



CPU comparison

AMD Ryzen 9 5900X 12-Core testing with a Gigabyte B550 AORUS MASTER (F11g BIOS) and Device 8GB on Ubuntu 21.04 via the Phoronix Test Suite.

Automated Executive Summary

R9 5900X had the most wins, coming in first place for 50% of the tests.

Based on the geometric mean of all complete results, the fastest (R9 5900X) was 1.832x the speed of the slowest (i5-9400F). TR1920X was 0.667x the speed of R9 5900X, R5 3500X was 0.888x the speed of TR1920X, i5-9400F was 0.921x the speed of R5 3500X.

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

pmbench (Concurrent Worker Threads: 24 - Read-Write Ratio: 100% Reads) at 4.149x

pmbench (Concurrent Worker Threads: 24 - Read-Write Ratio: 80% Reads 20% Writes) at 4.076x

pmbench (Concurrent Worker Threads: 24 - Read-Write Ratio: 50%) at 3.972x

7-Zip Compression (Compress Speed Test) at 3.898x

Smallpt (Global Illumination Renderer; 128 Samples) at 3.648x

Core-Latency (Average Latency Between CPU Cores) at 3.508x

Timed Linux Kernel Compilation (Time To Compile) at 3.505x

Blender (Blend File: BMW27 - Compute: CPU-Only) at 3.462x

Timed FFmpeg Compilation (Time To Compile) at 3.308x

Kvazaar (Video Input: Bosphorus 4K - Video Preset: Medium) at 3.072x.

Test Systems:

TR1920X

Processor: AMD Ryzen Threadripper 1920X 12-Core @ 3.50GHz (12 Cores / 24 Threads), Motherboard: ASRock X399M Taichi (P1.00 BIOS), Chipset: AMD 17h, Memory: 32GB, Disk: 256GB THNSN5256GPUK TOSHIBA + 512GB SAMSUNG MZVKW512HMJP-000L7, Graphics: AMD Radeon RX 56/64 8GB, Audio: Realtek ALC1220, Monitor: Optix MAG24C, Network: 2 x Intel I211 + Intel Dual Band-AC 3168NGW

OS: Ubuntu 20.04, Kernel: 5.4.0-56-generic (x86_64), Desktop: Xfce 4.14, Display Server: X Server 1.20.8, Display Driver: amdgpu 19.1.0, OpenGL: 4.6 Mesa 20.0.8 (LLVM 10.0.0), Vulkan: 1.2.128, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8001129

Python Notes: Python 3.8.5

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

R5 3500X

Processor: AMD Ryzen 5 3500X 6-Core @ 3.60GHz (6 Cores), Motherboard: Gigabyte B450M DS3H-CF (F50 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 256GB THNSN5256GPUK TOSHIBA, Graphics: NVIDIA GeForce GTX 1050 Ti 4GB (1290/3504MHz), Audio: NVIDIA GP107GL HD Audio, Monitor: HP E190i, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.4.0-56-generic (x86_64), Desktop: Xfce 4.14, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.80.02, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.0.228, Vulkan: 1.2.133, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1280x1024

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0x8701013

OpenCL Notes: GPU Compute Cores: 768

Python Notes: Python 3.8.5

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

i5-9400F

Processor: Intel Core i5-9400F @ 4.10GHz (6 Cores), Motherboard: ASUS PRIME Z390-P (2606 BIOS), Chipset: Intel Cannon Lake PCH, Memory: 32GB, Disk: 256GB THNSN5256GPUK TOSHIBA, Graphics: MSI NVIDIA GeForce GTX

1070 8GB (1531/4006MHz), Audio: Realtek ALC887-VD, Monitor: Optix MAG24C, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.4.0-56-generic (x86_64), Desktop: Xfce 4.14, Display Server: X Server 1.20.8, Display Driver: NVIDIA 450.80.02, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.0.228, Vulkan: 1.2.133, Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdc++-debug --enable-libstdc++-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-9-HskZEa/gcc-9-9.3.0/debian/tmp-nvptx/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdc++-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: intel_pstate performance - CPU Microcode: 0xde - Thermalid 1.9.1
OpenCL Notes: GPU Compute Cores: 1920
Python Notes: Python 3.8.5
Security Notes: itlb_multihit: KVM: Vulnerable + 1tft: Mitigation of PTE Inversion + mds: Mitigation of Clear buffers; SMT disabled + meltdown: Mitigation of PTI + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Full generic retpoline IBPB: conditional IBRS_FW STIBP: disabled RSB filling + srbds: Mitigation of Microcode + tsx_async_abort: Not affected

R9 5900X

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: Gigabyte B550 AORUS MASTER (F11g BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB KINGSTON SA2000M81000G + 256GB THNSF5256GPUK TOSHIBA, Graphics: Device 8GB (1725/7000MHz), Audio: NVIDIA Device 228b, Monitor: LG ULTRAWIDE, Network: Realtek RTL8125 2.5GbE + Intel Wi-Fi 6 AX200

OS: Ubuntu 21.04, Kernel: 5.8.0-25-generic (x86_64), Desktop: Xfce, Display Server: X Server 1.20.9, Display Driver: NVIDIA 455.28, OpenGL: 4.6.0, OpenCL: OpenCL 1.2 CUDA 11.1.96, Vulkan: 1.2.142, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 3440x1440

Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-bootstrap --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdc++-debug --enable-libstdc++-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-9R82w2/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgc-amdhsa=/build/gcc-10-9R82w2/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-build-config=bootstrap-lto-lean --with-default-libstdc++-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand - CPU Microcode: 0xa201009
OpenCL Notes: GPU Compute Cores: 5888
Python Notes: Python 3.9.1rc1
Security Notes: itlb_multihit: Not affected + 1tft: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swaps barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	TR1920X	R5 3500X	i5-9400F	R9 5900X
Stream - Copy (MB/s)	33068	41869	37620	46041
Normalized	71.82%	90.94%	81.71%	100%
Standard Deviation	0%	0%	0%	0%
Stream - Scale (MB/s)	33722	26035	26216	31328
Normalized	100%	77.21%	77.74%	92.9%
Standard Deviation	0.2%	0.1%	0%	0%
Stream - Triad (MB/s)	36521	28704	29427	34675
Normalized	100%	78.6%	80.58%	94.95%
Standard Deviation	0%	0.1%	0.1%	0%
Stream - Add (MB/s)	36466	28606	29470	34506
Normalized	100%	78.45%	80.82%	94.62%

CPU comparison

	Standard Deviation	0%	0%	0.1%	0.1%
pmbench - 1 - 50% (us - Page Latency)		0.0860	0.0784	0.0669	0.0691
	Normalized	77.79%	85.33%	100%	96.82%
	Standard Deviation	0.1%	0.1%	0.3%	0.2%
pmbench - 8 - 50% (us - Page Latency)		0.1032	0.1101	0.0876	0.0713
	Normalized	69.09%	64.76%	81.39%	100%
	Standard Deviation	0.1%	2.8%	17.9%	0.6%
pmbench - 24 - 50% (us - Page Latency)		0.1450	0.3603	0.2905	0.0907
	Normalized	62.55%	25.17%	31.22%	100%
	Standard Deviation	1.4%	2.4%	3.7%	0.7%
pmbench - 1 - 100% Reads (us - Page Latency)		0.0393	0.0385	0.0344	0.0335
	Normalized	85.24%	87.01%	97.38%	100%
	Standard Deviation	1.5%	0.4%	0.3%	1.1%
pmbench - 8 - 100% Reads (us - Page Latency)		0.0439	0.0596	0.0511	0.0377
	Normalized	85.88%	63.26%	73.78%	100%
	Standard Deviation	1.5%	2%	9.3%	0.2%
pmbench - 1 - 100% Writes (us - Page Latency)		0.0474	0.0457	0.0376	0.0375
	Normalized	79.11%	82.06%	99.73%	100%
	Standard Deviation	0.2%	0.3%	0.2%	0.3%
pmbench - 24 - 100% Reads (us - Page Latency)		0.0468	0.1805	0.1685	0.0435
	Normalized	92.95%	24.1%	25.82%	100%
	Standard Deviation	1.7%	5.7%	0.8%	0.1%
pmbench - 8 - 100% Writes (us - Page Latency)		0.0676	0.0706	0.0570	0.0438
	Normalized	64.79%	62.04%	76.84%	100%
	Standard Deviation	0%	0.8%	14.4%	0%
pmbench - 24 - 100% Writes (us - Page Latency)		0.1225	0.2214	0.1765	0.0781
	Normalized	63.76%	35.28%	44.25%	100%
	Standard Deviation	2.8%	6.8%	2.3%	0.5%
pmbench - 1 - 8.R.2.W (us - Page Latency)		0.1072	0.0982	0.0796	0.0857
	Normalized	74.25%	81.06%	100%	92.88%
	Standard Deviation	0.7%	0.2%	0.1%	0.9%
pmbench - 8 - 8.R.2.W (us - Page Latency)		0.1228	0.1377	0.1055	0.0881
	Normalized	71.74%	63.98%	83.51%	100%
	Standard Deviation	0.5%	1.1%	20.4%	0.3%
pmbench - 24 - 8.R.2.W (us - Page Latency)		0.1509	0.4056	0.3444	0.0995
	Normalized	65.94%	24.53%	28.89%	100%
	Standard Deviation	1.5%	1.1%	2%	0.9%
IPC_benchmark - TCP Socket - 128 (Messages/sec)		2763312	3534190	1697089	4454179
	Normalized	62.04%	79.35%	38.1%	100%
	Standard Deviation	0.7%	1%	0.1%	1.2%
IPC_benchmark - TCP Socket - 1024 (Messages/sec)		1896825	2441221	1479569	3316000
	Normalized	57.2%	73.62%	44.62%	100%
	Standard Deviation	0.5%	2.7%	0.7%	1.7%

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IPC_benchmark - Unnamed Pipe - 128 (Messages/sec)		2606605	3319803	1698813	5190026
Normalized	50.22%		63.97%	32.73%	100%
Standard Deviation	1.3%		2.9%	2.6%	6.5%
IPC_benchmark - Unnamed Pipe - 1024 (Messages/sec)		2183690	3614649	1688838	4418805
Normalized	49.42%		81.8%	38.22%	100%
Standard Deviation	2.4%		1.5%	1.3%	4.2%
IPC_benchmark - FIFO Named Pipe - 128 (Messages/sec)		2351114	3218204	1614666	5213946
Normalized	45.09%		61.72%	30.97%	100%
Standard Deviation	1.3%		5.1%	2.9%	7.1%
IPC_benchmark - FIFO Named Pipe - 1024 (Messages/sec)		2068182	3250096	1661583	4574741
Normalized	45.21%		71.04%	36.32%	100%
Standard Deviation	3.1%		2.6%	3.2%	2.6%
NAS Parallel Benchmarks - BT.C (Mop/s)		30424	19789	18025	
Normalized	100%		65.04%	59.25%	
Standard Deviation	0.7%		0.2%	0%	
NAS Parallel Benchmarks - EP.C (Mop/s)		708.60	388.97	853.98	
Normalized	82.98%		45.55%	100%	
Standard Deviation	0.1%		0.5%	0.5%	
NAS Parallel Benchmarks - EP.D (Mop/s)		701.36	386.90	854.18	
Normalized	82.11%		45.29%	100%	
Standard Deviation	0.7%		0.2%	0.1%	
NAS Parallel Benchmarks - FT.C (Mop/s)		13646	10566	9138	
Normalized	100%		77.43%	66.97%	
Standard Deviation	1%		0.6%	0.6%	
NAS Parallel Benchmarks - LU.C (Mop/s)		37707	24865	23757	
Normalized	100%		65.94%	63.01%	
Standard Deviation	0.3%		0.2%	0.2%	
NAS Parallel Benchmarks - MG.C (Mop/s)		21997	13645	10993	
Normalized	100%		62.03%	49.97%	
Standard Deviation	1.8%		2.7%	0.1%	
NAS Parallel Benchmarks - SP.B (Mop/s)		11196	7609	6729	
Normalized	100%		67.96%	60.1%	
Standard Deviation	1.6%		0.3%	0%	
Parboil - OpenMP LBM (sec)		81.600878	53.676352	93.334689	
Normalized	65.78%		100%	57.51%	
Standard Deviation	0.2%		1.4%	0.1%	
Parboil - OpenMP CUTCP (sec)		2.925903	4.945790	6.658675	
Normalized	100%		59.16%	43.94%	
Standard Deviation	1.2%		0.4%	0.3%	
Parboil - OpenMP Stencil (sec)		15.769507	84.762492	15.108292	
Normalized	95.81%		17.82%	100%	
Standard Deviation	9.3%		10.7%	0.2%	

CPU comparison

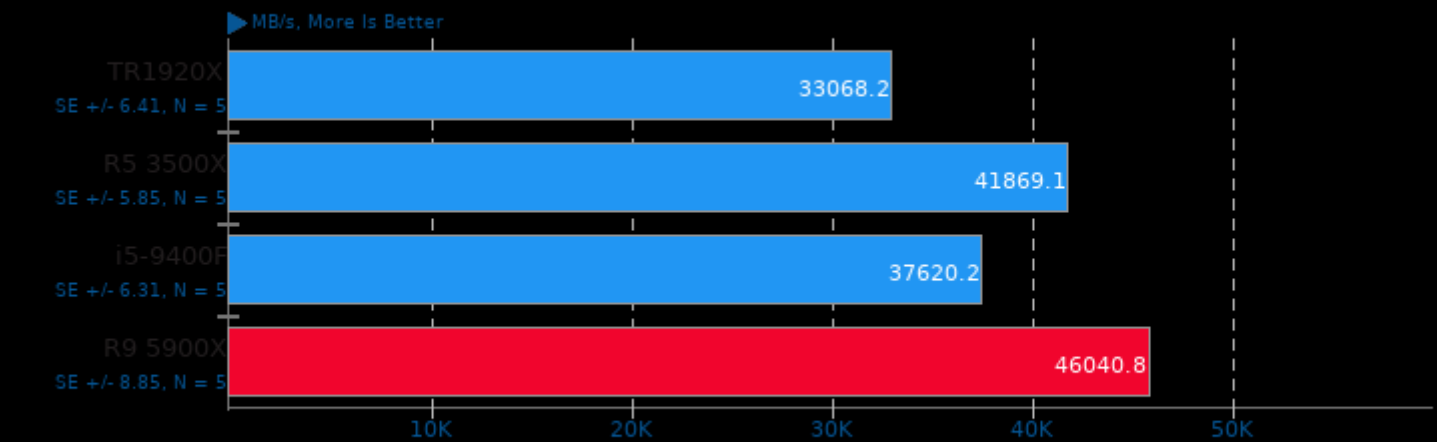
Parboil - O.M.G (sec)		137.447454	14.738576	26.650032	
Normalized		10.72%	100%	55.3%	
Standard Deviation		0.3%	0.2%	9.1%	
Izbench - XZ 0 - Compression (MB/s)		37	39	40	
	Normalized	92.5%	97.5%	100%	
	Standard Deviation		2.6%		
Izbench - XZ 0 - Decompression		109	123	108	
	Normalized	88.62%	100%	87.8%	
	Standard Deviation		0.5%		
Izbench - Zstd 1 - Compression (MB/s)		494	518	473	
	Normalized	95.37%	100%	91.31%	
	Standard Deviation		0.5%		
Izbench - Zstd 1 - Decompression		1305	1425	1297	
	Normalized	91.58%	100%	91.02%	
	Standard Deviation	0.3%	0.3%		
Izbench - Zstd 8 - Compression (MB/s)		93	103	86	
	Normalized	90.29%	100%	83.5%	
	Standard Deviation	0.6%	1.1%		
Izbench - Zstd 8 - Decompression		1445	1580	1404	
	Normalized	91.46%	100%	88.86%	
	Standard Deviation	0.5%			
Izbench - Crush 0 - Compression		86	96	100	
	Normalized	86%	96%	100%	
	Standard Deviation		1.2%		
Izbench - Crush 0 - Decompression (MB/s)		458	471	478	
	Normalized	95.82%	98.54%	100%	
	Standard Deviation	0.4%	0.5%		
Izbench - Brotli 0 - Compression		470	508	432	
	Normalized	92.52%	100%	85.04%	
	Standard Deviation		0.8%	0.4%	
Izbench - Brotli 0 - Decompression (MB/s)		556	607	608	
	Normalized	91.45%	99.84%	100%	
	Standard Deviation	0.3%	0.3%	0.2%	
Izbench - Brotli 2 - Compression		193	203	186	
	Normalized	95.07%	100%	91.63%	
	Standard Deviation	0.5%	0.6%		
Izbench - Brotli 2 - Decompression (MB/s)		649	706	705	
	Normalized	91.93%	100%	99.86%	
	Standard Deviation	0.4%	1.6%	0.1%	
Izbench - Libdeflate 1 - Compression (MB/s)		236	252	219	
	Normalized	93.65%	100%	86.9%	
	Standard Deviation	1.3%	0.2%		
Izbench - Libdeflate 1 - Decompression (MB/s)		1166	1181	1062	
	Normalized	98.73%	100%	89.92%	
	Standard Deviation	0.2%	0.3%		
Botan - AES-256 (MiB/s)	5478	5550	3922	7271	
Normalized	75.35%	76.33%	53.95%	100%	
Standard Deviation	0.4%	0.5%	0%	2.7%	
Botan - Blowfish (MiB/s)	438.421	451.298	445.575	555.451	

CPU comparison

	Normalized	78.93%	81.25%	80.22%	100%
	Standard Deviation	0.2%	0%	0.1%	2.9%
AOM AV1 - Speed 6 Two-Pass (FPS)		2.96	3.70	3.48	5.25
	Normalized	56.38%	70.48%	66.29%	100%
	Standard Deviation	0.3%	0.2%	0.4%	0.9%
AOM AV1 - Speed 8 Realtime (FPS)		28.22	39.09	40.76	52.95
	Normalized	53.3%	73.82%	76.98%	100%
	Standard Deviation	1.1%	1.2%	0%	2.8%
Kvazaar - Bosphorus 4K - Medium		5.09	3.45	2.78	8.54
	Normalized	59.6%	40.4%	32.55%	100%
	Standard Deviation	1.1%	0%	0.6%	0.1%
Kvazaar - Bosphorus 1080p - Medium (FPS)		19.94	15.08	12.51	31.35
	Normalized	63.6%	48.1%	39.9%	100%
	Standard Deviation	0.7%	0.1%	1%	0.2%
VP9 libvpx Encoding - Speed 5 (FPS)		17.49	25.34	24.72	30.23
	Normalized	57.86%	83.82%	81.77%	100%
	Standard Deviation	0.8%	1.4%	0.1%	1.4%
7-Zip Compression - C.S.T (MIPS)		58222	31476	26895	104846
	Normalized	55.53%	30.02%	25.65%	100%
	Standard Deviation	0.8%	0.5%	0.3%	0.2%
Timed Apache Compilation - Time To Compile (sec)		27.549	25.870	27.216	15.733
	Normalized	57.11%	60.82%	57.81%	100%
	Standard Deviation	0.7%	1.6%	0.1%	1%
Timed FFmpeg Compilation - Time To Compile (sec)		57.024	85.843	98.299	29.714
	Normalized	52.11%	34.61%	30.23%	100%
	Standard Deviation	2.8%	1.2%	2%	0.4%
Timed Linux Kernel Compilation - Time To Compile (sec)		79.170	133.855	155.291	44.303
	Normalized	55.96%	33.1%	28.53%	100%
	Standard Deviation	2%	1.8%	0.6%	1.7%
C-Ray - Total Time - 4.1.R.P.P (sec)		50.261	93.032	115.957	38.933
	Normalized	77.46%	41.85%	33.58%	100%
	Standard Deviation	0.5%	0.1%	0%	0.3%
Smallpt - G.I.R.1.S (sec)		8.648	20.449	22.619	6.200
	Normalized	71.69%	30.32%	27.41%	100%
	Standard Deviation	0.9%	0.1%	0.1%	0.8%
AOBench - 2048 x 2048 - Total Time (sec)		36.516	33.171	34.143	28.610
	Normalized	78.35%	86.25%	83.79%	100%
	Standard Deviation	0.5%	0.1%	0.3%	0.1%
FFmpeg - H.2.H.T.N.D (sec)		7.896	5.315	4.871	6.311
	Normalized	61.69%	91.65%	100%	77.18%
	Standard Deviation	1.2%	1.1%	0.5%	1.3%
Core-Latency - A.L.B.C.C (ns)		382.28	147.73821	108.98306	137.37
	Normalized	28.51%	73.77%	100%	79.34%
Blender - BMW27 - CPU-Only (sec)		138.10	299.57	328.92	95.01
	Normalized	68.8%	31.72%	28.89%	100%
	Standard Deviation	1.1%	0.2%	0.5%	0.2%

