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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 + srbds: 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 + srbds: 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-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: intel_pstate performance - CPU Microcode: 0xde - Thermald 1.9.1
OpenCL Notes: GPU Compute Cores: 1920
Python Notes: Python 3.8.5
Security Notes: itlb_multihit: KVM: Vulnerable + l1tf: 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/swapgs 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-libstdcxx-debug --enable-libstdcxx-time=yes --enable-link-mutex --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-9R82w2/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-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-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: 0xa201009
OpenCL Notes: GPU Compute Cores: 5888
Python Notes: Python 3.9.1rc1
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 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	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%	

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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%	
lzbench - XZ 0 - Compression (MB/s)	37	39	40	
Normalized	92.5%	97.5%	100%	
Standard Deviation		2.6%		
lzbench - XZ 0 - Decompression	109	123	108	
Normalized	88.62%	100%	87.8%	
Standard Deviation		0.5%		
lzbench - Zstd 1 - Compression (MB/s)	494	518	473	
Normalized	95.37%	100%	91.31%	
Standard Deviation		0.5%		
lzbench - Zstd 1 - Decompression	1305	1425	1297	
Normalized	91.58%	100%	91.02%	
Standard Deviation	0.3%	0.3%		
lzbench - Zstd 8 - Compression (MB/s)	93	103	86	
Normalized	90.29%	100%	83.5%	
Standard Deviation	0.6%	1.1%		
lzbench - Zstd 8 - Decompression	1445	1580	1404	
Normalized	91.46%	100%	88.86%	
Standard Deviation	0.5%			
lzbench - Crush 0 - Compression	86	96	100	
Normalized	86%	96%	100%	
Standard Deviation		1.2%		
lzbench - Crush 0 - Decompression (MB/s)	458	471	478	
Normalized	95.82%	98.54%	100%	
Standard Deviation	0.4%	0.5%		
lzbench - Brotli 0 - Compression	470	508	432	
Normalized	92.52%	100%	85.04%	
Standard Deviation		0.8%	0.4%	
lzbench - Brotli 0 - Decompression (MB/s)	556	607	608	
Normalized	91.45%	99.84%	100%	
Standard Deviation	0.3%	0.3%	0.2%	
lzbench - Brotli 2 - Compression	193	203	186	
Normalized	95.07%	100%	91.63%	
Standard Deviation	0.5%	0.6%		
lzbench - Brotli 2 - Decompression (MB/s)	649	706	705	
Normalized	91.93%	100%	99.86%	
Standard Deviation	0.4%	1.6%	0.1%	
lzbench - Libdeflate 1 - Compression (MB/s)	236	252	219	
Normalized	93.65%	100%	86.9%	
Standard Deviation	1.3%	0.2%		
lzbench - 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

