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Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Tests for a future article on Phoronix by Michael Larabel.

Automated Executive Summary

Core i9 10900K had the most wins, coming in first place for 55% of the tests.

Based on the geometric mean of all complete results, the fastest (Ryzen 9 3950X) was 1.014x the speed of the slowest (Core i9 10900K).

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

ebizzy at 2.769x

CP2K Molecular Dynamics (Fayalite-FIST Data) at 2.639x

ParaView (Test: Wavelet Volume - Resolution: 3840 x 2160) at 2.487x

ParaView (Test: Wavelet Volume - Resolution: 3840 x 2160) at 2.486x

Cpuminer-Opt (Algorithm: m7m) at 2.057x

Parboil (Test: OpenMP CUTCP) at 2.052x

Mlpack Benchmark (Benchmark: scikit_linearridge_regression) at 1.985x

GraphicsMagick (Operation: Swirl) at 1.904x

BLAKE2 at 1.896x

Facebook RocksDB (Test: Random Fill Sync) at 1.791x.

Test Systems:

Core i9 10900K

Processor: Intel Core i9-10900K @ 5.30GHz (10 Cores / 20 Threads), Motherboard: Gigabyte Z490 AORUS MASTER (F3 BIOS), Chipset: Intel Comet Lake PCH, Memory: 16GB, Disk: Samsung SSD 970 EVO 250GB, Graphics: AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB (2060/875MHz), Audio: Realtek ALC1220, Network: Intel Device 15f3 + Intel Wi-Fi 6 AX201

OS: Ubuntu 20.04, Kernel: 5.7.0-999-generic (x86_64) 20200519, Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 20.0.4 (LLVM 9.0.1), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 3840x2160

```
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,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw
```

Processor Notes: Scaling Governor: intel_pstate powersave - CPU Microcode: 0xc8

Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-3ubuntu1)

Python Notes: Python 2.7.18rc1 + Python 3.8.2

Security Notes: itlb_multihit: KVM: Mitigation of Split huge pages + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Enhanced IBRS IBPB: conditional RSB filling + tsx_async_abort: Not affected

Ryzen 9 3950X

Processor: AMD Ryzen 9 3950X 16-Core @ 3.50GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (WI-FI) (1201 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: Samsung SSD 970 EVO 250GB, Graphics: AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 8GB (2060/875MHz), Audio: AMD Navi 10 HDMI Audio, Network: Realtek RTL8125 2.5GbE + Intel I211 + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.7.0-999-generic (x86_64) 20200519, Desktop: GNOME Shell 3.36.1, Display Server: X Server 1.20.8, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 20.0.4 (LLVM 9.0.1), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 3840x2160

```
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,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Disk Notes: NONE / errors=remount-ro,relatime,rw
```

Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8701013

Graphics Notes: GLAMOR

Java Notes: OpenJDK Runtime Environment (build 11.0.7+10-post-Ubuntu-3ubuntu1)

Python Notes: Python 2.7.18rc1 + Python 3.8.2

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

	Core i9 10900K	Ryzen 9 3950X
Stress-NG - Atomic (Bogo Ops/s)	230445	747139
Normalized	30.84%	100%
Standard Deviation	13.5%	0.3%

Stress-NG - Crypto (Bogo Ops/s)	2678	4744
Normalized	56.45%	100%
Standard Deviation	0.1%	0.3%
Stress-NG - CPU Cache (Bogo Ops/s)	22.76	37.15
Normalized	61.27%	100%
Standard Deviation	0.6%	4.7%
Stress-NG - CPU Stress (Bogo Ops/s)	4731	6621
Normalized	71.46%	100%
Standard Deviation	0.3%	0.2%
Stress-NG - Matrix Math (Bogo Ops/s)	62671	77934
Normalized	80.42%	100%
Standard Deviation	2.8%	0.8%
Stress-NG - Vector Math (Bogo Ops/s)	94531	148737
Normalized	63.56%	100%
Standard Deviation	0%	0.1%
Stress-NG - Socket Activity (Bogo Ops/s)	8782	11945
Normalized	73.52%	100%
Standard Deviation	1.5%	0.8%
Stress-NG - Context Switching (Bogo Ops/s)	5661608	7734524
Normalized	73.2%	100%
Standard Deviation	0.8%	2.7%
Sysbench - CPU (Events/sec)	27066	34951
Normalized	77.44%	100%
Standard Deviation	0%	0.1%
Algebraic Multi-Grid Benchmark (Figure Of Merit)	23127	26110
Normalized	88.57%	100%
Standard Deviation	1.4%	0%
libgav1 - Chimera 1080p (FPS)	83.73	51.13
Normalized	100%	61.07%
Standard Deviation	8.7%	0%
libgav1 - Summer Nature 4K (FPS)	34.85	24.18
Normalized	100%	69.38%
Standard Deviation	1.3%	0.2%
libgav1 - S.N.1 (FPS)	135.37	78.41
Normalized	100%	57.92%
Standard Deviation	0.6%	0.1%
libgav1 - C.1.1.b (FPS)	31.25	21.19
Normalized	100%	67.81%
Standard Deviation	0.3%	0.3%
dav1d - Chimera 1080p (FPS)	700.92	519.76
Normalized	100%	74.15%
Standard Deviation	0.1%	0.5%
dav1d - Summer Nature 4K (FPS)	177.43	187.35
Normalized	94.71%	100%
Standard Deviation	0.1%	0.5%
dav1d - S.N.1 (FPS)	671.39	547.69
Normalized	100%	81.58%
Standard Deviation	0.2%	0.3%
dav1d - C.1.1.b (FPS)	131.44	113.65
Normalized	100%	86.47%
Standard Deviation	0.1%	0.4%
TTSIOD 3D Renderer - P.R.W.S.S.M (FPS)	706.616	834.379
Normalized	84.69%	100%
Standard Deviation	0.2%	0.2%
PlaidML - No - Inference - VGG16 - CPU (FPS)	19.28	23.31

	Normalized	82.71%	100%
	Standard Deviation	0.9%	1.4%
PlaidML - No - Inference - VGG19 - CPU (FPS)	16.09	19.19	
	Normalized	83.85%	100%
	Standard Deviation	0.7%	1%
PlaidML - No - Inference - Mobilenet - CPU (FPS)	17.18	17.28	
	Normalized	99.42%	100%
	Standard Deviation	1.1%	1%
PlaidML - No - Inference - ResNet 50 - CPU (FPS)	7.38	7.34	
	Normalized	100%	99.46%
	Standard Deviation	0.6%	1.1%
PlaidML - No - Inference - DenseNet 201 - CPU (FPS)	3.35	3.87	
	Normalized	86.56%	100%
	Standard Deviation	0.5%	1.1%
PlaidML - No - Inference - Inception V3 - CPU (FPS)	9.23	11.21	
	Normalized	82.34%	100%
	Standard Deviation	0.4%	0.4%
Basemark GPU - OpenGL - 3840 x 2160 - High (FPS)	59.64	73.68	
	Normalized	80.94%	100%
	Standard Deviation	0.9%	0.4%
Basemark GPU - Vulkan - 3840 x 2160 - High (FPS)	81.93	80.95	
	Normalized	100%	98.8%
	Standard Deviation	0.2%	0.1%
Basemark GPU - OpenGL - 3840 x 2160 - Medium	304.94	187.04	
	Normalized	100%	61.34%
	Standard Deviation	1.4%	2.6%
Basemark GPU - Vulkan - 3840 x 2160 - Medium (FPS)	404.07	415.32	
	Normalized	97.29%	100%
	Standard Deviation	0.1%	0.3%
Optcarrot - O.B (FPS)	180.40	141.62	
	Normalized	100%	78.5%
	Standard Deviation	0.3%	1.3%
NeatBench - CPU (FPS)	18.3	26.2	
	Normalized	69.85%	100%
	Standard Deviation	0.3%	2.4%
dav1d - Chimera 1080p (FPS)	782.60	626.95	
	Normalized	100%	80.11%
	Standard Deviation	0.3%	0.3%
dav1d - Summer Nature 4K (FPS)	185.20	204.01	
	Normalized	90.78%	100%
	Standard Deviation	0.1%	0.1%
dav1d - S.N.1 (FPS)	735.61	587.62	
	Normalized	100%	79.88%
	Standard Deviation	0.2%	0.3%
dav1d - C.1.1.b (FPS)	132.44	114.24	
	Normalized	100%	86.26%
	Standard Deviation	0.1%	0.2%
ParaView - Many Spheres - 3840 x 2160 (Frames / Sec)	63.28	65.30	
	Normalized	96.91%	100%
	Standard Deviation	4.6%	0.4%
ParaView - Wavelet Volume - 3840 x 2160 (Frames /	81.60	202.90	
	Normalized	40.22%	100%
	Standard Deviation	2.2%	4.1%

ParaView - Wavelet Contour - 3840 x 2160 (Frames / Sec)	188.23	189.67
Normalized	99.24%	100%
Standard Deviation	1.9%	1.3%
ET: Legacy - Renderer2 - 3840 x 2160 (FPS)	288.5	255.8
Normalized	100%	88.67%
Standard Deviation	6.5%	1.8%
Tesseract - 3840 x 2160 (FPS)	431.0337	364.8969
Normalized	100%	84.66%
Standard Deviation	2.8%	1.1%
Unigine Heaven - 1920 x 1080 - Windowed - OpenGL (FPS)	160.184	158.578
Normalized	100%	99%
Standard Deviation	0.1%	0.2%
Unigine Superposition - 1920 x 1080 - Windowed - Low - OpenGL (FPS)	229.3	176.2
Normalized	100%	76.84%
Standard Deviation	0.5%	0.1%
Unigine Superposition - 1920 x 1080 - Windowed - High - OpenGL (FPS)	77.7	82.2
Normalized	94.53%	100%
Standard Deviation	0.3%	0.1%
Unigine Superposition - 1920 x 1080 - Windowed - Ultra - OpenGL (FPS)	34.3	34.3
Standard Deviation	0.2%	0.2%
Unigine Superposition - 1920 x 1080 - Windowed - Medium - OpenGL (FPS)	113.6	118.2
Normalized	96.11%	100%
Standard Deviation	0.8%	0%
Unigine Valley - 1920 x 1080 - Windowed - OpenGL (FPS)	176.703	160.954
Normalized	100%	91.09%
Standard Deviation	0.4%	0.3%
Xonotic - 3840 x 2160 - Low (FPS)	532.2734013	544.3905119
Normalized	97.77%	100%
Standard Deviation	0.7%	0.5%
Xonotic - 3840 x 2160 - High (FPS)	438.9449334	442.1980742
Normalized	99.26%	100%
Standard Deviation	0.5%	0.5%
Xonotic - 3840 x 2160 - Ultra (FPS)	398.0959725	393.3117643
Normalized	100%	98.8%
Standard Deviation	0.5%	0.4%
Xonotic - 3840 x 2160 - Ultimate (FPS)	318.7844013	308.6831229
Normalized	100%	96.83%
Standard Deviation	0.5%	0.1%
AOM AV1 - Speed 0 Two-Pass (FPS)	0.35	0.34
Normalized	100%	97.14%
Standard Deviation	1.6%	0%
AOM AV1 - Speed 4 Two-Pass (FPS)	2.93	2.71
Normalized	100%	92.49%
Standard Deviation	0.4%	0.2%
AOM AV1 - Speed 6 Realtime (FPS)	25.31	19.22
Normalized	100%	75.94%
Standard Deviation	0.8%	0.7%

AOM AV1 - Speed 6 Two-Pass (FPS)	4.66	4.16
Normalized	100%	89.27%
Standard Deviation	0.3%	0.8%
AOM AV1 - Speed 8 Realtime (FPS)	49.01	38.24
Normalized	100%	78.02%
Standard Deviation	0.5%	1.6%
Embree - Pathtracer - Crown (FPS)	15.4524	20.8580
Normalized	74.08%	100%
Standard Deviation	0.2%	0.3%
Embree - Pathtracer ISPC - Crown (FPS)	17.7342	20.0572
Normalized	88.42%	100%
Standard Deviation	0.2%	0.8%
Embree - Pathtracer - Asian Dragon (FPS)	17.5550	21.4302
Normalized	81.92%	100%
Standard Deviation	0.7%	0.2%
Embree - Pathtracer - Asian Dragon Obj (FPS)	16.1775	19.6503
Normalized	82.33%	100%
Standard Deviation	0.2%	0.3%
Embree - Pathtracer ISPC - Asian Dragon (FPS)	20.5126	21.3600
Normalized	96.03%	100%
Standard Deviation	0.7%	0.2%
Embree - Pathtracer ISPC - Asian Dragon Obj (FPS)	18.2419	19.0858
Normalized	95.58%	100%
Standard Deviation	0.2%	0.2%
rav1e - 1 (FPS)	0.205	0.193
Normalized	100%	94.15%
Standard Deviation	0%	0.3%
rav1e - 5 (FPS)	0.670	0.626
Normalized	100%	93.43%
Standard Deviation	0.1%	0.1%
rav1e - 6 (FPS)	1.622	1.497
Normalized	100%	92.29%
Standard Deviation	0.1%	0.1%
rav1e - 10 (FPS)	3.460	3.241
Normalized	100%	93.67%
Standard Deviation	0.2%	0.2%
VP9 libvpx Encoding - Speed 0 (FPS)	8.20	7.79
Normalized	100%	95%
Standard Deviation	0.6%	0.1%
VP9 libvpx Encoding - Speed 5 (FPS)	30.43	25.53
Normalized	100%	83.9%
Standard Deviation	0.3%	0.4%
x264 - H.2.V.E (FPS)	126.49	159.92
Normalized	79.1%	100%
Standard Deviation	2.9%	2.9%
x265 - H.2.1.V.E (FPS)	72.38	62.85
Normalized	100%	86.83%
Standard Deviation	1%	0.8%
Selenium - Octane - Firefox (Geometric Mean)	38776	34528
Normalized	100%	89.04%
Standard Deviation	1.1%	1.3%
Selenium - Octane - Google Chrome (Geometric	54153	49230
Normalized	100%	90.91%
Standard Deviation	0.2%	0.7%
High Performance Conjugate Gradient (GFLOP/s)	4.36353	4.58602

	Normalized	95.15%	100%
	Standard Deviation	0.3%	0%
ACES DGEMM - S.F.P.R (GFLOP/s)	5.351115	5.537606	
	Normalized	96.63%	100%
	Standard Deviation	1%	5.3%
Intel Open Image Denoise - Memorial (Images / Sec)	11.12	12.73	
	Normalized	87.35%	100%
	Standard Deviation	0%	0.3%
OpenVKL - vklBenchmark (Items / Sec)	192.83	234.25	
	Normalized	82.32%	100%
	Standard Deviation	0.4%	0.2%
GraphicsMagick - Swirl (Iterations/min)	529	1007	
	Normalized	52.53%	100%
	Standard Deviation	0.2%	0.1%
GraphicsMagick - Rotate (Iterations/min)	888	730	
	Normalized	100%	82.21%
	Standard Deviation		2.9%
GraphicsMagick - Sharpen (Iterations/min)	175	248	
	Normalized	70.56%	100%
	Standard Deviation		0.2%
GraphicsMagick - Enhanced (Iterations/min)	269	400	
	Normalized	67.25%	100%
GraphicsMagick - Resizing (Iterations/min)	1266	1774	
	Normalized	71.36%	100%
	Standard Deviation	0.2%	0.2%
GraphicsMagick - Noise-Gaussian (Iterations/min)	317	455	
	Normalized	69.67%	100%
	Standard Deviation	0.2%	
GraphicsMagick - HWB Color Space (Iterations/min)	1219	1507	
	Normalized	80.89%	100%
	Standard Deviation	0.2%	0.3%
Coremark - CoreMark Size 666 - I.P.S (Iterations/Sec)	517909	711755	
	Normalized	72.77%	100%
	Standard Deviation	0.4%	0.2%
Aircrack-ng (k/s)	45912	58218	
	Normalized	78.86%	100%
	Standard Deviation	0%	0.1%
Cpuminer-Opt - m7m (kH/s - Hash Speed)	407.75	838.57	
	Normalized	48.62%	100%
	Standard Deviation	0.1%	0.3%
Cpuminer-Opt - deep (kH/s - Hash Speed)	12397	15150	
	Normalized	81.83%	100%
	Standard Deviation	0%	0.1%
Cpuminer-Opt - Ibry (kH/s - Hash Speed)	38917	46910	
	Normalized	82.96%	100%
	Standard Deviation	0.1%	0.7%
Cpuminer-Opt - skein (kH/s - Hash Speed)	45343	54471	
	Normalized	83.24%	100%
	Standard Deviation	0.5%	2.9%
Cpuminer-Opt - myr-gr (kH/s - Hash Speed)	17627	9899	
	Normalized	100%	56.16%
	Standard Deviation	0.1%	10.6%
Cpuminer-Opt - sha256t (kH/s - Hash Speed)	102523	119460	
	Normalized	85.82%	100%
	Standard Deviation	1.8%	2.6%

Fhourstones - C.C.4.S (Kpos / sec)	17312	14987
Normalized	100%	86.57%
Standard Deviation	0.1%	0.2%
Xsbench (Lookups/s)	2639580	2653413
Normalized	99.48%	100%
Standard Deviation	0%	0.1%
IndigoBench - Bedroom (M samples/s)	1.894	2.669
Normalized	70.96%	100%
Standard Deviation	0.2%	0.3%
IndigoBench - Supercar (M samples/s)	4.435	5.660
Normalized	78.36%	100%
Standard Deviation	0.1%	0.1%
LuxCoreRender - DLSC (M samples/sec)	2.19	3.29
Normalized	66.57%	100%
Standard Deviation	2%	1.3%
LuxCoreRender - R.C.a.P (M samples/sec)	2.47	3.56
Normalized	69.38%	100%
Standard Deviation	0.4%	0.1%
IOR - Write Test (MB/s)	249.66	279.04
Normalized	89.47%	100%
Standard Deviation	0.2%	1%
IOR - Read Test (MB/s)	867.37	1083
Normalized	80.06%	100%
Standard Deviation	4.7%	0.1%
C-Blosc - blosclz (MB/s)	10910	11288
Normalized	96.65%	100%
Standard Deviation	0.3%	0.2%
Izbench - XZ 0 - Compression (MB/s)	51	43
Normalized	100%	84.31%
Standard Deviation		2.7%
Izbench - XZ 0 - Decompression (MB/s)	138	136
Normalized	100%	98.55%
Izbench - Zstd 1 - Compression (MB/s)	615	568
Normalized	100%	92.36%
Standard Deviation		1.3%
Izbench - Zstd 1 - Decompression (MB/s)	1776	1563
Normalized	100%	88.01%
Standard Deviation	0.3%	1%
Izbench - Zstd 8 - Compression (MB/s)	104	111
Normalized	93.69%	100%
Standard Deviation		0.9%
Izbench - Zstd 8 - Decompression (MB/s)	1884	1714
Normalized	100%	90.98%
Standard Deviation	0.2%	0.5%
Izbench - Crush 0 - Compression (MB/s)	131	114
Normalized	100%	87.02%
Standard Deviation		1%
Izbench - Crush 0 - Decompression (MB/s)	612	529
Normalized	100%	86.44%
Standard Deviation	0.2%	0.3%
Izbench - Brotli 0 - Compression (MB/s)	543	555
Normalized	97.84%	100%
Standard Deviation	0.2%	0.4%
Izbench - Brotli 0 - Decompression (MB/s)	783	661
Normalized	100%	84.42%

	Standard Deviation	0.1%
Izbench - Brotli 2 - Compression (MB/s)	233	222
	Normalized	100%
Izbench - Brotli 2 - Decompression (MB/s)	908	780
	Normalized	100%
	Standard Deviation	0.1%
Izbench - Libdeflate 1 - Compression (MB/s)	290	271
	Normalized	100%
	Standard Deviation	0.4%
Izbench - Libdeflate 1 - Decompression (MB/s)	1482	1298
	Normalized	100%
CacheBench - Read (MB/s)	4322	3052
	Normalized	100%
	Standard Deviation	0%
CacheBench - Write (MB/s)	36212	31703
	Normalized	100%
	Standard Deviation	0%
CacheBench - R.M.W (MB/s)	55906	61492
	Normalized	90.92%
	Standard Deviation	0%
Zstd Compression - 3 (MB/s)	2867	4014
	Normalized	71.42%
	Standard Deviation	0.5%
Zstd Compression - 19 (MB/s)	30.3	39.6
	Normalized	76.52%
	Standard Deviation	0.3%
Nettle - aes256 (Mbyte/s)	8094	6114
	Normalized	100%
	Standard Deviation	0%
Nettle - chacha (Mbyte/s)	1360	992.023
	Normalized	100%
	Standard Deviation	0%
Nettle - sha512 (Mbyte/s)	639.74	640.16
	Normalized	99.93%
	Standard Deviation	0.4%
Nettle - poly1305-aes (Mbyte/s)	3726	2711
	Normalized	100%
	Standard Deviation	0.3%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	237.108141	221.087385
	Normalized	100%
	Standard Deviation	0.2%
Sockperf - Throughput (Messages/sec)	639629	590729
	Normalized	100%
	Standard Deviation	1.6%
IPC_benchmark - TCP Socket - 4096 (Messages/sec)	1575932	1445302
	Normalized	100%
	Standard Deviation	0.5%
IPC_benchmark - Unnamed Pipe - 4096	1460097	2268105
	Normalized	64.38%
	Standard Deviation	0.8%
IPC_benchmark - FIFO Named Pipe - 4096 (Messages/sec)	1462821	2260588
	Normalized	64.71%
	Standard Deviation	0.4%
IPC_benchmark - U.U.D.S - 4096 (Messages/sec)	1260891	1088654

	Normalized	100%	86.34%
	Standard Deviation	0.6%	1.1%
FFTW - Stock - 2D FFT Size 4096 (Mflops)	6969	6458	
	Normalized	100%	92.66%
	Standard Deviation	0.6%	0.5%
FFTW - Float + SSE - 2D FFT Size 4096 (Mflops)	27489	21239	
	Normalized	100%	77.26%
	Standard Deviation	1.6%	
Java SciMark - Composite (Mflops)	3053	3116	
	Normalized	97.98%	100%
	Standard Deviation	0.5%	2%
Java SciMark - Monte Carlo (Mflops)	1259	1753	
	Normalized	71.8%	100%
	Standard Deviation	0%	1.7%
Java SciMark - F.F.T (Mflops)	1930	2134	
	Normalized	90.45%	100%
	Standard Deviation	0.9%	2.1%
Java SciMark - S.M.M (Mflops)	2780	2784	
	Normalized	99.85%	100%
	Standard Deviation	0.3%	1.8%
Java SciMark - D.L.M.F (Mflops)	7302	6835	
	Normalized	100%	93.6%
	Standard Deviation	1%	2.9%
Java SciMark - J.S.O.R (Mflops)	1994	2074	
	Normalized	96.15%	100%
	Standard Deviation	0.1%	1.4%
Himeno Benchmark - P.P.S (MFLOPS)	4395	4966	
	Normalized	88.49%	100%
	Standard Deviation	0.1%	2.8%
Botan - KASUMI (MiB/s)	115.381	101.025	
	Normalized	100%	87.56%
	Standard Deviation	0.3%	0.3%
Botan - AES-256 (MiB/s)	4925	5865	
	Normalized	83.98%	100%
	Standard Deviation	0%	0.1%
Botan - Twofish (MiB/s)	446.240	393.003	
	Normalized	100%	88.07%
	Standard Deviation	0.3%	0.1%
Botan - Blowfish (MiB/s)	556.522	479.252	
	Normalized	100%	86.12%
	Standard Deviation	0.1%	0.1%
Botan - CAST-256 (MiB/s)	175.908	156.180	
	Normalized	100%	88.79%
	Standard Deviation	0.1%	0.2%
SMHasher - wyhash (MiB/sec)	18893		
	Standard Deviation	1.7%	
SMHasher - MeowHash (MiB/sec)	40765		
	Standard Deviation	0.3%	
SMHasher - Spooky32 (MiB/sec)	15361		
	Standard Deviation	1.8%	
SMHasher - fasthash32 (MiB/sec)	7843		
	Standard Deviation	0.1%	
SMHasher - t1ha2_atonce (MiB/sec)	17288		
	Standard Deviation	0.8%	
SMHasher - t1ha0_aes_avx2 (MiB/sec)	46159		

	Standard Deviation	2.9%
Crypto++ - All Algorithms (MiB/s)	1962	1784
Normalized	100%	90.95%
Standard Deviation	0%	0.1%
Crypto++ - Keyed Algorithms (MiB/s)	789.168824	697.187580
Normalized	100%	88.34%
Standard Deviation	0%	0.3%
Crypto++ - Unkeyed Algorithms (MiB/s)	407.907548	389.039005
Normalized	100%	95.37%
Standard Deviation	0%	0.2%
Crypto++ - I.E.C.P.K.A (MiB/s)	6378	5494
Normalized	100%	86.15%
Standard Deviation	0.1%	2.5%
ASKAP - tConvolve MT - Gridding (Million Grid Points/sec)	1142	874.050
Normalized	100%	76.52%
Standard Deviation	0%	0.3%
ASKAP - tConvolve MT - Degridding (Million Grid Points/sec)	1946	1618
Normalized	100%	83.12%
Standard Deviation	0.1%	0.2%
ASKAP - tConvolve MPI - Gridding (Million Grid Points/sec)	1161	892.666
Normalized	100%	76.88%
Standard Deviation	0.2%	0%
ASKAP - tConvolve MPI - Degridding (Million Grid Points/sec)	1953	1657
Normalized	100%	84.84%
Standard Deviation	0.1%	0.1%
ASKAP - tConvolve OpenMP - Gridding (Million Grid Points/sec)	1307	1165
Normalized	100%	89.09%
Standard Deviation	0.8%	2%
ASKAP - tConvolve OpenMP - Degridding (Million Grid Points/sec)	2165	1925
Normalized	100%	88.91%
Standard Deviation	0.8%	0.4%
ParaView - Many Spheres - 3840 x 2160 (MiPolys / Sec)	6344	6547
Normalized	96.91%	100%
Standard Deviation	4.6%	0.4%
ParaView - Wavelet Contour - 3840 x 2160 (MiPolys / Sec)	1962	1977
Normalized	99.24%	100%
Standard Deviation	1.9%	1.3%
7-Zip Compression - C.S.T (MIPS)	65002	90026
Normalized	72.2%	100%
Standard Deviation	0.6%	0.7%
ParaView - Wavelet Volume - 3840 x 2160 (MiVoxels / Sec)	1306	3246
Normalized	40.22%	100%
Standard Deviation	2.2%	4.1%
rays1bench - Large Scene (mrays/s)	81.82	108.20
Normalized	75.62%	100%
Standard Deviation	0%	0.1%

LeelaChessZero - BLAS (Nodes/s)	378	380
Normalized	99.47%	100%
Standard Deviation	0.7%	2.9%
LeelaChessZero - Eigen (Nodes/s)	607	400
Normalized	100%	65.9%
Standard Deviation	2.6%	1.8%
LeelaChessZero - Rand (Nodes/s)	231501	185500
Normalized	100%	80.13%
Standard Deviation	0.4%	0%
TSCP - A.C.P (Nodes/s)	1623785	1320223
Normalized	100%	81.31%
Standard Deviation	0.5%	0.7%
Stockfish - Total Time (Nodes/s)	35260191	50373394
Normalized	70%	100%
Standard Deviation	1.7%	0.5%
asmFish - 1.H.M.2.D (Nodes/s)	39969419	51867171
Normalized	77.06%	100%
Standard Deviation	3%	0.6%
GROMACS - Water Benchmark (Ns/Day)	0.978	1.236
Normalized	79.13%	100%
Standard Deviation	0.1%	0.2%
Facebook RocksDB - Rand Fill (Op/s)	656303	680458
Normalized	96.45%	100%
Standard Deviation	16.3%	15.2%
Facebook RocksDB - Rand Read (Op/s)	68514144	95962407
Normalized	71.4%	100%
Standard Deviation	0.2%	1.1%
Facebook RocksDB - Seq Fill (Op/s)	1431900	1292441
Normalized	100%	90.26%
Standard Deviation	0.4%	0.5%
Facebook RocksDB - Rand Fill Sync (Op/s)	2875	5148
Normalized	55.85%	100%
Standard Deviation	1.5%	3.4%
Facebook RocksDB - Read While Writing (Op/s)	2911882	3615702
Normalized	80.53%	100%
Standard Deviation	3.1%	2.1%
Swet - Average (Operations/sec)	972233554	816912713
Normalized	100%	84.02%
Standard Deviation	0.3%	1.9%
Selenium - Basemark - Firefox (Overall Score)	759.91	757.95
Normalized	100%	99.74%
Standard Deviation	7.3%	4.8%
Selenium - Basemark - Google Chrome (Overall)	1075	1387
Normalized	77.47%	100%
Standard Deviation	9.4%	7.8%
Hierarchical INTegration - FLOAT (QUIPs)	510613895	380487205
Normalized	100%	74.52%
Standard Deviation	0.3%	0.3%
John The Ripper - Blowfish (Real C/S)	23257	27740
Normalized	83.84%	100%
Standard Deviation	0%	0.4%
John The Ripper - MD5 (Real C/S)	1383667	1771667
Normalized	78.1%	100%
Standard Deviation	0%	0.2%
ebizzy (Records/s)	495906	1373026

Normalized	36.12%	100%
Standard Deviation	2.9%	0.8%
Redis - LPOP (Req/sec)	3942561	2716045
Normalized	100%	68.89%
Standard Deviation	1.2%	2.5%
Redis - SADD (Req/sec)	3071108	2357410
Normalized	100%	76.76%
Standard Deviation	6.3%	2.2%
Redis - LPUSH (Req/sec)	2289561	1666745
Normalized	100%	72.8%
Standard Deviation	2.8%	4.5%
Redis - GET (Req/sec)	3788205	2609128
Normalized	100%	68.88%
Standard Deviation	1.1%	2.8%
Redis - SET (Req/sec)	2770463	1992291
Normalized	100%	71.91%
Standard Deviation	1.4%	5.4%
Selenium - StyleBench - Firefox (Runs / Minute)	104	84.4
Normalized	100%	81.15%
Standard Deviation		0.2%
Selenium - StyleBench - Google Chrome (Runs /	37.6	37.7
Normalized	99.73%	100%
Standard Deviation	0.7%	0.7%
Selenium - Speedometer - Firefox (Runs/min)	104	99.34
Normalized	100%	95.52%
Standard Deviation	0.6%	0.4%
Selenium - Speedometer - Google Chrome (Runs/min)	130	133
Normalized	97.74%	100%
Standard Deviation	0.4%	
Numpy Benchmark (Score)	444.12	414.61
Normalized	100%	93.36%
Standard Deviation	1.3%	1.4%
Selenium - WebXPRT - Firefox (Score)	294	252
Normalized	100%	85.71%
Standard Deviation		0.8%
Selenium - Jetstream - Firefox (Score)	237.52	218.55
Normalized	100%	92.01%
Standard Deviation	0.3%	0.1%
Selenium - CanvasMark - Firefox (Score)	14181	13796
Normalized	100%	97.29%
Standard Deviation	1.7%	4.2%
Selenium - MotionMark - Firefox (Score)	231.54	161.79
Normalized	100%	69.88%
Standard Deviation	28.2%	24.1%
Selenium - Jetstream 2 - Firefox (Score)	102.083	95.645
Normalized	100%	93.69%
Standard Deviation	0.6%	0.8%
Selenium - WebXPRT - Google Chrome (Score)	264	258
Normalized	100%	97.73%
Standard Deviation	0.8%	
Selenium - Jetstream - Google Chrome (Score)	258.92	227.80
Normalized	100%	87.98%
Standard Deviation	0.3%	0%
Selenium - CanvasMark - Google Chrome (Score)	5033	5050
Normalized	99.66%	100%

	Standard Deviation	0.5%	0.3%
Selenium - MotionMark - Google Chrome (Score)	1	1	
Selenium - Jetstream 2 - Google Chrome (Score)	149.132	138.227	
	Normalized	100%	92.69%
	Standard Deviation	2.1%	1.1%
OpenSSL - R.4.b.P (Signs/sec)	3756	4707	
	Normalized	79.79%	100%
	Standard Deviation	0.1%	0.1%
NAS Parallel Benchmarks - BT.C (Mop/s)	26329	22727	
	Normalized	100%	86.32%
	Standard Deviation	0.1%	0.2%
NAS Parallel Benchmarks - EP.C (Mop/s)	1829	1077	
	Normalized	100%	58.91%
	Standard Deviation	0.4%	0.1%
NAS Parallel Benchmarks - EP.D (Mop/s)	1792	1071	
	Normalized	100%	59.75%
	Standard Deviation	2.8%	0.2%
NAS Parallel Benchmarks - FT.C (Mop/s)	11106	11558	
	Normalized	96.09%	100%
	Standard Deviation	0.1%	0%
NAS Parallel Benchmarks - MG.C (Mop/s)	11256	10836	
	Normalized	100%	96.27%
	Standard Deviation	0.4%	0.1%
NAS Parallel Benchmarks - SP.B (Mop/s)	5284	8390	
	Normalized	62.97%	100%
	Standard Deviation	0.2%	0.1%
BRL-CAD - V.P.M (VGR Performance Metric)	192500	251130	
	Normalized	76.65%	100%
LULESH (z/s)	11.960647	9.8209433	
	Normalized	100%	82.11%
	Standard Deviation	1.6%	0.1%
ctx_clock - C.S.T (Clocks)	144	140	
	Normalized	97.22%	100%
BLAKE2 (Cycles/Byte)	4.03	7.64	
	Normalized	100%	52.75%
	Standard Deviation	0%	0.6%
SMHasher - wyhash (cycles/hash)	24.548		
	Standard Deviation	0%	
SMHasher - MeowHash (cycles/hash)	51.813		
	Standard Deviation	0.2%	
SMHasher - Spooky32 (cycles/hash)	41.073		
	Standard Deviation	0%	
SMHasher - fasthash32 (cycles/hash)	31.994		
	Standard Deviation	0%	
SMHasher - t1ha2_atonce (cycles/hash)	32.065		
	Standard Deviation	0%	
SMHasher - t1ha0_aes_avx2 (cycles/hash)	32.315		
	Standard Deviation	0.1%	
NAMD - ATPase Simulation - 327,506 Atoms (days/ns)	1.20434	1.11719	
	Normalized	92.76%	100%
	Standard Deviation	0.4%	0.3%
Pennant - sedovbig (Hydro Cycle Time - sec)	4228	4298	
	Normalized	100%	98.38%
	Standard Deviation	0.1%	0%

Pennant - leblancbig (Hydro Cycle Time - sec)	3918	4113
Normalized	100%	95.26%
Standard Deviation	0.3%	0%
PyBench - T.F.A.T.T (Milliseconds)	760	894
Normalized	100%	85.01%
Standard Deviation	0.5%	2.1%
PyPerformance - go (Milliseconds)	187	228
Normalized	100%	82.02%
PyPerformance - 2to3 (Milliseconds)	241	283
Normalized	100%	85.16%
Standard Deviation		0.2%
PyPerformance - chaos (Milliseconds)	79.8	100
Normalized	100%	79.8%
Standard Deviation	1.2%	
PyPerformance - float (Milliseconds)	82.5	102
Normalized	100%	80.88%
Standard Deviation	0.2%	
PyPerformance - nbody (Milliseconds)	89.9	101
Normalized	100%	89.01%
Standard Deviation	0.2%	0.6%
PyPerformance - pathlib (Milliseconds)	14.4	15.5
Normalized	100%	92.9%
Standard Deviation	0.4%	0.4%
PyPerformance - raytrace (Milliseconds)	352	427
Normalized	100%	82.44%
Standard Deviation	0.3%	
PyPerformance - json_loads (Milliseconds)	18.3	22.0
Normalized	100%	83.18%
Standard Deviation	0%	0.3%
PyPerformance - crypto_pyaes (Milliseconds)	83.2	97.2
Normalized	100%	85.6%
Standard Deviation	0%	0.3%
PyPerformance - regex_compile (Milliseconds)	133	155
Normalized	100%	85.81%
Standard Deviation	2.6%	
PyPerformance - python_startup (Milliseconds)	6.04	6.46
Normalized	100%	93.5%
Standard Deviation	0.1%	2.4%
PyPerformance - django_template (Milliseconds)	38.3	45.5
Normalized	100%	84.18%
Standard Deviation	0.5%	0.4%
PyPerformance - pickle_pure_python (Milliseconds)	331	424
Normalized	100%	78.07%
Standard Deviation	0.3%	
toyBrot Fractal Generator - TBB (ms)	79924	46547
Normalized	58.24%	100%
Standard Deviation	1.5%	1.1%
toyBrot Fractal Generator - OpenMP (ms)	80088	47670
Normalized	59.52%	100%
Standard Deviation	0%	0.7%
toyBrot Fractal Generator - C++ Tasks (ms)	79172	46370
Normalized	58.57%	100%
Standard Deviation	0.1%	0.3%
toyBrot Fractal Generator - C++ Threads (ms)	79413	46331
Normalized	58.34%	100%

	Standard Deviation	0.1%	0.3%
Renaissance - Scala Dotty (ms)	1339	1368	
	Normalized	100%	97.93%
	Standard Deviation	2.3%	2.3%
Renaissance - Rand Forest (ms)	1465	1816	
	Normalized	100%	80.72%
	Standard Deviation	1.8%	4.1%
Renaissance - Apache Spark ALS (ms)	1654	1950	
	Normalized	100%	84.84%
	Standard Deviation	1.4%	0.8%
Renaissance - Apache Spark Bayes (ms)	1704	2728	
	Normalized	100%	62.47%
	Standard Deviation	3%	19.6%
Renaissance - Savina Reactors.IO (ms)	15777	10636	
	Normalized	67.41%	100%
	Standard Deviation	2%	6.1%
Renaissance - A.S.P (ms)	2895	3302	
	Normalized	100%	87.68%
	Standard Deviation	2%	6.7%
Renaissance - T.H.R (ms)	2004	2094	
	Normalized	100%	95.69%
	Standard Deviation	1.3%	0.9%
Renaissance - I.M.D.S (ms)	2968	3622	
	Normalized	100%	81.95%
	Standard Deviation	12.2%	1.3%
Renaissance - A.U.C.T (ms)	9185	11097	
	Normalized	100%	82.77%
	Standard Deviation	3.8%	1.8%
Renaissance - G.A.U.J.F (ms)	1249	1725	
	Normalized	100%	72.43%
	Standard Deviation	4%	1.8%
oneDNN MKL-DNN - IP Batch 1D - f32 (ms)	3.30905	4.58909	
	Normalized	100%	72.11%
	Standard Deviation	0.6%	0.1%
oneDNN MKL-DNN - IP Batch All - f32 (ms)	56.9110	50.1698	
	Normalized	88.15%	100%
	Standard Deviation	0.2%	0.3%
oneDNN MKL-DNN - IP Batch 1D - u8s8f32 (ms)	1.17466	1.34228	
	Normalized	100%	87.51%
	Standard Deviation	0%	0.2%
oneDNN MKL-DNN - IP Batch All - u8s8f32 (ms)	19.0225	19.8851	
	Normalized	100%	95.66%
	Standard Deviation	0.1%	0.2%
oneDNN MKL-DNN - D.B.d - f32 (ms)	3.03768	2.55517	
	Normalized	84.12%	100%
	Standard Deviation	0.2%	0.4%
oneDNN MKL-DNN - D.B.d - f32 (ms)	4.76923	4.37431	
	Normalized	91.72%	100%
	Standard Deviation	0.3%	0.3%
oneDNN MKL-DNN - D.B.d - u8s8f32 (ms)	121.267	69.5926	
	Normalized	57.39%	100%
	Standard Deviation	9.8%	0.1%
oneDNN MKL-DNN - D.B.d - u8s8f32 (ms)	2.23525	2.63474	
	Normalized	100%	84.84%
	Standard Deviation	0.4%	0.2%

oneDNN MKL-DNN - R.N.N.T - f32 (ms)	169.855	190.560
Normalized	100%	89.13%
Standard Deviation	0.9%	0.3%
oneDNN MKL-DNN - R.N.N.I - f32 (ms)	28.0154	26.6223
Normalized	95.03%	100%
Standard Deviation	0.1%	0.2%
Selenium - ARES-6 - Firefox (ms)	36.73	42.85
Normalized	100%	85.72%
Standard Deviation	0.9%	0.1%
Selenium - Kraken - Firefox (ms)	715.7	725.2
Normalized	100%	98.69%
Standard Deviation	2.3%	0.4%
Selenium - ARES-6 - Google Chrome (ms)	17.47	20.20
Normalized	100%	86.49%
Standard Deviation	0.5%	1.1%
Selenium - Kraken - Google Chrome (ms)	779.3	743.1
Normalized	95.35%	100%
Standard Deviation	2.7%	1%
Selenium - W.i - Firefox (ms)	27.1	26.2
Normalized	96.68%	100%
Standard Deviation	0.7%	2.3%
Selenium - W.c - Firefox (ms)	414.4	351.9
Normalized	84.92%	100%
Standard Deviation	0.3%	0.7%
Selenium - W.i - Google Chrome (ms)	35.7272	35.8952
Normalized	100%	99.53%
Standard Deviation	0.5%	0.9%
Selenium - W.c - Google Chrome (ms)	343.4547	278.3210
Normalized	81.04%	100%
Standard Deviation	1.7%	1.8%
DaCapo Benchmark - H2 (msec)	2615	3293
Normalized	100%	79.41%
Standard Deviation	8.2%	1.7%
DaCapo Benchmark - Jython (msec)	3319	4010
Normalized	100%	82.77%
Standard Deviation	0.8%	
DaCapo Benchmark - Tradesoap (msec)	2889	3442
Normalized	100%	83.93%
Standard Deviation	1.4%	1.5%
DaCapo Benchmark - Tradebeans (msec)	2478	4064
Normalized	100%	60.97%
Standard Deviation	3.4%	0.9%
Go Benchmarks - json (ns/op)	3100011	2321631
Normalized	74.89%	100%
Standard Deviation	0.6%	0.1%
Go Benchmarks - garbage (ns/op)	788879	750702
Normalized	95.16%	100%
Standard Deviation	0.4%	0.7%
OSBench - Memory Allocations (Ns/Event)	56.163311	69.227616
Normalized	100%	81.13%
Standard Deviation	0.2%	0.3%
Core-Latency - A.L.B.C.C (ns)	97.21	152.54
Normalized	100%	63.73%
Multichase Pointer Chaser - 4.A.6.B.S (ns)	5.206	4.720
Normalized	90.66%	100%

	Standard Deviation	0.1%	0.3%
Multichase Pointer Chaser - 1.A.2.B.S (ns)	44.604	67.366	
	Normalized	100%	66.21%
	Standard Deviation	0.2%	0.1%
Multichase Pointer Chaser - 2.A.2.B.S (ns)	41.813	67.194	
	Normalized	100%	62.23%
	Standard Deviation	0.1%	0.3%
Multichase Pointer Chaser - 1.A.2.B.S.2.T (ns)	46.168	67.811	
	Normalized	100%	68.08%
	Standard Deviation	0.2%	0%
Multichase Pointer Chaser - 1.A.2.B.S.4.T (ns)	50.128	70.200	
	Normalized	100%	71.41%
	Standard Deviation	0%	0.1%
Selenium - PSPDFKit WASM - Firefox (Score)	1148	1304	
	Normalized	100%	88.04%
	Standard Deviation	0.6%	0.1%
Selenium - PSPDFKit WASM - Google Chrome (Score)	1387	1509	
	Normalized	100%	91.92%
	Standard Deviation	0.7%	1.1%
Parboil - OpenMP LBM (sec)	165.151103	160.964244	
	Normalized	97.46%	100%
	Standard Deviation	0%	0.1%
Parboil - OpenMP CUTCP (sec)	2.718560	1.324664	
	Normalized	48.73%	100%
	Standard Deviation	0.1%	0.5%
Parboil - OpenMP Stencil (sec)	16.403124	15.106023	
	Normalized	92.09%	100%
	Standard Deviation	1.1%	0.8%
Parboil - O.M.G (sec)	54.937194	31.274319	
	Normalized	56.93%	100%
	Standard Deviation	6.5%	0.7%
CP2K Molecular Dynamics - Fayalite-FIST Data (sec)	855.403	324.193	
	Normalized	37.9%	100%
Rodinia - OpenMP LavaMD (sec)	21.053	14.967	
	Normalized	71.09%	100%
	Standard Deviation	0.8%	0.2%
Rodinia - OpenMP CFD Solver (sec)	18.283	10.914	
	Normalized	59.69%	100%
	Standard Deviation	0.2%	0.3%
Rodinia - O.S (sec)	17.306	25.517	
	Normalized	100%	67.82%
	Standard Deviation	0.1%	0.3%
Nebular Empirical Analysis Tool (sec)	13.970	12.957	
	Normalized	92.75%	100%
	Standard Deviation	0.1%	0.9%
Polyhedron Fortran Benchmarks - ac (sec)	4.34	5.89	
	Normalized	100%	73.68%
Polyhedron Fortran Benchmarks - air (sec)	1.95	1.62	
	Normalized	83.08%	100%
Polyhedron Fortran Benchmarks - mdbx (sec)	3.87	4.27	
	Normalized	100%	90.63%
Polyhedron Fortran Benchmarks - doduc (sec)	6.13	6.56	
	Normalized	100%	93.45%
Polyhedron Fortran Benchmarks - linpk (sec)	2.31	3.05	
	Normalized	100%	75.74%

Polyhedron Fortran Benchmarks - aermod (sec)	4.57	5.49
Normalized	100%	83.24%
Polyhedron Fortran Benchmarks - rnflow (sec)	12.58	15
Normalized	100%	83.87%
Polyhedron Fortran Benchmarks - induct2 (sec)	14.45	21.35
Normalized	100%	67.68%
Polyhedron Fortran Benchmarks - protein (sec)	11.62	12.37
Normalized	100%	93.94%
Polyhedron Fortran Benchmarks - channel2 (sec)	43.45	42.71
Normalized	98.3%	100%
Polyhedron Fortran Benchmarks - fatigue2 (sec)	36.69	46.89
Normalized	100%	78.25%
Polyhedron Fortran Benchmarks - gas_dyn2 (sec)	39.99	41.78
Normalized	100%	95.72%
Polyhedron Fortran Benchmarks - test_fpu2 (sec)	28.67	26.44
Normalized	92.22%	100%
Polyhedron Fortran Benchmarks - mp_prop_design	49.13	53.27
Normalized	100%	92.23%
Timed MrBayes Analysis - P.P.A (sec)	63.719	70.989
Normalized	100%	89.76%
Standard Deviation	0.1%	0.6%
NWChem - C240 Buckyball (sec)	12612	9795
Normalized	77.66%	100%
Timed HMMer Search - P.D.S (sec)	4.281	5.086
Normalized	100%	84.17%
Standard Deviation	0.4%	1.6%
Bork File Encrypter - F.E.T (sec)	5.124	8.578
Normalized	100%	59.73%
Standard Deviation	1.5%	2.9%
Java Gradle Build - Reactor (sec)	188.102	251.425
Normalized	100%	74.81%
Standard Deviation	2.8%	4%
Timed Apache Compilation - Time To Compile (sec)	17.907	20.240
Normalized	100%	88.47%
Standard Deviation	0.2%	0.4%
Timed FFmpeg Compilation - Time To Compile (sec)	46.059	35.442
Normalized	76.95%	100%
Standard Deviation	1.1%	1%
Timed GCC Compilation - Time To Compile (sec)	716.255	731.029
Normalized	100%	97.98%
Standard Deviation	0.2%	0.3%
Timed GDB GNU Debugger Compilation - Time To Compile (sec)	77.059	88.759
Normalized	100%	86.82%
Standard Deviation	0.2%	0.1%
Timed ImageMagick Compilation - Time To Compile	25.033	20.860
Normalized	83.33%	100%
Standard Deviation	0.8%	0.1%
Timed Linux Kernel Compilation - Time To Compile	61.708	45.114
Normalized	73.11%	100%
Standard Deviation	0.9%	2.9%
Timed LLVM Compilation - Time To Compile (sec)	505.431	365.636
Normalized	72.34%	100%
Standard Deviation	1.1%	0.4%

Timed MPlayer Compilation - Time To Compile (sec)	29.273	20.967
Normalized	71.63%	100%
Standard Deviation	0.2%	0.3%
Timed PHP Compilation - Time To Compile (sec)	47.704	42.697
Normalized	89.5%	100%
Standard Deviation	0.8%	0.9%
Build2 - Time To Compile (sec)	84.939	70.665
Normalized	83.19%	100%
Standard Deviation	1.6%	1.8%
C-Ray - Total Time - 4.1.R.P.P (sec)	52.130	31.594
Normalized	60.61%	100%
Standard Deviation	0%	0.1%
Parallel BZIP2 Compression - 2.F.C (sec)	3.118	
Standard Deviation	2.5%	
Primesieve - 1.P.N.G (sec)	17.181	11.821
Normalized	68.8%	100%
Standard Deviation	0.6%	0.6%
Smallpt - G.I.R.1.S (sec)	7.852	5.237
Normalized	66.7%	100%
Standard Deviation	0.1%	0.1%
Tungsten Renderer - Hair (sec)	20.2258	13.6067
Normalized	67.27%	100%
Standard Deviation	0.4%	0.2%
Tungsten Renderer - Water Caustic (sec)	23.6946	21.3900
Normalized	90.27%	100%
Standard Deviation	0.6%	0.5%
Tungsten Renderer - Non-Exponential (sec)	5.14902	4.40751
Normalized	85.6%	100%
Standard Deviation	0.2%	0.4%
Tungsten Renderer - Volumetric Caustic (sec)	6.98866	5.53479
Normalized	79.2%	100%
Standard Deviation	0.3%	1.6%
YafaRay - T.T.F.S.S (sec)	108.878	81.477
Normalized	74.83%	100%
Standard Deviation	0.1%	0.9%
AOBench - 2048 x 2048 - Total Time (sec)	27.170	31.131
Normalized	100%	87.28%
Standard Deviation	0.2%	0.6%
Bullet Physics Engine - Raytests (sec)	2.043963	2.084161
Normalized	100%	98.07%
Standard Deviation	0.4%	0.4%
Bullet Physics Engine - 3000 Fall (sec)	3.359547	3.367286
Normalized	100%	99.77%
Standard Deviation	1.1%	0.4%
Bullet Physics Engine - 1000 Stack (sec)	3.810223	4.047731
Normalized	100%	94.13%
Standard Deviation	0.4%	0.5%
Bullet Physics Engine - 1000 Convex (sec)	3.584657	3.745295
Normalized	100%	95.71%
Standard Deviation	0.1%	0.4%
Bullet Physics Engine - 136 Ragdolls (sec)	2.233182	2.150808
Normalized	96.31%	100%
Standard Deviation	0.8%	0.4%
Bullet Physics Engine - Prim Trimesh (sec)	0.782503	0.788758
Normalized	100%	99.21%

	Standard Deviation	0.9%	0.4%
Bullet Physics Engine - Convex Trimesh (sec)	0.937118	0.943135	
	Normalized	100%	99.36%
	Standard Deviation	0.8%	0.5%
Gzip Compression - L.S.T.A.T.t.g (sec)	28.833	33.392	
	Normalized	100%	86.35%
	Standard Deviation	2.7%	3.3%
XZ Compression - C.u.1.0.3.s.i.i.C.L.9 (sec)	22.326	24.112	
	Normalized	100%	92.59%
	Standard Deviation	0.5%	0.3%
Zstd Compression - C.u.1.0.3.s.i.i.C.L.1 (sec)	21.925	15.514	
	Normalized	70.76%	100%
	Standard Deviation	0.2%	0.7%
Cython benchmark (sec)	35.064	38.658	
	Normalized	100%	90.7%
	Standard Deviation	0.6%	1.2%
DeepSpeech - CPU (sec)	78.36647	64.61712	
	Normalized	82.46%	100%
	Standard Deviation	1.9%	0.8%
FLAC Audio Encoding - WAV To FLAC (sec)	7.699	8.250	
	Normalized	100%	93.32%
	Standard Deviation	2.6%	3.4%
LAME MP3 Encoding - WAV To MP3 (sec)	6.974	6.954	
	Normalized	99.71%	100%
	Standard Deviation	0.2%	2.3%
FFmpeg - H.2.H.T.N.D (sec)	4.562	7.197	
	Normalized	100%	63.39%
	Standard Deviation	2.1%	1.5%
GnuPG - 2.F.E (sec)	7.949	11.194	
	Normalized	100%	71.01%
	Standard Deviation	0.4%	1.9%
Hackbench - 1 - Thread (sec)	2.245	3.016	
	Normalized	100%	74.44%
	Standard Deviation	0.5%	1.1%
Hackbench - 1 - Process (sec)	2.029	2.711	
	Normalized	100%	74.84%
	Standard Deviation	0.2%	1.8%
Hackbench - 32 - Process (sec)	49.161	54.263	
	Normalized	100%	90.6%
	Standard Deviation	0.2%	2.7%
m-queens - Time To Solve (sec)	59.649	34.304	
	Normalized	57.51%	100%
	Standard Deviation	0%	0.1%
Minion - Graceful (sec)	41.961286	39.558481	
	Normalized	94.27%	100%
	Standard Deviation	0.1%	0.5%
Minion - Solitaire (sec)	55.284448	57.688167	
	Normalized	100%	95.83%
	Standard Deviation	0.2%	0.1%
Minion - Quasigroup (sec)	93.440554	101.658951	
	Normalized	100%	91.92%
	Standard Deviation	0.2%	0.6%
N-Queens - Elapsed Time (sec)	10.350	6.760	
	Normalized	65.31%	100%
	Standard Deviation	0%	0.2%

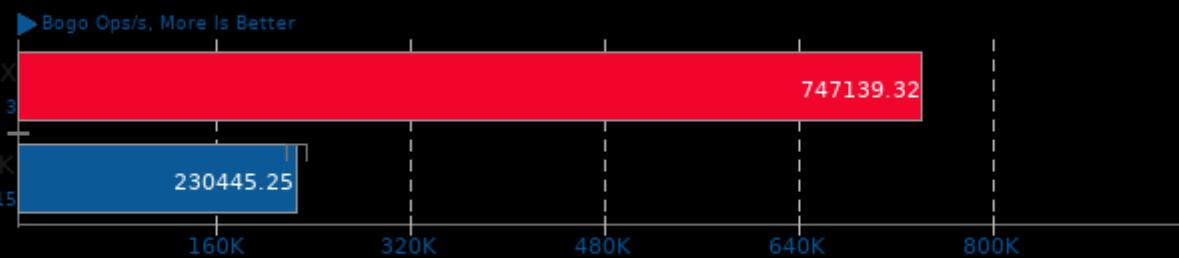
Perl Benchmarks - Pod2html (sec)	0.09327881	0.11237626
Normalized	100%	83.01%
Standard Deviation	0.4%	0.9%
Perl Benchmarks - Interpreter (sec)	0.00066725	0.00069115
Normalized	100%	96.54%
Standard Deviation	1.4%	1.9%
Radiance Benchmark - Serial (sec)	577.884	538.599
Normalized	93.2%	100%
Radiance Benchmark - SMP Parallel (sec)	182.363	170.288
Normalized	93.38%	100%
Tachyon - Total Time (sec)	65.7816	46.0091
Normalized	69.94%	100%
Standard Deviation	0.1%	0.3%
G'MIC - P.I.O.A.3.V.1.T (sec)	16.006	18.735
Normalized	100%	85.43%
Standard Deviation	1.3%	3%
Basis Universal - ETC1S (sec)	42.177	42.788
Normalized	100%	98.57%
Standard Deviation	0.5%	0.7%
Basis Universal - UASTC Level 0 (sec)	6.514	7.197
Normalized	100%	90.51%
Standard Deviation	1.1%	1%
Basis Universal - UASTC Level 2 (sec)	25.170	19.048
Normalized	75.68%	100%
Standard Deviation	0.4%	0.4%
Basis Universal - UASTC Level 3 (sec)	46.509	32.607
Normalized	70.11%	100%
Standard Deviation	0%	0.3%
Basis Universal - U.L.2.R.P.P (sec)	573.950	587.383
Normalized	100%	97.71%
Standard Deviation	0.1%	0.2%
SQLite Speedtest - Timed Time - Size 1,000 (sec)	44.924	58.132
Normalized	100%	77.28%
Standard Deviation	0.1%	1.1%
GEGL - Crop (sec)	6.764	7.538
Normalized	100%	89.73%
Standard Deviation	1.4%	1.7%
GEGL - Scale (sec)	4.822	5.042
Normalized	100%	95.64%
Standard Deviation	2%	0.5%
GEGL - Cartoon (sec)	78.938	89.855
Normalized	100%	87.85%
Standard Deviation	1.1%	1.1%
GEGL - Reflect (sec)	25.416	29.718
Normalized	100%	85.52%
Standard Deviation	0.2%	1.8%
GEGL - Antialias (sec)	32.111	37.298
Normalized	100%	86.09%
Standard Deviation	0.8%	0.6%
GEGL - Tile Glass (sec)	24.658	29.061
Normalized	100%	84.85%
Standard Deviation	0.1%	0.5%
GEGL - Wavelet Blur (sec)	52.123	61.585
Normalized	100%	84.64%
Standard Deviation	0.3%	1.2%

GEGL - Color Enhance (sec)	50.055	54.906
Normalized	100%	91.16%
Standard Deviation	1.2%	0.4%
GEGL - Rotate 90 Degrees (sec)	32.369	37.640
Normalized	100%	86%
Standard Deviation	1.2%	0.6%
GIMP - resize (sec)	6.135	6.689
Normalized	100%	91.72%
Standard Deviation	1%	1.7%
GIMP - rotate (sec)	9.573	10.542
Normalized	100%	90.81%
Standard Deviation	0.5%	0.7%
GIMP - auto-levels (sec)	9.693	11.692
Normalized	100%	82.9%
Standard Deviation	0.3%	0.4%
GIMP - unsharp-mask (sec)	11.946	14.776
Normalized	100%	80.85%
Standard Deviation	0.1%	0.5%
LibreOffice - 2.D.T.P (sec)	6.403	6.605
Normalized	100%	96.94%
Standard Deviation	2.7%	2.7%
RawTherapee - T.B.T (sec)	53.309	52.809
Normalized	99.06%	100%
Standard Deviation	0.2%	0.1%
Blender - BMW27 - CPU-Only (sec)	114.39	84.77
Normalized	74.11%	100%
Standard Deviation	0.3%	0.2%
Blender - Classroom - CPU-Only (sec)	338.66	226.13
Normalized	66.77%	100%
Standard Deviation	0.2%	0.1%
Blender - Fishy Cat - CPU-Only (sec)	179.55	123.52
Normalized	68.79%	100%
Standard Deviation	0.2%	0.1%
Blender - Barbershop - CPU-Only (sec)	473.60	342.25
Normalized	72.27%	100%
Standard Deviation	0.1%	0.1%
Blender - Pabellon Barcelona - CPU-Only (sec)	426.20	285.86
Normalized	67.07%	100%
Standard Deviation	0.2%	0.1%
Numenta Anomaly Benchmark - EXPoSE (sec)	624.538	644.836
Normalized	100%	96.85%
Standard Deviation	0.4%	1%
Numenta Anomaly Benchmark - Relative Entropy	16.561	14.391
Normalized	86.9%	100%
Standard Deviation	1.5%	1%
Numenta Anomaly Benchmark - Windowed Gaussian	7.665	6.695
(sec)		
Normalized	87.35%	100%
Standard Deviation	0.7%	0.5%
Numenta Anomaly Benchmark - Earthgecko Skyline	90.165	77.869
Normalized	86.36%	100%
Standard Deviation	2.9%	0.4%
Numenta Anomaly Benchmark - B.C (sec)	36.066	26.176
Normalized	72.58%	100%
Standard Deviation	0.7%	2.9%

Appleseed - Emily (sec)	299.753452	213.491346
Normalized	71.22%	100%
Appleseed - Disney Material (sec)	174.867928	121.874074
Normalized	69.69%	100%
Appleseed - Material Tester (sec)	164.002915	128.457773
Normalized	78.33%	100%
Selenium - Maze Solver - Firefox (sec)	5.4	4.5
Normalized	83.33%	100%
Standard Deviation	1.1%	1.3%
Selenium - Maze Solver - Google Chrome (sec)	5.4	4.1
Normalized	75.93%	100%
Standard Deviation	0%	1.4%
Git - T.T.C.C.G.C (sec)	41.515	45.230
Normalized	100%	91.79%
Standard Deviation	0.1%	2.8%
Mipack Benchmark - scikit_ica (sec)	53.21	53.76
Normalized	100%	98.98%
Standard Deviation	1.7%	0.9%
Mipack Benchmark - scikit_qda (sec)	62.50	68.93
Normalized	100%	90.67%
Standard Deviation	0.4%	1.3%
Mipack Benchmark - scikit_svm (sec)	20.91	19.21
Normalized	91.87%	100%
Standard Deviation	0.1%	0.6%
Mipack Benchmark - scikit_linearridge regression	4.05	2.04
Normalized	50.37%	100%
Standard Deviation	0.7%	0.5%
Scikit-Learn (sec)	8.782	8.273
Normalized	94.2%	100%
Standard Deviation	2.5%	2.4%
OSBench - Create Files (us/Event)	10.474451	11.633563
Normalized	100%	90.04%
Standard Deviation	0.8%	0.4%
OSBench - Create Threads (us/Event)	8.883476	12.243907
Normalized	100%	72.55%
Standard Deviation	0.6%	11.5%
OSBench - Launch Programs (us/Event)	26.023388	35.923322
Normalized	100%	72.44%
Standard Deviation	0.3%	1.2%
OSBench - Create Processes (us/Event)	16.390483	27.797222
Normalized	100%	58.96%
Standard Deviation	1.7%	2.4%
Sockperf - Latency Ping Pong (usec)	3.222	3.835
Normalized	100%	84.02%
Standard Deviation	1.3%	2.4%
Sockperf - Latency Under Load (usec)	17.423	14.949
Normalized	85.8%	100%
Standard Deviation	20.1%	27.8%

Stress-NG 0.11.07

Test: Atomic



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

Stress-NG 0.11.07

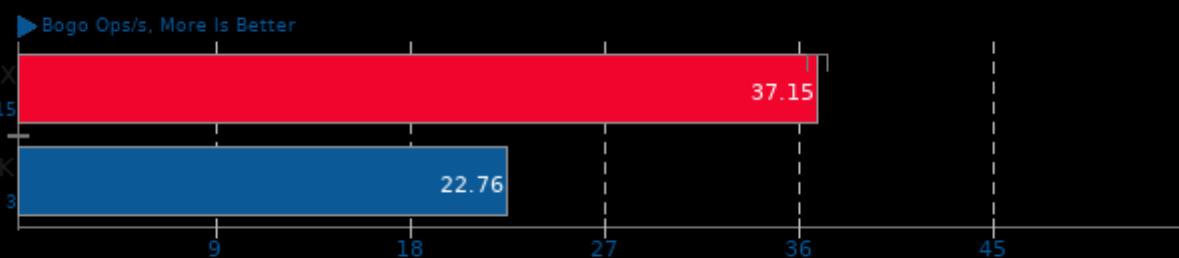
Test: Crypto



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

Stress-NG 0.11.07

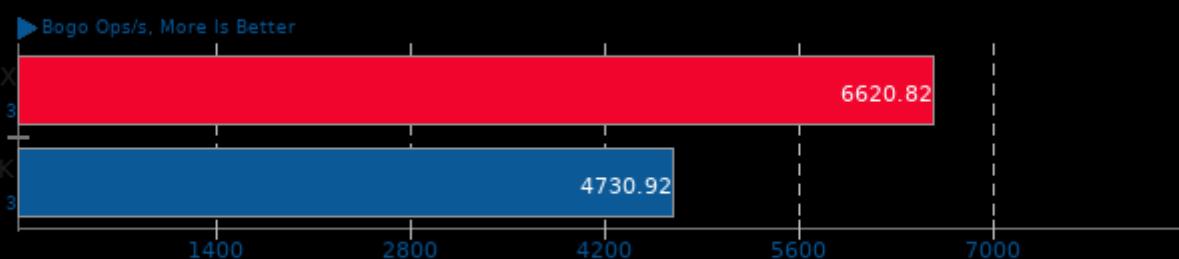
Test: CPU Cache



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

Stress-NG 0.11.07

Test: CPU Stress



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

Stress-NG 0.11.07

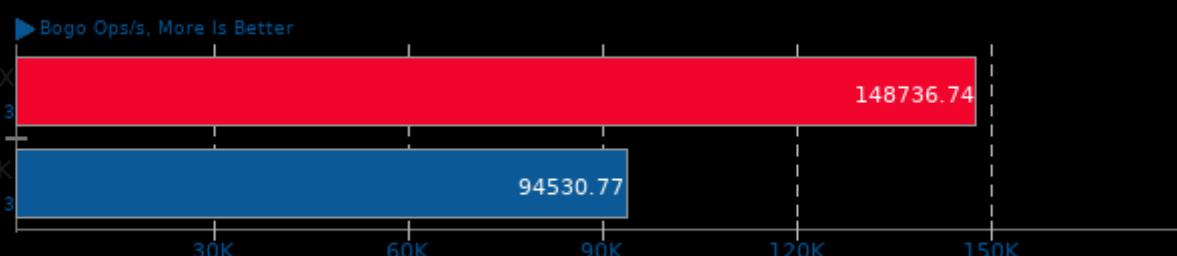
Test: Matrix Math



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

Stress-NG 0.11.07

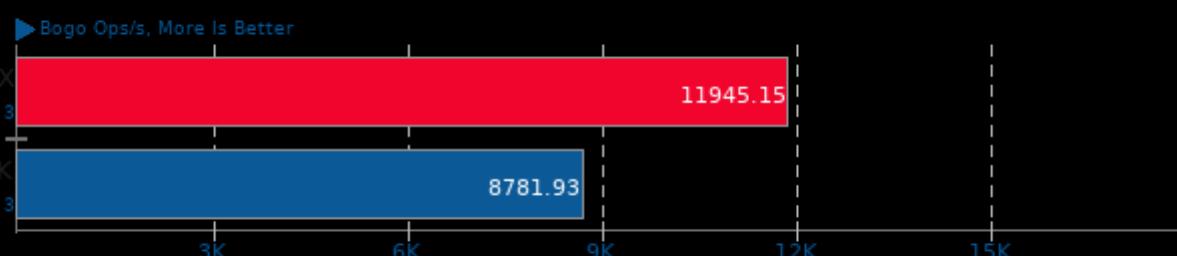
Test: Vector Math



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

Stress-NG 0.11.07

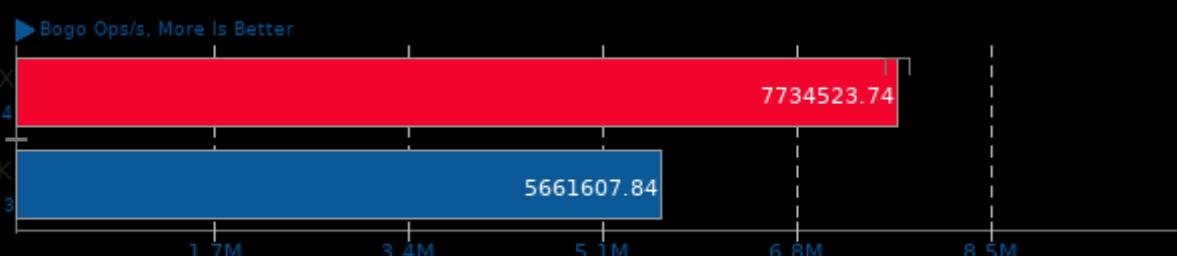
Test: Socket Activity



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

Stress-NG 0.11.07

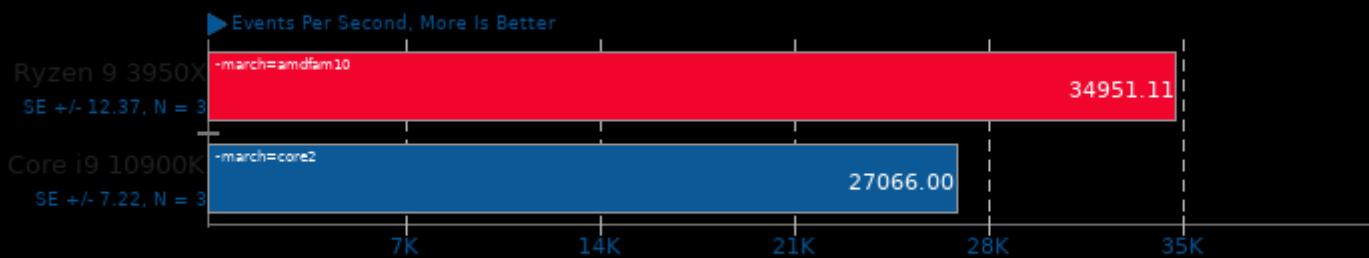
Test: Context Switching



1. (CC) gcc options: -O2 -std=gnu99 -lm -laio -lcrypt -lrt -lz -ldl -lpthread -lc