Stream 2013-01-17

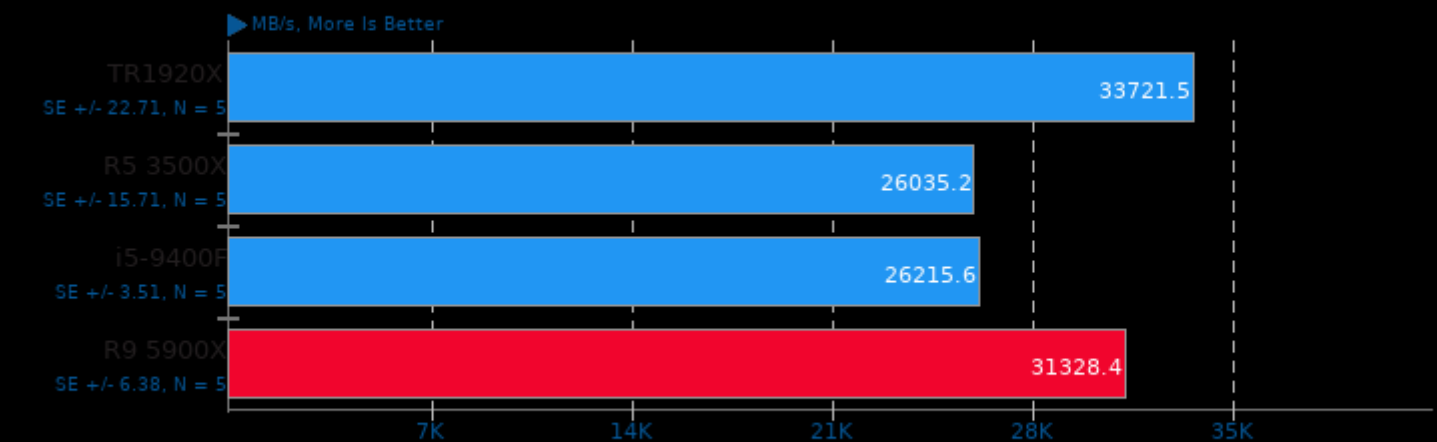
Type: Copy



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

Stream 2013-01-17

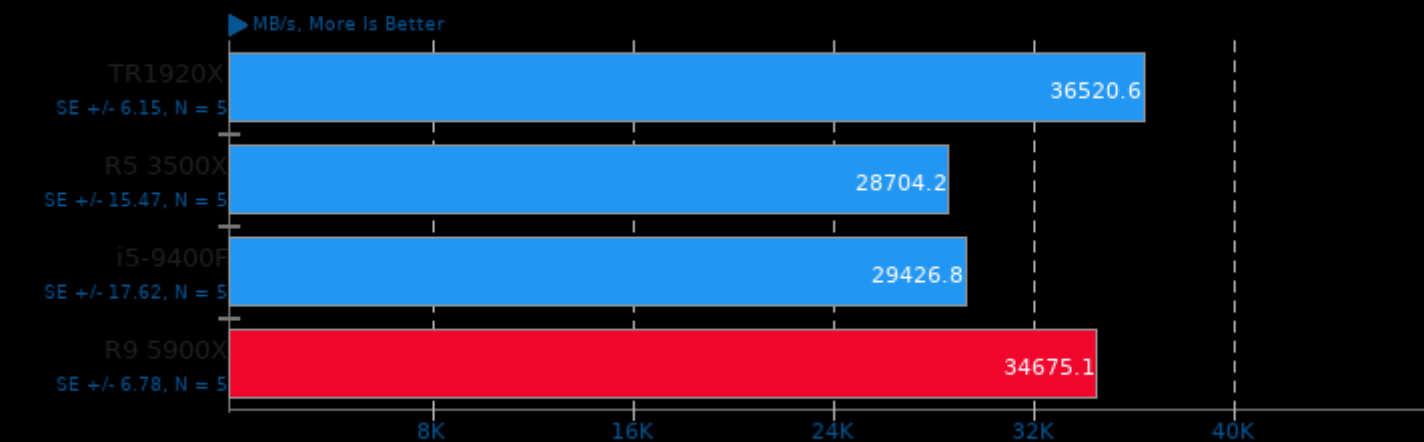
Type: Scale



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

Stream 2013-01-17

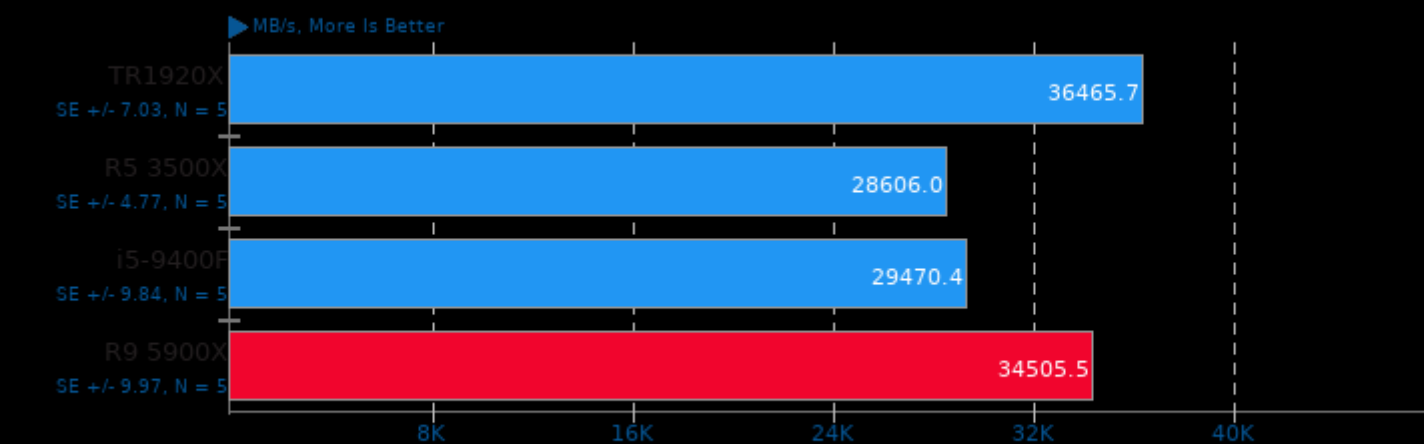
Type: Triad



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

Stream 2013-01-17

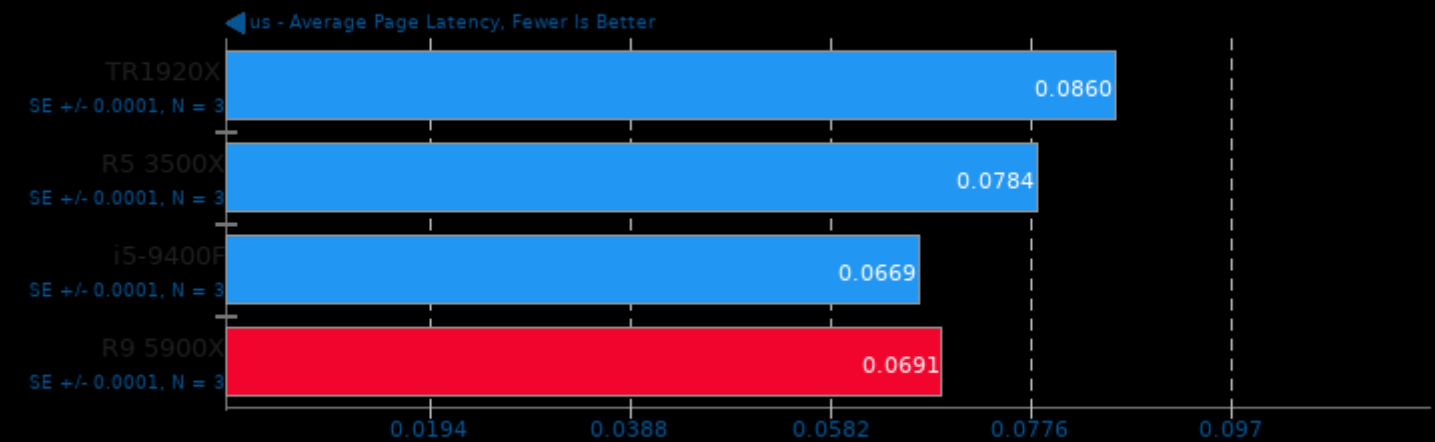
Type: Add



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

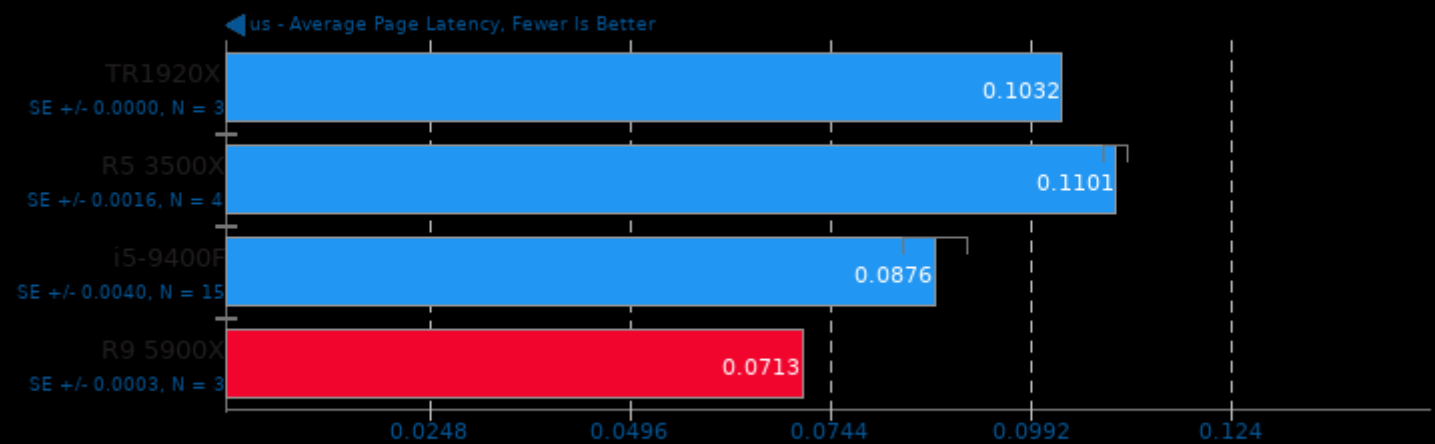
pmbench

Concurrent Worker Threads: 1 - Read-Write Ratio: 50%



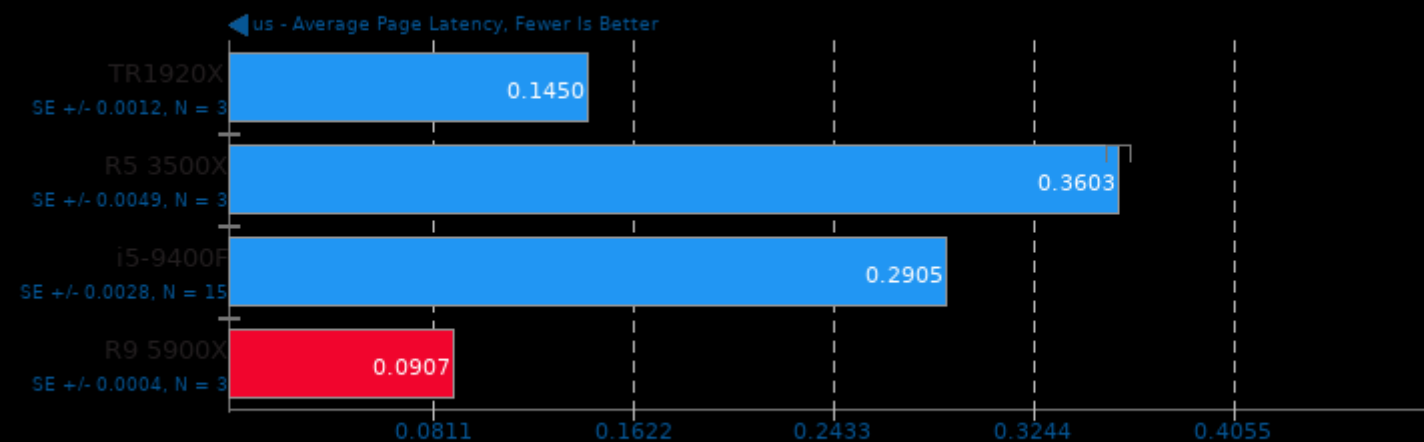
pmbench

Concurrent Worker Threads: 8 - Read-Write Ratio: 50%



pmbench

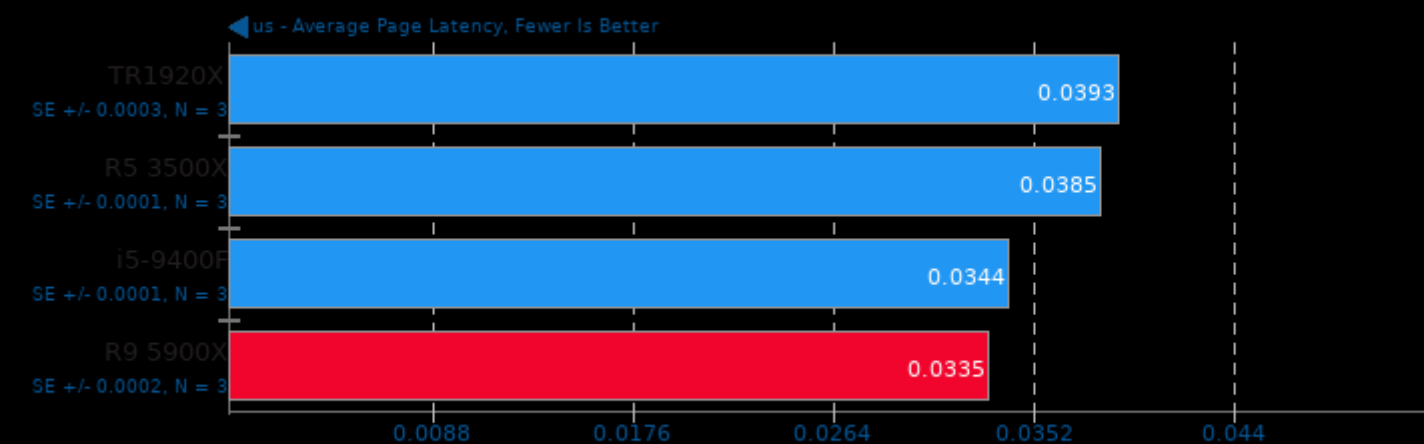
Concurrent Worker Threads: 24 - Read-Write Ratio: 50%



1. (CC) gcc options: -lm -lfluid -lxml2 -m64 -pthread

pmbench

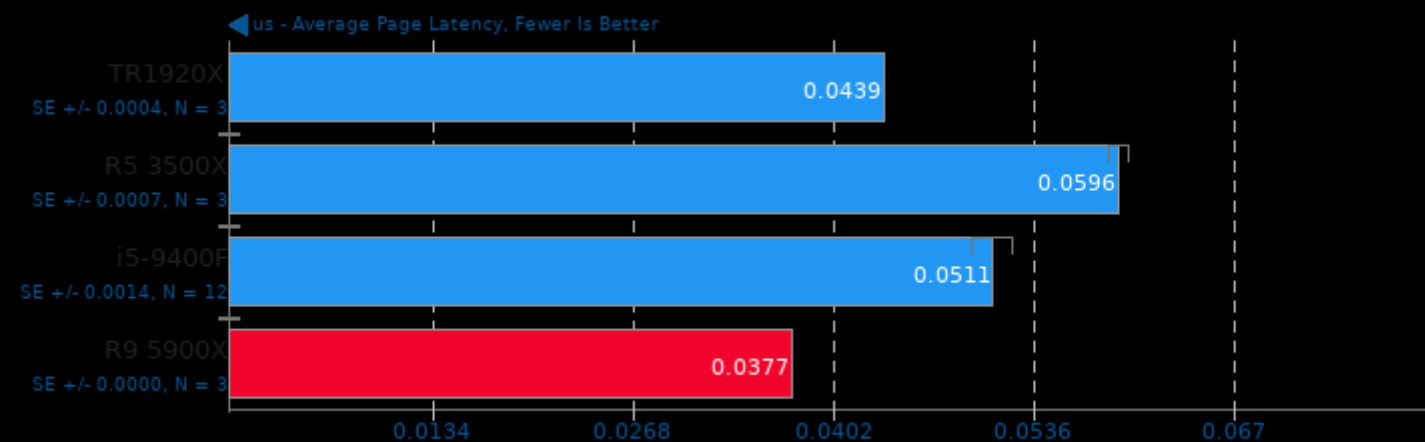
Concurrent Worker Threads: 1 - Read-Write Ratio: 100% Reads



1. (CC) gcc options: -lm -lfluid -lxml2 -m64 -pthread

pmbench

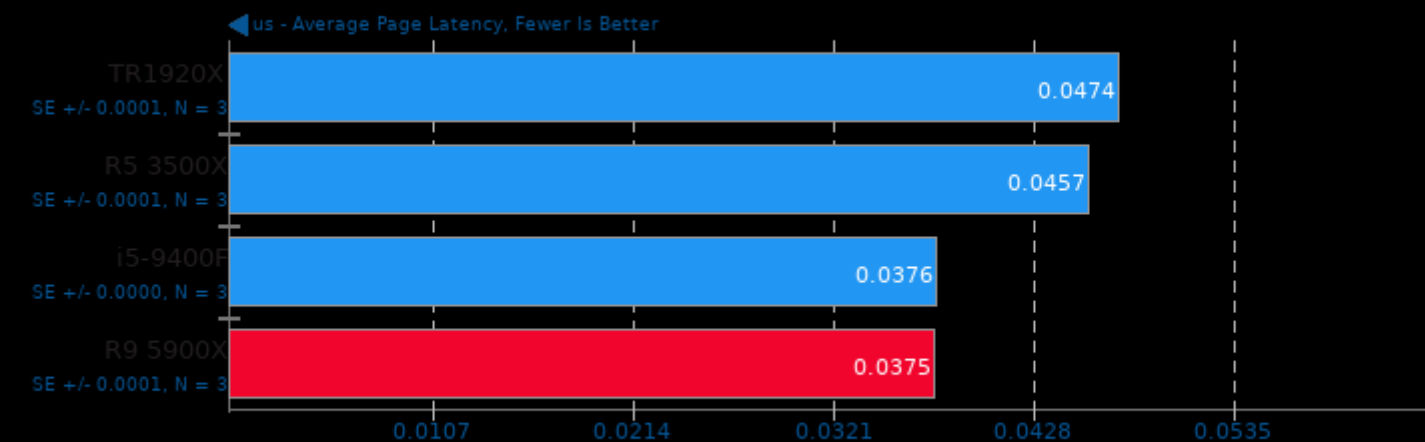
Concurrent Worker Threads: 8 - Read-Write Ratio: 100% Reads



1. (CC) gcc options: -lm -luid -lxml2 -m64 -pthread

pmbench

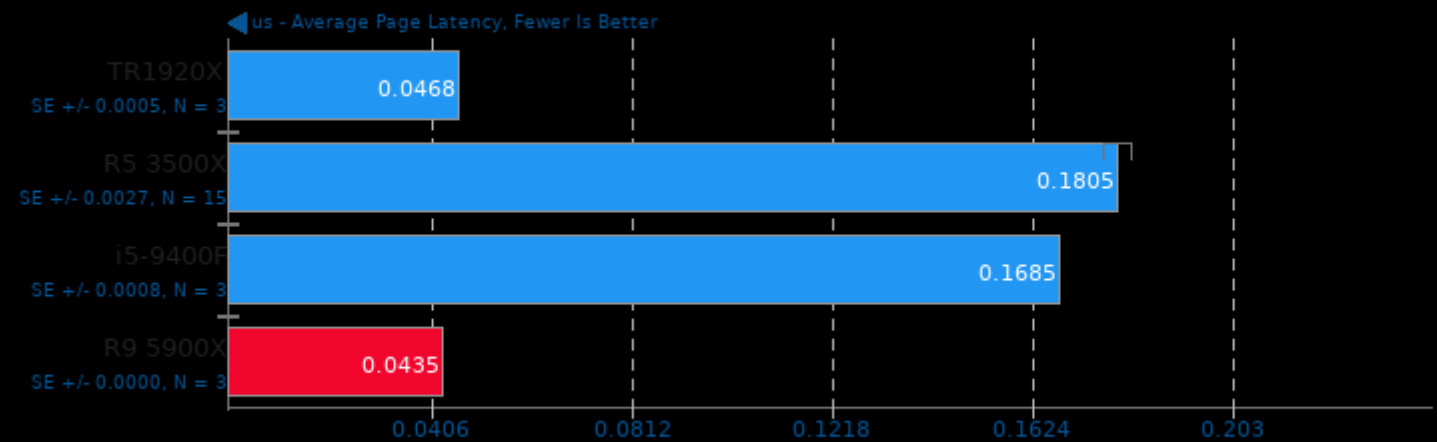
Concurrent Worker Threads: 1 - Read-Write Ratio: 100% Writes



1. (CC) gcc options: -lm -luid -lxml2 -m64 -pthread

pmbench

Concurrent Worker Threads: 24 - Read-Write Ratio: 100% Reads



1, (CC) gcc options: -lm -lfluid -lxml2 -m64 -pthread

pmbench

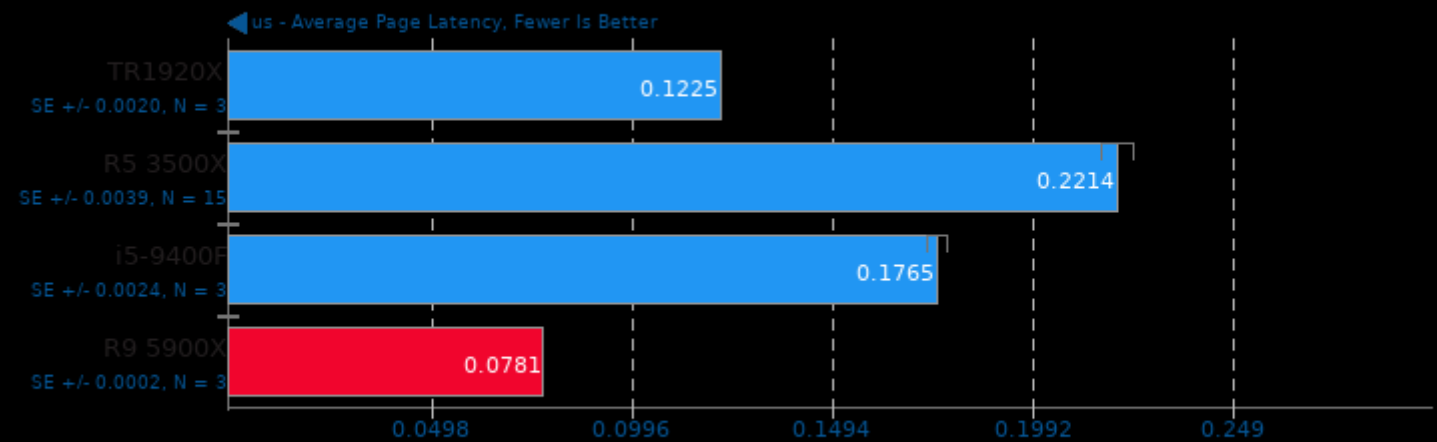
Concurrent Worker Threads: 8 - Read-Write Ratio: 100% Writes



