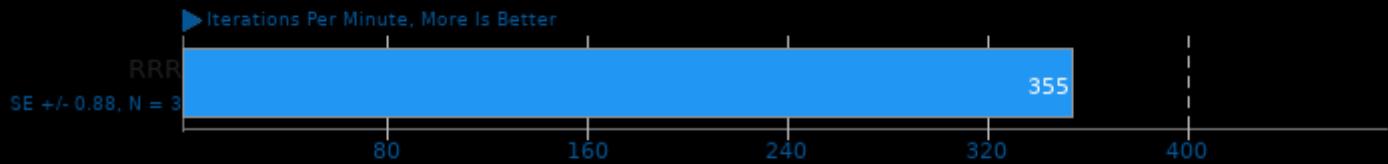
Operation: HWB Color Space



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

GraphicsMagick 1.3.33

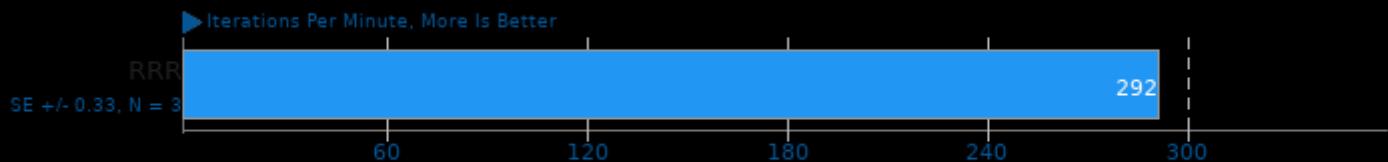
Operation: Noise-Gaussian



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

GraphicsMagick 1.3.33

Operation: Enhanced



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

Operation: Resizing



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

Operation: Rotate



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

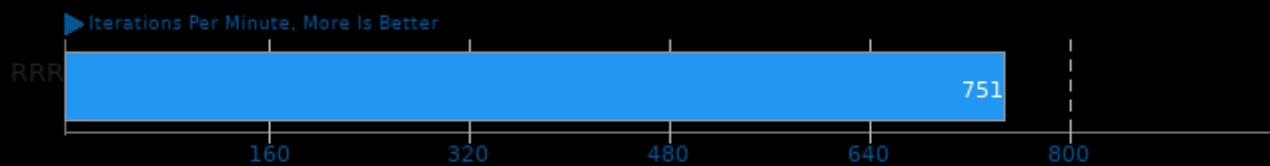
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O2 -pthread -ljpeg -lwebp -lwebpmux -ltiff -lfreetype -ljpeg -lxml2 -lz -lm -lpthread