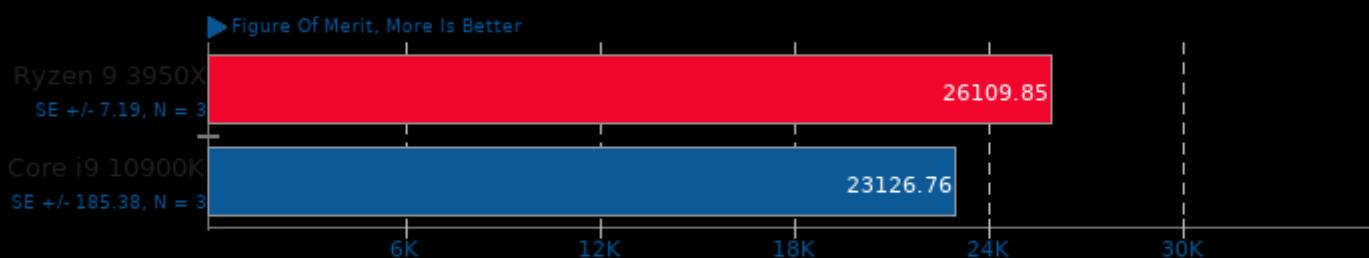
Sysbench 2018-07-28

Test: CPU



1. (CC) gcc options: -pthread -O3 -funroll-loops -ggdb3 -rdynamic -ldl -lao -lm

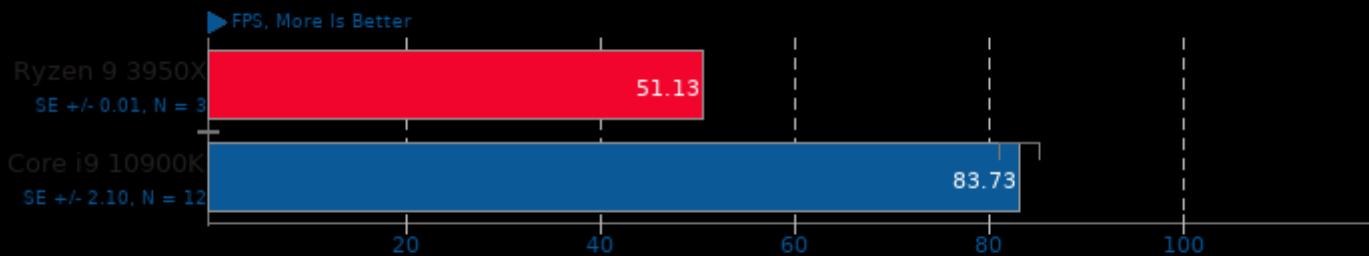
Algebraic Multi-Grid Benchmark



1. (CC) gcc options: -lparcsr_ls -lparcsr_mv -lseq_mv -lj_mv -lkrylov -lHYPRE_utilities -lm -fopenmp -pthread -lmpi

libgav1 2019-10-05

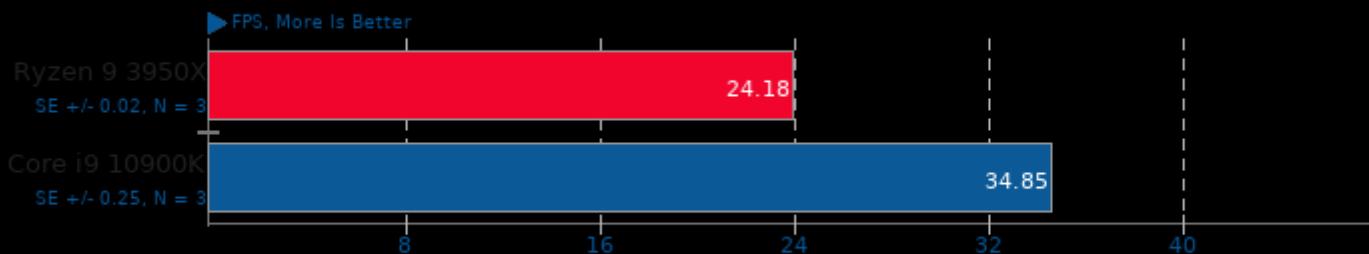
Video Input: Chimera 1080p



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

libgav1 2019-10-05

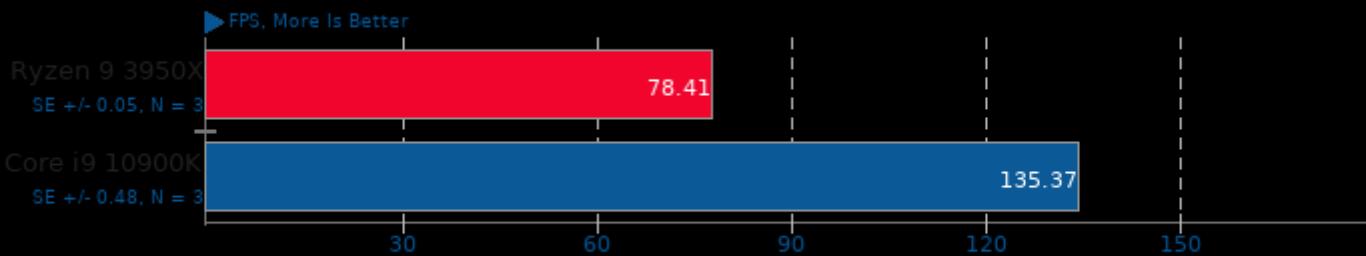
Video Input: Summer Nature 4K



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

libgav1 2019-10-05

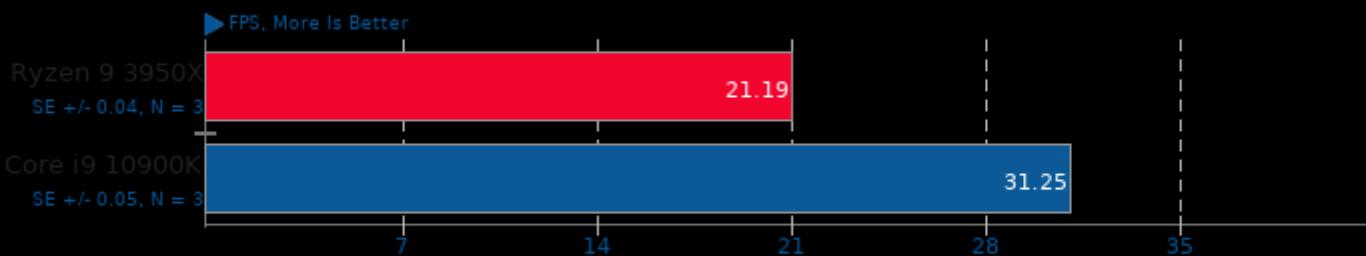
Video Input: Summer Nature 1080p



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

libgav1 2019-10-05

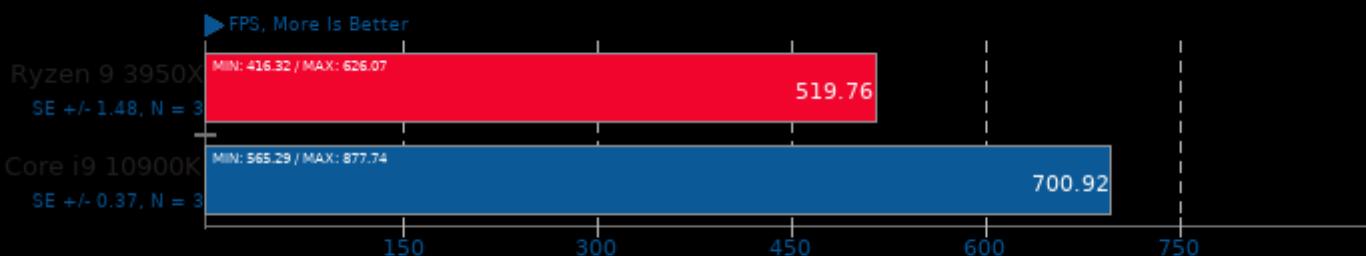
Video Input: Chimera 1080p 10-bit



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

dav1d 0.6.0

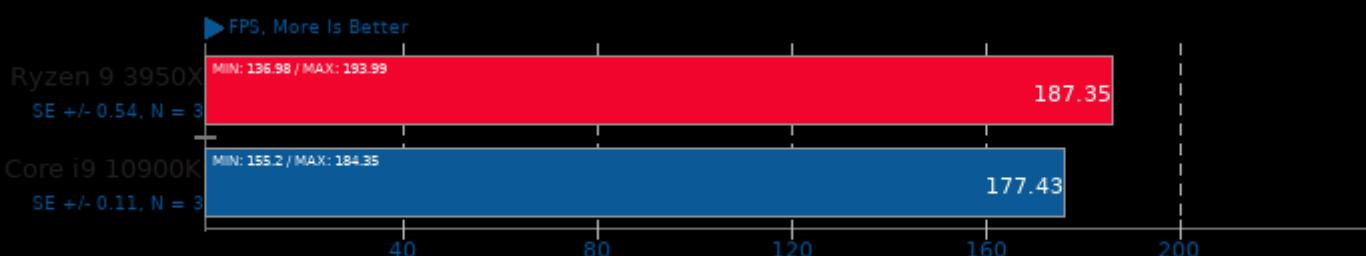
Video Input: Chimera 1080p



1. (CC) gcc options: -pthread

dav1d 0.6.0

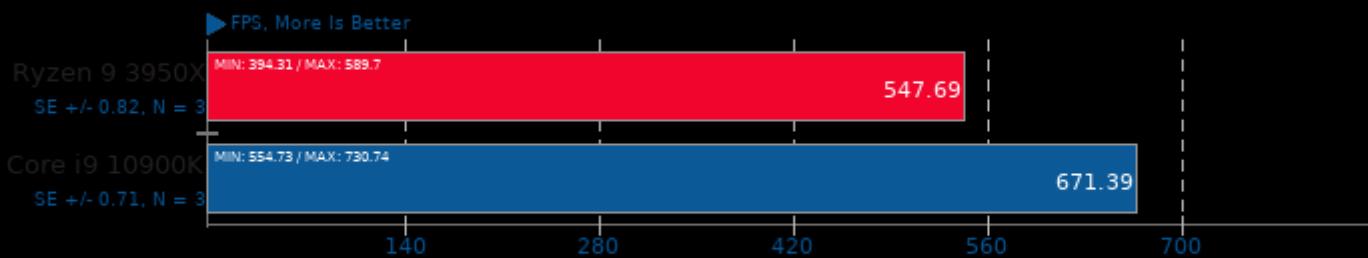
Video Input: Summer Nature 4K



1. (CC) gcc options: -pthread

dav1d 0.6.0

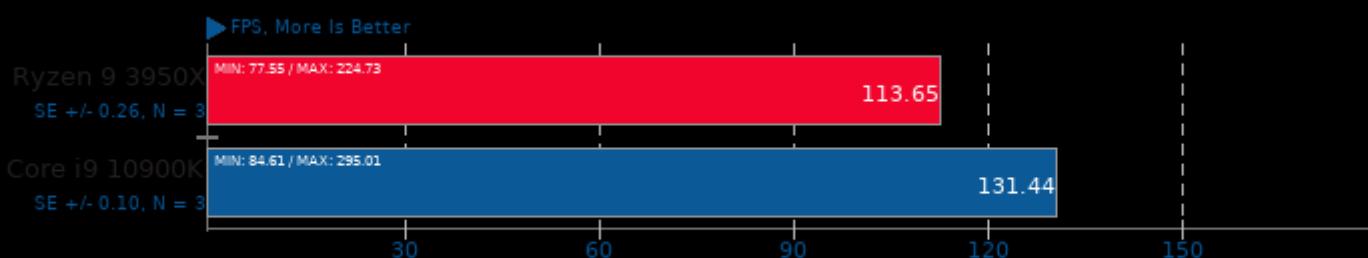
Video Input: Summer Nature 1080p



1. (CC) gcc options: -pthread

dav1d 0.6.0

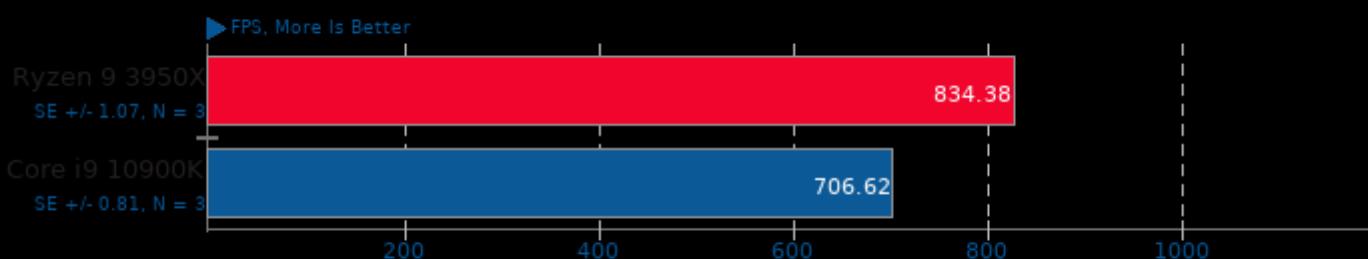
Video Input: Chimera 1080p 10-bit



1. (CC) gcc options: -pthread

TTSIOD 3D Renderer 2.3b

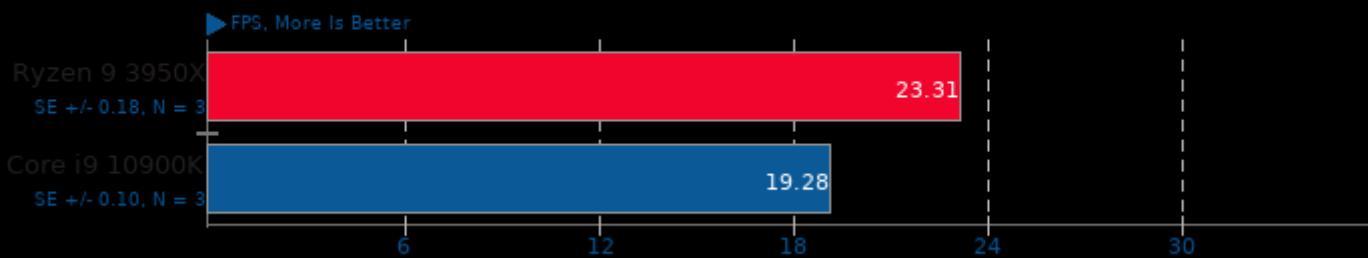
Phong Rendering With Soft-Shadow Mapping



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

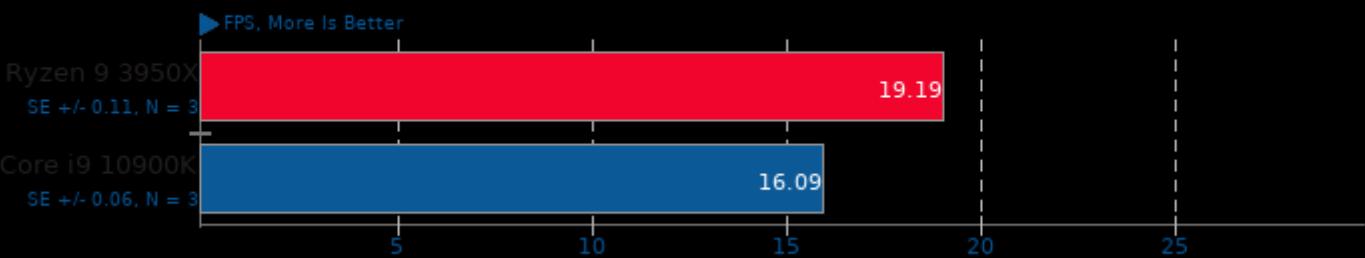
PlaidML

FP16: No - Mode: Inference - Network: VGG16 - Device: CPU



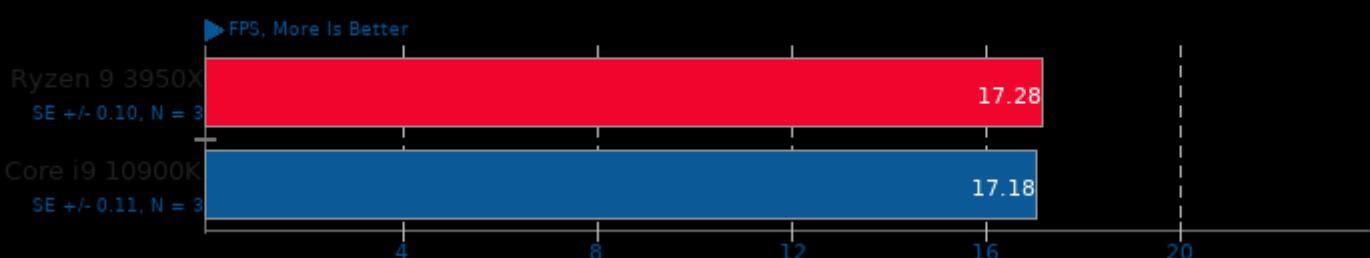
PlaidML

FP16: No - Mode: Inference - Network: VGG19 - Device: CPU



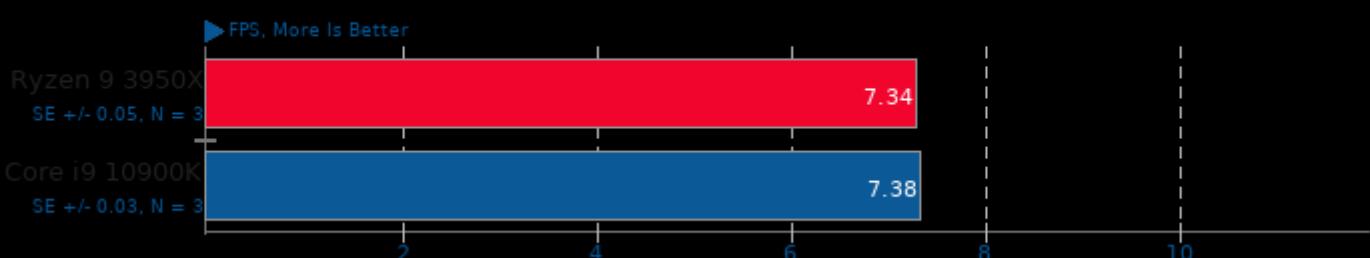
PlaidML

FP16: No - Mode: Inference - Network: Mobilenet - Device: CPU



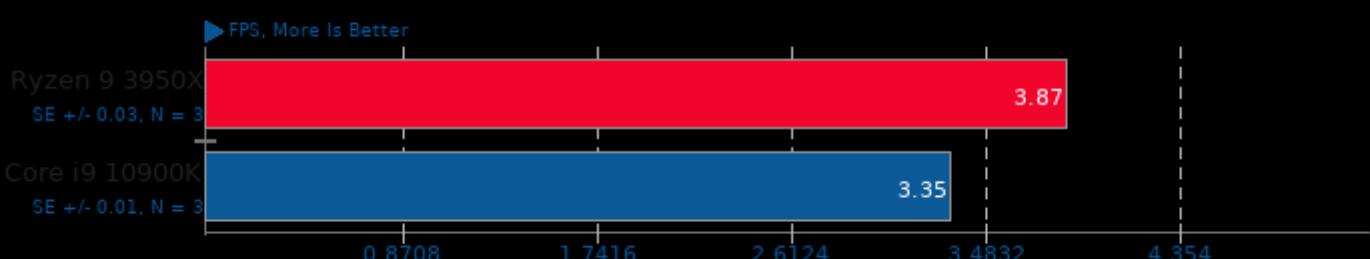
PlaidML

FP16: No - Mode: Inference - Network: ResNet 50 - Device: CPU



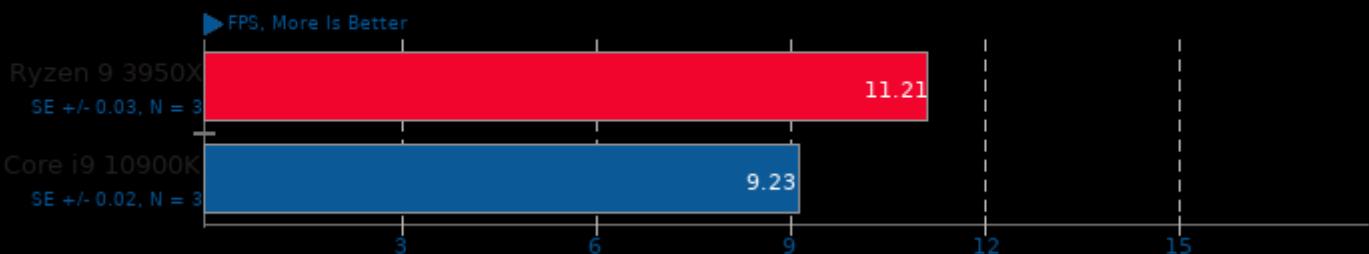
PlaidML

FP16: No - Mode: Inference - Network: DenseNet 201 - Device: CPU



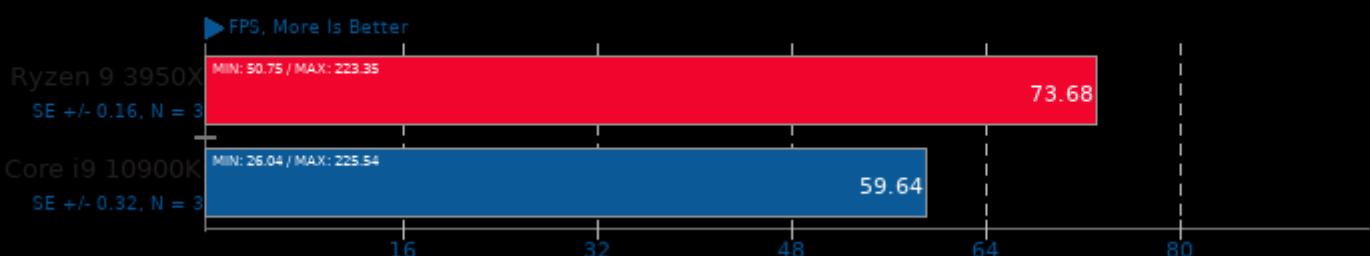
PlaidML

FP16: No - Mode: Inference - Network: Inception V3 - Device: CPU



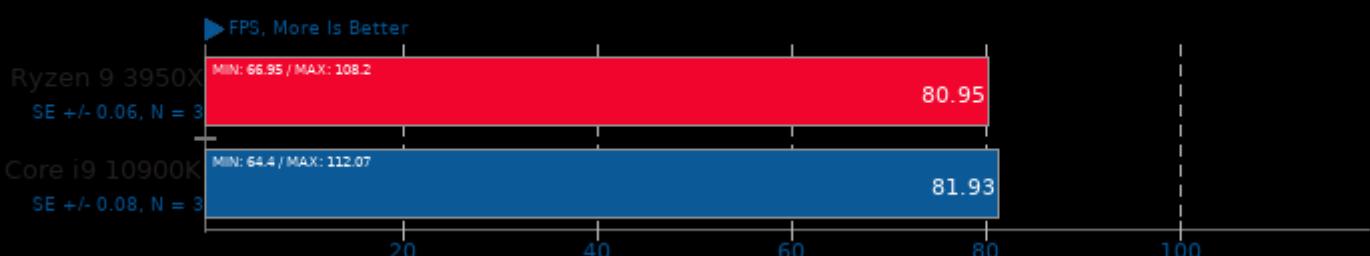
Basemark GPU 1.2

Renderer: OpenGL - Resolution: 3840 x 2160 - Graphics Preset: High



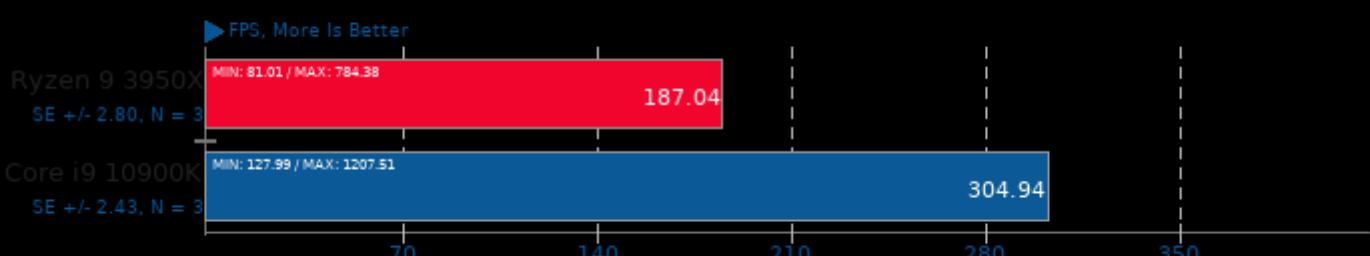
Basemark GPU 1.2

Renderer: Vulkan - Resolution: 3840 x 2160 - Graphics Preset: High



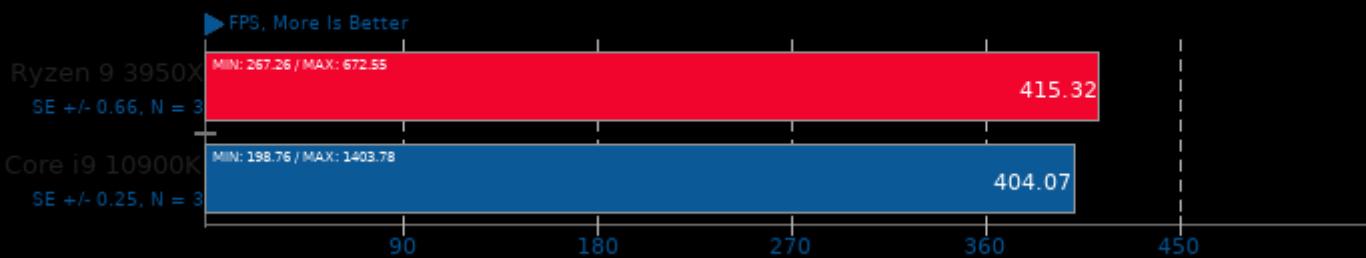
Basemark GPU 1.2

Renderer: OpenGL - Resolution: 3840 x 2160 - Graphics Preset: Medium



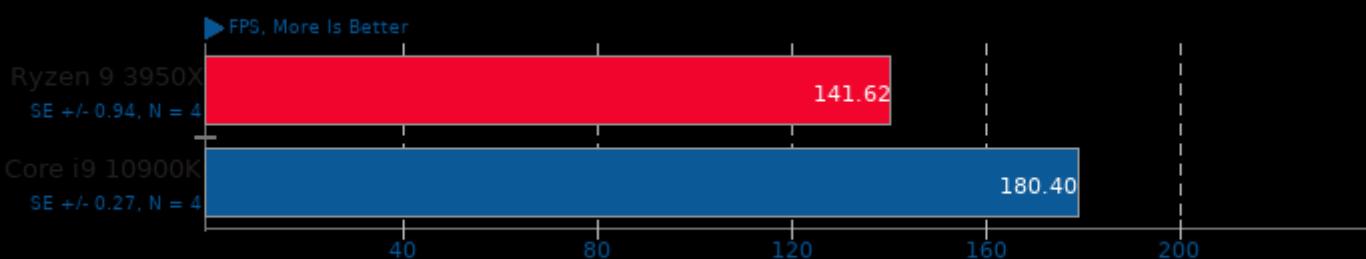
Basemark GPU 1.2

Renderer: Vulkan - Resolution: 3840 x 2160 - Graphics Preset: Medium



Optcarrot

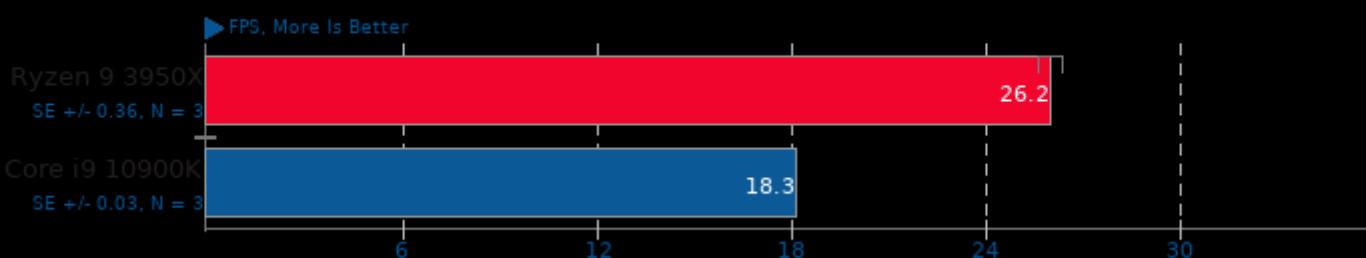
Optimized Benchmark



1. ruby 2.7.0p0 (2019-12-25 revision 647ee6f091) [x86_64-linux-gnu]

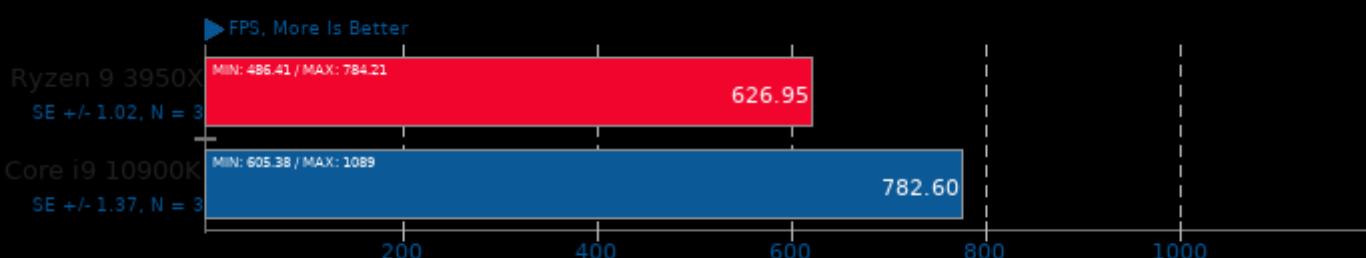
NeatBench 5

Acceleration: CPU



dav1d 0.7.0

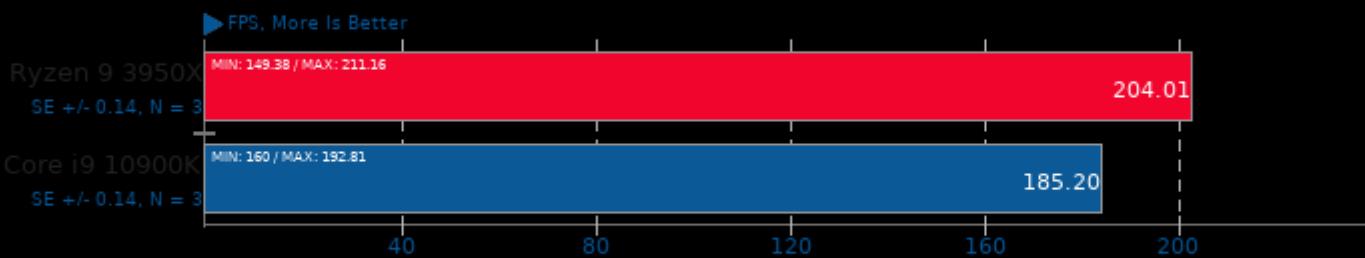
Video Input: Chimera 1080p



1. (CC) gcc options: -pthread

dav1d 0.7.0

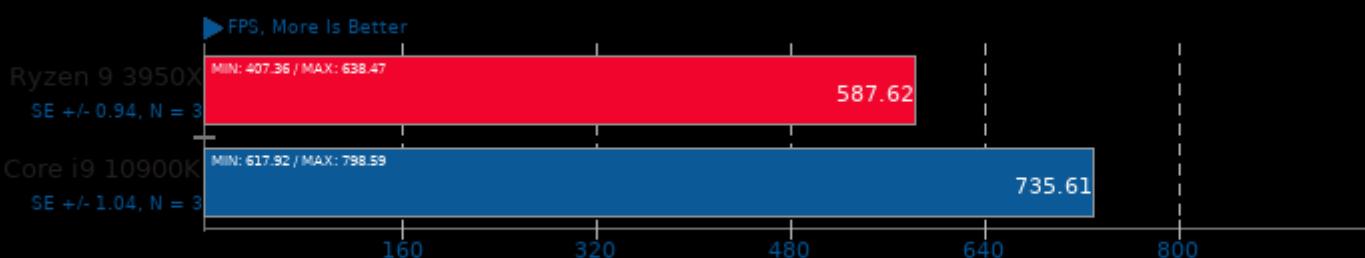
Video Input: Summer Nature 4K



1. (CC) gcc options: -pthread

dav1d 0.7.0

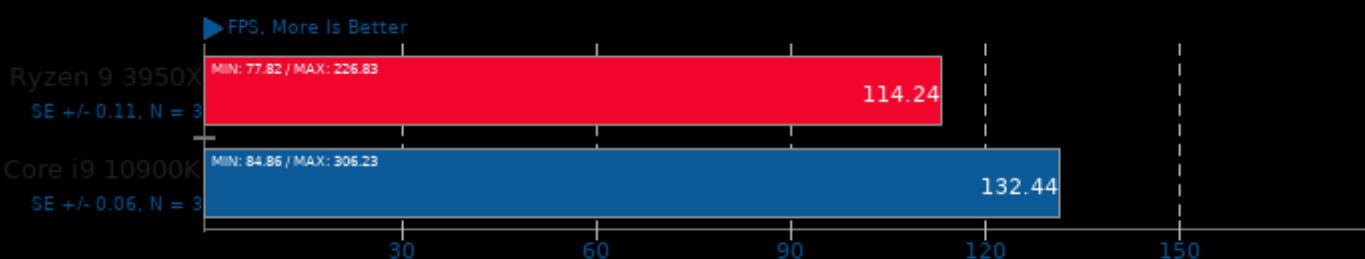
Video Input: Summer Nature 1080p



1. (CC) gcc options: -pthread

dav1d 0.7.0

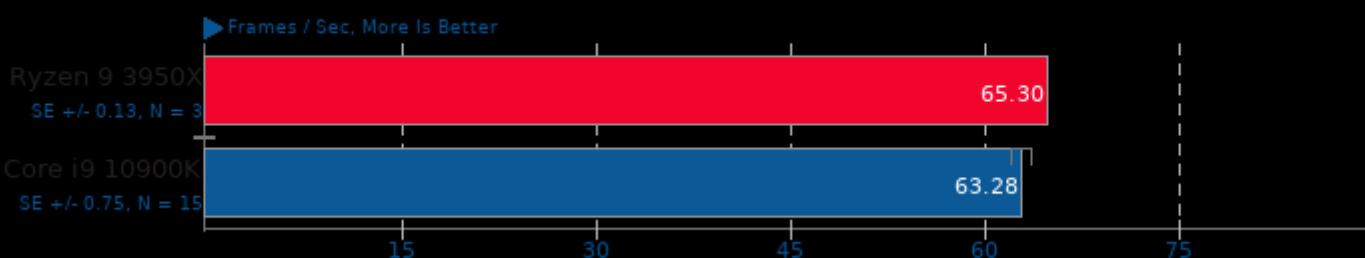
Video Input: Chimera 1080p 10-bit



1. (CC) gcc options: -pthread

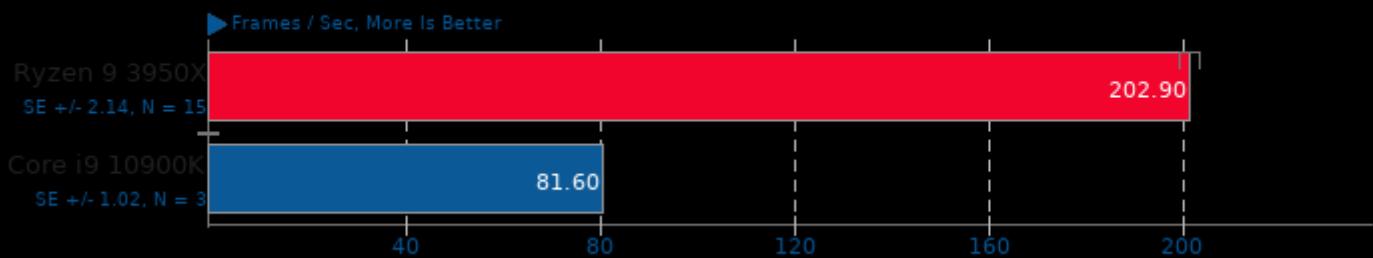
ParaView 5.4.1

Test: Many Spheres - Resolution: 3840 x 2160



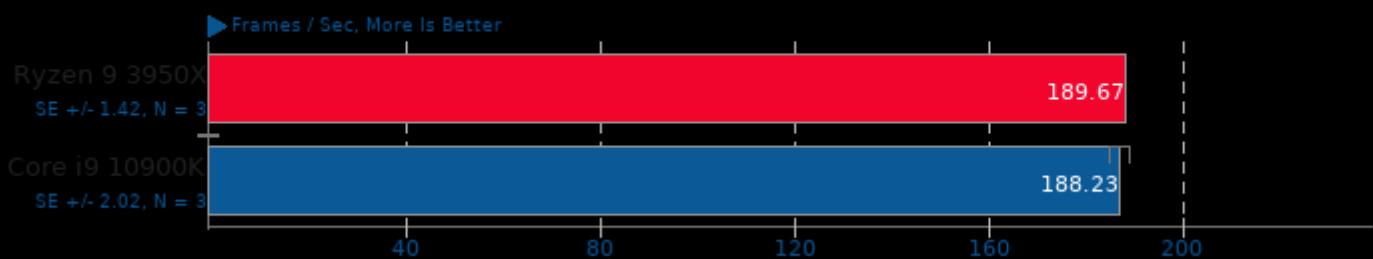
ParaView 5.4.1

Test: Wavelet Volume - Resolution: 3840 x 2160



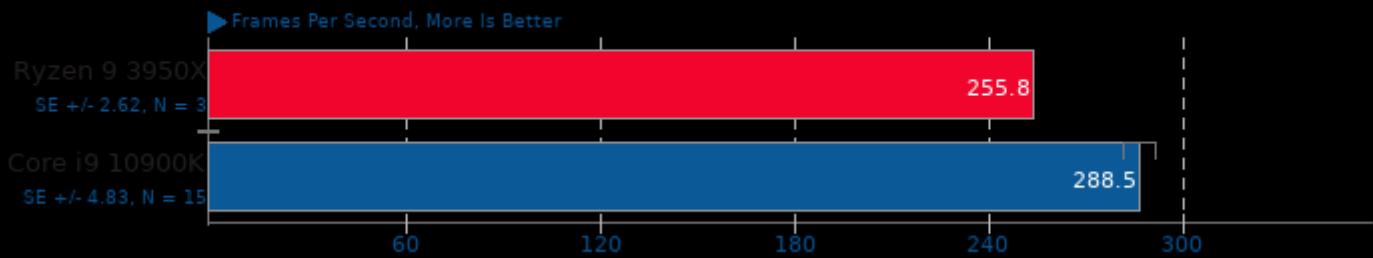
ParaView 5.4.1

Test: Wavelet Contour - Resolution: 3840 x 2160



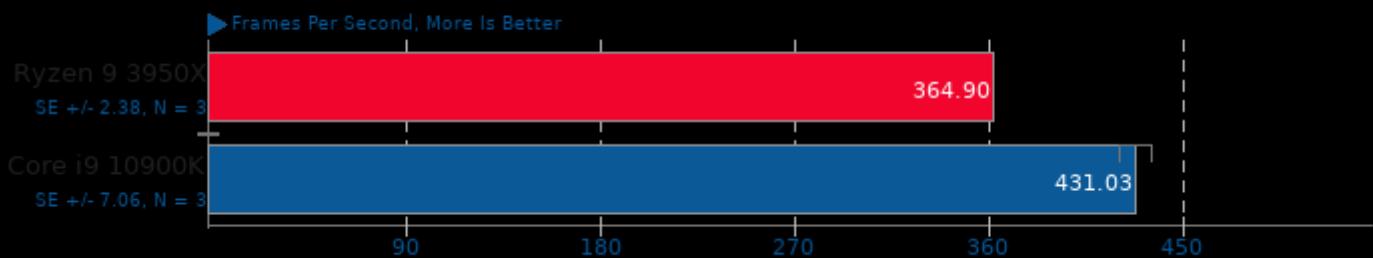
ET: Legacy 2.75

Renderer: Renderer2 - Resolution: 3840 x 2160



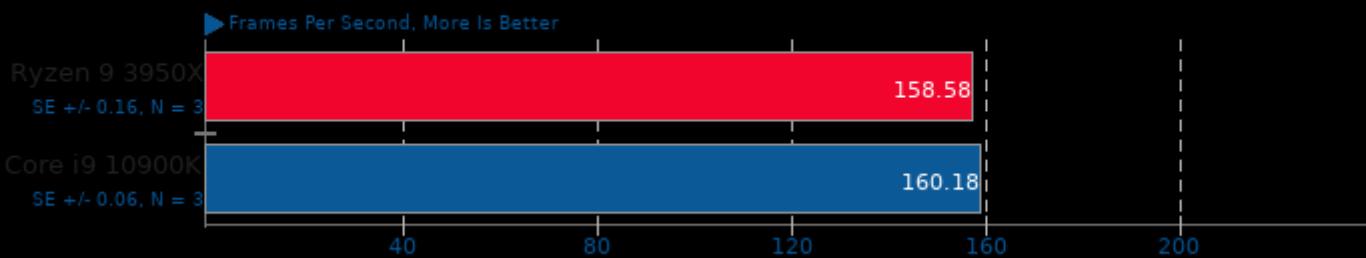
Tesseract 2014-05-12

Resolution: 3840 x 2160



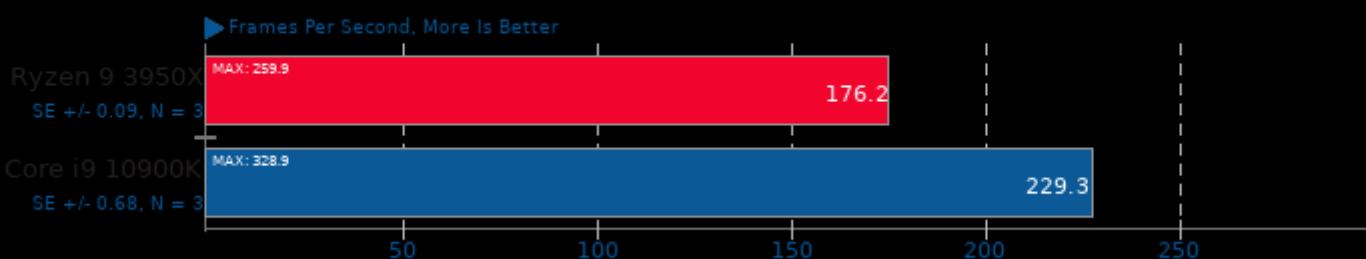
Unigine Heaven 4.0

Resolution: 1920 x 1080 - Mode: Windowed - Renderer: OpenGL



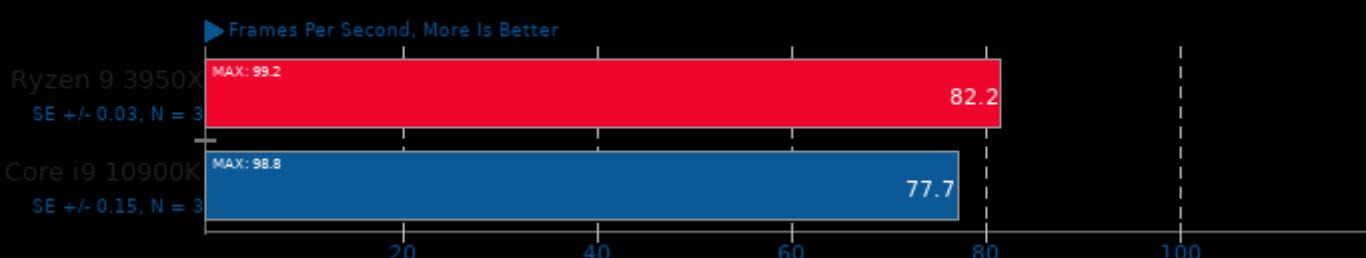
Unigine Superposition 1.0

Resolution: 1920 x 1080 - Mode: Windowed - Quality: Low - Renderer: OpenGL



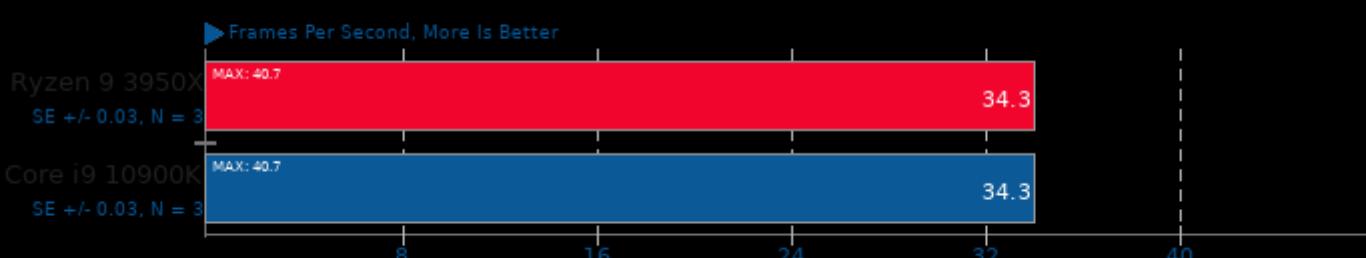
Unigine Superposition 1.0

Resolution: 1920 x 1080 - Mode: Windowed - Quality: High - Renderer: OpenGL



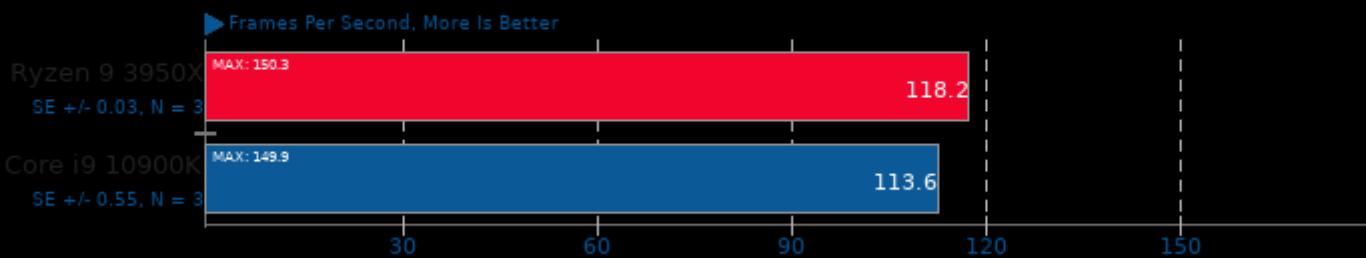
Unigine Superposition 1.0

Resolution: 1920 x 1080 - Mode: Windowed - Quality: Ultra - Renderer: OpenGL



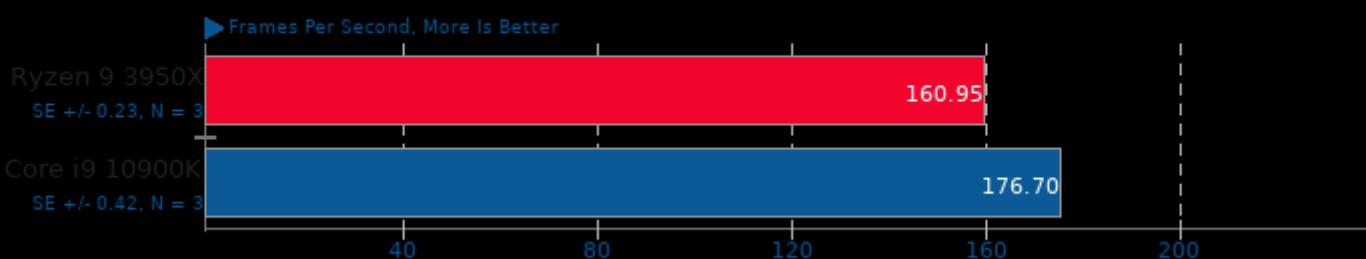
Unigine Superposition 1.0

Resolution: 1920 x 1080 - Mode: Windowed - Quality: Medium - Renderer: OpenGL



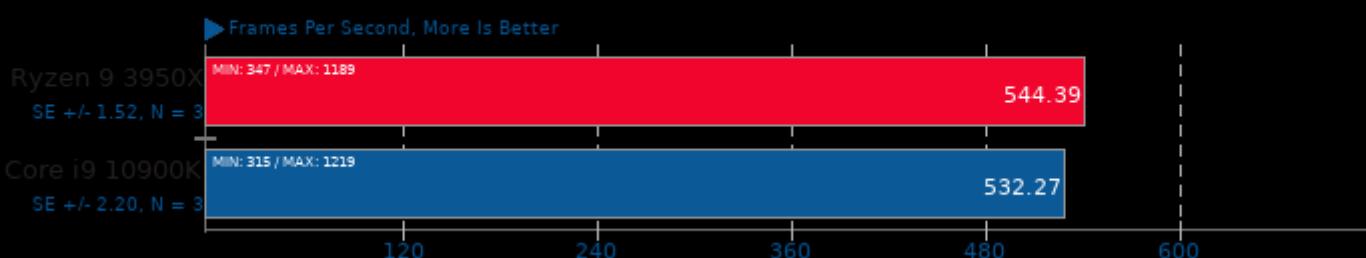
Unigine Valley 1.0

Resolution: 1920 x 1080 - Mode: Windowed - Renderer: OpenGL



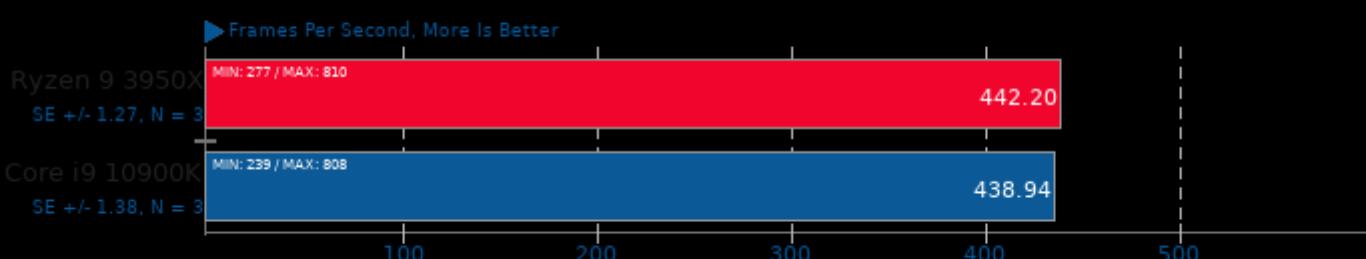
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: Low



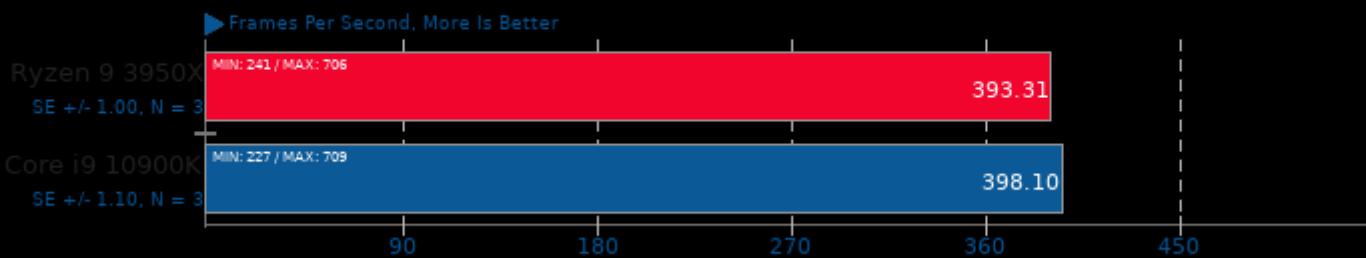
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: High



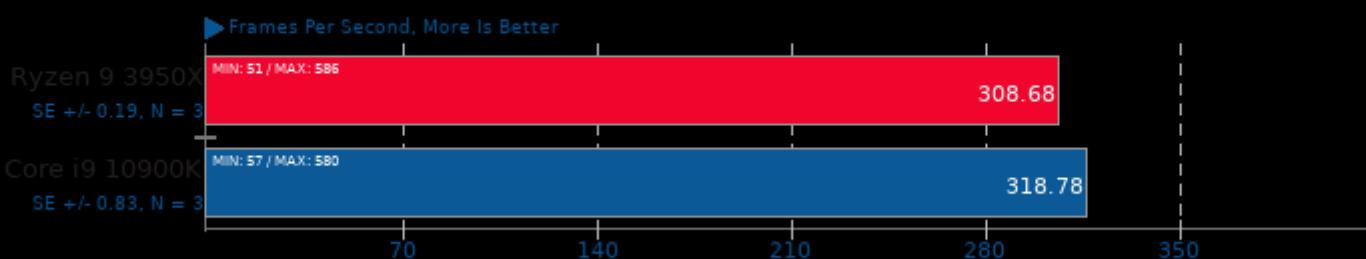
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: Ultra



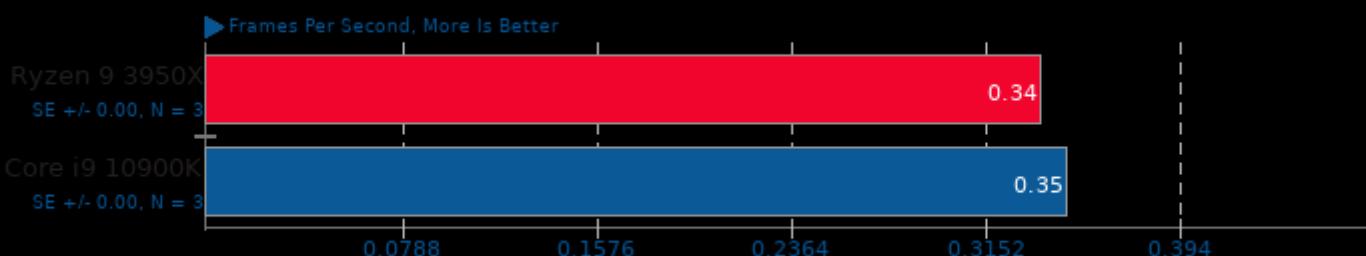
Xonotic 0.8.2

Resolution: 3840 x 2160 - Effects Quality: Ultimate



AOM AV1 2.0

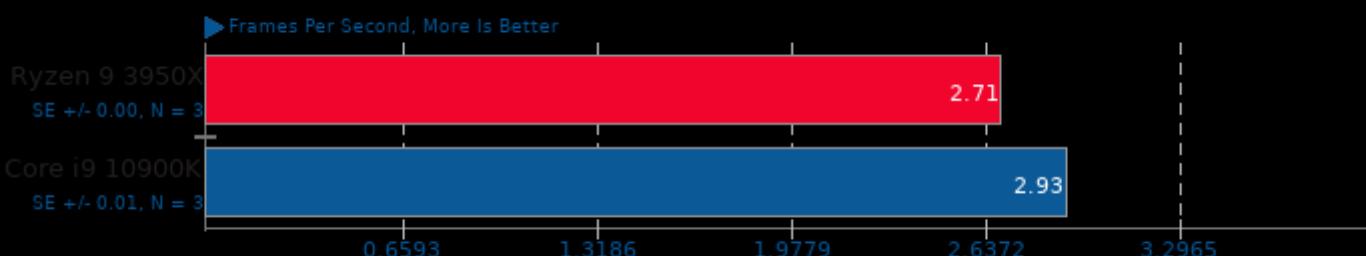
Encoder Mode: Speed 0 Two-Pass



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

AOM AV1 2.0

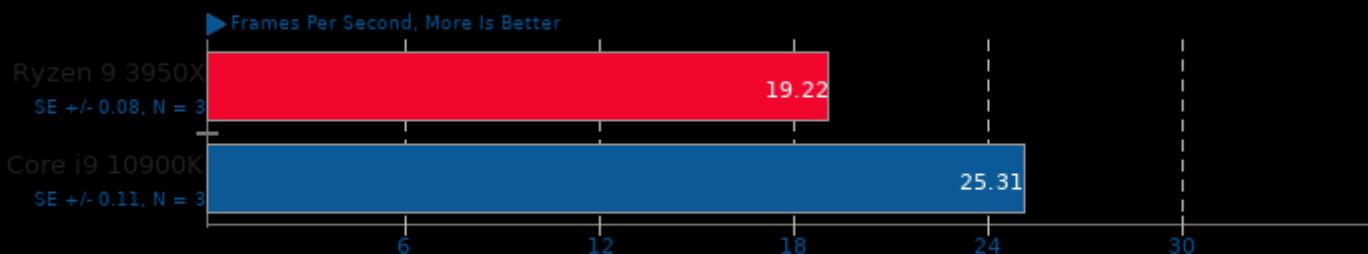
Encoder Mode: Speed 4 Two-Pass



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

AOM AV1 2.0

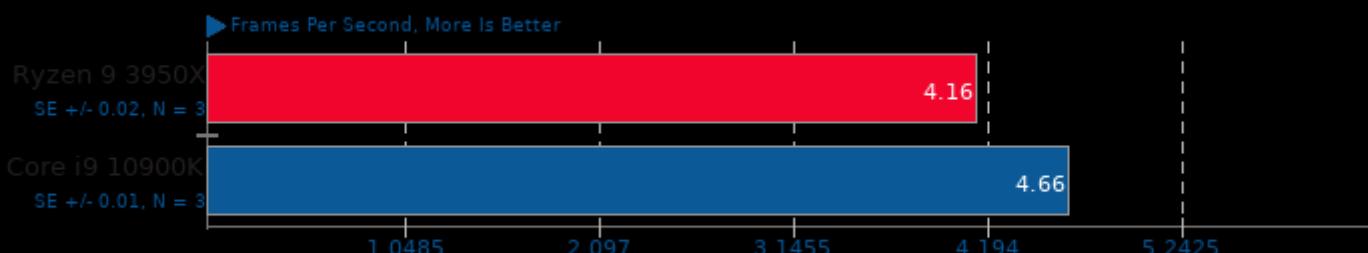
Encoder Mode: Speed 6 Realtime



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

AOM AV1 2.0

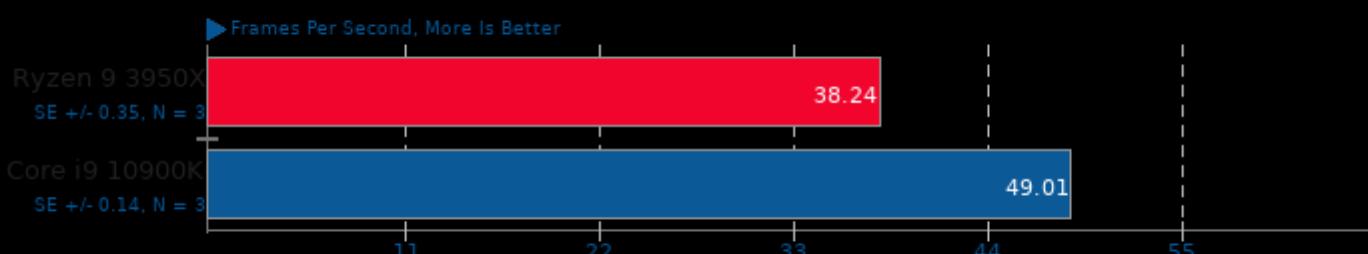
Encoder Mode: Speed 6 Two-Pass



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

AOM AV1 2.0

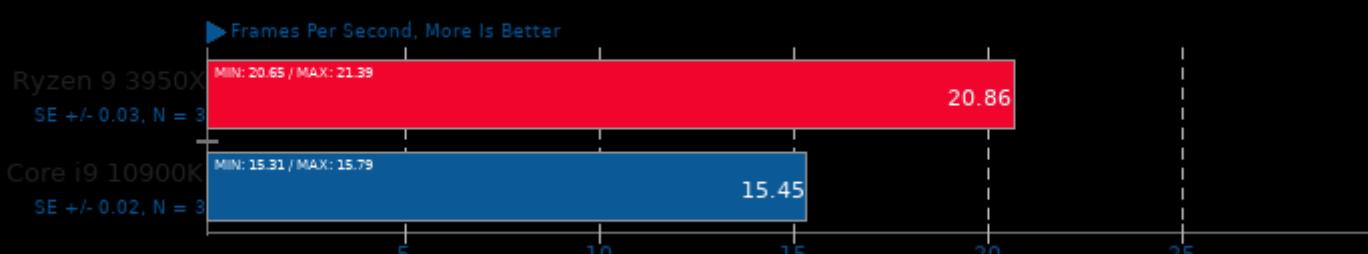
Encoder Mode: Speed 8 Realtime



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

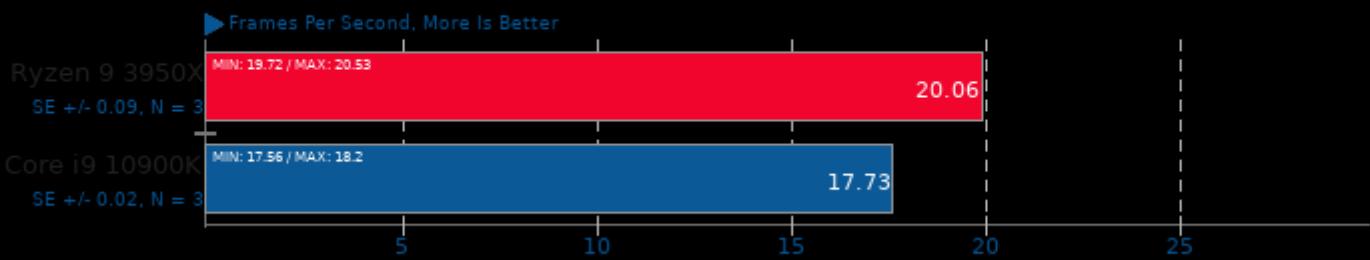
Embree 3.9.0

Binary: Pathtracer - Model: Crown



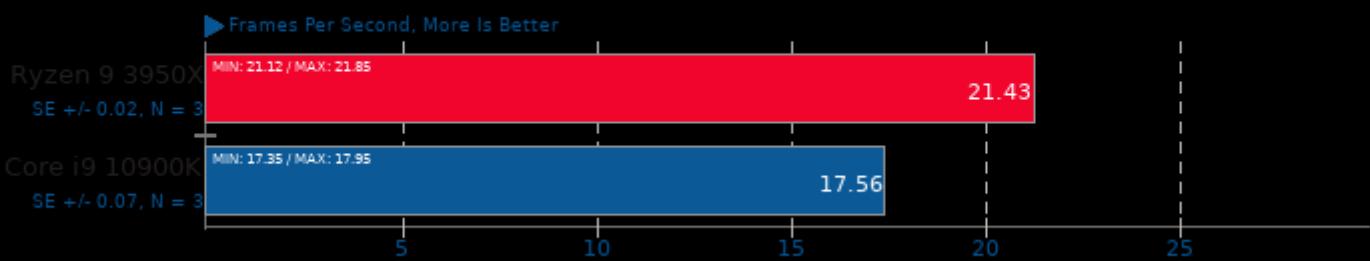
Embree 3.9.0

Binary: Pathtracer ISPC - Model: Crown



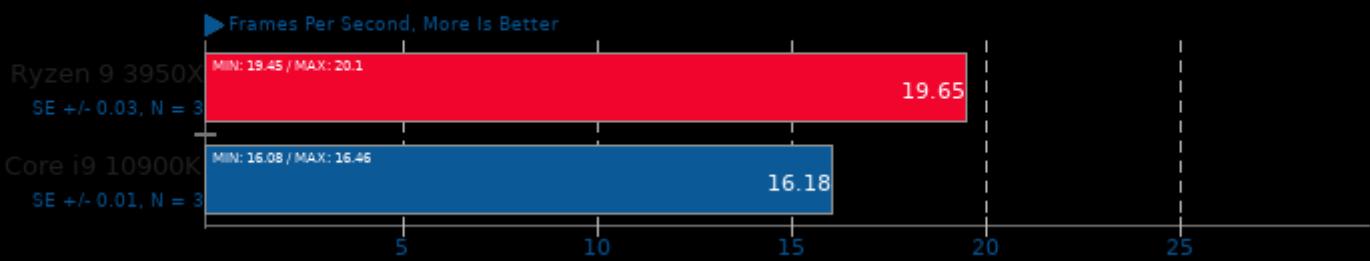
Embree 3.9.0

Binary: Pathtracer - Model: Asian Dragon



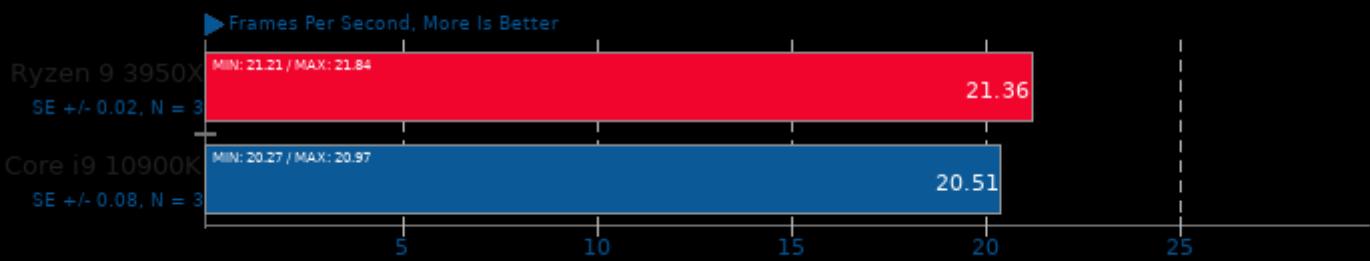
Embree 3.9.0

Binary: Pathtracer - Model: Asian Dragon Obj



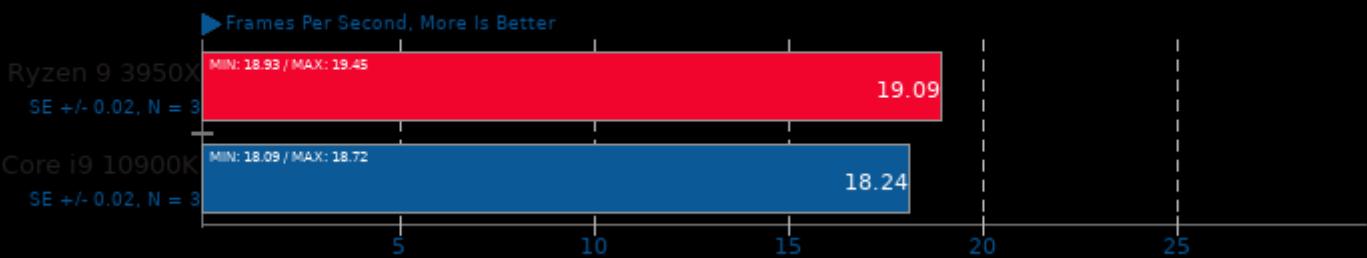
Embree 3.9.0

Binary: Pathtracer ISPC - Model: Asian Dragon



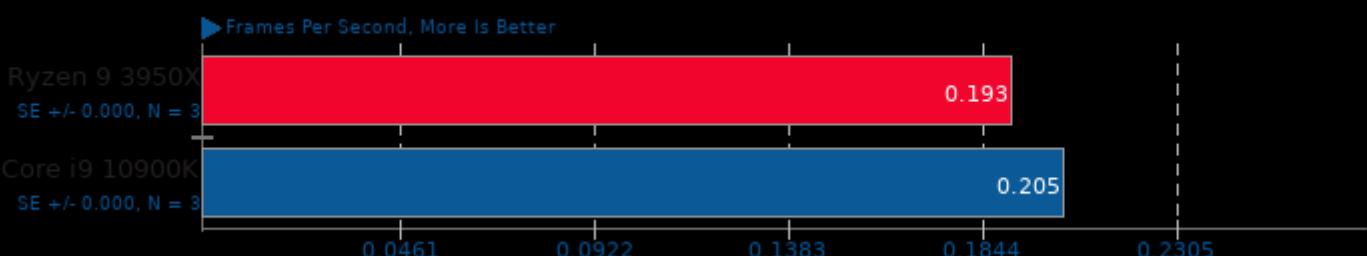
Embree 3.9.0

Binary: Pathtracer ISPC - Model: Asian Dragon Obj



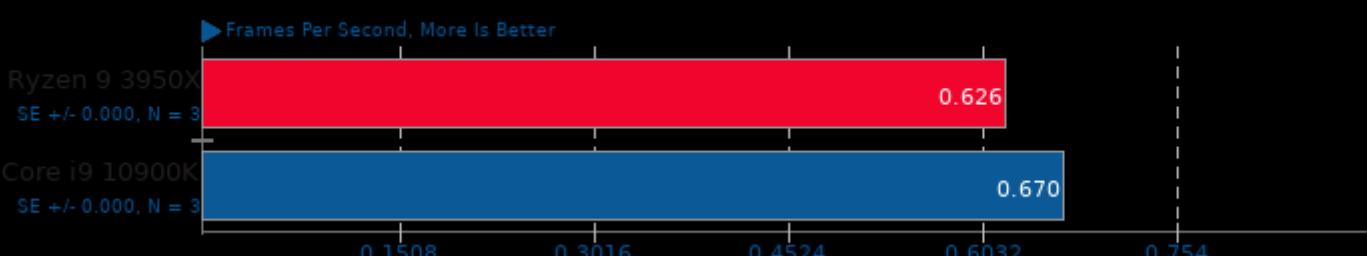
rav1e 0.3.0

Speed: 1



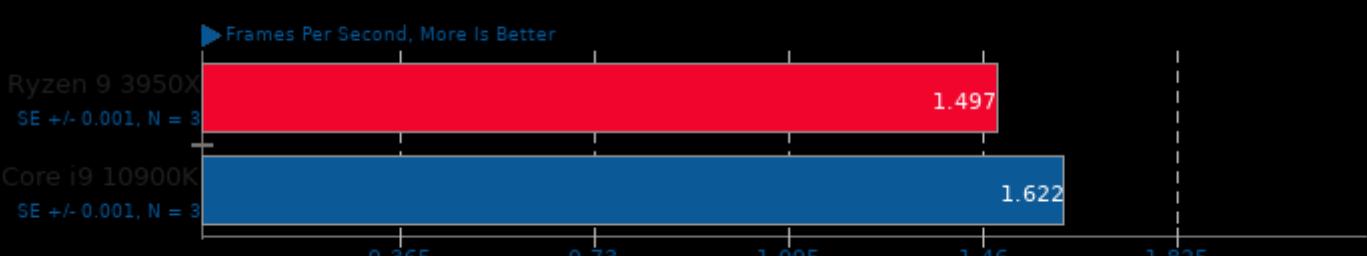
rav1e 0.3.0

Speed: 5



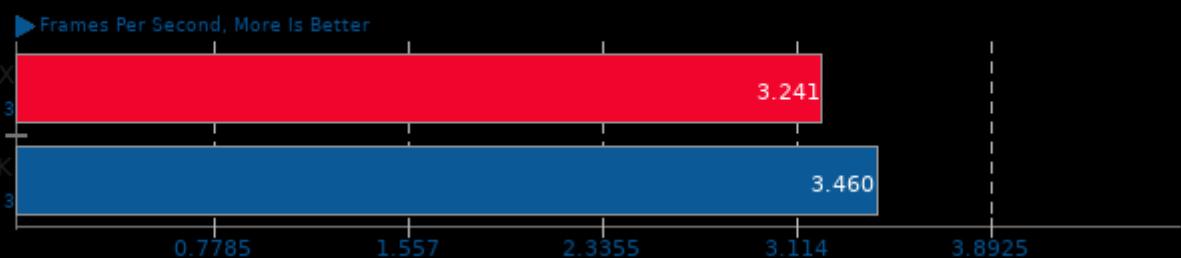
rav1e 0.3.0

Speed: 6



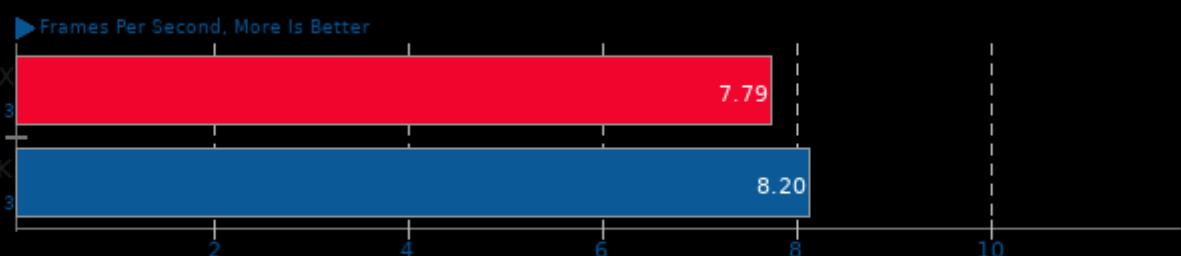
rav1e 0.3.0

Speed: 10



VP9 libvpx Encoding 1.8.2

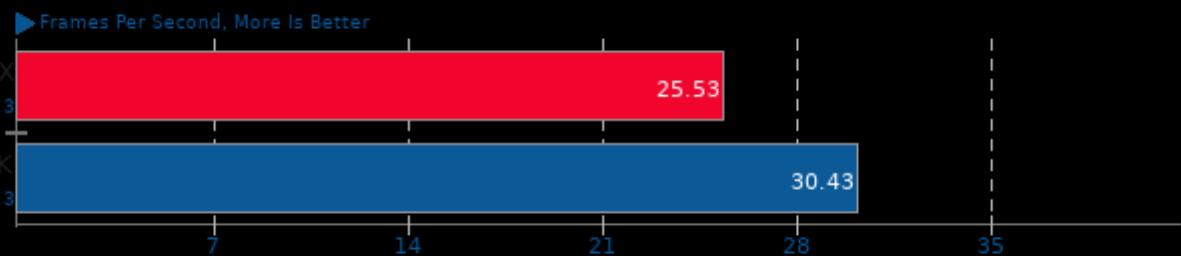
Speed: Speed 0



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

VP9 libvpx Encoding 1.8.2

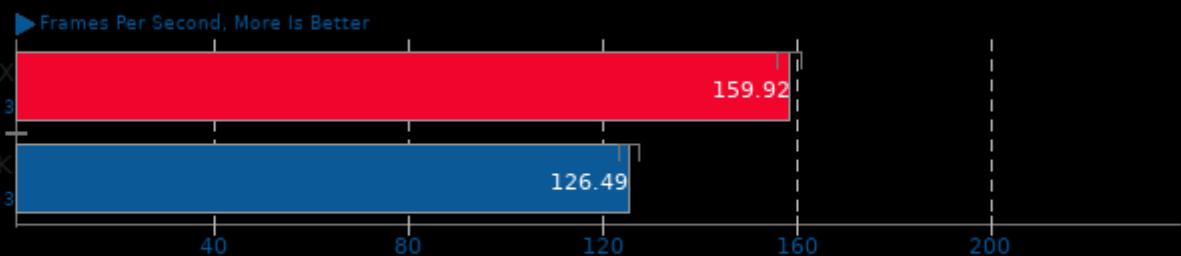
Speed: Speed 5



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

x264 2019-12-17

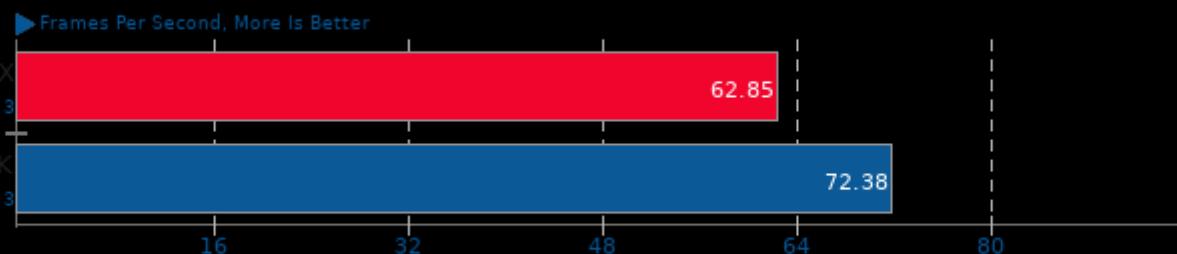
H.264 Video Encoding



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 3.1.2

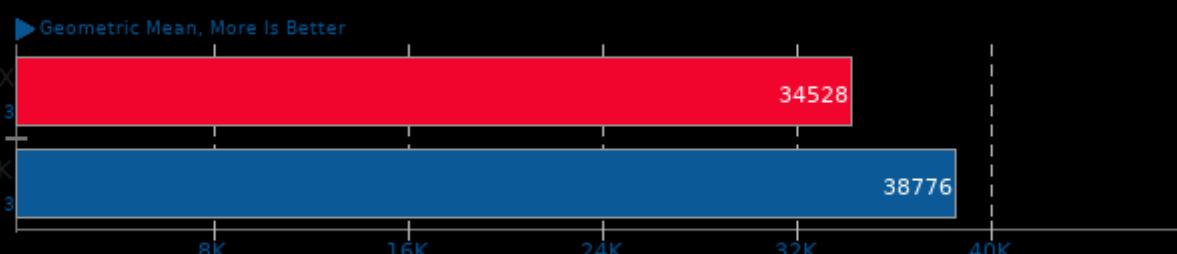
H.265 1080p Video Encoding



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

Selenium

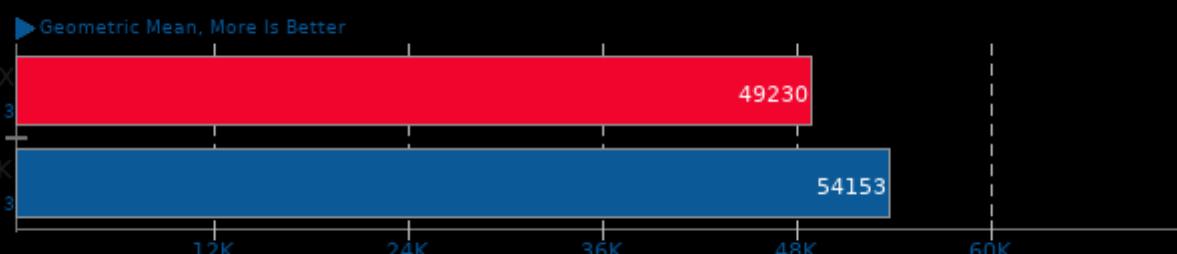
Benchmark: Octane - Browser: Firefox



1. firefox 76.0.1

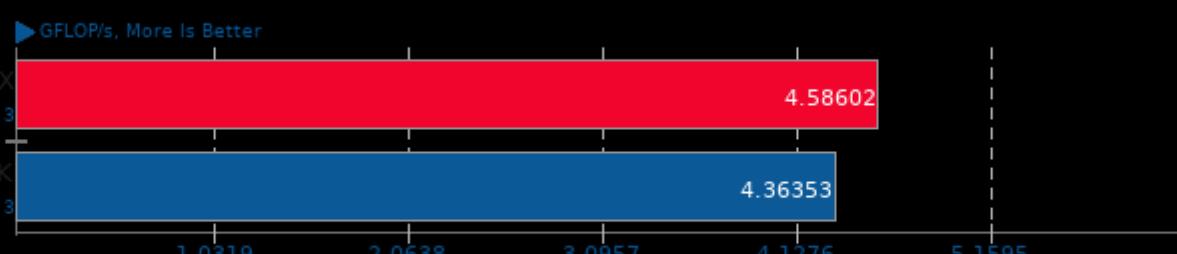
Selenium

Benchmark: Octane - Browser: Google Chrome



1. chrome 83.0.4103.61

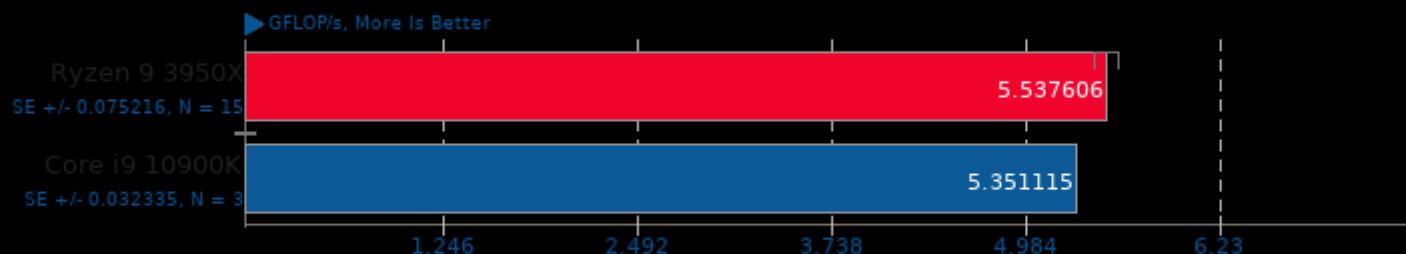
High Performance Conjugate Gradient 3.1



1. (CXX) g++ options: -O3 -ffast-math -ftree-vectorize -pthread -lmpi_cxx -lmpi

ACES DGEMM 1.0

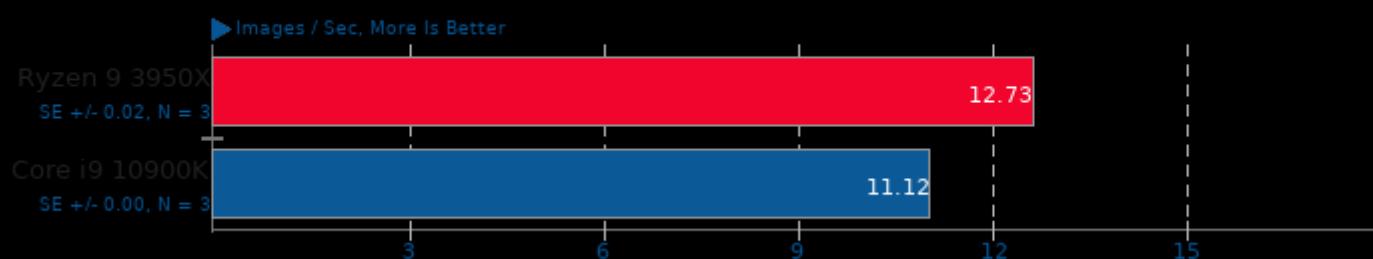
Sustained Floating-Point Rate



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

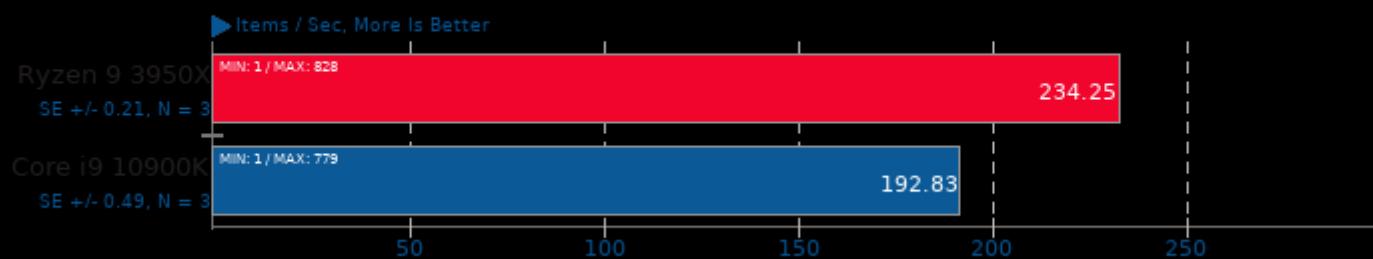
Intel Open Image Denoise 1.2.0

Scene: Memorial



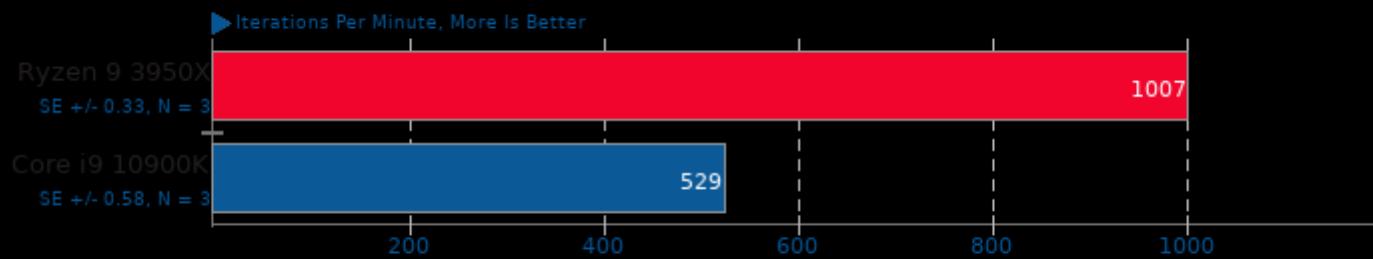
OpenVKL 0.9

Benchmark: vklBenchmark



GraphicsMagick 1.3.33

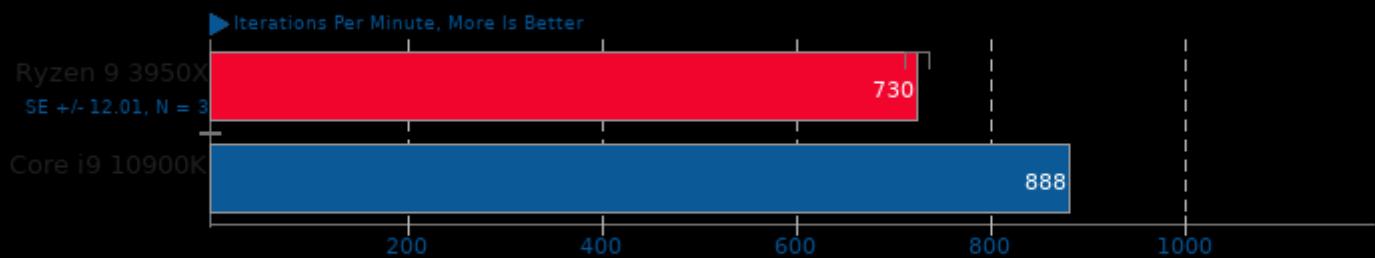
Operation: Swirl



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

GraphicsMagick 1.3.33

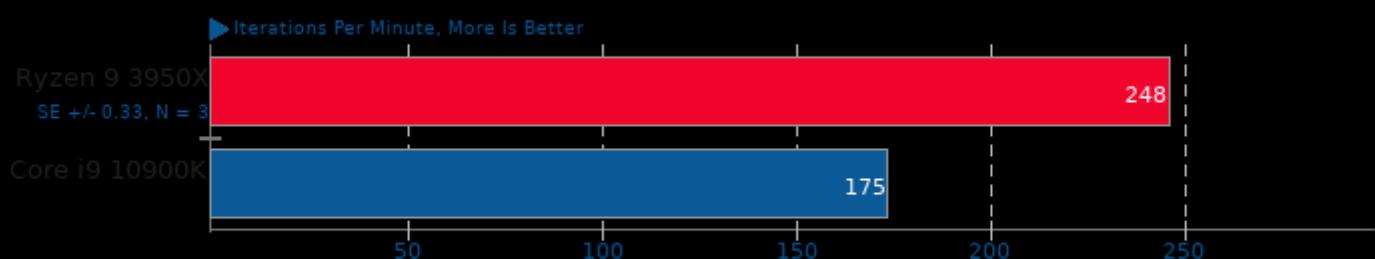
Operation: Rotate



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -bz2 -xml2 -lz -lm -pthread

GraphicsMagick 1.3.33

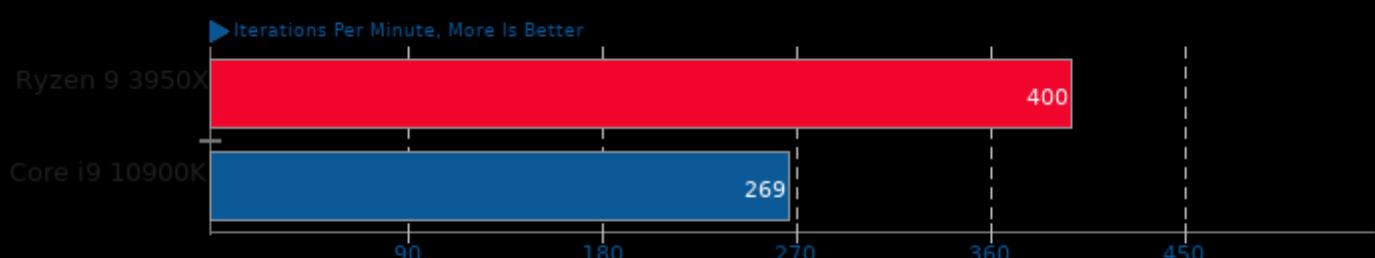
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -bz2 -xml2 -lz -lm -pthread