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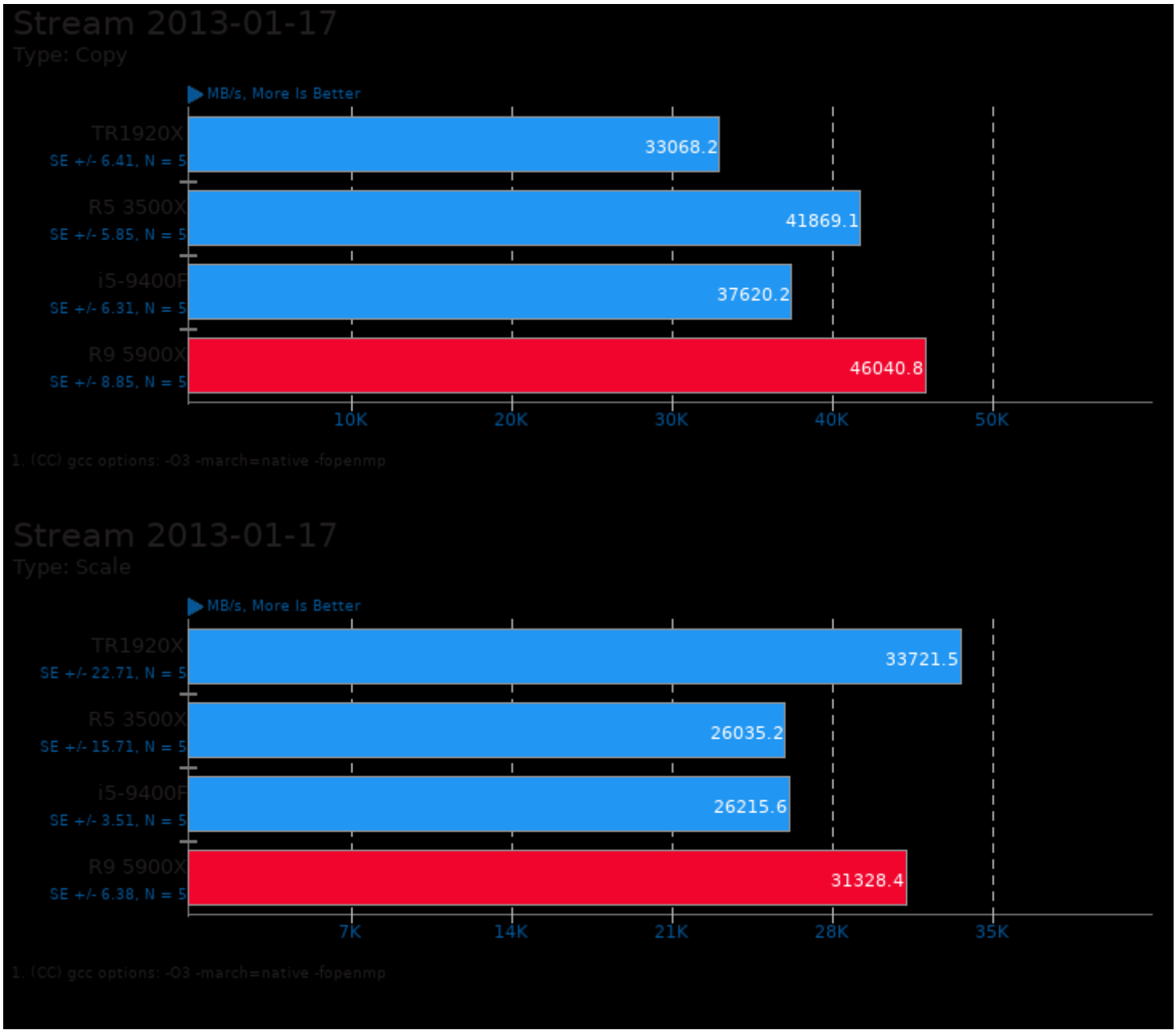
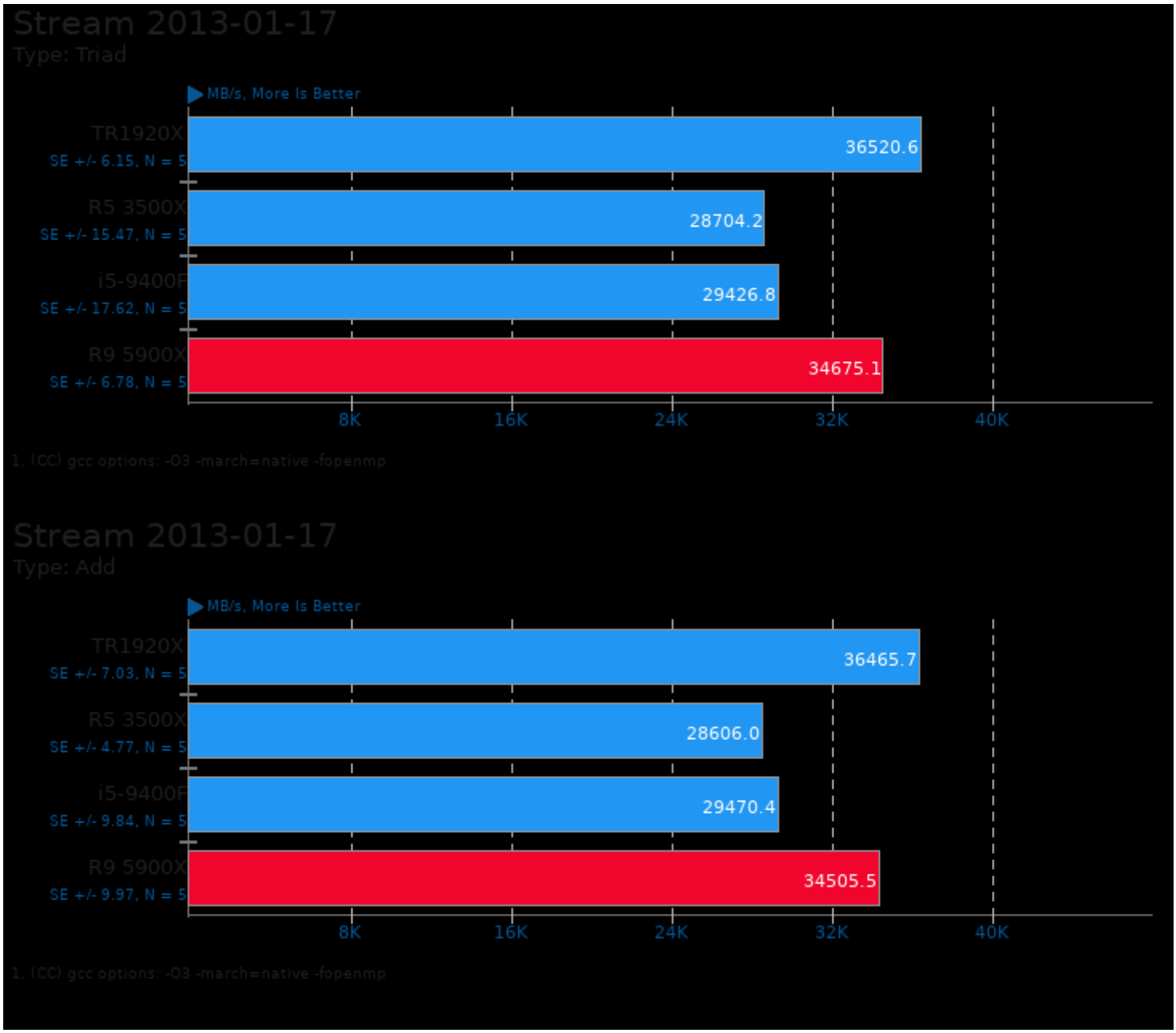
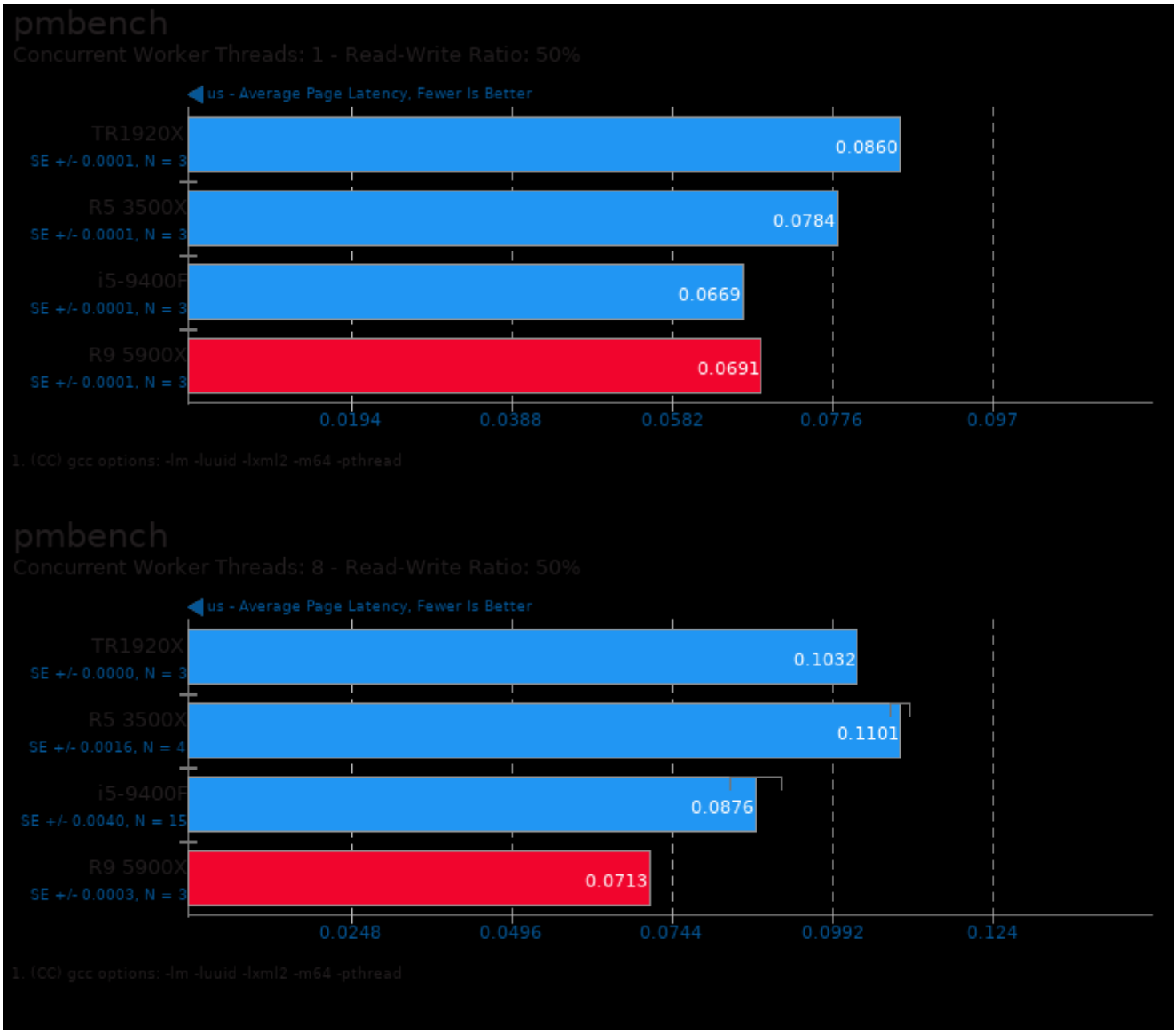
Normalized	78.93%	81.25%	80.22%	100%
Standard Deviation	0.2%	0%	0.1%	2.9%
AOM AV1 - Speed 6 Two-Pass (FPS)	**2.96**	3.70	3.48	**5.25**
Normalized	56.38%	70.48%	66.29%	100%
Standard Deviation	0.3%	0.2%	0.4%	0.9%
AOM AV1 - Speed 8 Realtime (FPS)	**28.22**	39.09	40.76	**52.95**
Normalized	53.3%	73.82%	76.98%	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%