1, (CC) gcc options: -lm -lfluid -lxml2 -m64 -pthread

pmbench

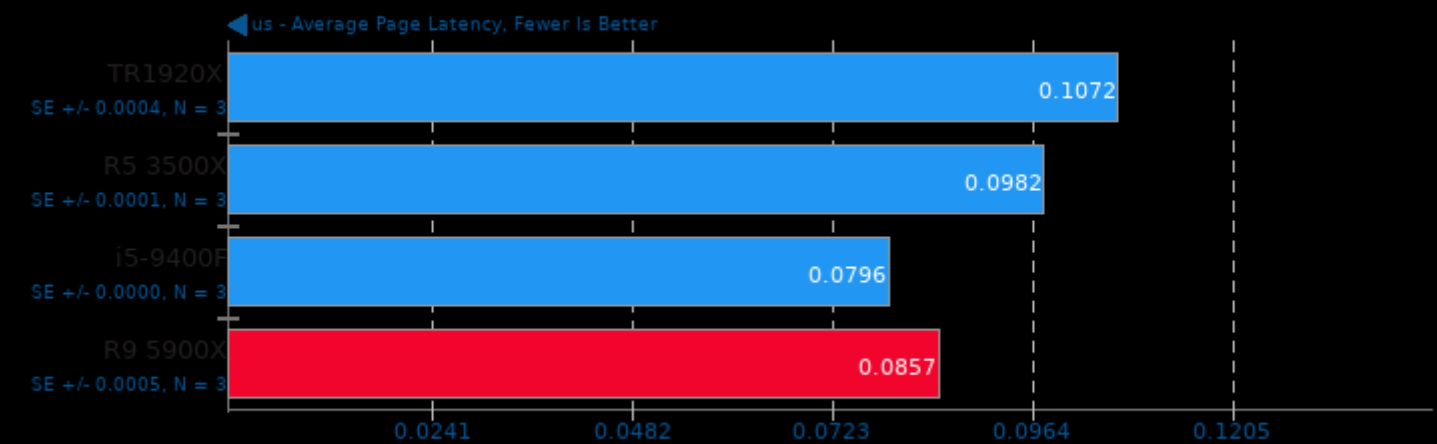
Concurrent Worker Threads: 24 - Read-Write Ratio: 100% Writes



1. (CC) gcc options: -lm -lfluid -lxml2 -m64 -pthread

pmbench

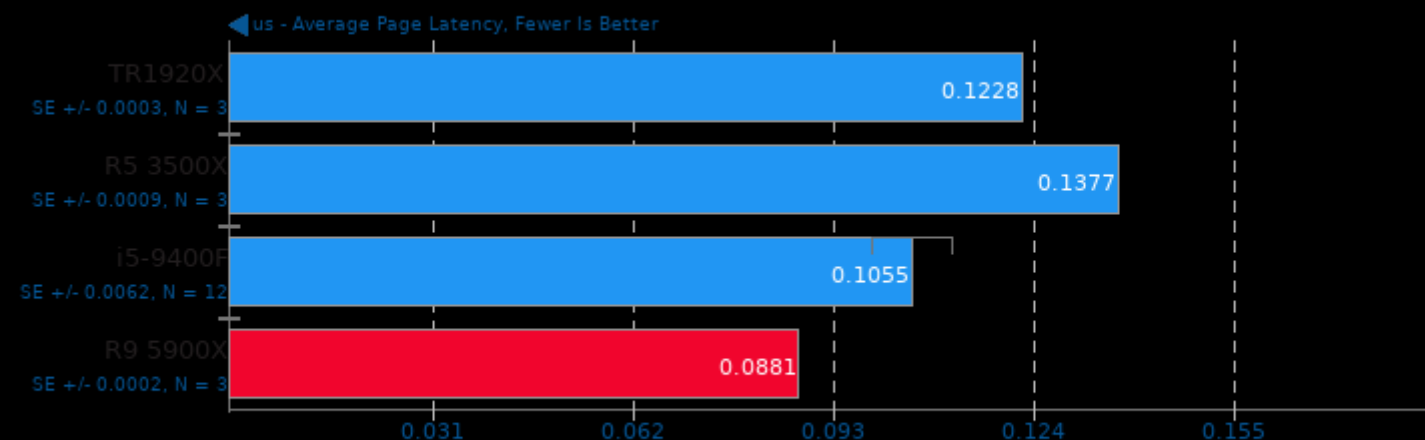
Concurrent Worker Threads: 1 - Read-Write Ratio: 80% Reads 20% Writes



1. (CC) gcc options: -lm -lfluid -lxml2 -m64 -pthread

pmbench

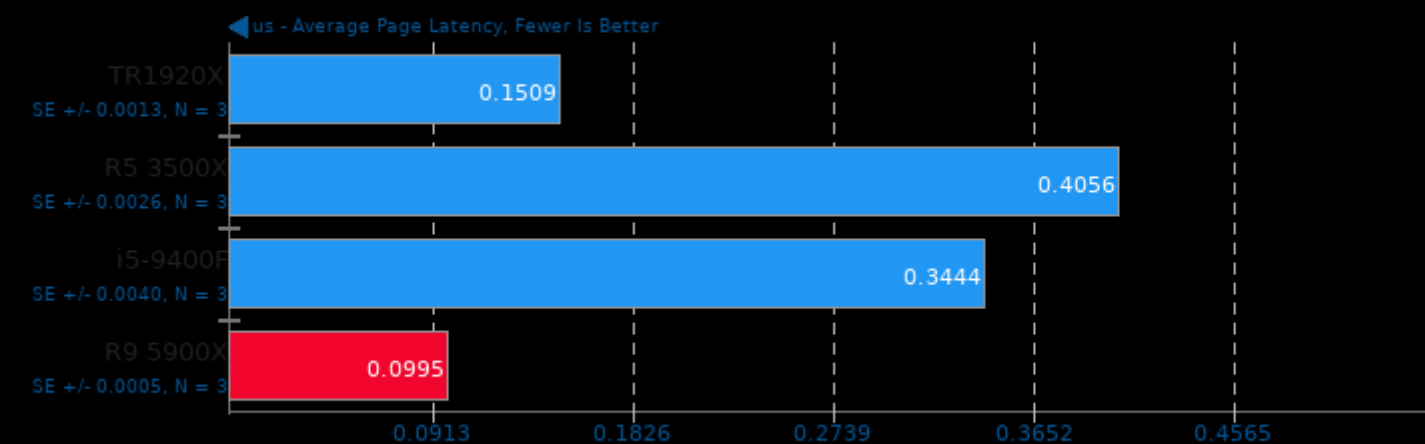
Concurrent Worker Threads: 8 - Read-Write Ratio: 80% Reads 20% Writes



1. (CC) gcc options: -lm -luid -lxml2 -m64 -pthread

pmbench

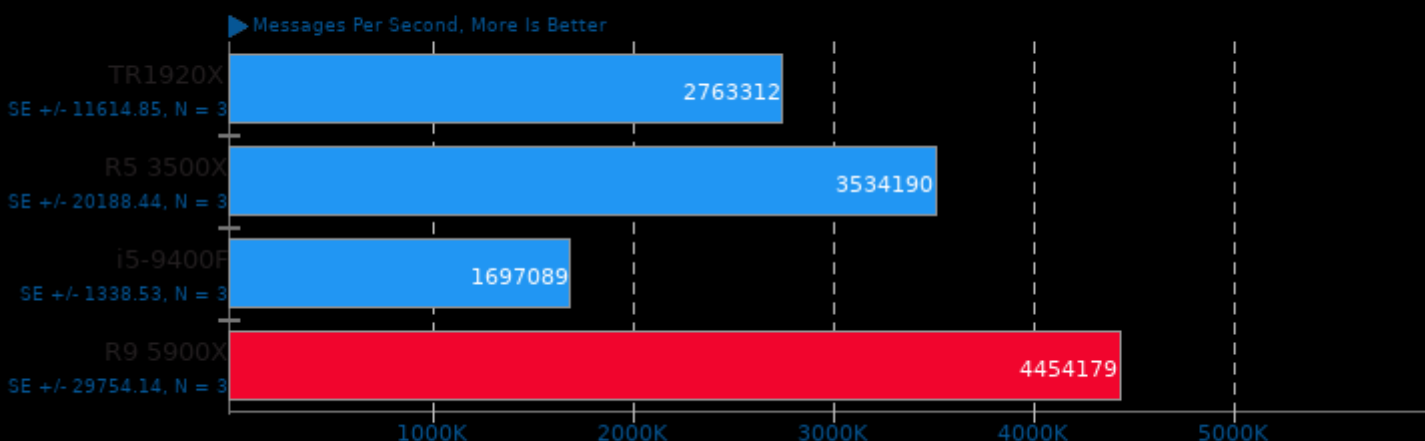
Concurrent Worker Threads: 24 - Read-Write Ratio: 80% Reads 20% Writes



1. (CC) gcc options: -lm -luid -lxml2 -m64 -pthread

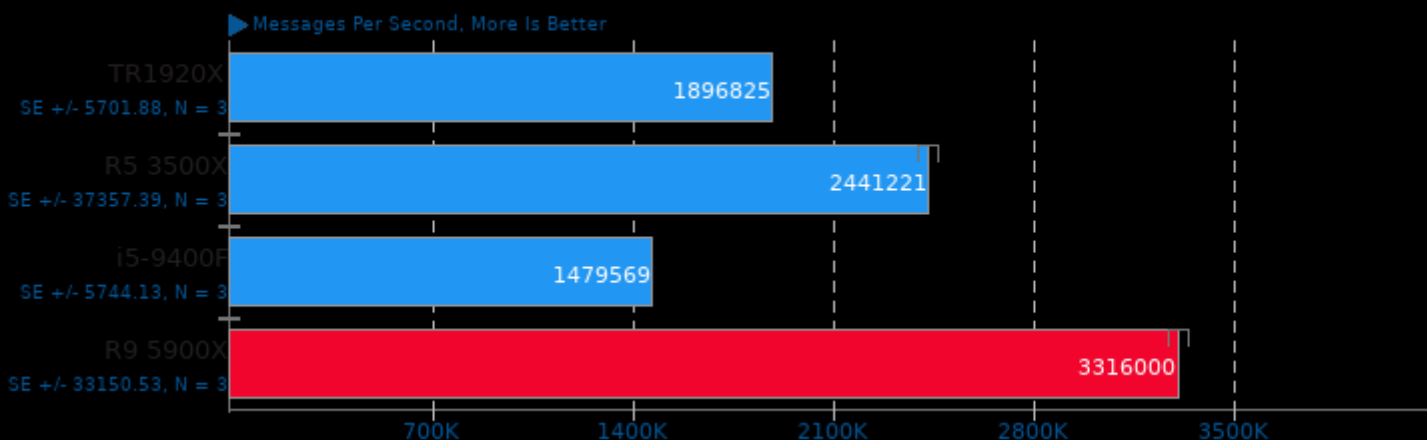
IPC_benchmark

Type: TCP Socket - Message Bytes: 128



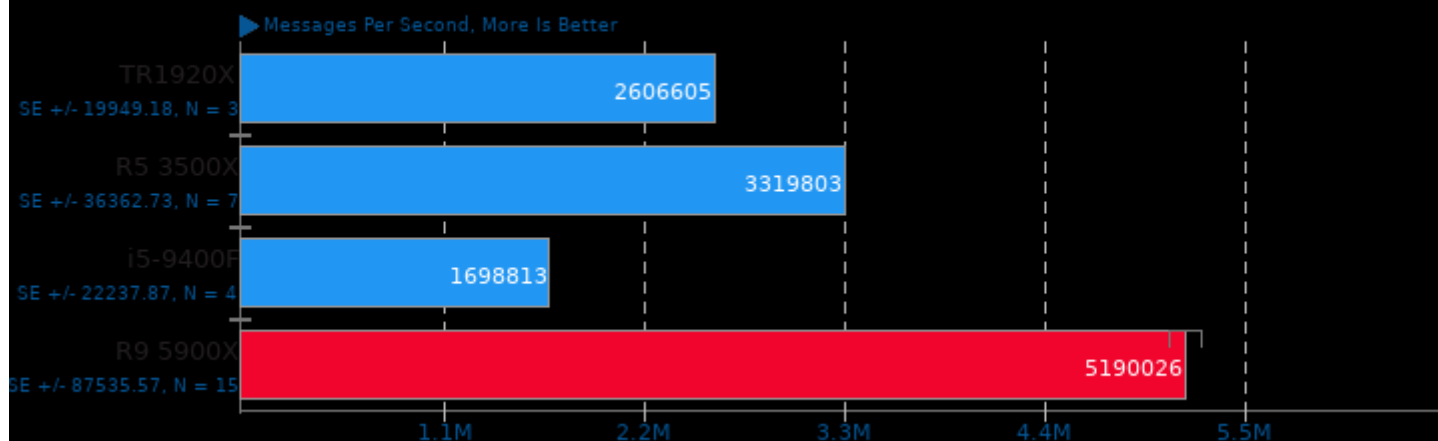
IPC_benchmark

Type: TCP Socket - Message Bytes: 1024



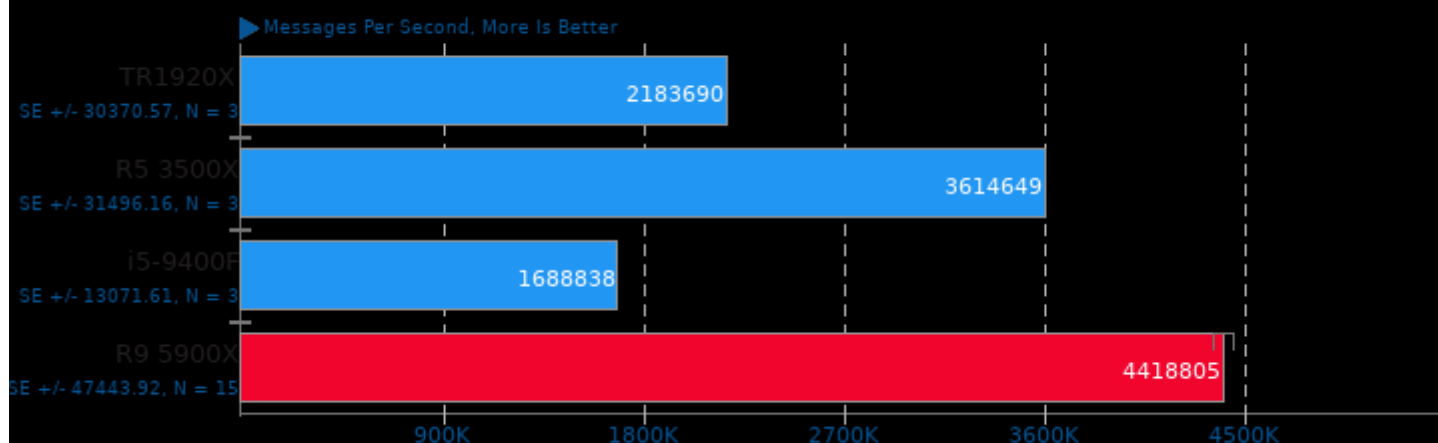
IPC_benchmark

Type: Unnamed Pipe - Message Bytes: 128



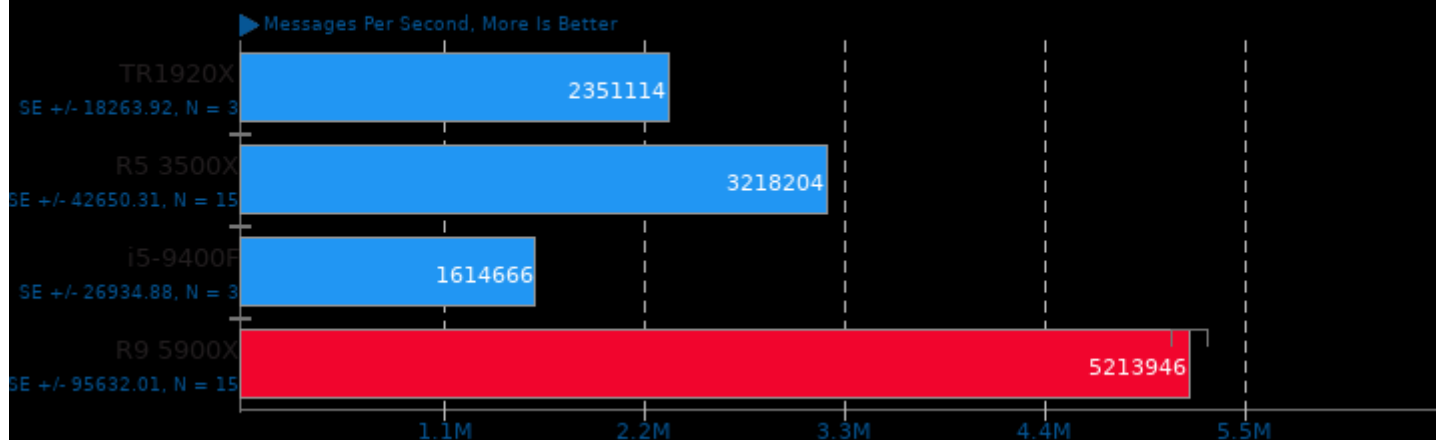
IPC_benchmark

Type: Unnamed Pipe - Message Bytes: 1024



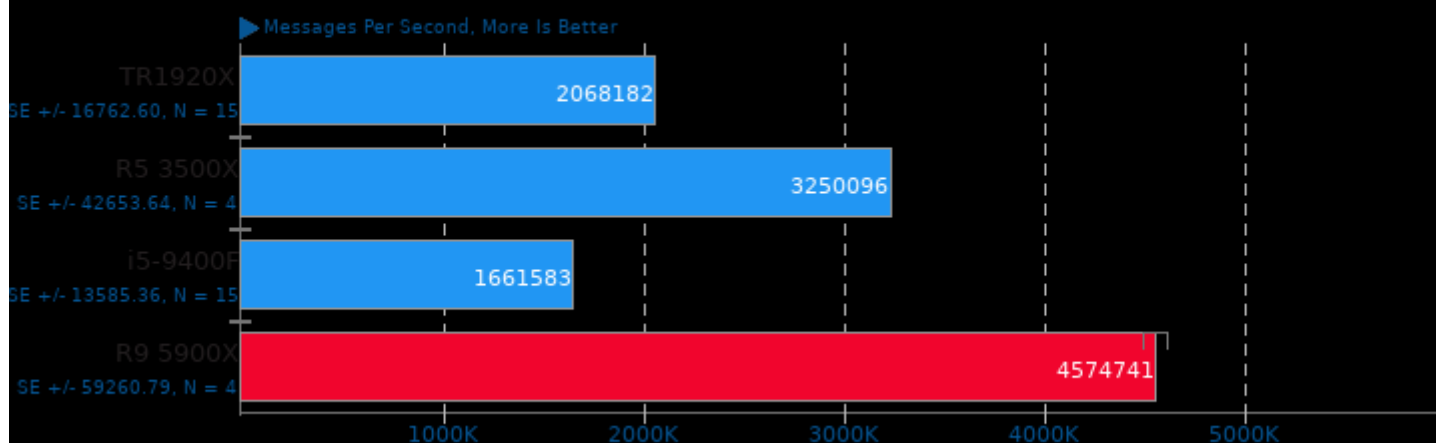
IPC_benchmark

Type: FIFO Named Pipe - Message Bytes: 128



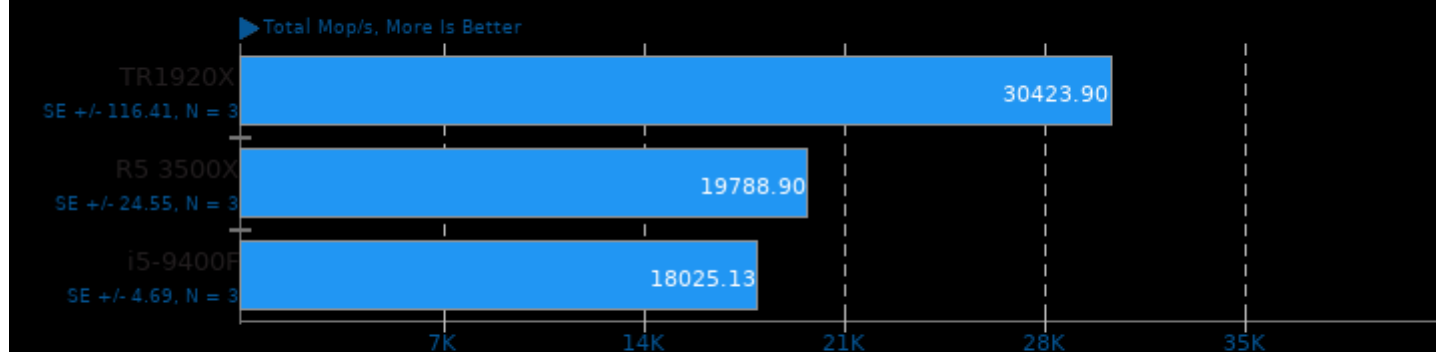
IPC_benchmark

Type: FIFO Named Pipe - Message Bytes: 1024



NAS Parallel Benchmarks 3.4

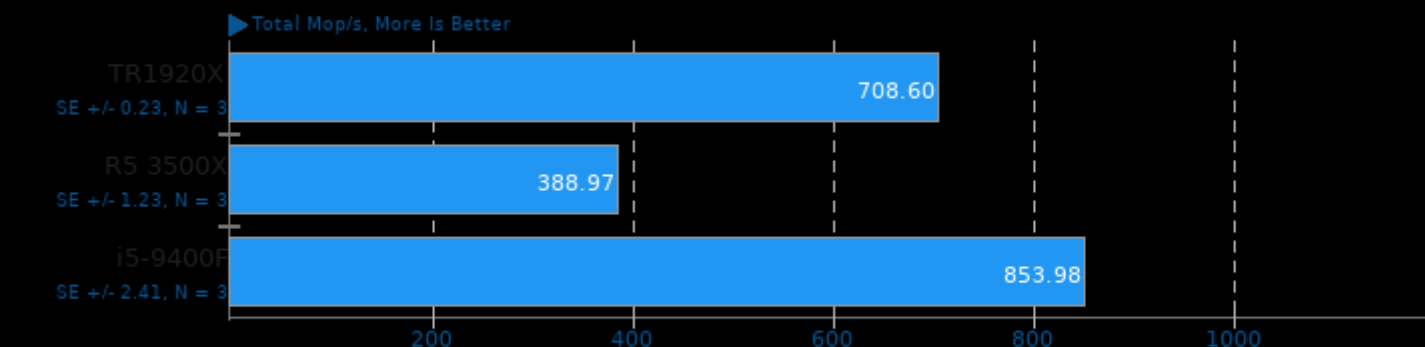
Test / Class: BT.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpih -lmpi
2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