GraphicsMagick 1.3.33

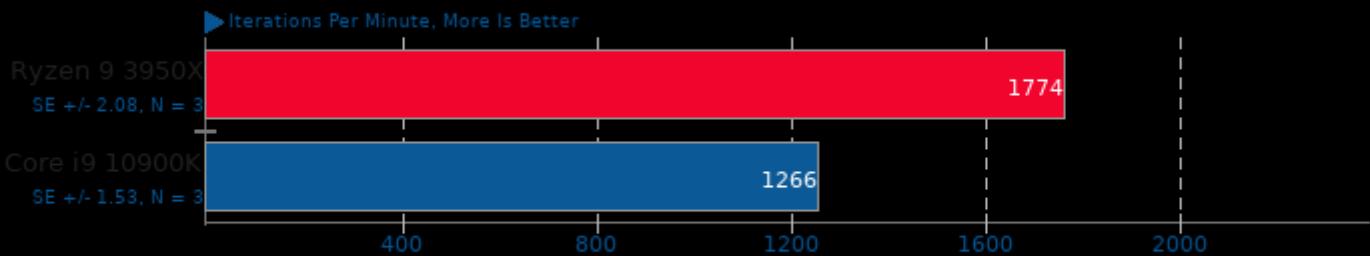
Operation: Enhanced



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -bz2 -xml2 -lz -lm -pthread

GraphicsMagick 1.3.33

Operation: Resizing



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

GraphicsMagick 1.3.33

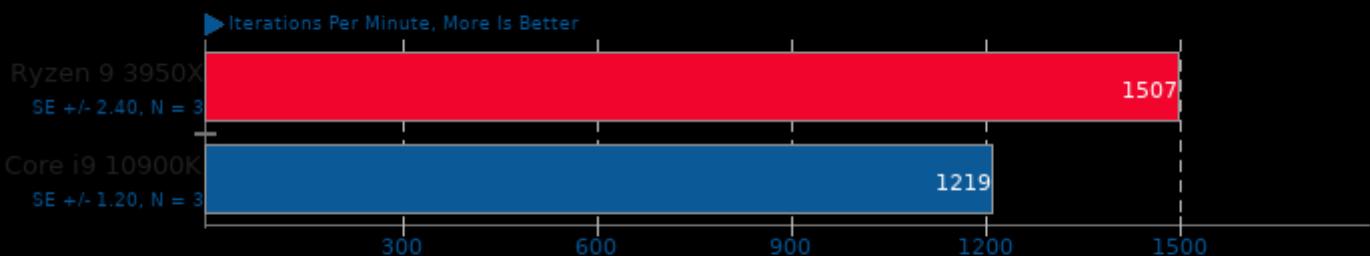
Operation: Noise-Gaussian



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

GraphicsMagick 1.3.33

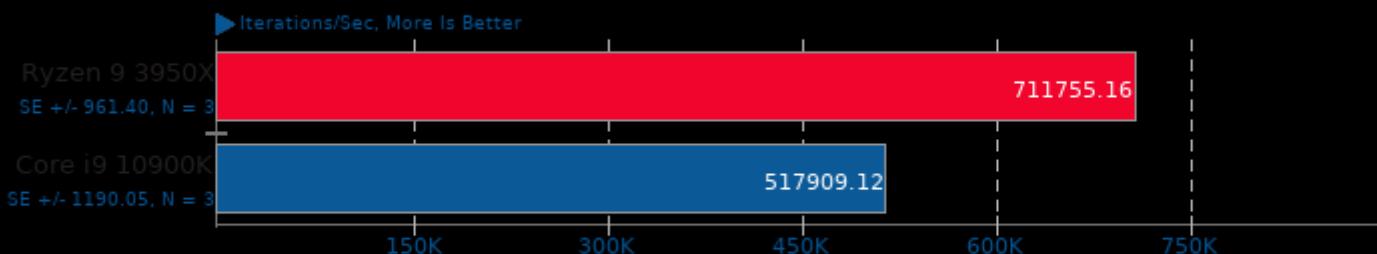
Operation: HWB Color Space



1. (CC) gcc options: -fopenmp -O2 -pthread -ljbig -lwebp -lwebpmux -ltiff -freetype -jpeg -lXext -lSM -ICE -lX11 -lzma -lbz2 -lxml2 -lz -lm -pthread

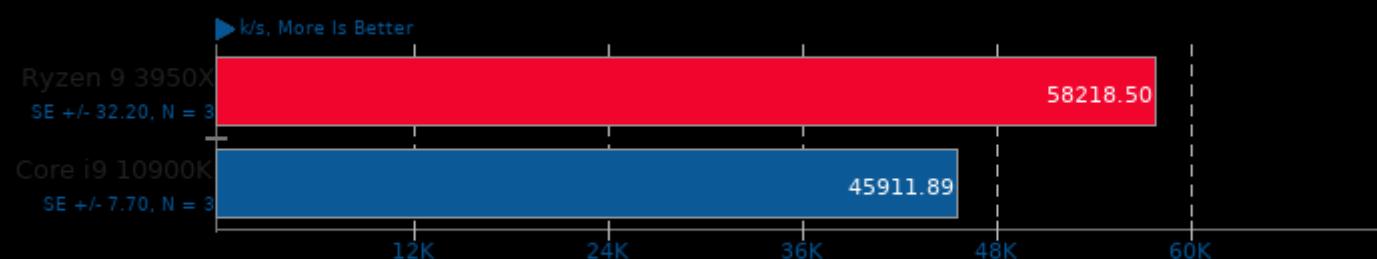
Coremark 1.0

CoreMark Size 666 - Iterations Per Second



1. (CC) gcc options: -O2 -fintc -fintt

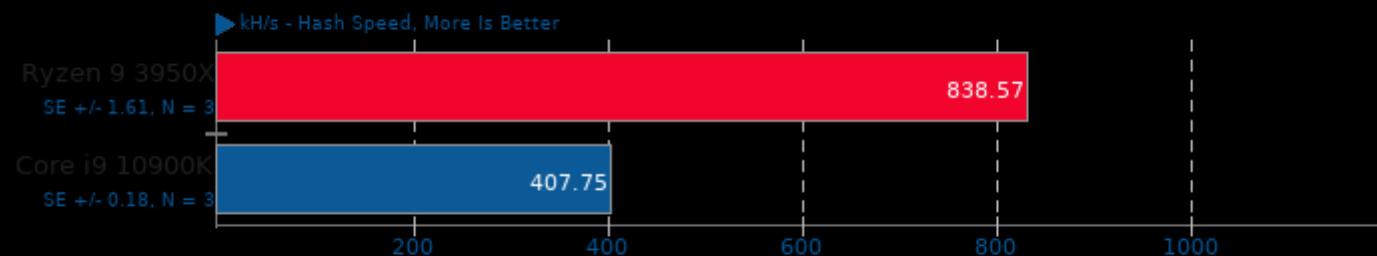
Aircrack-ng 1.5.2



1. (CXX) g++ options: -O3 -fvisibility=hidden -fasm=intel -fcommon -rdynamic -lpthread -lz -lcrypto -lhwloc -ldl -lm -pthread

Cpuminer-Opt 3.8.8.1

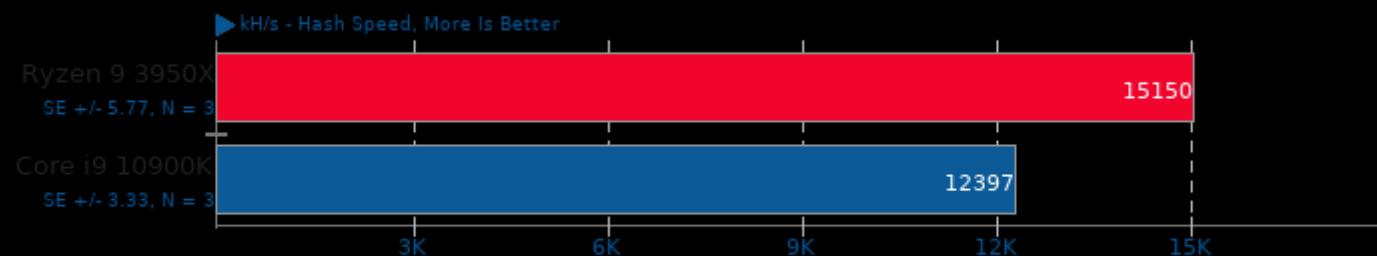
Algorithm: m7m



1. (CXX) g++ options: -O2 -curl -lz -lpthread -lssl -lcrypto -lgmp

Cpuminer-Opt 3.8.8.1

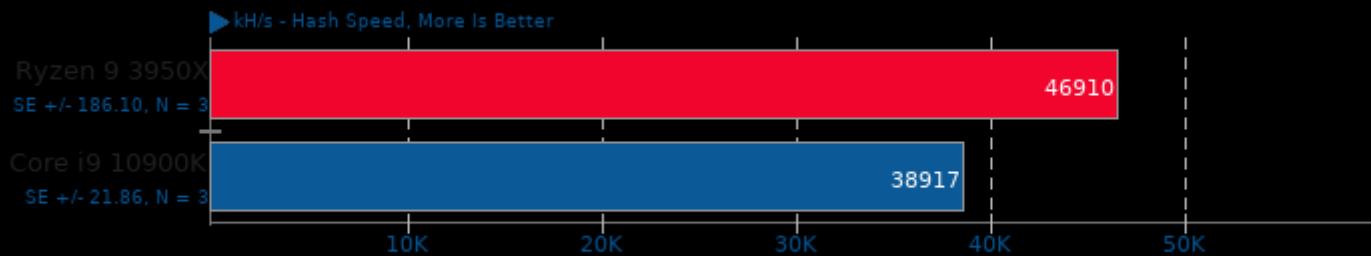
Algorithm: deep



1. (CXX) g++ options: -O2 -curl -lz -lpthread -lssl -lcrypto -lgmp

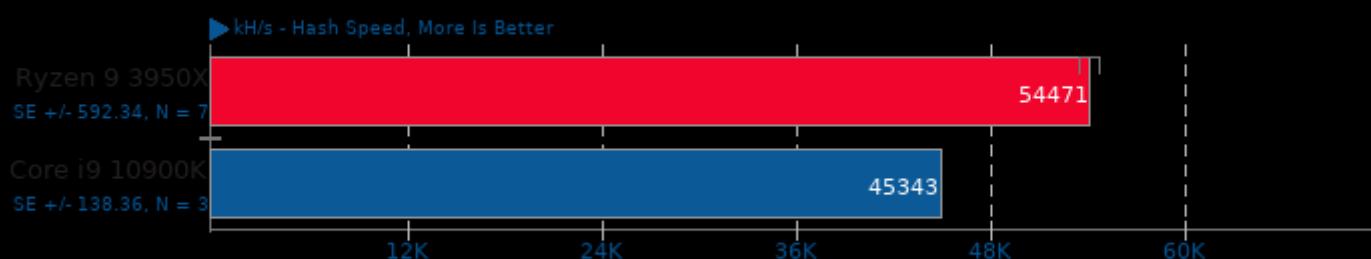
Cpuminer-Opt 3.8.8.1

Algorithm: lbry



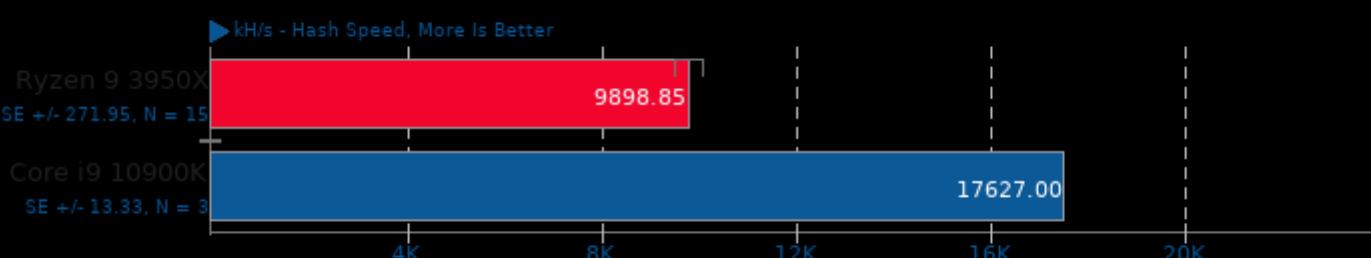
Cpuminer-Opt 3.8.8.1

Algorithm: skein



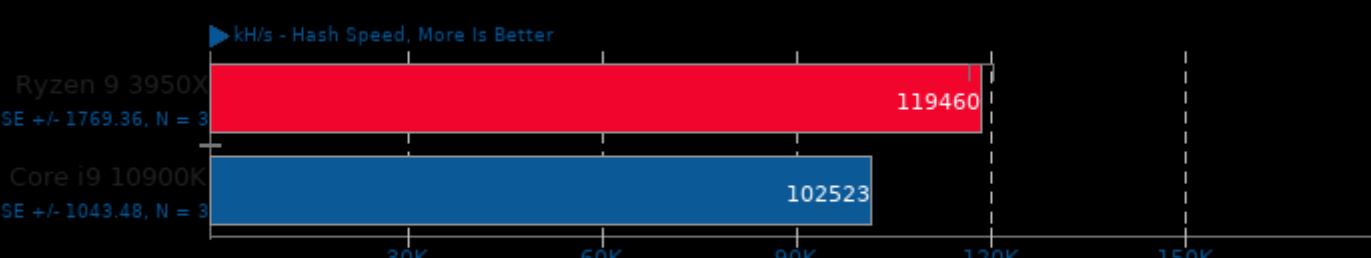
Cpuminer-Opt 3.8.8.1

Algorithm: myr-gr



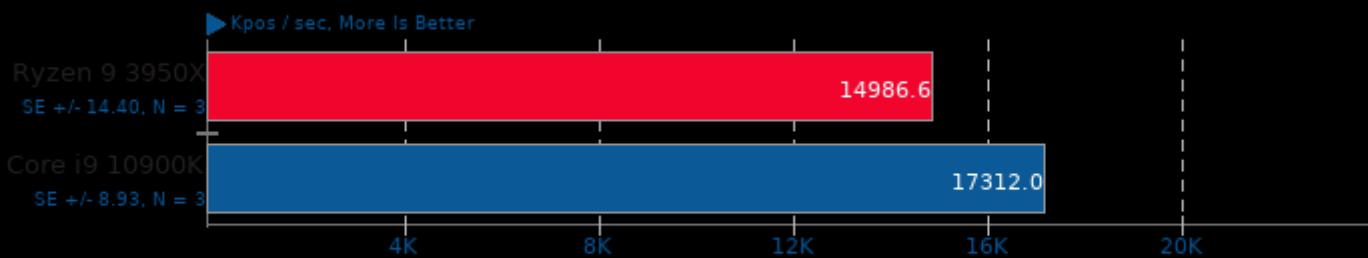
Cpuminer-Opt 3.8.8.1

Algorithm: sha256t



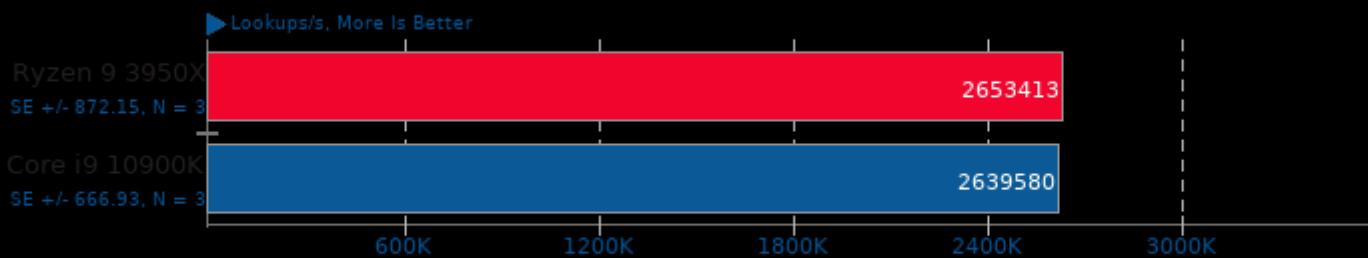
Fhourstones 3.1

Complex Connect-4 Solving



1. (CC) gcc options: -O3

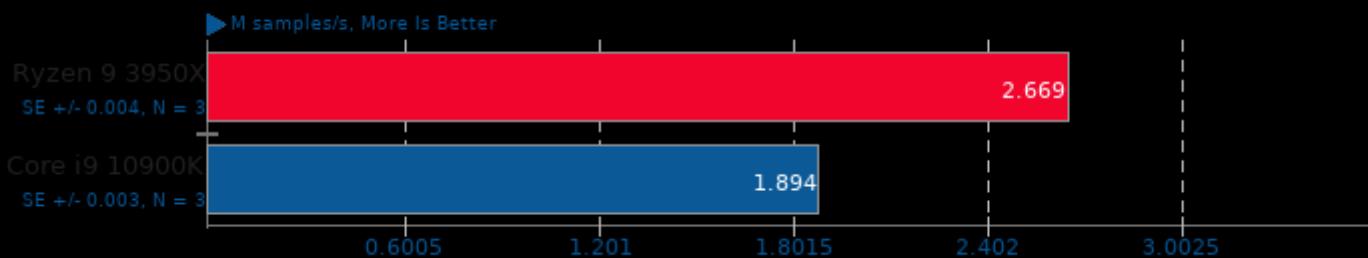
Xsbench 2017-07-06



1. (CC) gcc options: -std=gnu99 -fopenmp -O3 -lm

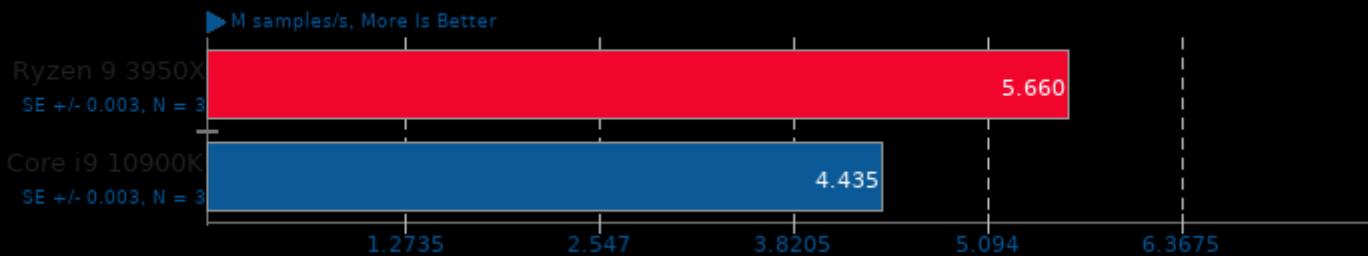
IndigoBench 4.0.64

Scene: Bedroom



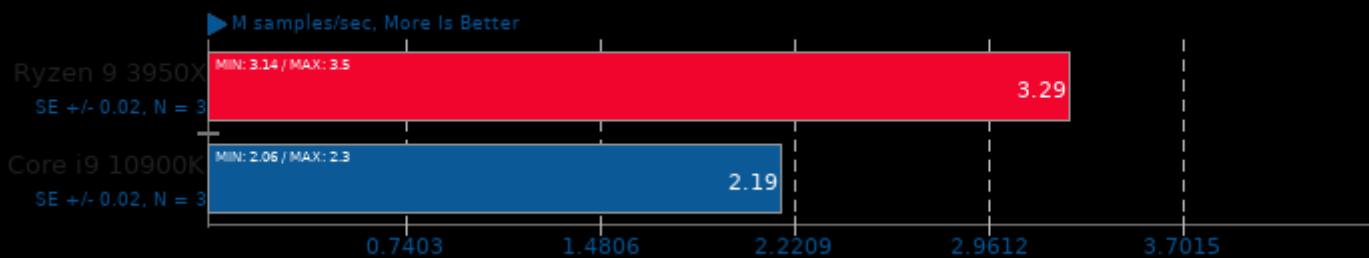
IndigoBench 4.0.64

Scene: Supercar



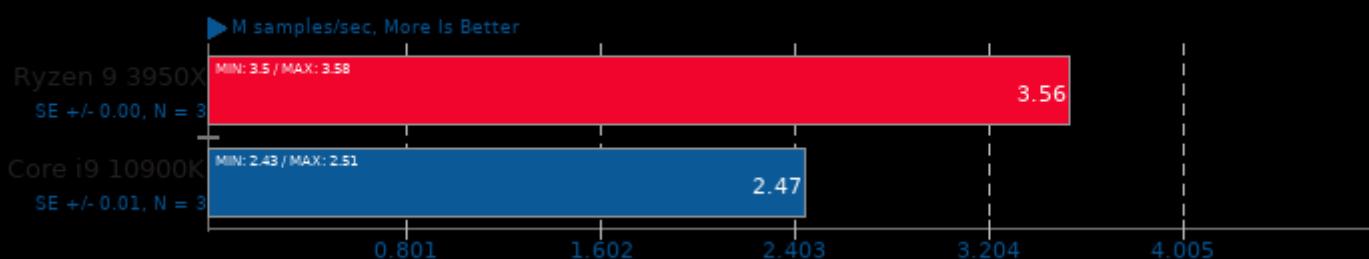
LuxCoreRender 2.3

Scene: DLSC



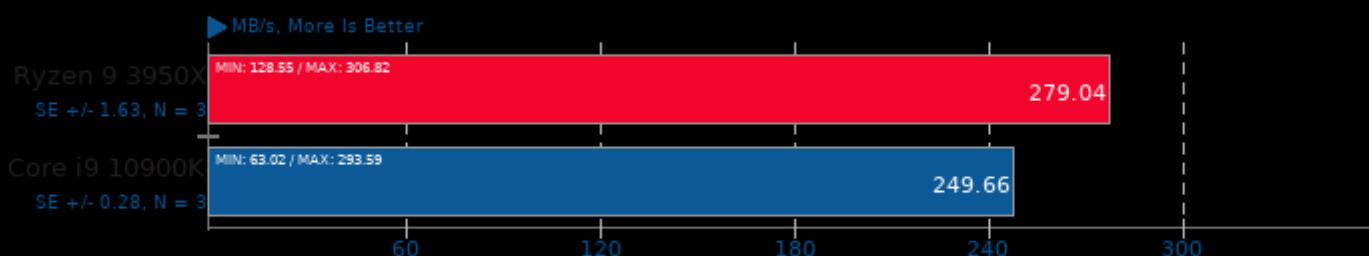
LuxCoreRender 2.3

Scene: Rainbow Colors and Prism



IOR 3.2.1

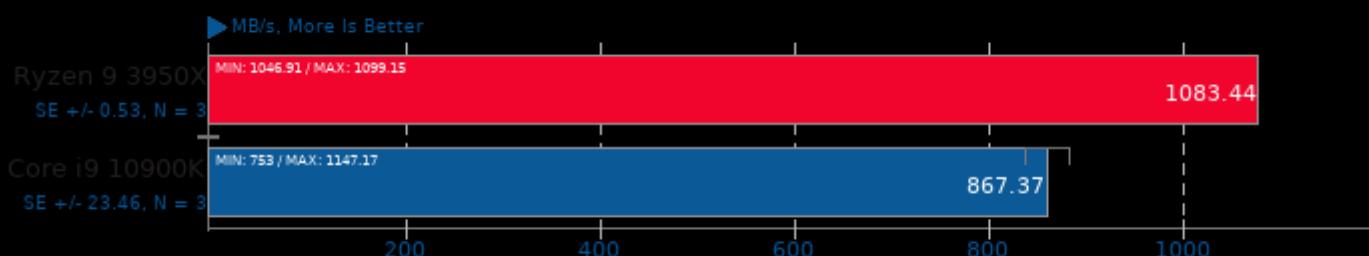
Write Test



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

IOR 3.2.1

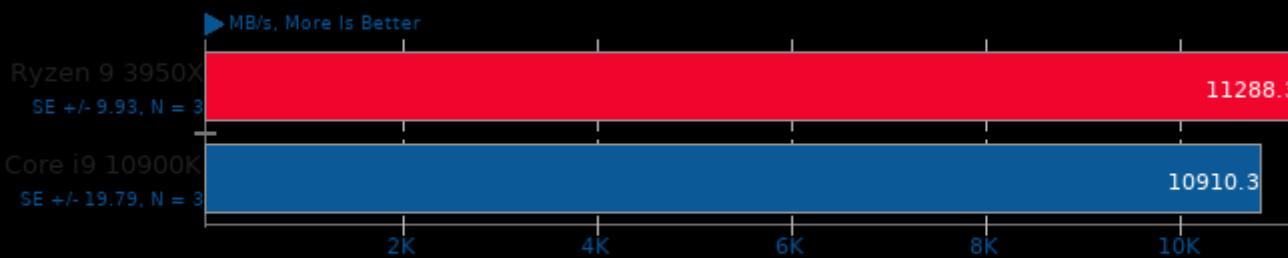
Read Test



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

C-Blosc 2.0 Beta 5

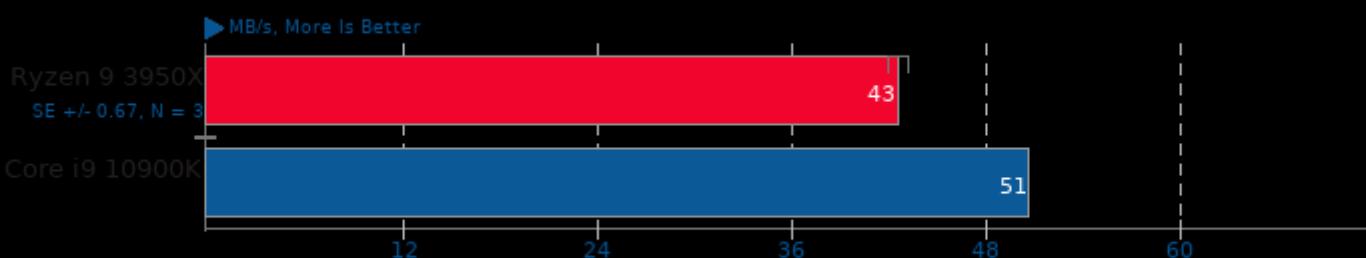
Compressor: blosclz



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

Izbench 1.8

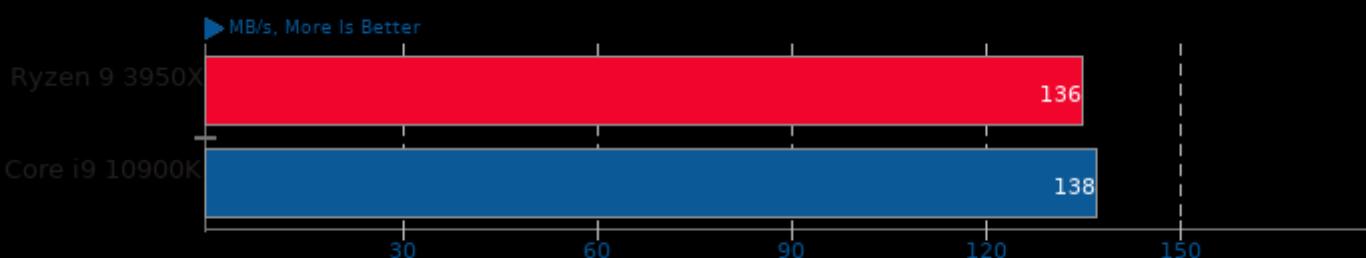
Test: XZ 0 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

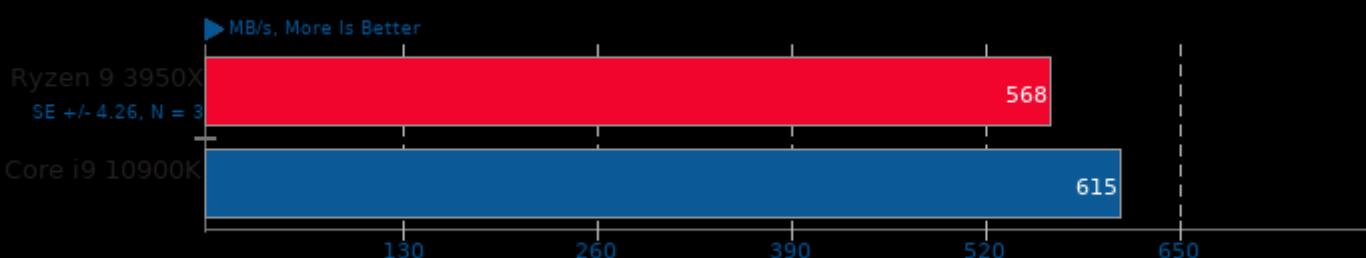
Test: XZ 0 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

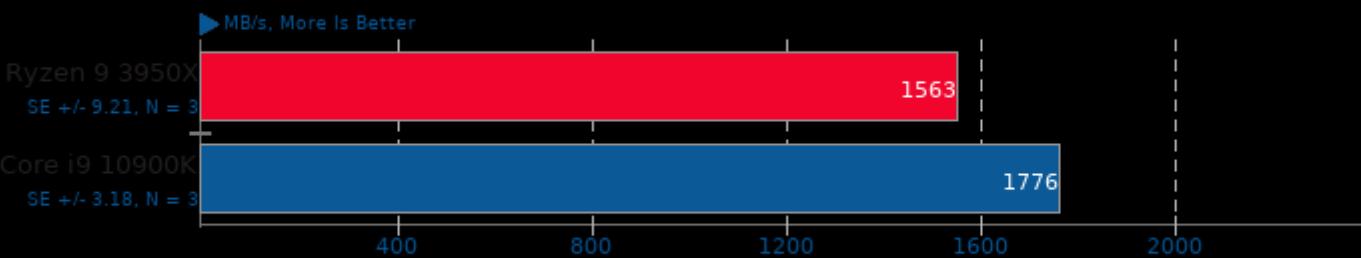
Test: Zstd 1 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

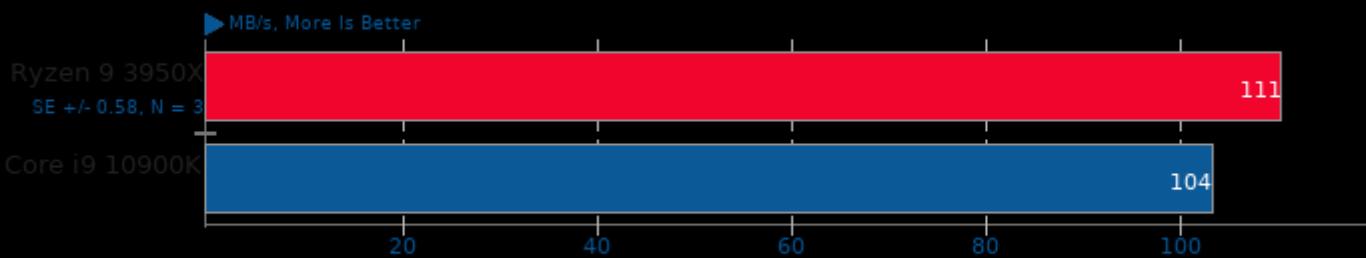
Test: Zstd 1 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

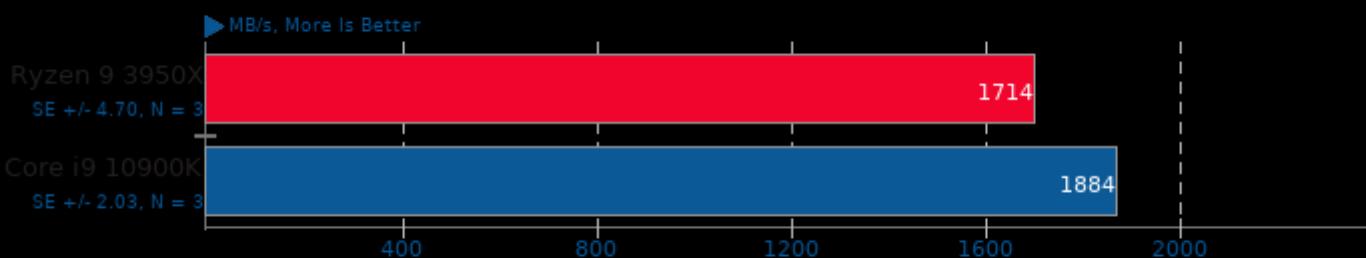
Test: Zstd 8 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

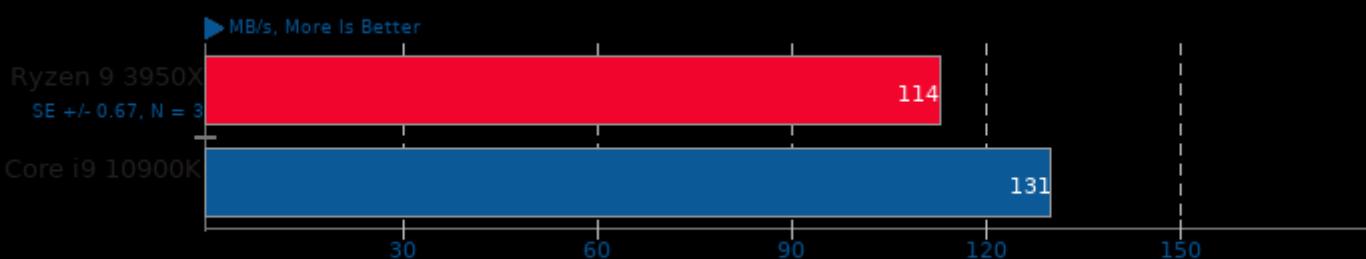
Test: Zstd 8 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

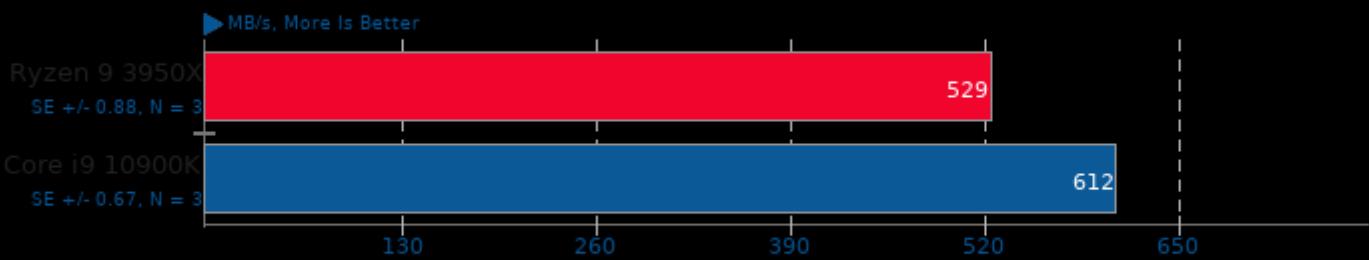
Test: Crush 0 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

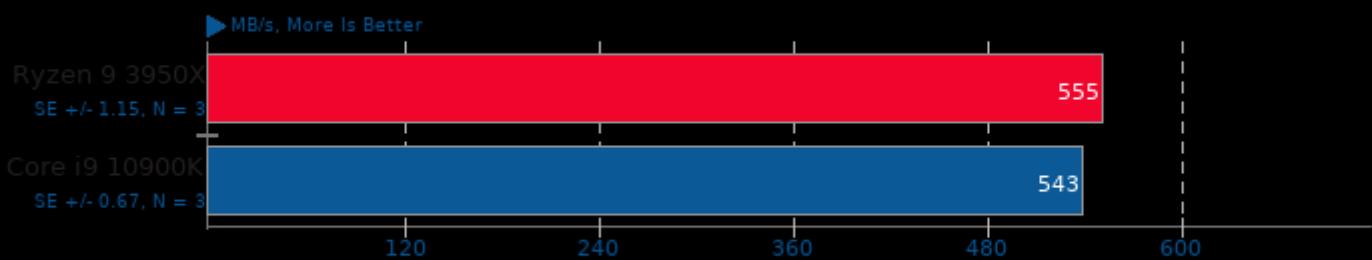
Test: Crush 0 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

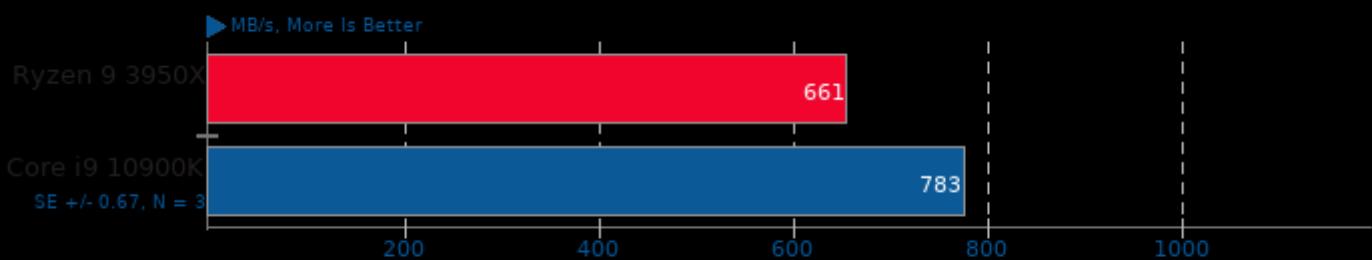
Test: Brotli 0 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

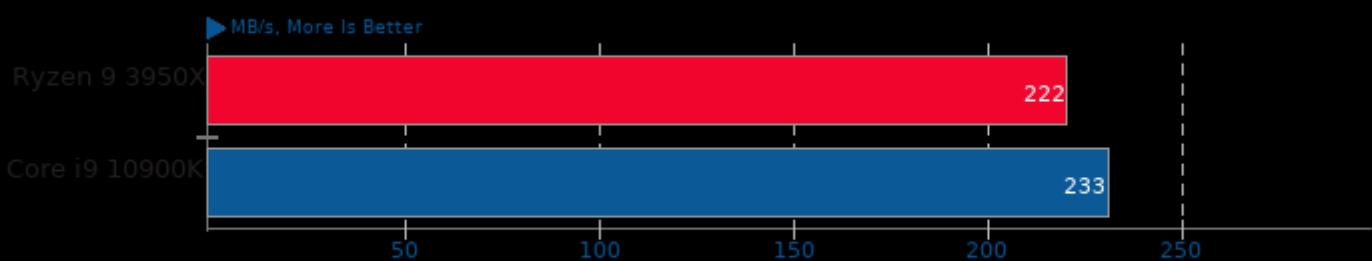
Test: Brotli 0 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

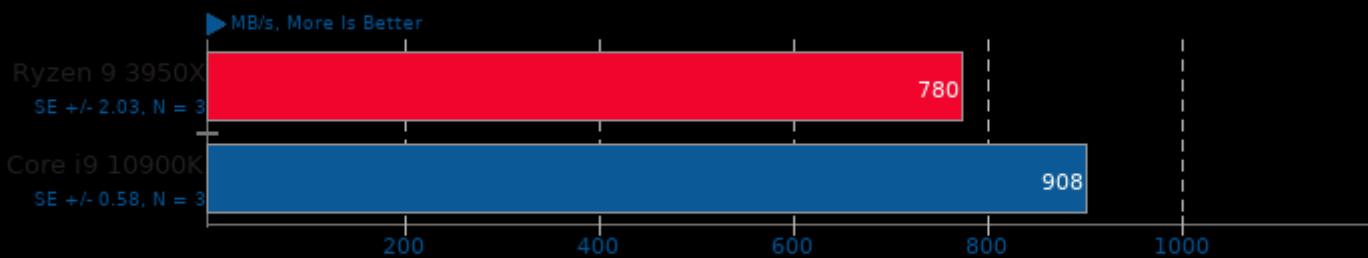
Test: Brotli 2 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

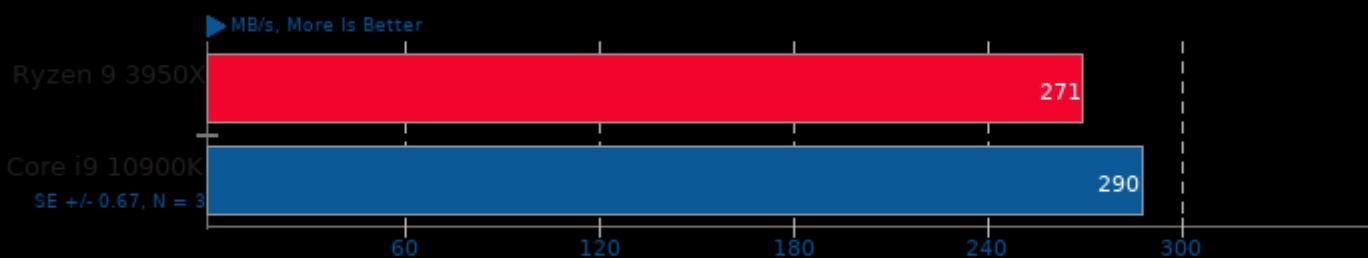
Test: Brotli 2 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

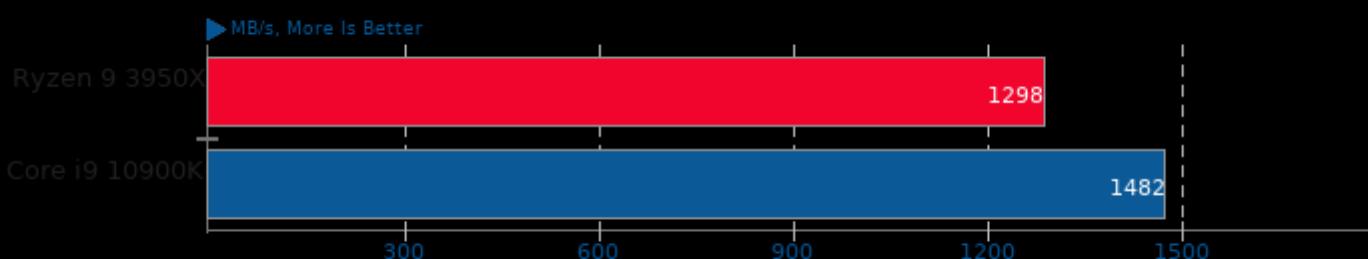
Test: Libdeflate 1 - Process: Compression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

Izbench 1.8

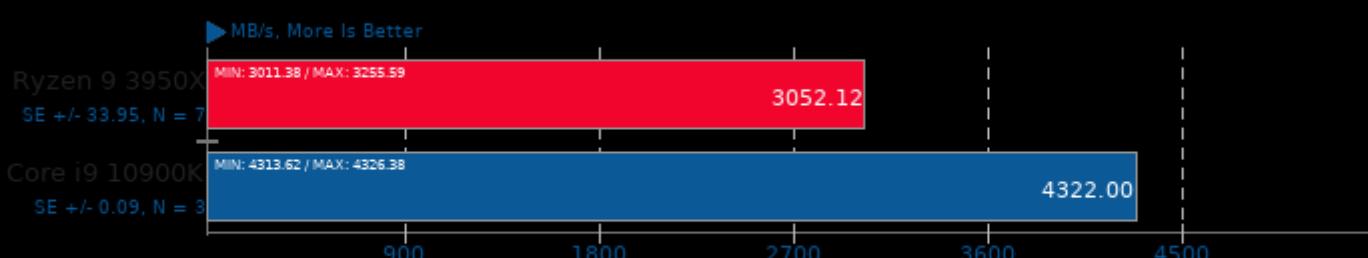
Test: Libdeflate 1 - Process: Decompression



1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

CacheBench

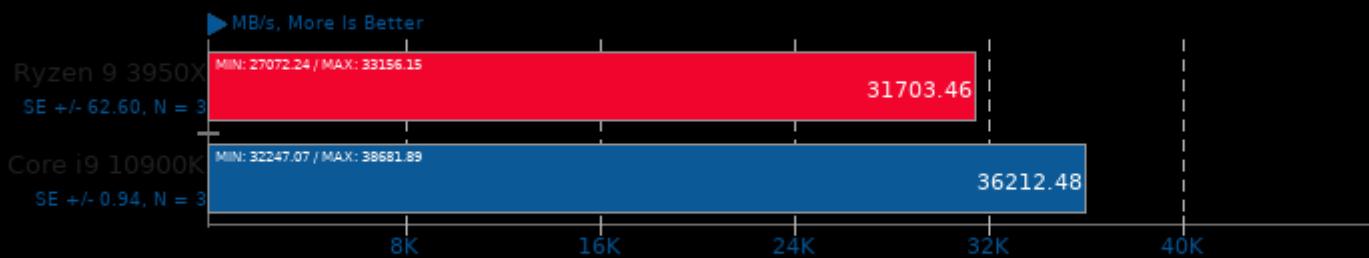
Test: Read



1. (CC) gcc options: -lrt

CacheBench

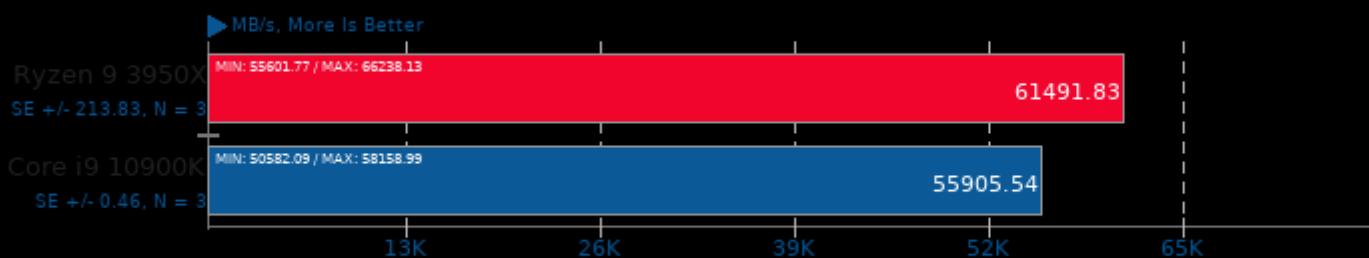
Test: Write



1. (CC) gcc options: -lrt

CacheBench

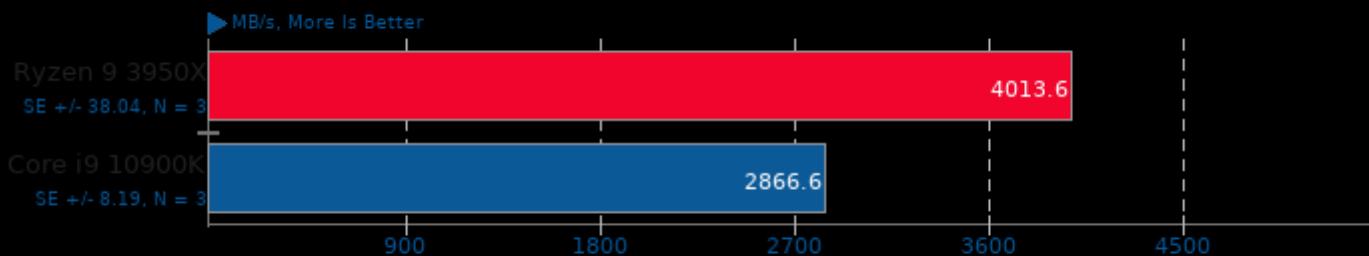
Test: Read / Modify / Write



1. (CC) gcc options: -lrt

Zstd Compression 1.4.5

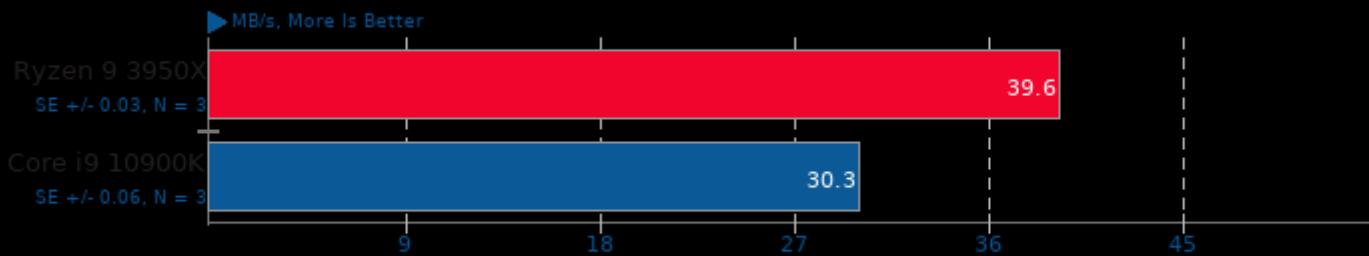
Compression Level: 3



1. (CC) gcc options: -O3 -pthread -lz -llzma

Zstd Compression 1.4.5

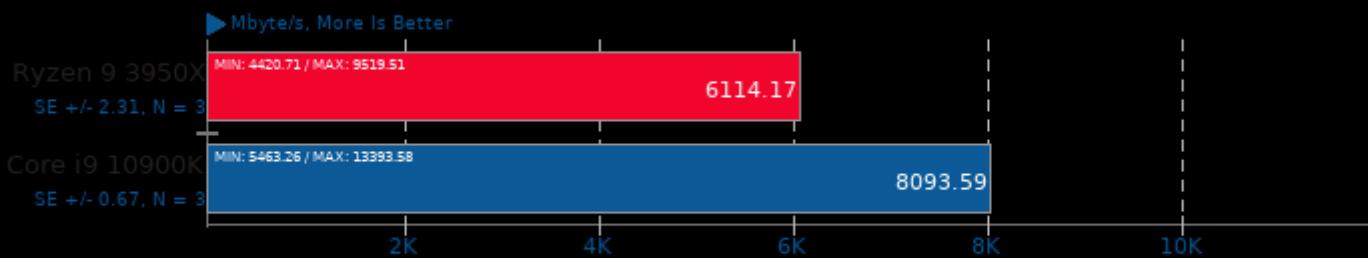
Compression Level: 19



1. (CC) gcc options: -O3 -pthread -lz -llzma

Nettle 3.5.1

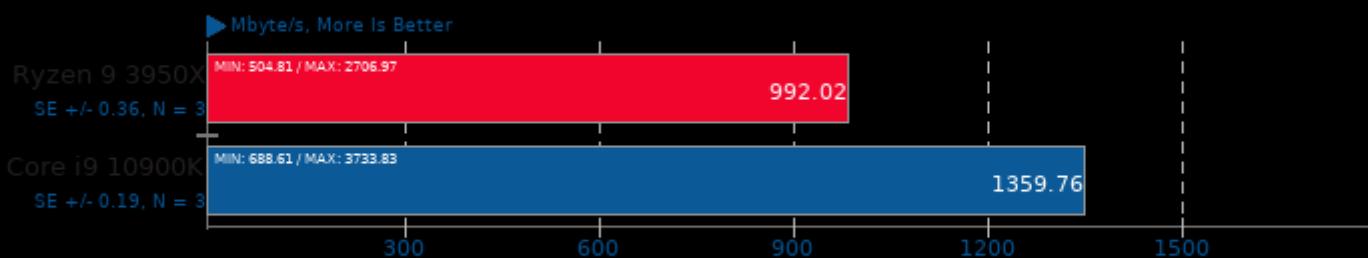
Test: aes256



1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

Nettle 3.5.1

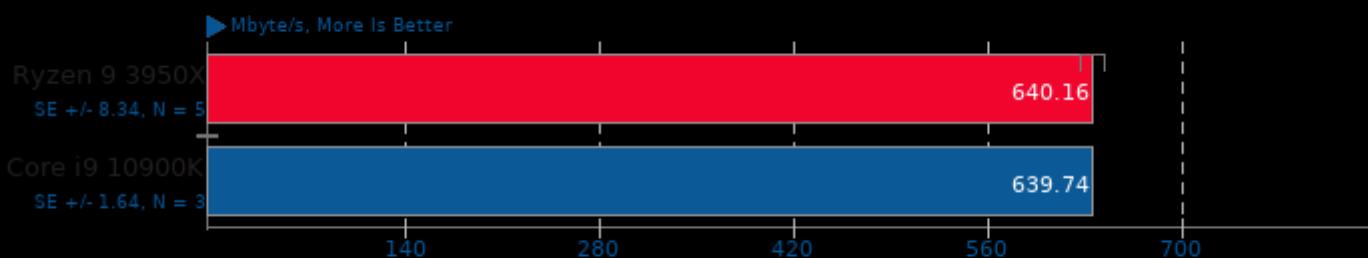
Test: chacha



1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

Nettle 3.5.1

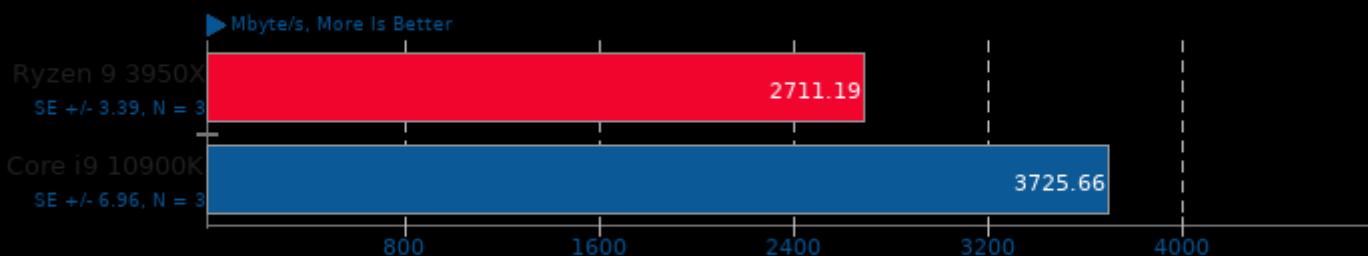
Test: sha512



1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

Nettle 3.5.1

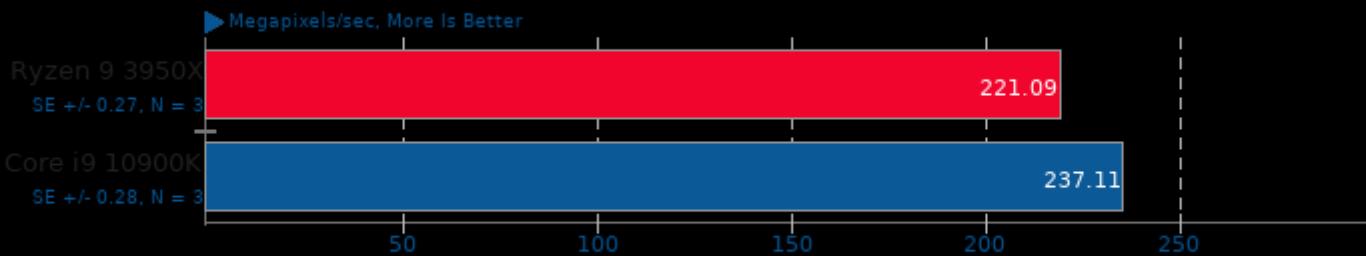
Test: poly1305-aes



1. (CC) gcc options: -O2 -ggdb3 -lnettle -lgmp -lm -lcrypto

libjpeg-turbo tjbench 2.0.2

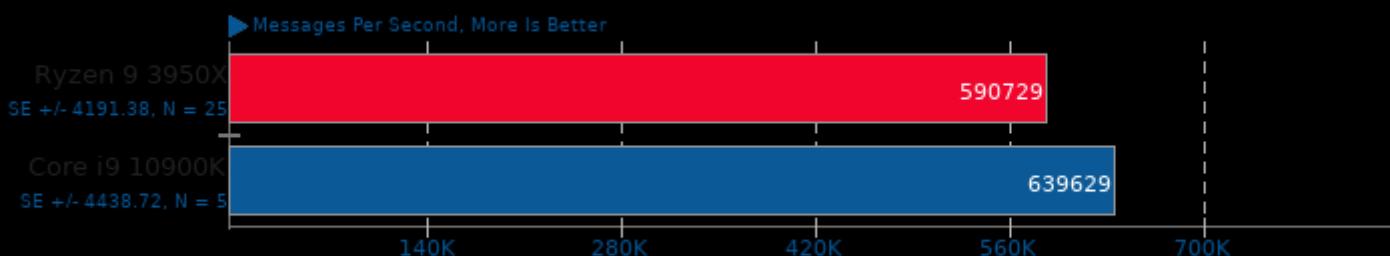
Test: Decompression Throughput



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

Sockperf 3.4

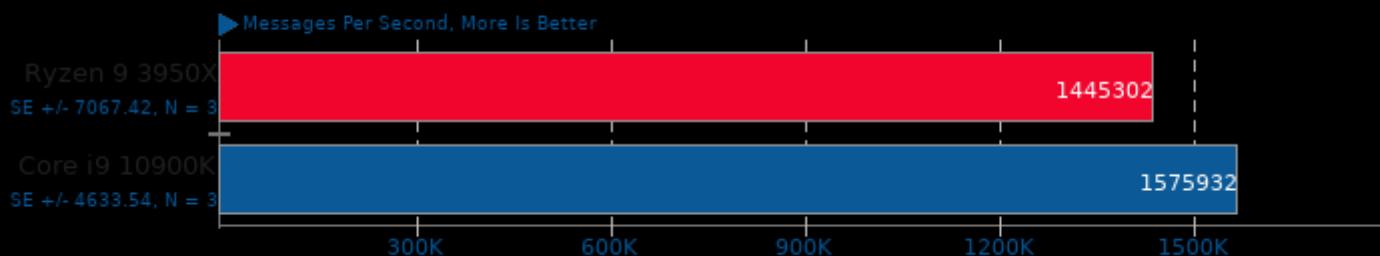
Test: Throughput



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

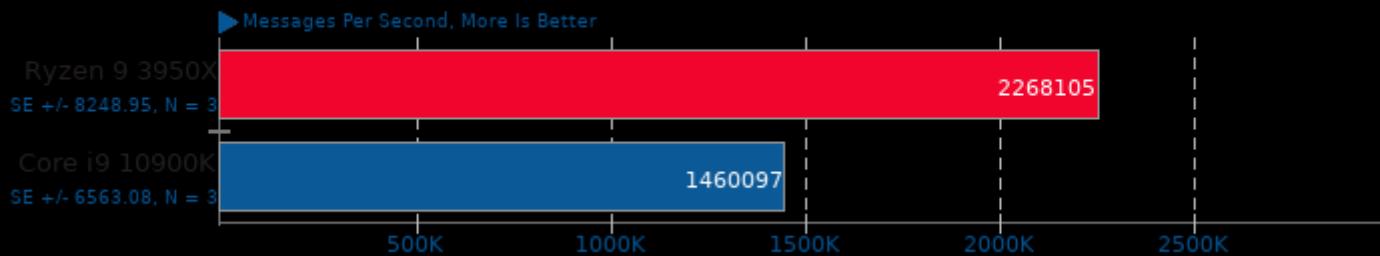
IPC_benchmark

Type: TCP Socket - Message Bytes: 4096



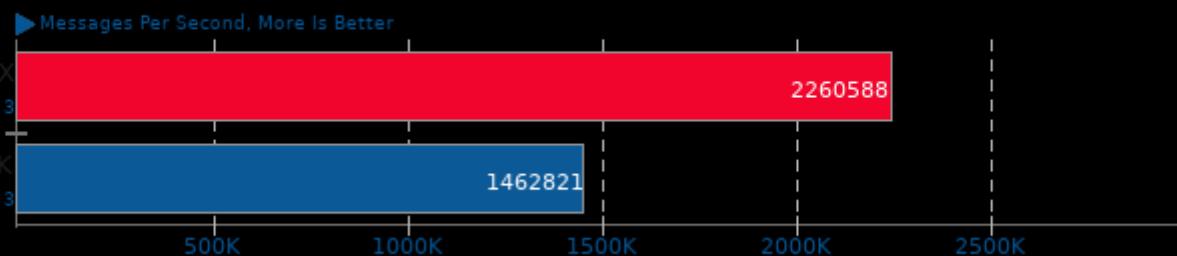
IPC_benchmark

Type: Unnamed Pipe - Message Bytes: 4096



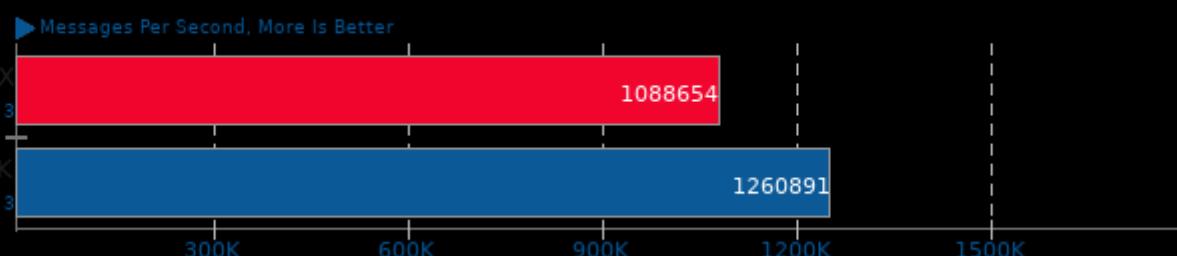
IPC_benchmark

Type: FIFO Named Pipe - Message Bytes: 4096



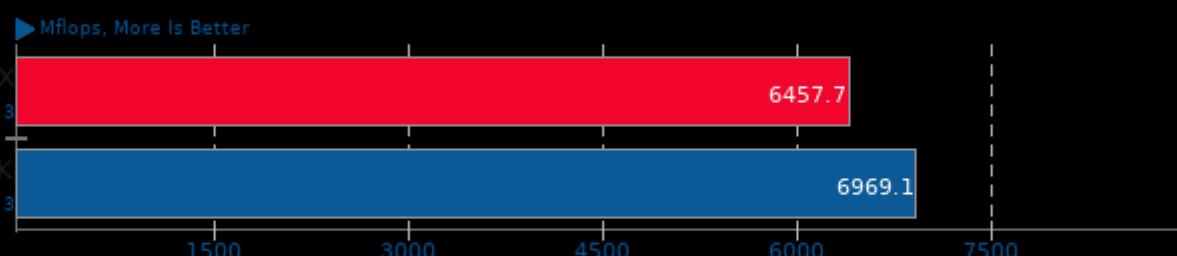
IPC_benchmark

Type: Unnamed Unix Domain Socket - Message Bytes: 4096



FFTW 3.3.6

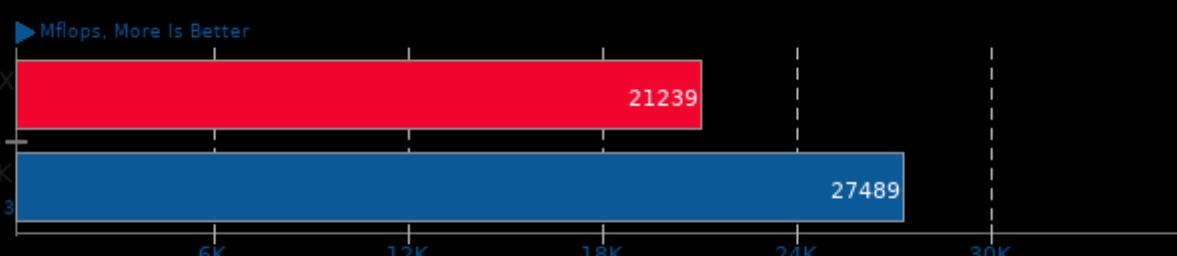
Build: Stock - Size: 2D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

FFTW 3.3.6

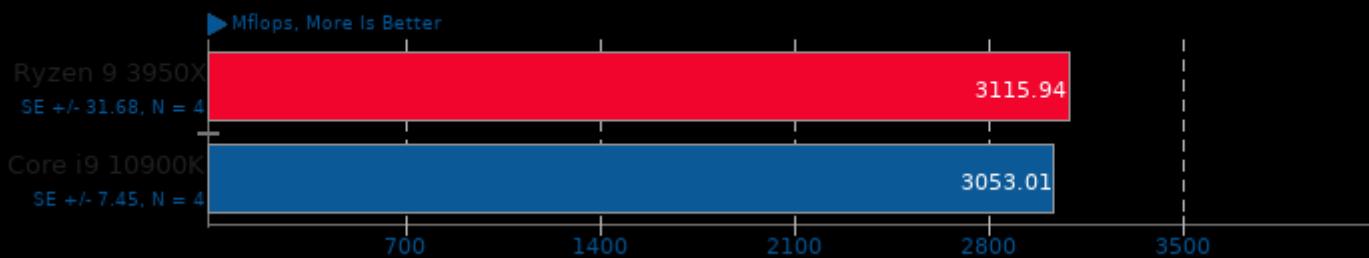
Build: Float + SSE - Size: 2D FFT Size 4096



1. (CC) gcc options: -pthread -O3 -fomit-frame-pointer -mtune=native -malign-double -fstrict-aliasing -fno-schedule-insns -ffast-math -lm