CPU comparison

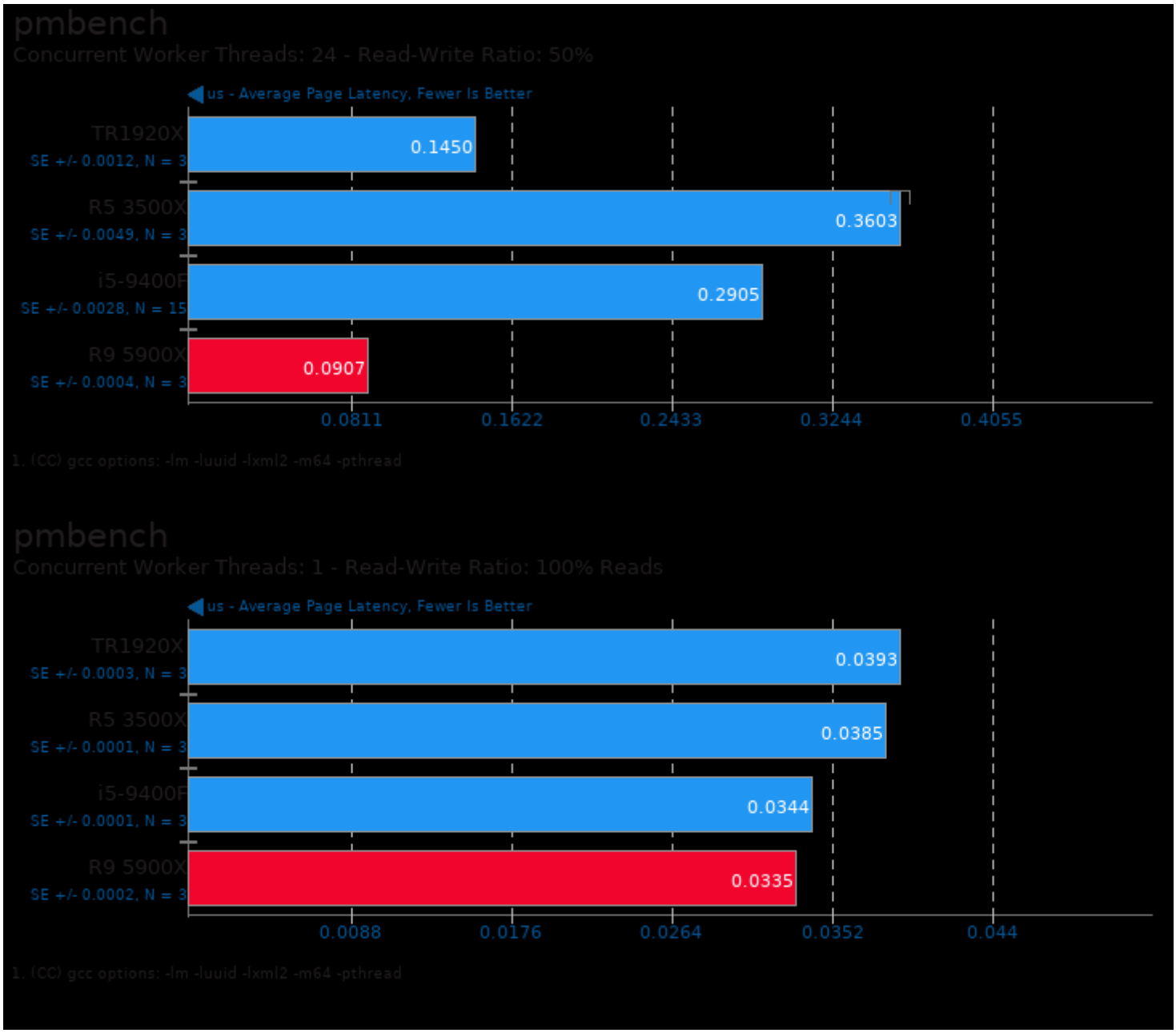



Stream 2013-01-17
Type: Triad
MB/s, More Is Better
TR1920X
SE +/- 6.15, N = 5
36520.6
R5 3500X
SE +/- 15.47, N = 5
28704.2
i5-9400F
SE +/- 17.62, N = 5
29426.8
R9 5900X
SE +/- 6.78, N = 5
34675.1
8K
16K
24K
32K
40K
1. (CC) gcc options: -O3 -march=native -fopenmp
Stream 2013-01-17
Type: Add
MB/s, More Is Better
TR1920X
SE +/- 7.03, N = 5
36465.7
R5 3500X
SE +/- 4.77, N = 5
28606.0
i5-9400F
SE +/- 9.84, N = 5
29470.4
R9 5900X
SE +/- 9.97, N = 5
34505.5
8K
16K
24K
32K
40K
1. (CC) gcc options: -O3 -march=native -fopenmp