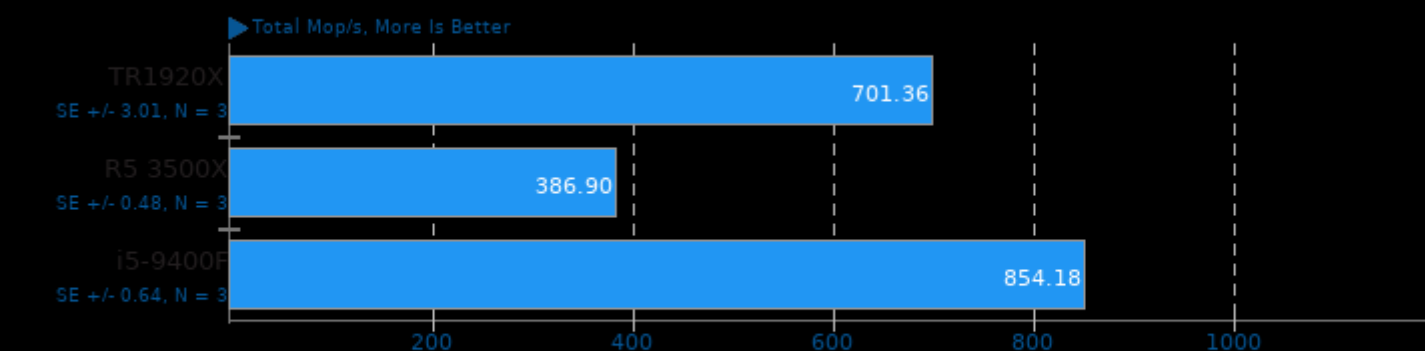
Test / Class: EP.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

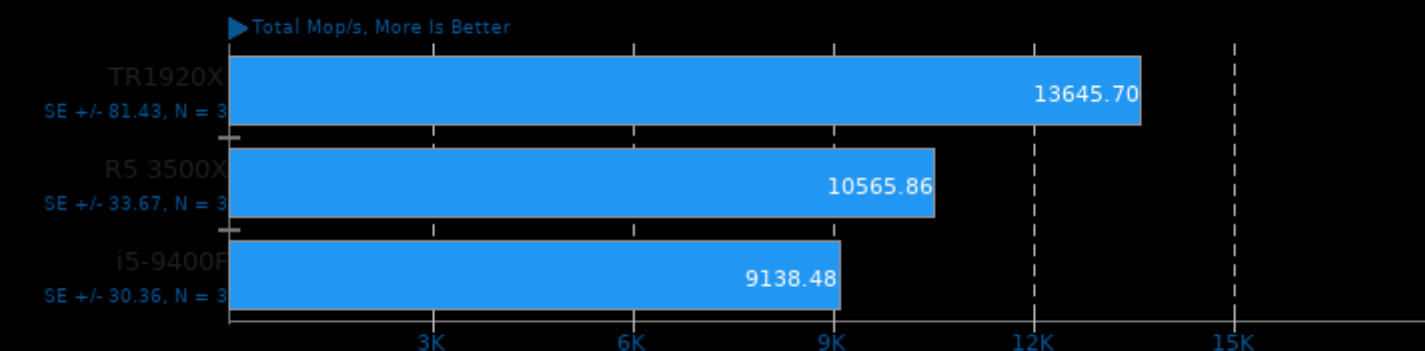
Test / Class: EP.D



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

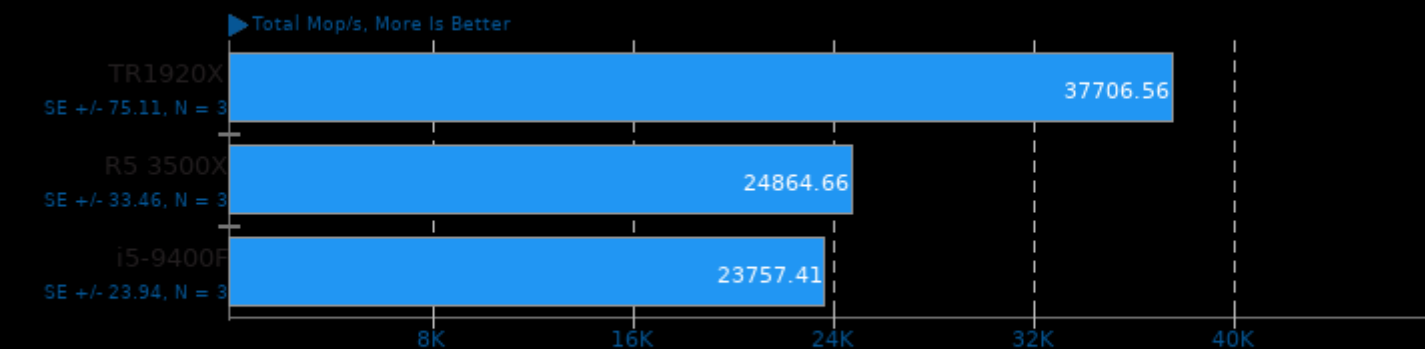
Test / Class: FT.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

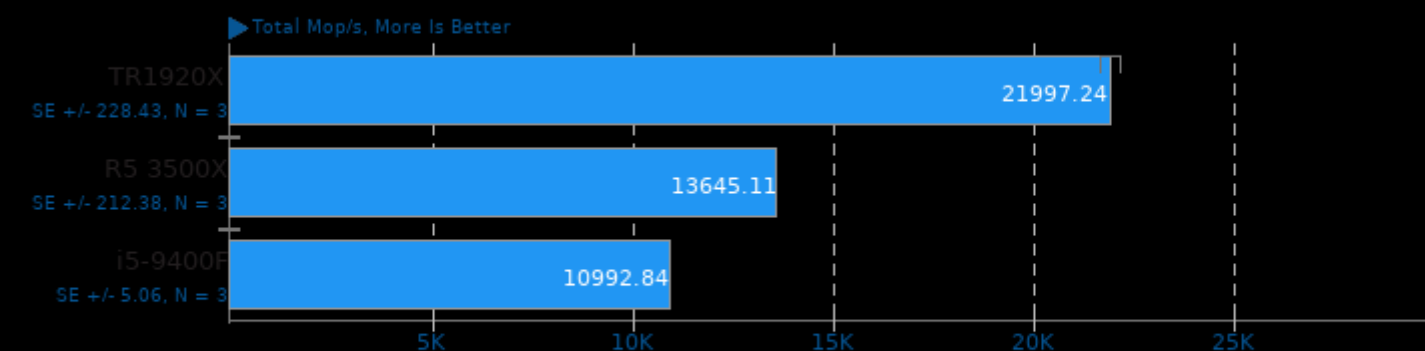
Test / Class: LU.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

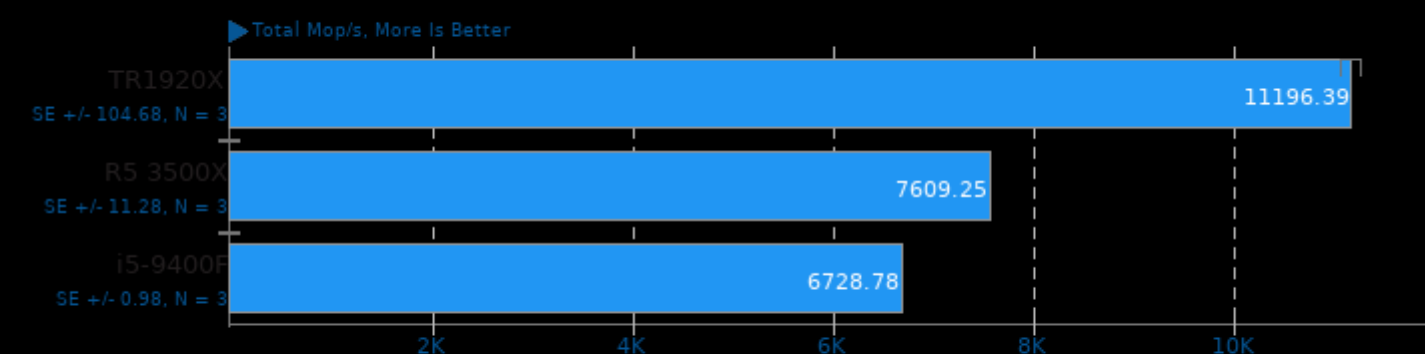
Test / Class: MG.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.0.3