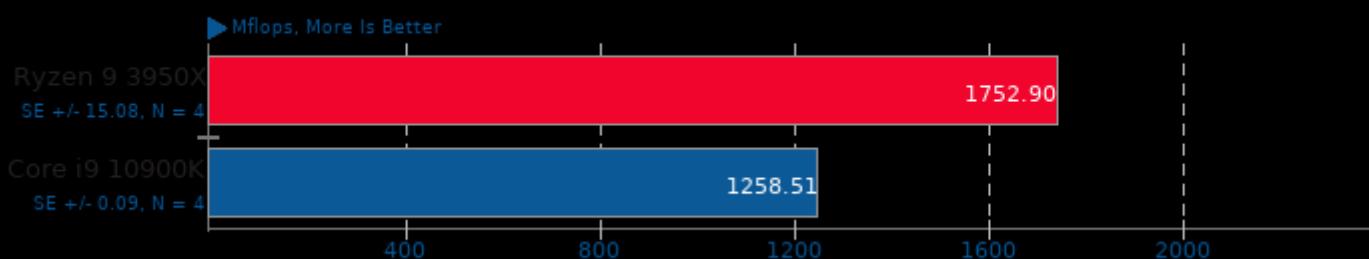
Java SciMark 2.0

Computational Test: Composite



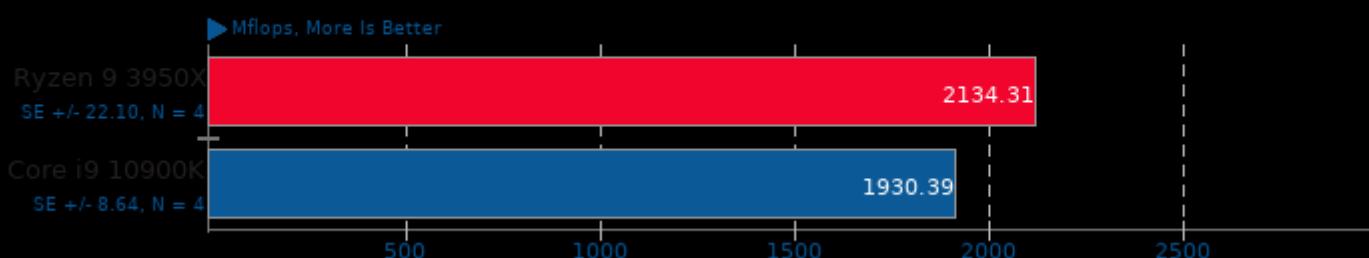
Java SciMark 2.0

Computational Test: Monte Carlo



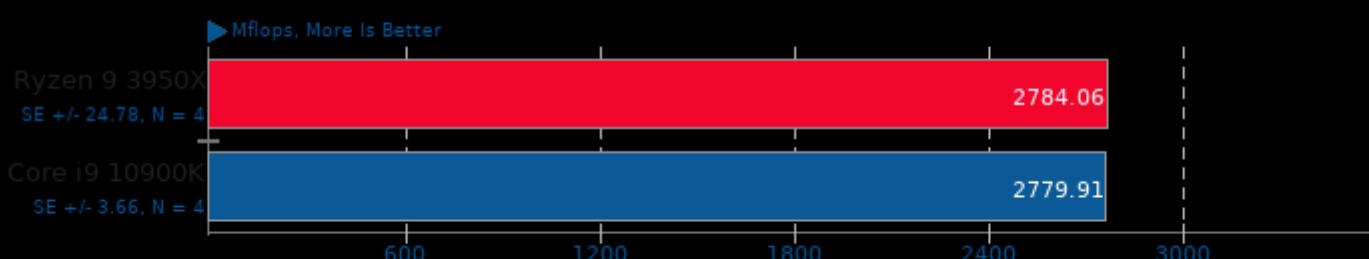
Java SciMark 2.0

Computational Test: Fast Fourier Transform



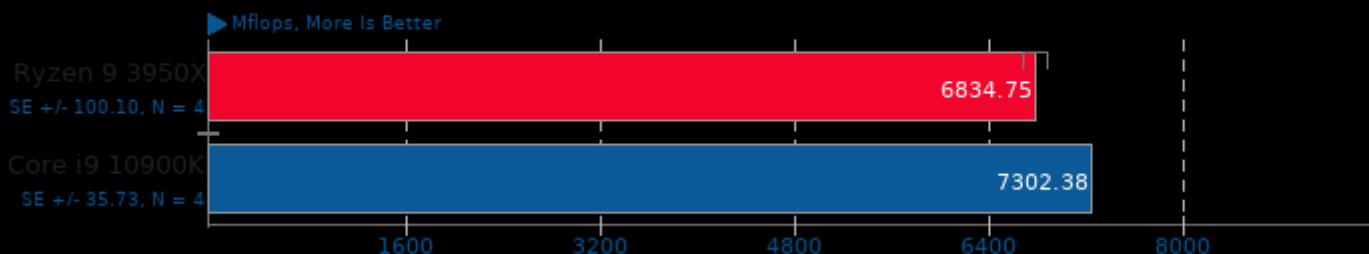
Java SciMark 2.0

Computational Test: Sparse Matrix Multiply



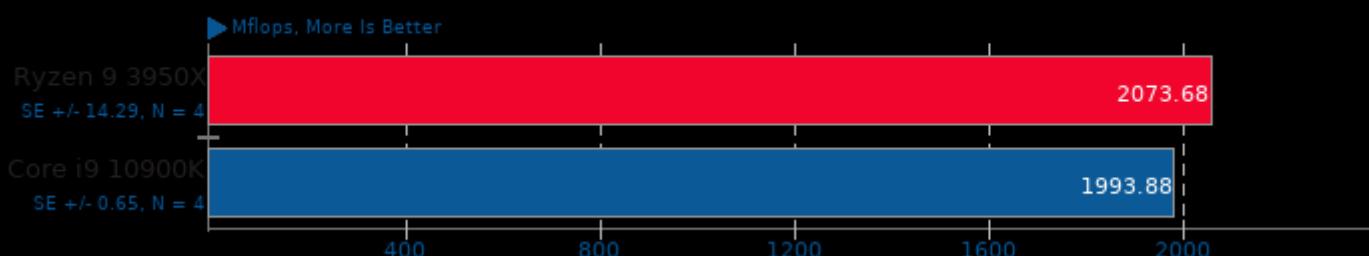
Java SciMark 2.0

Computational Test: Dense LU Matrix Factorization



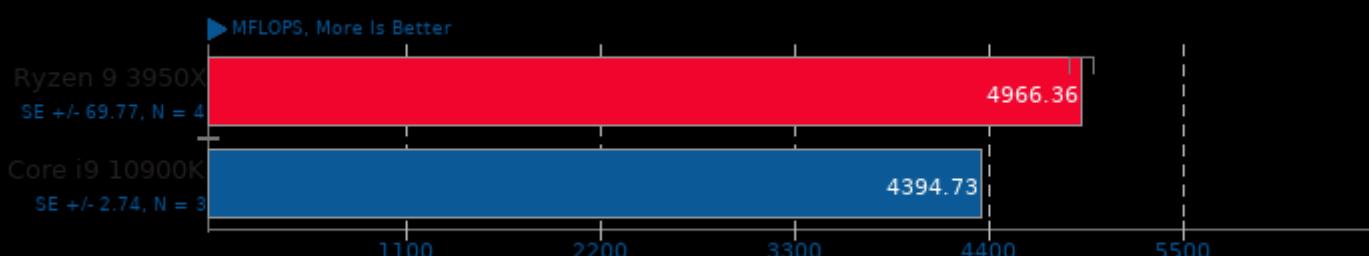
Java SciMark 2.0

Computational Test: Jacobi Successive Over-Relaxation



Himeno Benchmark 3.0

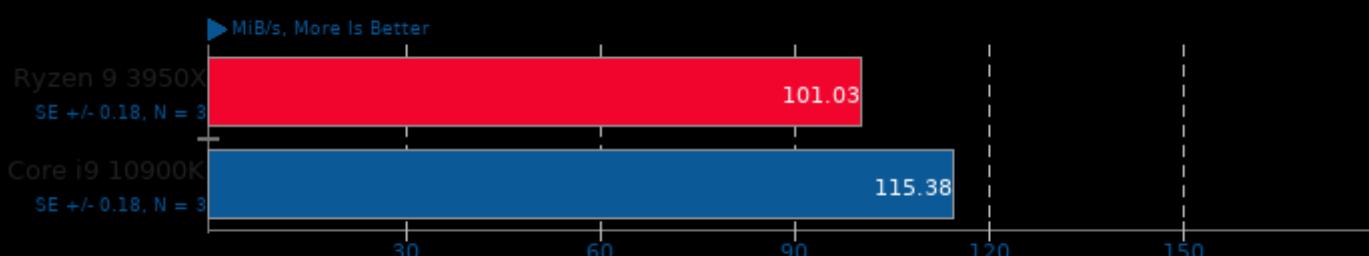
Poisson Pressure Solver



1. (CC) gcc options: -O3 -mavx2

Botan 2.13.0

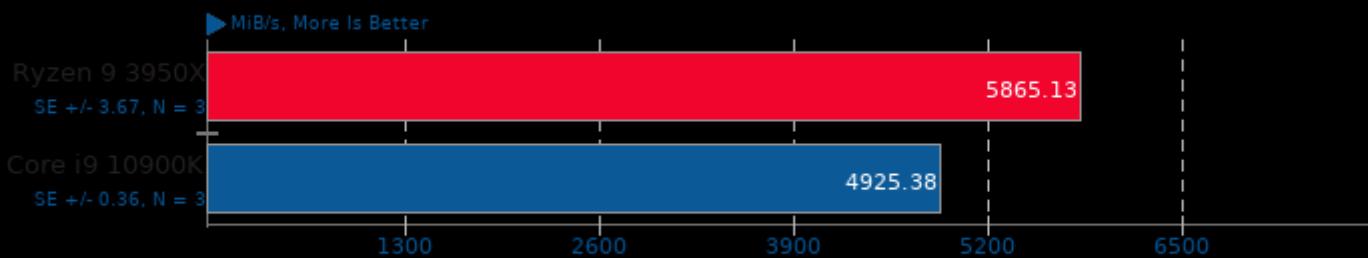
Test: KASUMI



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.13.0

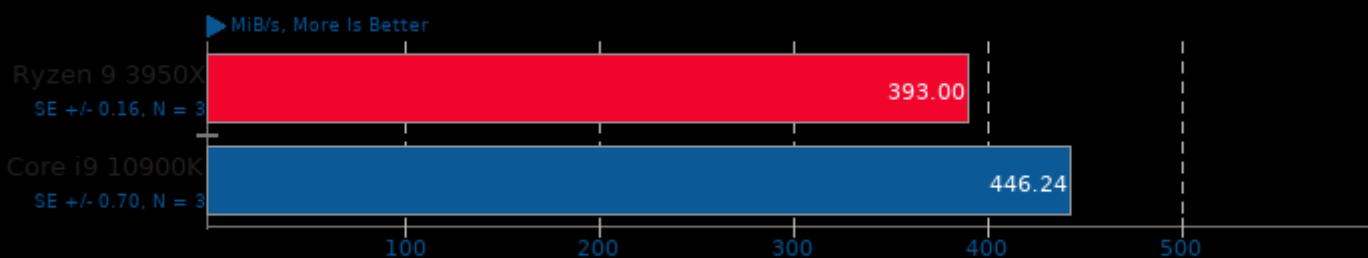
Test: AES-256



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.13.0

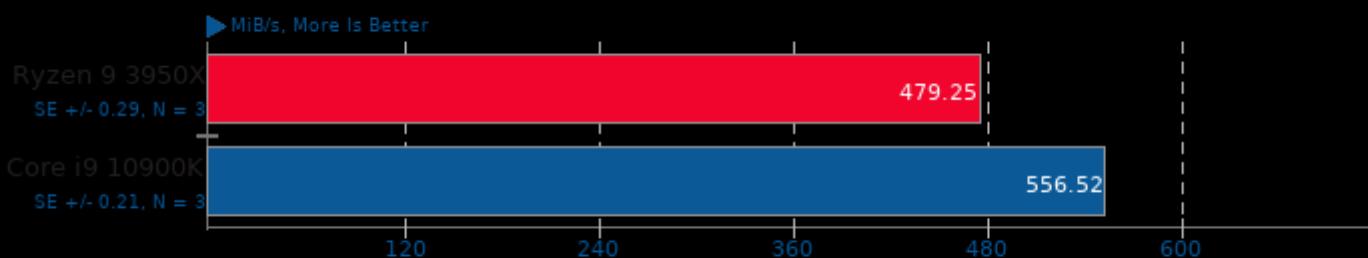
Test: Twofish



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.13.0

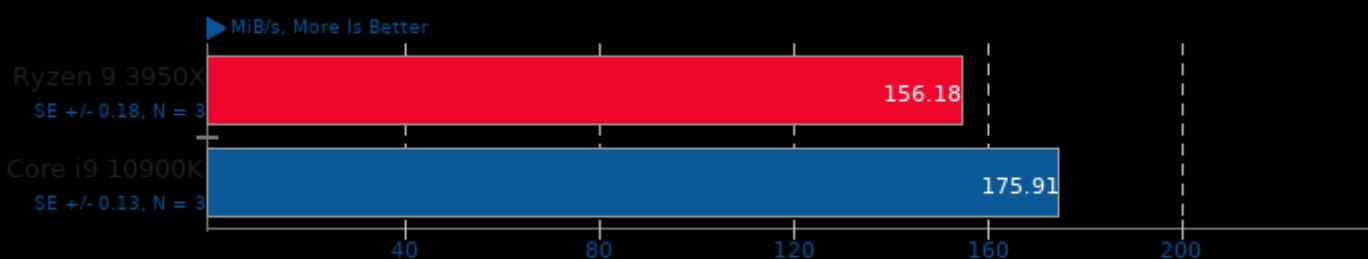
Test: Blowfish



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

Botan 2.13.0

Test: CAST-256



1. (CXX) g++ options: -fstack-protector -m64 -pthread -lbotan-2 -ldl -lrt

SMHasher 2020-02-29

Hash: wyhash

**SMHasher 2020-02-29**

Hash: MeowHash

**SMHasher 2020-02-29**

Hash: Spooky32

**SMHasher 2020-02-29**

Hash: fasthash32

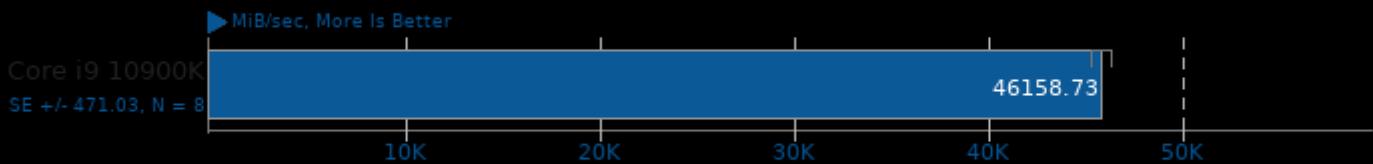
**SMHasher 2020-02-29**

Hash: tlha2_atonce



SMHasher 2020-02-29

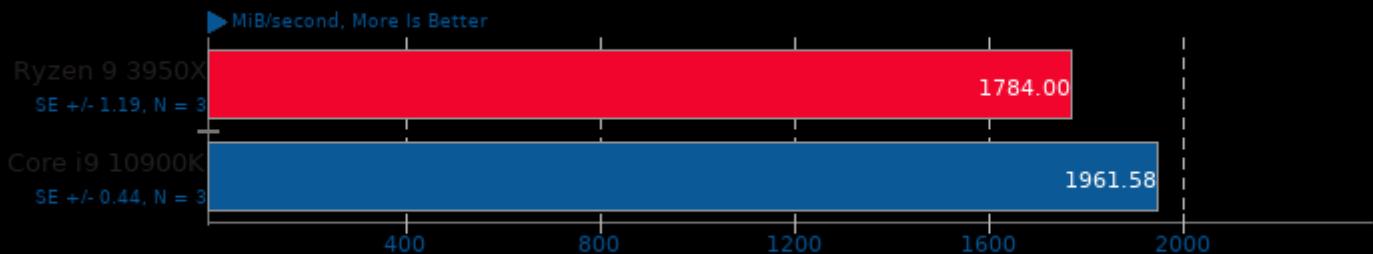
Hash: t1ha0_aes_avx2



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

Crypto++ 8.2

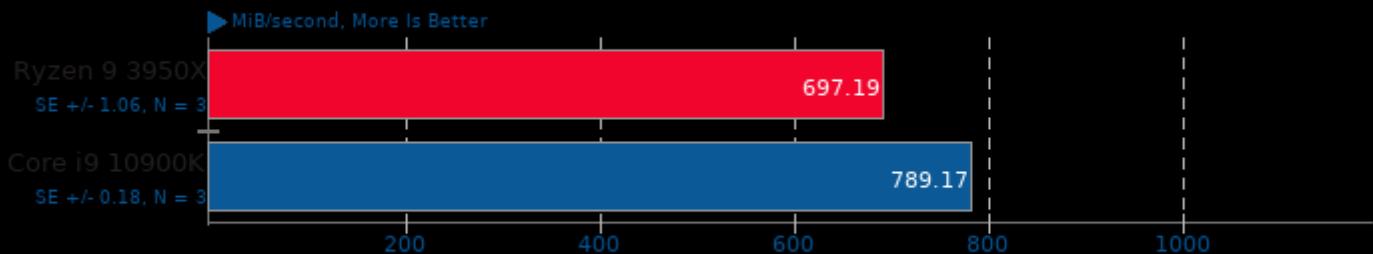
Test: All Algorithms



1. (CXX) g++ options: -g2 -O3 -fPIC -pthread -pipe

Crypto++ 8.2

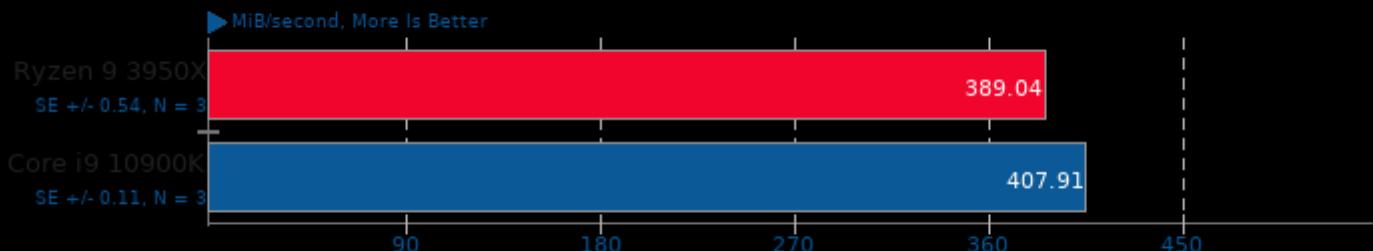
Test: Keyed Algorithms



1. (CXX) g++ options: -g2 -O3 -fPIC -pthread -pipe

Crypto++ 8.2

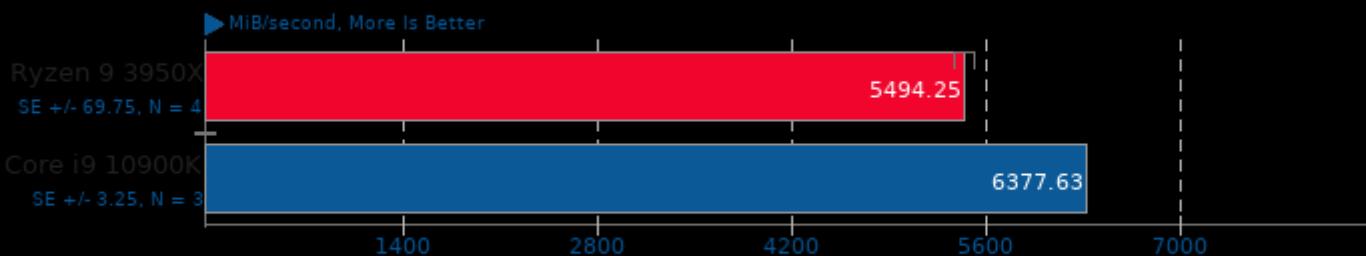
Test: Unkeyed Algorithms



1. (CXX) g++ options: -g2 -O3 -fPIC -pthread -pipe

Crypto++ 8.2

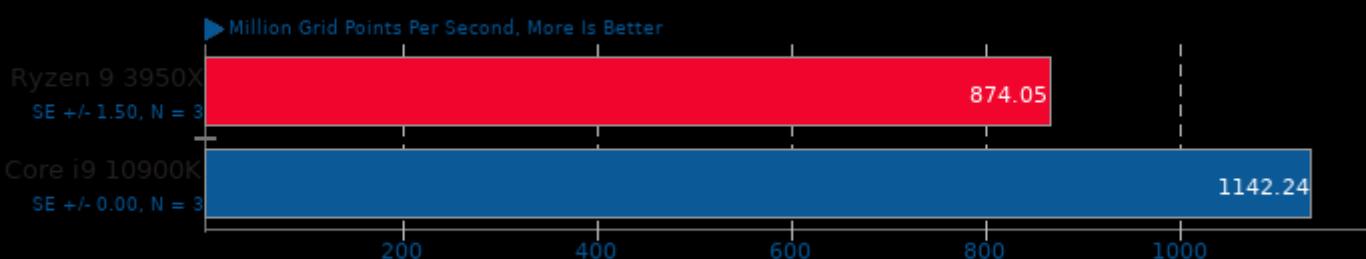
Test: Integer + Elliptic Curve Public Key Algorithms



1. (CXX) g++ options: -g2 -O3 -fPIC -pthread -pipe

ASKAP 2018-11-10

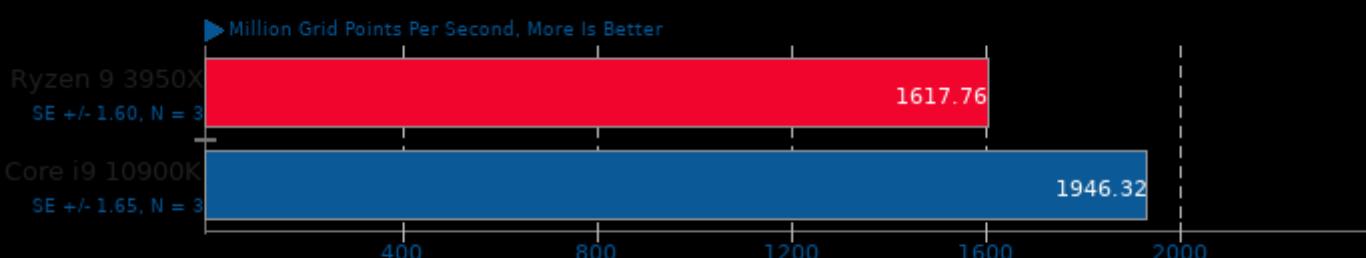
Test: tConvolve MT - Gridding



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

ASKAP 2018-11-10

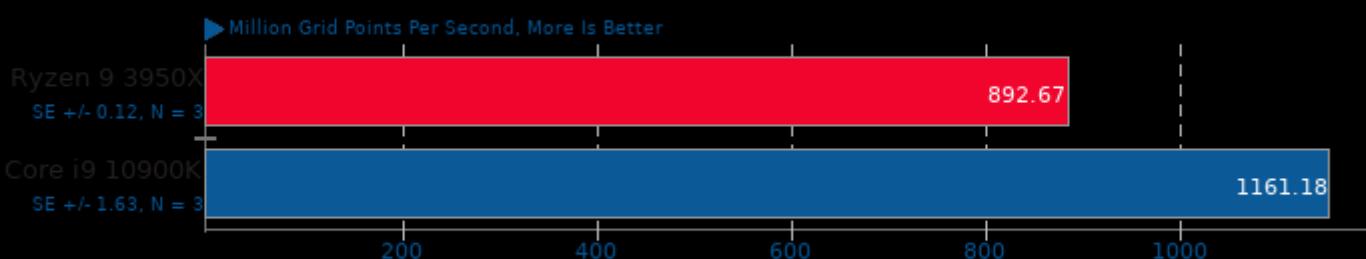
Test: tConvolve MT - Degridding



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

ASKAP 2018-11-10

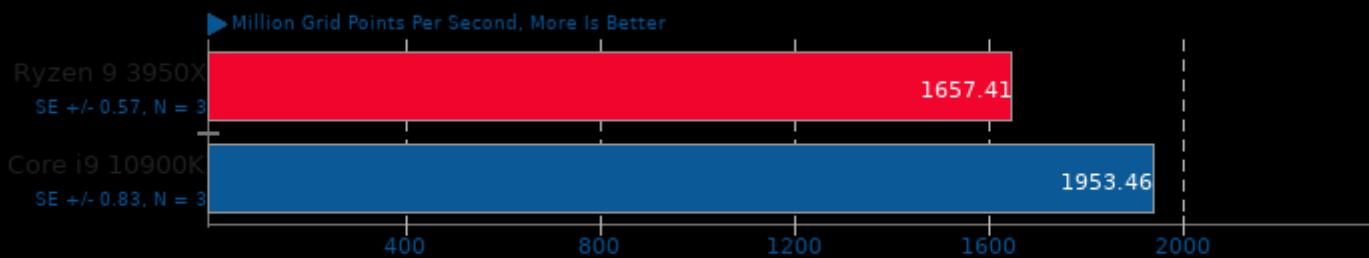
Test: tConvolve MPI - Gridding



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

ASKAP 2018-11-10

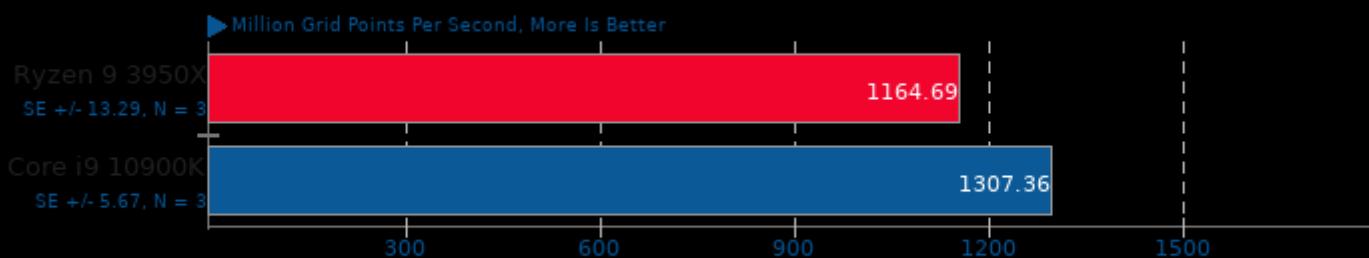
Test: tConvolve MPI - Degridding



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

ASKAP 2018-11-10

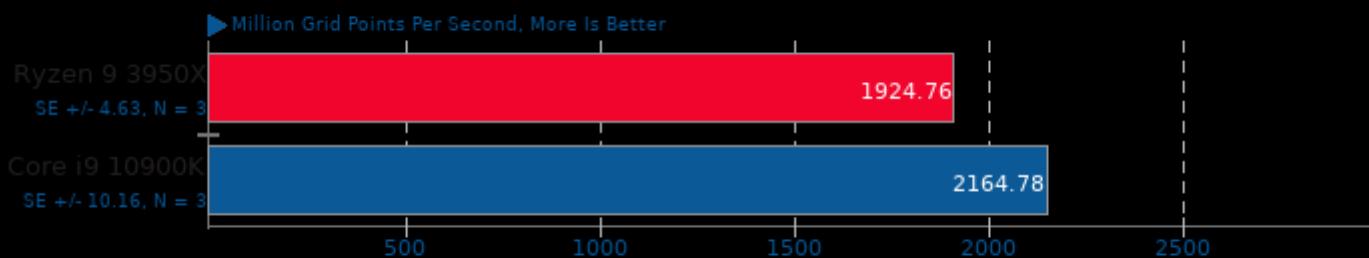
Test: tConvolve OpenMP - Gridding



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

ASKAP 2018-11-10

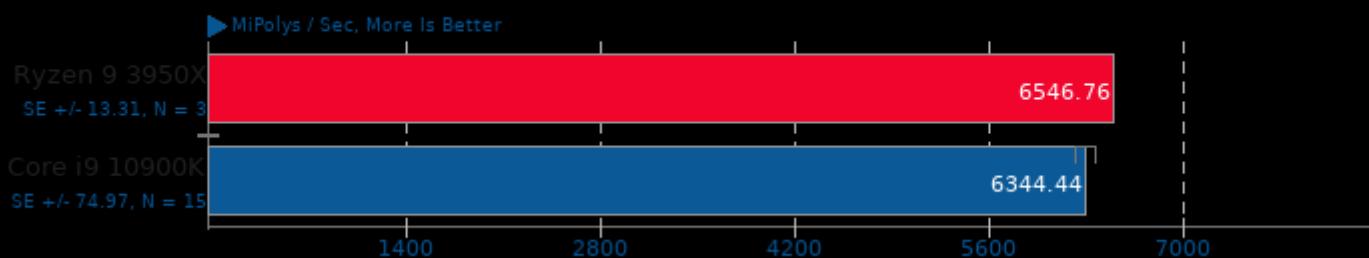
Test: tConvolve OpenMP - Degridding



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

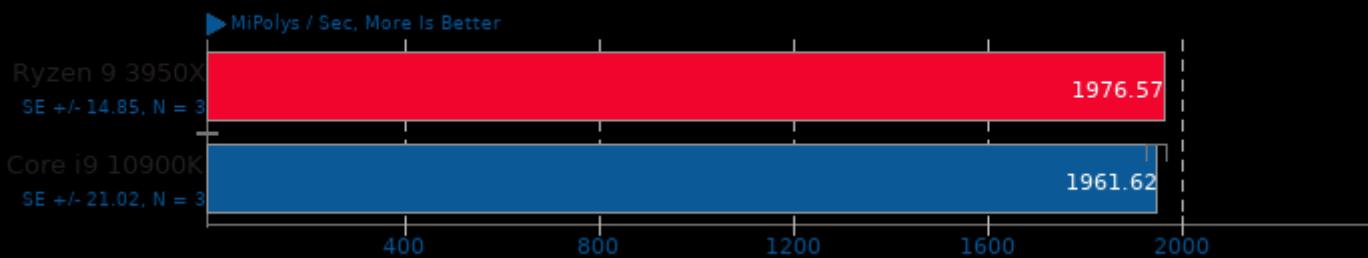
ParaView 5.4.1

Test: Many Spheres - Resolution: 3840 x 2160



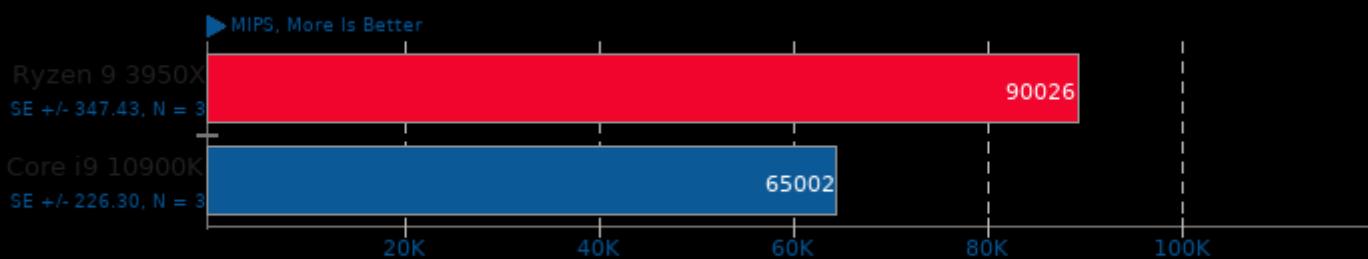
ParaView 5.4.1

Test: Wavelet Contour - Resolution: 3840 x 2160



7-Zip Compression 16.02

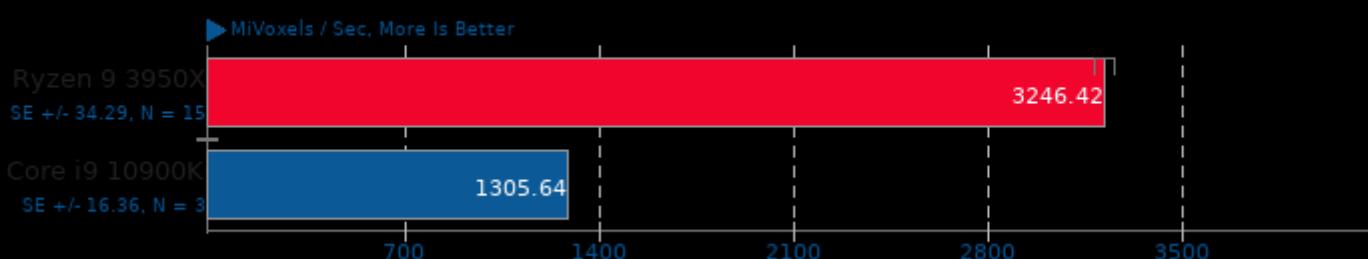
Compress Speed Test



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

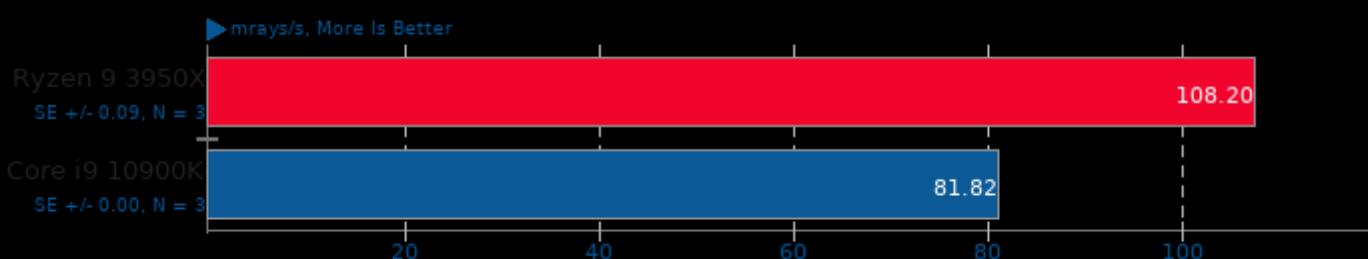
ParaView 5.4.1

Test: Wavelet Volume - Resolution: 3840 x 2160



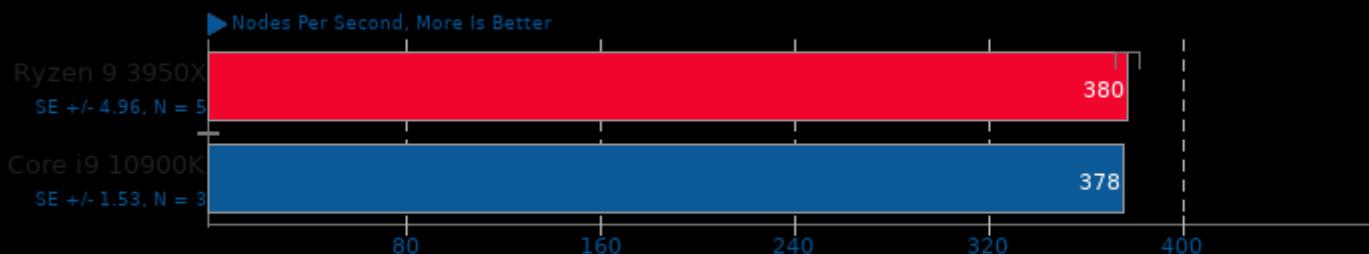
rays1bench 2020-01-09

Large Scene



LeelaChessZero 0.25

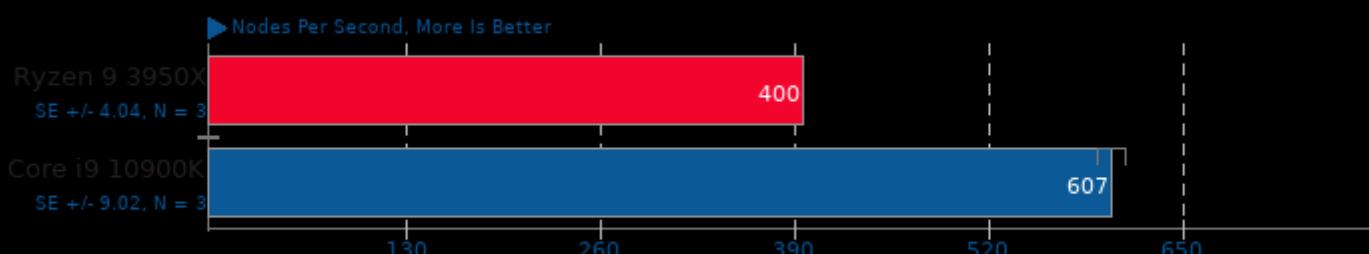
Backend: BLAS



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

LeelaChessZero 0.25

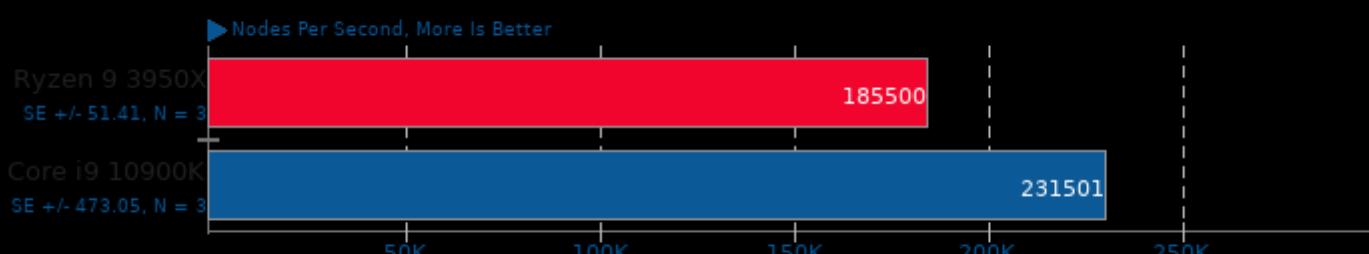
Backend: Eigen



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

LeelaChessZero 0.25

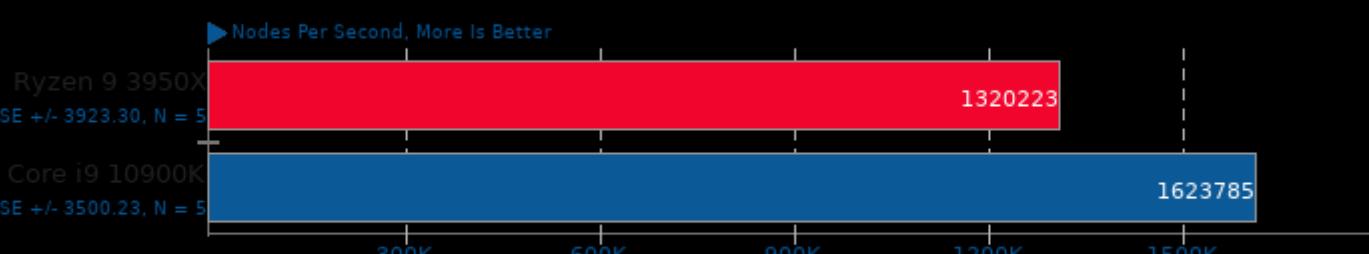
Backend: Random



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

TSCP 1.81

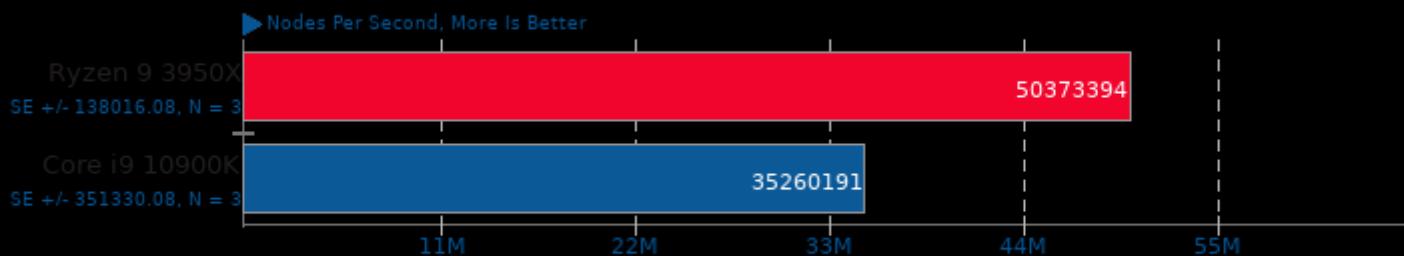
All Chess Performance



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

Stockfish 9

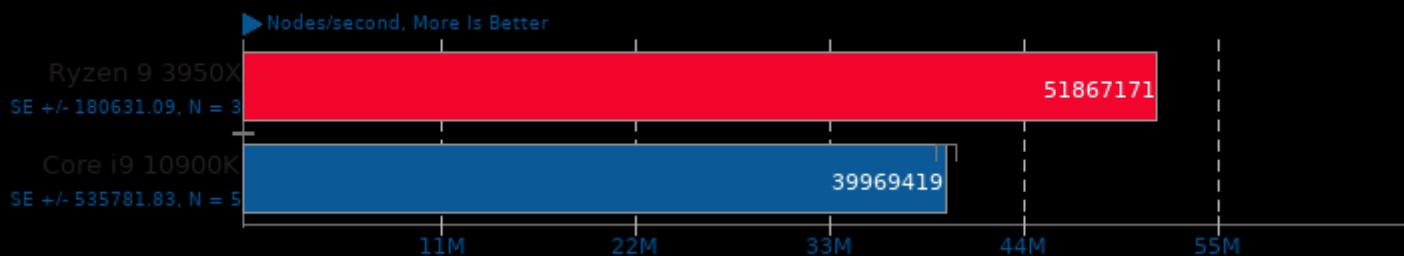
Total Time



1. (CXX) g++ options: -m64 -lpthread -fno-exceptions -std=c++11 -pedantic -O3 -msse -msse3 -mpopcnt -fno-

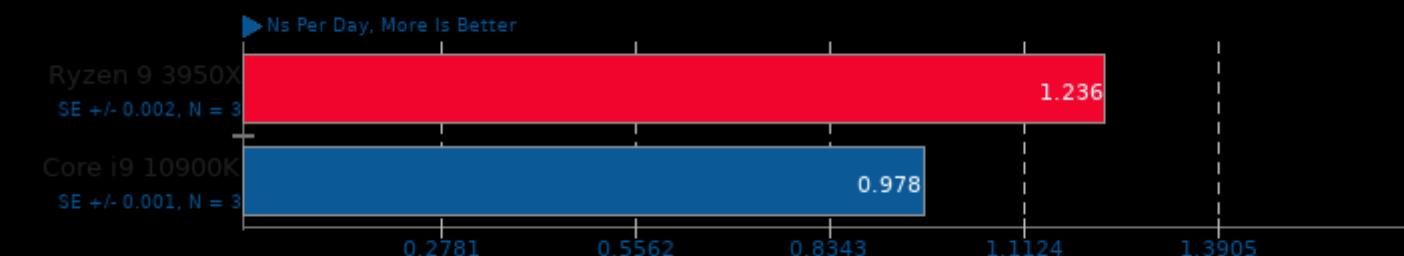
asmFish 2018-07-23

1024 Hash Memory, 26 Depth



GROMACS 2020.1

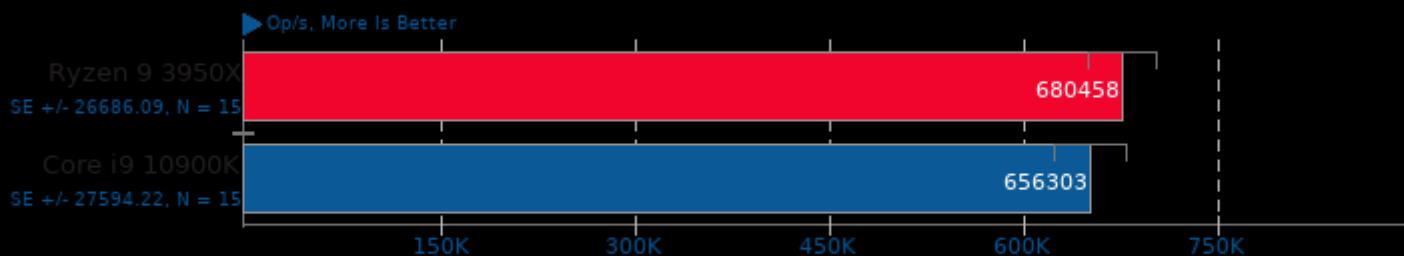
Water Benchmark



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

Facebook RocksDB 6.3.6

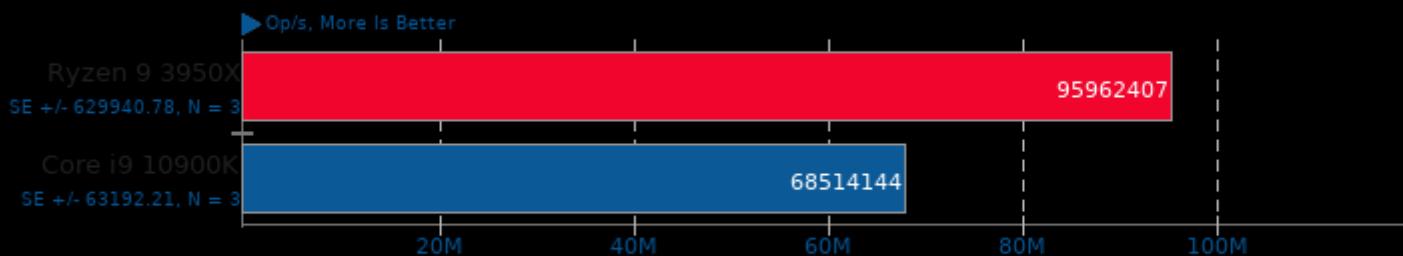
Test: Random Fill



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-built-in-memcmp -fno-rtti -rdynamic -lpthread

Facebook RocksDB 6.3.6

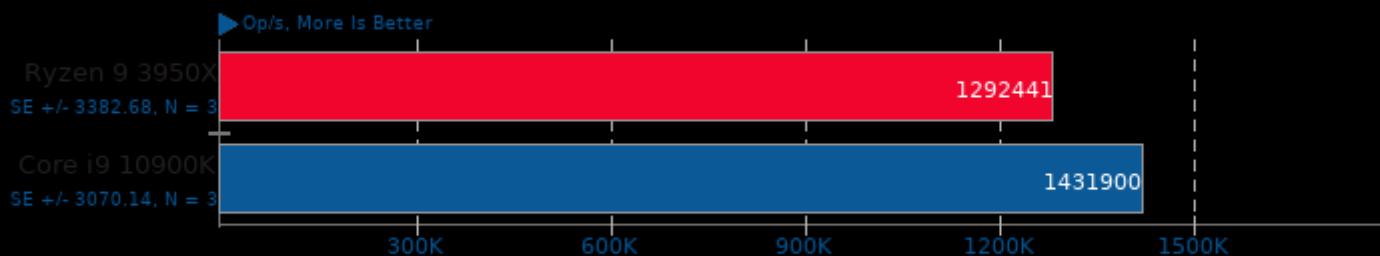
Test: Random Read



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-built-in-memcmp -fno-rtti -rdynamic -lpthread

Facebook RocksDB 6.3.6

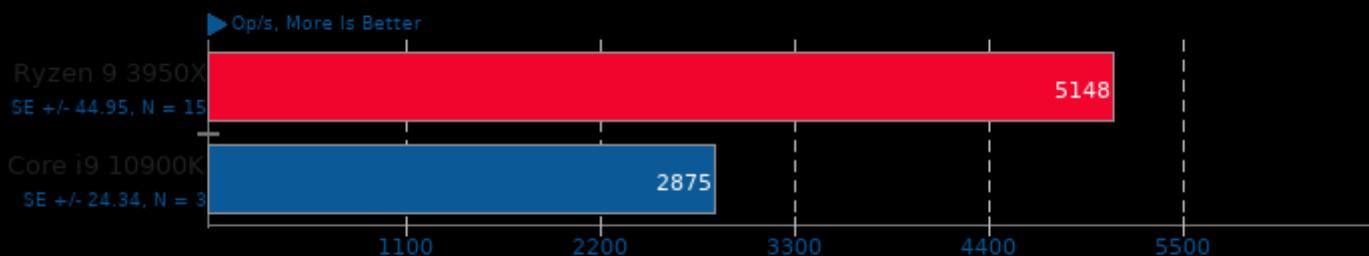
Test: Sequential Fill



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-built-in-memcmp -fno-rtti -rdynamic -lpthread

Facebook RocksDB 6.3.6

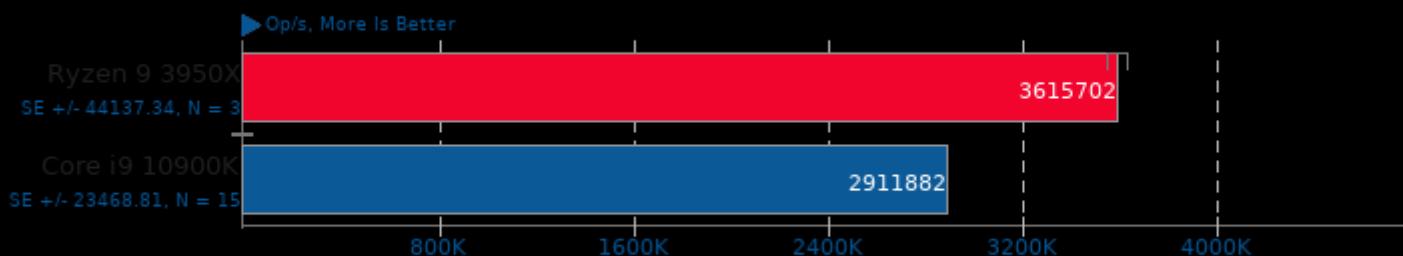
Test: Random Fill Sync



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-built-in-memcmp -fno-rtti -rdynamic -lpthread

Facebook RocksDB 6.3.6

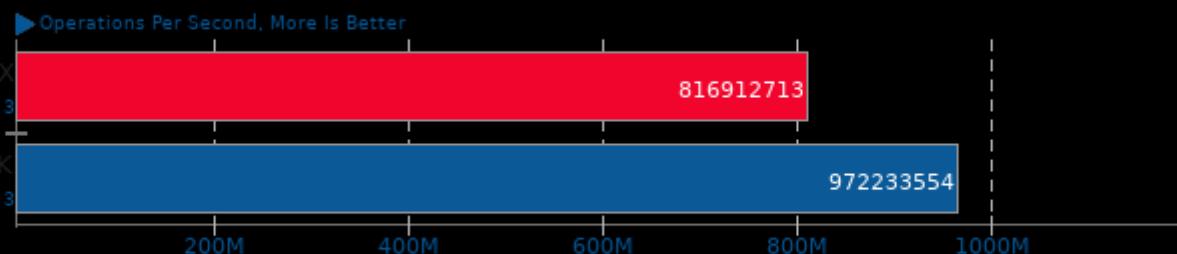
Test: Read While Writing



1. (CXX) g++ options: -O3 -march=native -std=c++11 -fno-built-in-memcmp -fno-rtti -rdynamic -lpthread

Swet 1.5.16

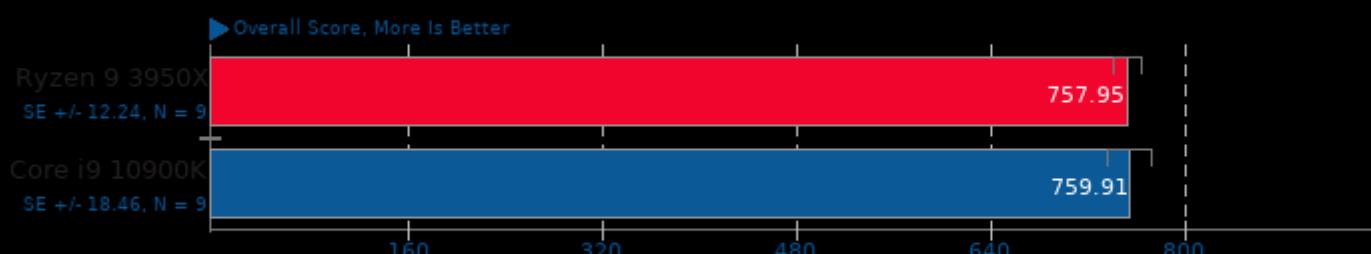
Average



1. (CC) gcc options: -lm -lpthread -lcurses -lrt

Selenium

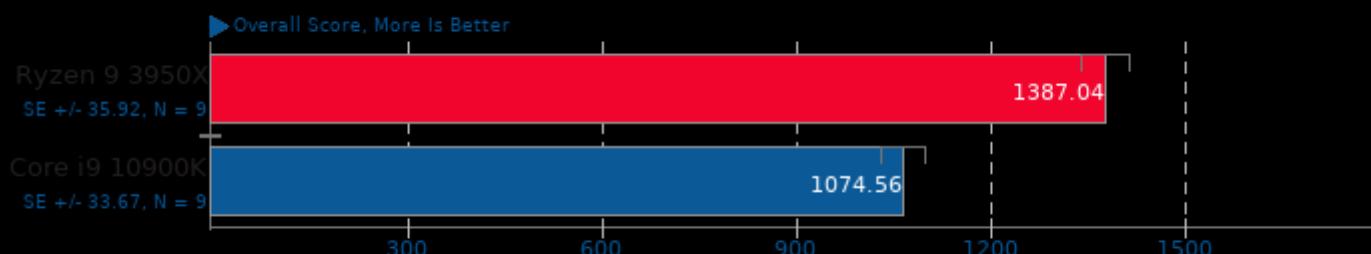
Benchmark: Basemark - Browser: Firefox



1. firefox 76.0.1

Selenium

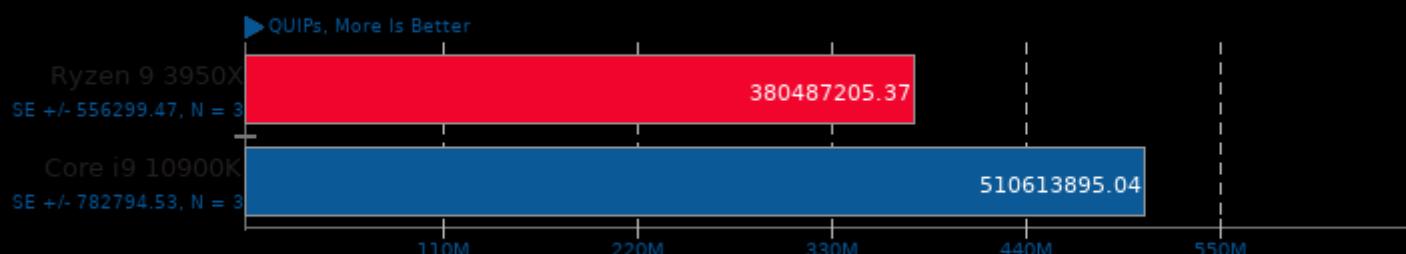
Benchmark: Basemark - Browser: Google Chrome



1. chrome 83.0.4103.61

Hierarchical INTegration 1.0

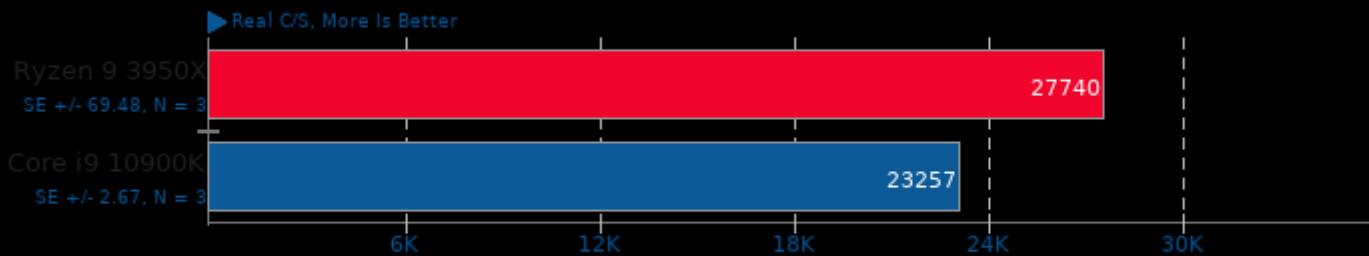
Test: FLOAT



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

John The Ripper 1.9.0-jumbo-1

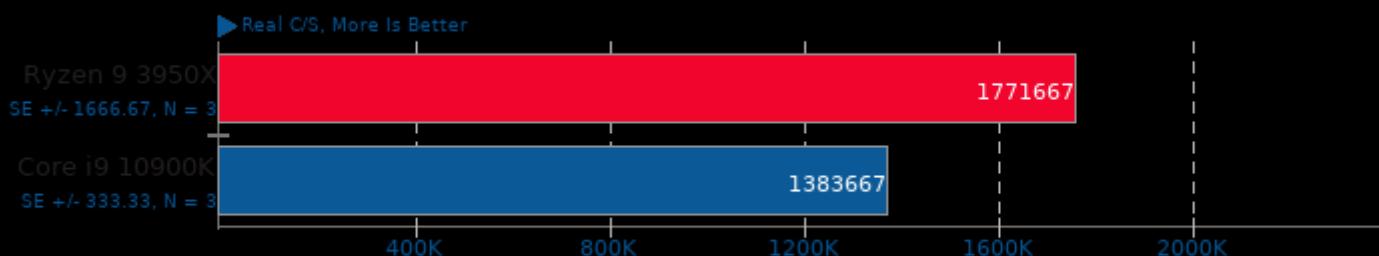
Test: Blowfish



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

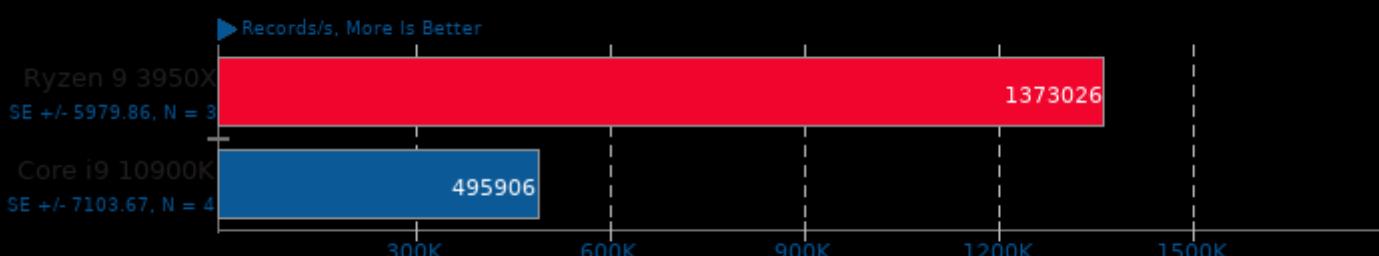
John The Ripper 1.9.0-jumbo-1

Test: MD5



1. (CC) gcc options: -m64 -lssl -lcrypto -fopenmp -lgmp -pthread -lm -lz -ldl -lcrypt -lbz2

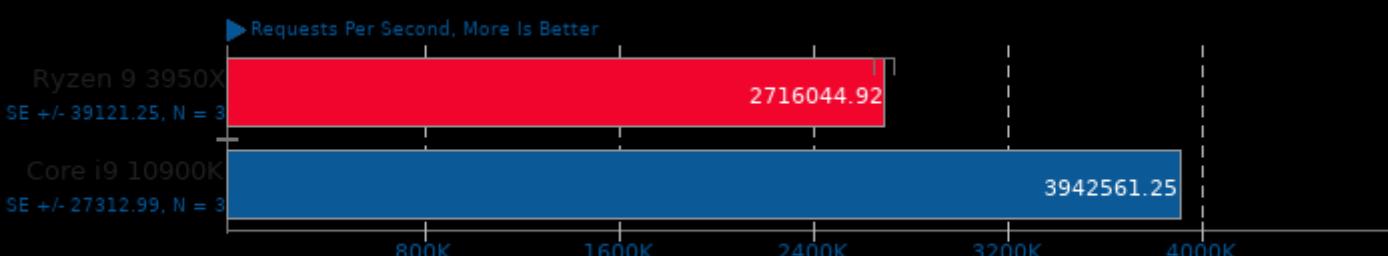
ebizzy 0.3



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

Redis 5.0.5

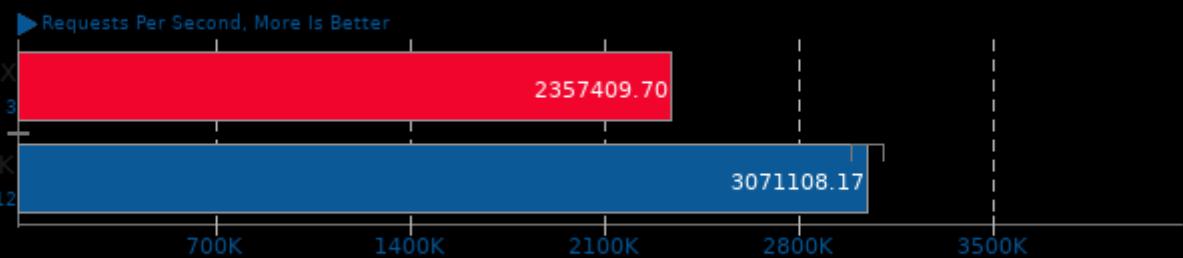
Test: LPOP



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 5.0.5

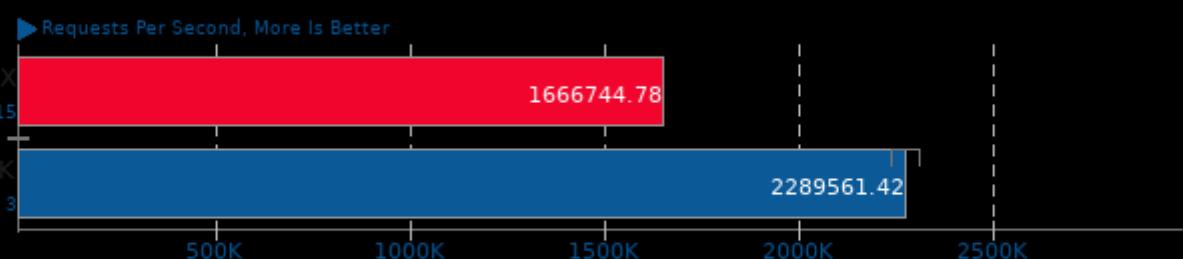
Test: SADD



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 5.0.5

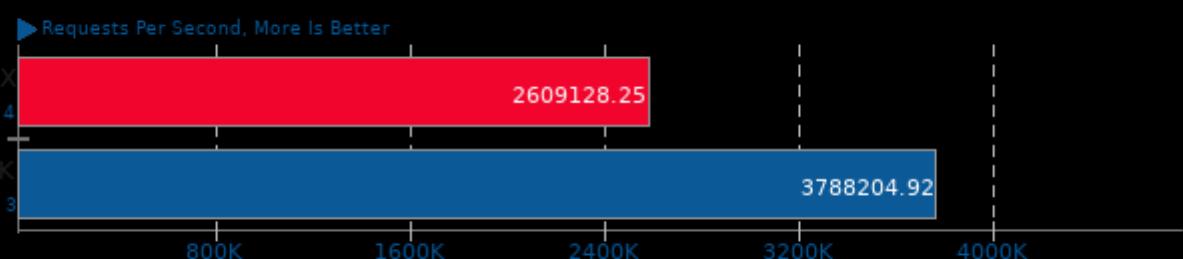
Test: LPUSH



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 5.0.5

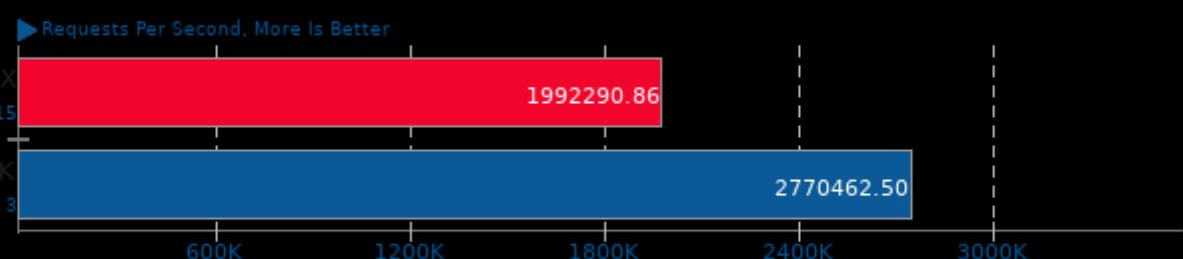
Test: GET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Redis 5.0.5

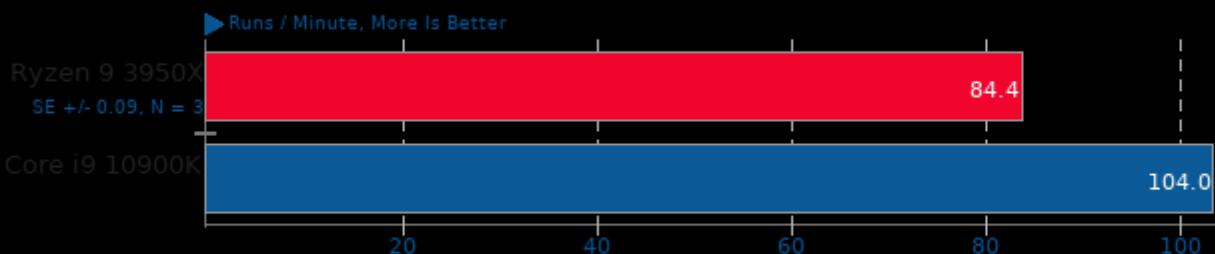
Test: SET



1. (CXX) g++ options: -MM -MT -g3 -fvisibility=hidden -O3

Selenium

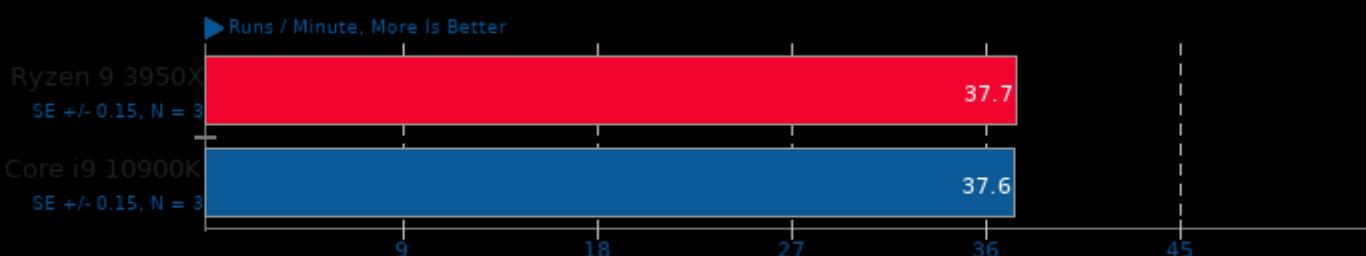
Benchmark: StyleBench - Browser: Firefox



1. firefox 76.0.1

Selenium

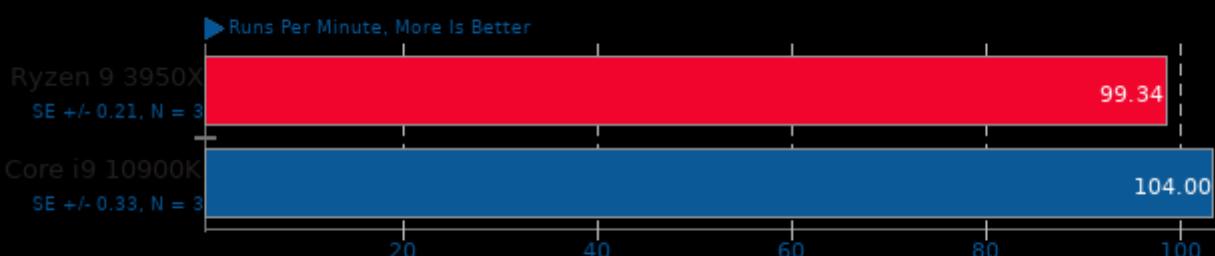
Benchmark: StyleBench - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

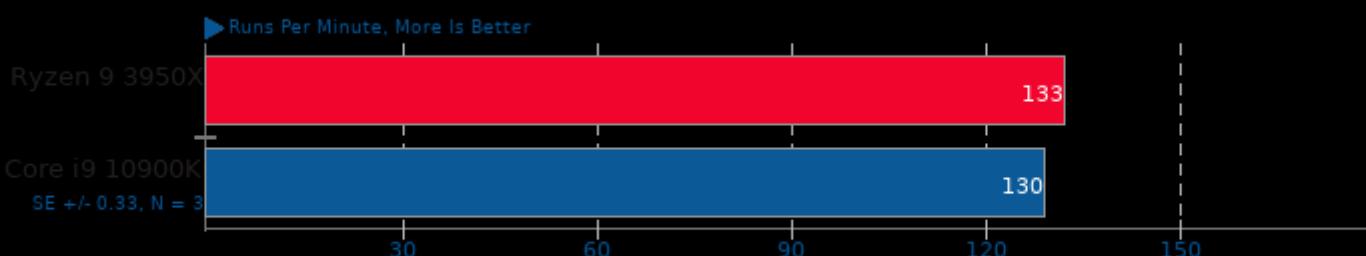
Benchmark: Speedometer - Browser: Firefox



1. firefox 76.0.1

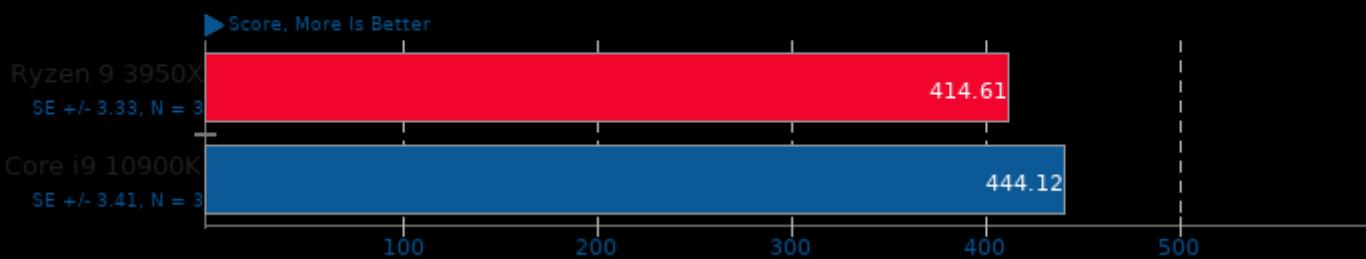
Selenium

Benchmark: Speedometer - Browser: Google Chrome



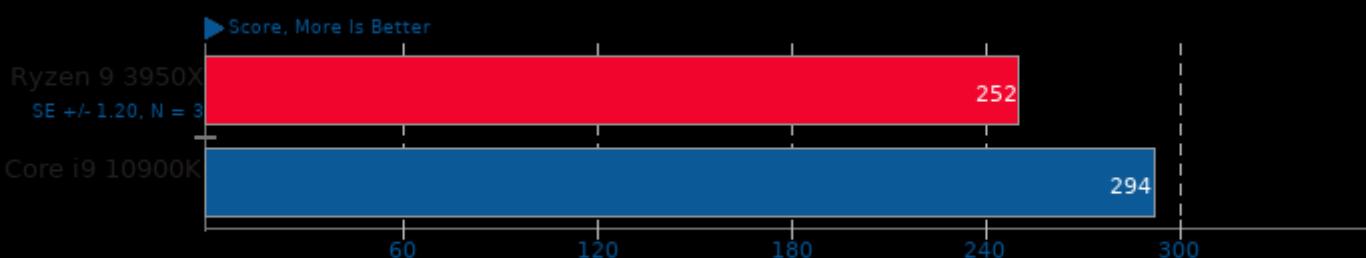
1. chrome 83.0.4103.61

Numpy Benchmark



Selenium

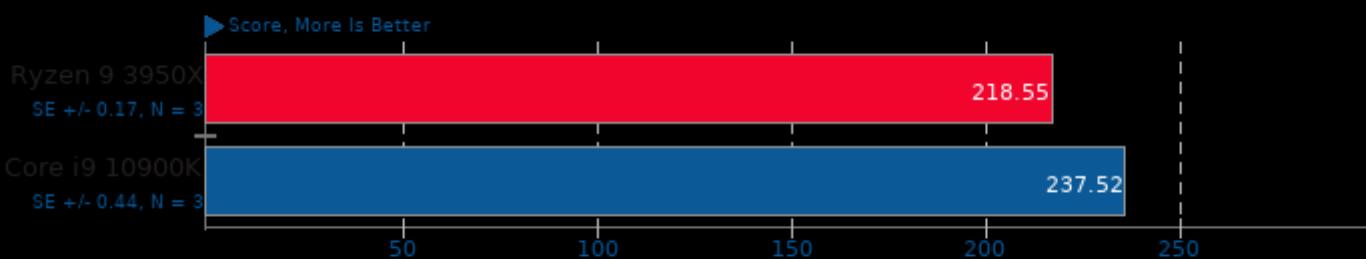
Benchmark: WebXPRT - Browser: Firefox



1. firefox 76.0.1

Selenium

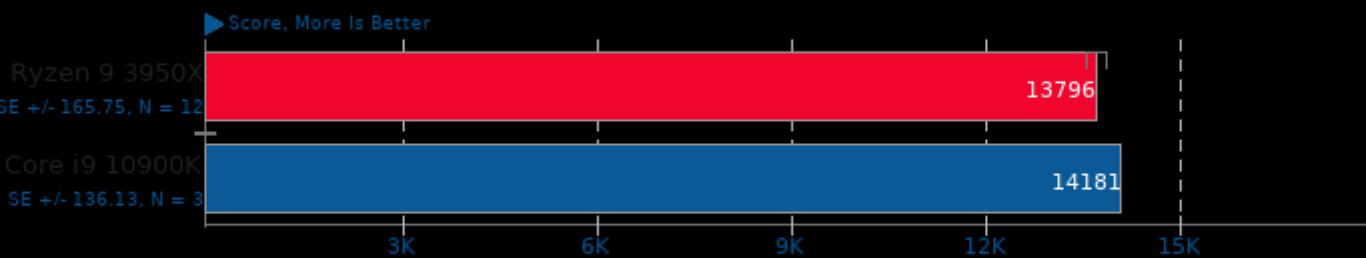
Benchmark: Jetstream - Browser: Firefox



1. firefox 76.0.1

Selenium

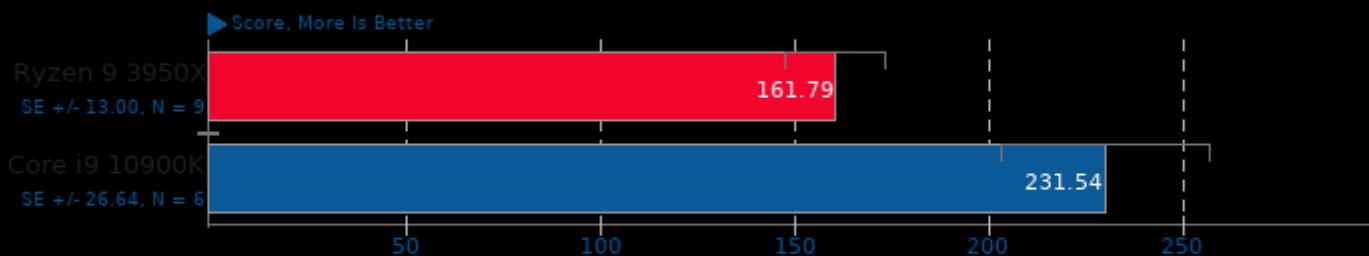
Benchmark: CanvasMark - Browser: Firefox



1. firefox 76.0.1

Selenium

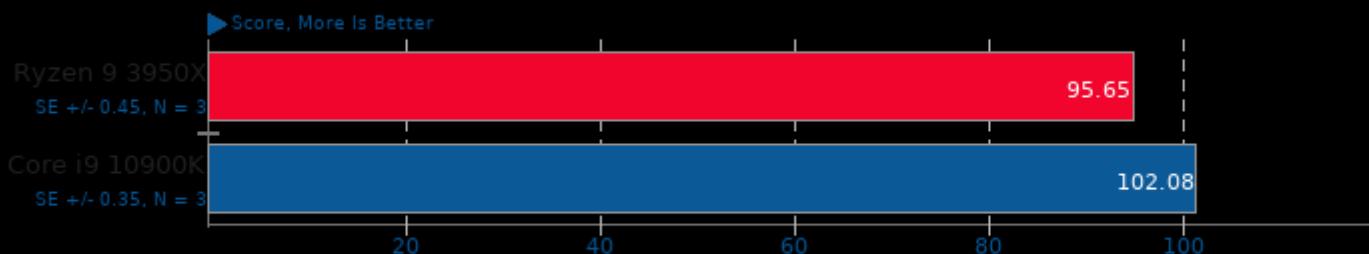
Benchmark: MotionMark - Browser: Firefox



1. firefox 76.0.1

Selenium

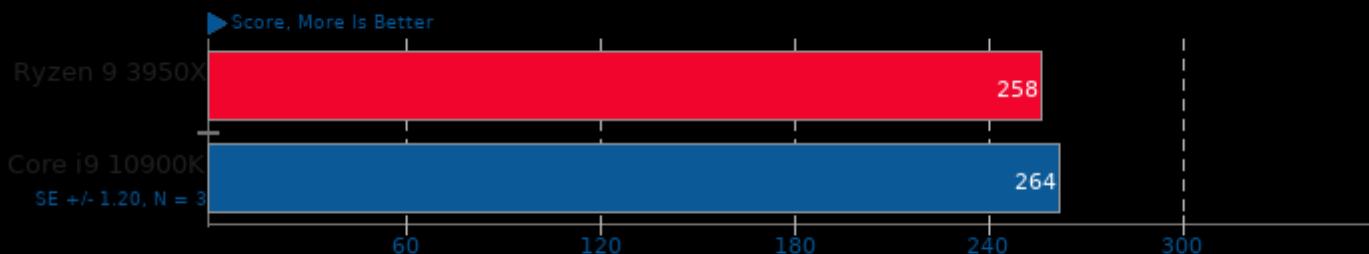
Benchmark: Jetstream 2 - Browser: Firefox



1. firefox 76.0.1

Selenium

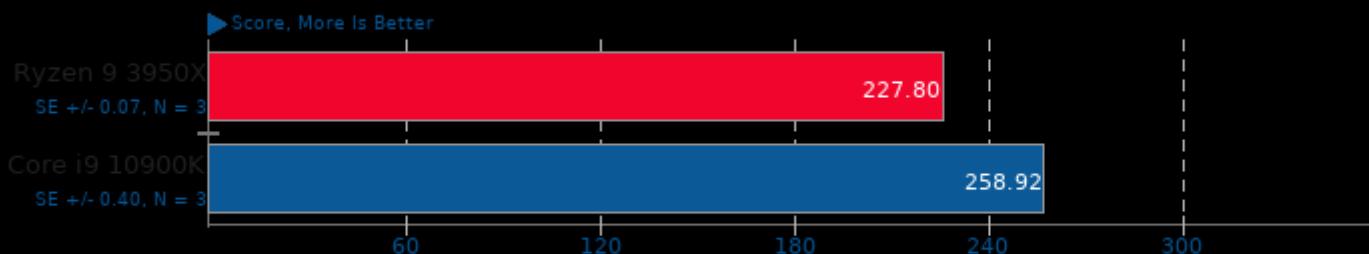
Benchmark: WebXPRT - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

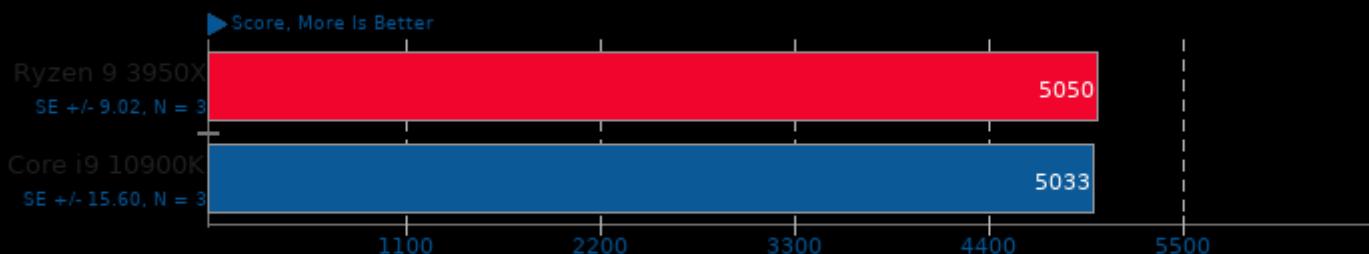
Benchmark: Jetstream - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