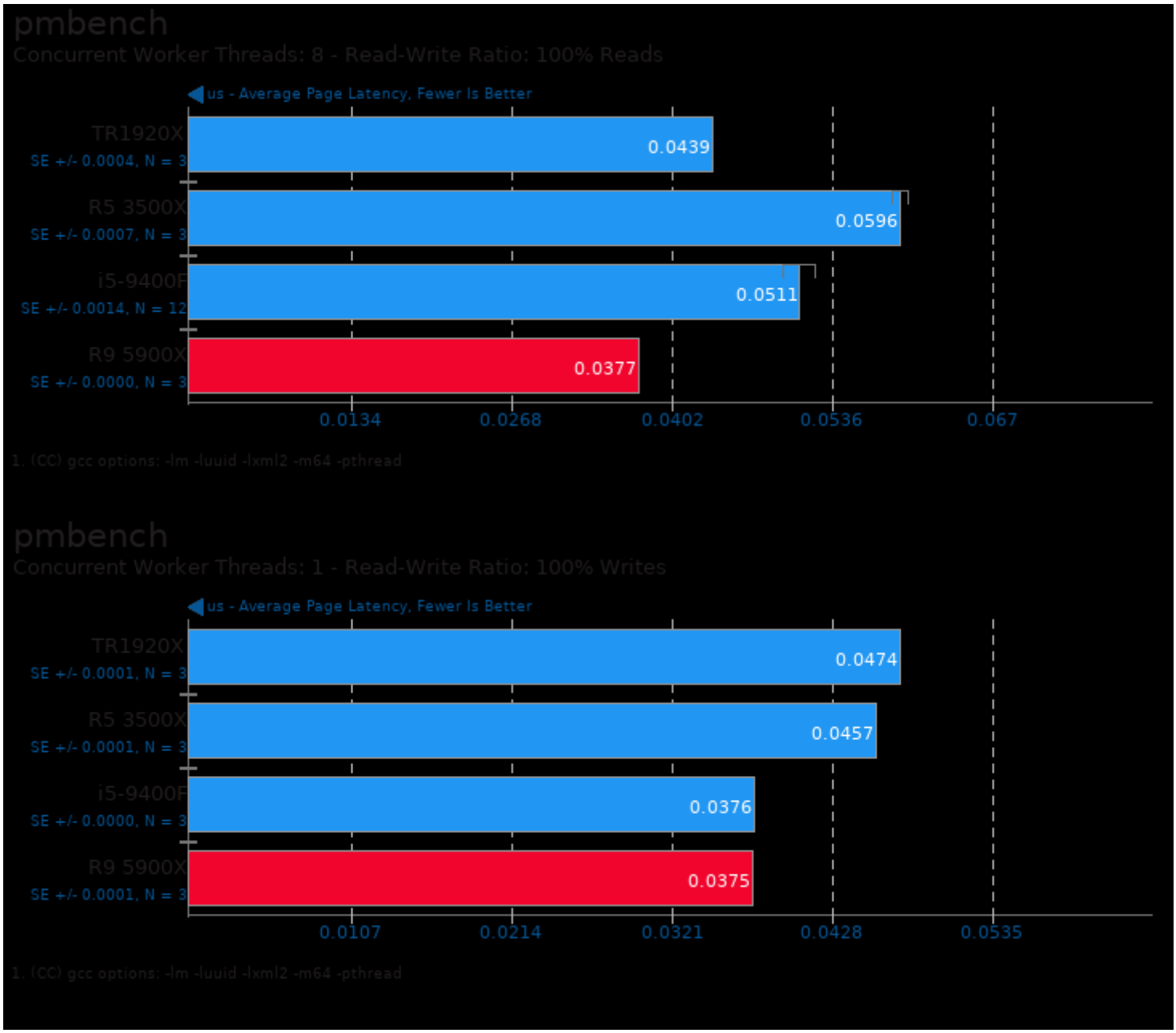
CPU comparison

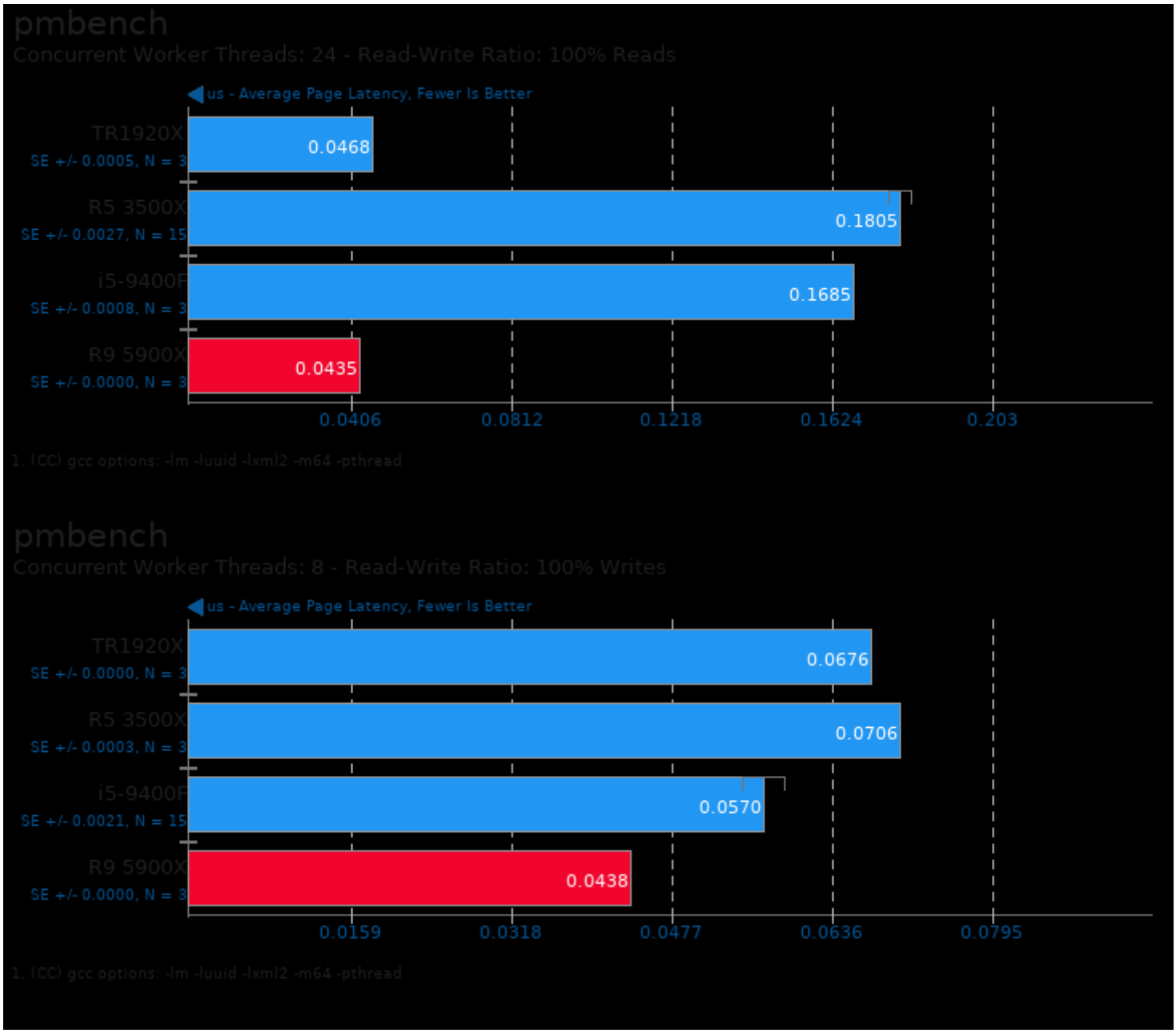


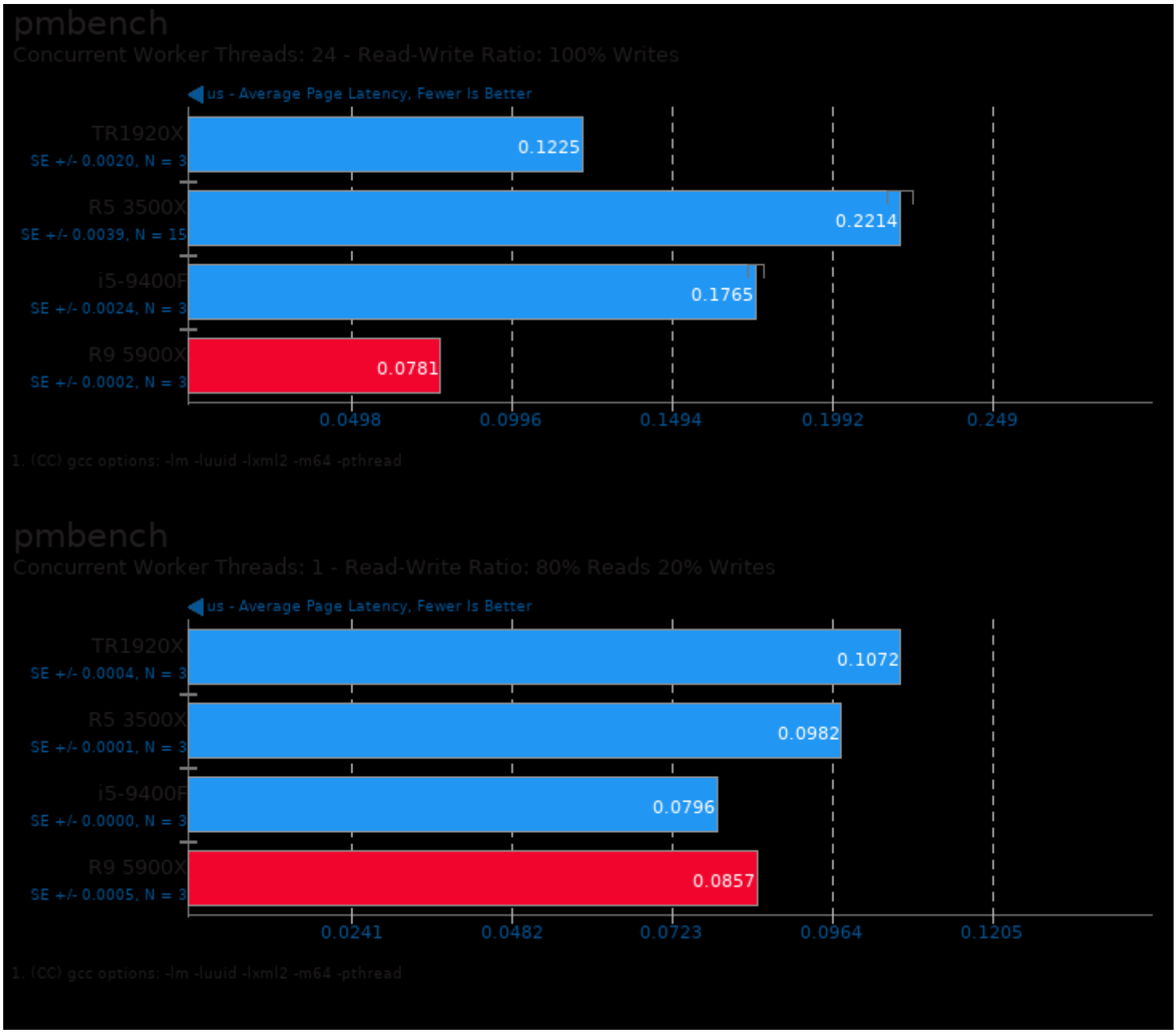
CPU comparison



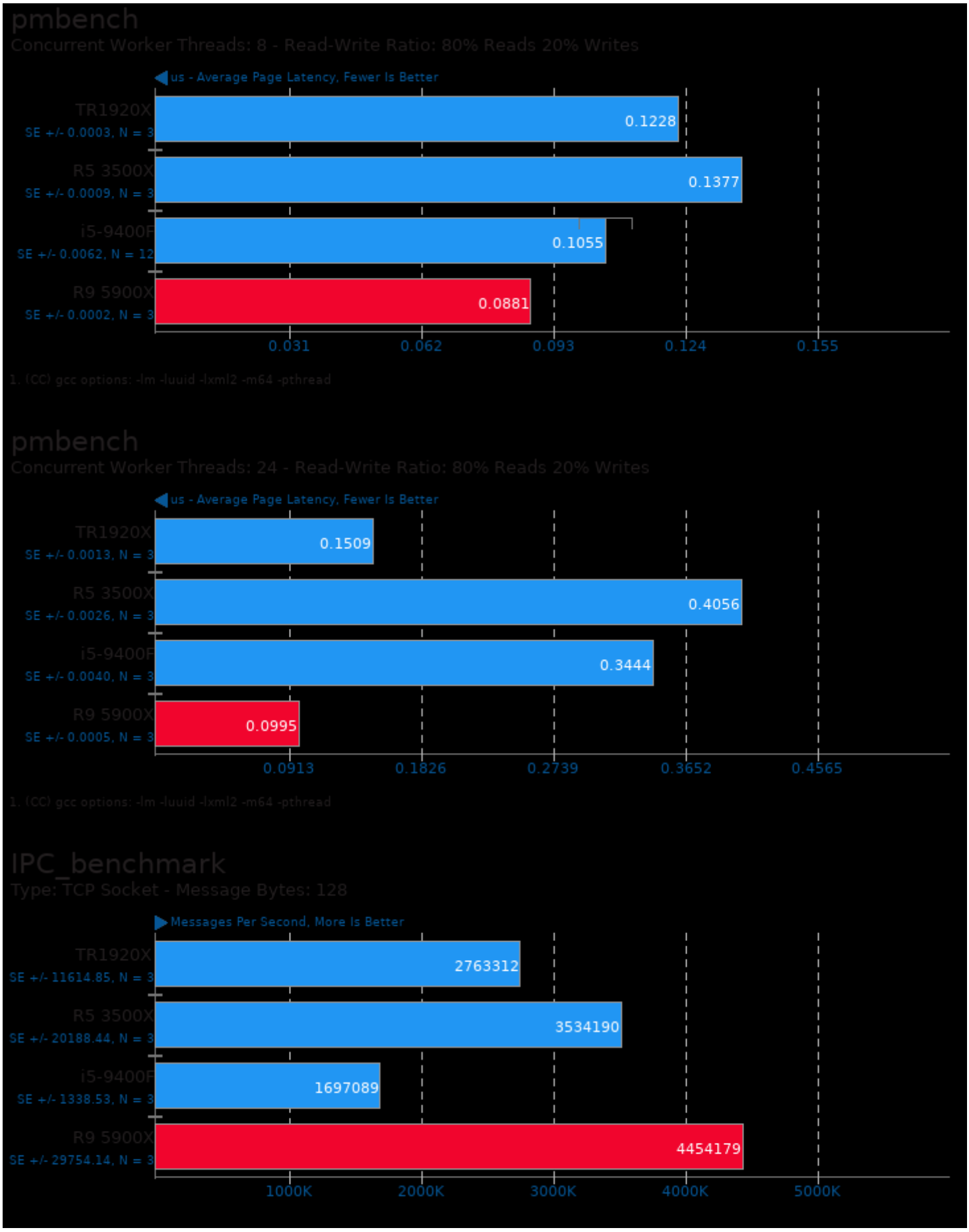
CPU comparison



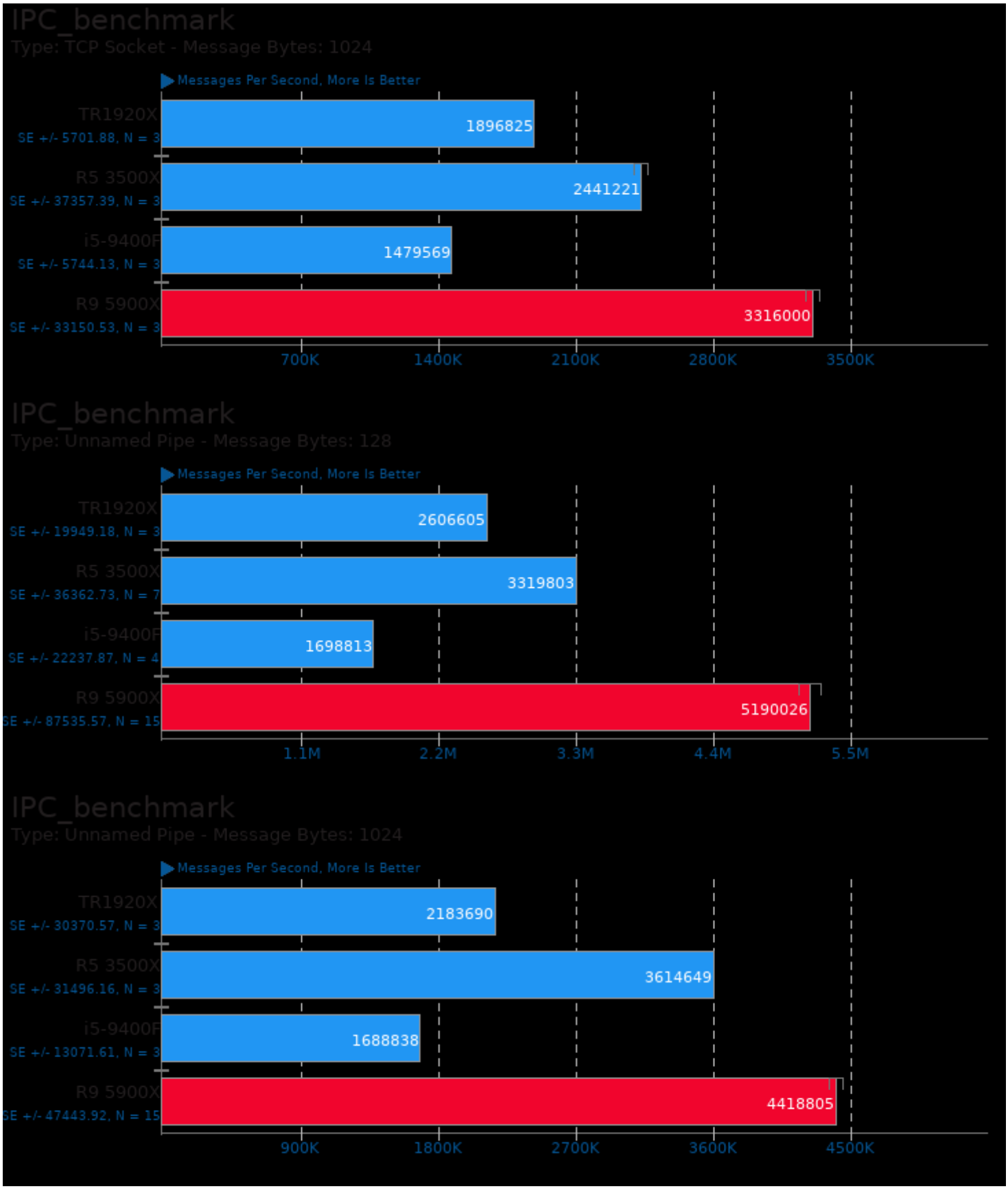

pmbench
Concurrent Worker Threads: 24 - Read-Write Ratio: 100% Reads
us - Average Page Latency, Fewer Is Better
TR1920X
SE +/- 0.0005, N = 3
0.0468
R5 3500X
SE +/- 0.0027, N = 15
0.1805
i5-9400F
SE +/- 0.0008, N = 3
0.1685
R9 5900X
SE +/- 0.0000, N = 3
0.0435
0.0406
0.0812
0.1218
0.1624
0.203
1. (CC) gcc options: -lm -luuid -lxml2 -m64 -pthread
pmbench
Concurrent Worker Threads: 8 - Read-Write Ratio: 100% Writes
us - Average Page Latency, Fewer Is Better
TR1920X
SE +/- 0.0000, N = 3
0.0676
R5 3500X
SE +/- 0.0003, N = 3
0.0706
i5-9400F
SE +/- 0.0021, N = 15
0.0570