GraphicsMagick 1.3.33

Operation: Swirl



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

Inkscape

Operation: SVG Files To PNG



1. Inkscape 0.92.5 (2060ec1f9f, 2020-04-08)

G'MIC

Test: 2D Function Plotting, 1000 Times



1. Version 2.4.5, Copyright (c) 2008-2019, David Tschumperle.

G'MIC

Test: Plotting Isosurface Of A 3D Volume, 1000 Times



1. Version 2.4.5, Copyright (c) 2008-2019, David Tschumperle.

G'MIC

Test: 3D Elevated Function In Random Colors, 100 Times



1. Version 2.4.5, Copyright (c) 2008-2019, David Tschumperle.

LibRaw 0.20

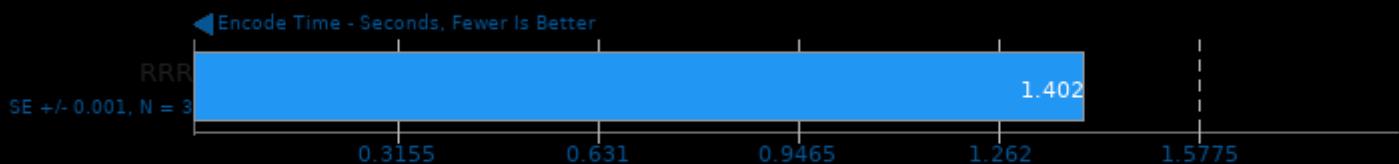
Post-Processing Benchmark



1. (CXX) g++ options: -O2 -fopenmp -ljpeg -lz -lm

WebP Image Encode 1.1

Encode Settings: Default



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

Encode Settings: Quality 100



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

Encode Settings: Quality 100, Highest Compression



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

Encode Settings: Quality 100, Lossless



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

WebP Image Encode 1.1

Encode Settings: Quality 100, Lossless, Highest Compression



1. (CC) gcc options: -fvisibility=hidden -O2 -pthread -lm -ljpeg -lpng16 -ltiff

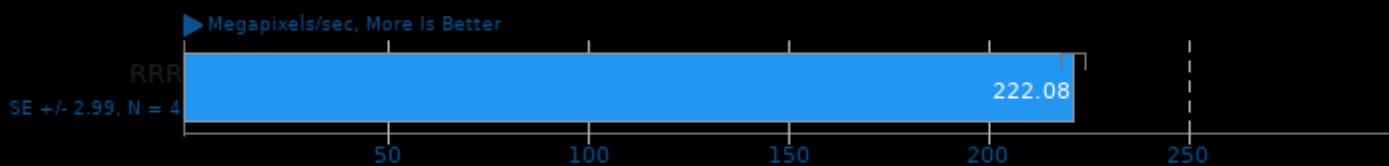
RawTherapee

Total Benchmark Time



1. RawTherapee, version 5.8, command line.

libjpeg-turbo tjbench 2.0.2



1. (CC) gcc options: -O3 -rdynamic

GIMP 2.10.18

Test: unsharp-mask



GIMP 2.10.18

Test: resize



GIMP 2.10.18

Test: rotate

**GIMP 2.10.18**

Test: auto-levels

**dcraw**

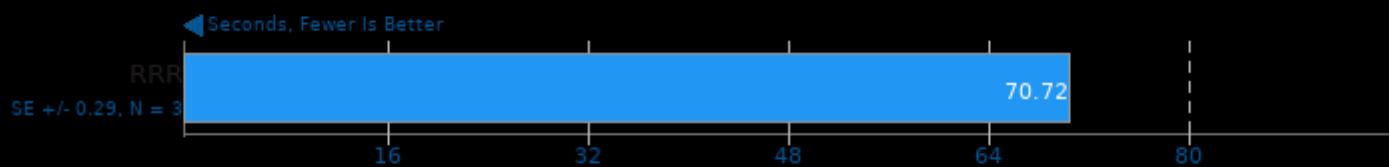
RAW To PPM Image Conversion



1. (CC) gcc options: -lm

Montage Astronomical Image Mosaic Engine 6.0

Mosaic of M17, K band, 1.5 deg x 1.5 deg



1. (CC) gcc options: -std=gnu99 -lcfitsio -lm -O2

Hugin

Panorama Photo Assistant + Stitching Time



Darktable 3.0.1

Test: Boat - Acceleration: CPU-only



Darktable 3.0.1

Test: Masskrug - Acceleration: CPU-only



Darktable 3.0.1

Test: Server Room - Acceleration: CPU-only



Darktable 3.0.1

Test: Server Rack - Acceleration: CPU-only



librsvg

Operation: SVG Files To PNG



1. rsvg-convert version 2.48.9

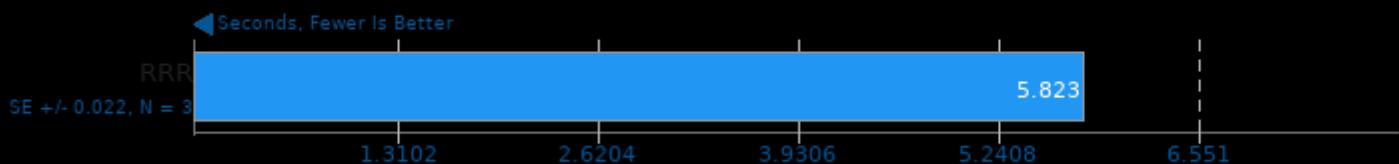
GEGL

Operation: Rotate 90 Degrees



GEGL

Operation: Scale

**GEGL**

Operation: Antialias

**GEGL**

Operation: Cartoon

**GEGL**

Operation: Color Enhance

**GEGL**

Operation: Crop

**GEGL**

Operation: Wavelet Blur



GEGL

Operation: Reflect

**GEGL**

Operation: Tile Glass

**Embree 3.9.0**

Binary: Pathtracer - Model: Asian Dragon

**Embree 3.9.0**

Binary: Pathtracer - Model: Asian Dragon Obj

**Embree 3.9.0**

Binary: Pathtracer - Model: Crown

**Embree 3.9.0**

Binary: Pathtracer ISPC - Model: Asian Dragon



Embree 3.9.0

Binary: Pathtracer ISPC - Model: Asian Dragon Obj



Embree 3.9.0

Binary: Pathtracer ISPC - Model: Crown



oneDNN 2.0

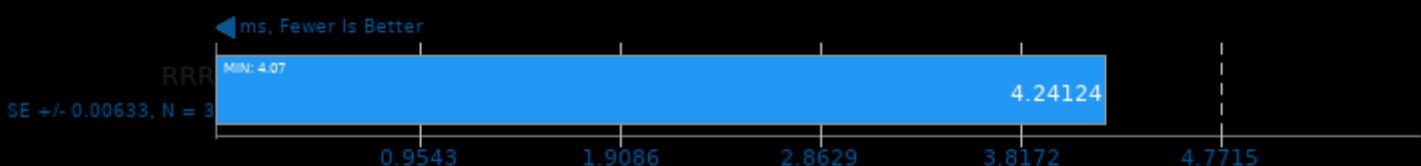
Harness: Convolution Batch Shapes Auto - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

Harness: Deconvolution Batch shapes_1d - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

Harness: Deconvolution Batch shapes_3d - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

Harness: IP Shapes 1D - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

Harness: IP Shapes 3D - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

Harness: Matrix Multiply Batch Shapes Transformer - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

Harness: Recurrent Neural Network Training - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

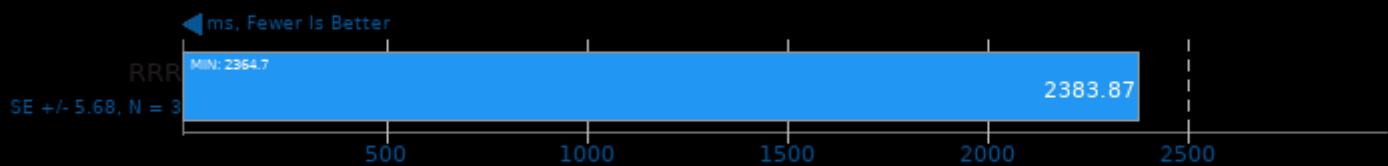
Harness: Recurrent Neural Network Training - Data Type: bf16bf16bf16 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