NAS Parallel Benchmarks 3.4

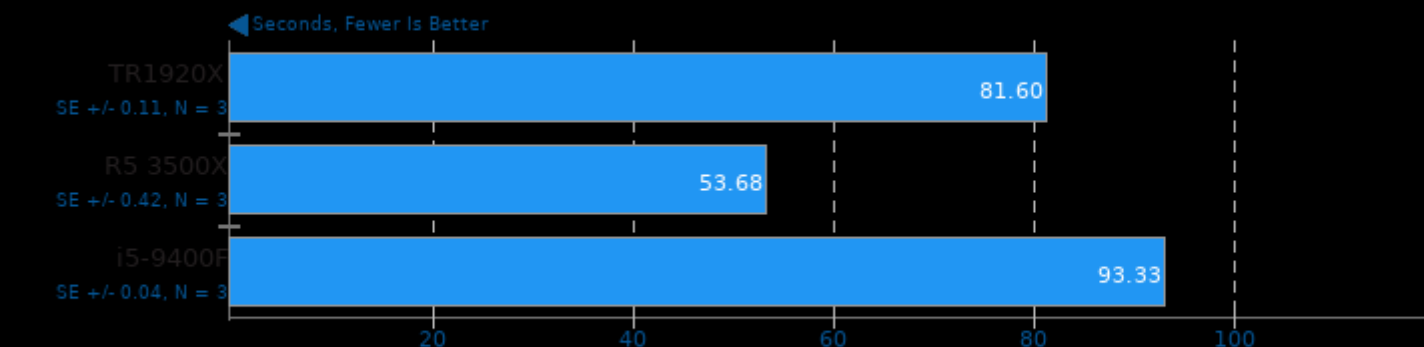
Test / Class: SP.B



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.0.3

Parboil 2.5

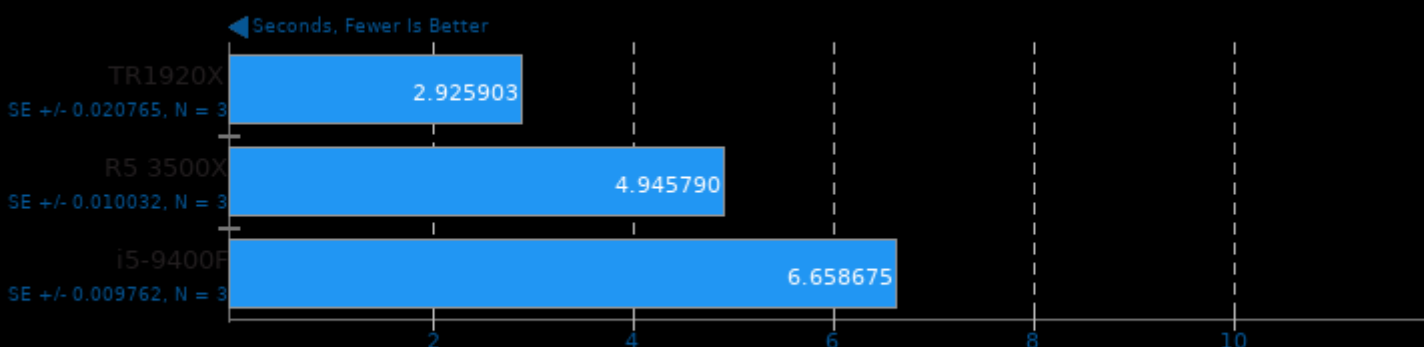
Test: OpenMP LBM



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

Parboil 2.5

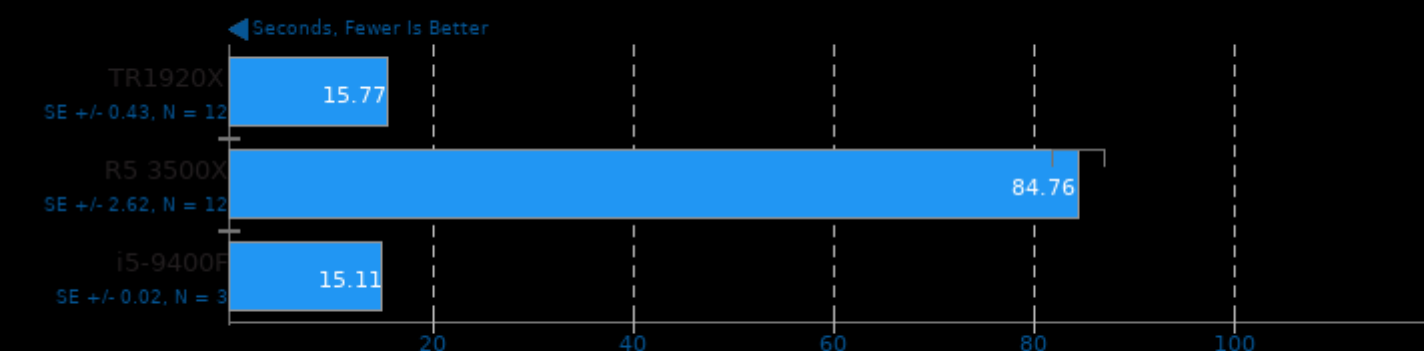
Test: OpenMP CUTCP



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

Parboil 2.5

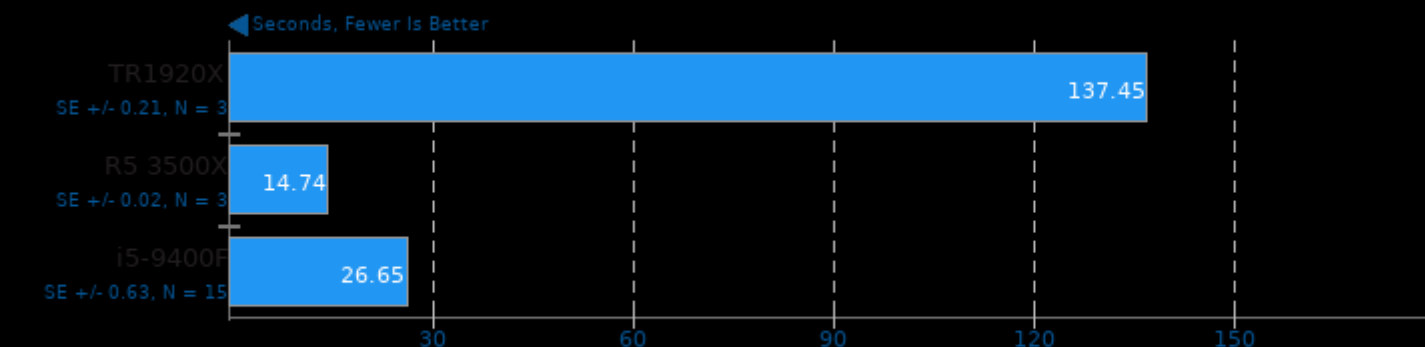
Test: OpenMP Stencil



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

Parboil 2.5

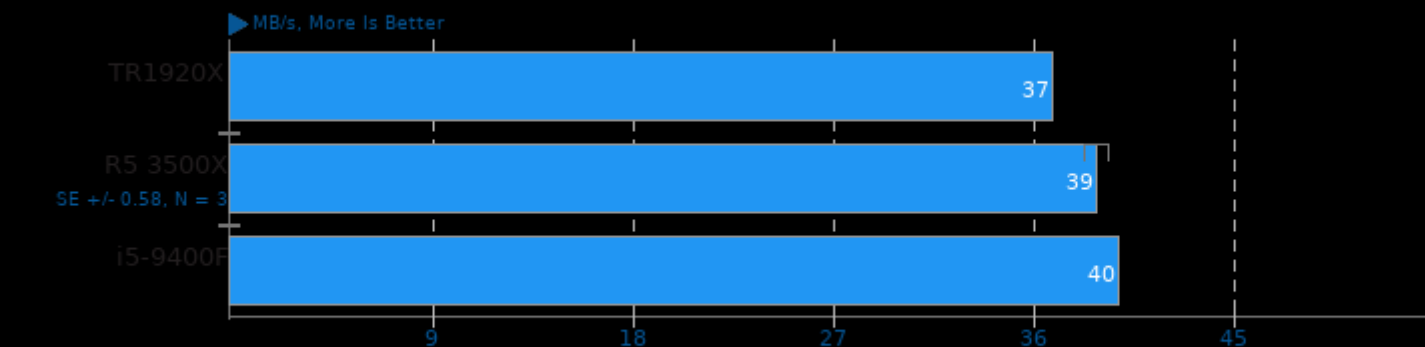
Test: OpenMP MRI Gridding



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

Izbench 1.8

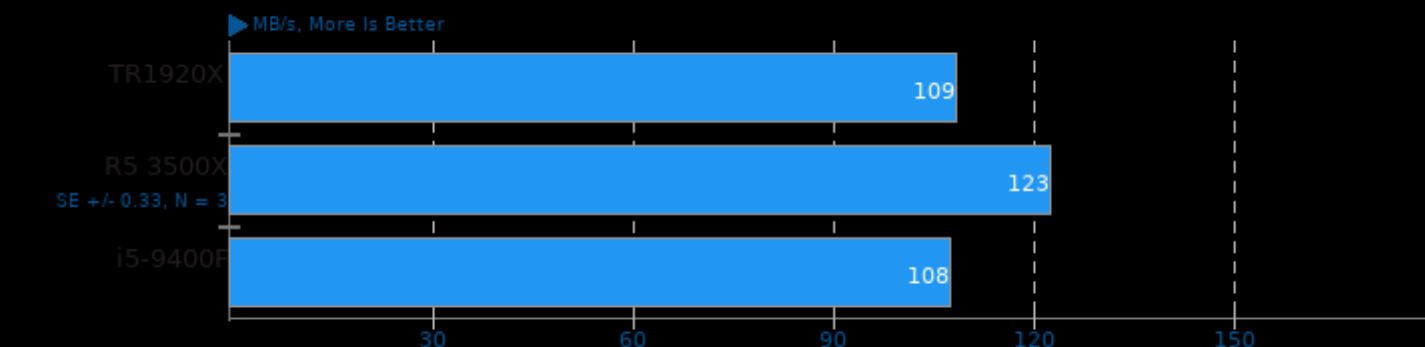
Test: XZ 0 - Process: Compression



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

Izbench 1.8

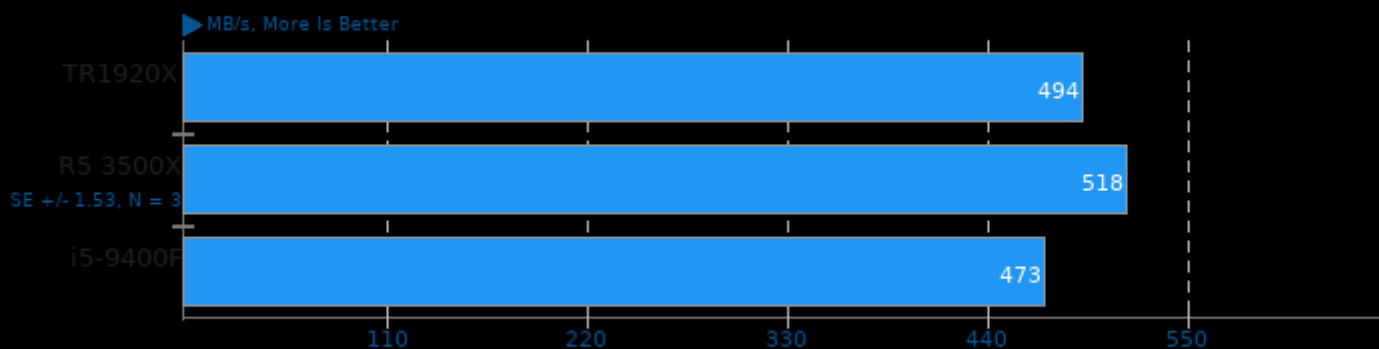
Test: XZ 0 - Process: Decompression



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

Izbench 1.8

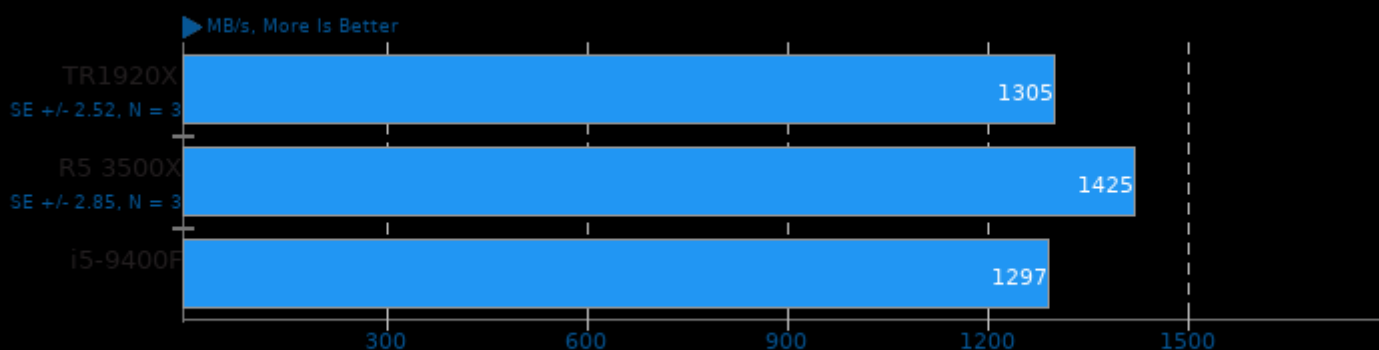
Test: Zstd 1 - Process: Compression



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

Izbench 1.8

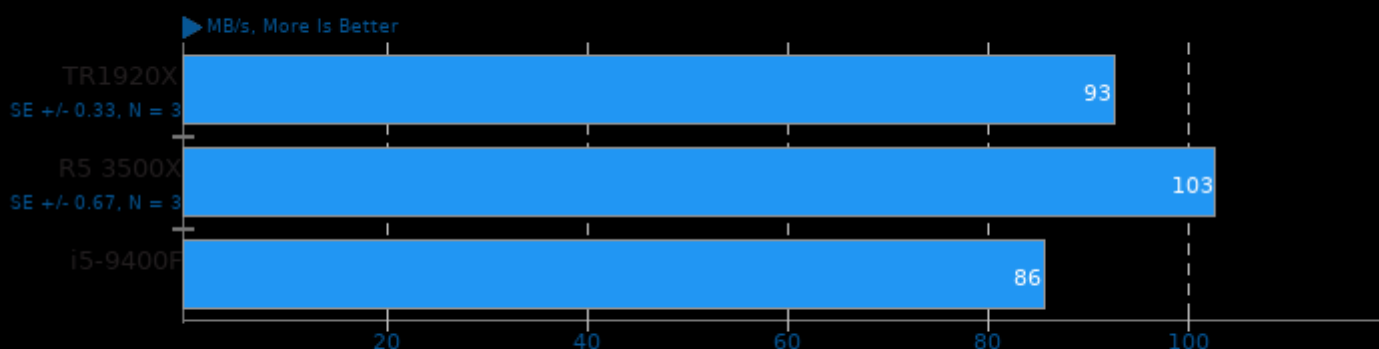
Test: Zstd 1 - Process: Decompression



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

Izbench 1.8

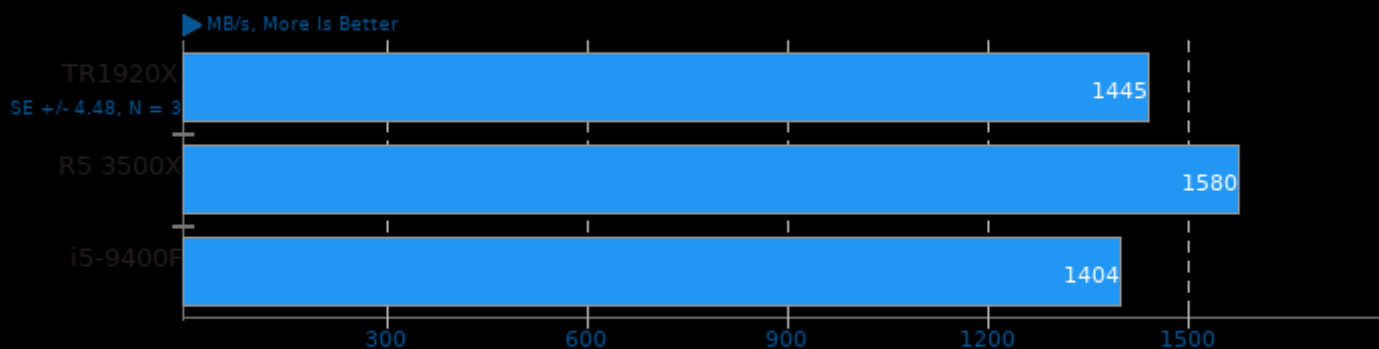
Test: Zstd 8 - Process: Compression



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

Izbench 1.8

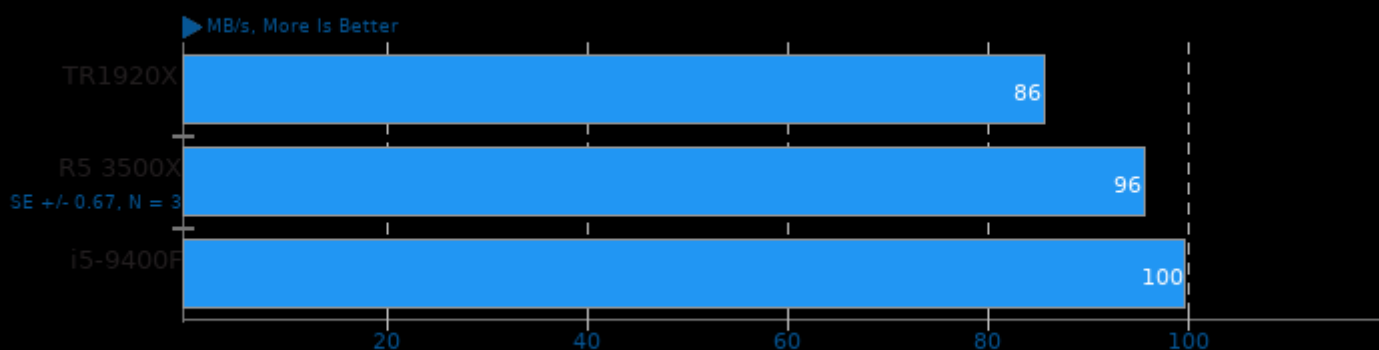
Test: Zstd 8 - Process: Decompression



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

Izbench 1.8

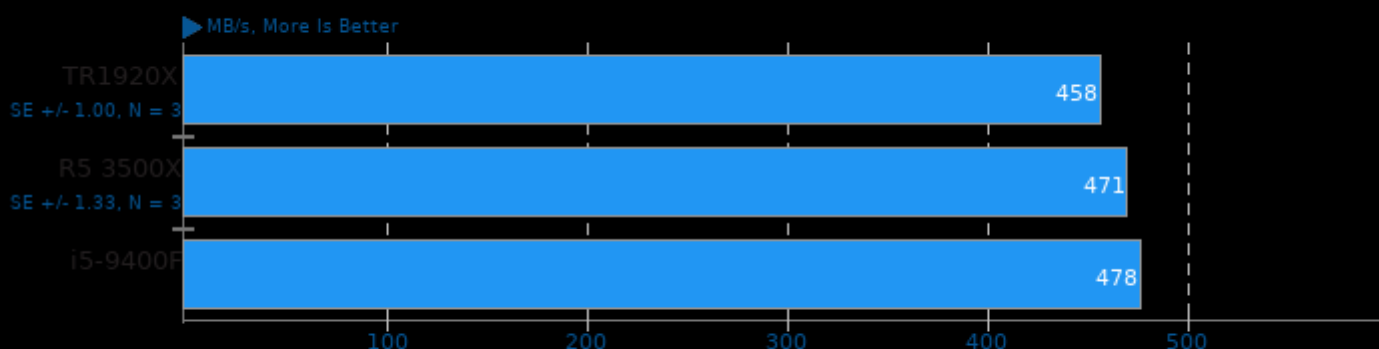
Test: Crush 0 - Process: Compression



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

Izbench 1.8

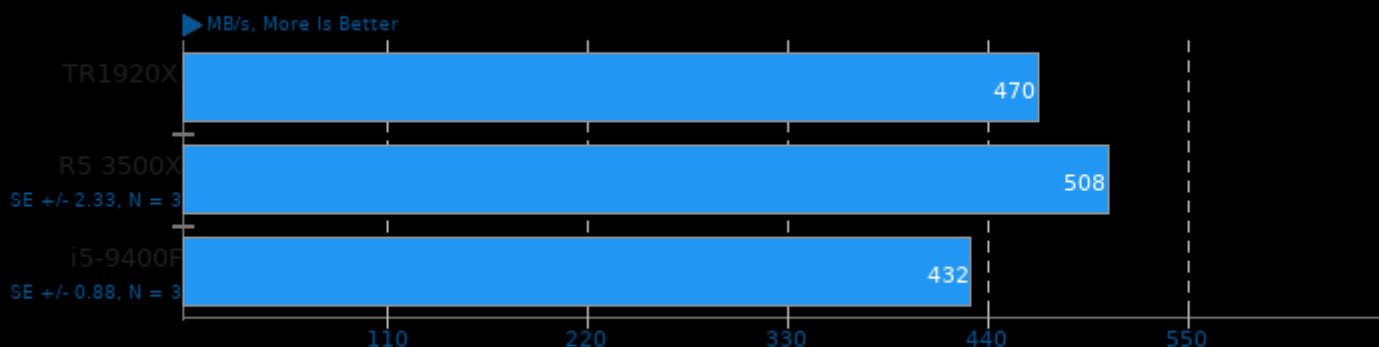
Test: Crush 0 - Process: Decompression



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

Izbench 1.8

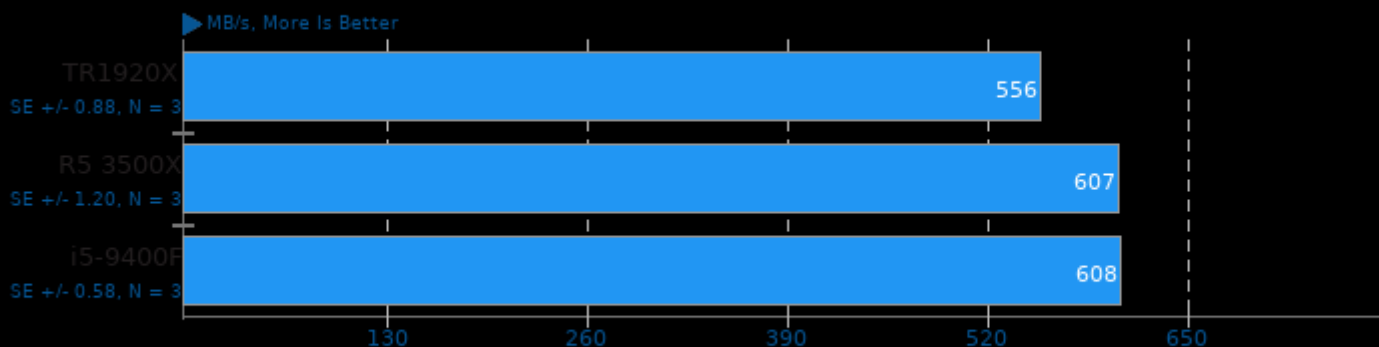
Test: Brotli 0 - Process: Compression



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

Izbench 1.8

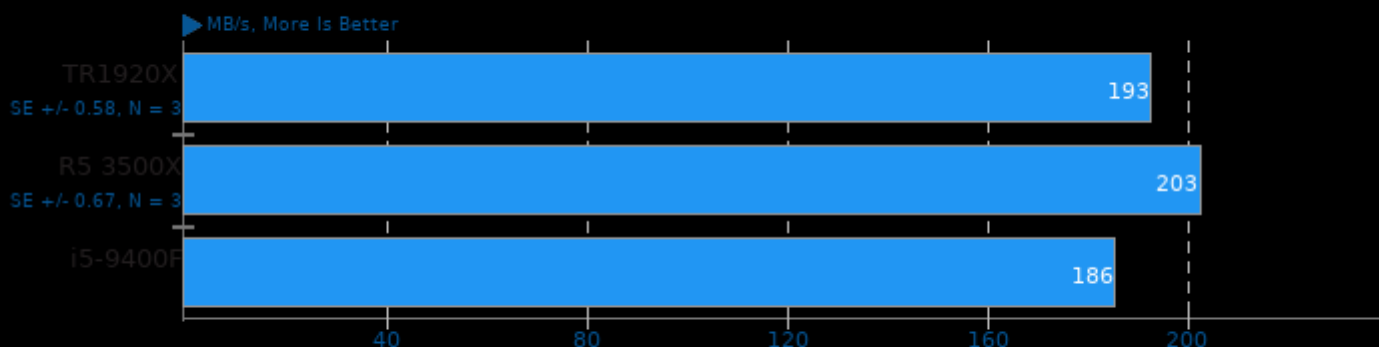
Test: Brotli 0 - Process: Decompression



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

Izbench 1.8

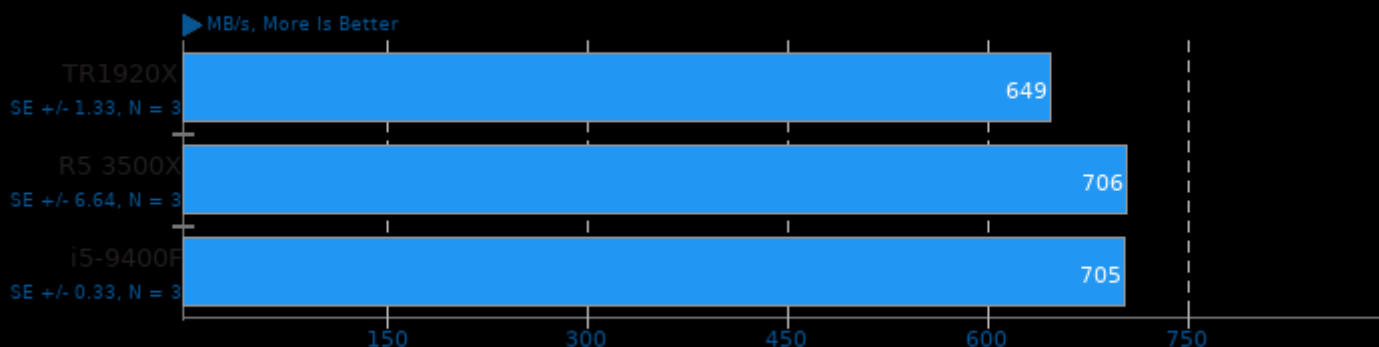
Test: Brotli 2 - Process: Compression



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

Izbench 1.8

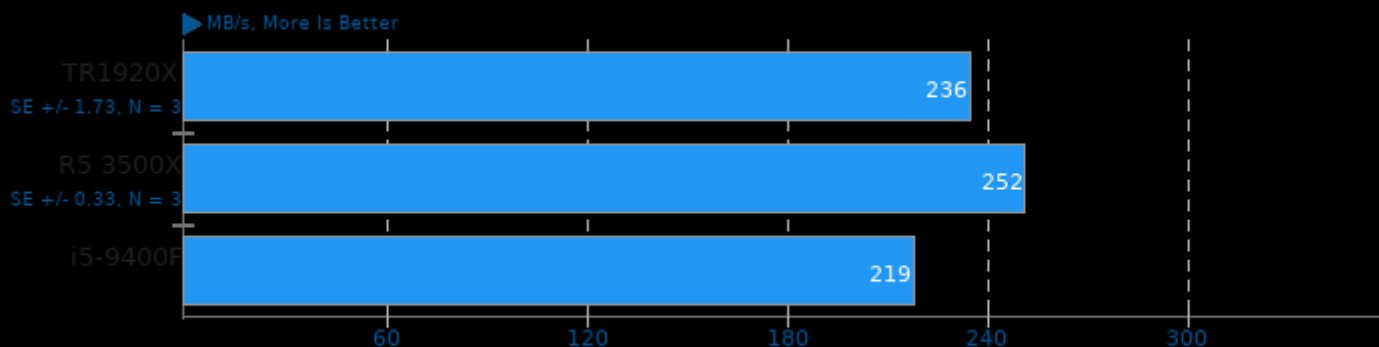
Test: Brotli 2 - Process: Decompression



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

Izbench 1.8

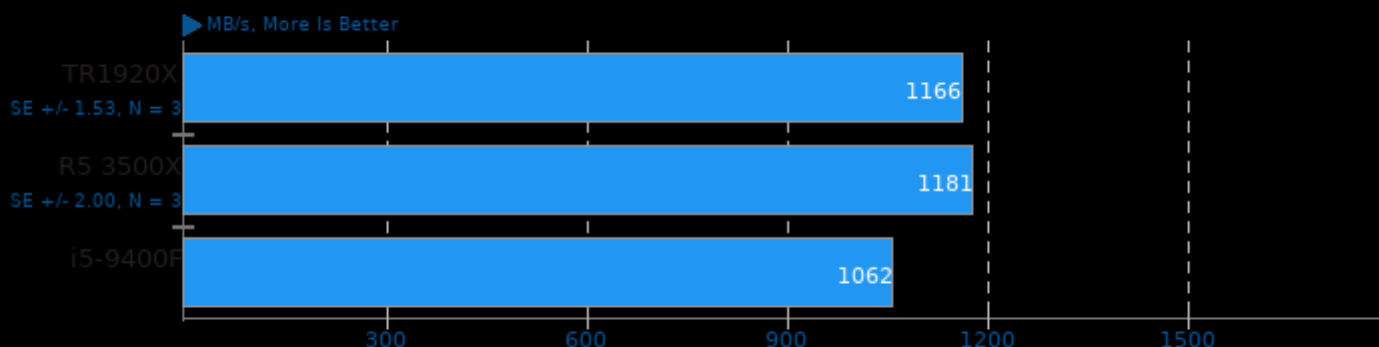
Test: Libdeflate 1 - Process: Compression



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

Izbench 1.8

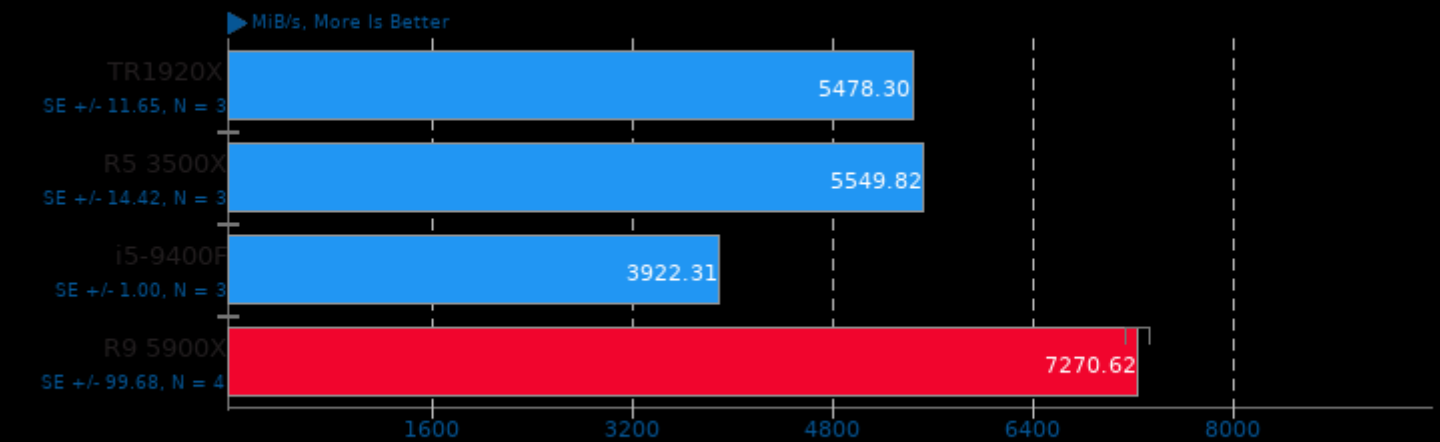
Test: Libdeflate 1 - Process: Decompression