R9 5900X
SE +/- 0.0000, N = 3
0.0438
0.0159
0.0318
0.0477
0.0636
0.0795
1. (CC) gcc options: -lm -luuid -lxml2 -m64 -pthread


pmbench
Concurrent Worker Threads: 24 - Read-Write Ratio: 100% Writes
us - Average Page Latency, Fewer Is Better
TR1920X
SE +/- 0.0020, N = 3
0.1225
R5 3500X
SE +/- 0.0039, N = 15
0.2214
i5-9400F
SE +/- 0.0024, N = 3
0.1765
R9 5900X
SE +/- 0.0002, N = 3
0.0781
0.0498
0.0996
0.1494
0.1992
0.249
1. (CC) gcc options: -lm -luuid -lxml2 -m64 -pthread
pmbench
Concurrent Worker Threads: 1 - Read-Write Ratio: 80% Reads 20% Writes
us - Average Page Latency, Fewer Is Better
TR1920X
SE +/- 0.0004, N = 3
0.1072
R5 3500X
SE +/- 0.0001, N = 3
0.0982
i5-9400F
SE +/- 0.0000, N = 3
0.0796
R9 5900X
SE +/- 0.0005, N = 3
0.0857
0.0241
0.0482
0.0723
0.0964
0.1205
1. (CC) gcc options: -lm -luuid -lxml2 -m64 -pthread