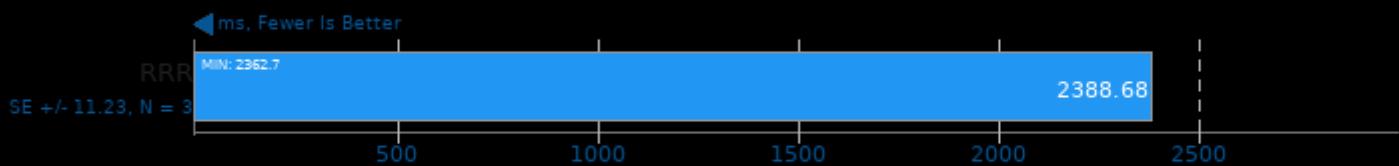
Harness: Recurrent Neural Network Inference - Data Type: u8s8f32 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

oneDNN 2.0

Harness: Recurrent Neural Network Inference - Data Type: bf16bf16bf16 - Engine: CPU



1. (CXX) g++ options: -O3 -std=c++11 -fopenmp -msse4.1 -fPIC -pie -lpthread

Intel Open Image Denoise 1.2.0

Scene: Memorial



OpenVKL 0.9

Benchmark: vklBenchmark



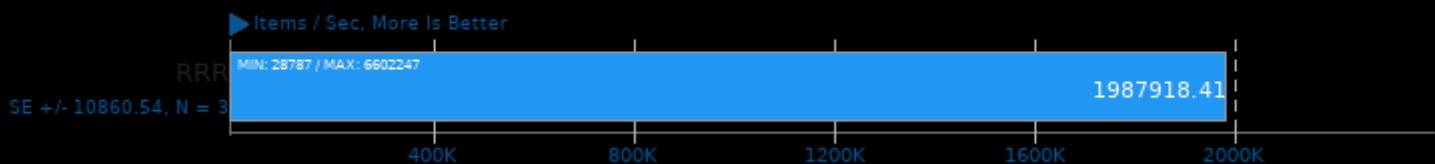
OpenVKL 0.9

Benchmark: vklBenchmarkStructuredVolume



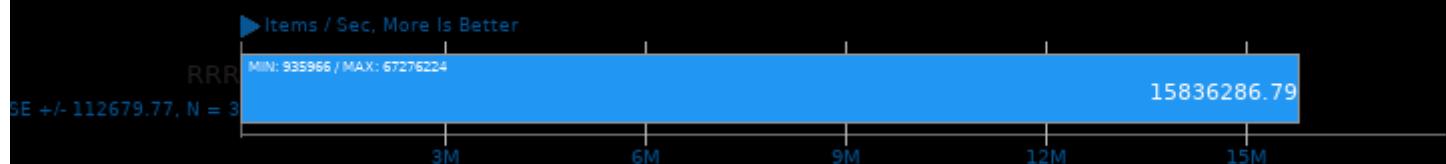
OpenVKL 0.9

Benchmark: vklBenchmarkUnstructuredVolume



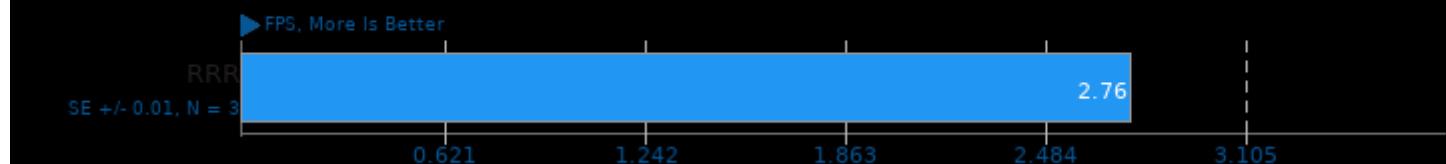
OpenVKL 0.9

Benchmark: vklBenchmarkVdbVolume



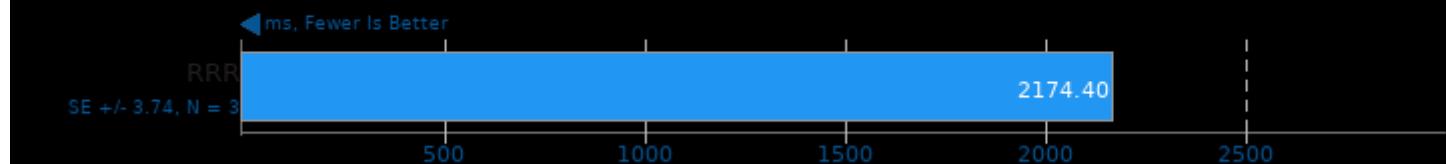
OpenVINO 2021.1

Model: Face Detection 0106 FP16 - Device: CPU



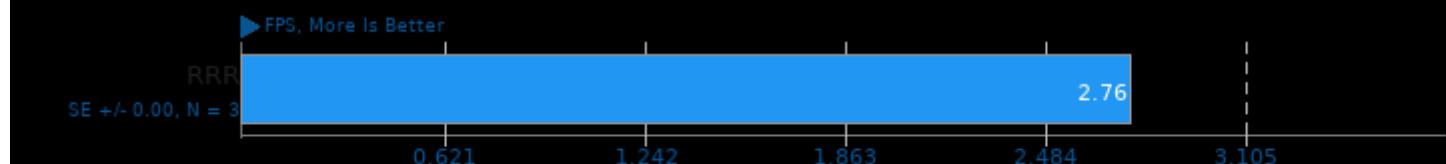
OpenVINO 2021.1

Model: Face Detection 0106 FP16 - Device: CPU



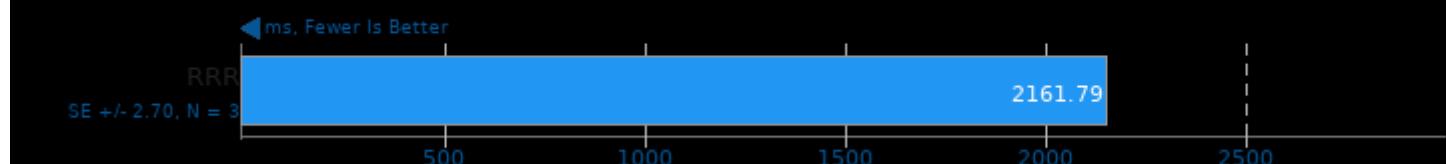
OpenVINO 2021.1

Model: Face Detection 0106 FP32 - Device: CPU



OpenVINO 2021.1

Model: Face Detection 0106 FP32 - Device: CPU



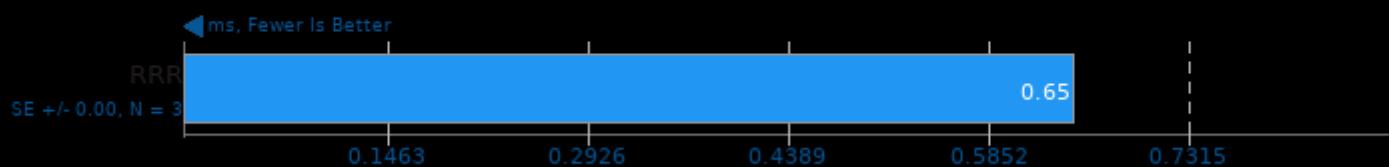
OpenVINO 2021.1

Model: Age Gender Recognition Retail 0013 FP16 - Device: CPU