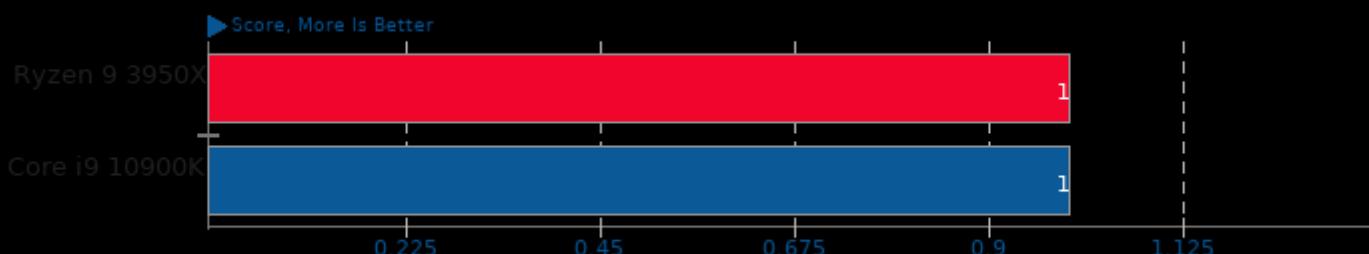
Benchmark: CanvasMark - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

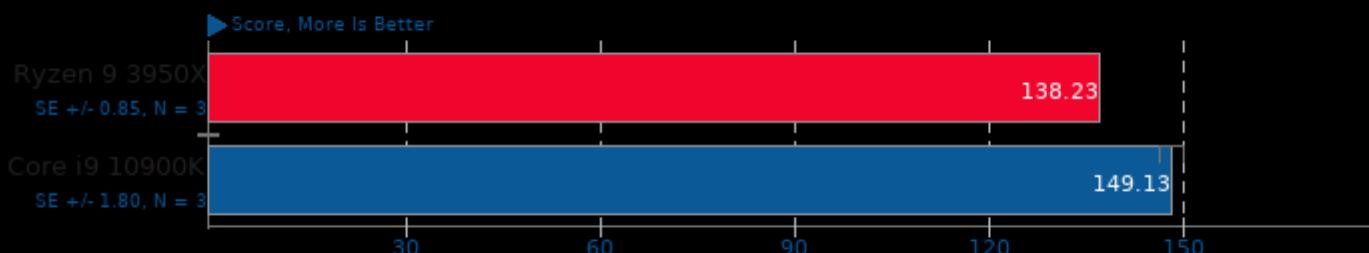
Benchmark: MotionMark - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

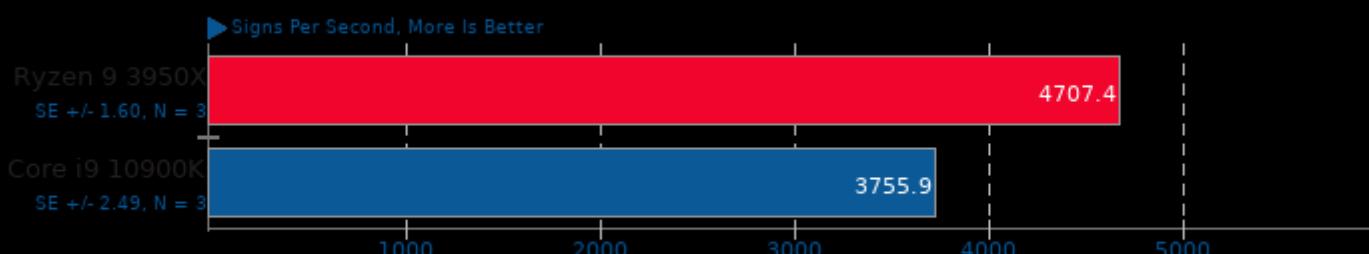
Benchmark: Jetstream 2 - Browser: Google Chrome



1. chrome 83.0.4103.61

OpenSSL 1.1.1

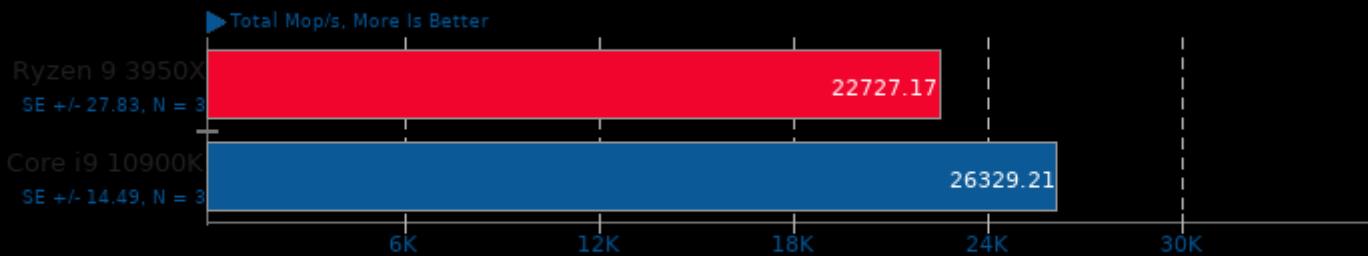
RSA 4096-bit Performance



1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

NAS Parallel Benchmarks 3.4

Test / Class: BT.C

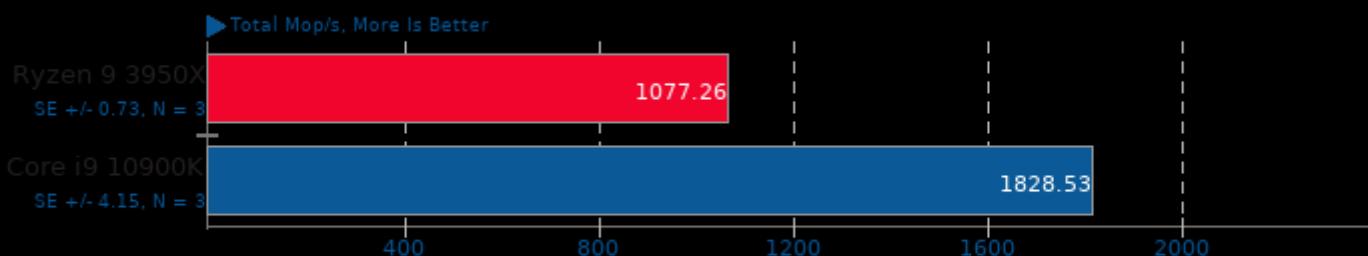


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: EP.C

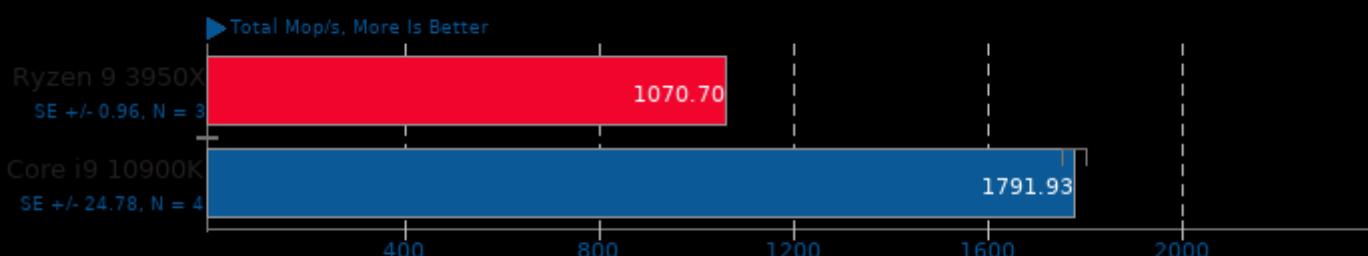


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: EP.D

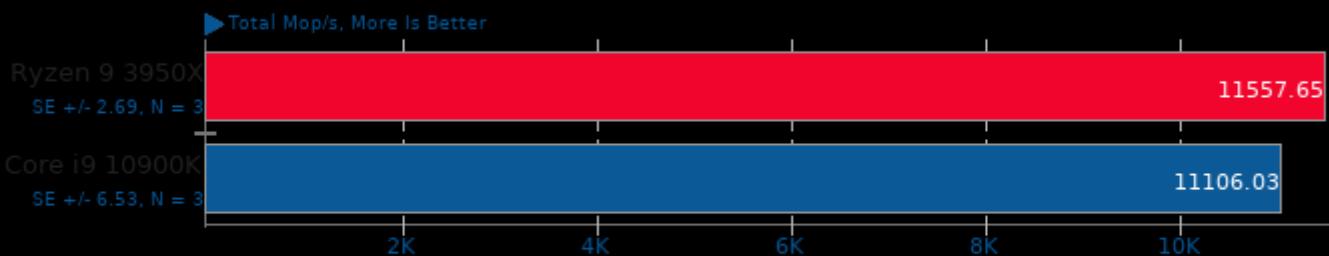


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: FT.C

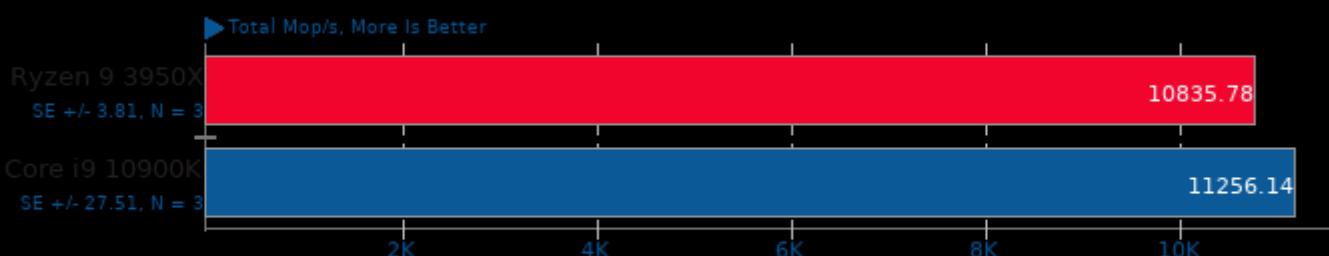


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: MG.C

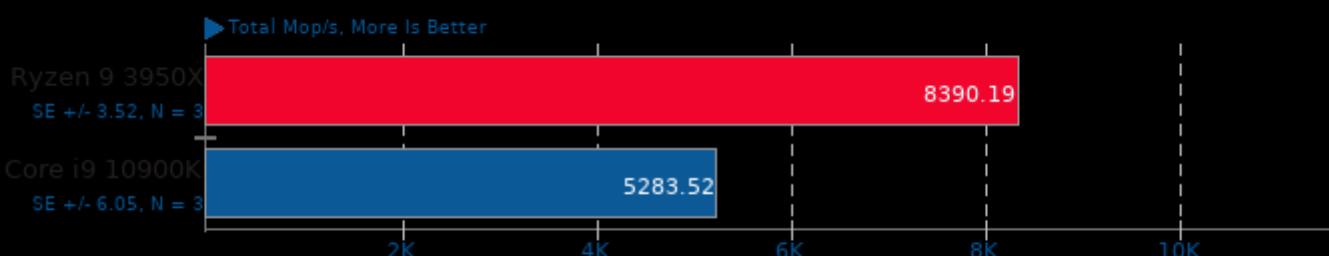


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

Test / Class: SP.B

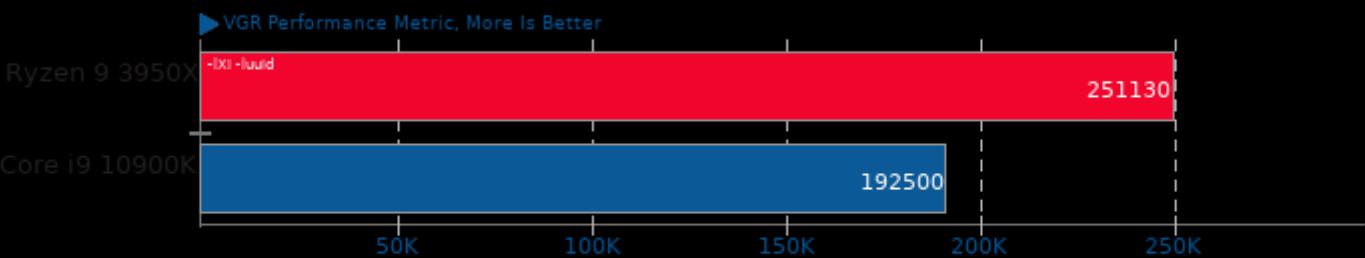


1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi

2. Open MPI 4.0.3

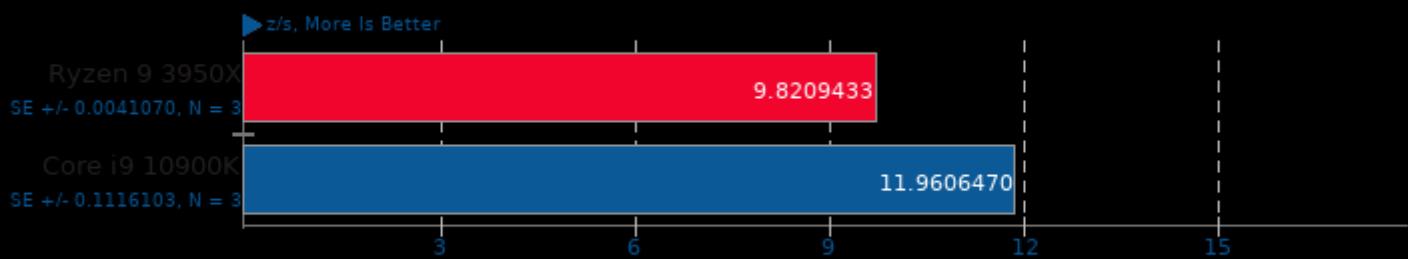
BRL-CAD 7.30.8

VGR Performance Metric



1. (CXX) g++ options: -std=c++11 -pipe -fno-strict-aliasing -fno-common -fexceptions -ftemplate-depth=128 -m64 -ggdb3 -O3 -fipa-ptx -fstrength-reduce

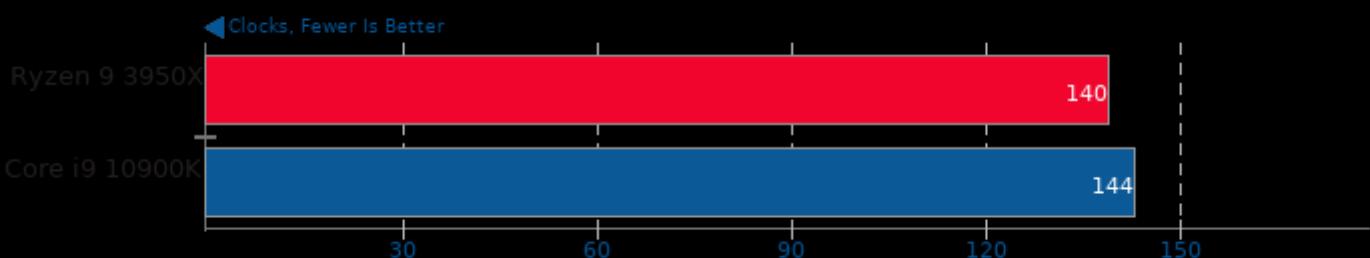
LULESH 2.0.3



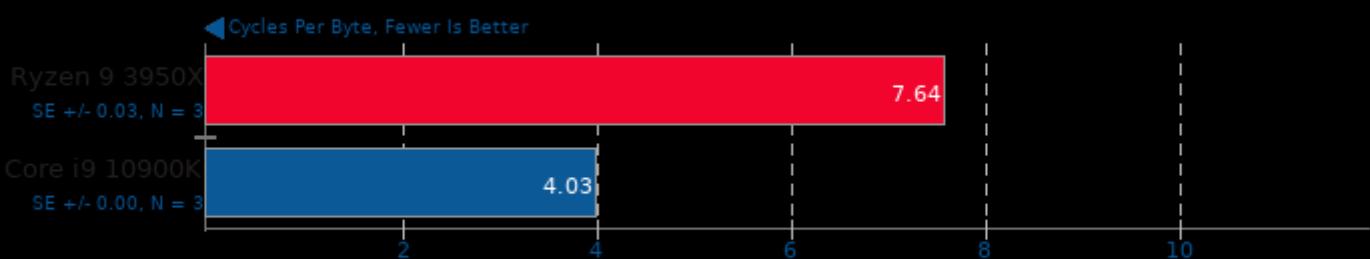
1. (CXX) g++ options: -O3 -fopenmp -lm -pthread -lmpi_cxx -lmpi

ctx_clock

Context Switch Time



BLAKE2 20170307



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

SMHasher 2020-02-29

Hash: wyhash



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

SMHasher 2020-02-29

Hash: MeowHash



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

SMHasher 2020-02-29

Hash: Spooky32



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

SMHasher 2020-02-29

Hash: fasthash32



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

SMHasher 2020-02-29

Hash: tlha2_atonce



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

SMHasher 2020-02-29

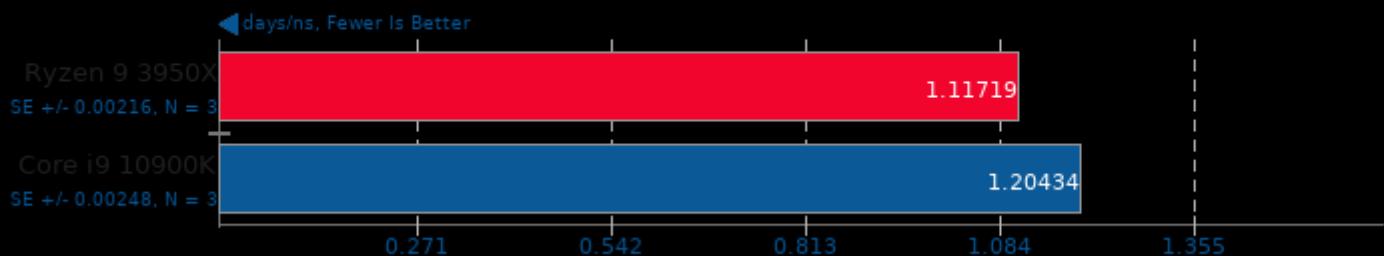
Hash: t1ha0_aes_avx2



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

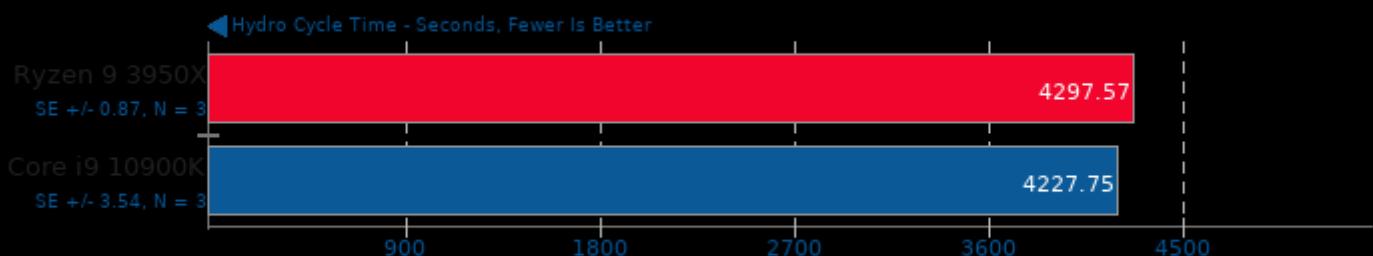
NAMD 2.13

ATPase Simulation - 327,506 Atoms



Pennant 1.0.1

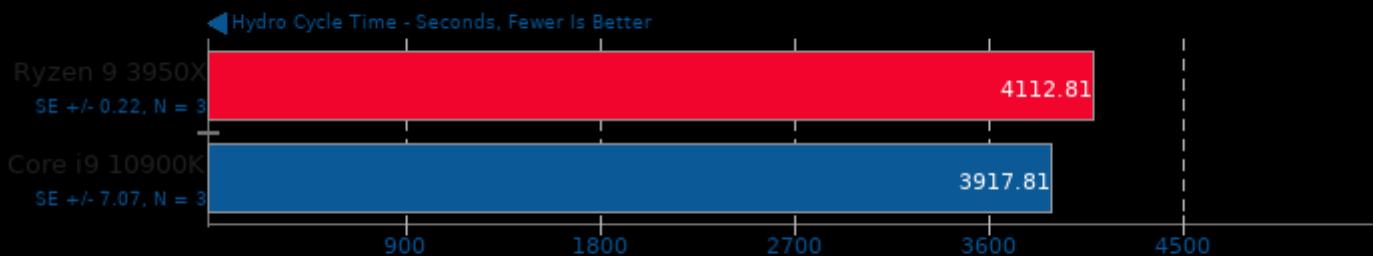
Test: sedovbig



1. (CXX) g++ options: -fopenmp -pthread -lmpi_cxx -lmpi

Pennant 1.0.1

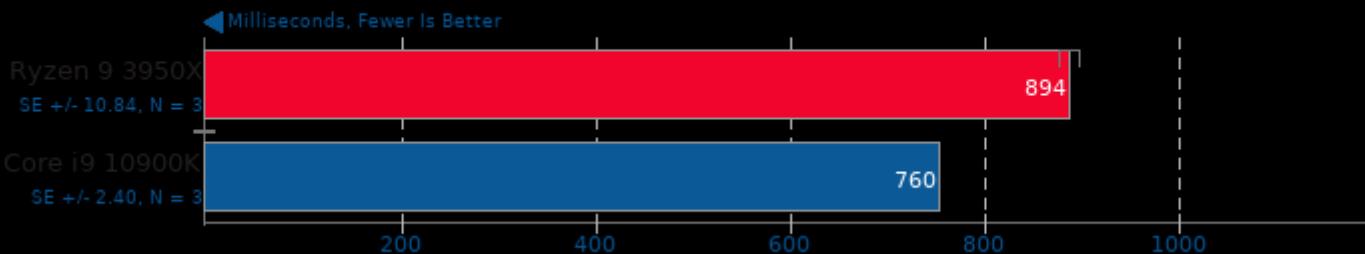
Test: leblancbig



1. (CXX) g++ options: -fopenmp -pthread -lmpi_cxx -lmpi

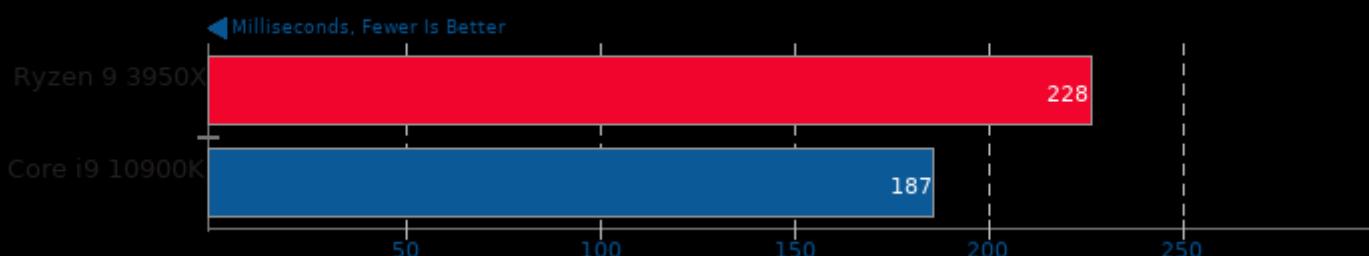
PyBench 2018-02-16

Total For Average Test Times



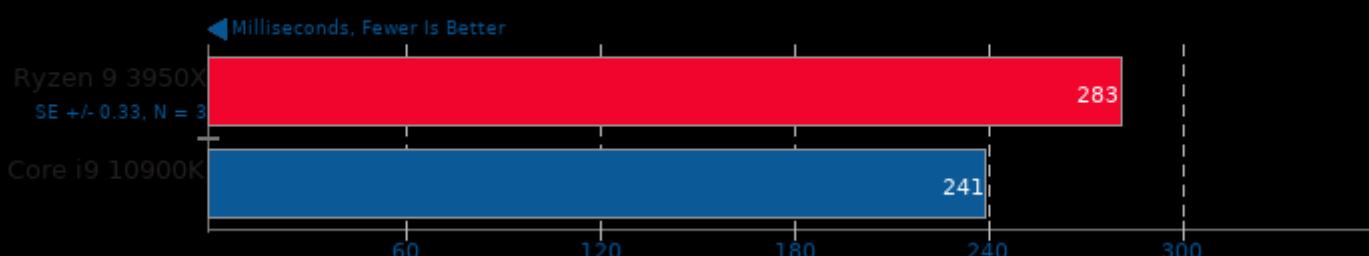
PyPerformance 1.0.0

Benchmark: go



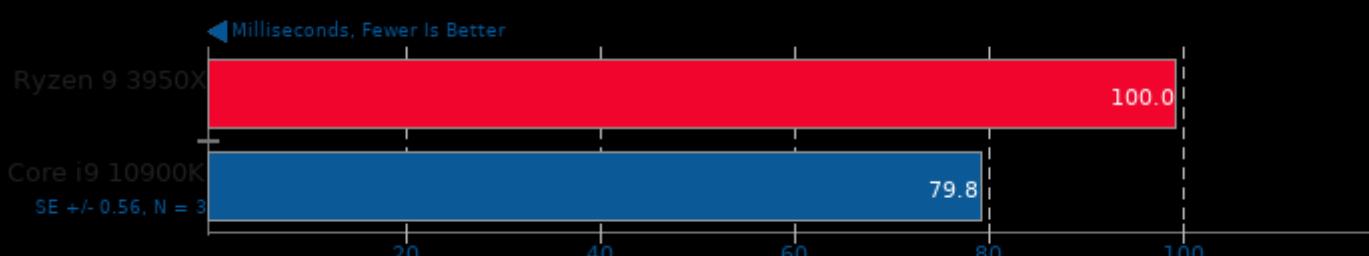
PyPerformance 1.0.0

Benchmark: 2to3



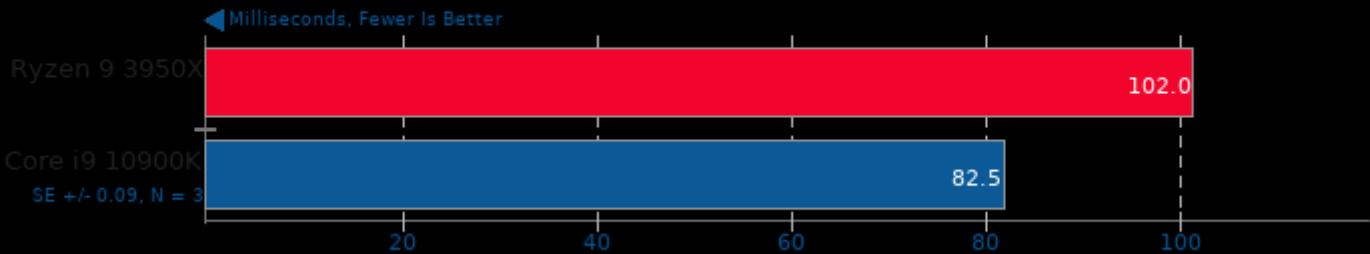
PyPerformance 1.0.0

Benchmark: chaos



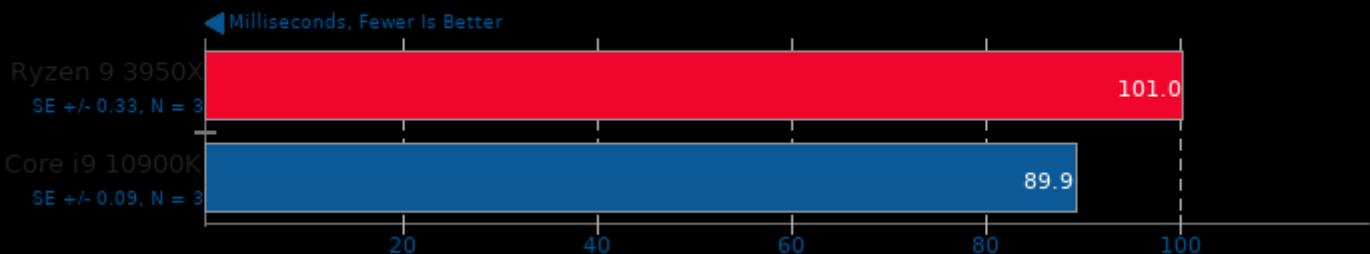
PyPerformance 1.0.0

Benchmark: float



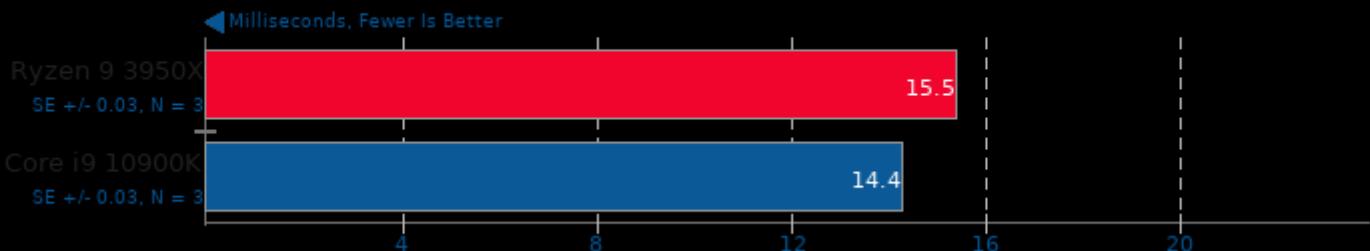
PyPerformance 1.0.0

Benchmark: nbody



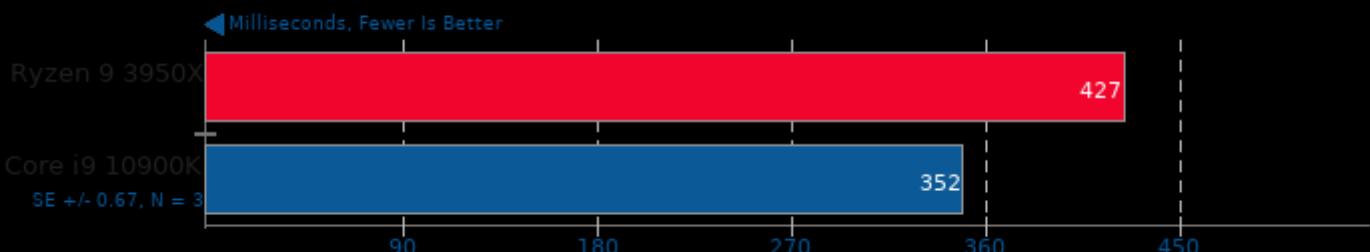
PyPerformance 1.0.0

Benchmark: pathlib



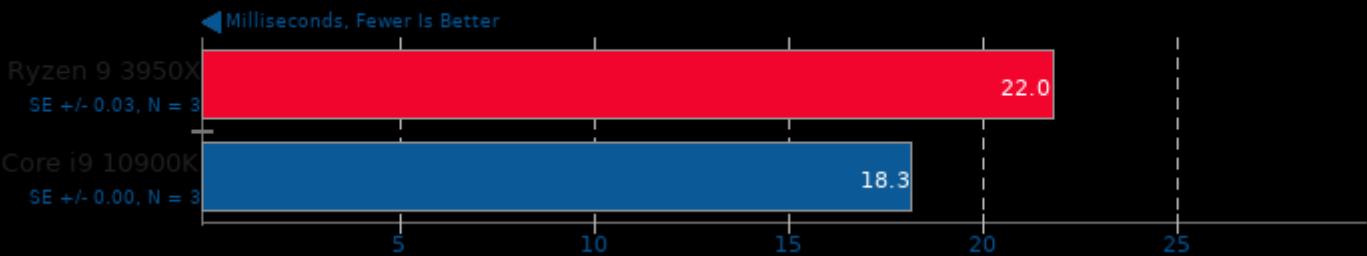
PyPerformance 1.0.0

Benchmark: raytrace



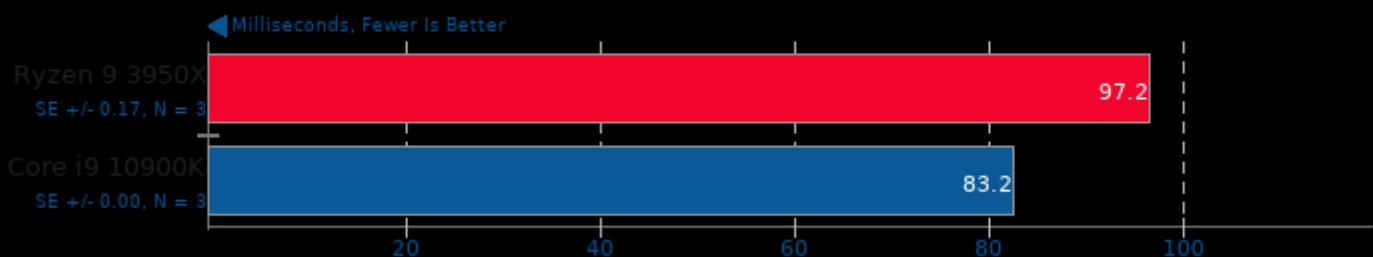
PyPerformance 1.0.0

Benchmark: json.loads



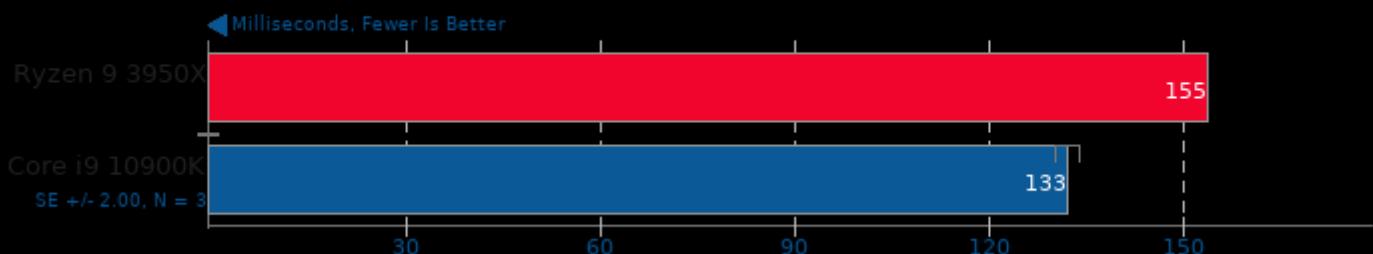
PyPerformance 1.0.0

Benchmark: crypto_pyaes



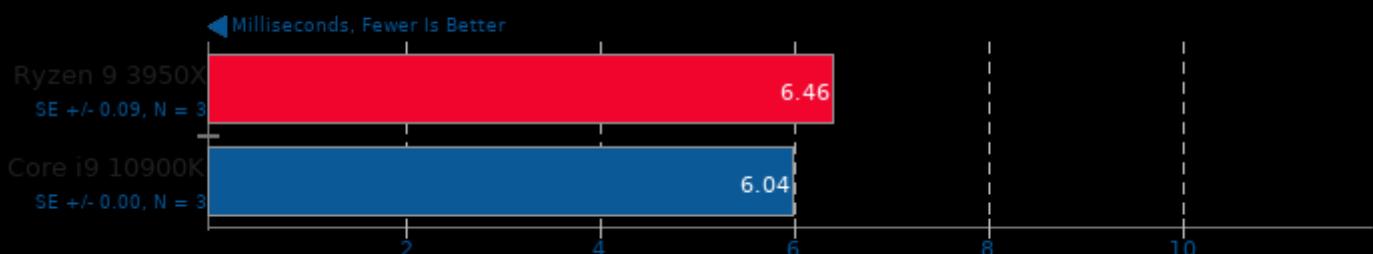
PyPerformance 1.0.0

Benchmark: regex_compile



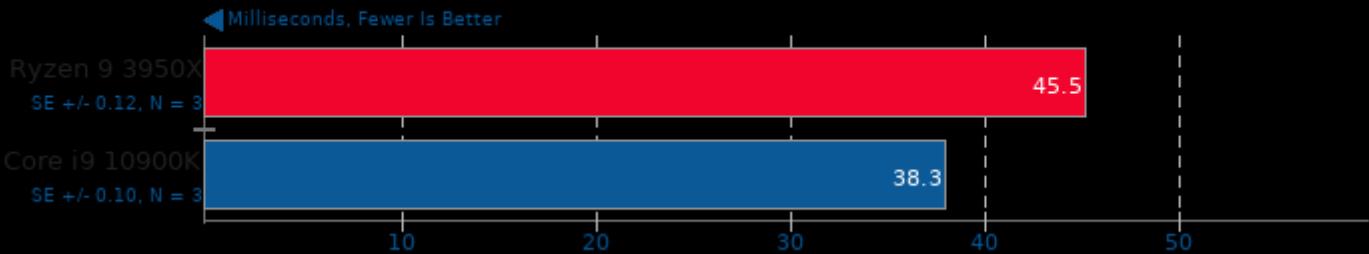
PyPerformance 1.0.0

Benchmark: python_startup



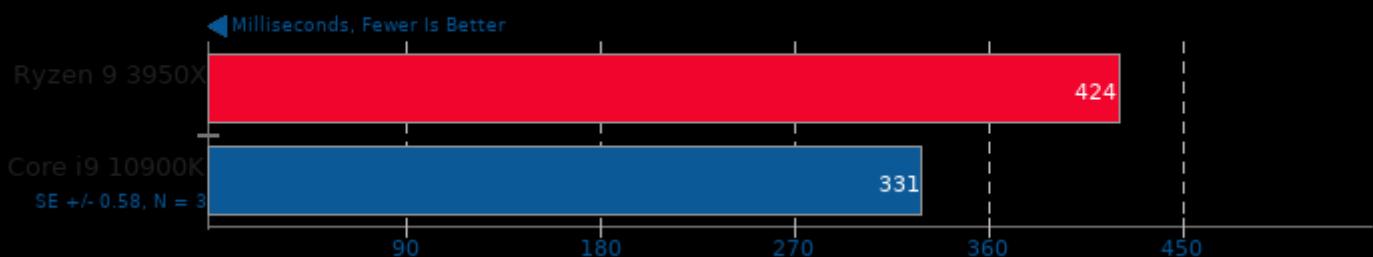
PyPerformance 1.0.0

Benchmark: django_template



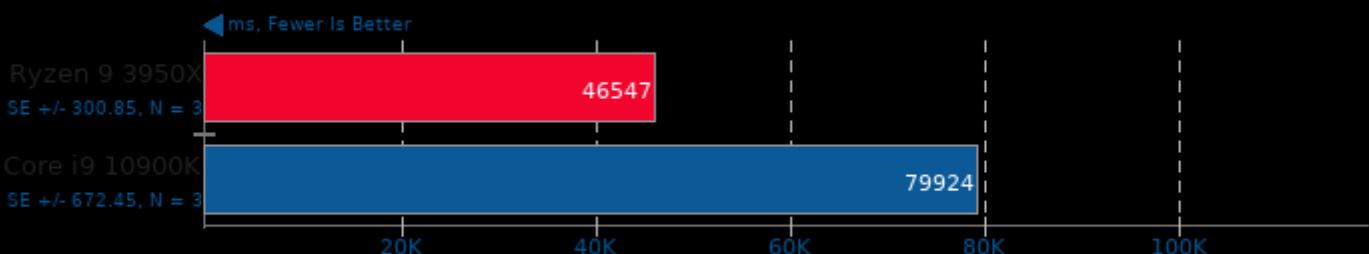
PyPerformance 1.0.0

Benchmark: pickle_pure_python



toyBrot Fractal Generator

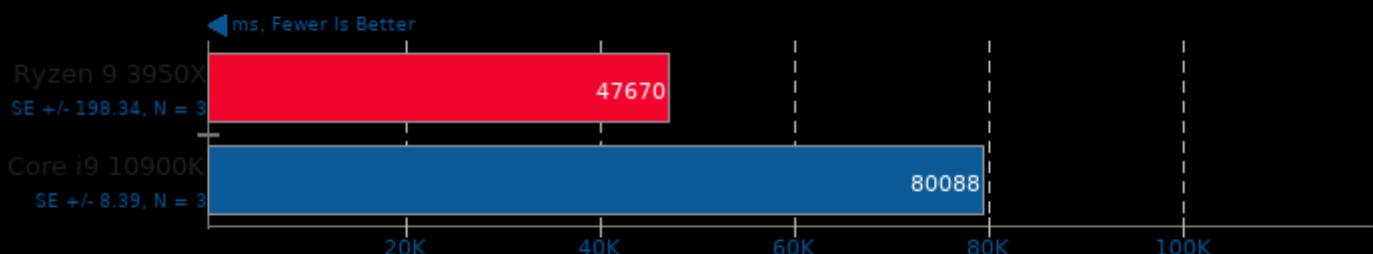
Implementation: TBB



1. (CXX) g++ options: -lpthread -fopenmp -std=c++14

toyBrot Fractal Generator

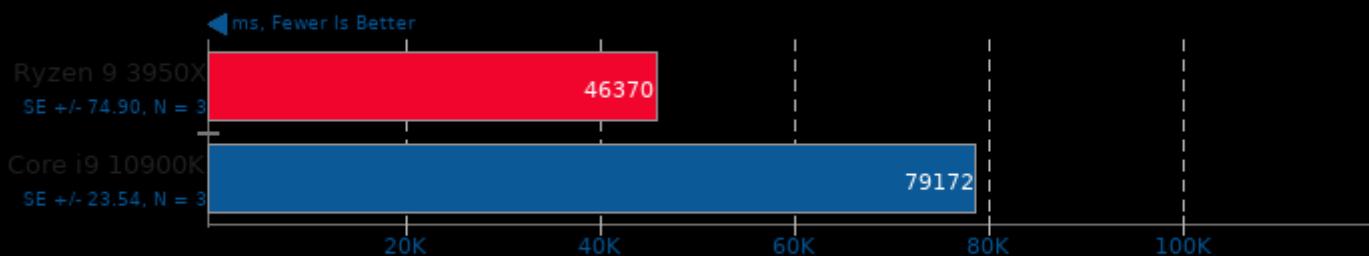
Implementation: OpenMP



1. (CXX) g++ options: -lpthread -fopenmp -std=c++14

toyBrot Fractal Generator

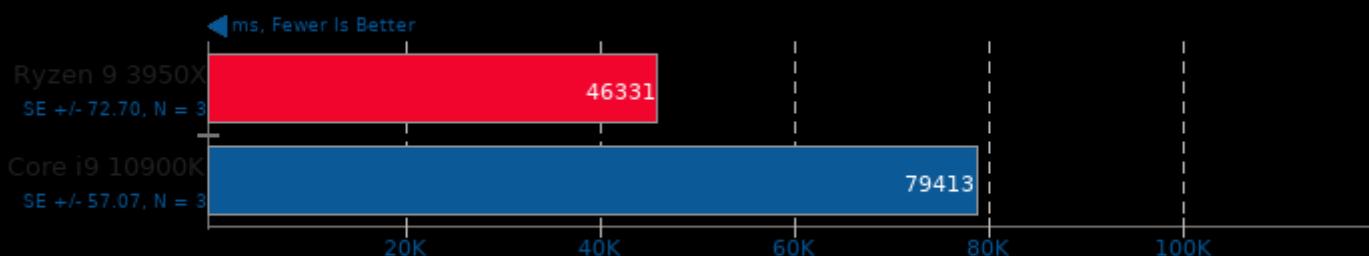
Implementation: C++ Tasks



1. (CXX) g++ options: -lpthread -fopenmp -std=c++14

toyBrot Fractal Generator

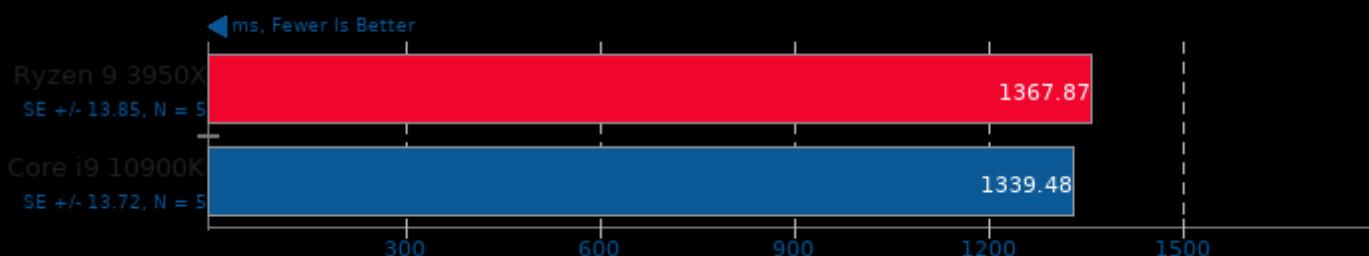
Implementation: C++ Threads



1. (CXX) g++ options: -lpthread -fopenmp -std=c++14

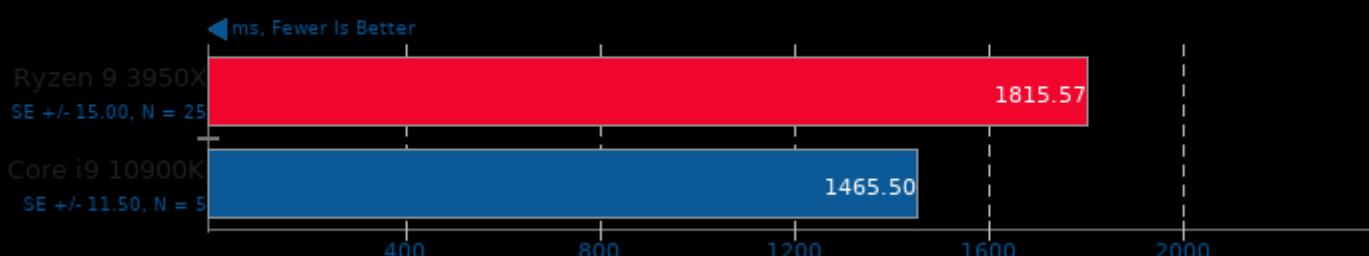
Renaissance 0.10.0

Test: Scala Dotty



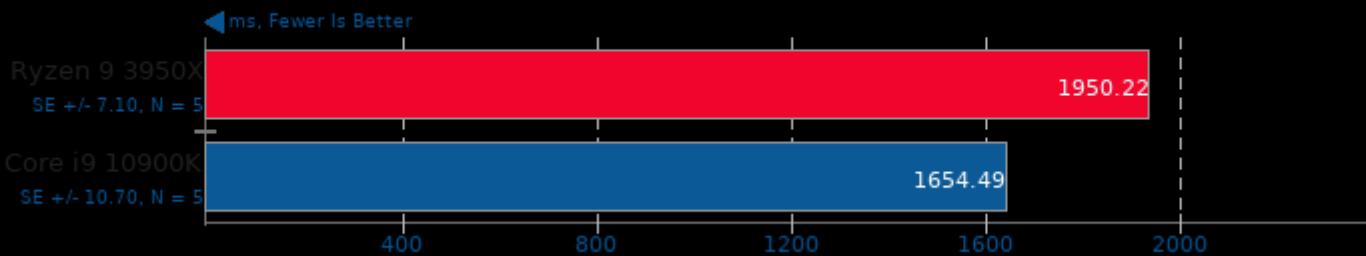
Renaissance 0.10.0

Test: Random Forest



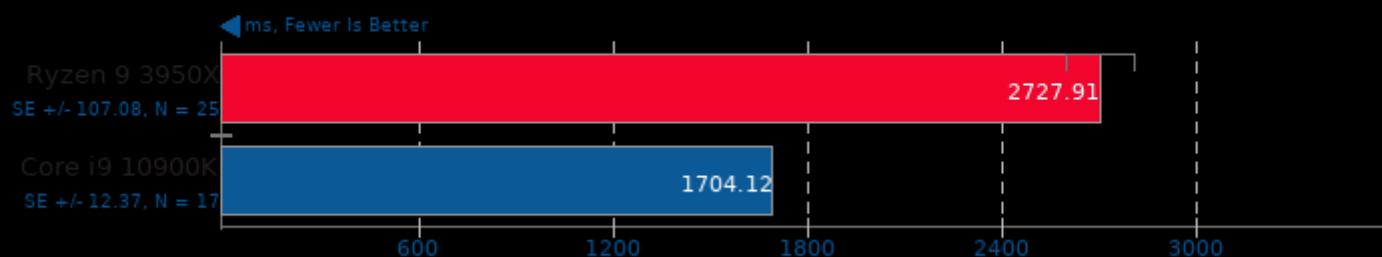
Renaissance 0.10.0

Test: Apache Spark ALS



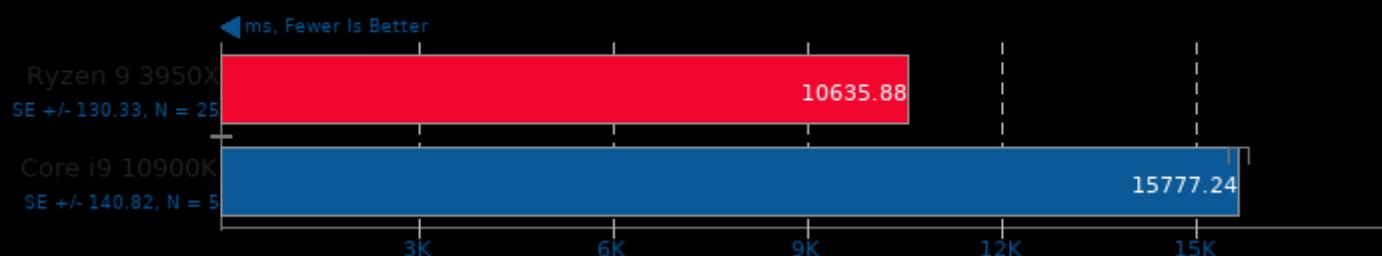
Renaissance 0.10.0

Test: Apache Spark Bayes



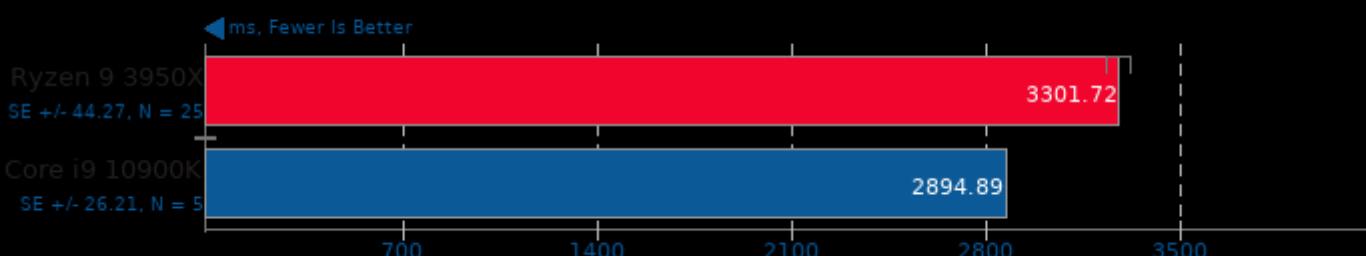
Renaissance 0.10.0

Test: Savina Reactors.IO



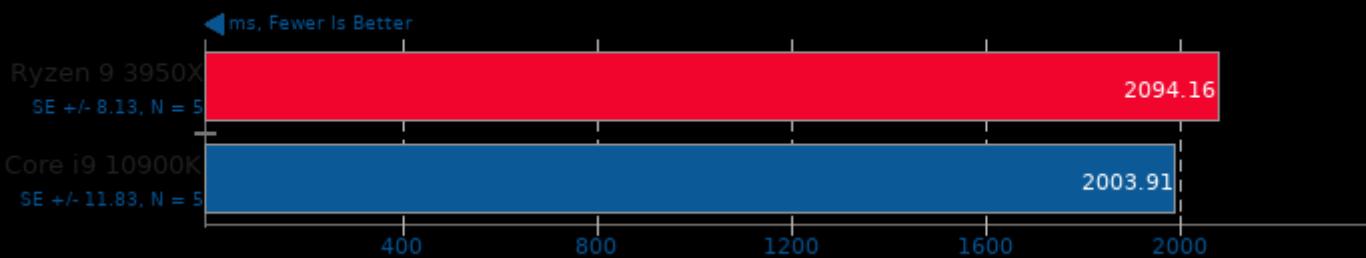
Renaissance 0.10.0

Test: Apache Spark PageRank



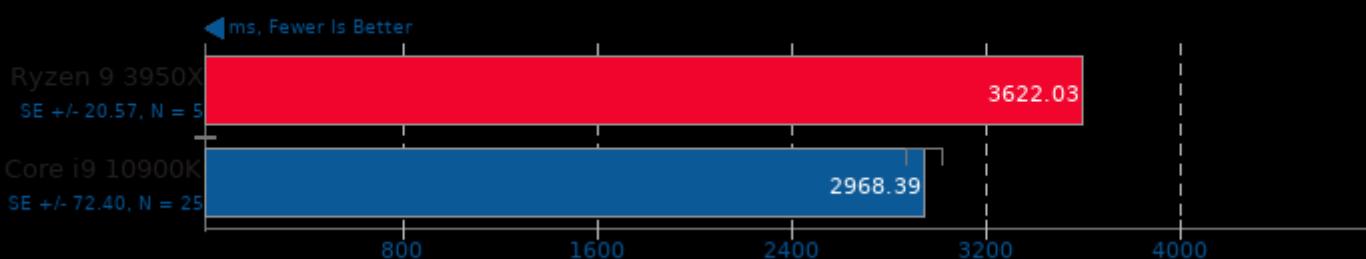
Renaissance 0.10.0

Test: Twitter HTTP Requests



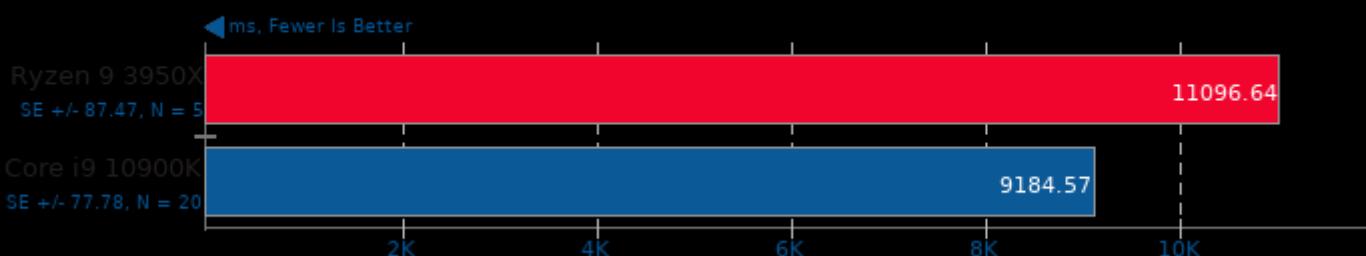
Renaissance 0.10.0

Test: In-Memory Database Shootout



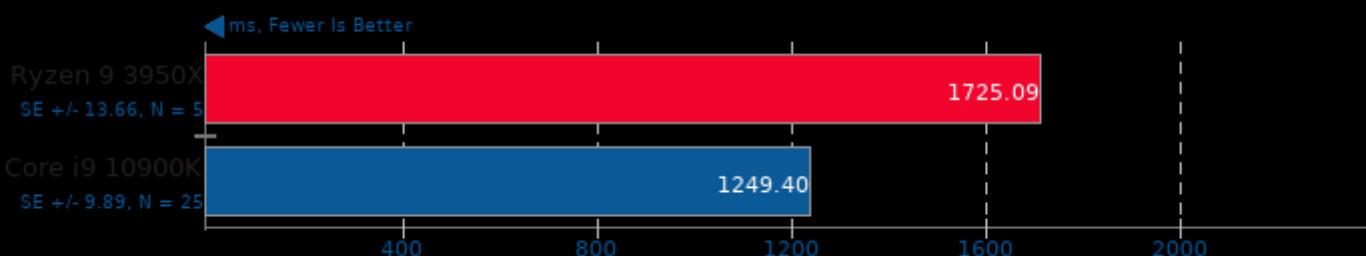
Renaissance 0.10.0

Test: Akka Unbalanced Cobwebbed Tree



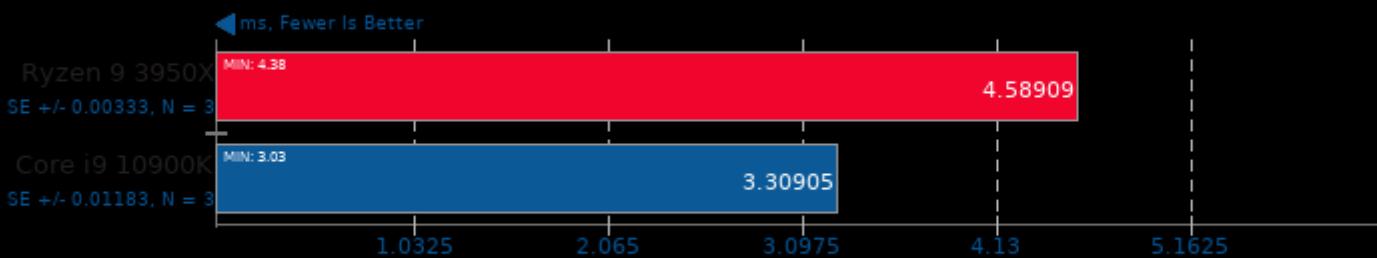
Renaissance 0.10.0

Test: Genetic Algorithm Using Jenetics + Futures



oneDNN MKL-DNN 1.3

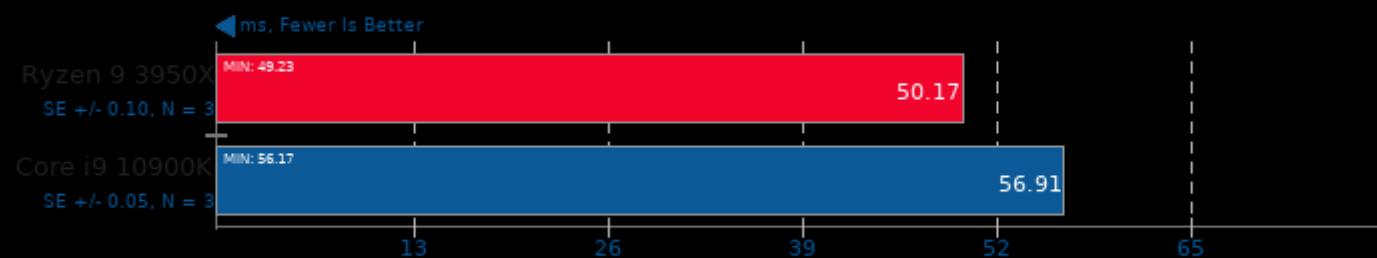
Harness: IP Batch 1D - Data Type: f32



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

oneDNN MKL-DNN 1.3

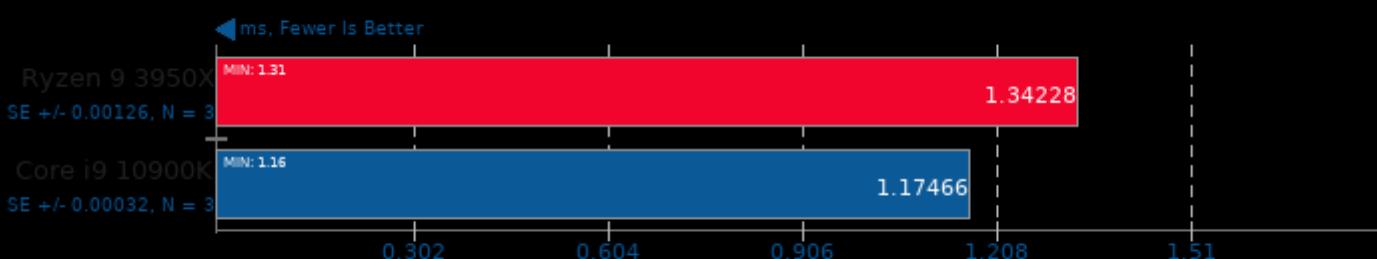
Harness: IP Batch All - Data Type: f32



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

oneDNN MKL-DNN 1.3

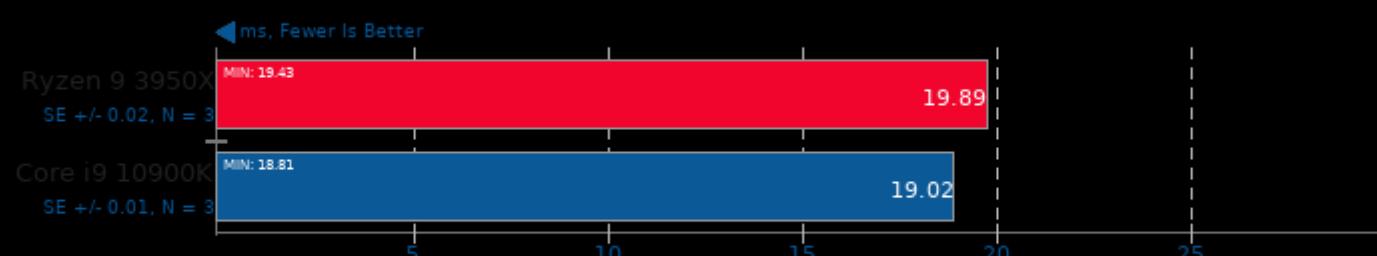
Harness: IP Batch 1D - Data Type: u8s8f32



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

oneDNN MKL-DNN 1.3

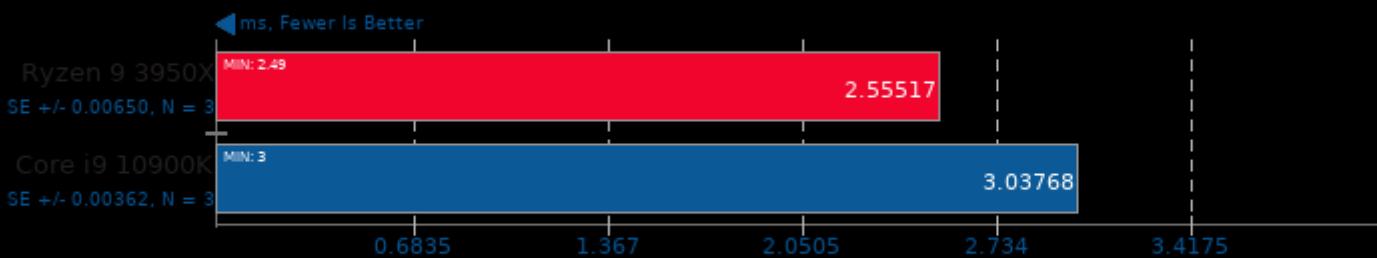
Harness: IP Batch All - Data Type: u8s8f32



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

oneDNN MKL-DNN 1.3

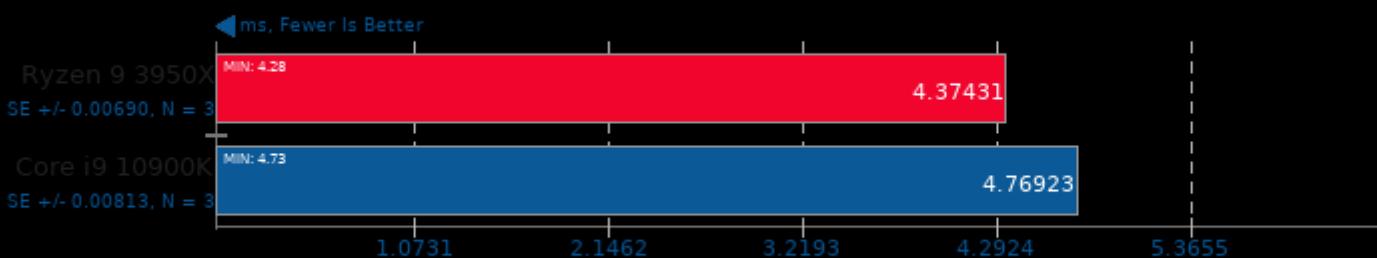
Harness: Deconvolution Batch deconv_1d - Data Type: f32



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

oneDNN MKL-DNN 1.3

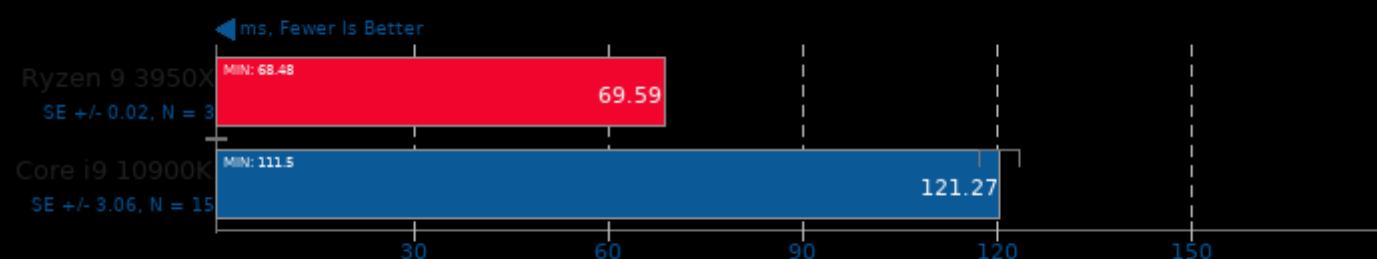
Harness: Deconvolution Batch deconv_3d - Data Type: f32



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

oneDNN MKL-DNN 1.3

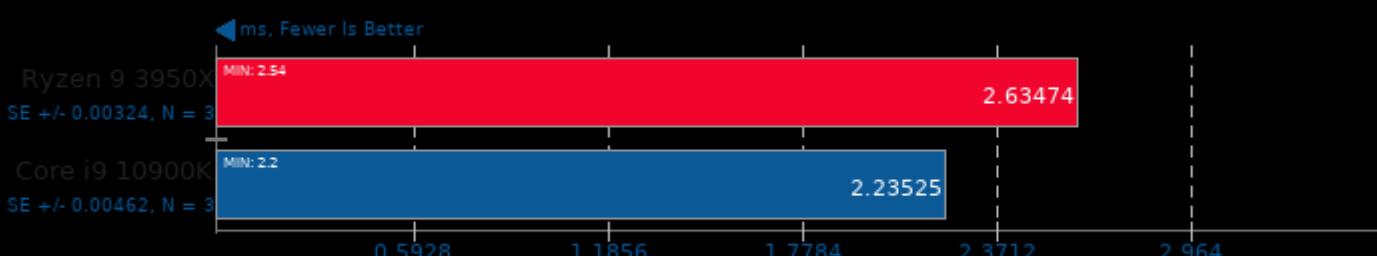
Harness: Deconvolution Batch deconv_1d - Data Type: u8s8f32



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

oneDNN MKL-DNN 1.3

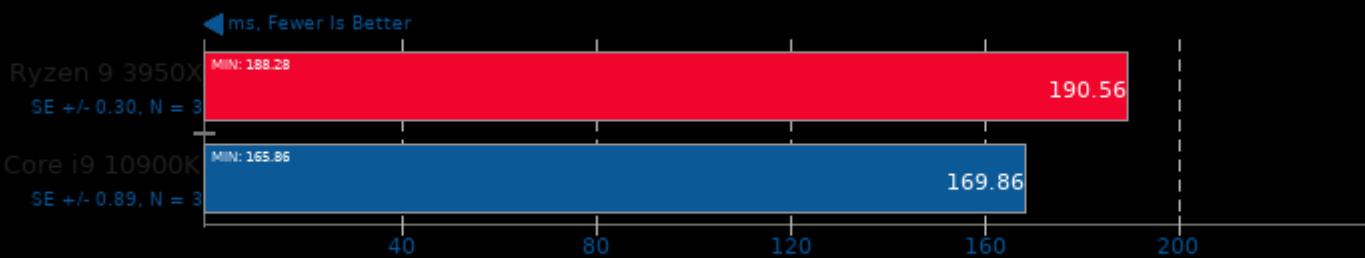
Harness: Deconvolution Batch deconv_3d - Data Type: u8s8f32



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

oneDNN MKL-DNN 1.3

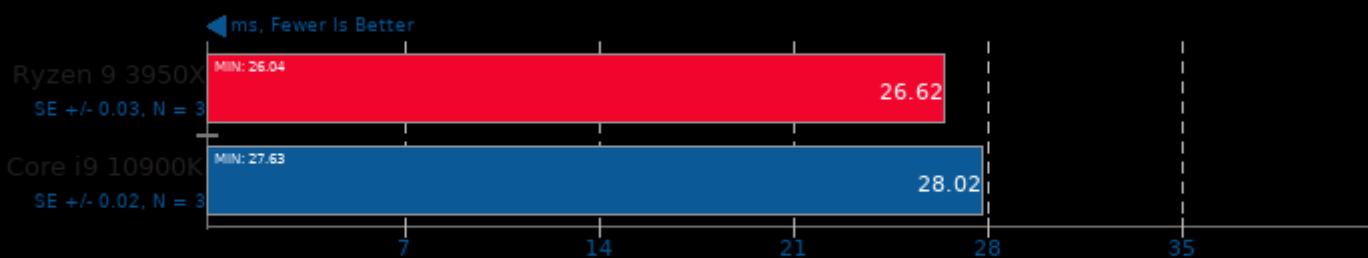
Harness: Recurrent Neural Network Training - Data Type: f32



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

oneDNN MKL-DNN 1.3

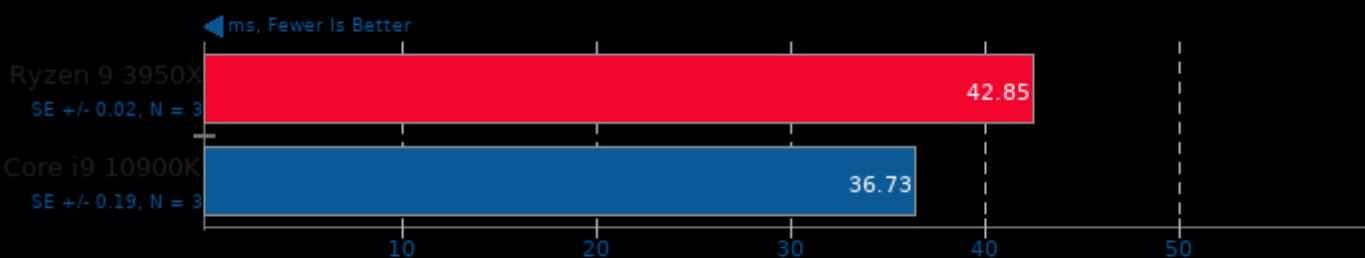
Harness: Recurrent Neural Network Inference - Data Type: f32



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

Selenium

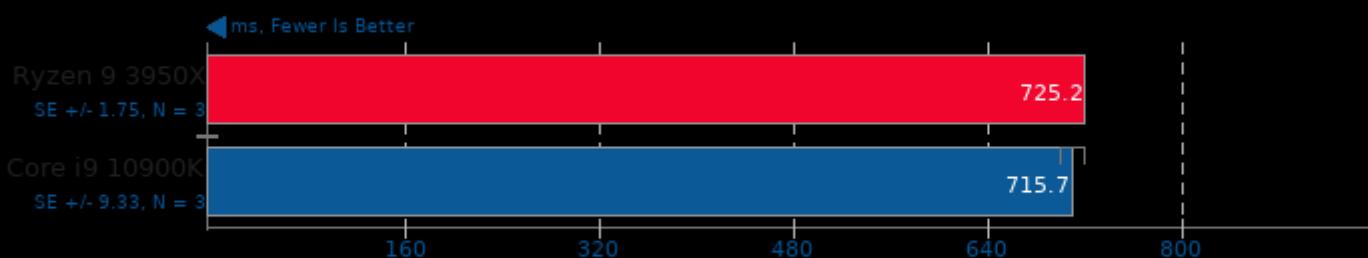
Benchmark: ARES-6 - Browser: Firefox



1. firefox 76.0.1

Selenium

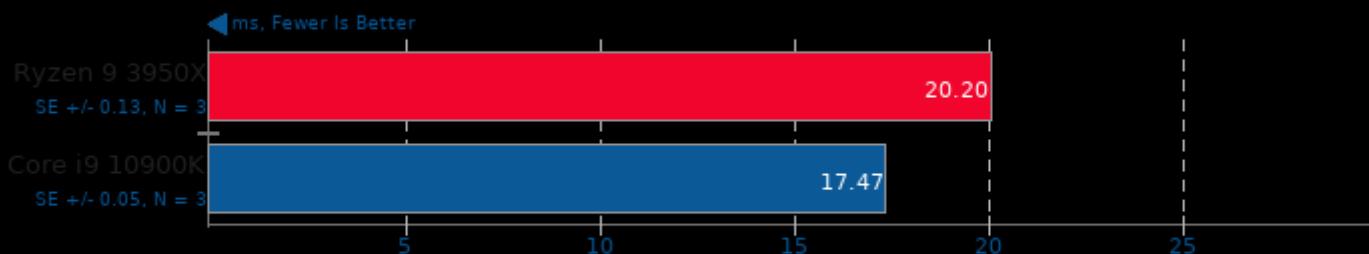
Benchmark: Kraken - Browser: Firefox



1. firefox 76.0.1

Selenium

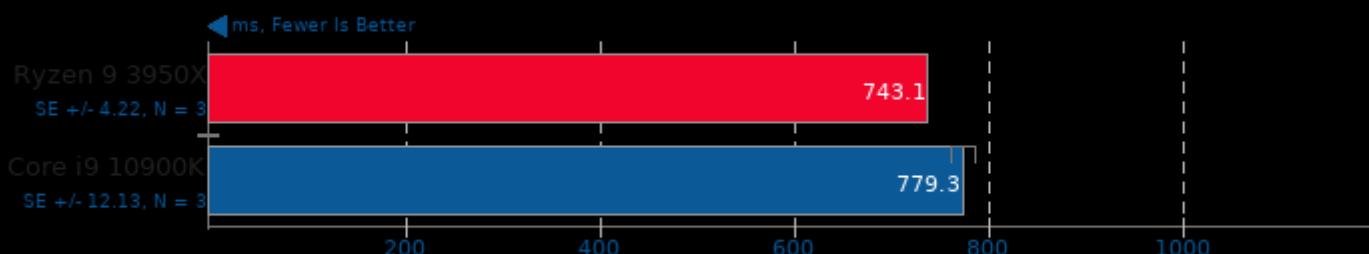
Benchmark: ARES-6 - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

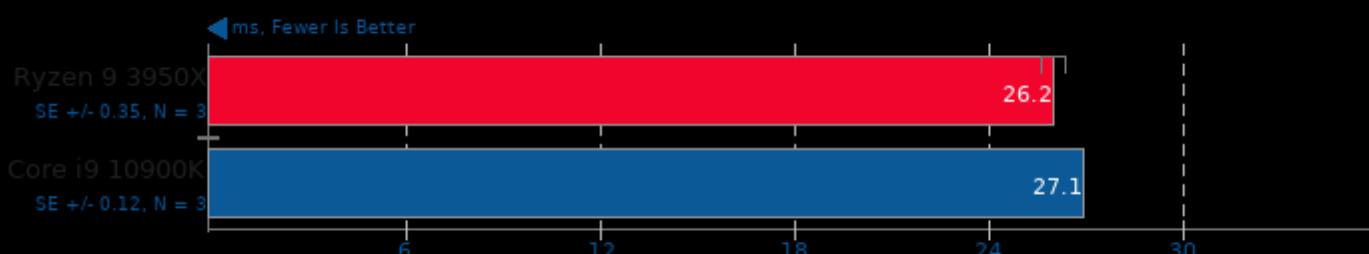
Benchmark: Kraken - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