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

Botan 2.13.0

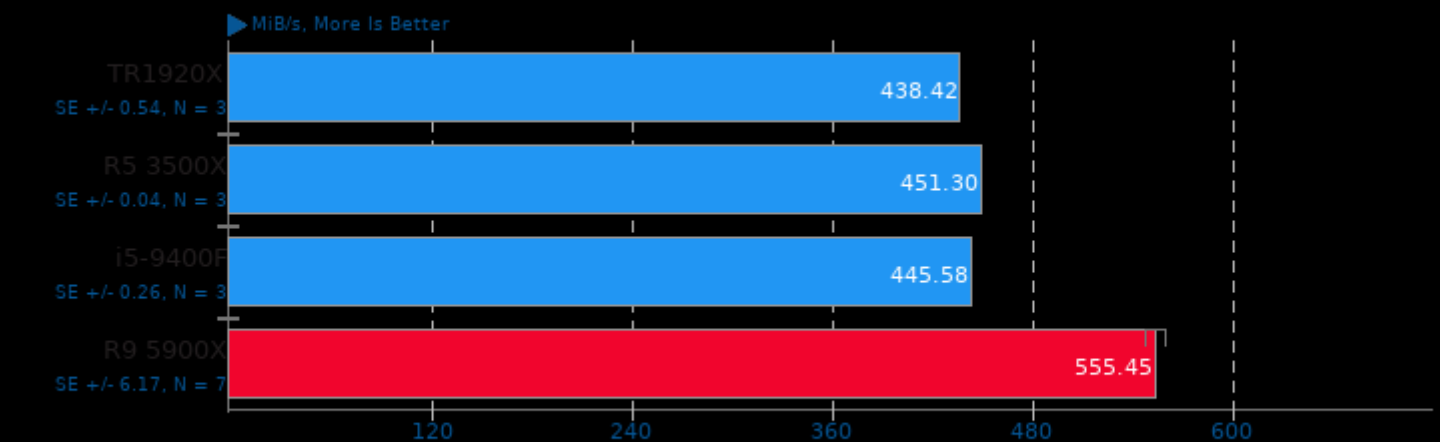
Test: AES-256



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

Botan 2.13.0

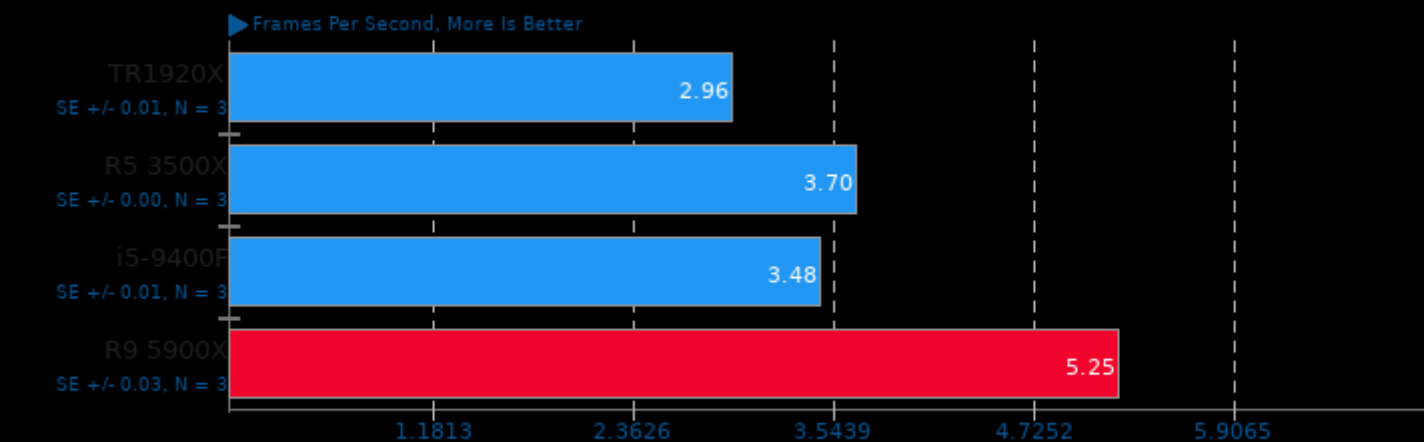
Test: Blowfish



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

AOM AV1 2.0

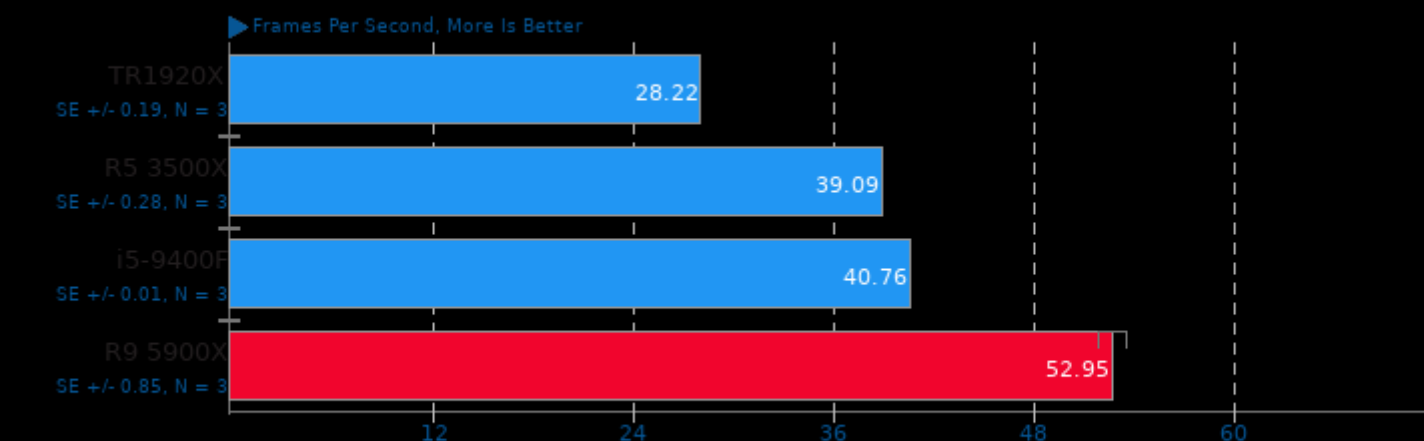
Encoder Mode: Speed 6 Two-Pass



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

AOM AV1 2.0

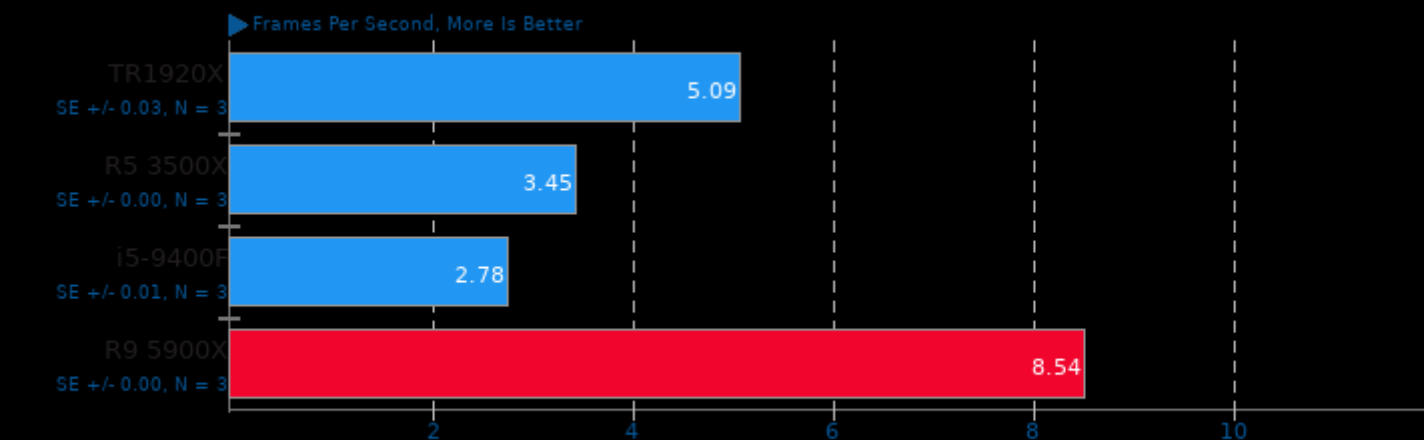
Encoder Mode: Speed 8 Realtime



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

Kvazaar 2.0

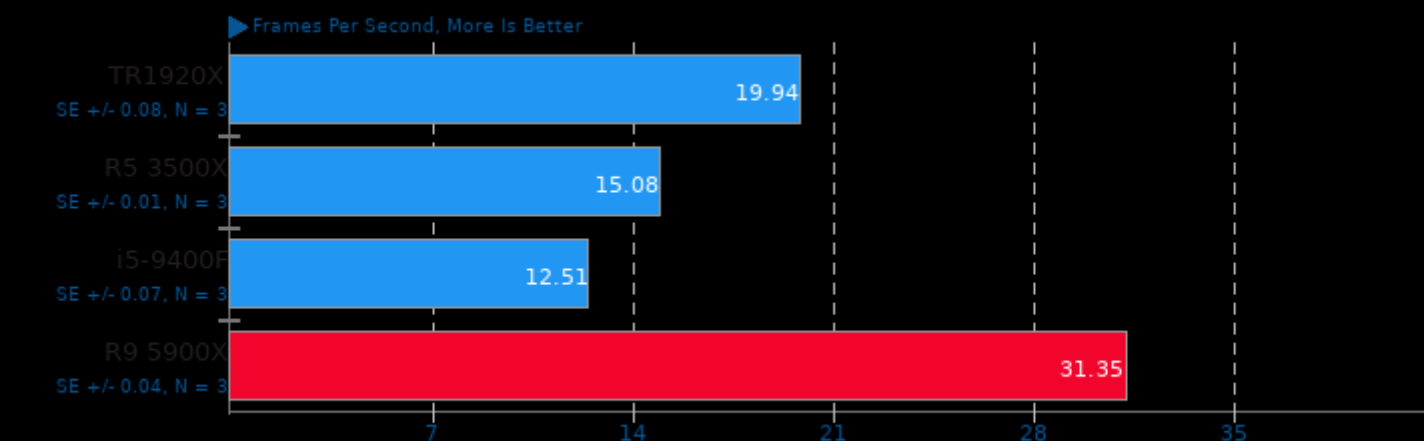
Video Input: Bosphorus 4K - Video Preset: Medium



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

Kvazaar 2.0

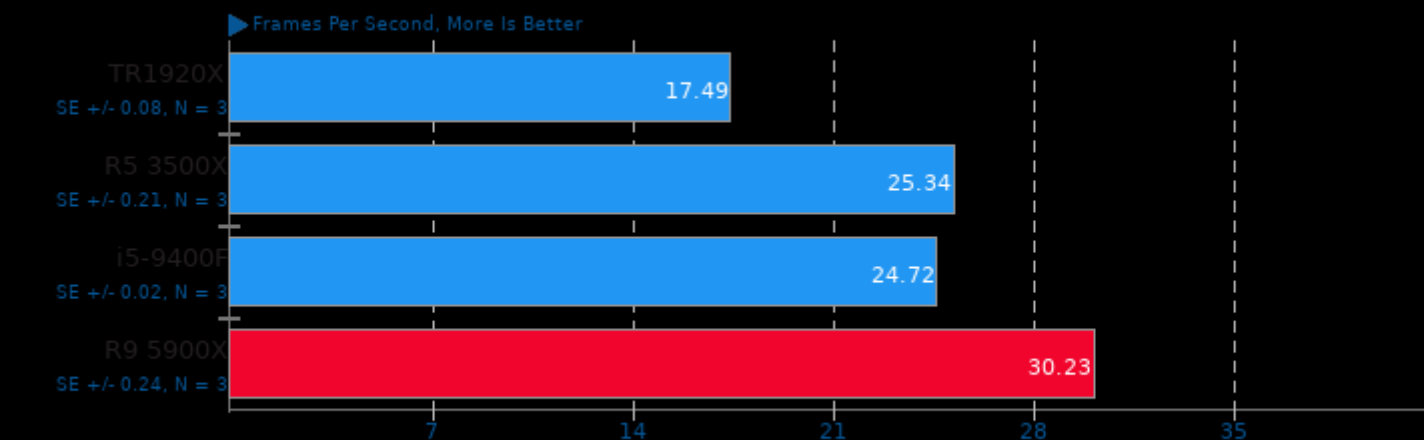
Video Input: Bosphorus 1080p - Video Preset: Medium



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

VP9 libvpx Encoding 1.8.2

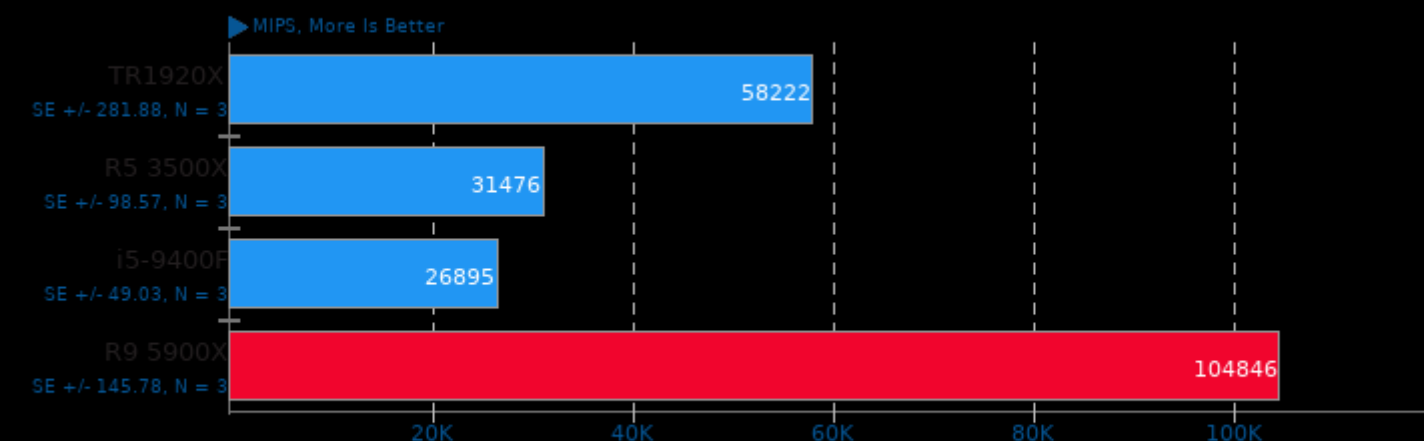
Speed: Speed 5



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

7-Zip Compression 16.02

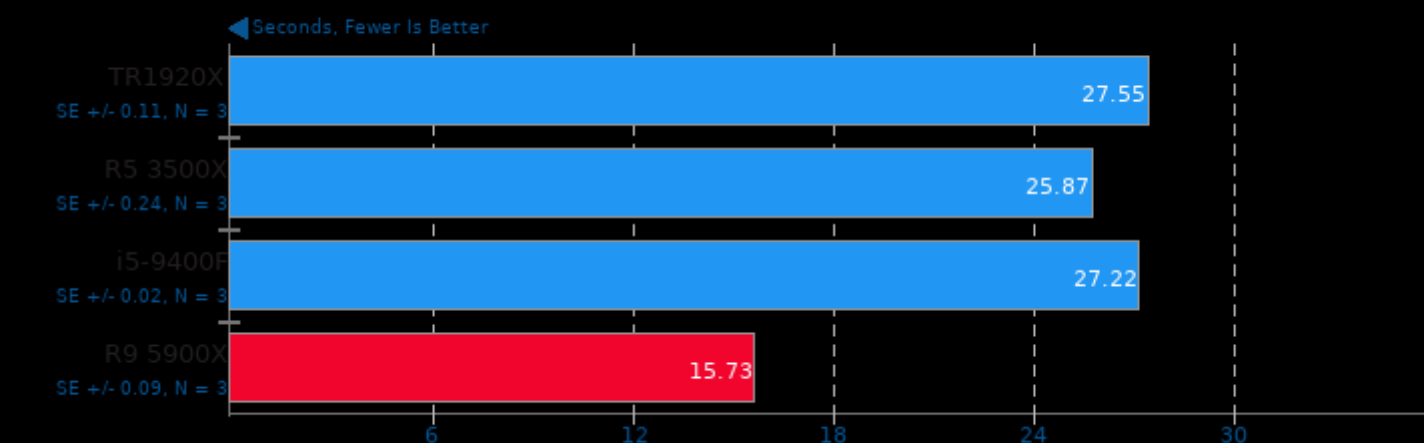
Compress Speed Test



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

Timed Apache Compilation 2.4.41

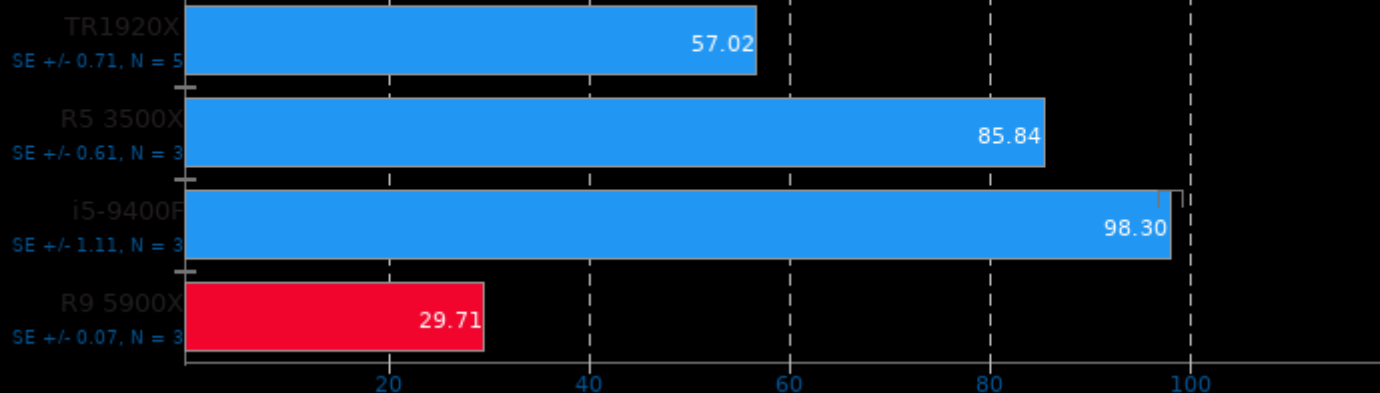
Time To Compile



Timed FFmpeg Compilation 4.2.2

Time To Compile

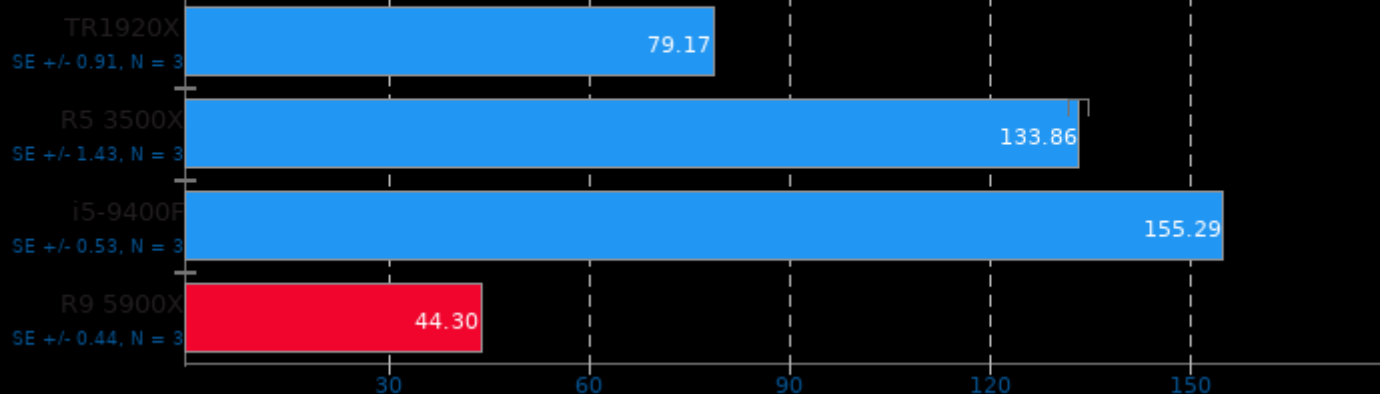
◀ Seconds, Fewer Is Better



Timed Linux Kernel Compilation 5.4

Time To Compile

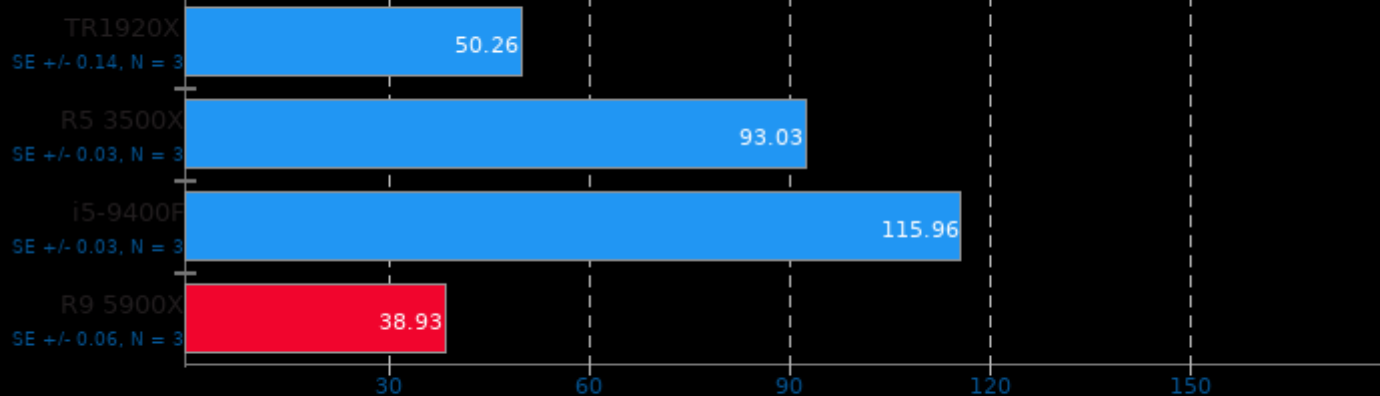
◀ Seconds, Fewer Is Better



C-Ray 1.1

Total Time - 4K, 16 Rays Per Pixel

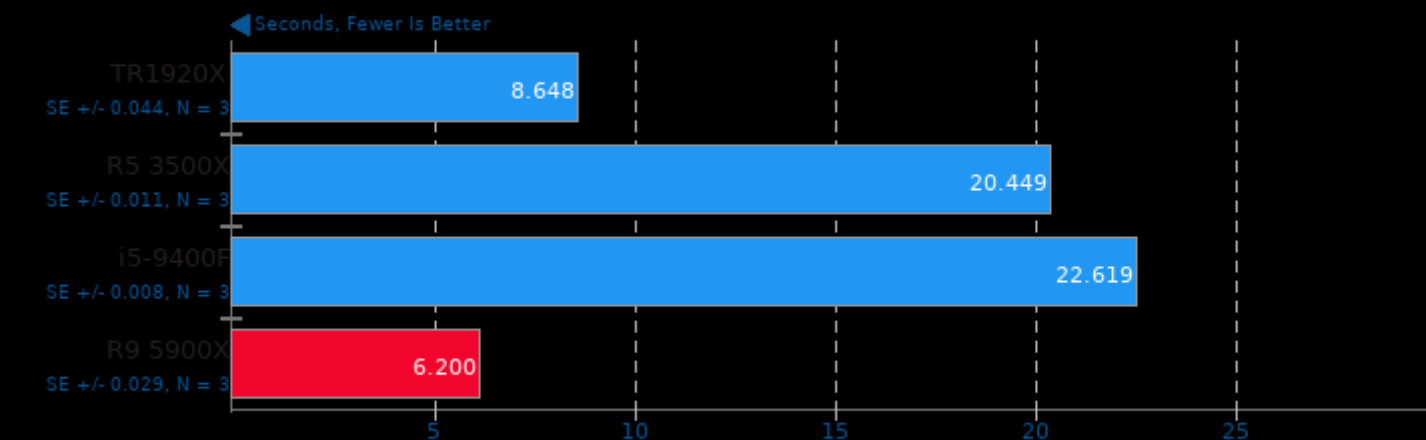
◀ Seconds, Fewer Is Better



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

Smallpt 1.0

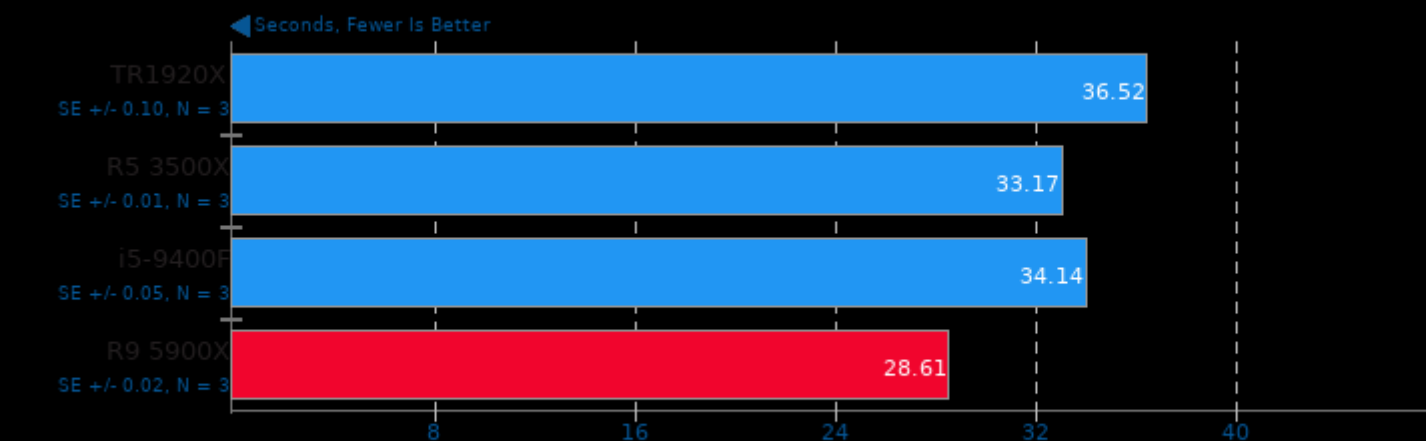
Global Illumination Renderer; 128 Samples