OpenVINO 2021.1

Model: Age Gender Recognition Retail 0013 FP16 - Device: CPU



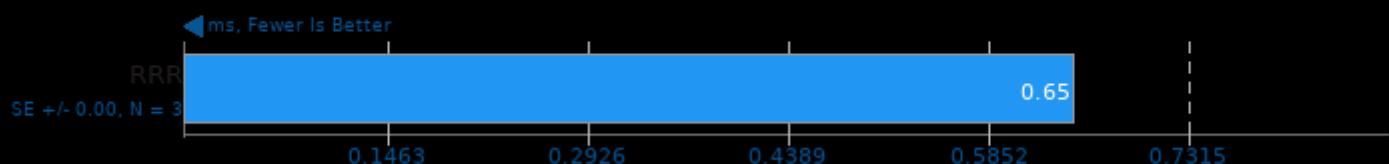
OpenVINO 2021.1

Model: Age Gender Recognition Retail 0013 FP32 - Device: CPU



OpenVINO 2021.1

Model: Age Gender Recognition Retail 0013 FP32 - Device: CPU



OpenVINO 2021.1

Model: Person Detection 0106 FP16 - Device: CPU



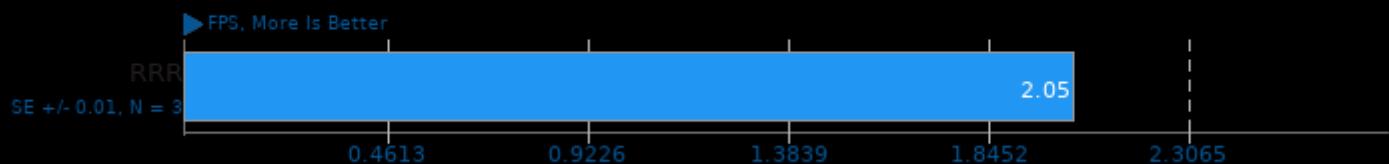
OpenVINO 2021.1

Model: Person Detection 0106 FP16 - Device: CPU



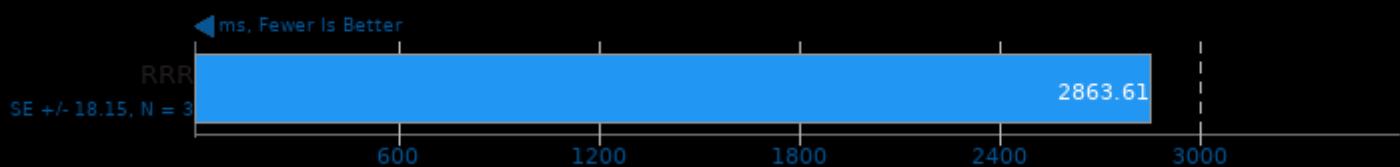
OpenVINO 2021.1

Model: Person Detection 0106 FP32 - Device: CPU



OpenVINO 2021.1

Model: Person Detection 0106 FP32 - Device: CPU



NeatBench 5



Basis Universal 1.12

Settings: ETC1S



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

Basis Universal 1.12

Settings: UASTC Level 0



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

Basis Universal 1.12

Settings: UASTC Level 2



1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

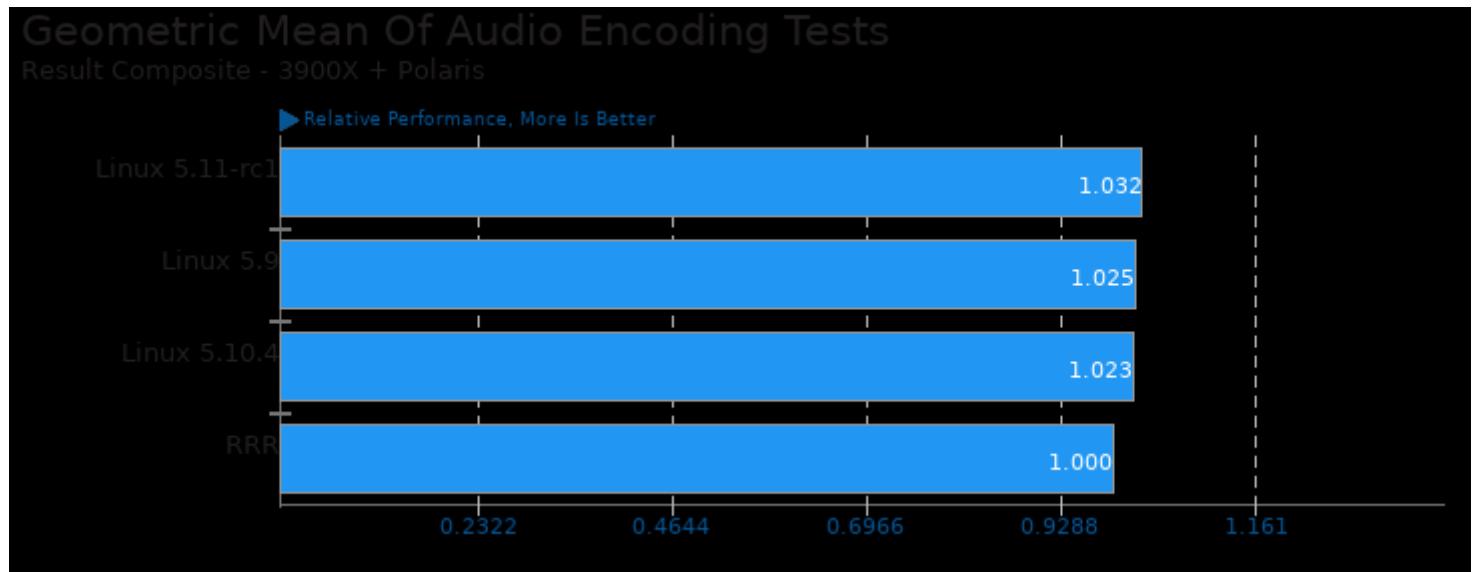
Basis Universal 1.12

Settings: UASTC Level 3

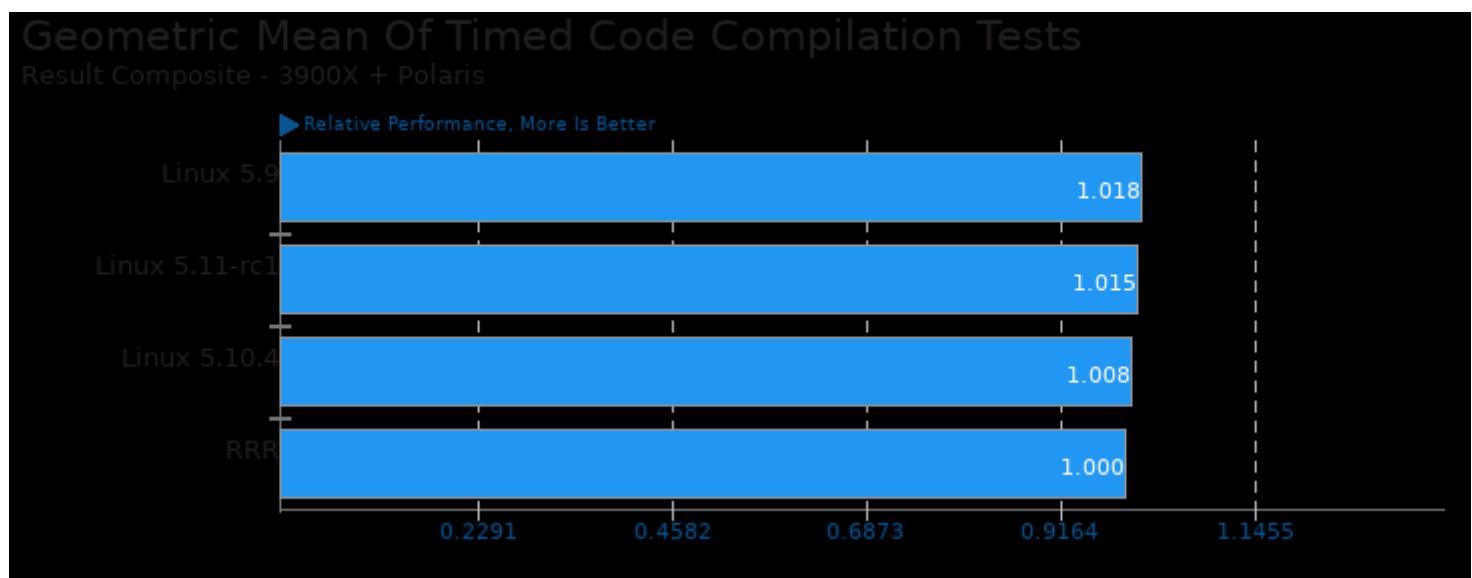


1. (CXX) g++ options: -std=c++11 -fvisibility=hidden -fPIC -fno-strict-aliasing -O3 -rdynamic -lm -lpthread