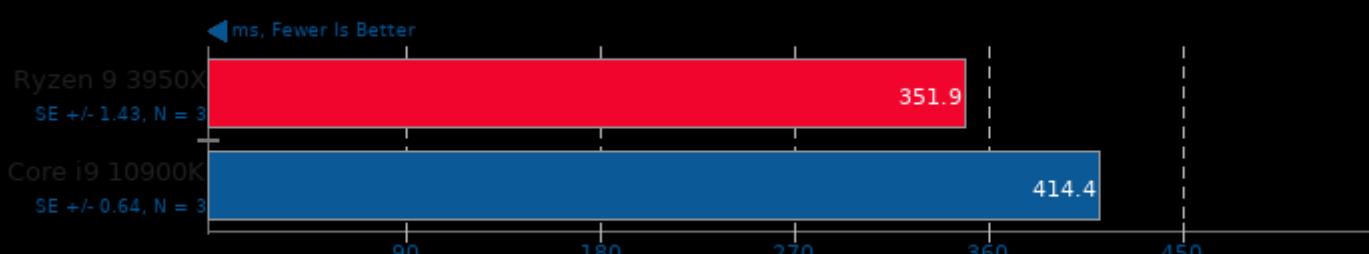
Benchmark: WASM imageConvolute - Browser: Firefox



1. firefox 76.0.1

Selenium

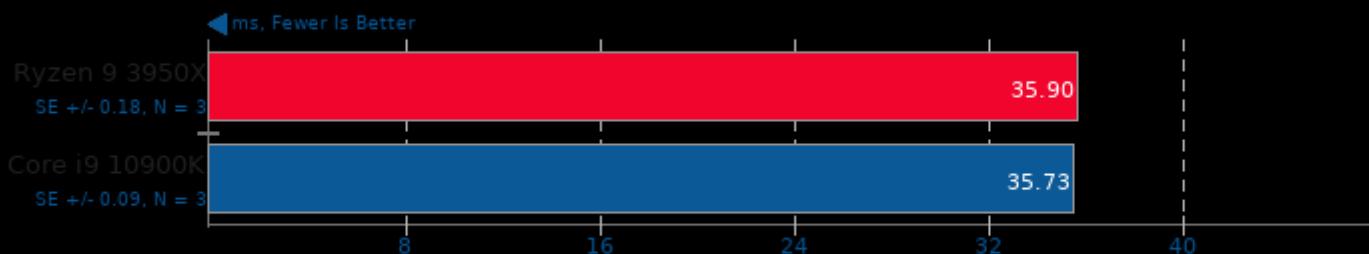
Benchmark: WASM collisionDetection - Browser: Firefox



1. firefox 76.0.1

Selenium

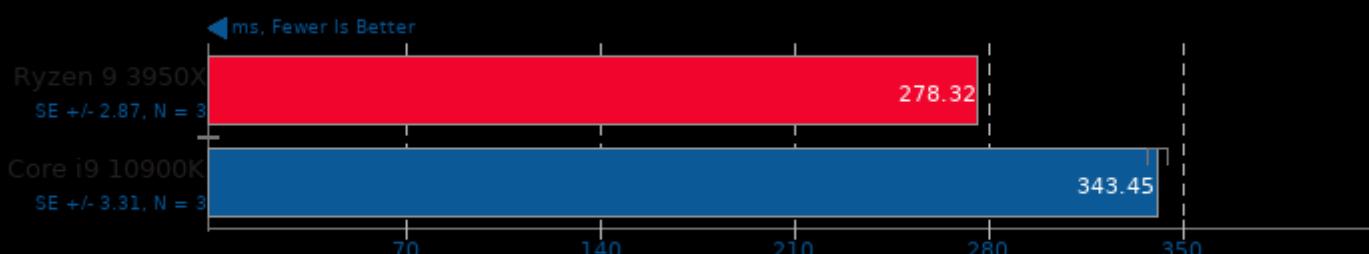
Benchmark: WASM imageConvolute - Browser: Google Chrome



1. chrome 83.0.4103.61

Selenium

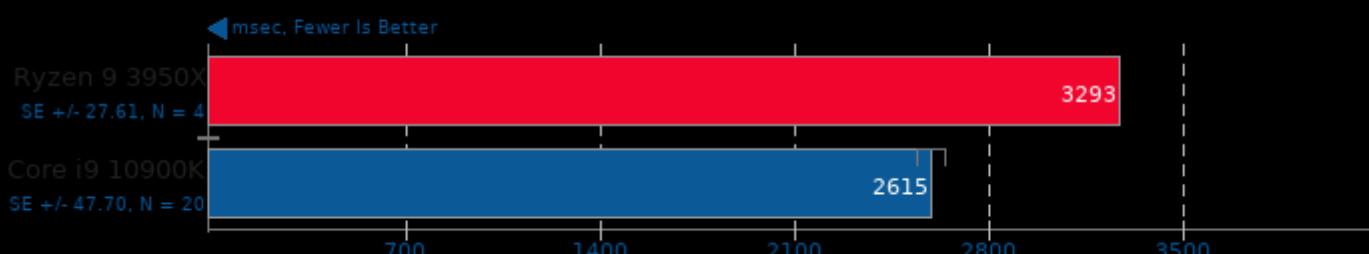
Benchmark: WASM collisionDetection - Browser: Google Chrome



1. chrome 83.0.4103.61

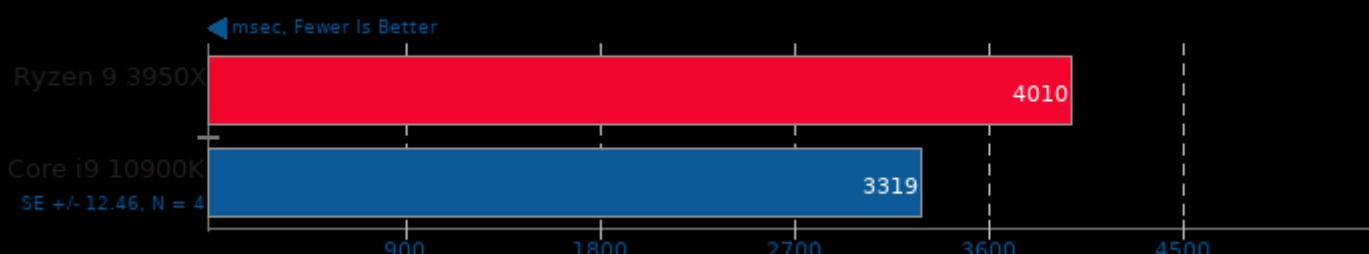
DaCapo Benchmark 9.12-MR1

Java Test: H2



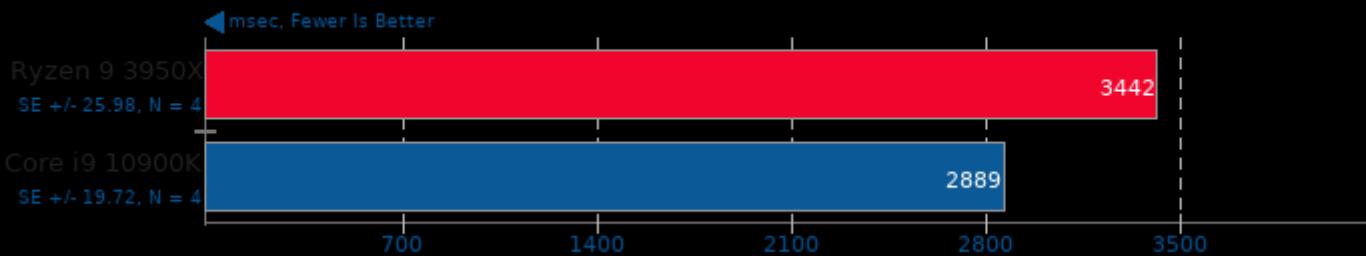
DaCapo Benchmark 9.12-MR1

Java Test: Jython



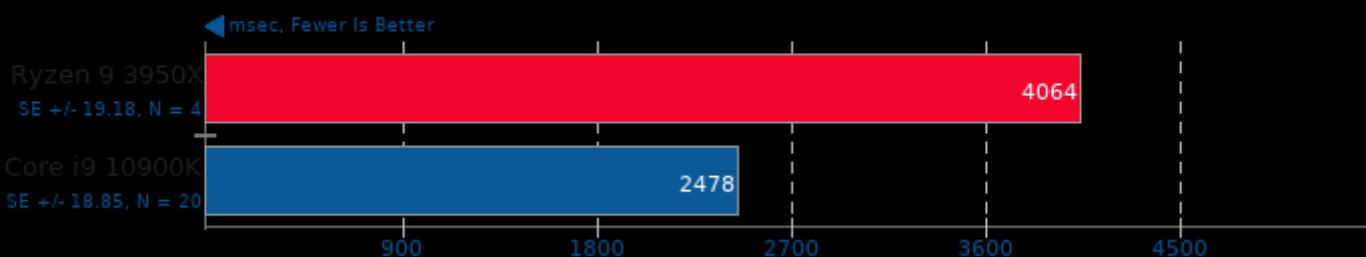
DaCapo Benchmark 9.12-MR1

Java Test: Tradesoap



DaCapo Benchmark 9.12-MR1

Java Test: Tradebeans



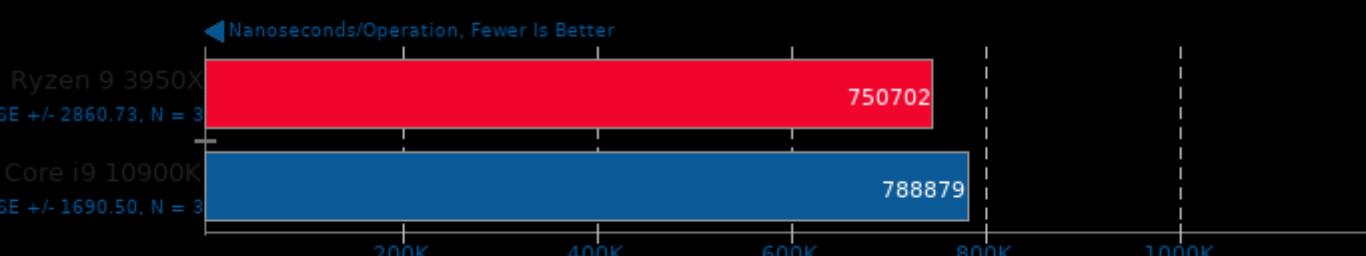
Go Benchmarks

Test: json



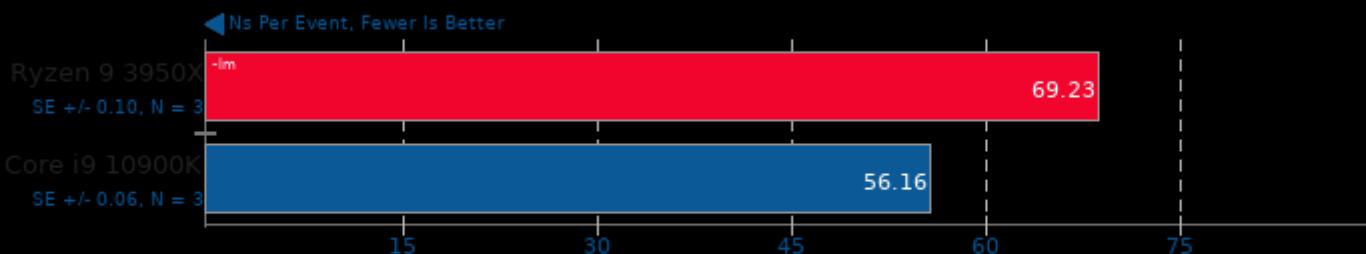
Go Benchmarks

Test: garbage



OSBench

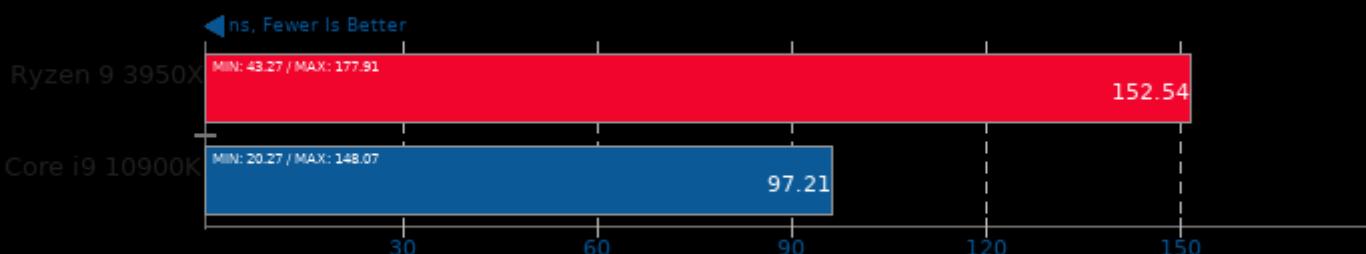
Test: Memory Allocations



1. (CC) gcc options:

Core-Latency

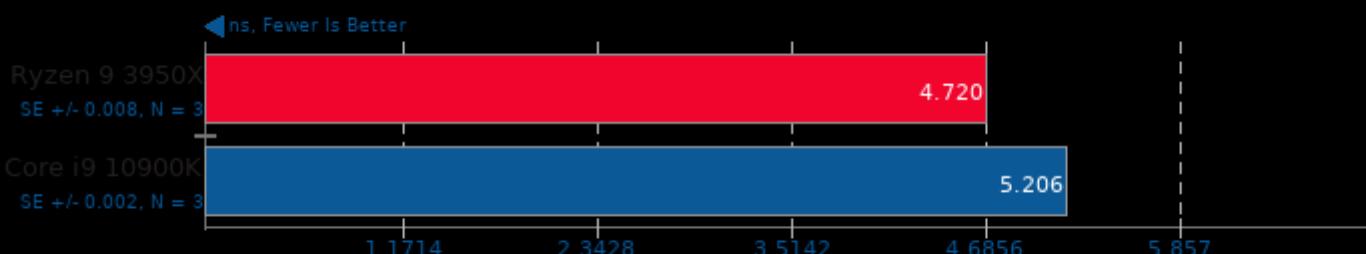
Average Latency Between CPU Cores



1. (CXX) g++ options: -std=c++11 -pthread -O3

Multichase Pointer Chaser

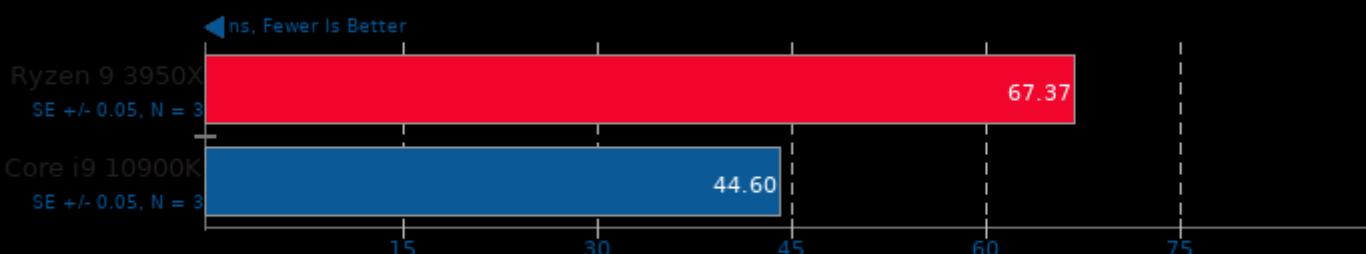
Test: 4MB Array, 64 Byte Stride



1. (CC) gcc options: -O2 -static -pthread -frt

Multichase Pointer Chaser

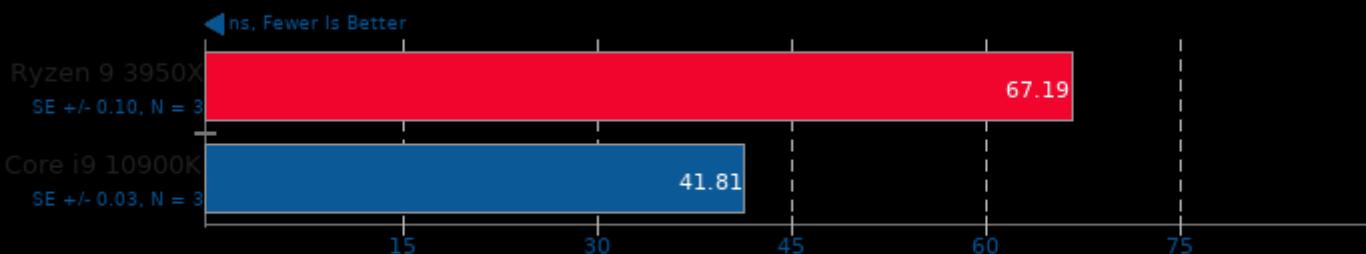
Test: 1GB Array, 256 Byte Stride



1. (CC) gcc options: -O2 -static -pthread -frt

Multichase Pointer Chaser

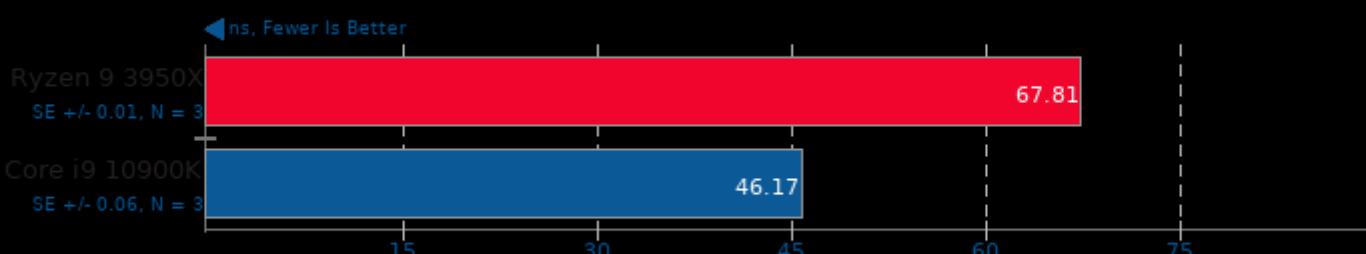
Test: 256MB Array, 256 Byte Stride



1. (CC) gcc options: -O2 -static -pthread -lrt

Multichase Pointer Chaser

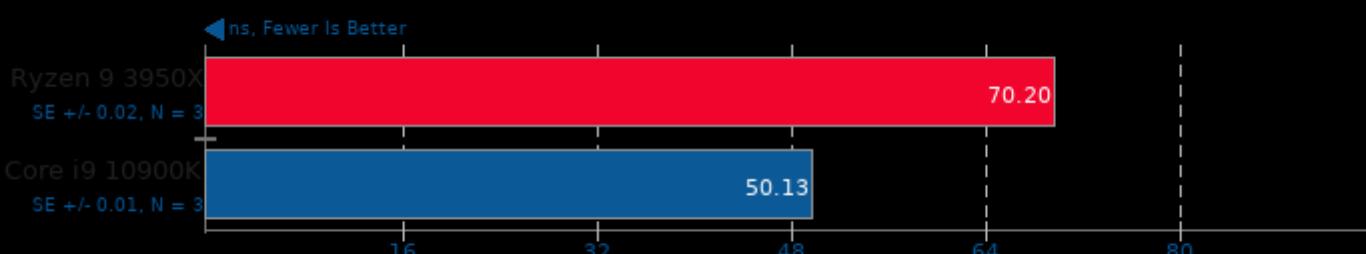
Test: 1GB Array, 256 Byte Stride, 2 Threads



1. (CC) gcc options: -O2 -static -pthread -lrt

Multichase Pointer Chaser

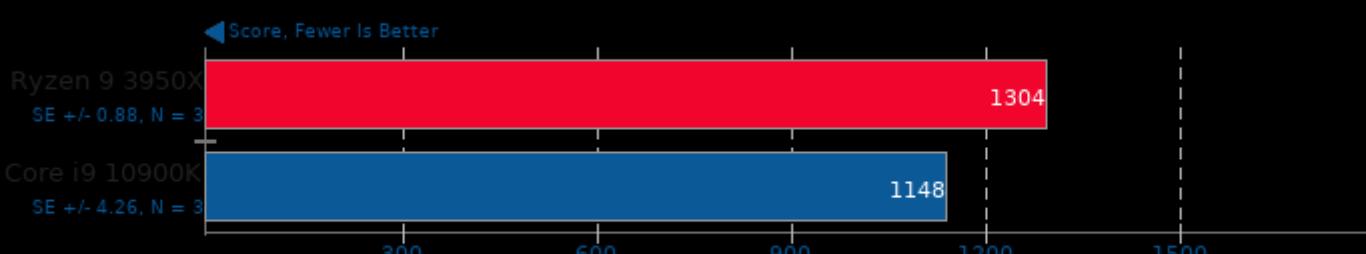
Test: 1GB Array, 256 Byte Stride, 4 Threads



1. (CC) gcc options: -O2 -static -pthread -lrt

Selenium

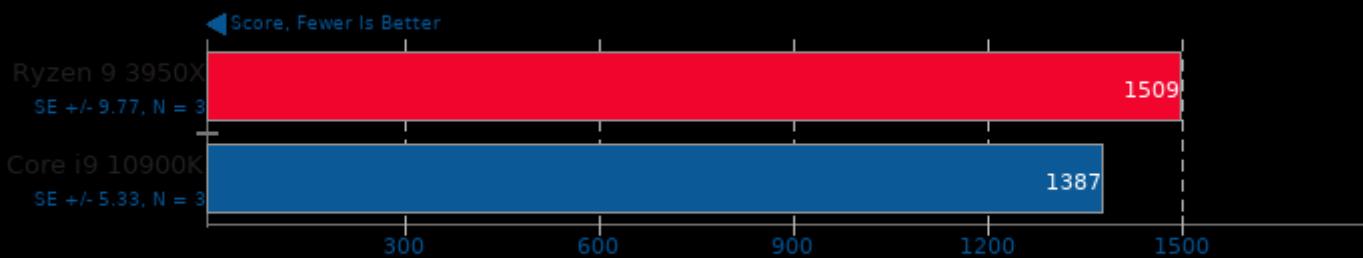
Benchmark: PSPDFKit WASM - Browser: Firefox



1. firefox 76.0.1

Selenium

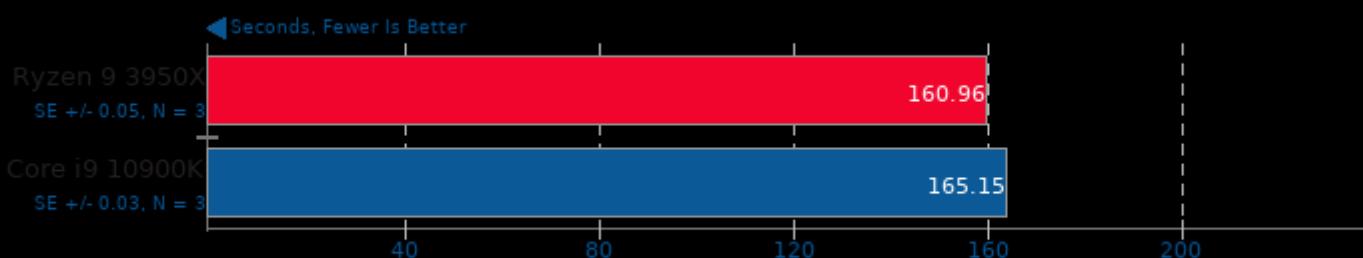
Benchmark: PSPDFKit WASM - Browser: Google Chrome



1. chrome 83.0.4103.61

Parboil 2.5

Test: OpenMP LBM



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

Parboil 2.5

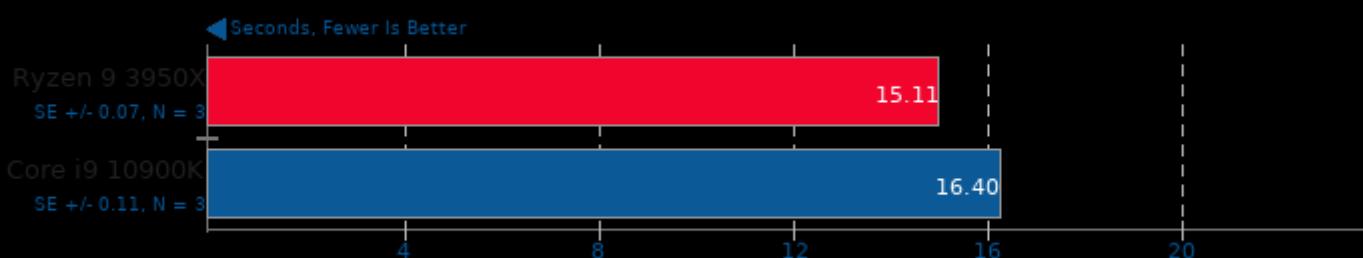
Test: OpenMP CUTCP



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

Parboil 2.5

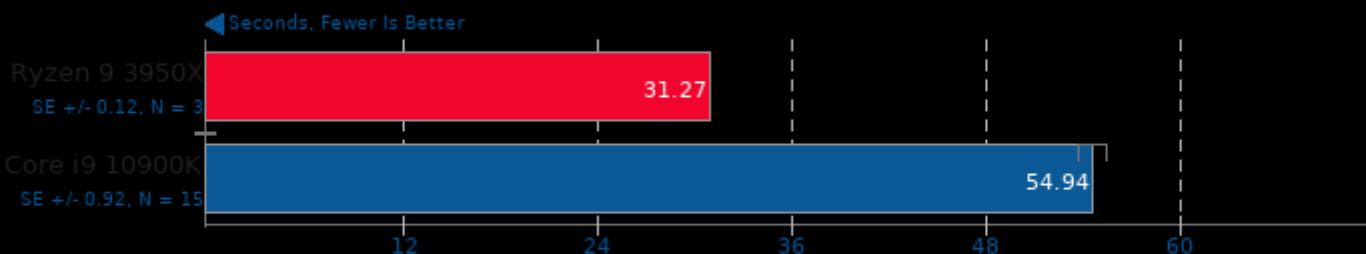
Test: OpenMP Stencil



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

Parboil 2.5

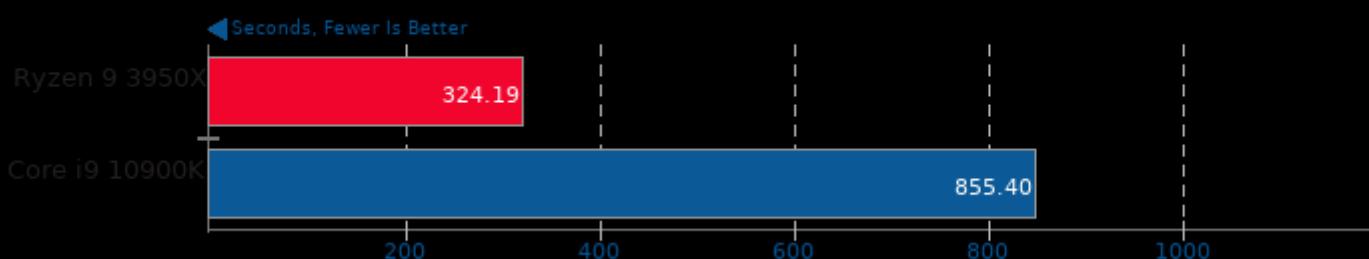
Test: OpenMP MRI Gridding



1. (CXX) g++ options: -lm -lpthread -lgomp -O3 -ffast-math -fopenmp

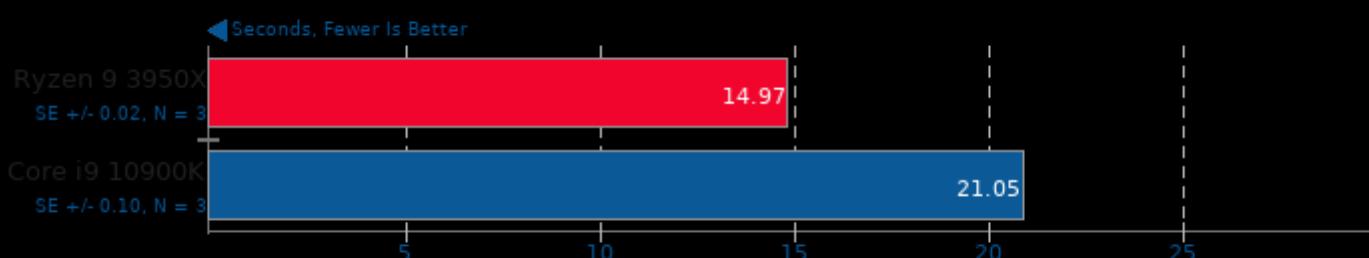
CP2K Molecular Dynamics 6.1

Fayalite-FIST Data



Rodinia 2.4

Test: OpenMP LavaMD



1. (CXX) g++ options: -O2 -fOpenCL

Rodinia 2.4

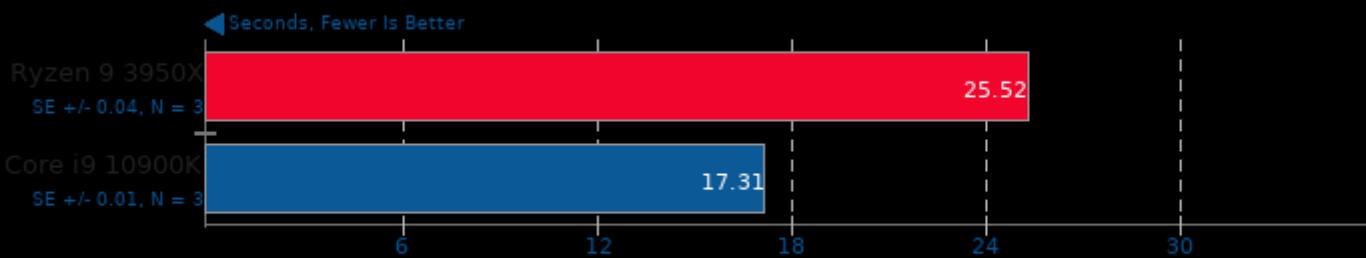
Test: OpenMP CFD Solver



1. (CXX) g++ options: -O2 -fOpenCL

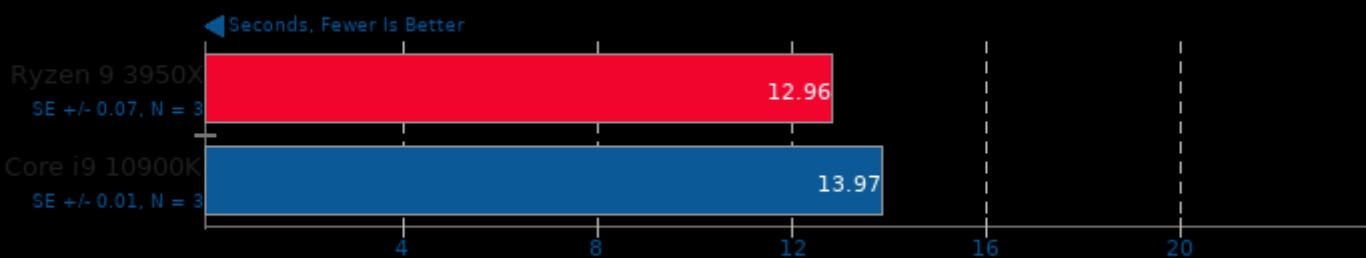
Rodinia 2.4

Test: OpenMP Streamcluster



1. (CXX) g++ options: -O2 -fOpenCL

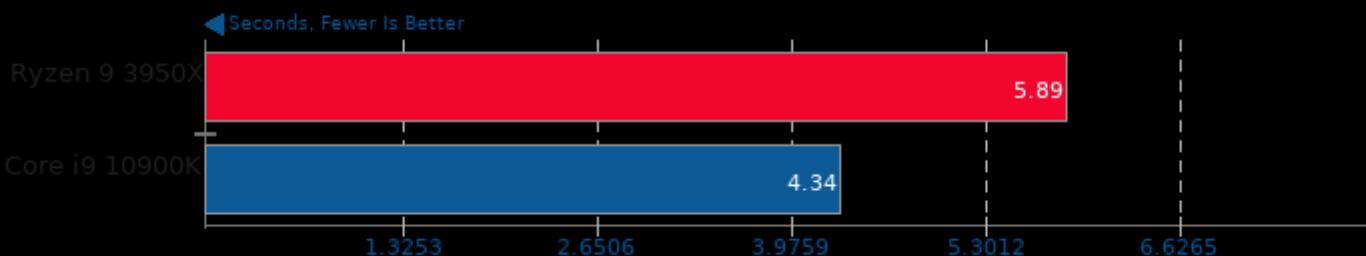
Nebular Empirical Analysis Tool 2020-02-29



1. (F9X) gfortran options: -cpp -ffree-line-length-0 -fsource/ -fopenmp -O3 -fno-backtrace

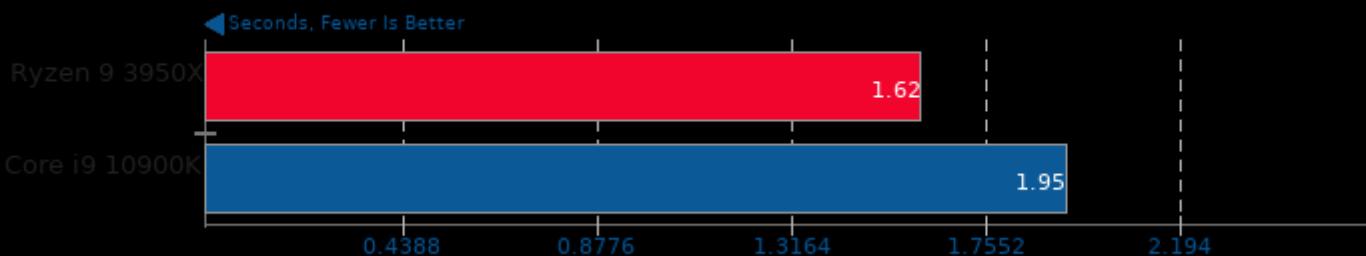
Polyhedron Fortran Benchmarks

Benchmark: ac



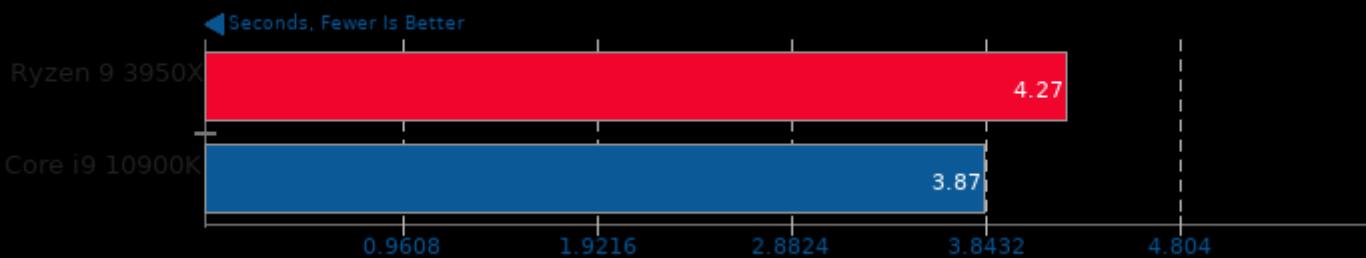
Polyhedron Fortran Benchmarks

Benchmark: air



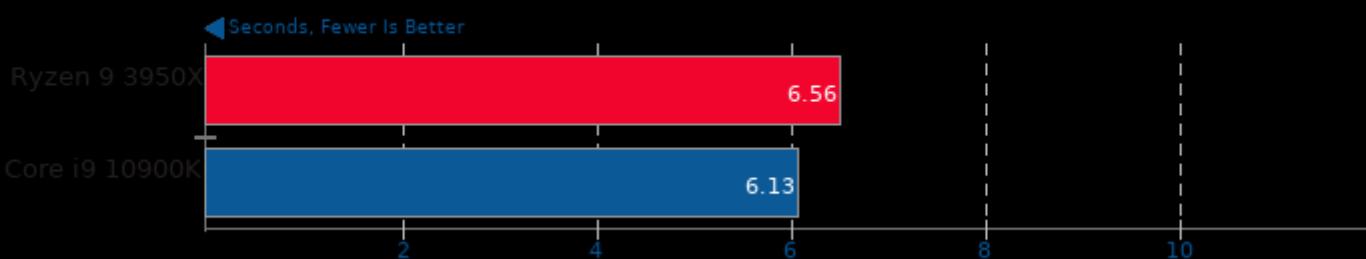
Polyhedron Fortran Benchmarks

Benchmark: mdbx



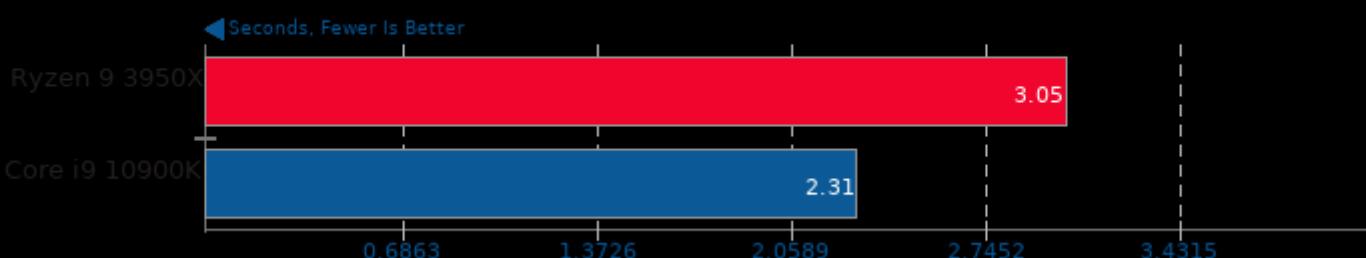
Polyhedron Fortran Benchmarks

Benchmark: doduc



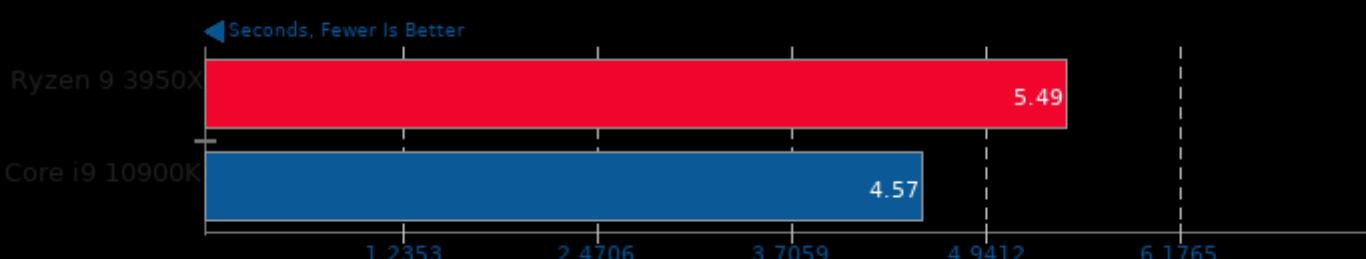
Polyhedron Fortran Benchmarks

Benchmark: linpk



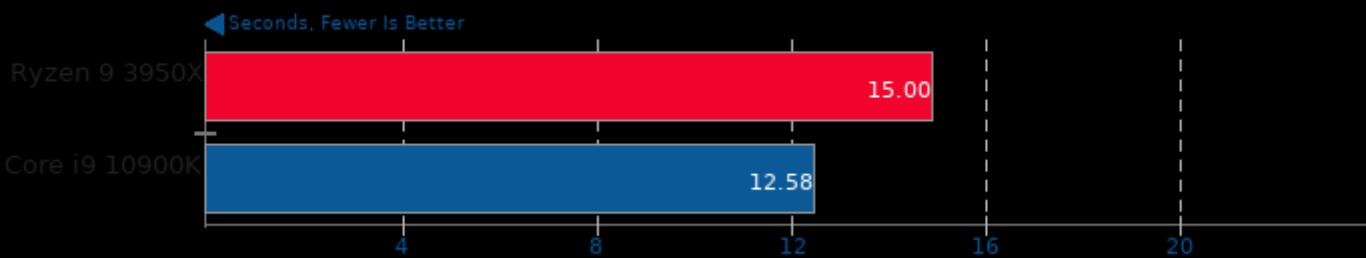
Polyhedron Fortran Benchmarks

Benchmark: aermod



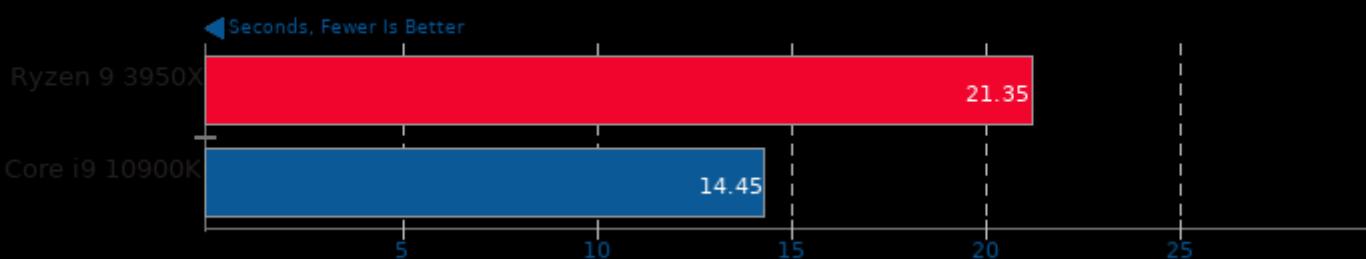
Polyhedron Fortran Benchmarks

Benchmark: rnflow



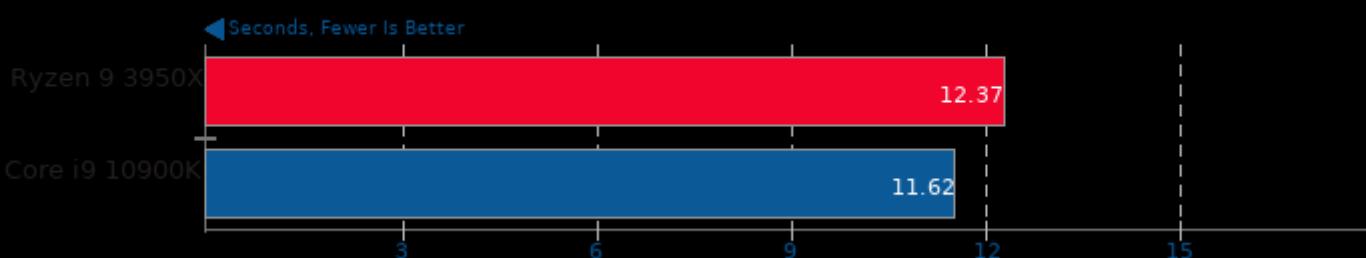
Polyhedron Fortran Benchmarks

Benchmark: induct2



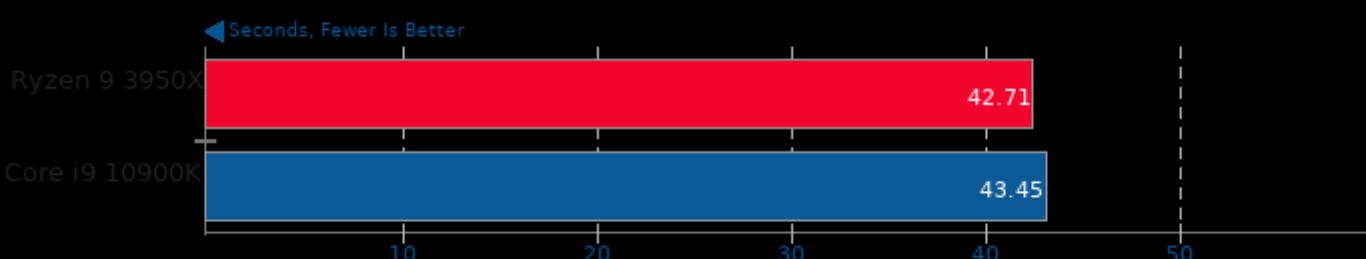
Polyhedron Fortran Benchmarks

Benchmark: protein



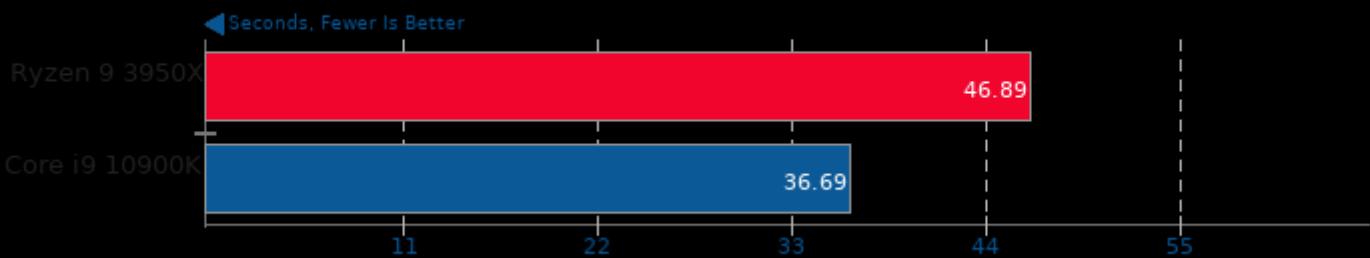
Polyhedron Fortran Benchmarks

Benchmark: channel2



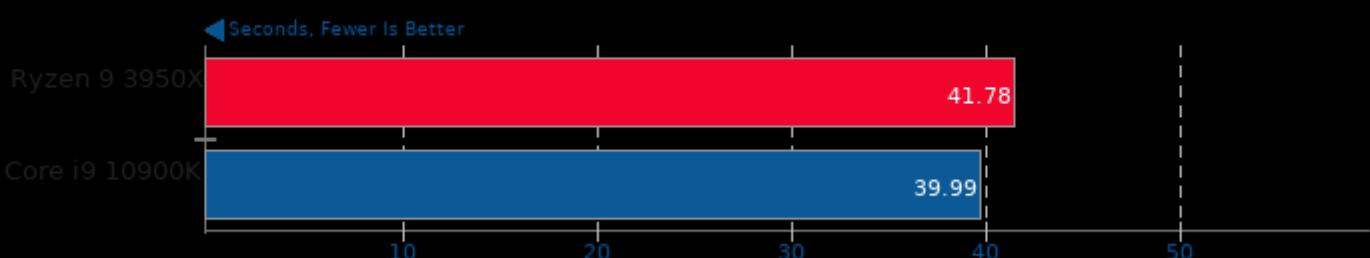
Polyhedron Fortran Benchmarks

Benchmark: fatigue2



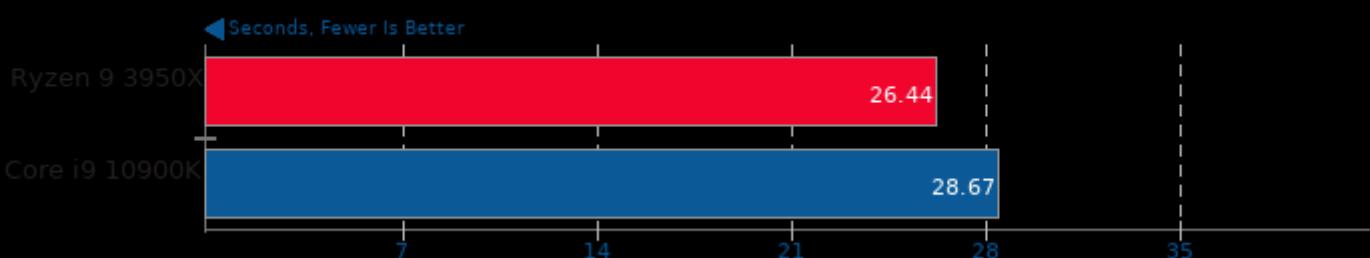
Polyhedron Fortran Benchmarks

Benchmark: gas_dyn2



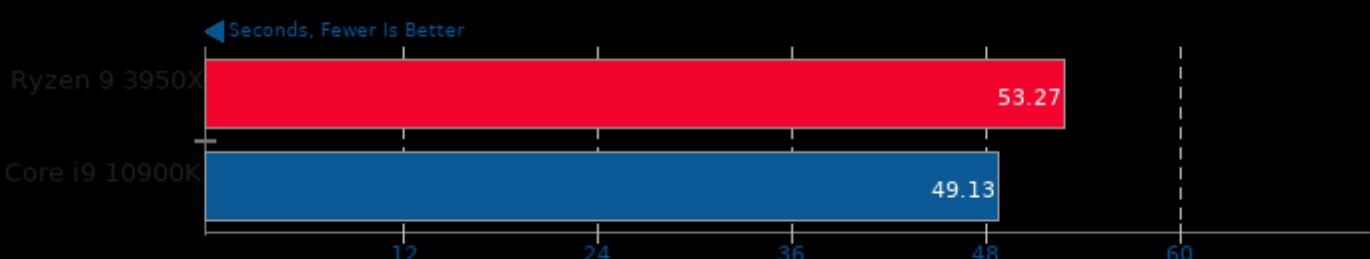
Polyhedron Fortran Benchmarks

Benchmark: test_fpu2



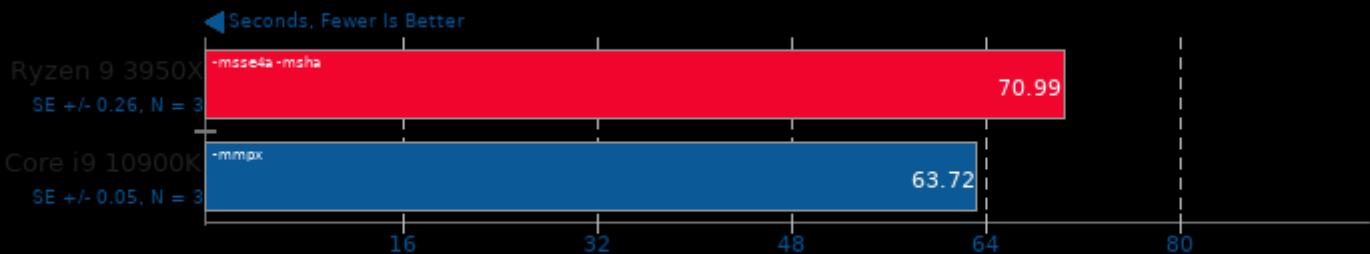
Polyhedron Fortran Benchmarks

Benchmark: mp_prop_design



Timed MrBayes Analysis 3.2.7

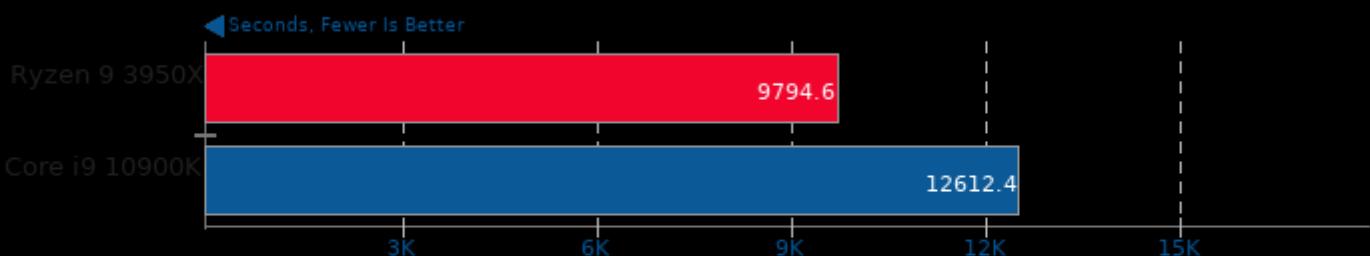
Primate Phylogeny Analysis



1. (CC) gcc options: -mmmx -msse -msse2 -msse3 -msse3 -msse4.1 -msse4.2 -maes -mavx -mfma -mavx2 -mrdrnd -mbmi -mbmi2 -madx -mabm -O3 -std=c11

NWChem 7.0

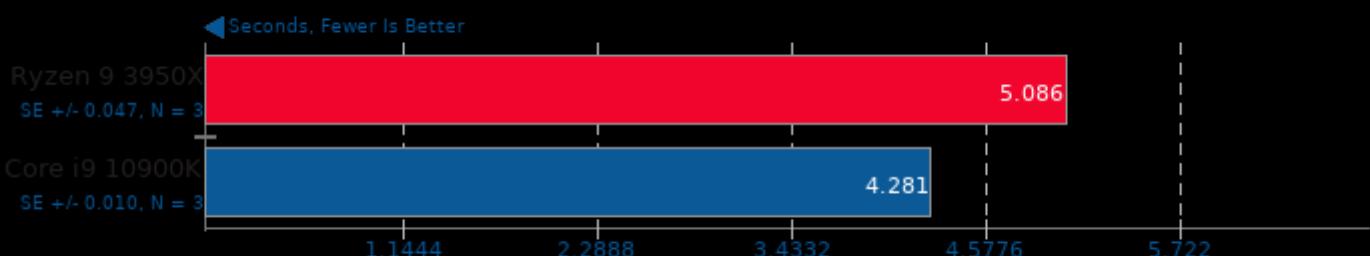
Input: C240 Buckyball



1. (F9X) gfortran options: -lnwctask -lccsd -lmcsfc -lscfci -lmp2 -lmoints -lstepper -ldriver -loptim -lnwdft -lgradients -lcphf -lesp -lddscf -ldangchang -lgue

Timed HMMer Search 2.3.2

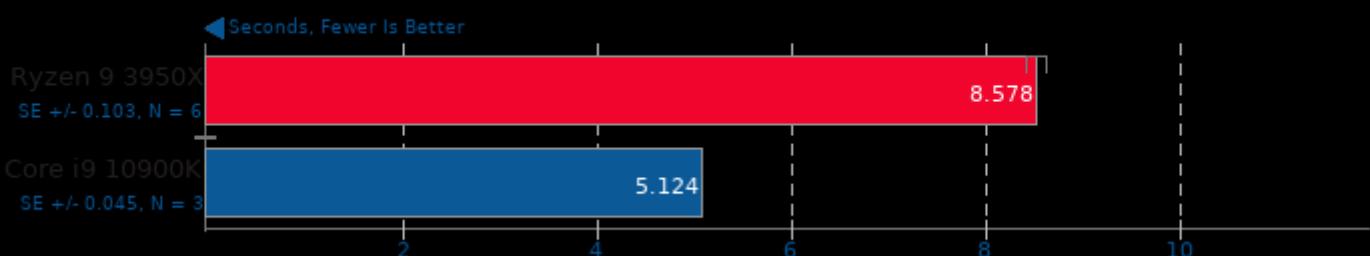
Pfam Database Search



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

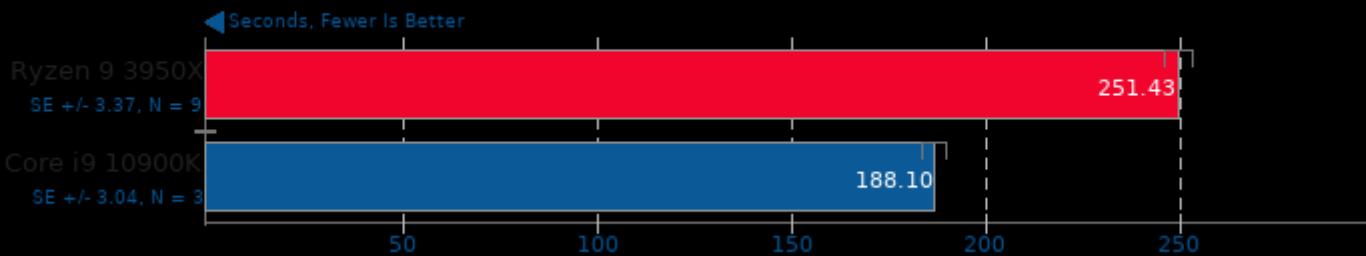
Bork File Encrypter 1.4

File Encryption Time



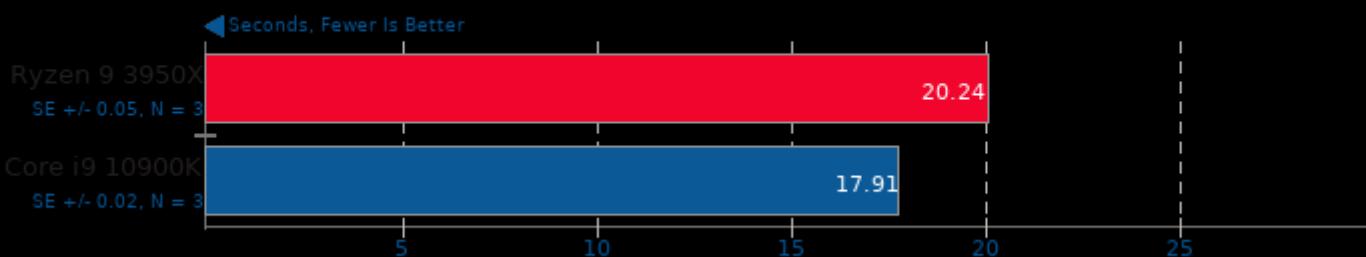
Java Gradle Build

Gradle Build: Reactor



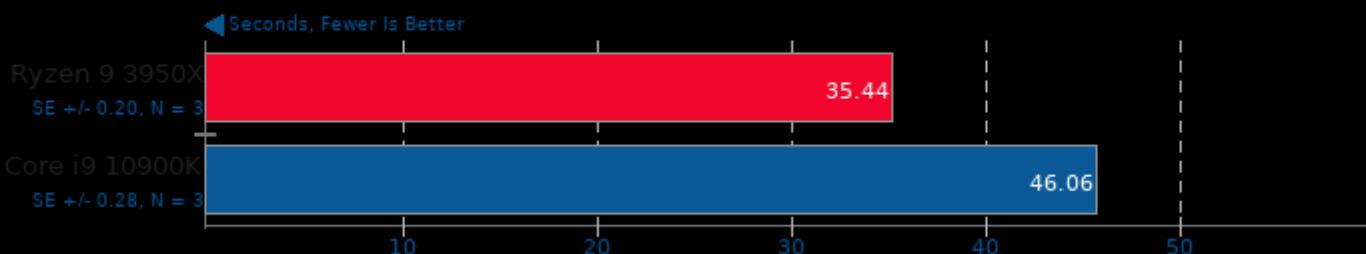
Timed Apache Compilation 2.4.41

Time To Compile



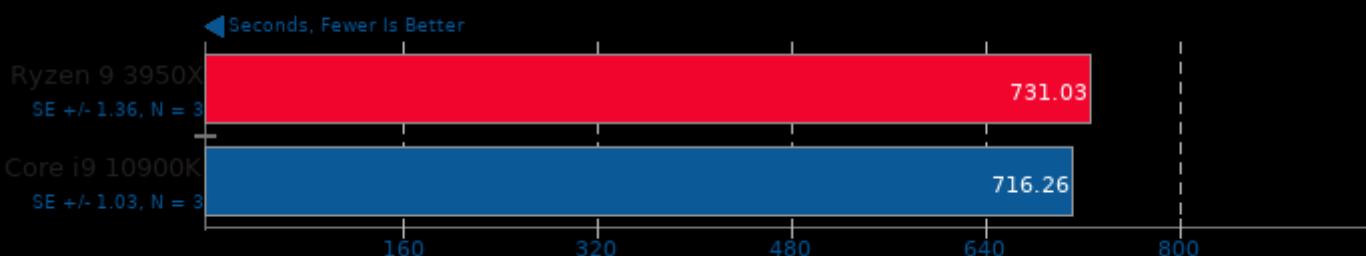
Timed FFmpeg Compilation 4.2.2

Time To Compile



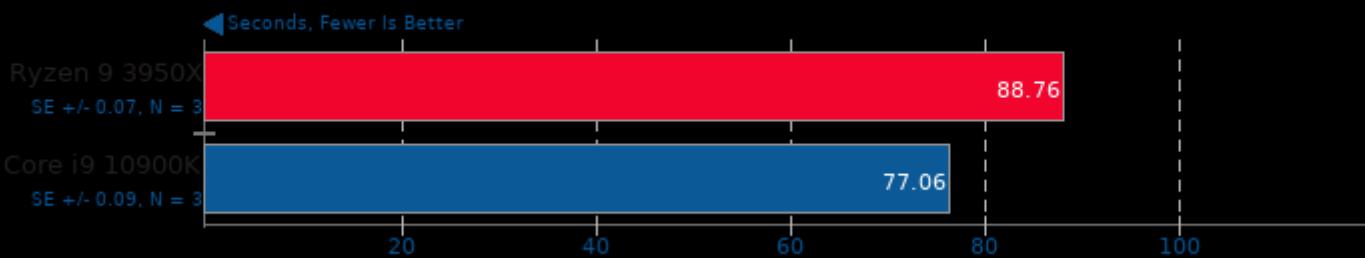
Timed GCC Compilation 9.3.0

Time To Compile



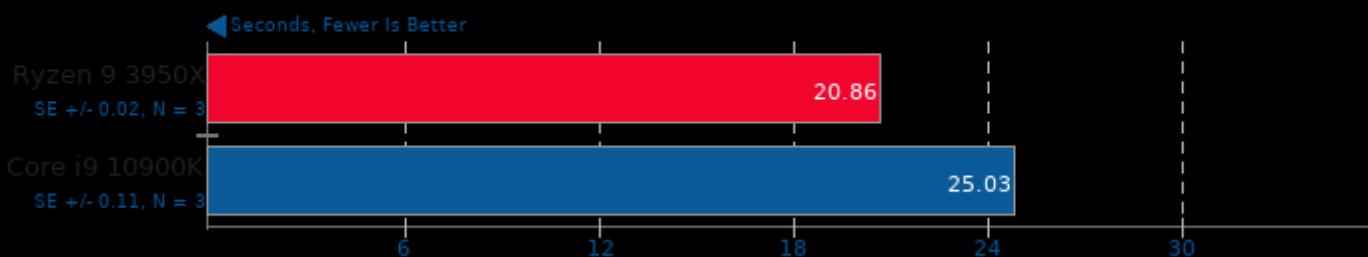
Timed GDB GNU Debugger Compilation 9.1

Time To Compile



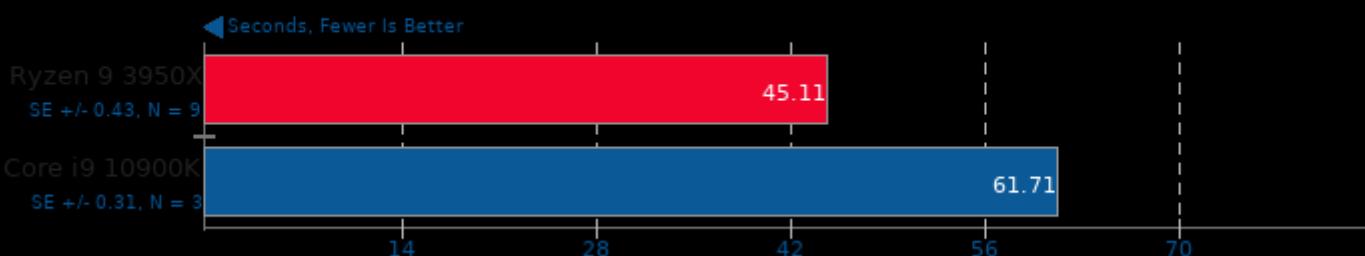
Timed ImageMagick Compilation 6.9.0

Time To Compile



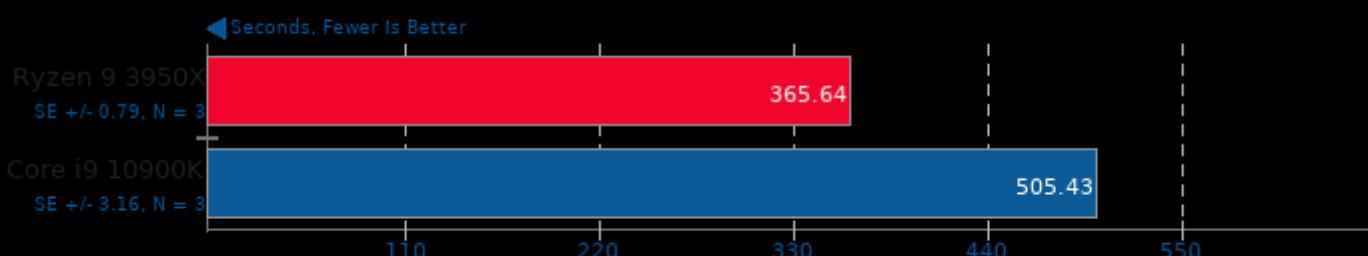
Timed Linux Kernel Compilation 5.4

Time To Compile



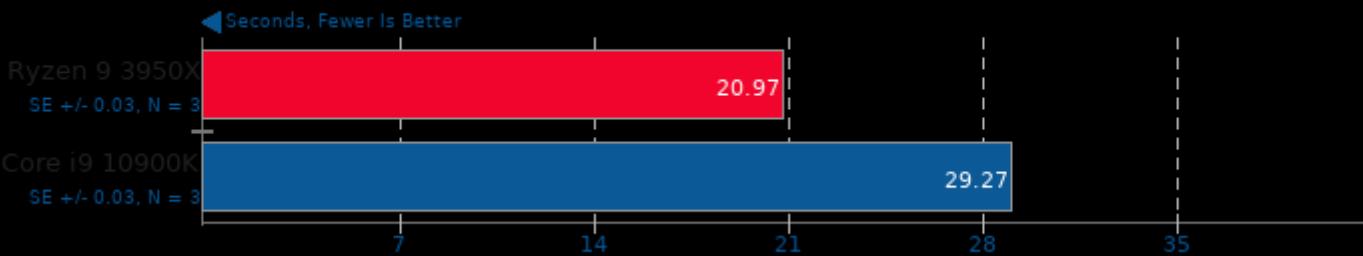
Timed LLVM Compilation 10.0

Time To Compile



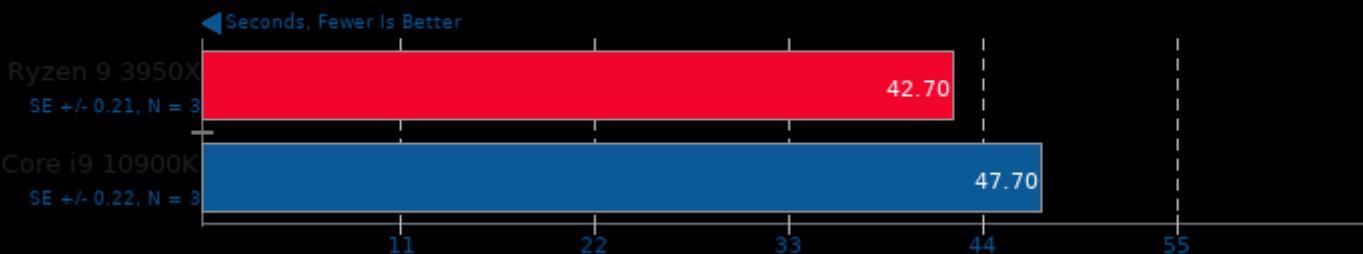
Timed MPlayer Compilation 1.4

Time To Compile



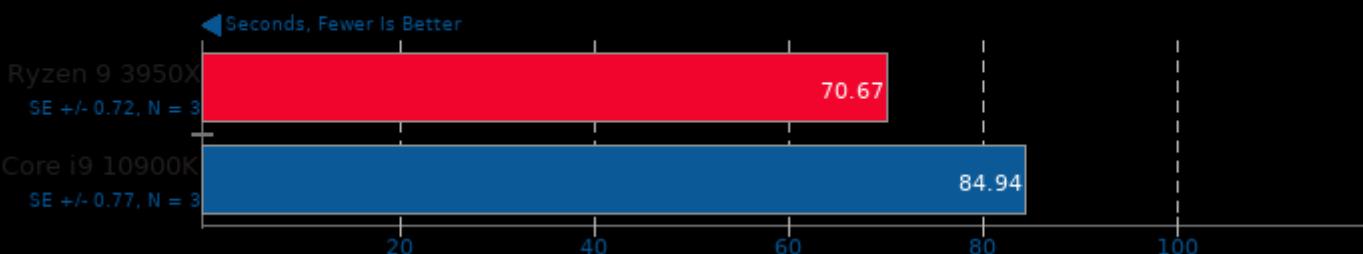
Timed PHP Compilation 7.4.2

Time To Compile



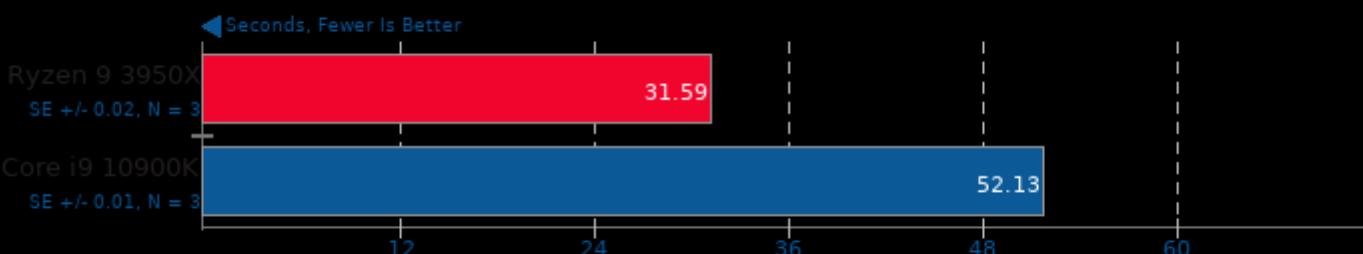
Build2 0.12

Time To Compile



C-Ray 1.1

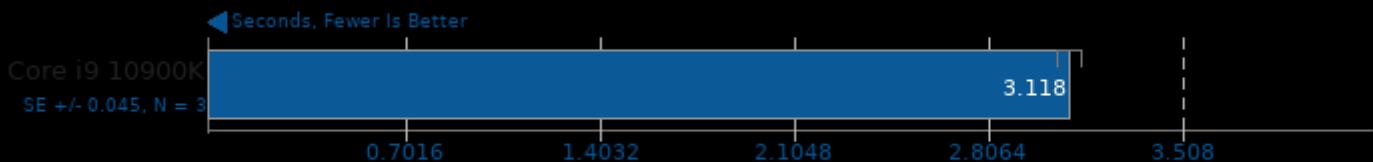
Total Time - 4K, 16 Rays Per Pixel



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

Parallel BZIP2 Compression 1.1.12

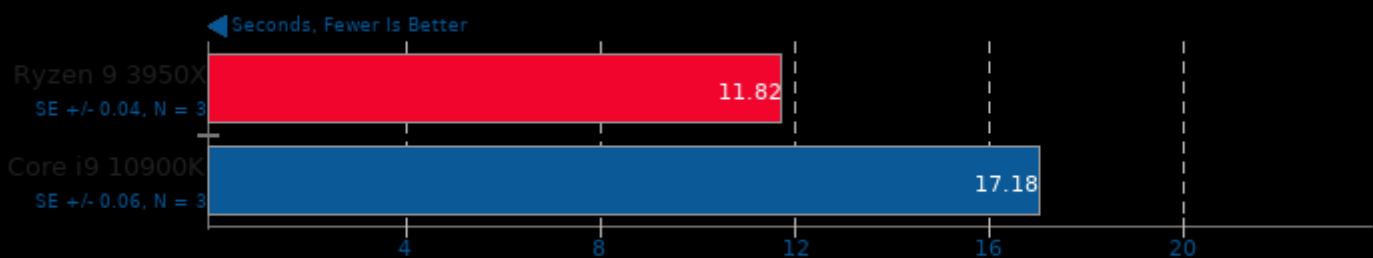
256MB File Compression



l. (CXX) g++ options: -O2 -pthread -lbz2 -lpthread

Primesieve 7.4

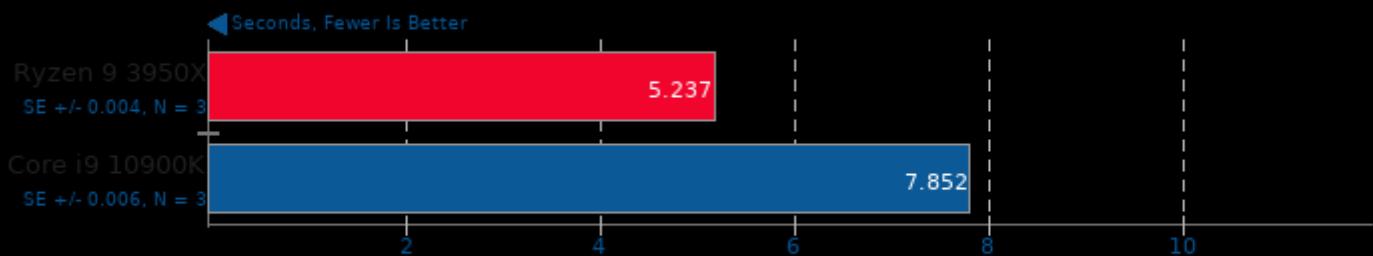
1e12 Prime Number Generation



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

Smallpt 1.0

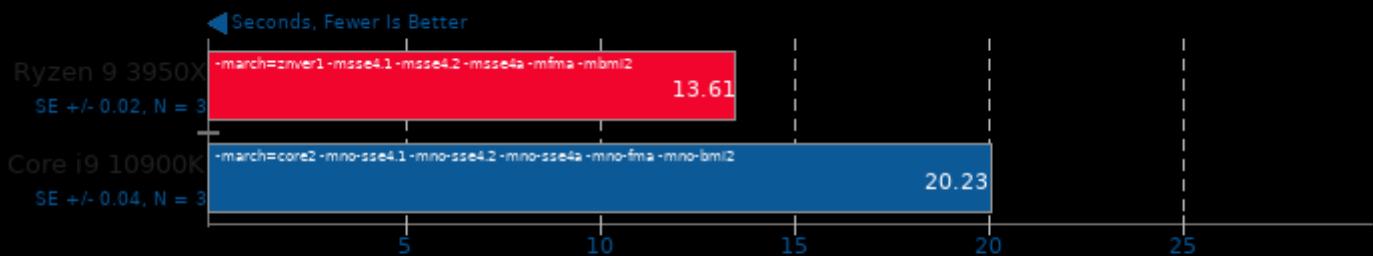
Global Illumination Renderer; 128 Samples



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

Tungsten Renderer 0.2.2

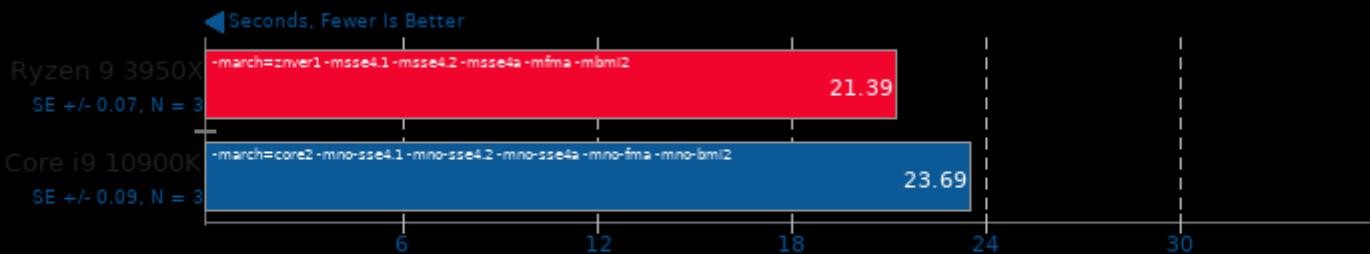
Scene: Hair



l. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512f -mno-avx512vl -mno-avx512pf -mno-