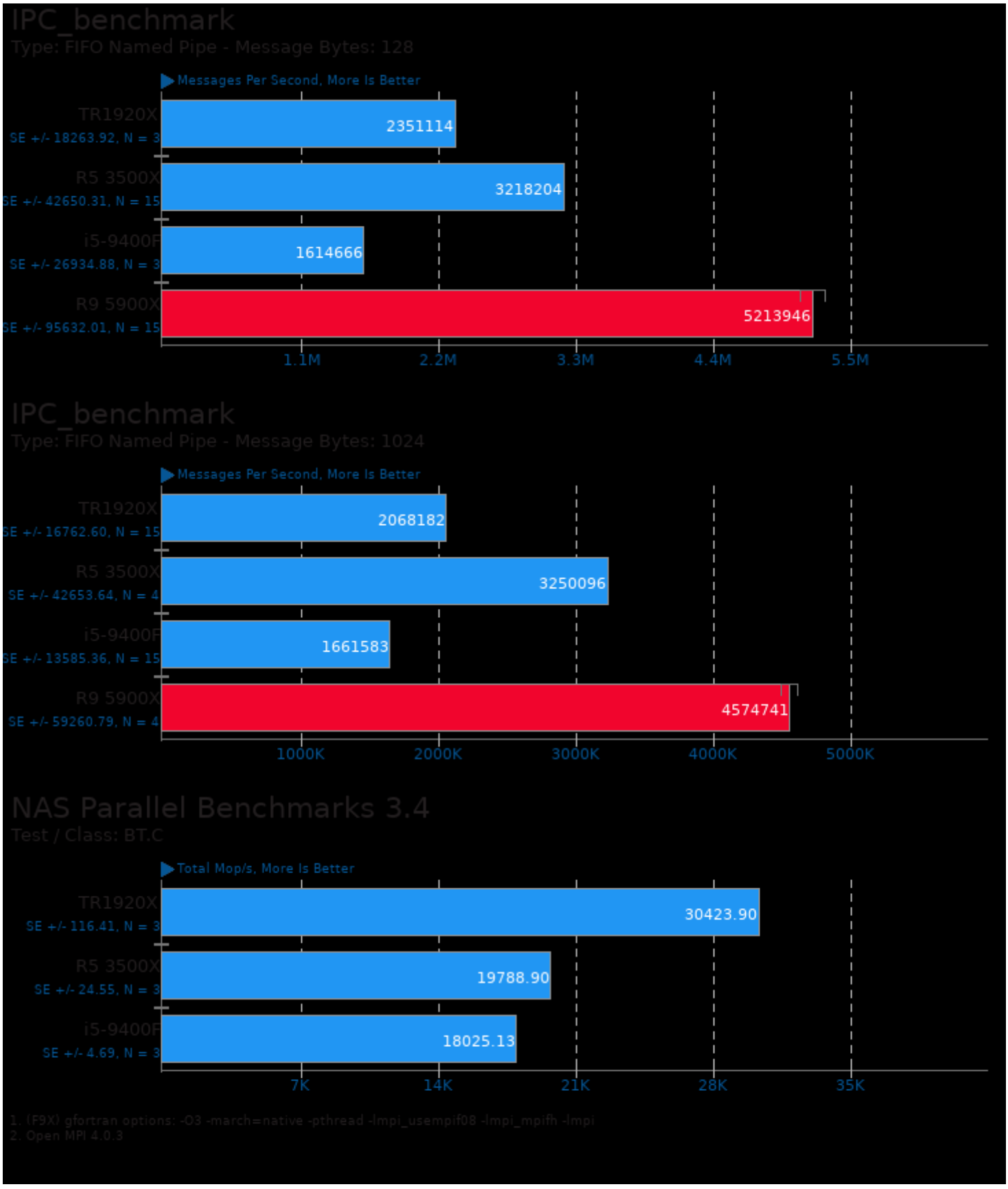
CPU comparison



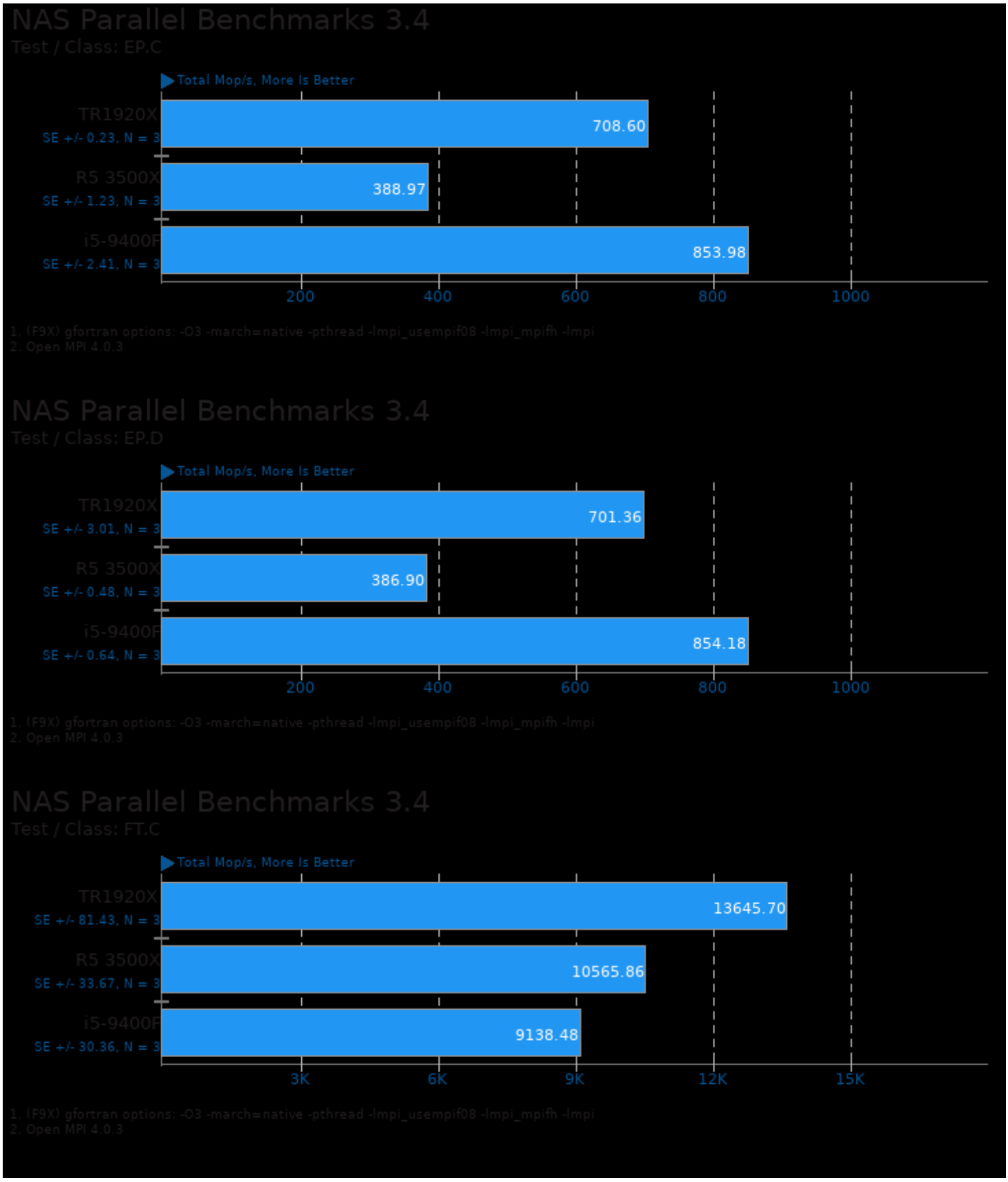
CPU comparison

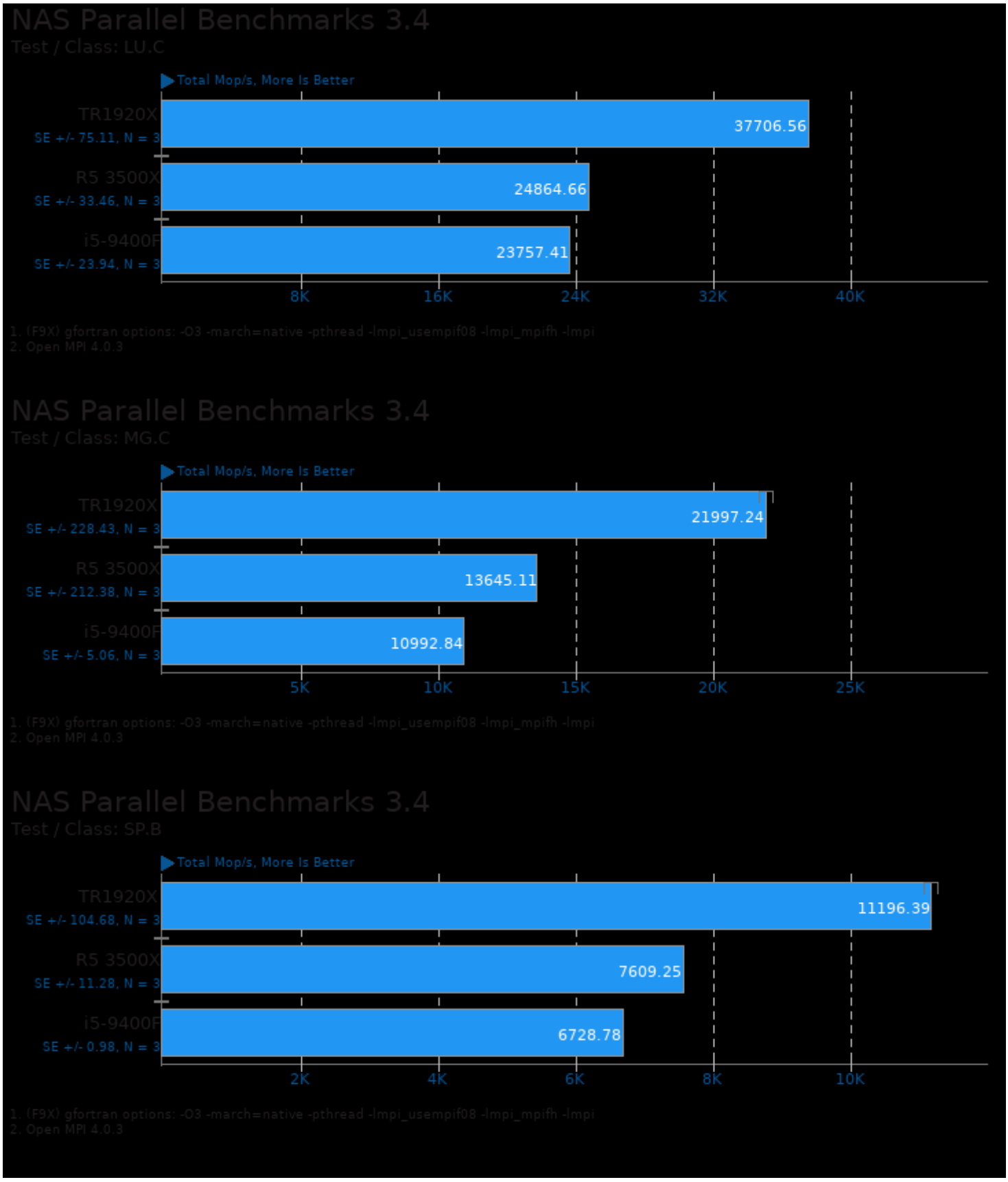


CPU comparison

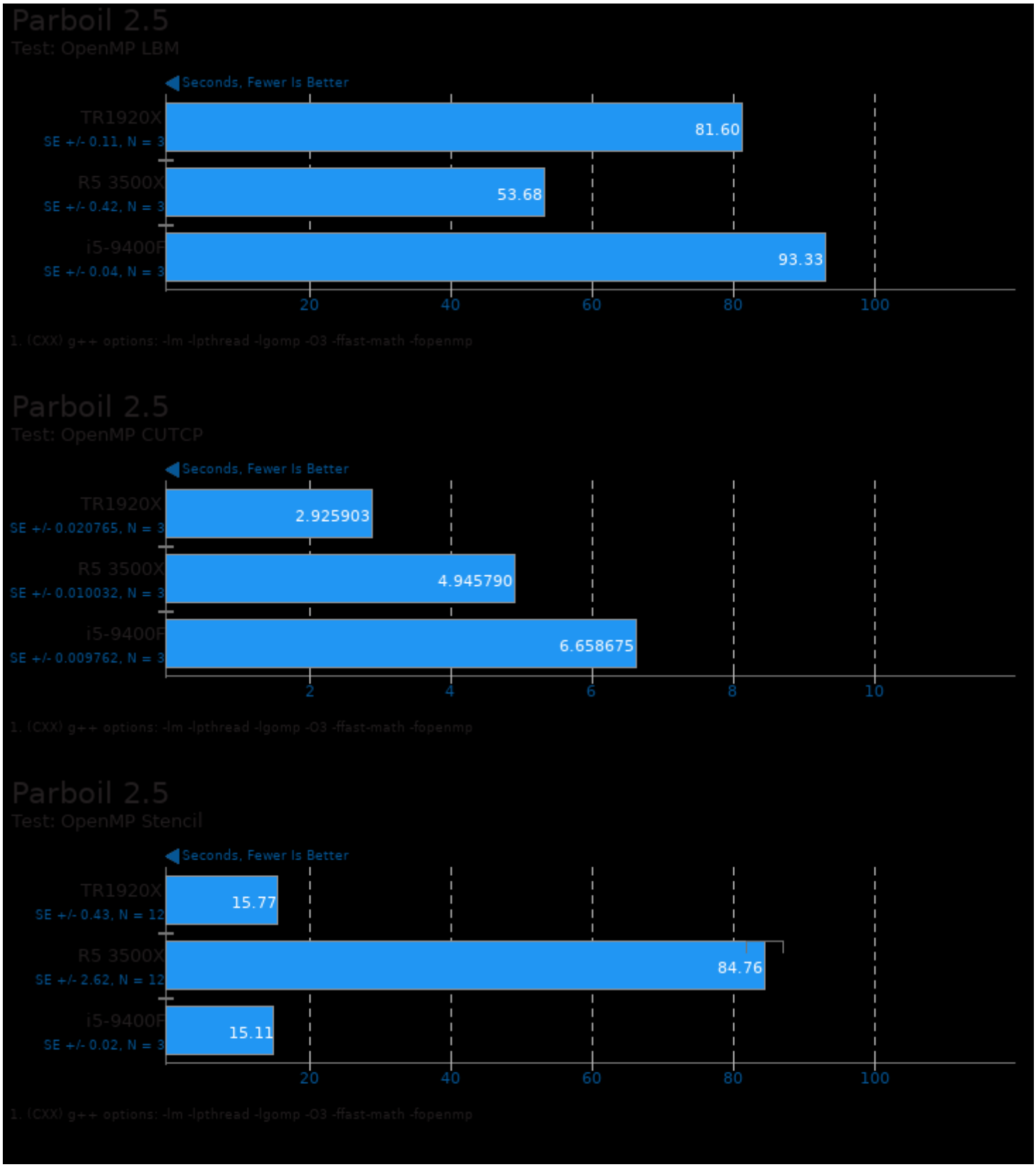


CPU comparison




NAS Parallel Benchmarks 3.4
Test / Class: LU.C
Total Mop/s, More Is Better
TR1920X
SE +/- 75.11, N = 3
37706.56
R5 3500X
SE +/- 33.46, N = 3
24864.66
i5-9400F
SE +/- 23.94, N = 3
23757.41
8K
16K
24K
32K
40K
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
Total Mop/s, More Is Better
TR1920X
SE +/- 228.43, N = 3
21997.24
R5 3500X
SE +/- 212.38, N = 3
13645.11
i5-9400F
SE +/- 5.06, N = 3
10992.84
5K
10K
15K
20K
25K
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
Total Mop/s, More Is Better
TR1920X
SE +/- 104.68, N = 3
11196.39
R5 3500X
SE +/- 11.28, N = 3
7609.25
i5-9400F
SE +/- 0.98, N = 3
6728.78
2K
4K
6K
8K
10K
1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi_usempif08 -lmpi_mpifh -lmpi
2. Open MPI 4.0.3