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



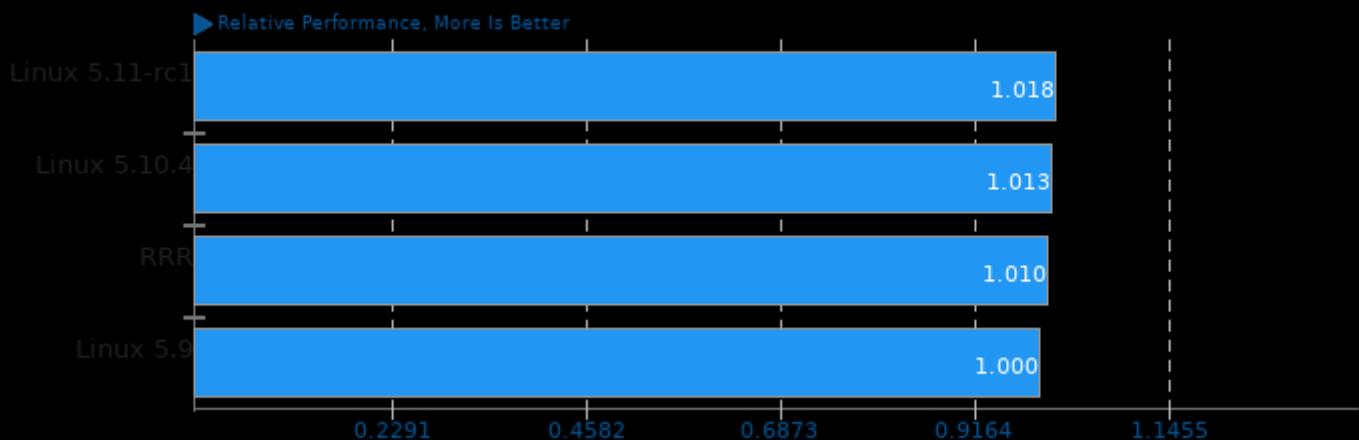
Geometric mean based upon tests: pts/encode-mp3, pts/encode-ogg, pts/encode-flac, pts/encode-ape, pts/encode-wavpack and pts/encode-opus