Tungsten Renderer 0.2.2

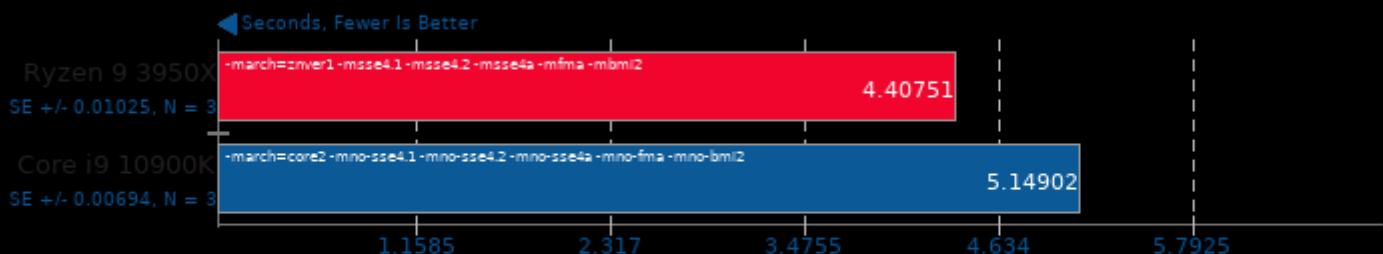
Scene: Water Caustic



1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512f -mno-avx512vl -mno-avx512pf -mno-

Tungsten Renderer 0.2.2

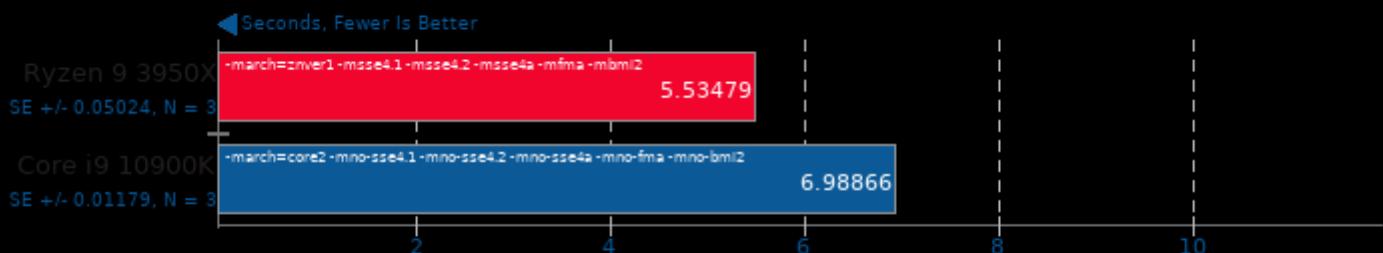
Scene: Non-Exponential



1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512f -mno-avx512vl -mno-avx512pf -mno-

Tungsten Renderer 0.2.2

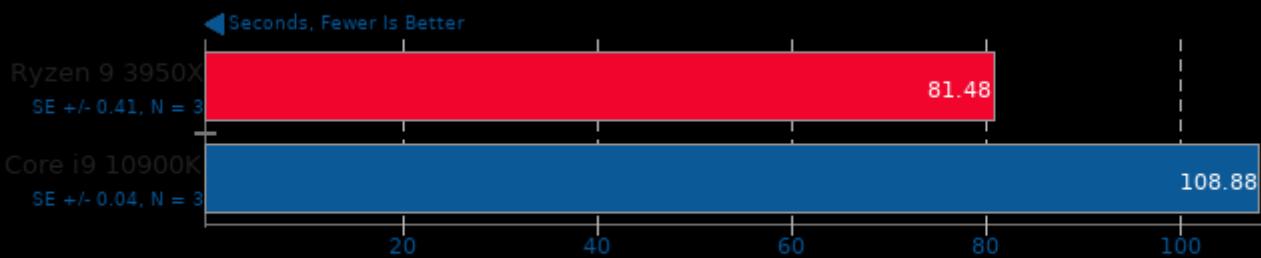
Scene: Volumetric Caustic



1. (CXX) g++ options: -std=c++0x -msse2 -msse3 -mssse3 -mno-avx -mno-avx2 -mno-xop -mno-fma4 -mno-avx512f -mno-avx512vl -mno-avx512pf -mno-

YafaRay 3.4.1

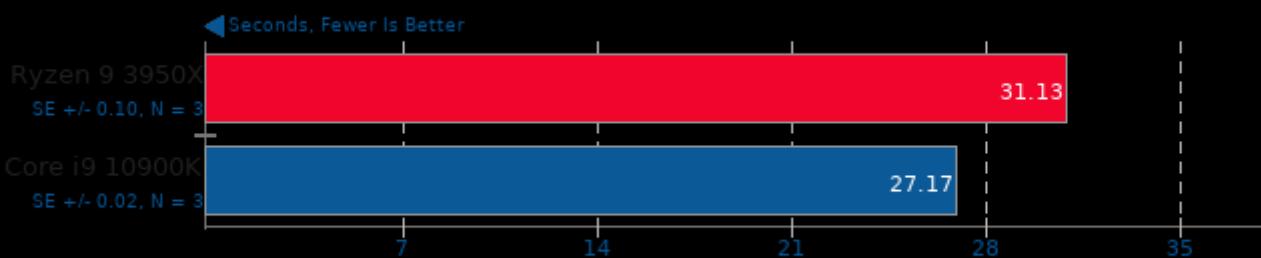
Total Time For Sample Scene



1. (CXX) g++ options: -std=c++11 -O3 -ffast-math -rdynamic -ldl -lmath -lmlmf -lex -lHalf -lz -lmlThread -lxml2 -lfreetype -lpthread

AOBench

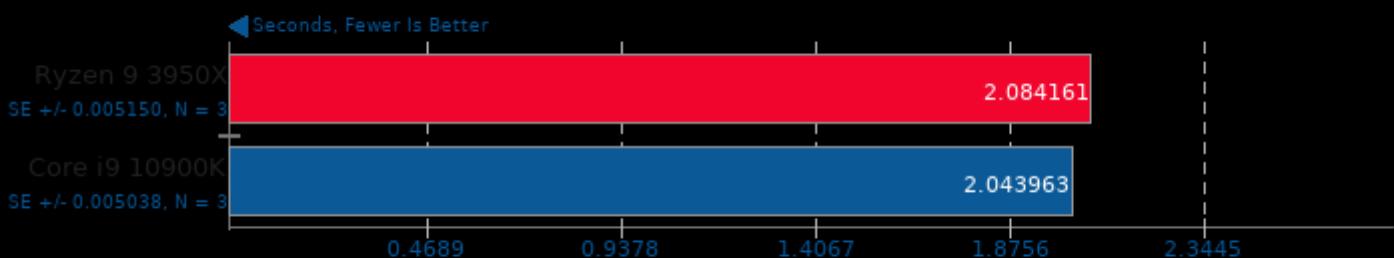
Size: 2048 x 2048 - Total Time



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

Bullet Physics Engine 2.81

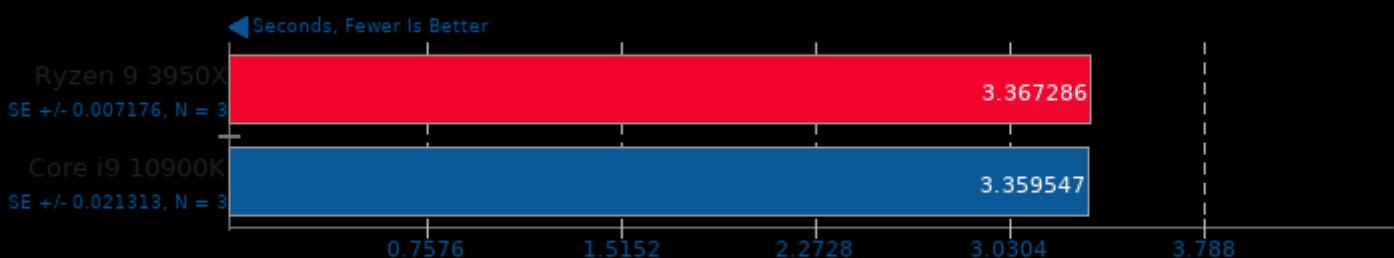
Test: Raytests



1. (CXX) g++ options: -O3 -rdynamic -lglut -lGL -lGLU

Bullet Physics Engine 2.81

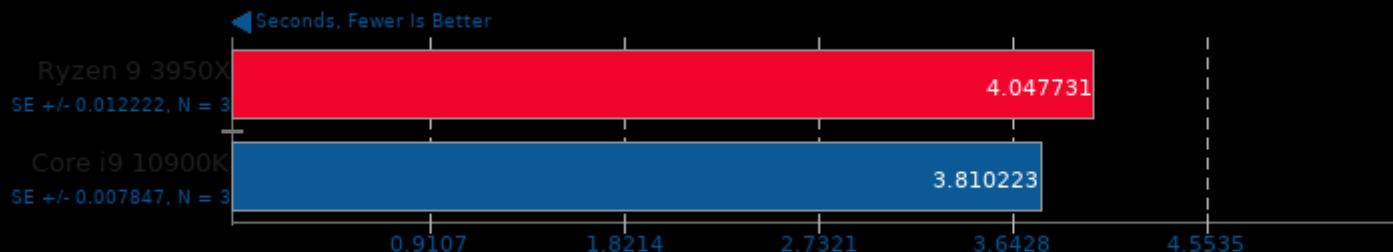
Test: 3000 Fall



1. (CXX) g++ options: -O3 -rdynamic -lglut -lGL -lGLU

Bullet Physics Engine 2.81

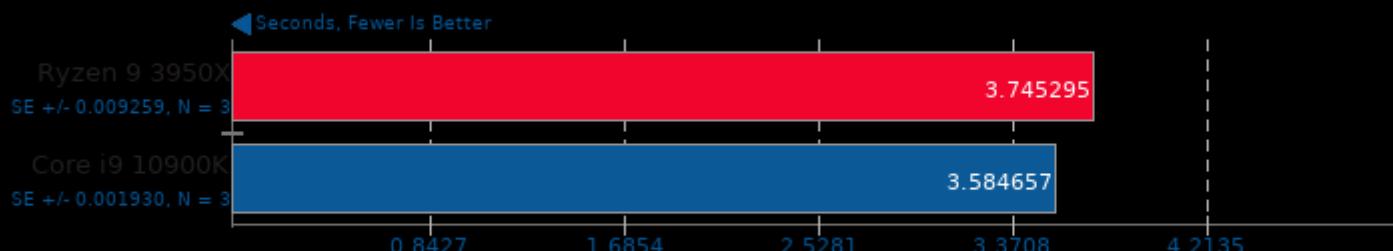
Test: 1000 Stack



1. (CXX) g++ options: -O3 -rdynamic -lglut -lGL -lGLU

Bullet Physics Engine 2.81

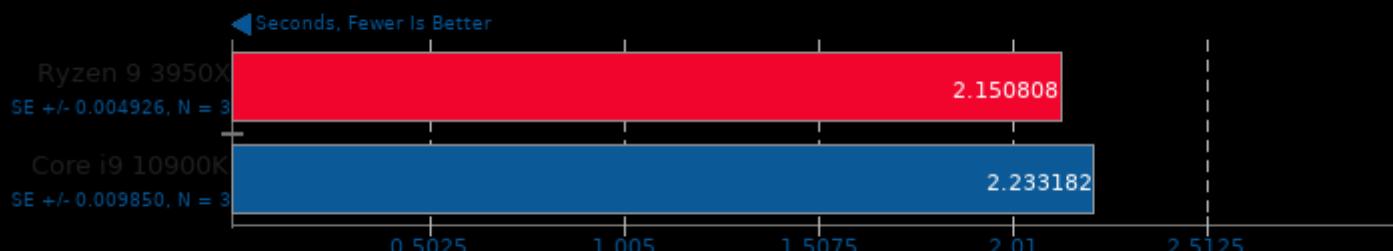
Test: 1000 Convex



1. (CXX) g++ options: -O3 -rdynamic -lglut -lGL -lGLU

Bullet Physics Engine 2.81

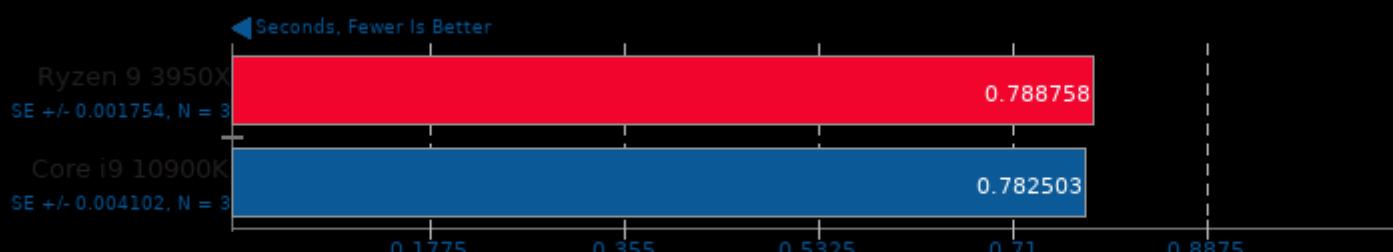
Test: 136 Ragdolls



1. (CXX) g++ options: -O3 -rdynamic -lglut -lGL -lGLU

Bullet Physics Engine 2.81

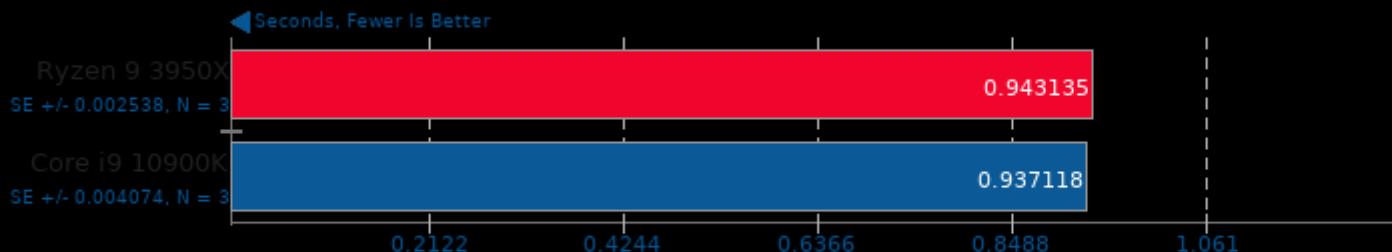
Test: Prim Trimesh



1. (CXX) g++ options: -O3 -rdynamic -lglut -lGL -lGLU

Bullet Physics Engine 2.81

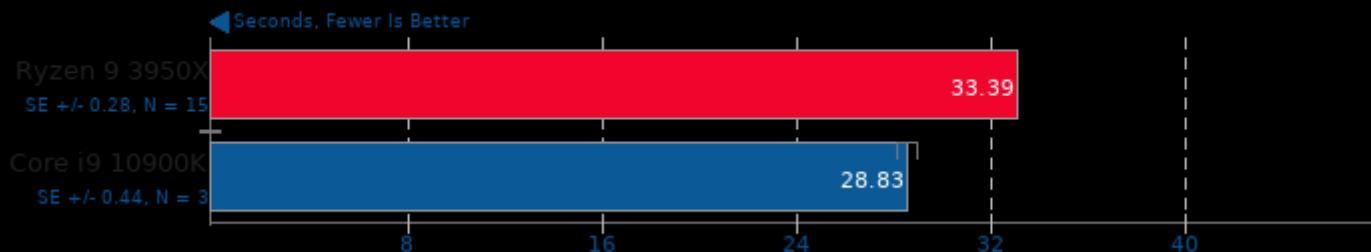
Test: Convex Trimesh



1. (CXX) g++ options: -O3 -rdynamic -lglut -IGL -IGLU

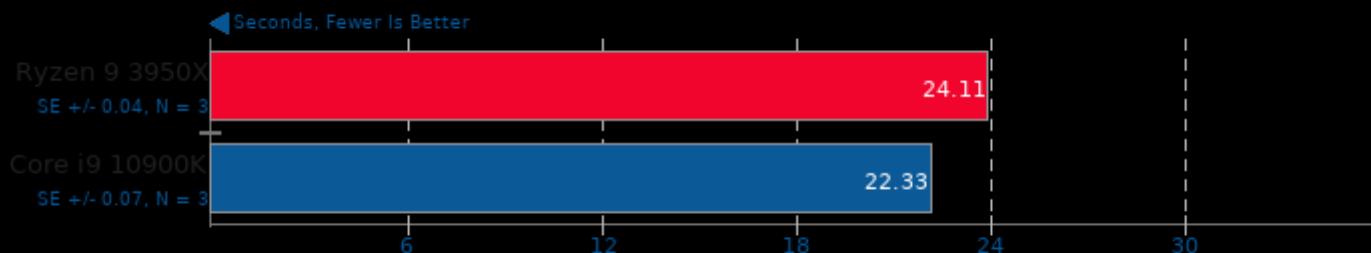
Gzip Compression

Linux Source Tree Archiving To .tar.gz



XZ Compression 5.2.4

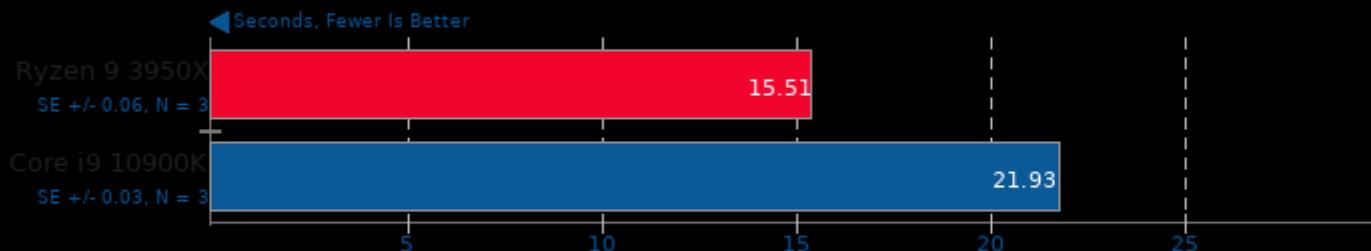
Compressing ubuntu-16.04.3-server-i386.img, Compression Level 9



1. (CC) gcc options: -pthread -fvisibility=hidden -O2

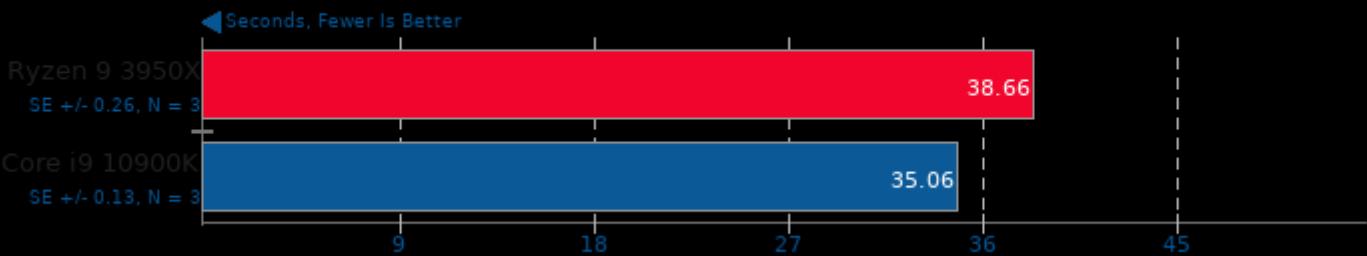
Zstd Compression 1.3.4

Compressing ubuntu-16.04.3-server-i386.img, Compression Level 19



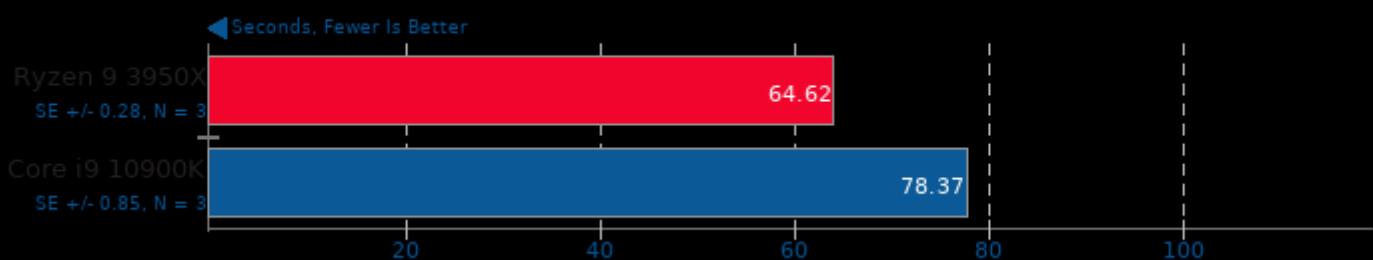
1. (CC) gcc options: -O3 -pthread -lz -lzma

Cython benchmark 0.27



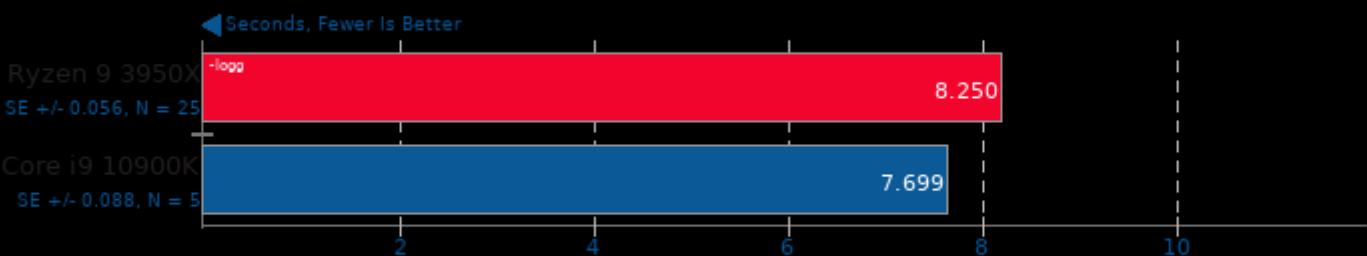
DeepSpeech 0.6

Acceleration: CPU



FLAC Audio Encoding 1.3.2

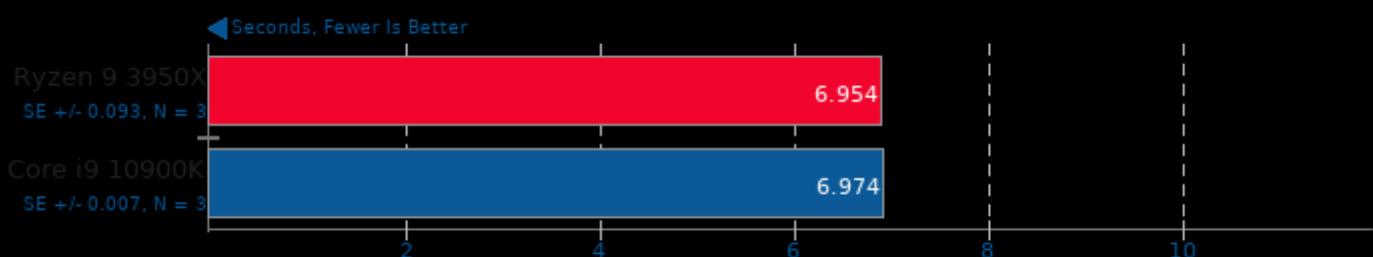
WAV To FLAC



1. (CXX) g++ options: -O2 -fvisibility=hidden -fno-rtti

LAME MP3 Encoding 3.100

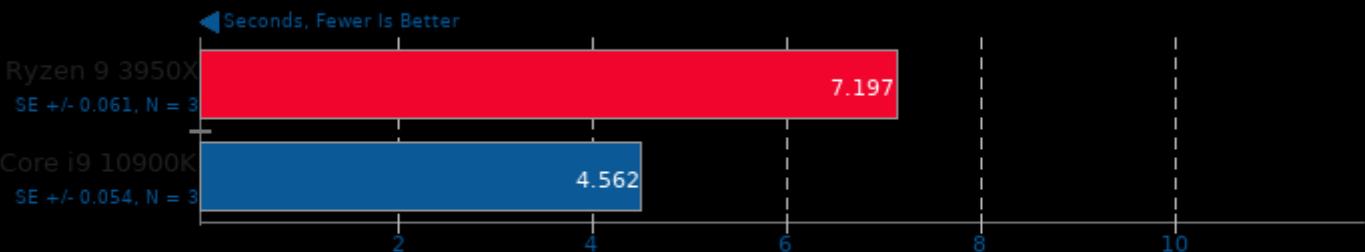
WAV To MP3



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

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 -lxcb-shm -lasound -lSDL2 -lsndio -l

GnuPG 1.4.22

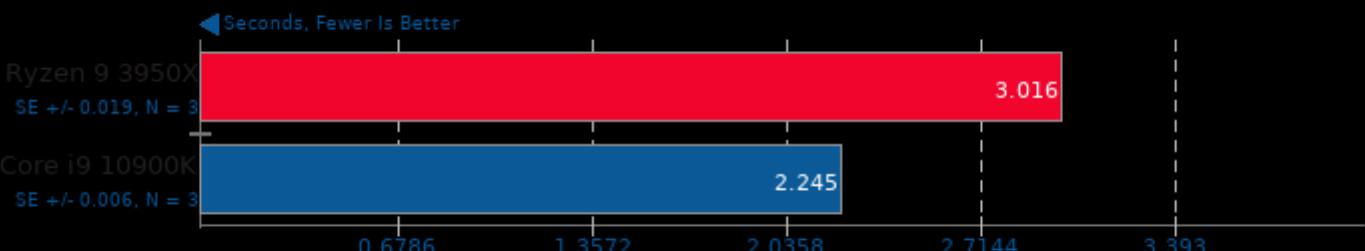
2GB File Encryption



1. (CC) gcc options: -O2 -MT -MD -MP -MF

Hackbench

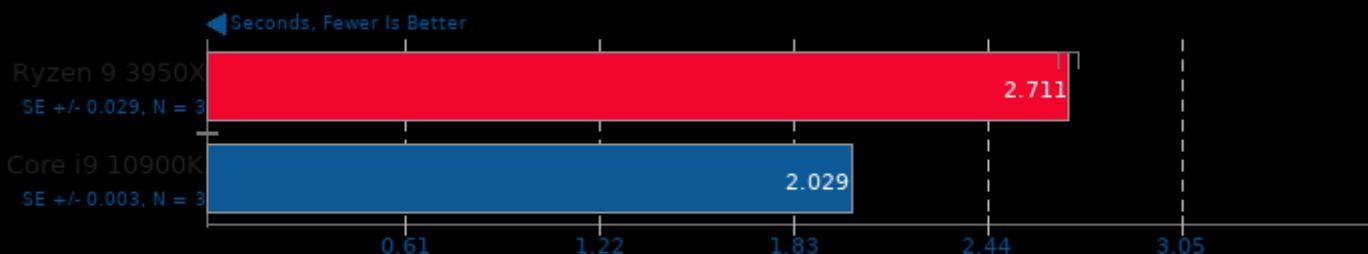
Count: 1 - Type: Thread



1. (CC) gcc options: -lpthread

Hackbench

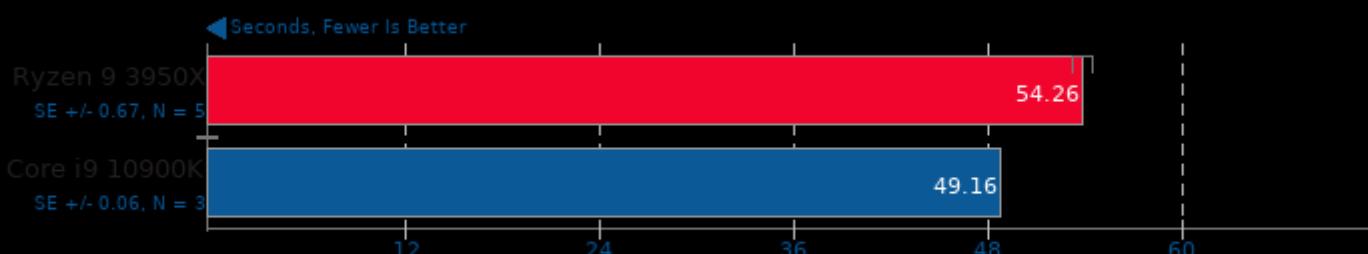
Count: 1 - Type: Process



1. (CC) gcc options: -lpthread

Hackbench

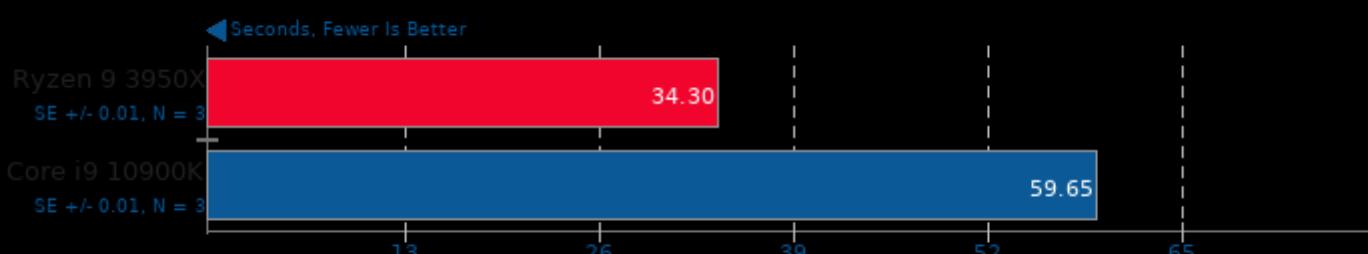
Count: 32 - Type: Process



1. (CC) gcc options: -lpthread

m-queens 1.2

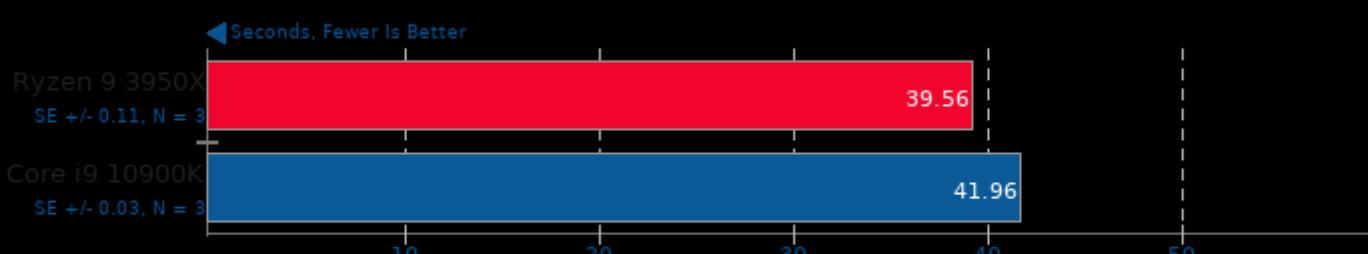
Time To Solve



1. (CXX) g++ options: -fopenmp -O2 -march=native

Minion 1.8

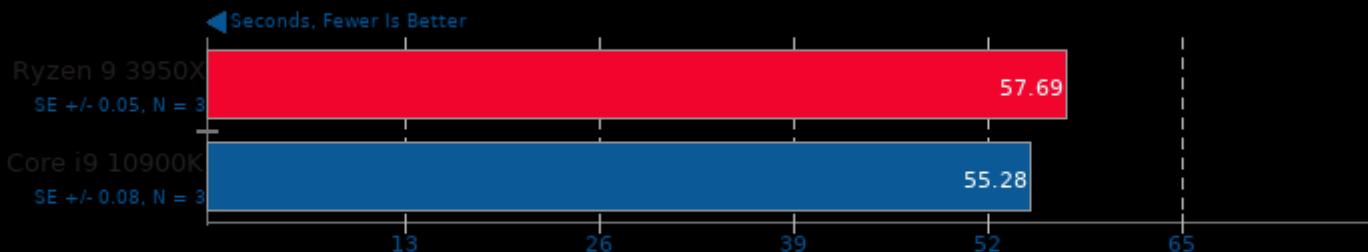
Benchmark: Graceful



1. (CXX) g++ options: -std=gnu++11 -O3 -fomit-frame-pointer -rdynamic

Minion 1.8

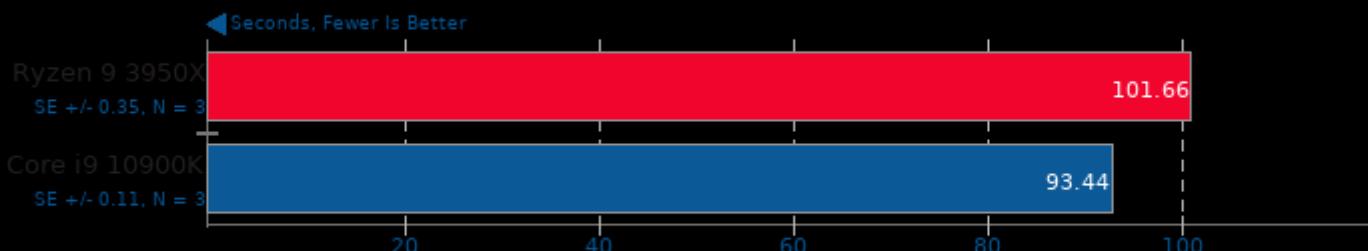
Benchmark: Solitaire



1. (CXX) g++ options: -std=gnu++11 -O3 -fomit-frame-pointer -rdynamic

Minion 1.8

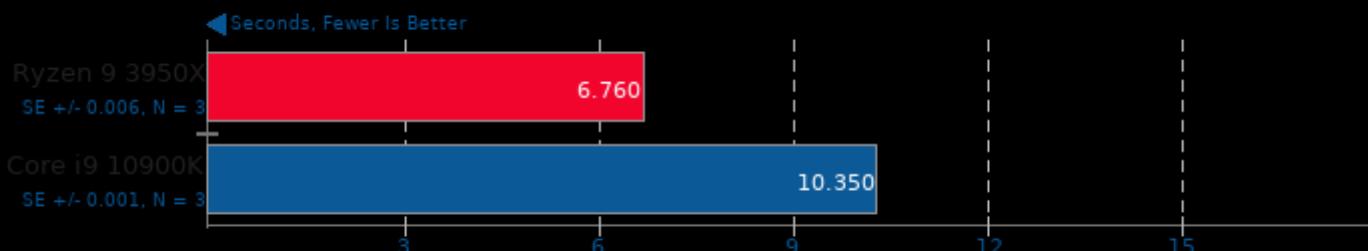
Benchmark: Quasigroup



1. (CXX) g++ options: -std=gnu++11 -O3 -fomit-frame-pointer -rdynamic

N-Queens 1.0

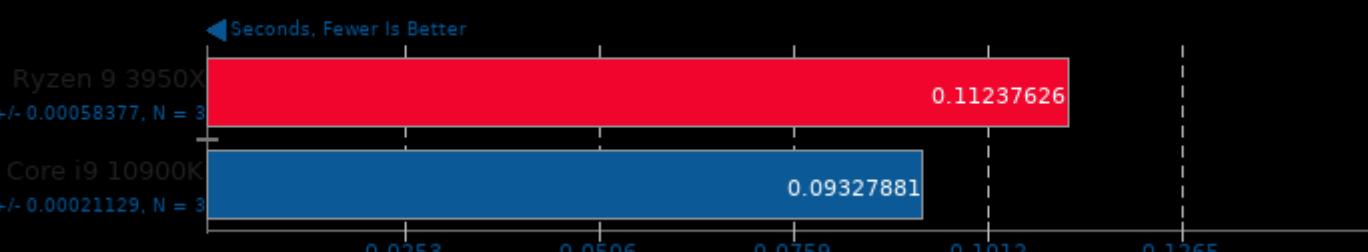
Elapsed Time



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

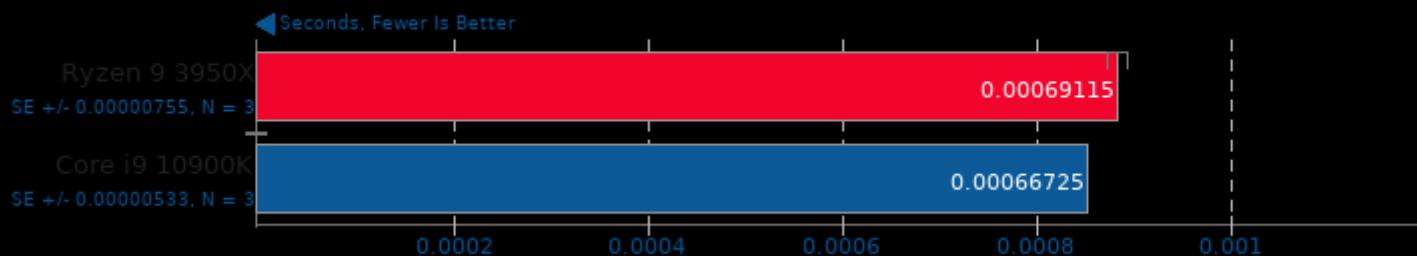
Perl Benchmarks

Test: Pod2html



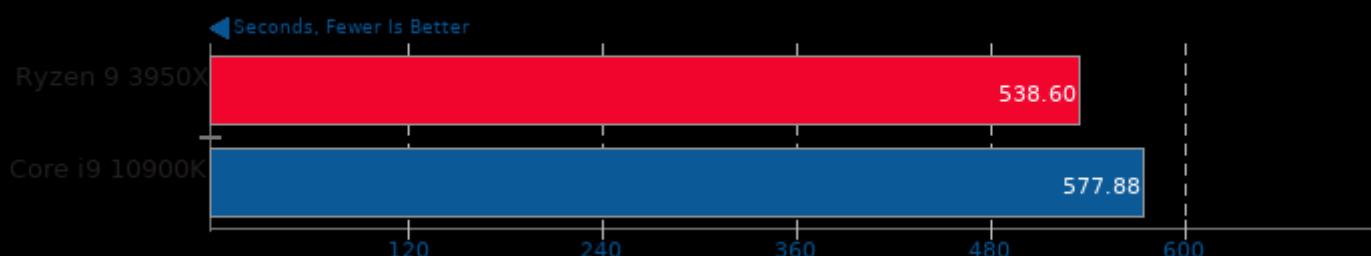
Perl Benchmarks

Test: Interpreter



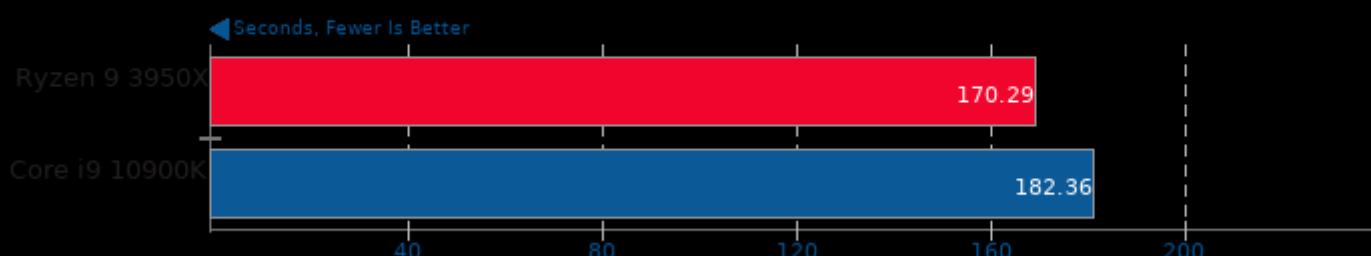
Radiance Benchmark 5.0

Test: Serial



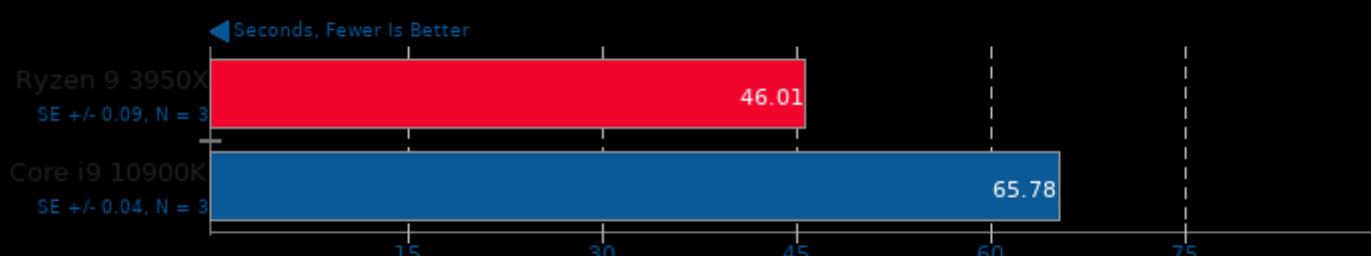
Radiance Benchmark 5.0

Test: SMP Parallel



Tachyon 0.99b6

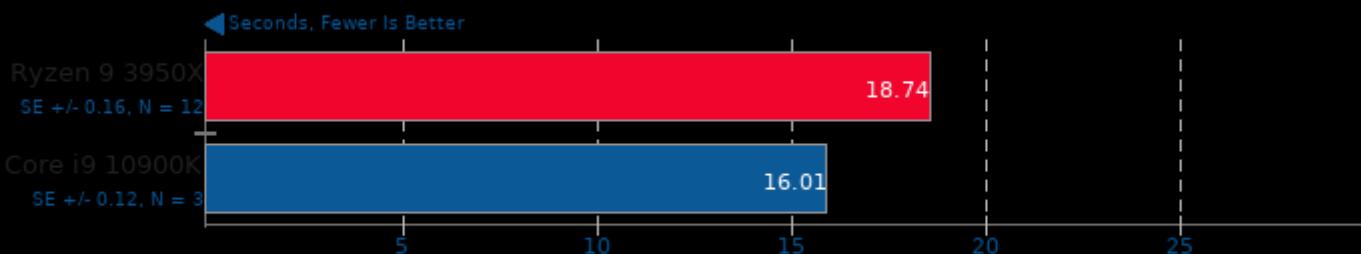
Total Time



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

G'MIC

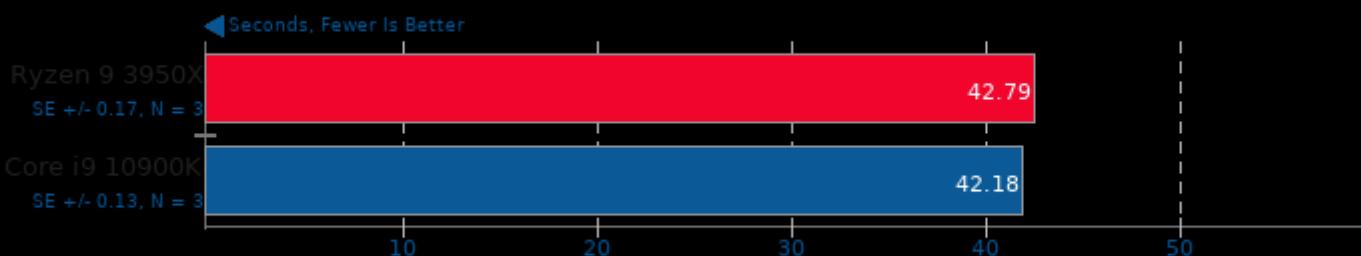
Test: Plotting Isosurface Of A 3D Volume, 1000 Times



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

Basis Universal 1.12

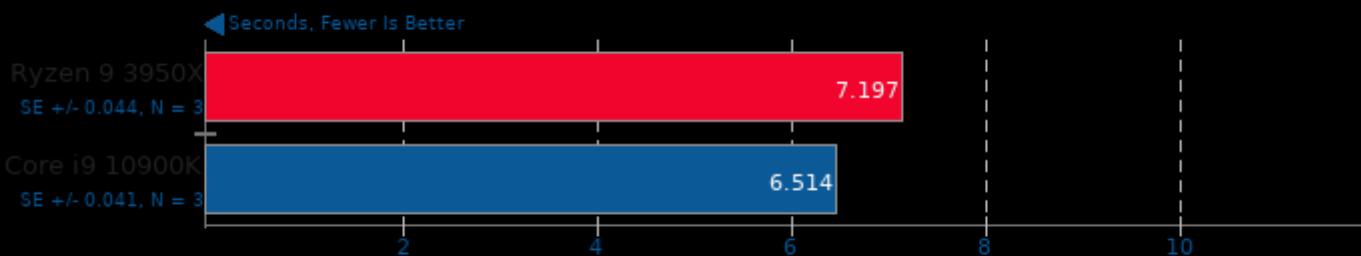
Settings: ETC1S



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

Basis Universal 1.12

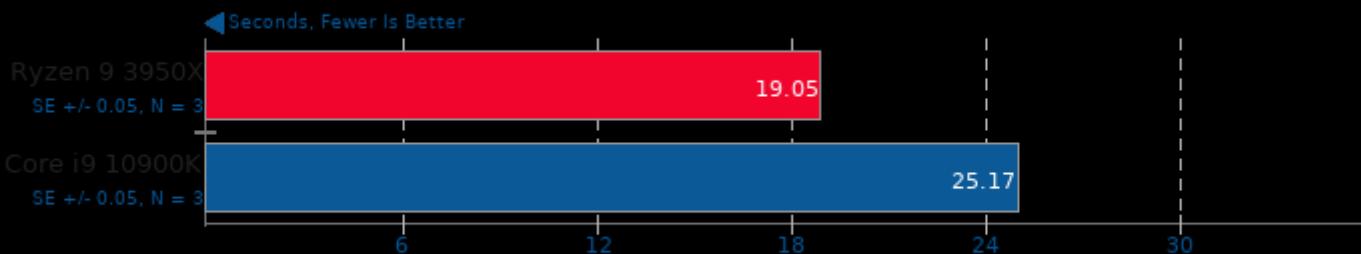
Settings: UASTC Level 0



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

Basis Universal 1.12

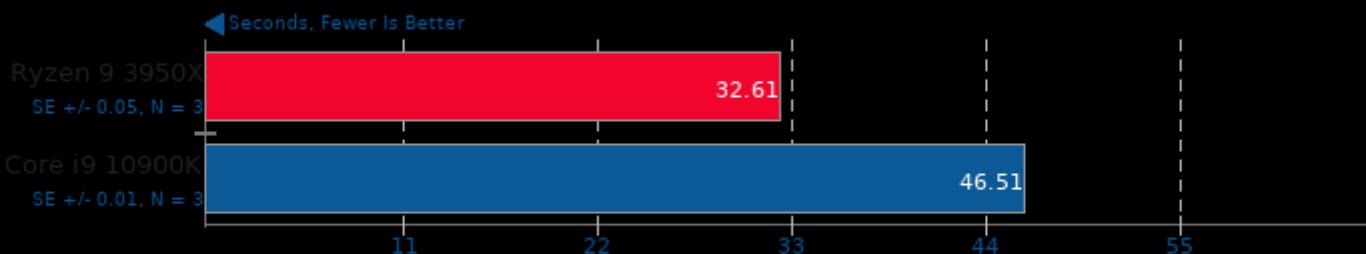
Settings: UASTC Level 2



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

Basis Universal 1.12

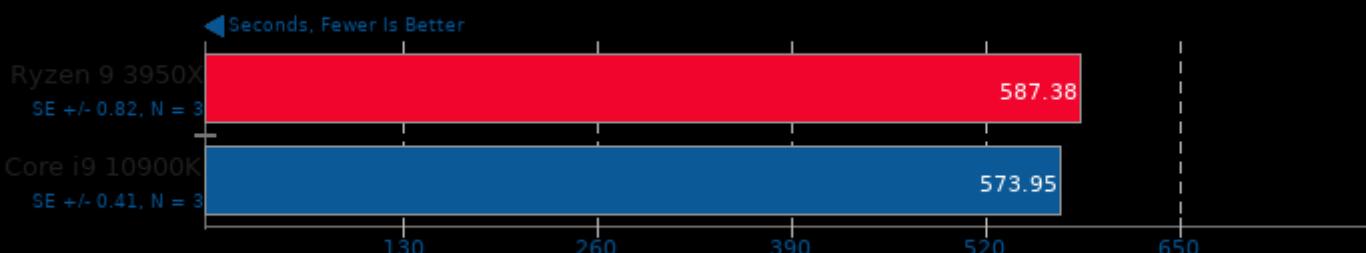
Settings: UASTC Level 3



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

Basis Universal 1.12

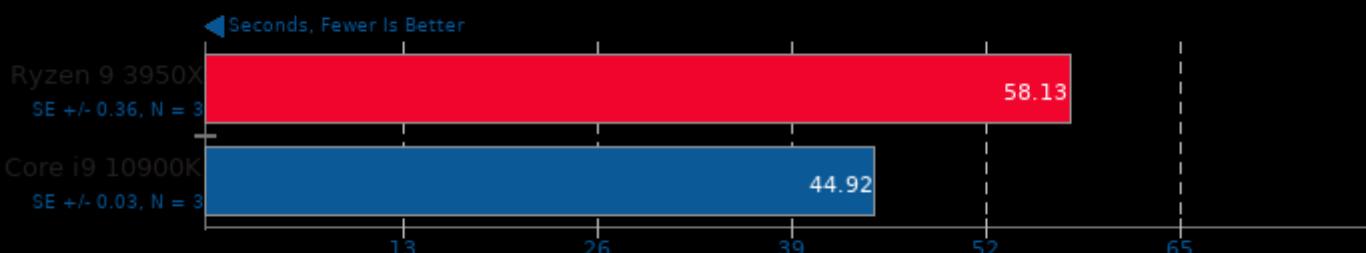
Settings: UASTC Level 2 + RDO Post-Processing



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

SQLite Speedtest 3.30

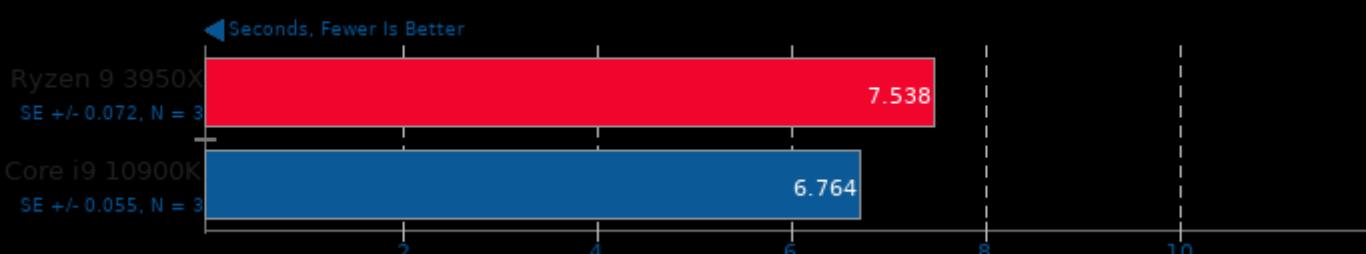
Timed Time - Size 1,000



1. (CC) gcc options: -O2 -ldl -lz -lpthread

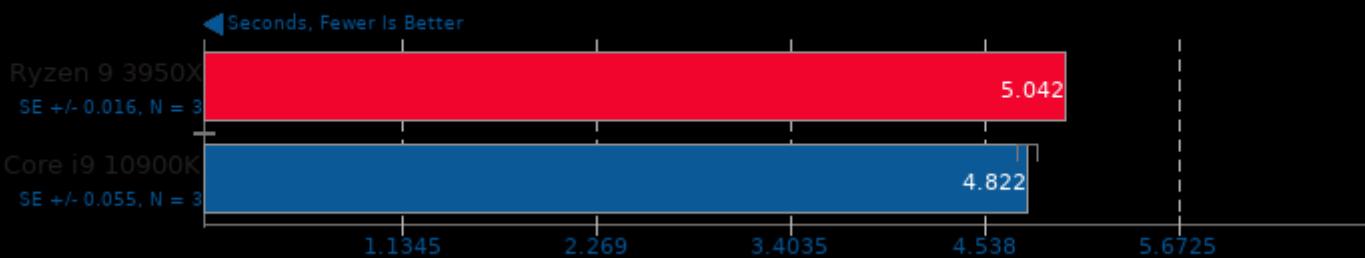
GEGL

Operation: Crop



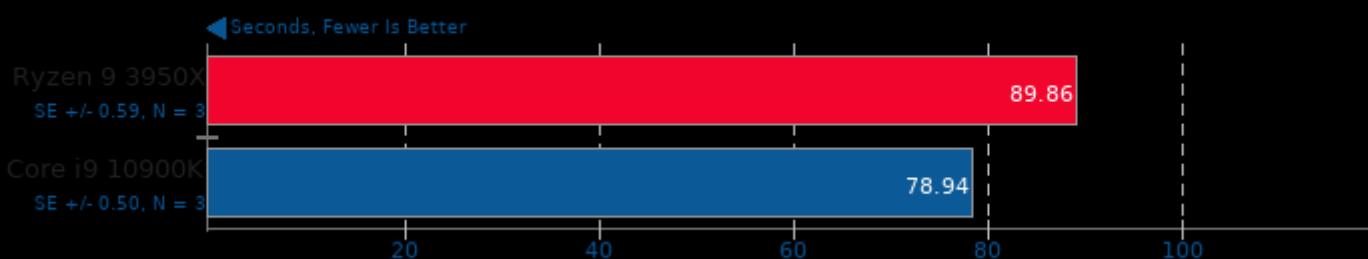
GEGL

Operation: Scale



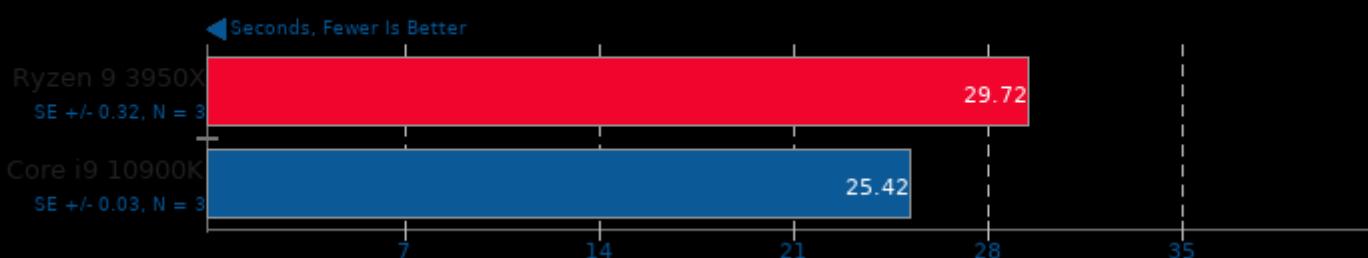
GEGL

Operation: Cartoon



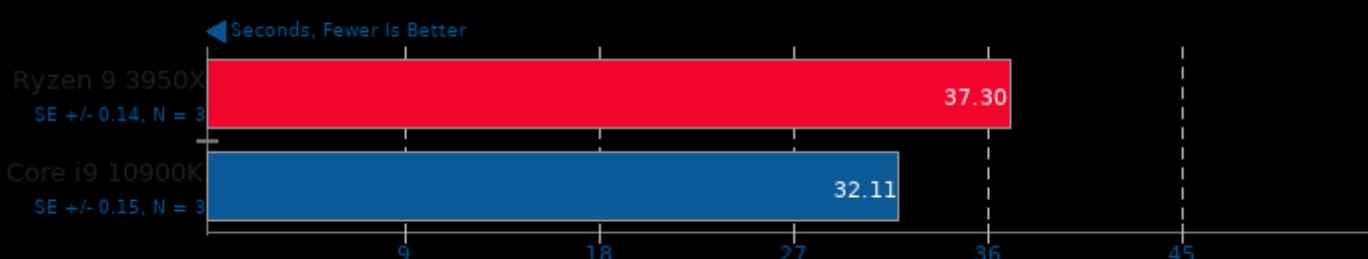
GEGL

Operation: Reflect



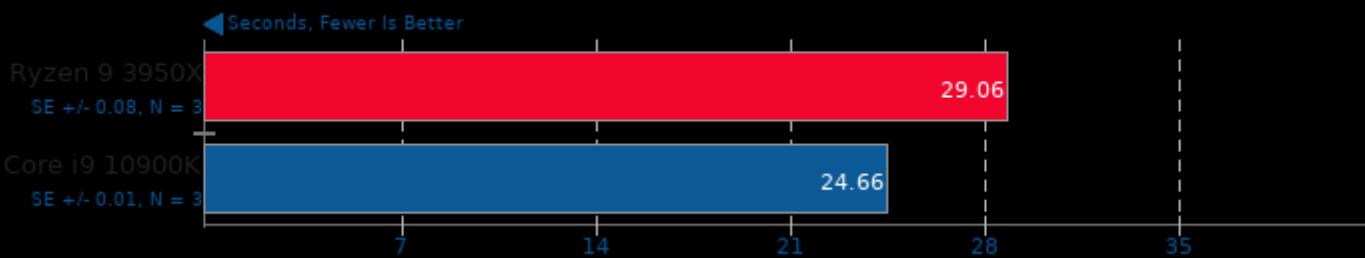
GEGL

Operation: Antialias



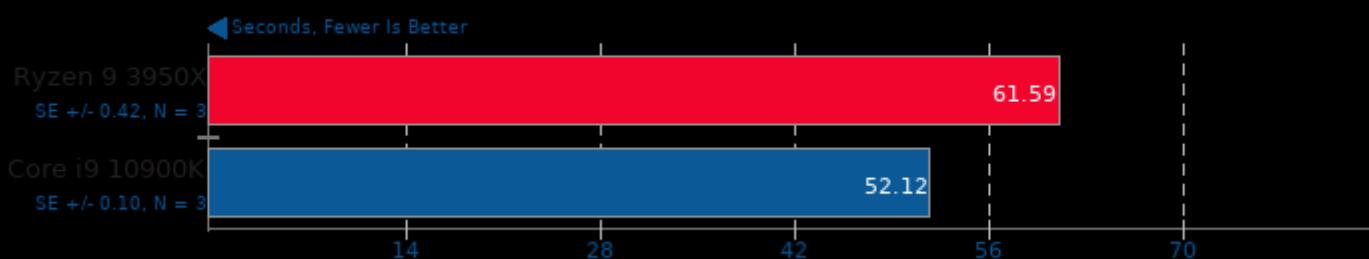
GEGL

Operation: Tile Glass



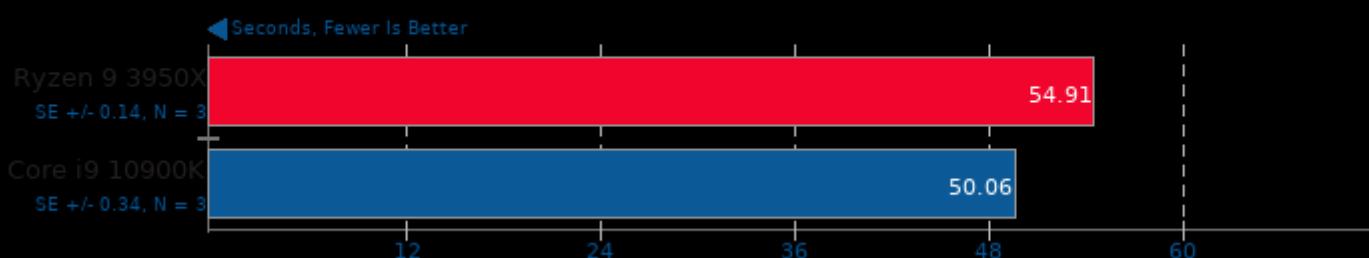
GEGL

Operation: Wavelet Blur



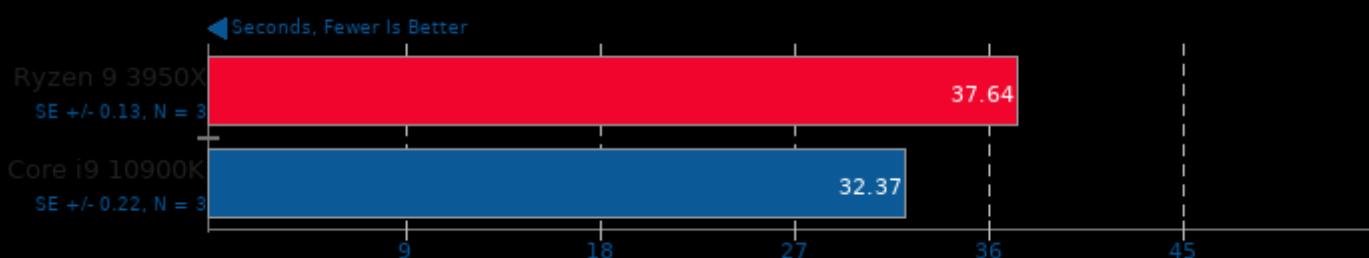
GEGL

Operation: Color Enhance



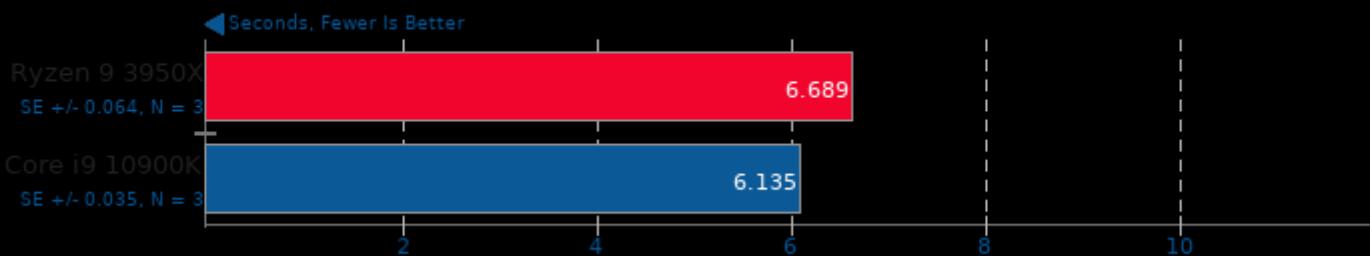
GEGL

Operation: Rotate 90 Degrees



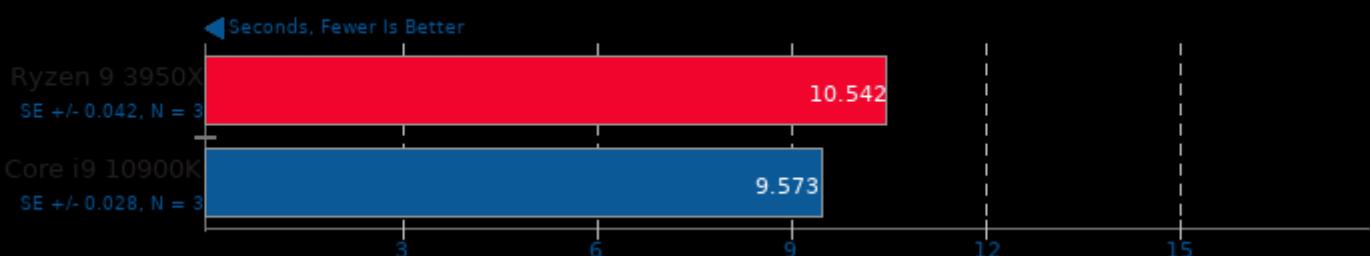
GIMP 2.10.18

Test: resize



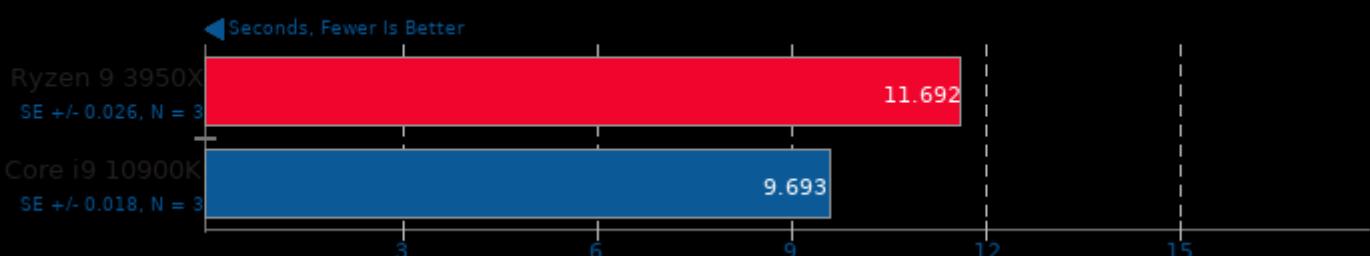
GIMP 2.10.18

Test: rotate



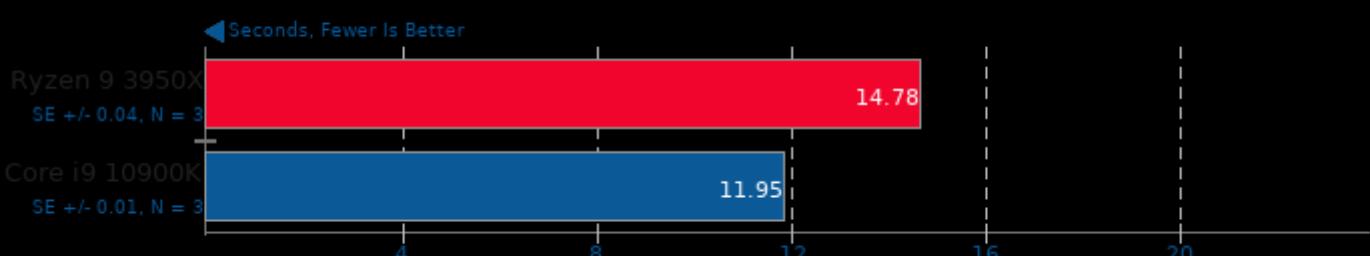
GIMP 2.10.18

Test: auto-levels



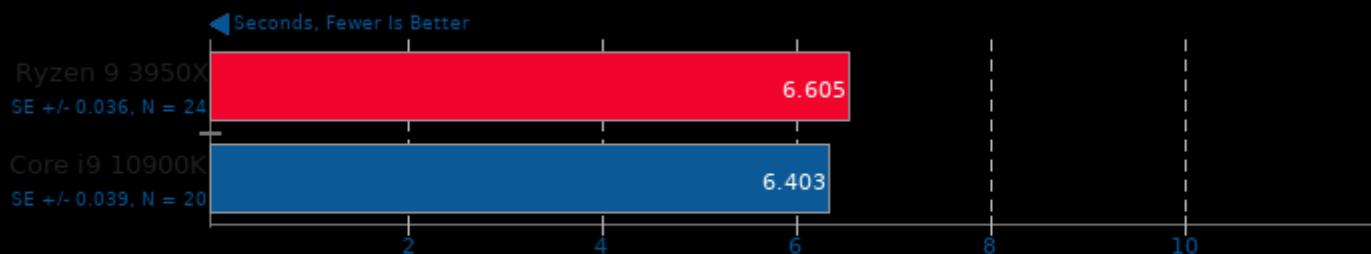
GIMP 2.10.18

Test: unsharp-mask



LibreOffice

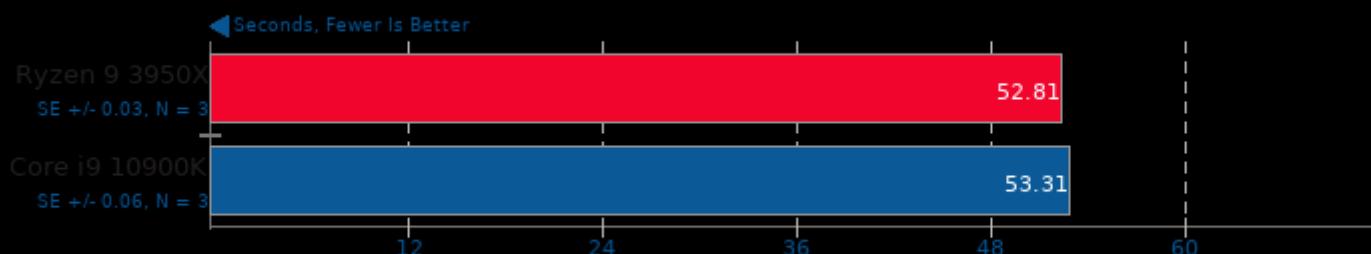
Test: 20 Documents To PDF



1. LibreOffice 6.4.3.2 40(Build:2)

RawTherapee

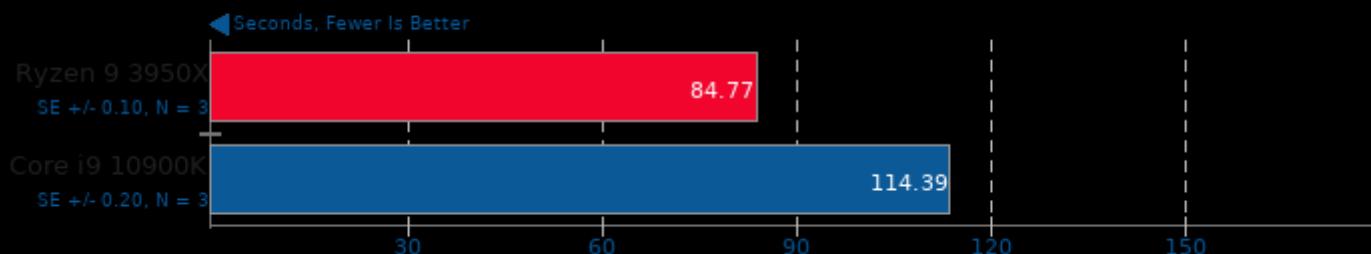
Total Benchmark Time



1. RawTherapee, version 5.8, command line.

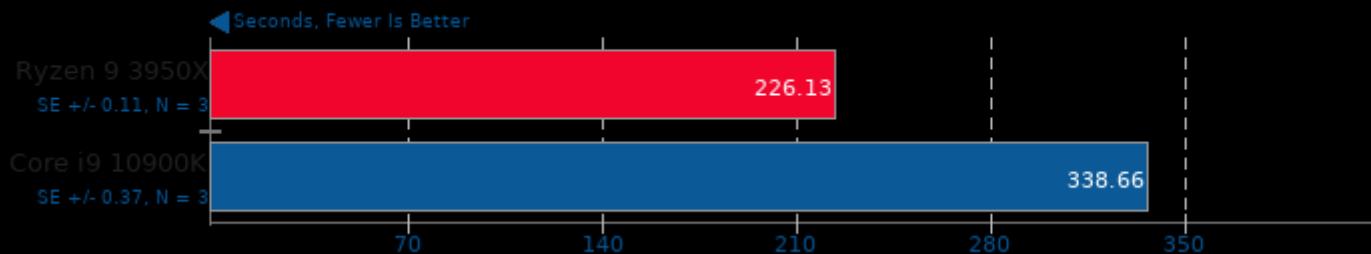
Blender 2.82

Blend File: BMW27 - Compute: CPU-Only



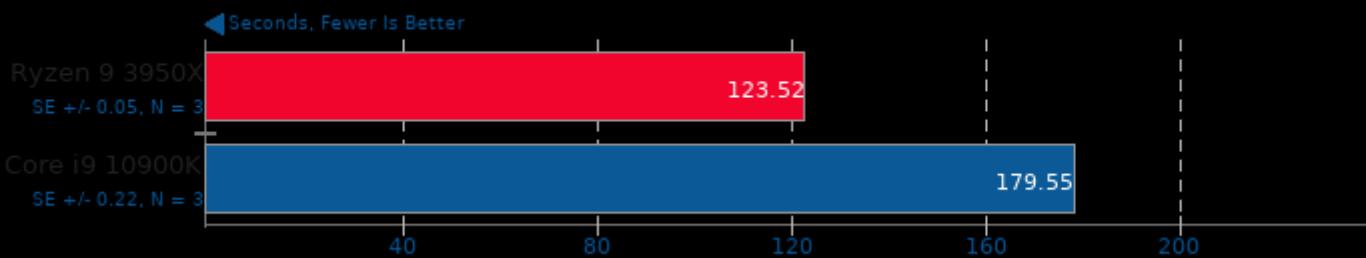
Blender 2.82

Blend File: Classroom - Compute: CPU-Only



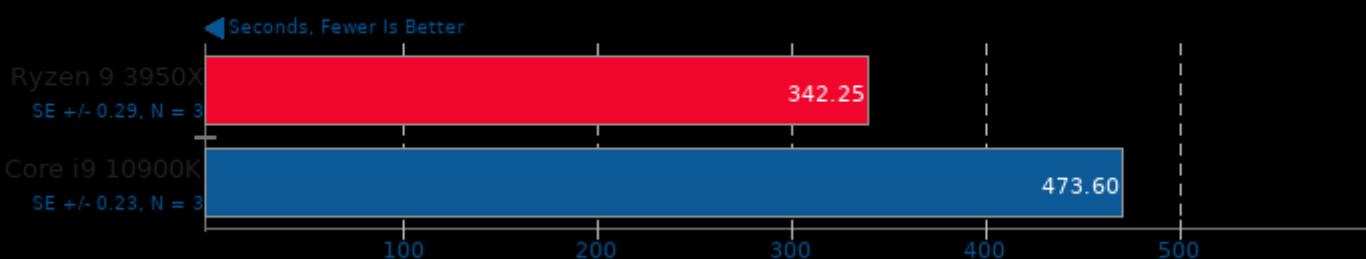
Blender 2.82

Blend File: Fishy Cat - Compute: CPU-Only



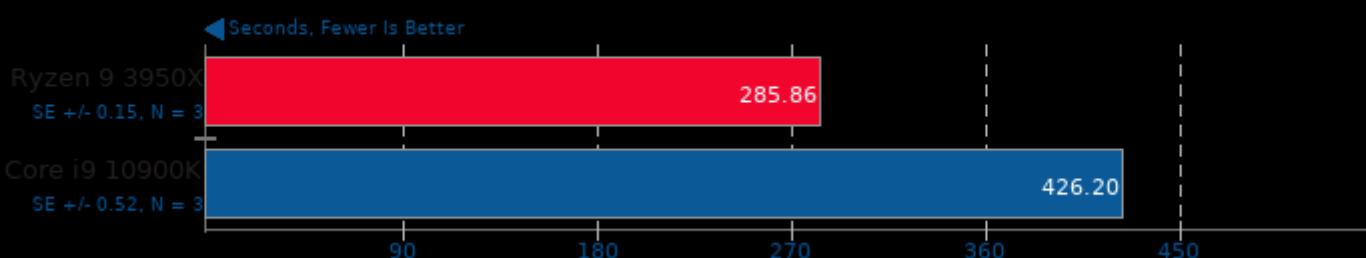
Blender 2.82

Blend File: Barbershop - Compute: CPU-Only



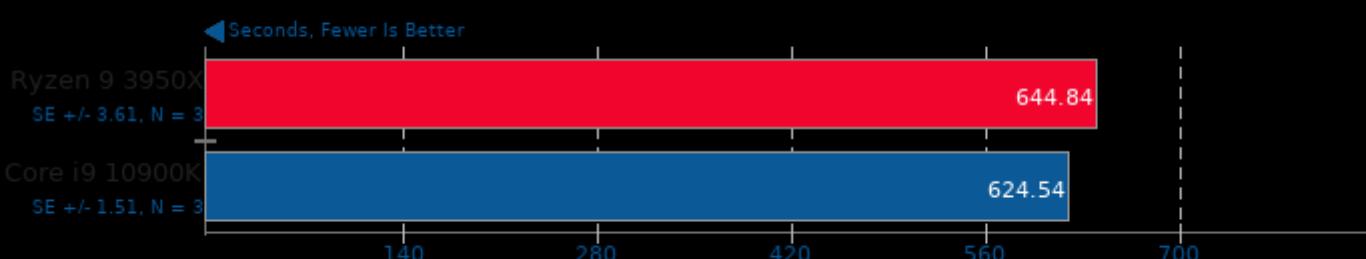
Blender 2.82

Blend File: Pabellon Barcelona - Compute: CPU-Only



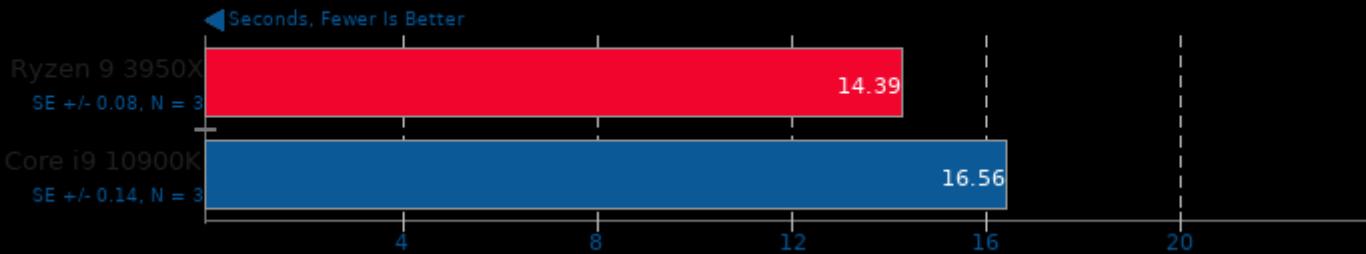
Numenta Anomaly Benchmark 1.1

Detector: EXPoSE



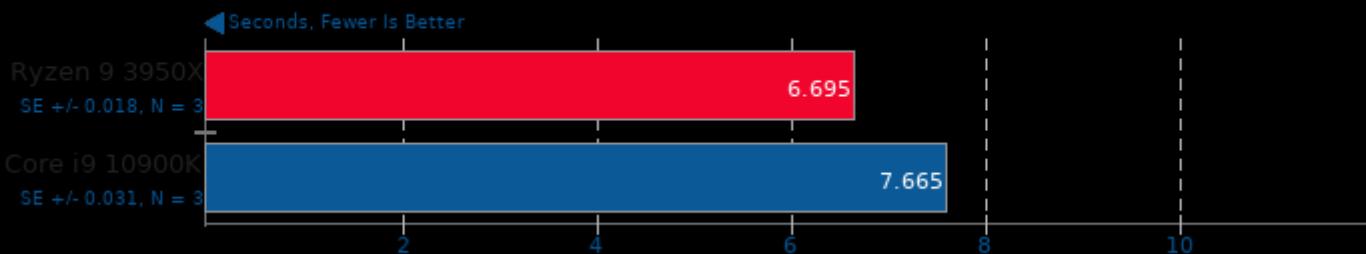
Numenta Anomaly Benchmark 1.1

Detector: Relative Entropy



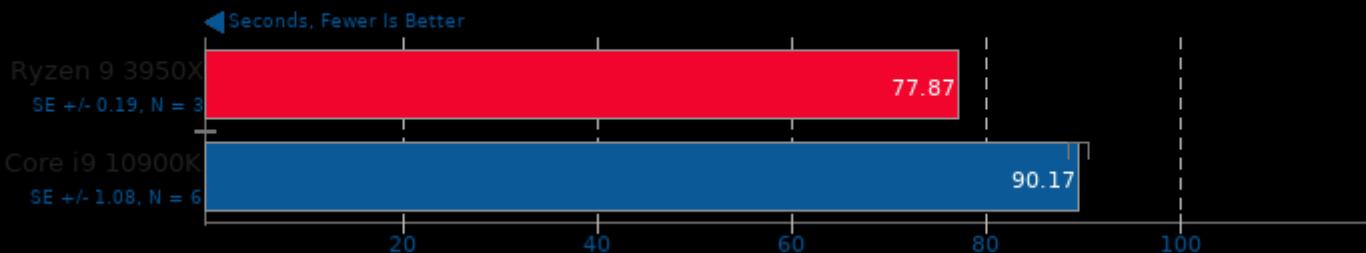
Numenta Anomaly Benchmark 1.1

Detector: Windowed Gaussian



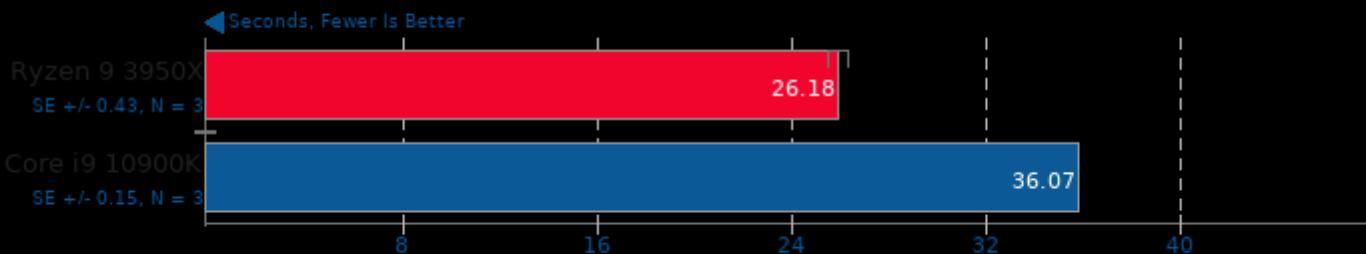
Numenta Anomaly Benchmark 1.1

Detector: Earthgecko Skyline



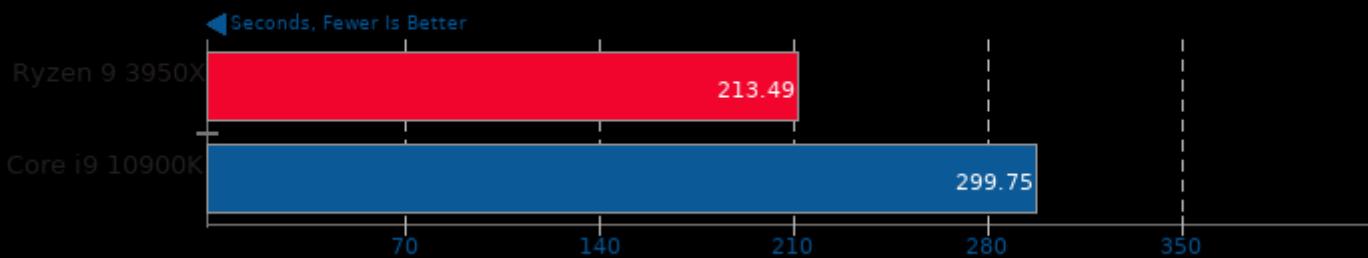
Numenta Anomaly Benchmark 1.1

Detector: Bayesian Changepoint



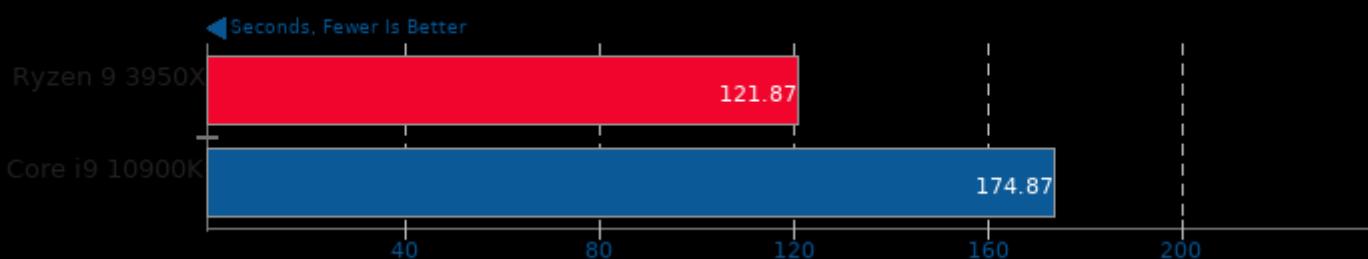
Appleseed 2.0 Beta

Scene: Emily



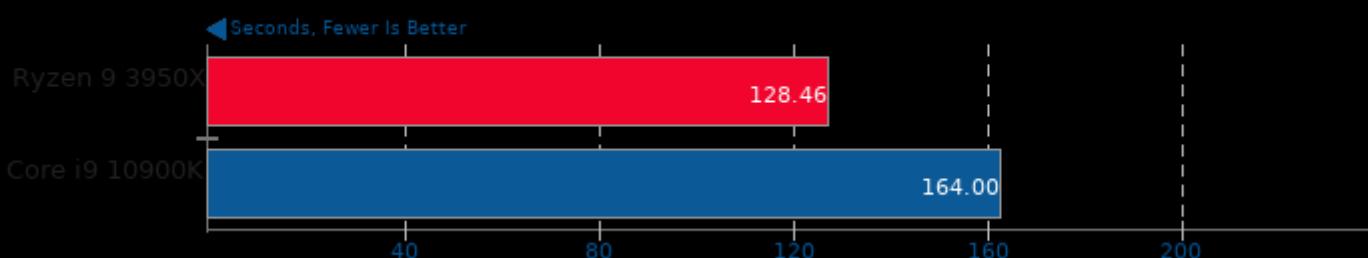
Appleseed 2.0 Beta

Scene: Disney Material



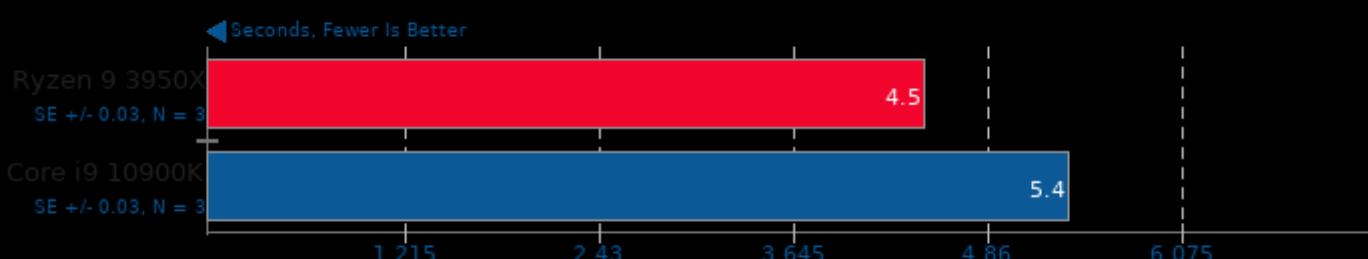
Appleseed 2.0 Beta

Scene: Material Tester



Selenium

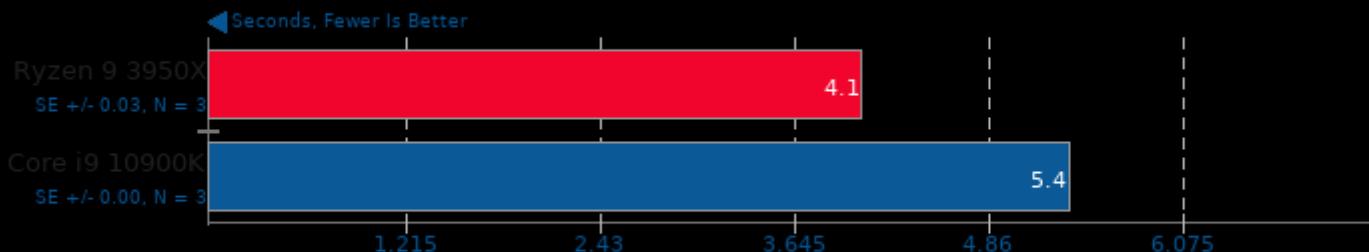
Benchmark: Maze Solver - Browser: Firefox