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

AOBench

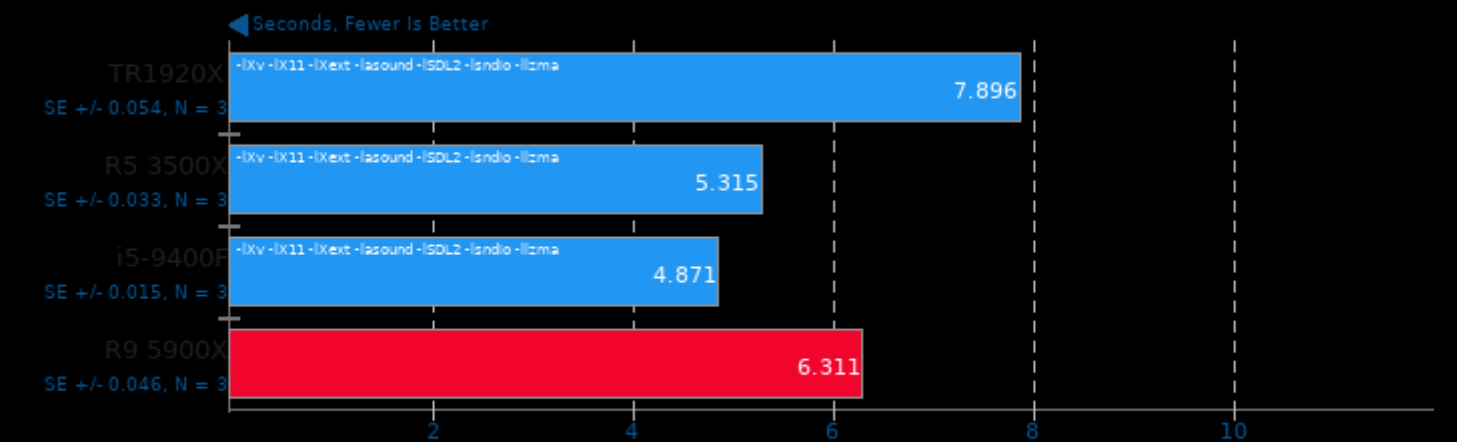
Size: 2048 x 2048 - Total Time



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

FFmpeg 4.0.2

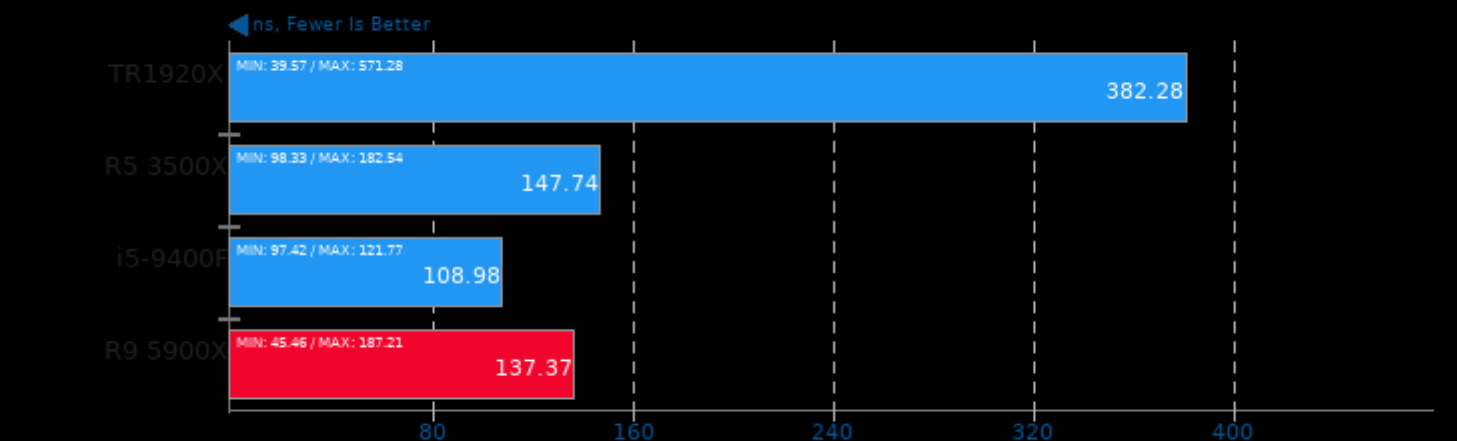
H.264 HD To NTSC DV



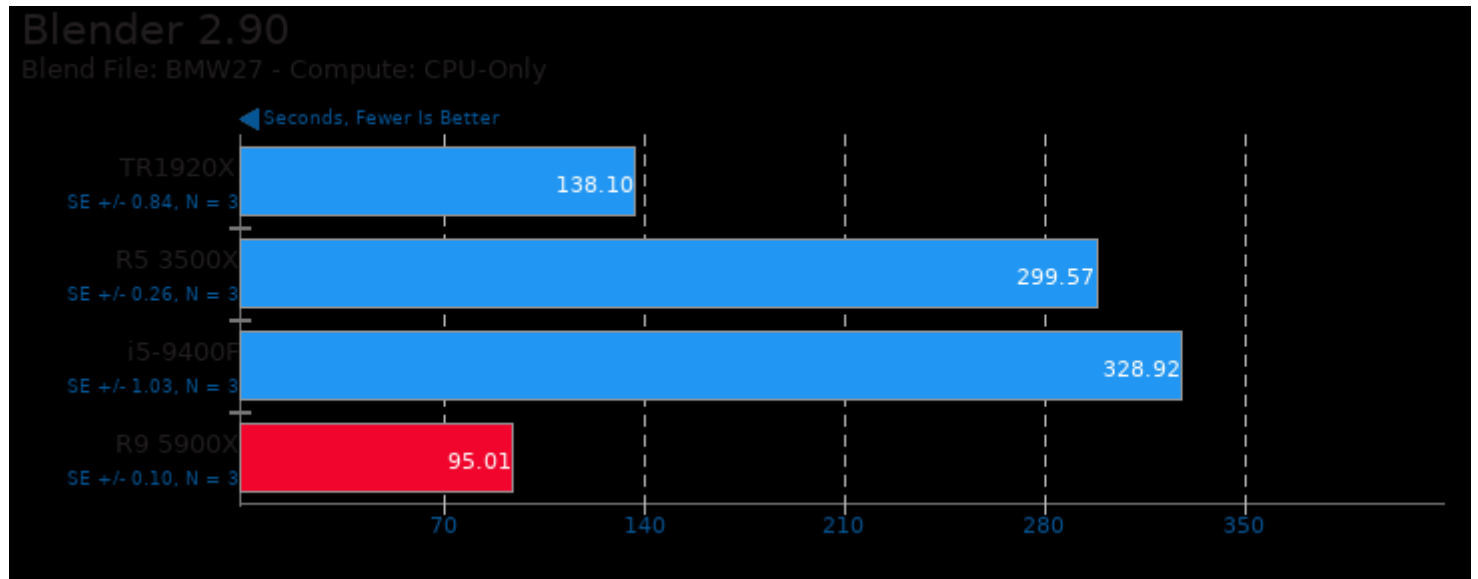
1. (CC) gcc options: -lavdevice -lavfilter -lavformat -lavcodec -lswresample -lswscale -lavutil -lm -lxcb -pthread -lbz2 -std=c11 -fomit-frame-pointer -fPIC

Core-Latency

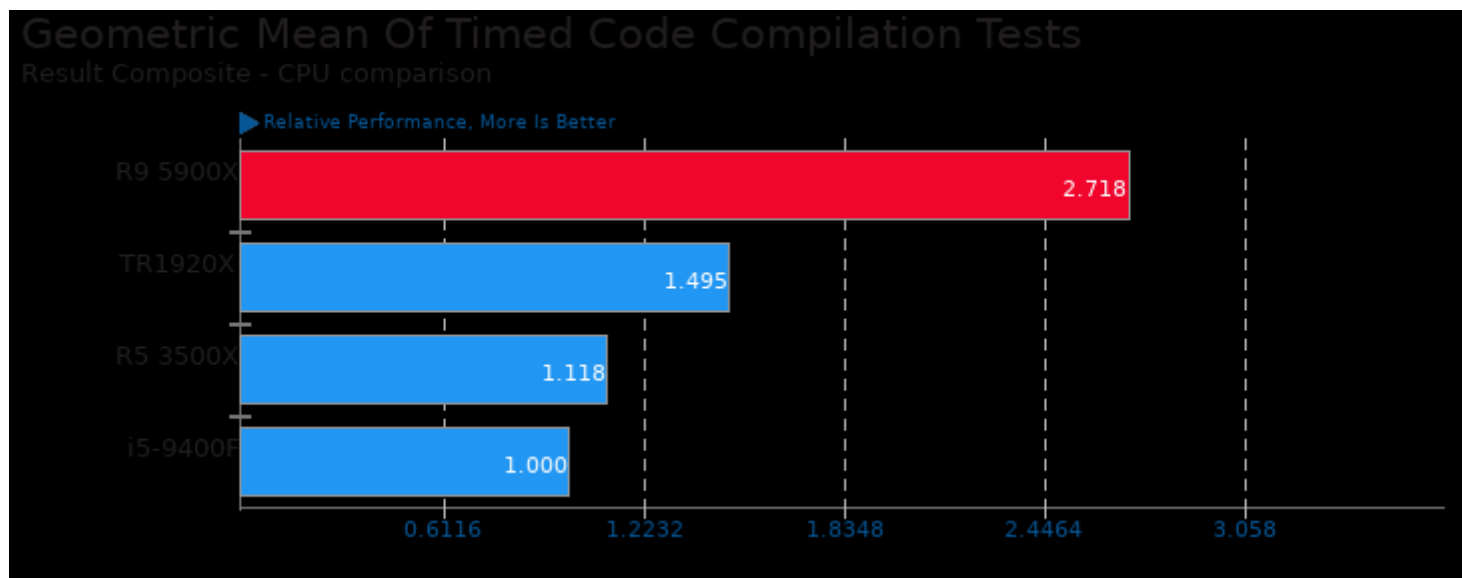
Average Latency Between CPU Cores



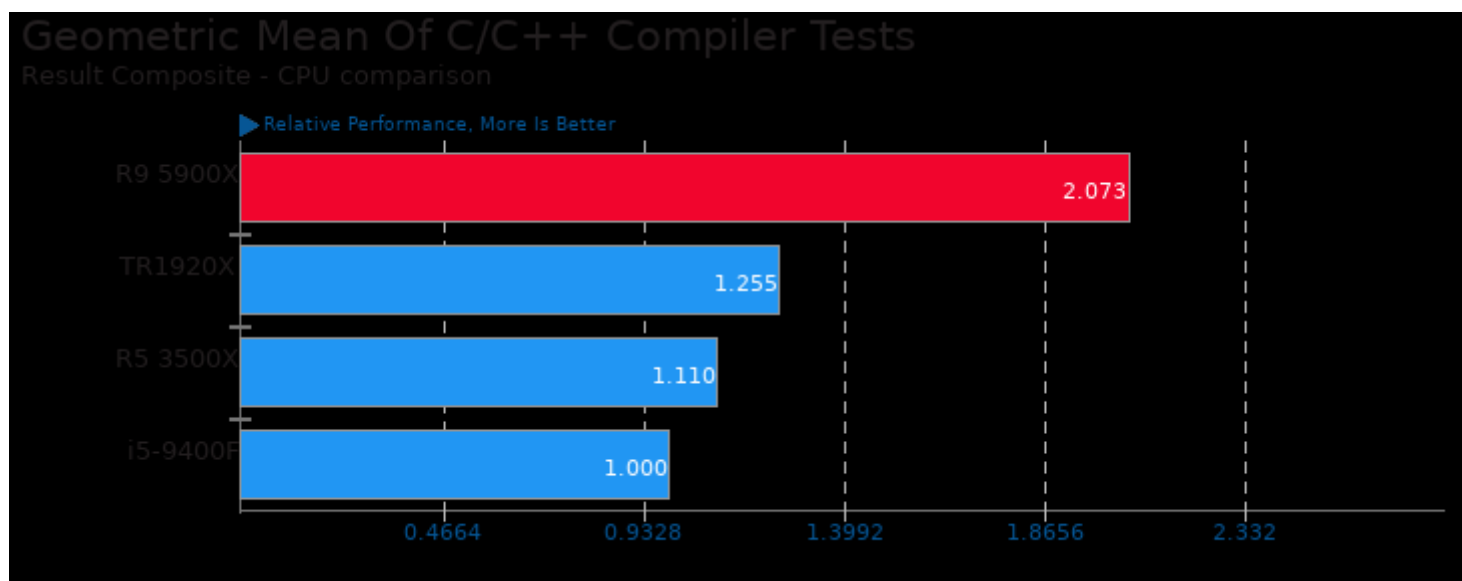
1. (CXX) g++ options: -std=c++11 -pthread -O3



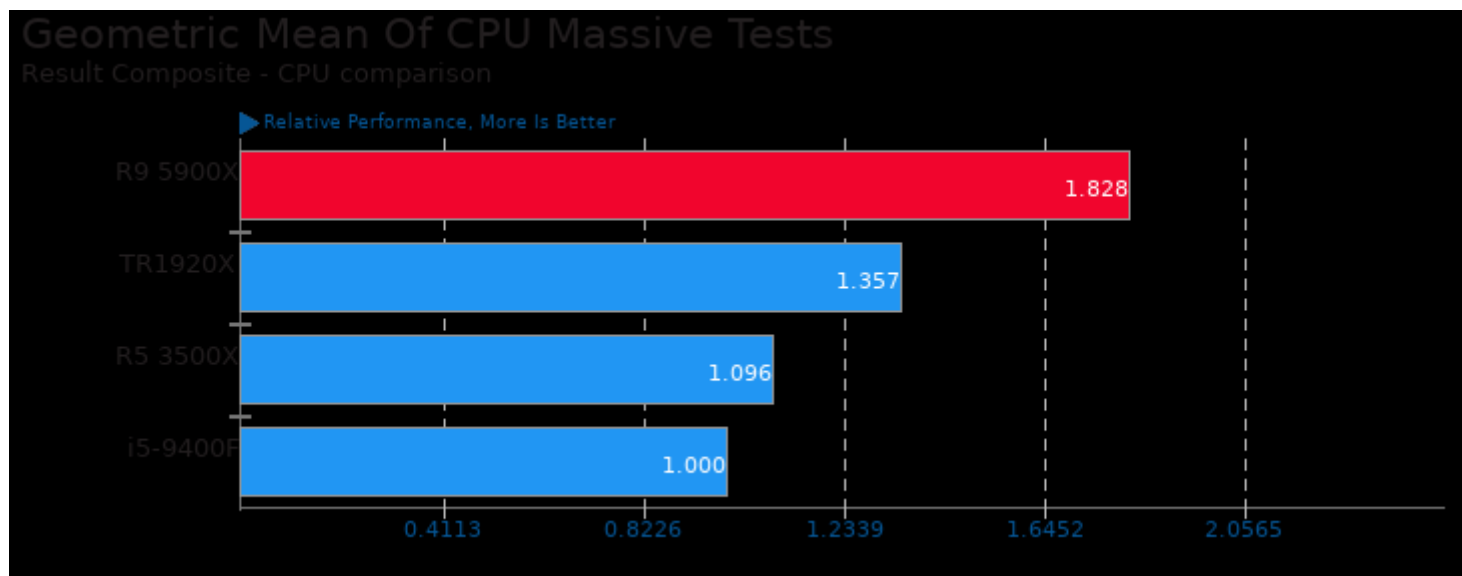
These geometric means are based upon test groupings / test suites for this result file.



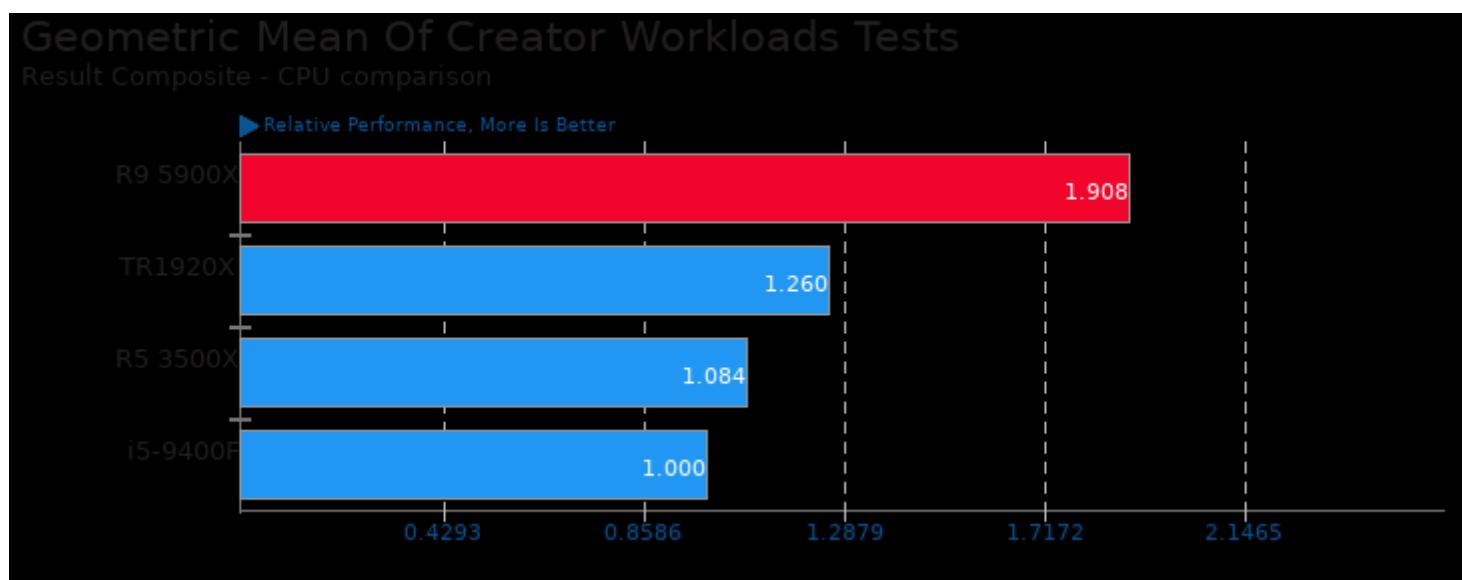
Geometric mean based upon tests: pts/build-apache, pts/build-linux-kernel and pts/build-ffmpeg



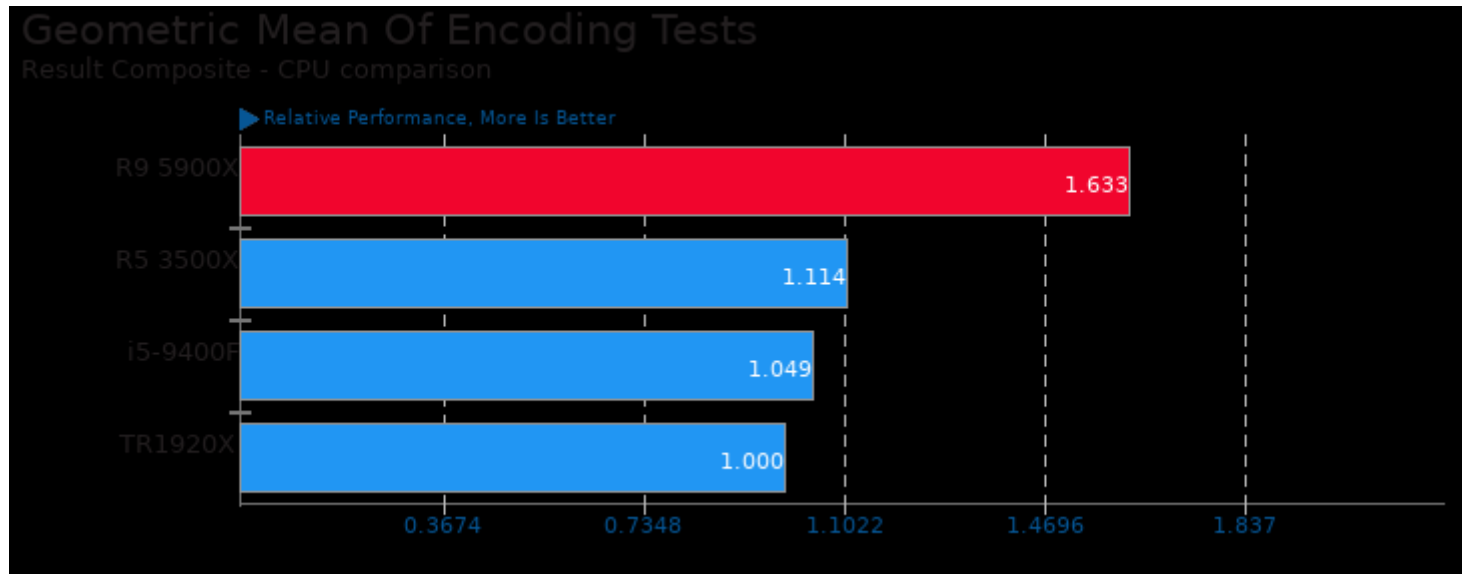
Geometric mean based upon tests: pts/aobench, pts/vpxenc, pts/c-ray, pts/compress-7zip, pts/kvazaar, pts/aom-av1, pts/build-ffmpeg and pts/build-apache