Geometric mean based upon tests: pts/build-eigen and pts/build2

Geometric Mean Of HPC - High Performance Computing Tests

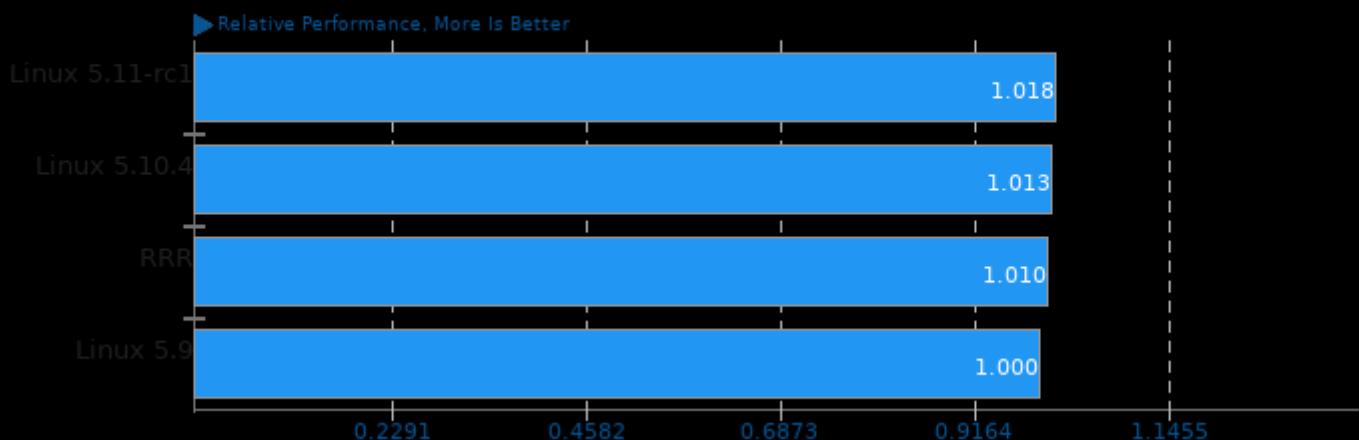
Result Composite - 3900X + Polaris



Geometric mean based upon tests: pts/ncnn, pts/onnednn and pts/openvino

Geometric Mean Of Machine Learning Tests

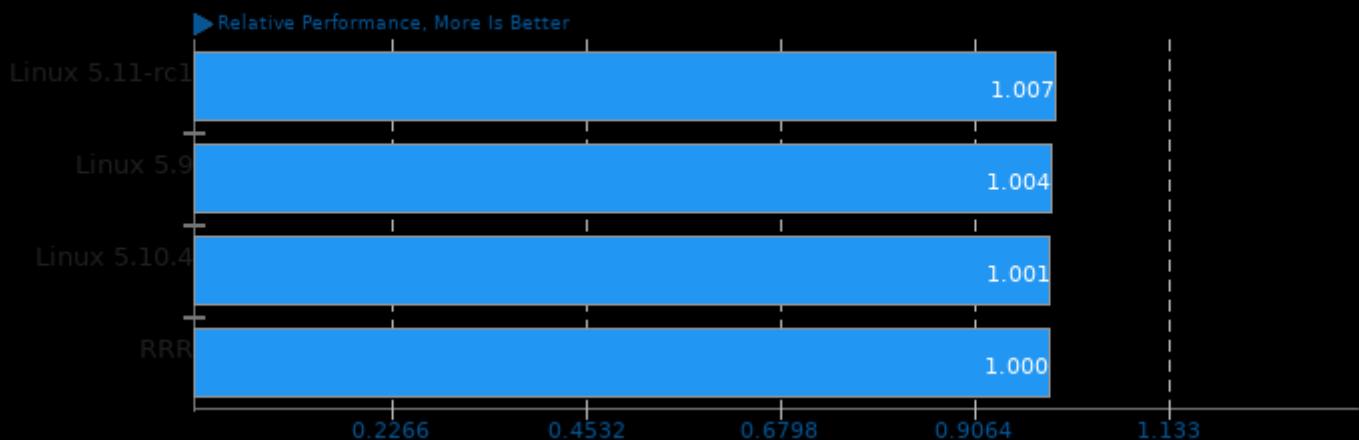
Result Composite - 3900X + Polaris



Geometric mean based upon tests: pts/ncnn, pts/onnednn and pts/openvino

Geometric Mean Of NVIDIA GPU Compute Tests

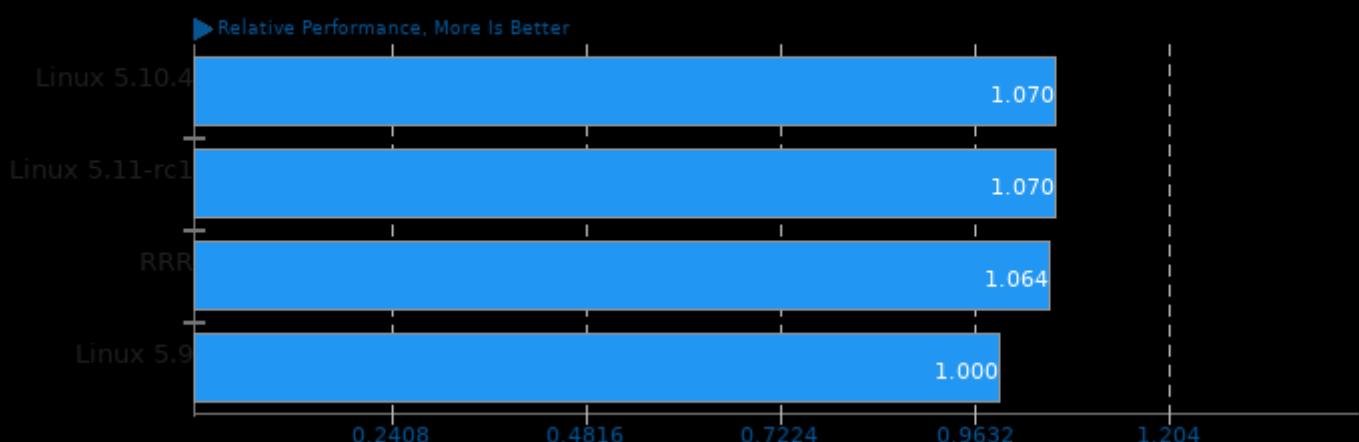