1. firefox 76.0.1

Selenium

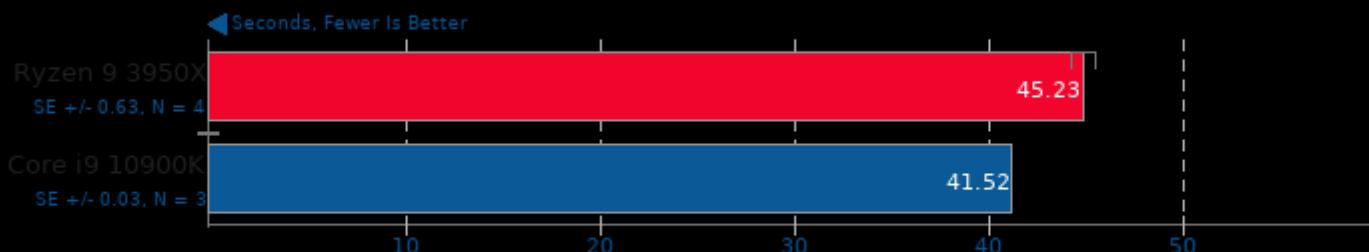
Benchmark: Maze Solver - Browser: Google Chrome



1. chrome 83.0.4103.61

Git

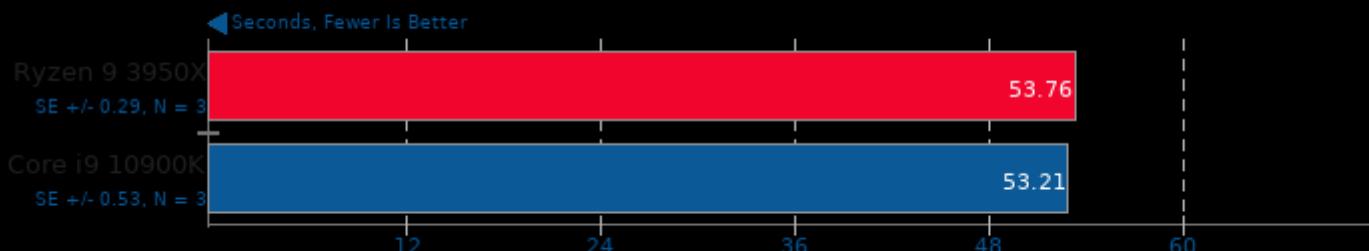
Time To Complete Common Git Commands



1. git version 2.25.1

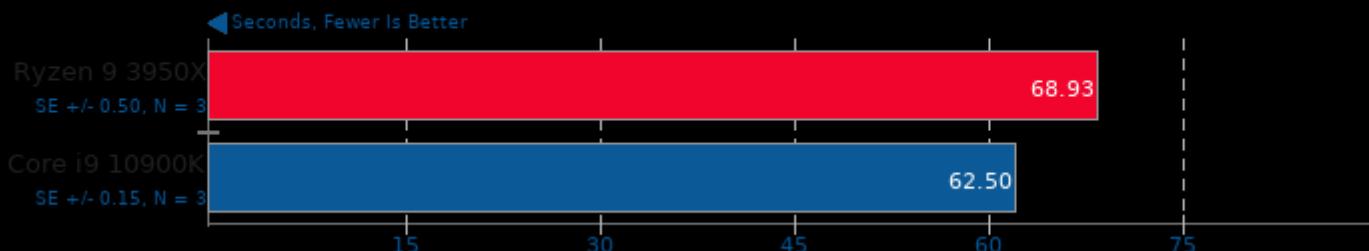
Milpack Benchmark

Benchmark: scikit_ica



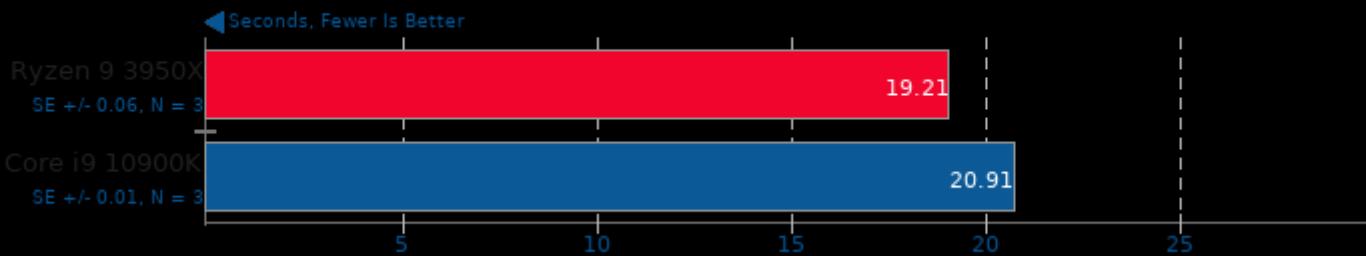
Milpack Benchmark

Benchmark: scikit_qda



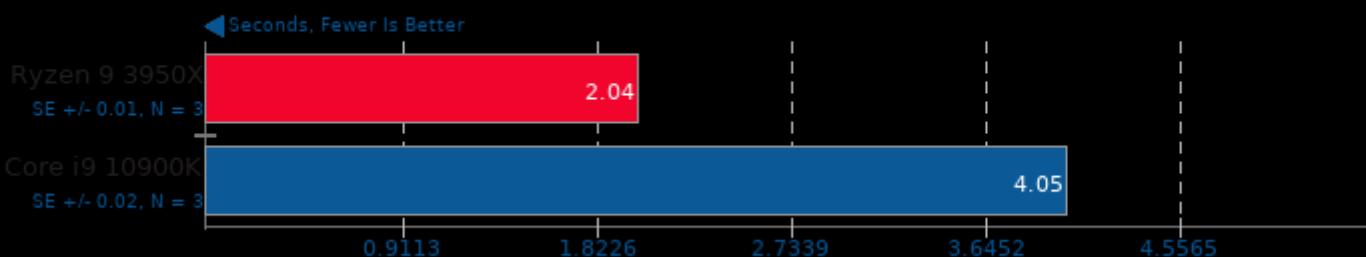
Milpack Benchmark

Benchmark: scikit_svm

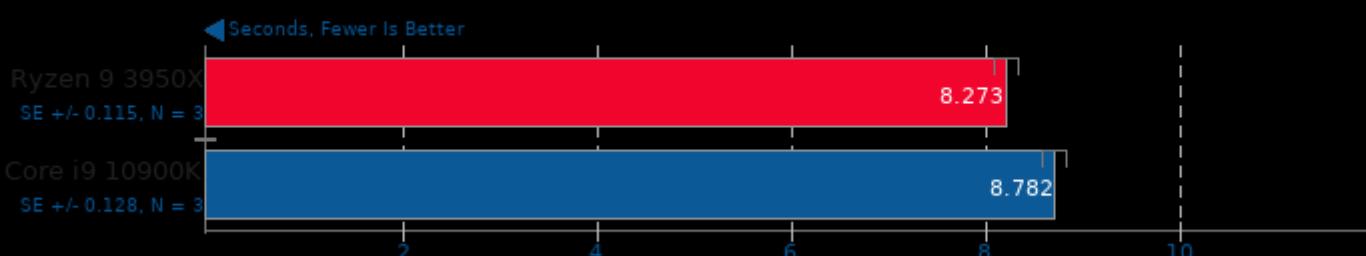


Milpack Benchmark

Benchmark: scikit_linearridge_regression

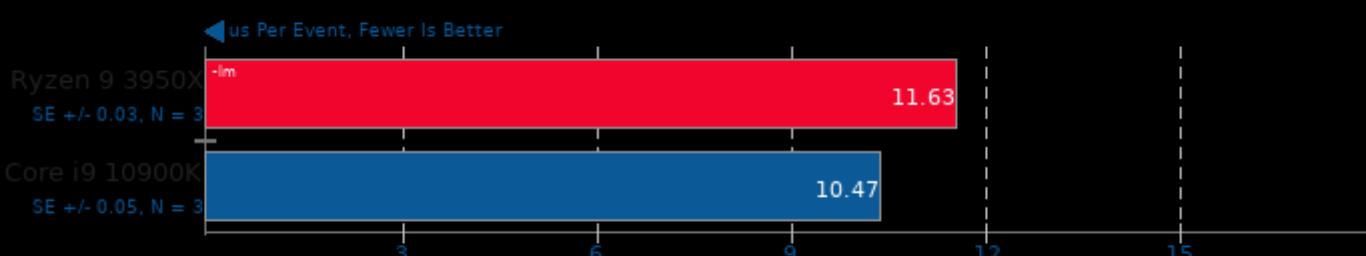


Scikit-Learn 0.22.1



OSBench

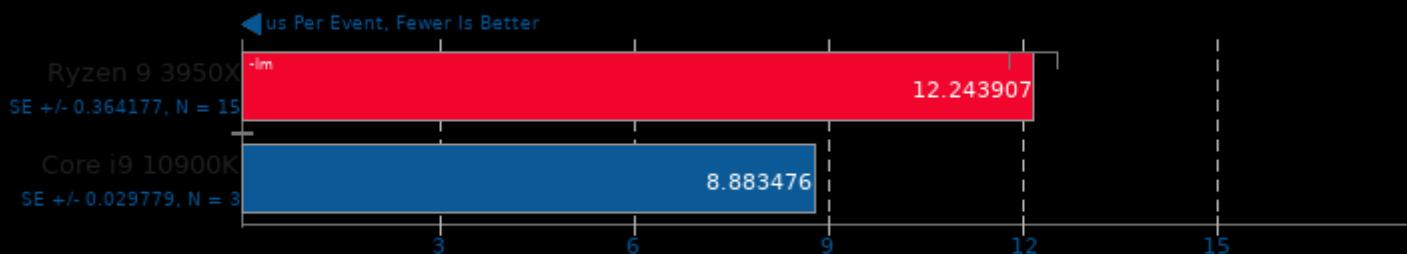
Test: Create Files



1. (CC) gcc options:

OSBench

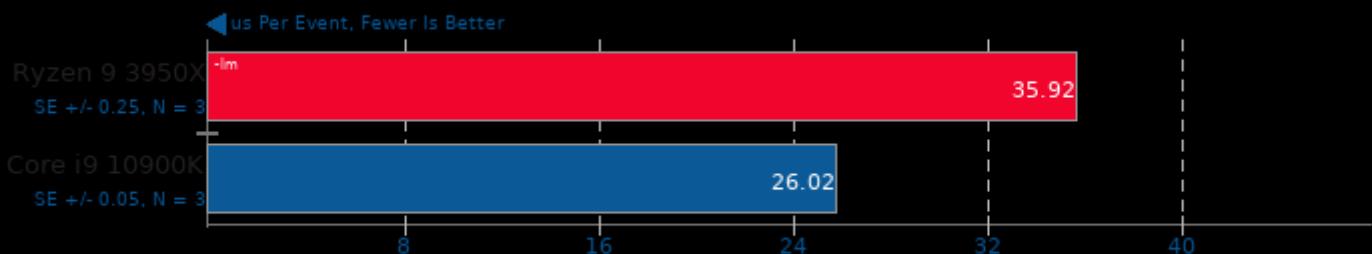
Test: Create Threads



1. (CC) gcc options:

OSBench

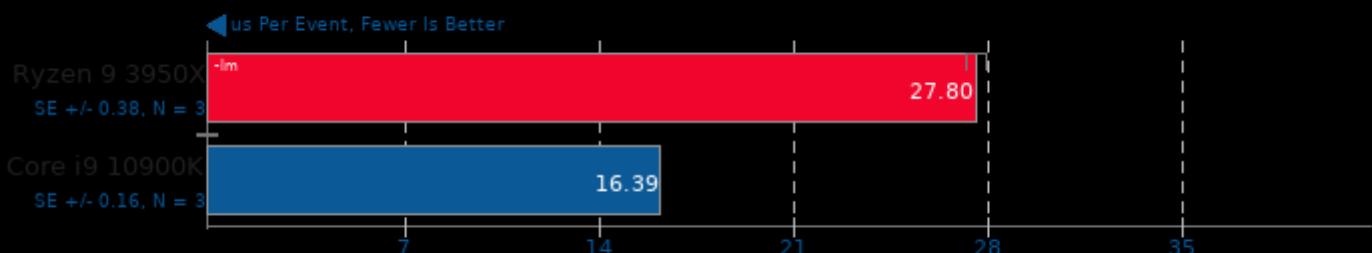
Test: Launch Programs



1. (CC) gcc options:

OSBench

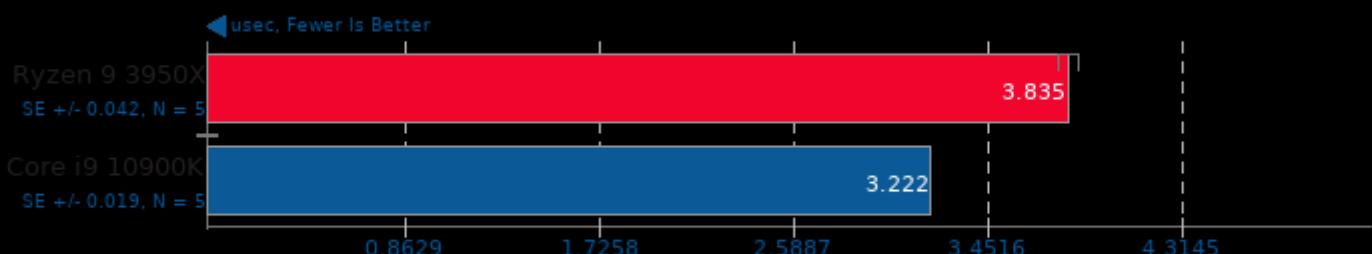
Test: Create Processes



1. (CC) gcc options:

Sockperf 3.4

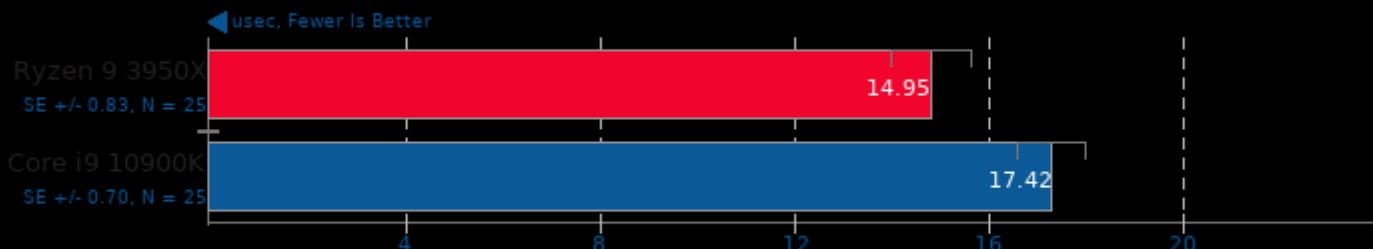
Test: Latency Ping Pong



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

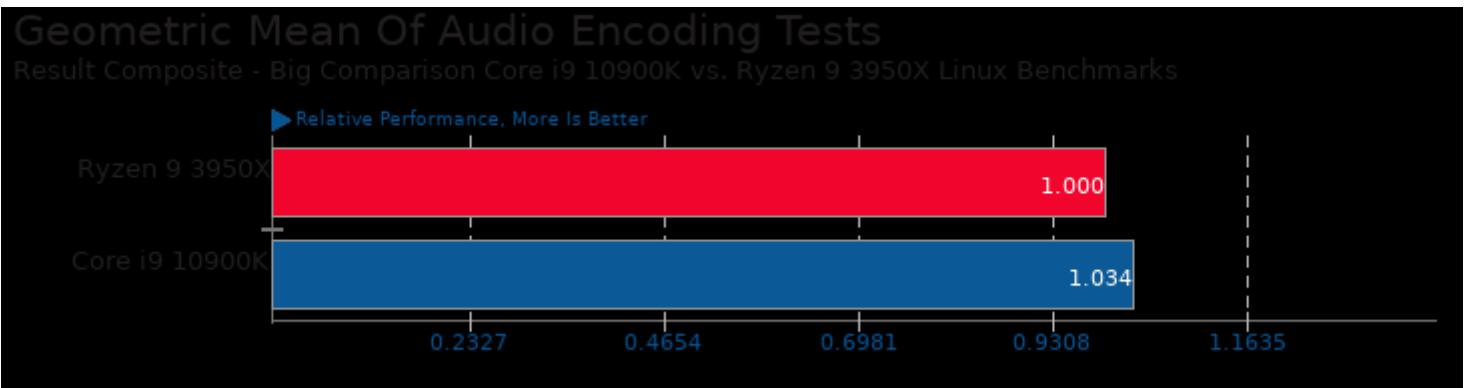
Sockperf 3.4

Test: Latency Under Load

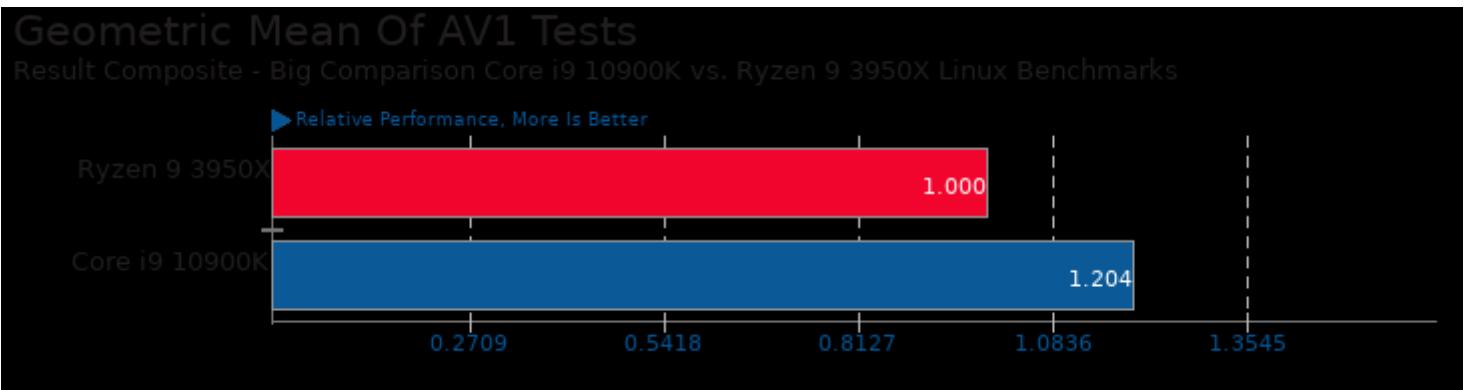


1. (CXX) g++ options: --param -O3 -rdynamic -ldl -lpthread

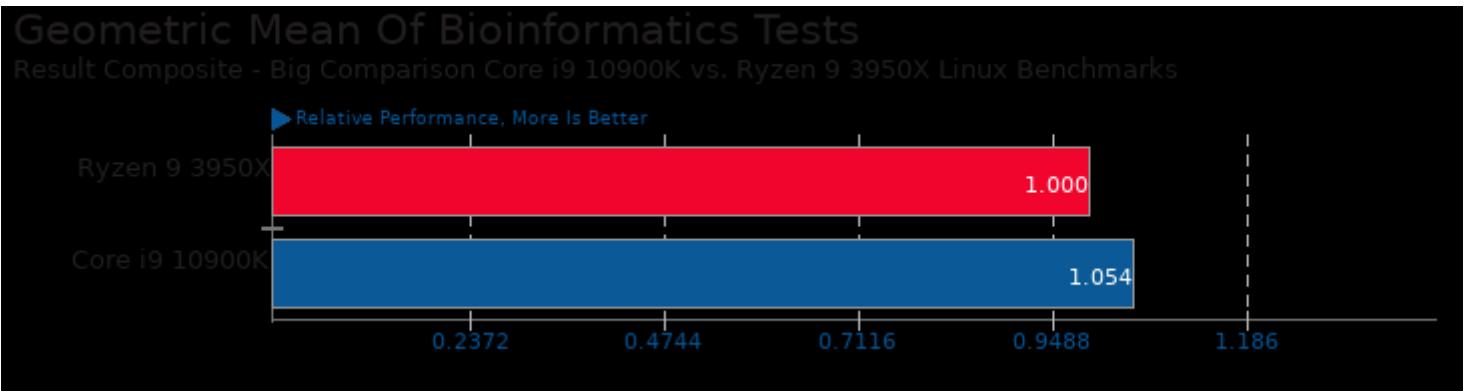
These geometric means are based upon test groupings / test suites for this result file.



Geometric mean based upon tests: pts/encode-mp3 and pts/encode-flac



Geometric mean based upon tests: pts/dav1d, pts/aom-av1, pts/libgav1 and pts/rav1e

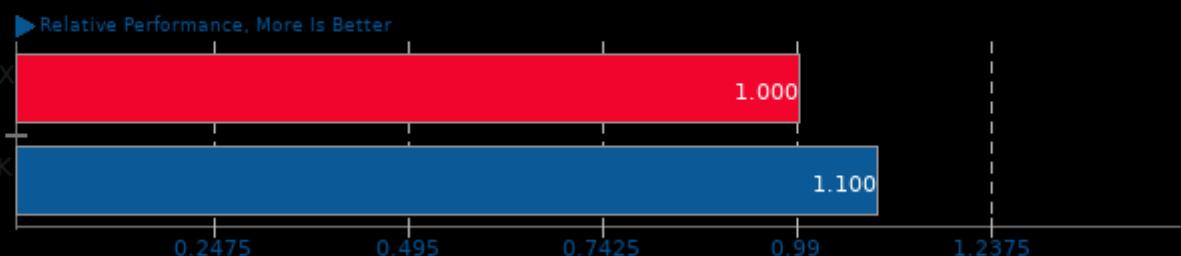


Geometric mean based upon tests: pts/himeno, pts/mrbayes and pts/hmmer

Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Geometric Mean Of BLAS (Basic Linear Algebra Sub-Routine) Tests

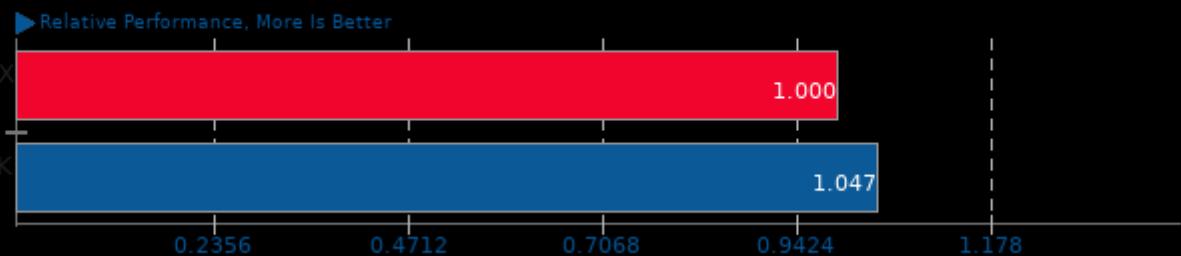
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/lczero and pts/nwchem

Geometric Mean Of C++ Boost Tests

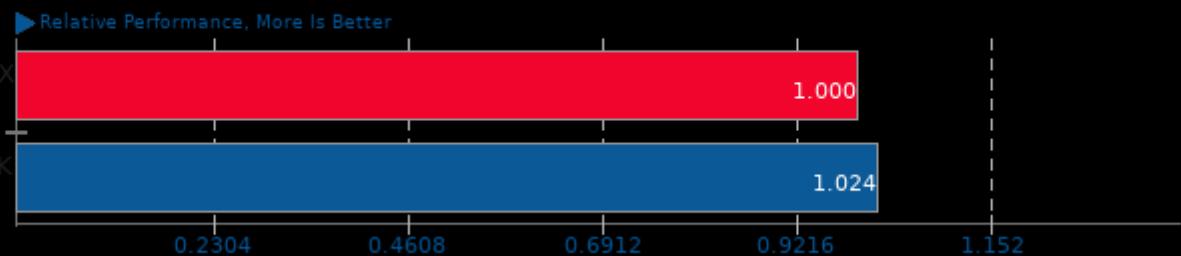
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/core-latency, pts/yafaray and pts/minion

Geometric Mean Of Web Browsers Tests

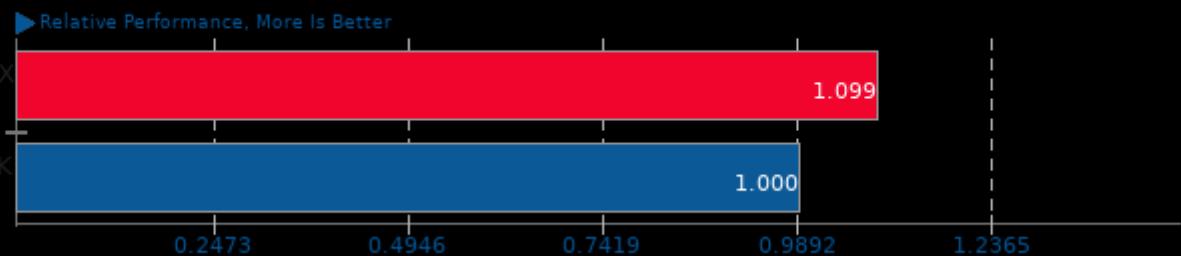
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: system/selenium

Geometric Mean Of Chess Test Suite

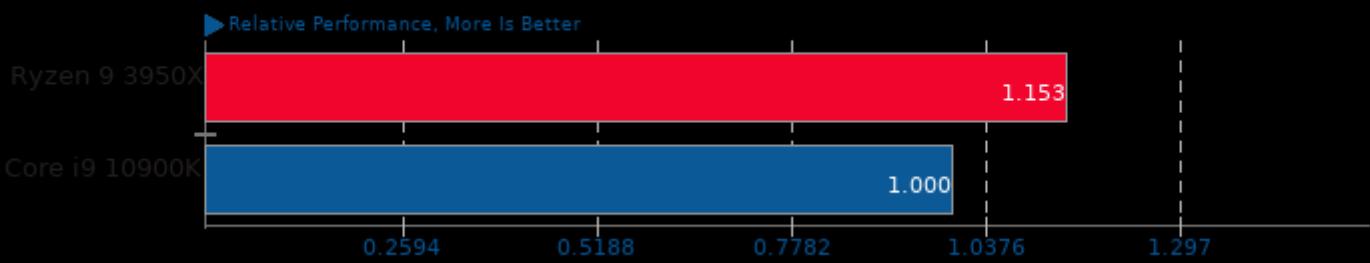
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/tscp, pts/lczero, pts/stockfish, pts/asmfish, pts/n-queens and pts/m-queens

Geometric Mean Of Timed Code Compilation Tests

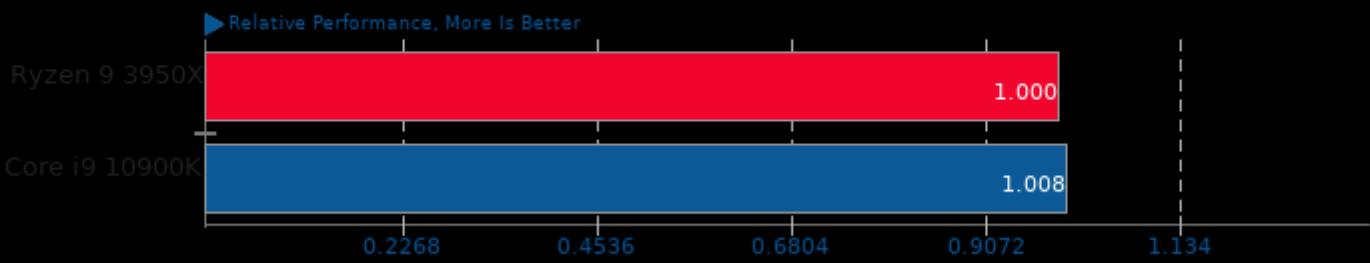
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/build-apache, pts/build-php, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer and pts/build2

Geometric Mean Of Compression Tests

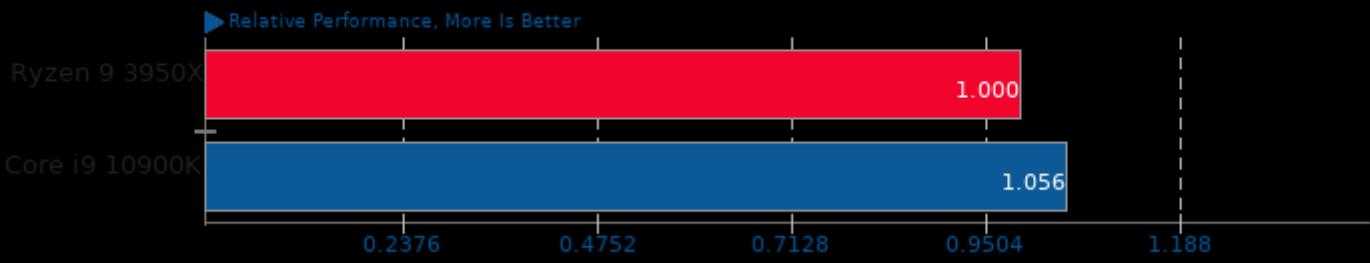
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/compress-7zip, pts/compress-gzip, pts/compress-pbzip2, pts/compress-zstd, pts/compress-xz, pts/lzbench and pts/blosc

Geometric Mean Of Cryptography Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

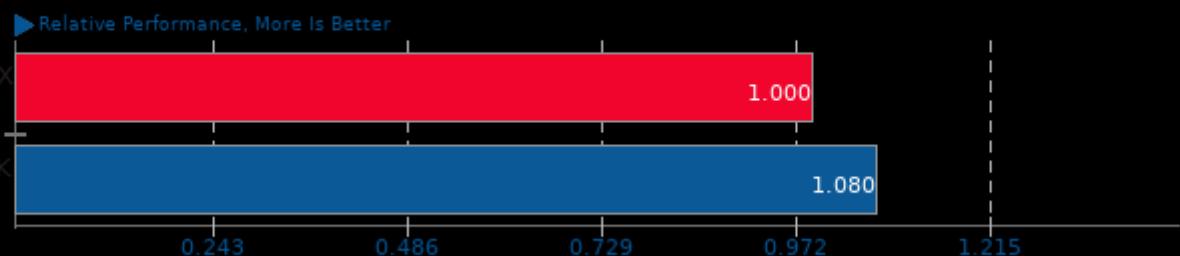


Geometric mean based upon tests: pts/gnupg, pts/openssl, pts/blake2, pts/john-the-ripper, pts/smhasher, pts/botan, pts/cryptopp, pts/bork, pts/nettle, pts/aircrack-ng and pts/cpuminer-opt

Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Geometric Mean Of Database Test Suite

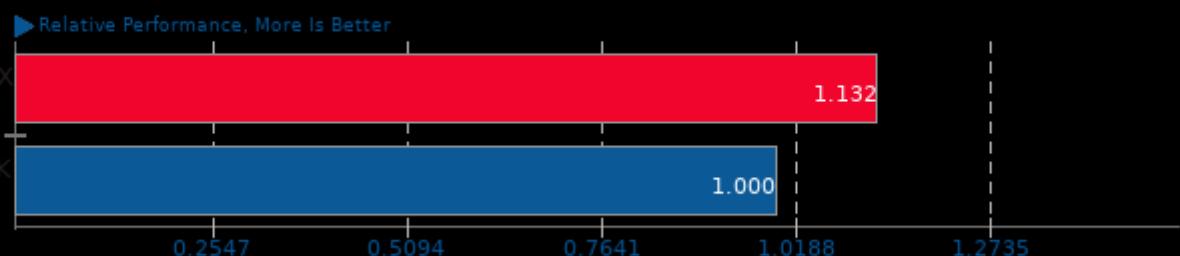
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



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

Geometric Mean Of Desktop Graphics Tests

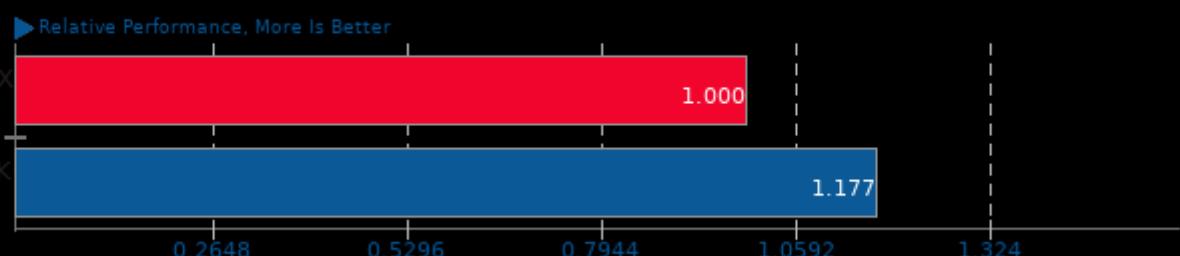
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/xonotic, pts/tesseract, pts/paraview, pts/unigine-valley and pts/unigine-heaven

Geometric Mean Of Encoding Tests

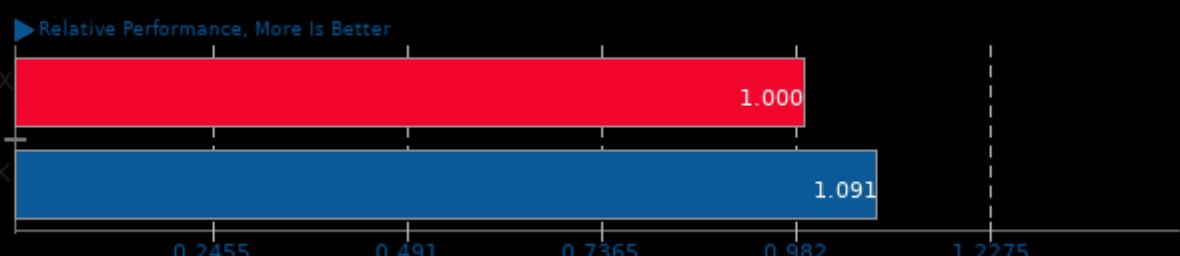
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/encode-mp3, pts/encode-flac, pts/x264, pts/x265, pts/ffmpeg, pts/vpxenc, pts/dav1d, pts/aom-av1, pts/libgav1 and pts/rav1e

Geometric Mean Of Fortran Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

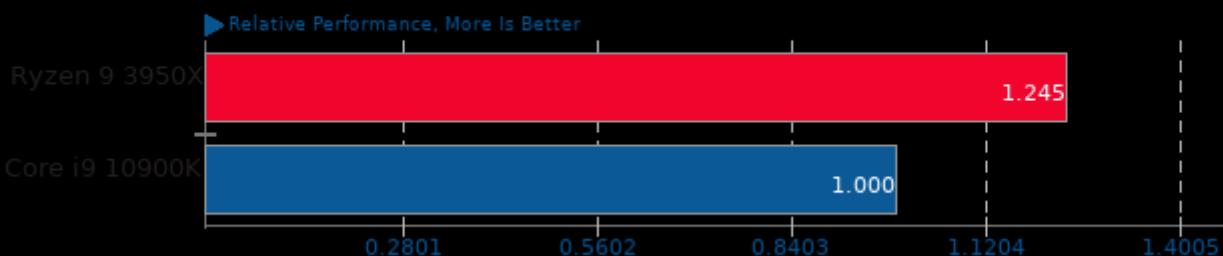


Geometric mean based upon tests: pts/hpcg, pts/npb, pts/neat, pts/polyhedron and pts/nwchem

Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Geometric Mean Of Game Development Tests

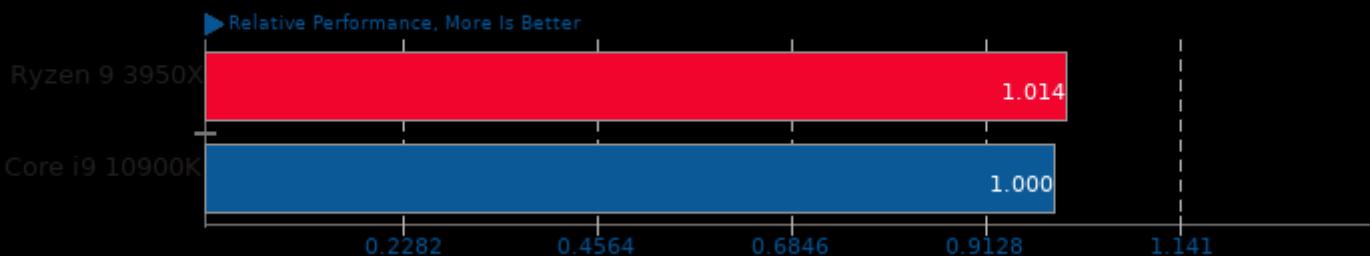
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/basis, pts/blender, pts/oidn and pts/openvkl

Geometric Mean Of Imaging Tests

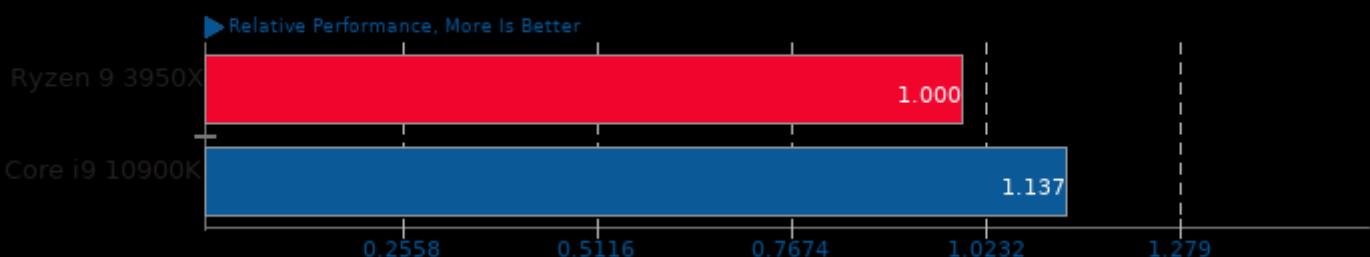
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/graphics-magick, system/rawtherapee, pts/tjbench, system/gimp and system/gegl

Geometric Mean Of Java Tests

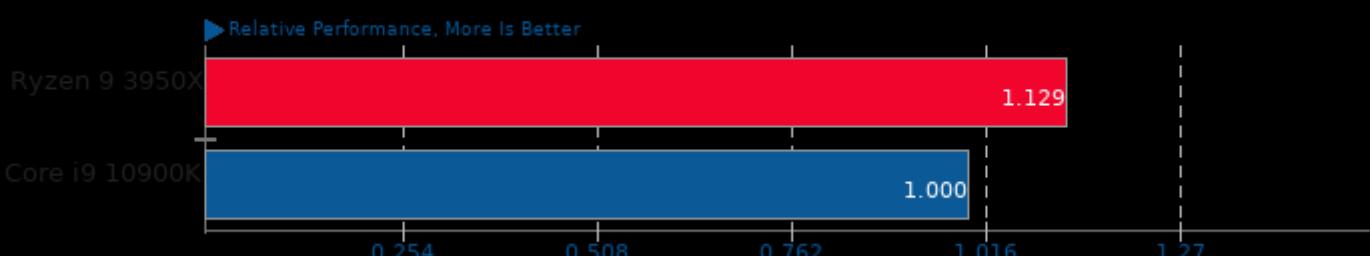
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/bork, pts/java-scimark2, pts/dacapobench, pts/java-gradle-perf and pts/renaissance

Geometric Mean Of Common Kernel Benchmarks Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

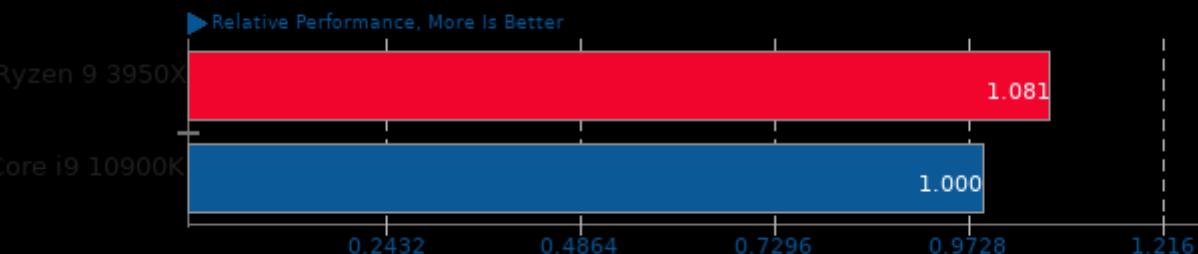


Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Geometric mean based upon tests: pts/sqlite-speedtest, pts/openssl, pts/ctx-clock, pts/hackbench, pts/ipc-benchmark, pts/stress-ng, pts/osbench and pts/rocksdb

Geometric Mean Of Linear Algebra Tests

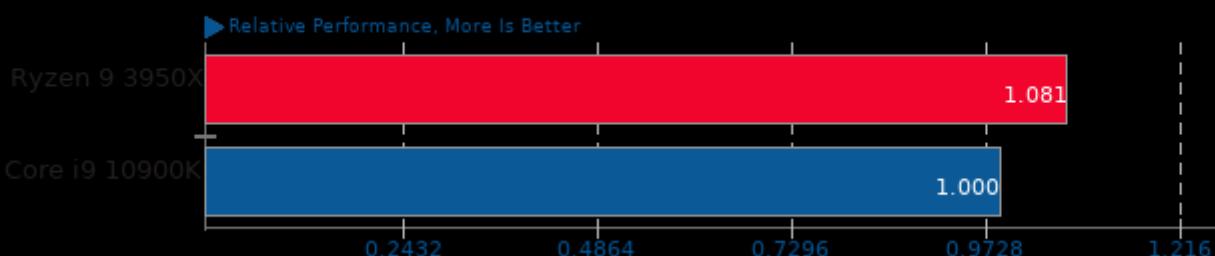
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



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

Geometric Mean Of Machine Learning Tests

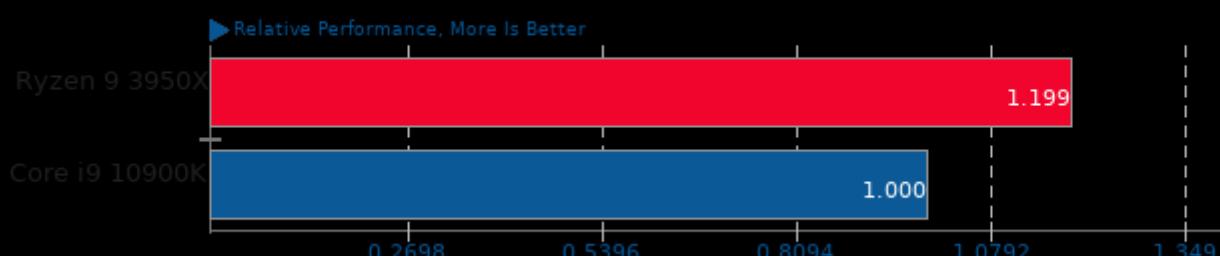
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/numpy, pts/deepspeech, pts/scikit-learn, pts/mlpack, pts/numenta-nab, pts/plaidml and pts/lczero

Geometric Mean Of Molecular Dynamics Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

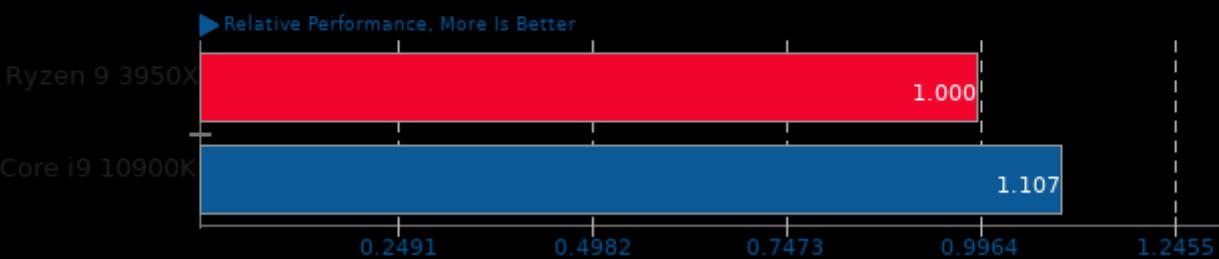


Geometric mean based upon tests: pts/namd, pts/gromacs, pts/cp2k, pts/nwchem, pts/lulesh and pts/pennant

Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Geometric Mean Of MPI Benchmarks Tests

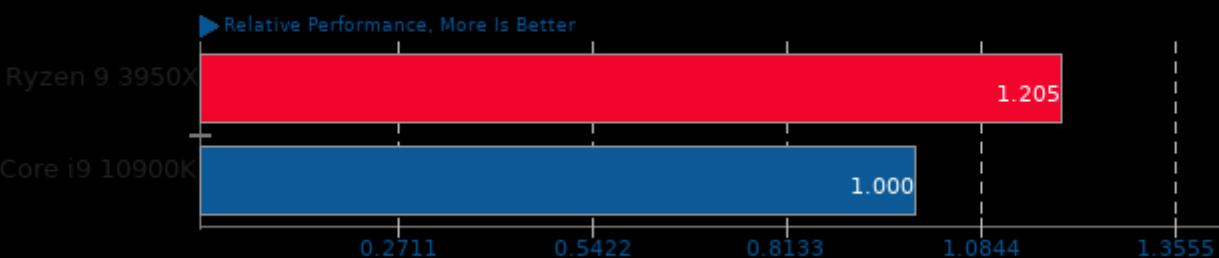
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



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

Geometric Mean Of NVIDIA GPU Compute Tests

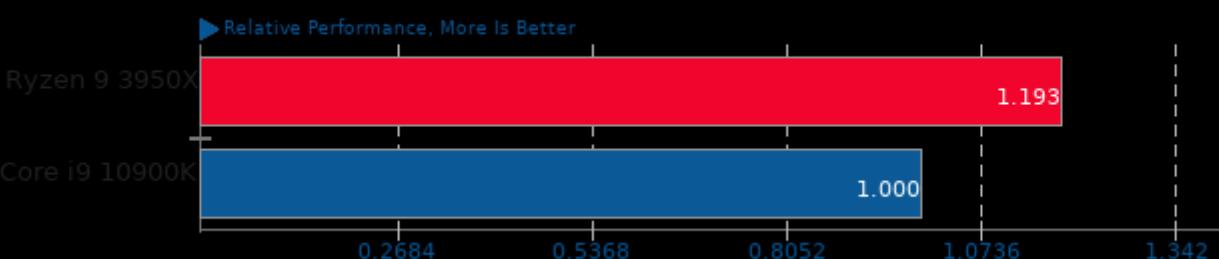
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/gromacs, pts/luxcorerender, pts/rodinia, pts/neatbench, pts/plaidml, pts/lcero, pts/indigobench and pts/blender

Geometric Mean Of Intel oneAPI Tests

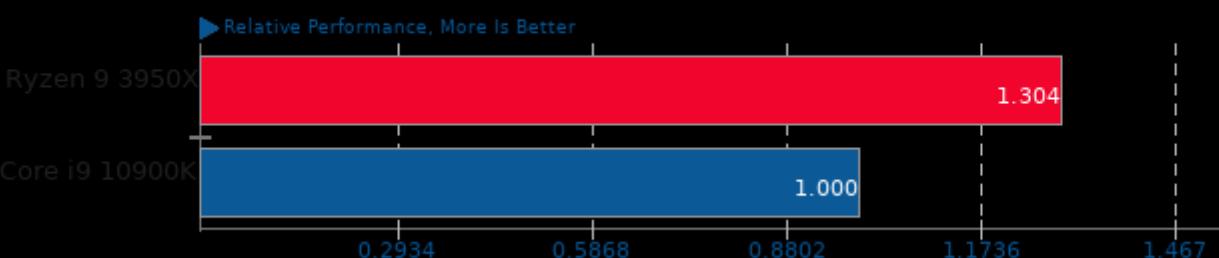
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



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

Geometric Mean Of OpenCL Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

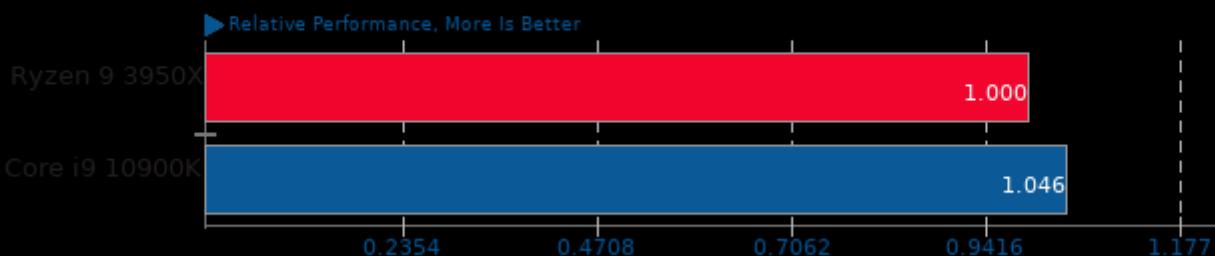


Geometric mean based upon tests: pts/rodinia and pts/parboil

Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Geometric Mean Of OpenGL Demos Test Suite

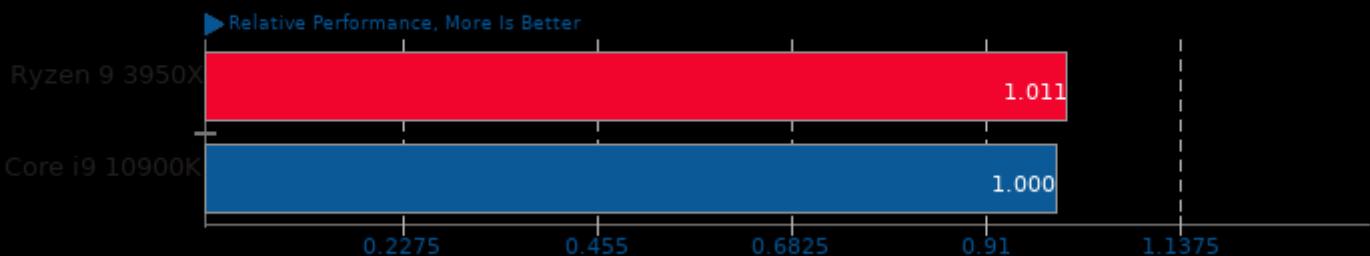
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/unigine-valley, pts/unigine-heaven and pts/unigine-super

Geometric Mean Of OpenMPI Tests

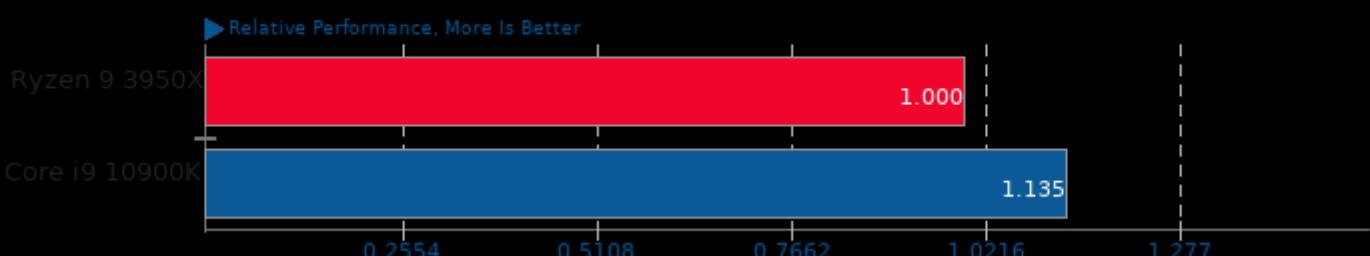
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/amg, pts/hpcg, pts/askap, pts/gromacs, pts/npb, pts/lulesh, pts/pennant, pts/parboil, pts/rodinia, pts/mrbayes and pts/nwchem

Geometric Mean Of Productivity Tests

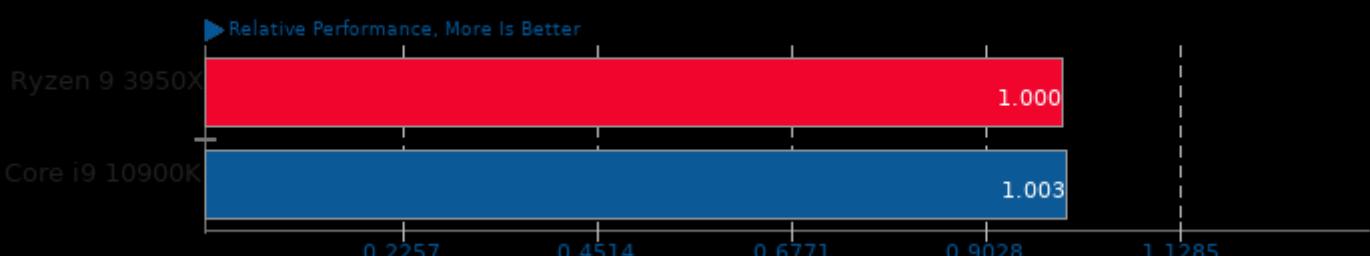
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: system/libreoffice, system/gimp and system/gegl

Geometric Mean Of Programmer / Developer System Benchmarks Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



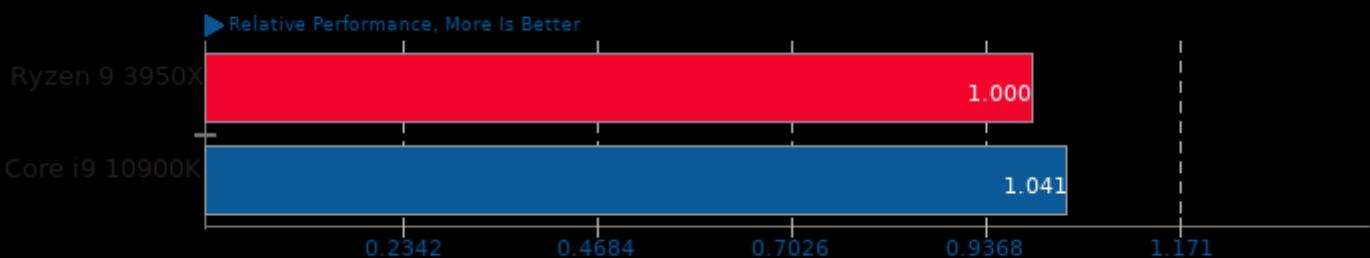
Geometric mean based upon tests: pts/sqlite-speedtest, pts/git, pts/blosc, pts/compress-zstd, pts/pyperformance,

Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

pts/pybench, pts/build-apache, pts/build-php, pts/build-linux-kernel, pts/build-imagemagick, pts/build-gcc, pts/build-gdb, pts/build-llvm, pts/build-ffmpeg, pts/build-mplayer, pts/build2, pts/mt-dgemm and pts/amg

Geometric Mean Of Python Tests

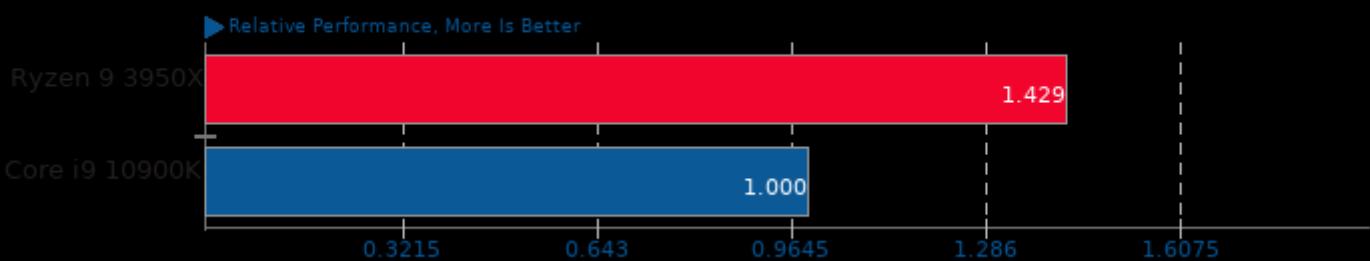
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/pybench, pts/numenta-nab, pts/cython-bench, pts(numpy, pts/mlpack, pts/scikit-learn and pts/pyperformance

Geometric Mean Of Raytracing Tests

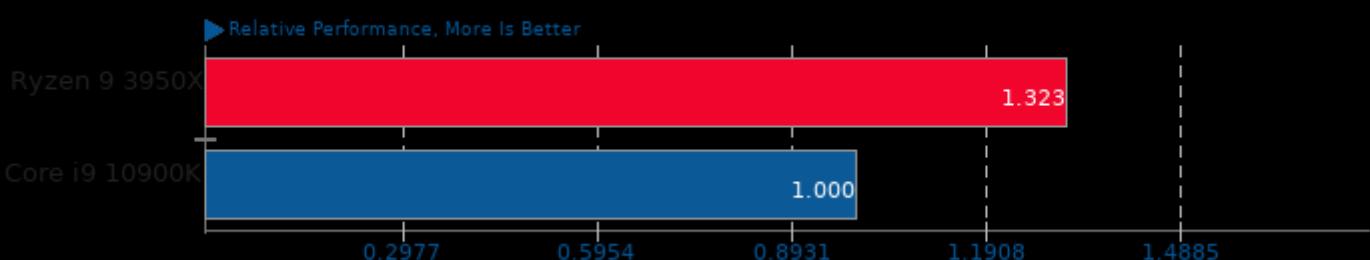
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/c-ray, pts/tachyon, pts/rays1bench and pts/yafaray

Geometric Mean Of Renderers Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

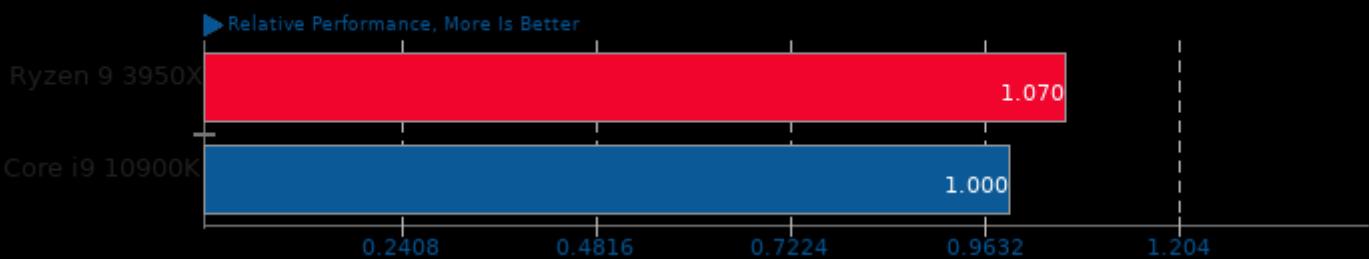


Geometric mean based upon tests: pts/c-ray, pts/tachyon, pts/rays1bench, pts/yafaray, pts/blender, pts/tungsten, pts/appleseed, pts/radiance, pts/aobench, pts/luxcorerender, pts/smallpt, pts/ttsiod-renderer and pts/indigobench

Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks

Geometric Mean Of Scientific Computing Tests

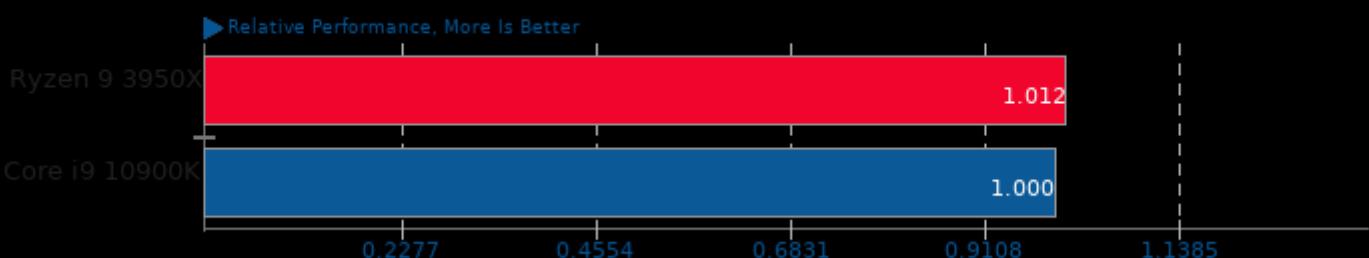
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/fftw, pts/neat, pts/mt-dgemm, pts/amg, pts/namd, pts/gromacs, pts/cp2k, pts/nwchem, pts/lulesh, pts/pennant, pts/himeno, pts/mrbayes and pts/hmmer

Geometric Mean Of Server Tests

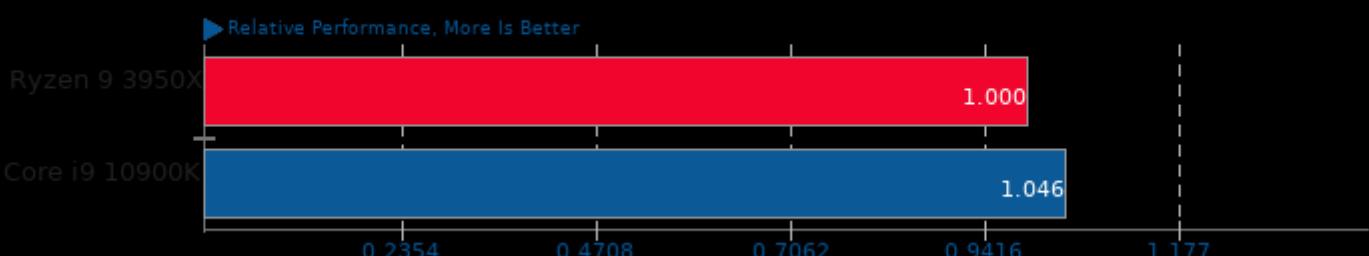
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



Geometric mean based upon tests: pts/ebizzy, pts/redis, pts/rocksdb, pts/openssl, pts/perl-benchmark and pts/sqlite-speedtest

Geometric Mean Of Unigine Test Suite

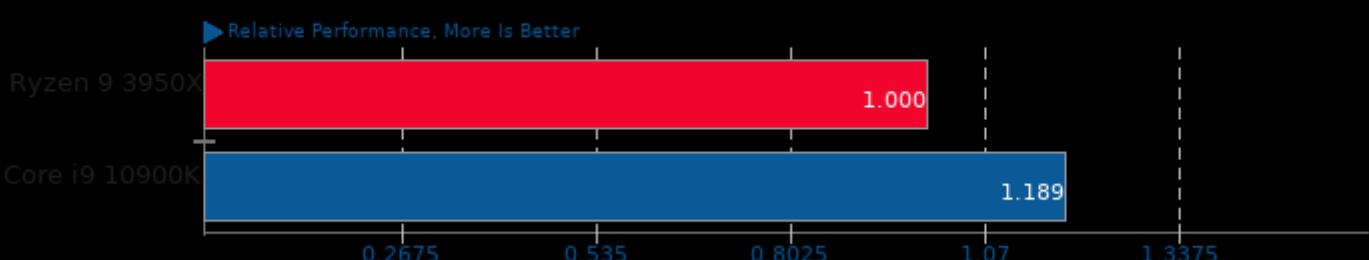
Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



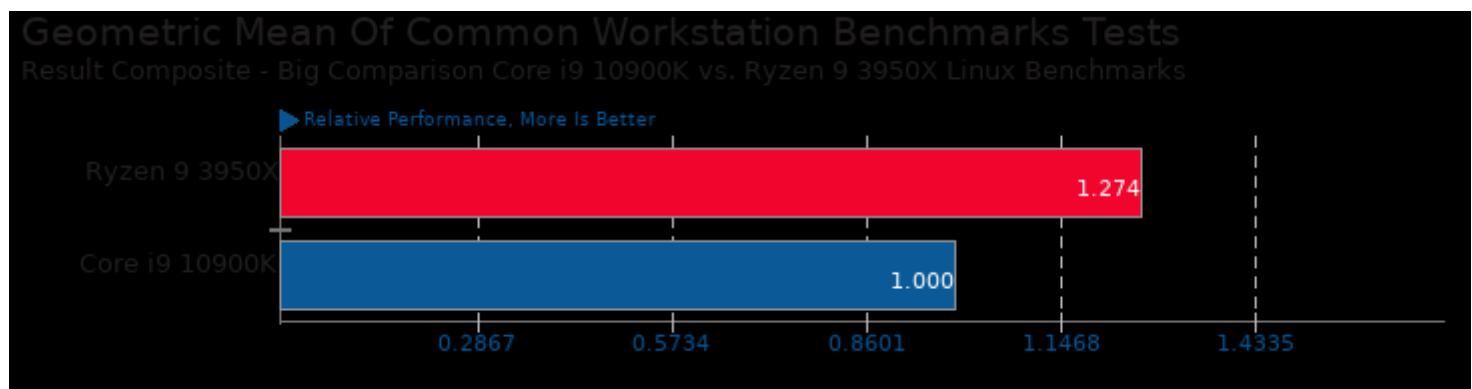
Geometric mean based upon tests: pts/unigine-valley, pts/unigine-heaven and pts/unigine-super

Geometric Mean Of Video Encoding Tests

Result Composite - Big Comparison Core i9 10900K vs. Ryzen 9 3950X Linux Benchmarks



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



Geometric mean based upon tests: pts/blender, pts/rodinia, pts/parboil, pts/himeno, pts/brl-cad, pts/x265, pts/paraview, pts/swet, pts/sysbench and pts/git

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