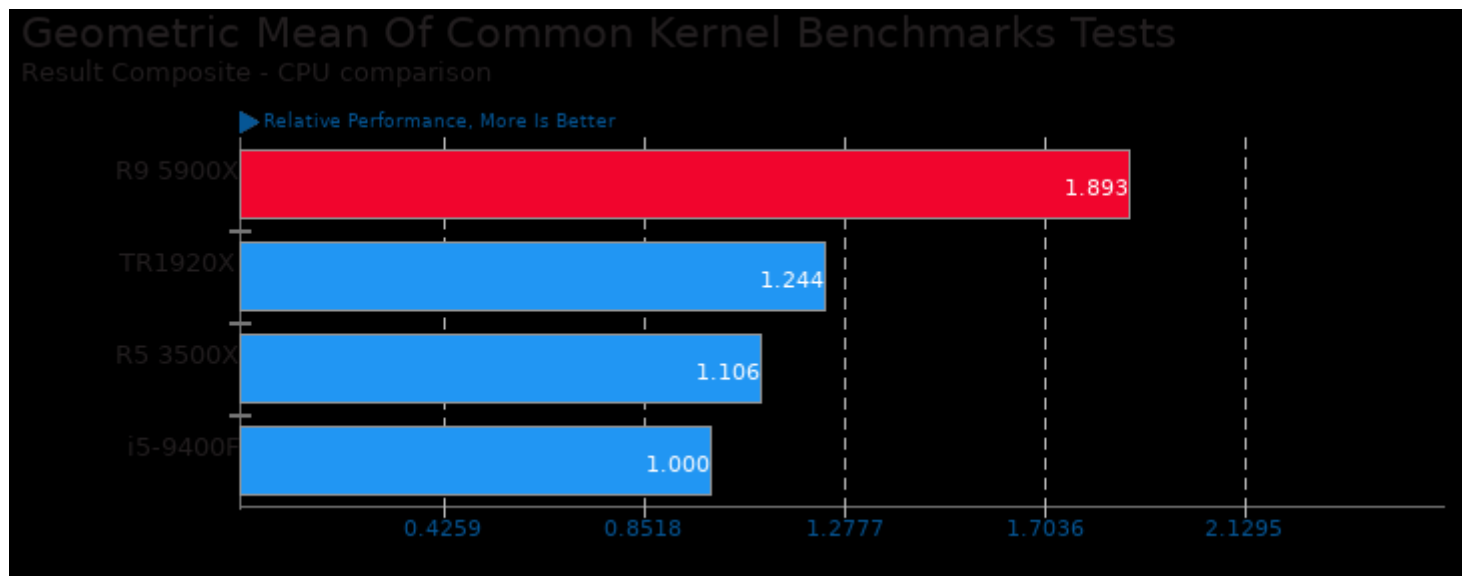
Geometric mean based upon tests: pts/build-apache, pts/build-linux-kernel, pts/c-ray, pts/compress-7zip, pts/vpxenc, pts/lzbench, pts/npb, pts/parboil, pts/stream, pts/blender and pts/botan



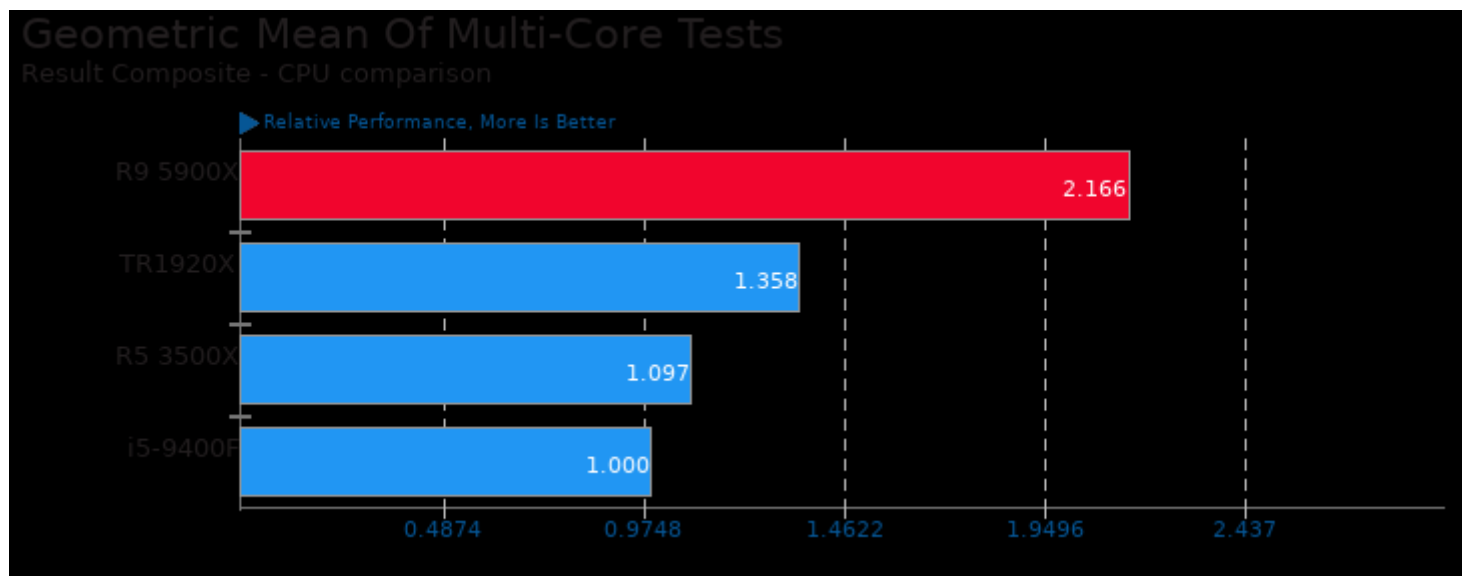
Geometric mean based upon tests: pts/c-ray, pts/blender, pts/aobench, pts/smallpt, pts/kvazaar, pts/ffmpeg, pts/vpxenc and pts/aom-av1



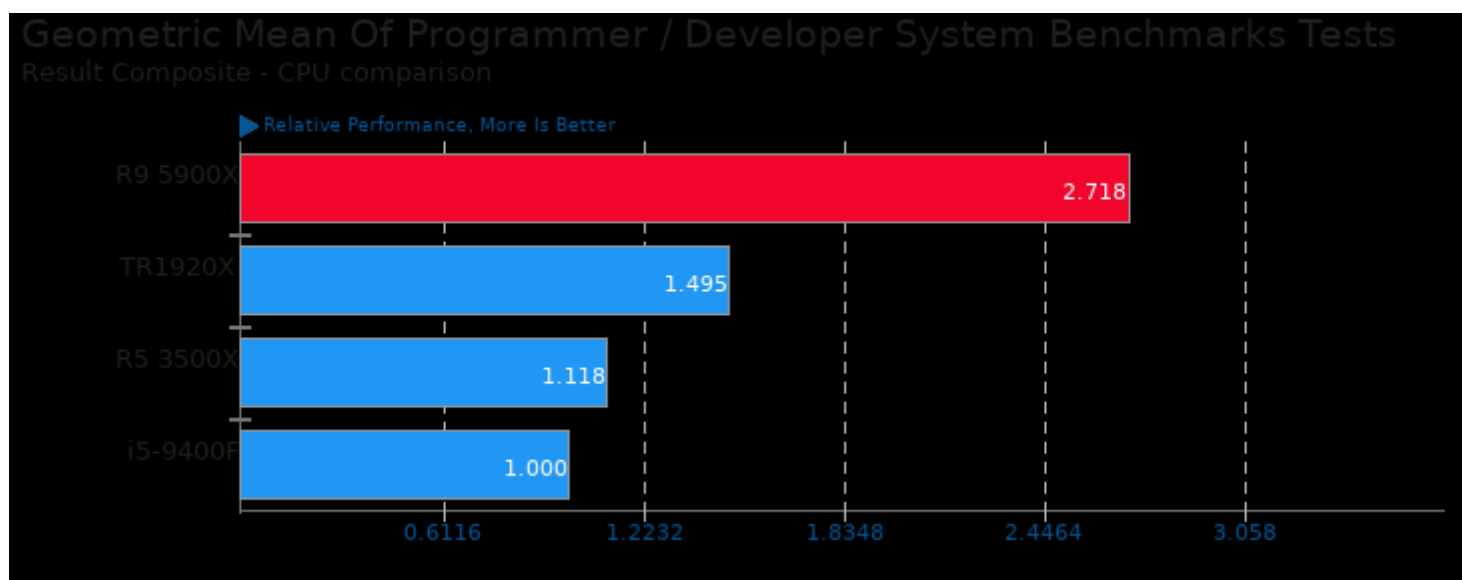
Geometric mean based upon tests: pts/kvazaar, pts/ffmpeg, pts/vpxenc and pts/aom-av1



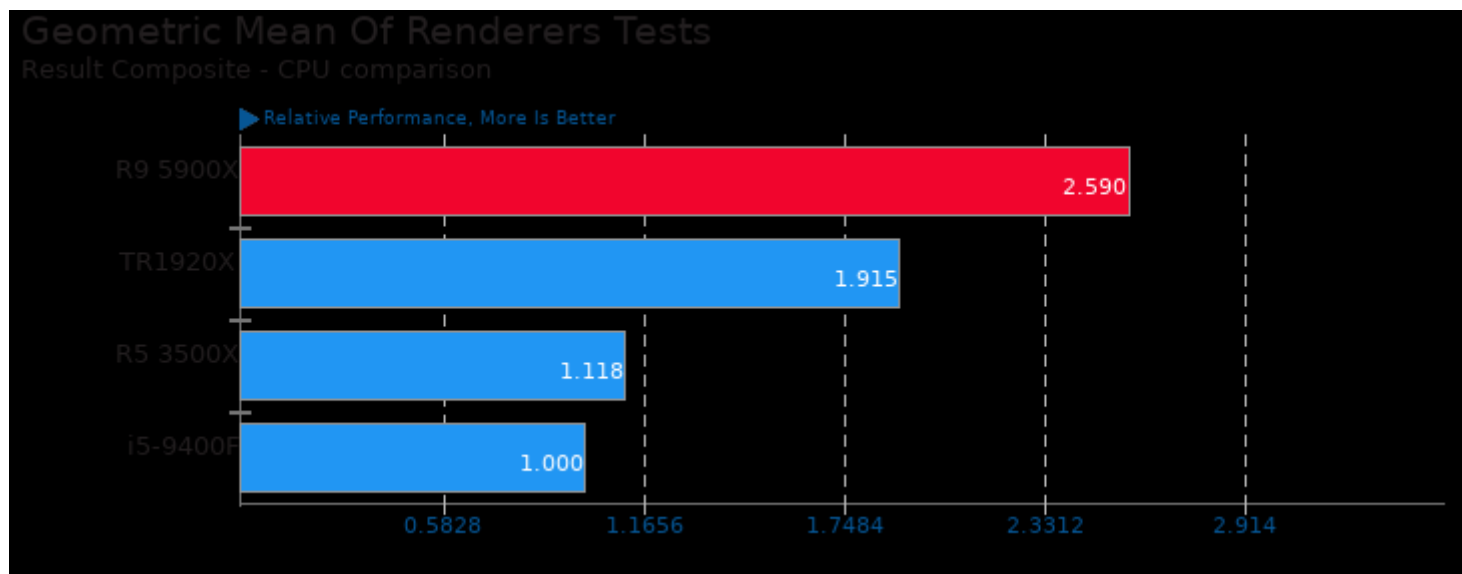
Geometric mean based upon tests: pts/pmbench and pts/ipc-benchmark



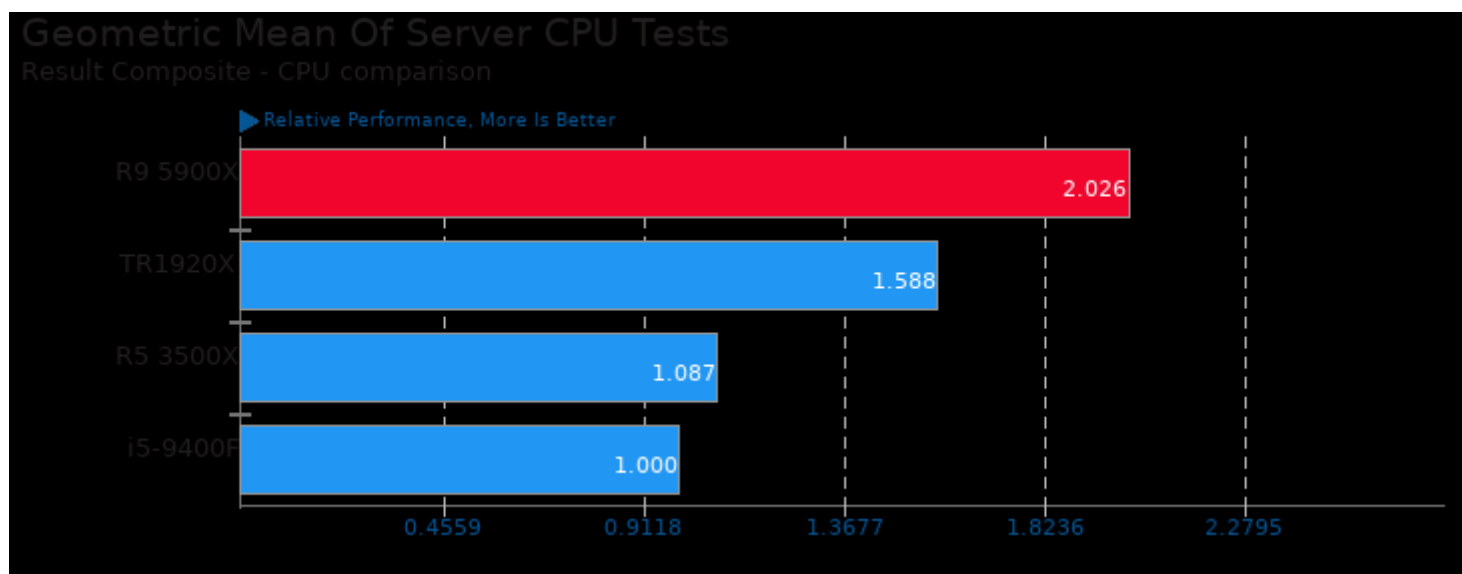
Geometric mean based upon tests: pts/blender, pts/c-ray, pts/kvazaar, pts/ffmpeg, pts/vpxenc, pts/aom-av1, pts/parboil, pts/npb, pts/smallpt, pts/compress-7zip, pts/build-apache, pts/build-linux-kernel, pts/build-ffmpeg and pts/aobench



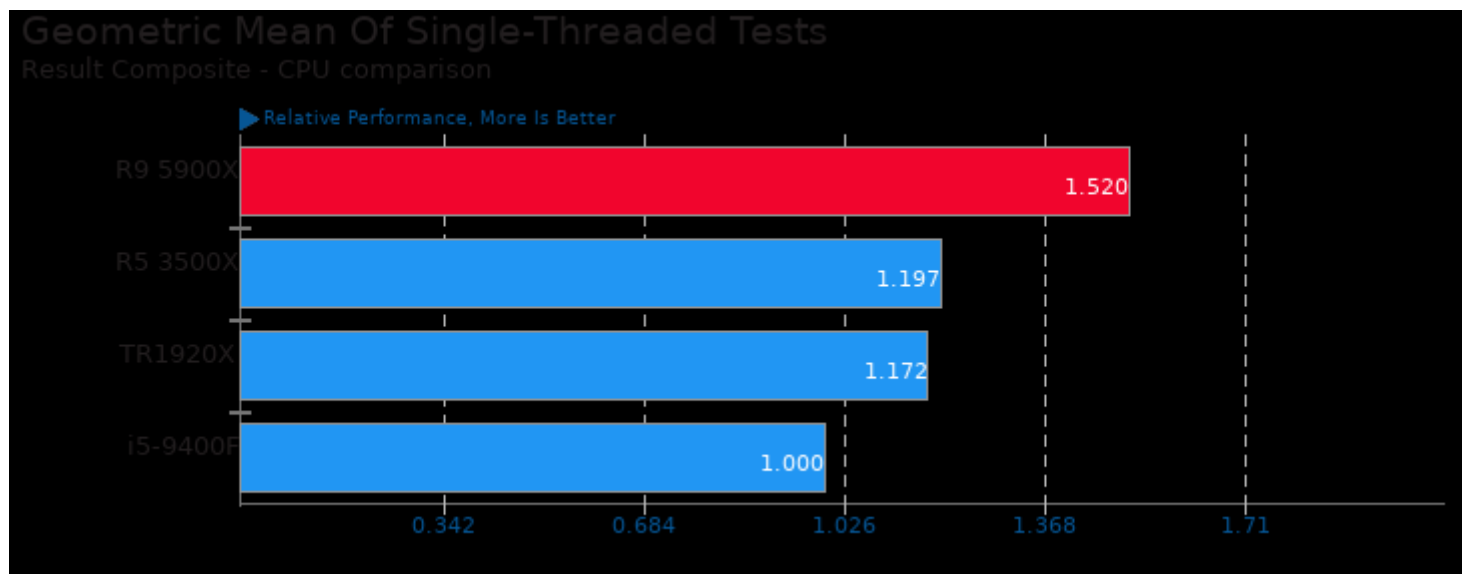
Geometric mean based upon tests: pts/build-apache, pts/build-linux-kernel and pts/build-ffmpeg



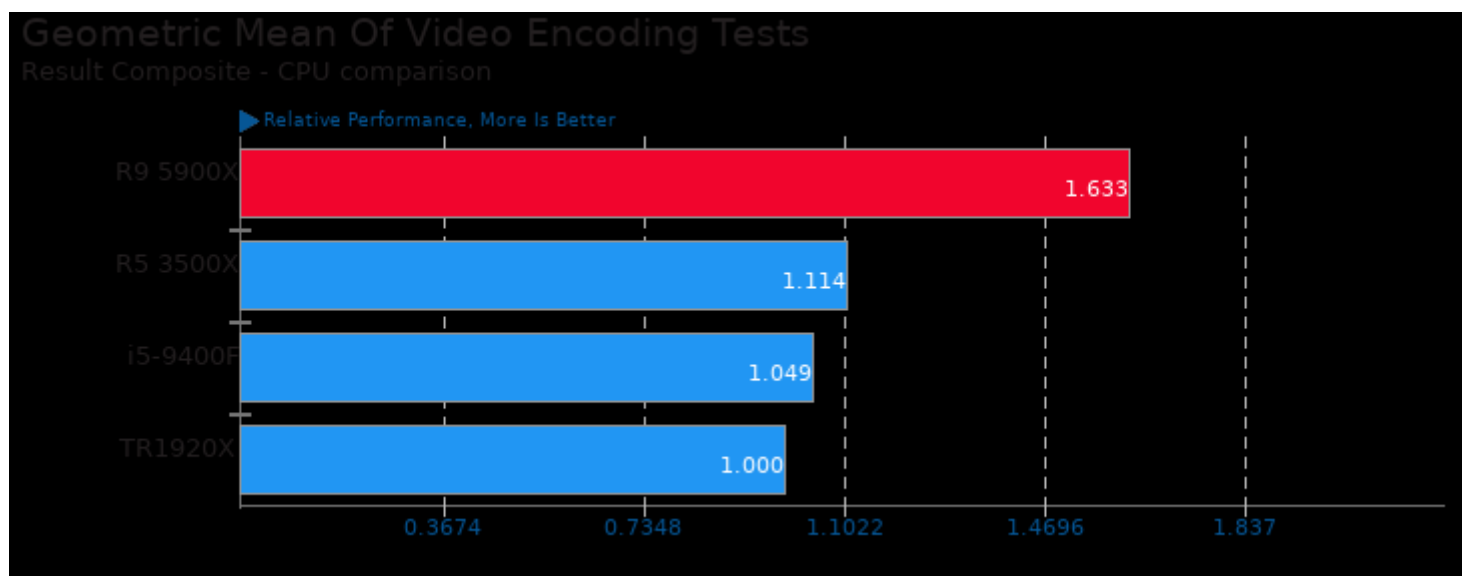
Geometric mean based upon tests: pts/c-ray, pts/blender, pts/aobench and pts/smallpt



Geometric mean based upon tests: pts/npb, pts/compress-7zip, pts/build-linux-kernel, pts/c-ray, pts/blender and pts/stream



Geometric mean based upon tests: pts/lzbench and pts/botan



Geometric mean based upon tests: pts/kvazaar, pts/ffmpeg, pts/vpxenc and pts/aom-av1

This file was automatically generated via the Phoronix Test Suite benchmarking software on Wednesday, 15 January 2025 14:58.