Result Composite - 3900X + Polaris



Geometric mean based upon tests: pts/luxcorerender, pts/neatbench, pts/indigobench, pts/v-ray, pts/blender and pts/ncnn

Geometric Mean Of Intel oneAPI Tests

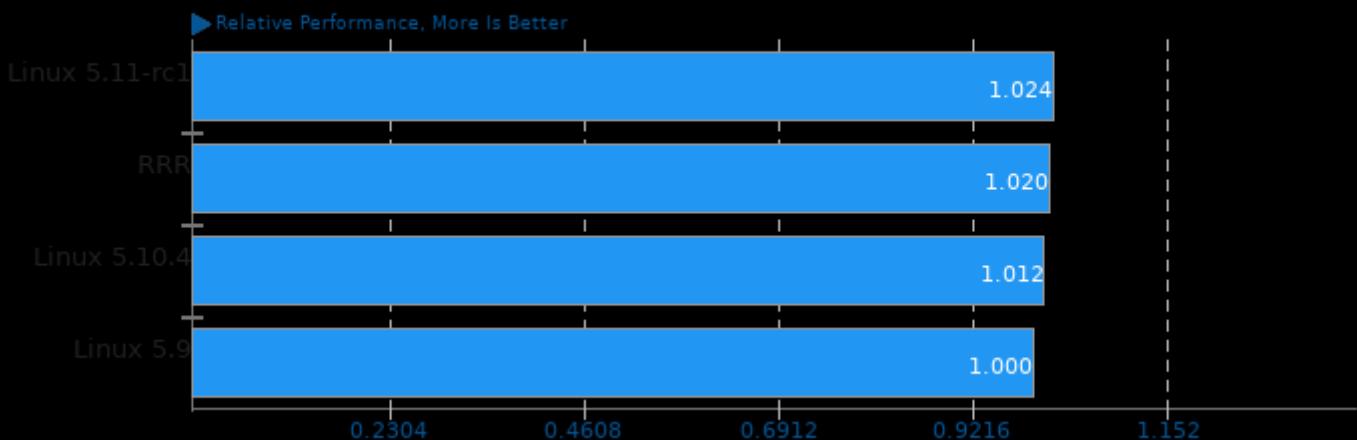
Result Composite - 3900X + Polaris



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

Geometric Mean Of Programmer / Developer System Benchmarks Tests

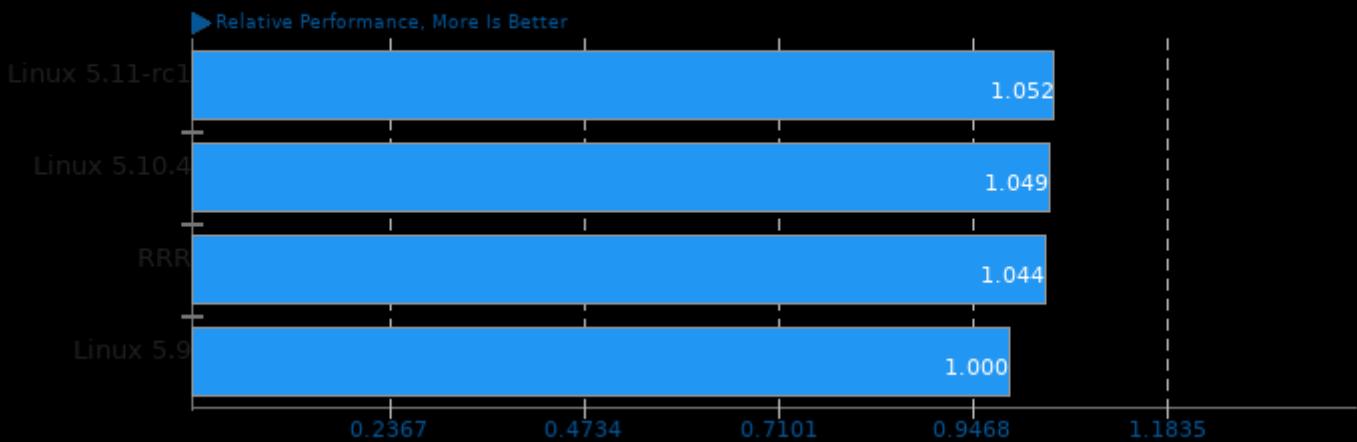
Result Composite - 3900X + Polaris



Geometric mean based upon tests: system/cryptsetup, pts/build-eigen and pts/build2

Geometric Mean Of Server CPU Tests

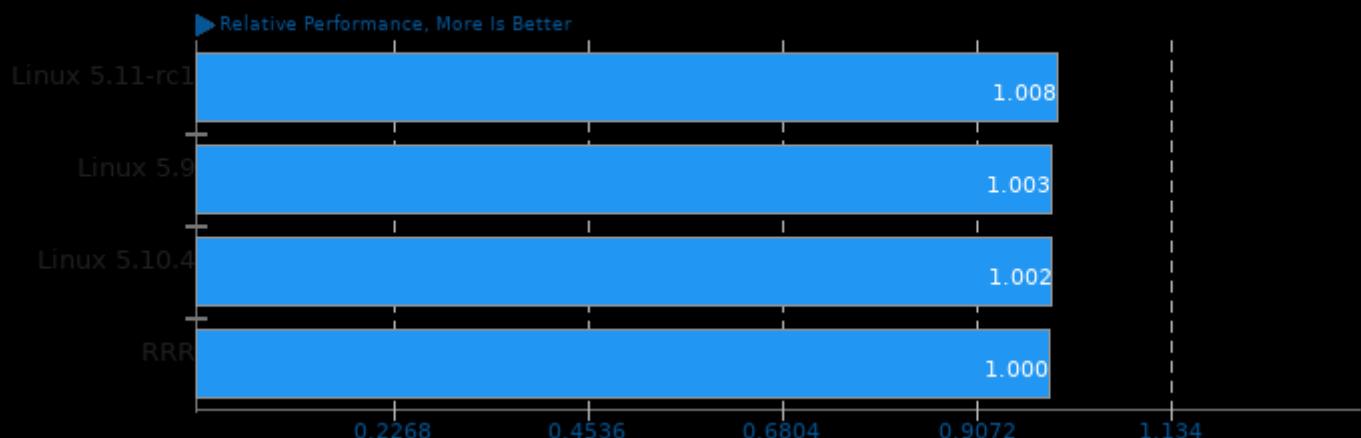
Result Composite - 3900X + Polaris



Geometric mean based upon tests: pts/onnednn, pts/svt-av1, pts/svt-hevc, pts/svt-vp9, pts/x264, pts/x265, pts/dav1d, pts/c-ray, pts/povray, pts/radiance, pts/tjbench, system/gimp, pts/blender, pts/appleseed and system/tesseract-ocr

Geometric Mean Of Video Encoding Tests

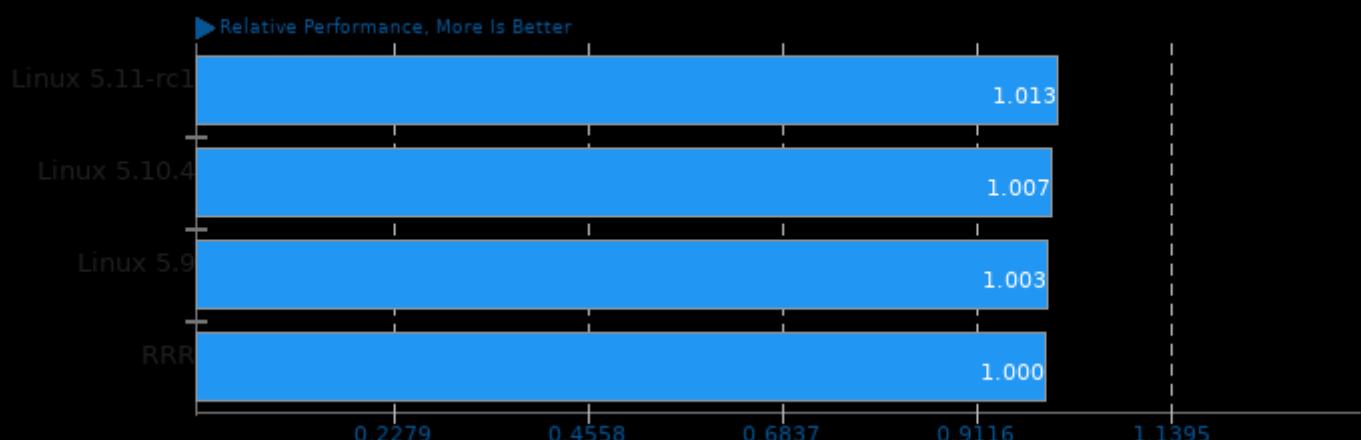
Result Composite - 3900X + Polaris



Geometric mean based upon tests: pts/svt-vp9, pts/svt-hevc, pts/x264, pts/x265, pts/kvazaar, pts/ffmpeg, pts/vpxenc, pts/dav1d, pts/aom-av1, pts/svt-av1, pts/libgav1, pts/rav1e and pts/avifenc

Geometric Mean Of Common Workstation Benchmarks Tests

Result Composite - 3900X + Polaris



Geometric mean based upon tests: pts/blender and pts/x265

This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 08:16.