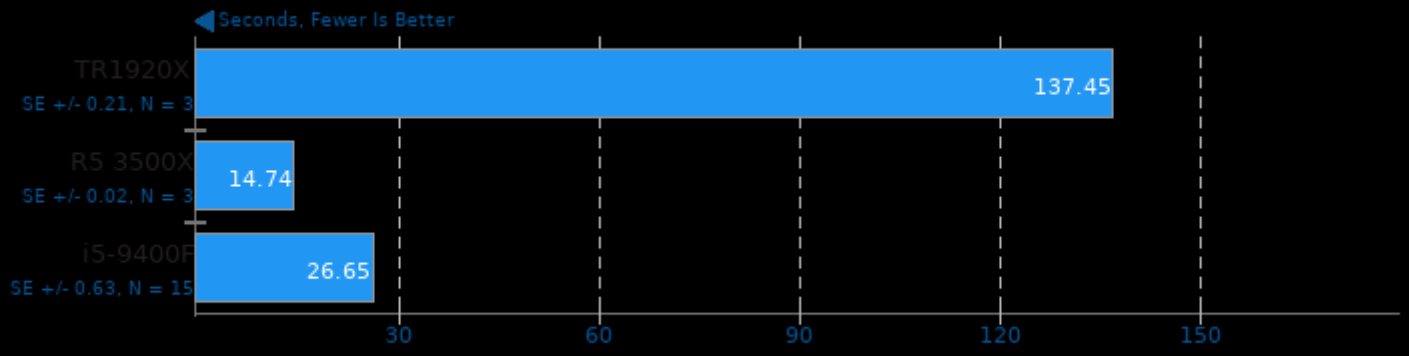
CPU comparison



CPU comparison

Parboil 2.5

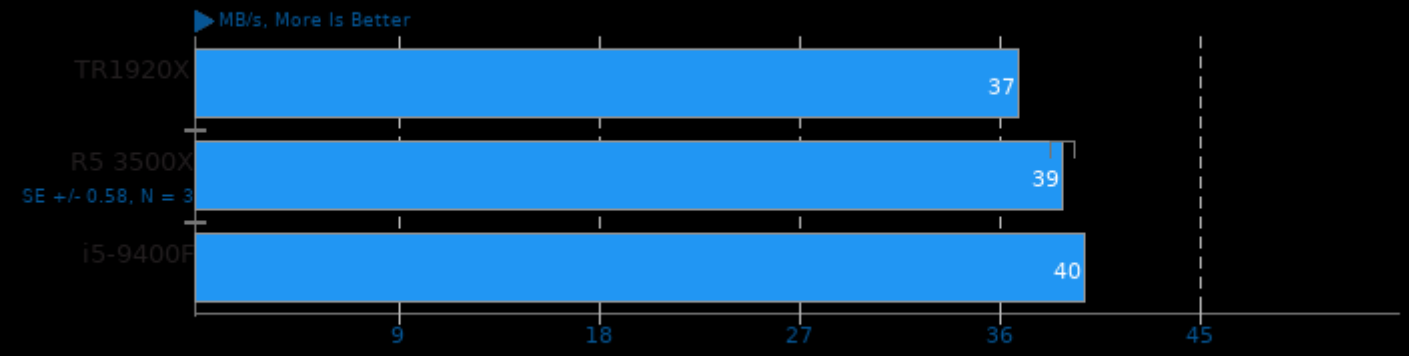
Test: OpenMP MRI Gridding



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

lzbench 1.8

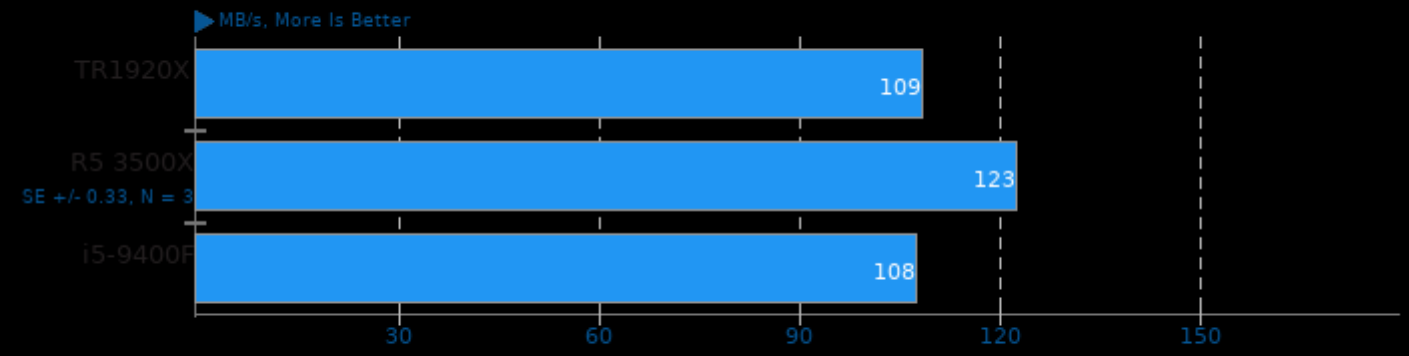
Test: XZ 0 - Process: Compression



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

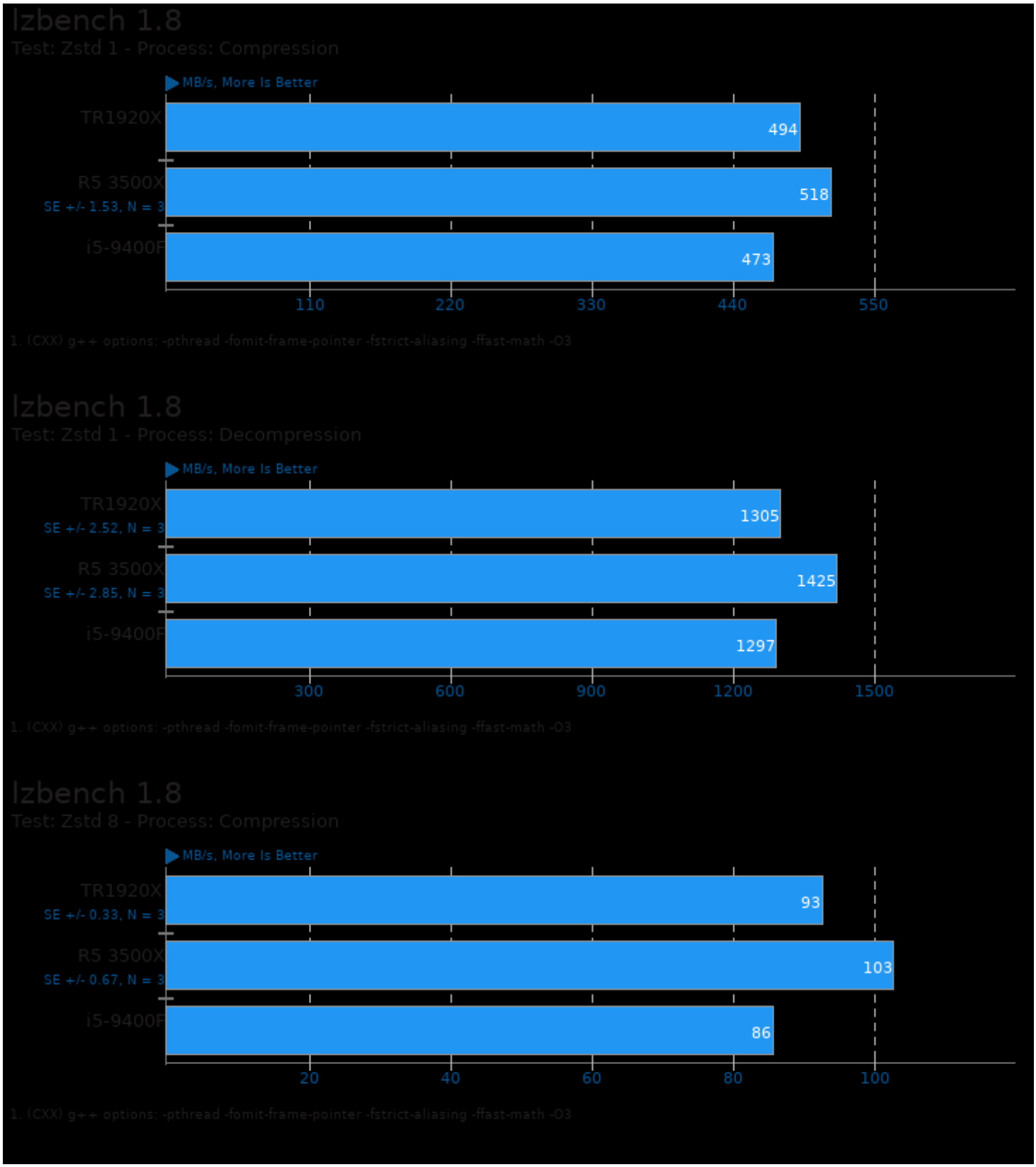
lzbench 1.8

Test: XZ 0 - Process: Decompression

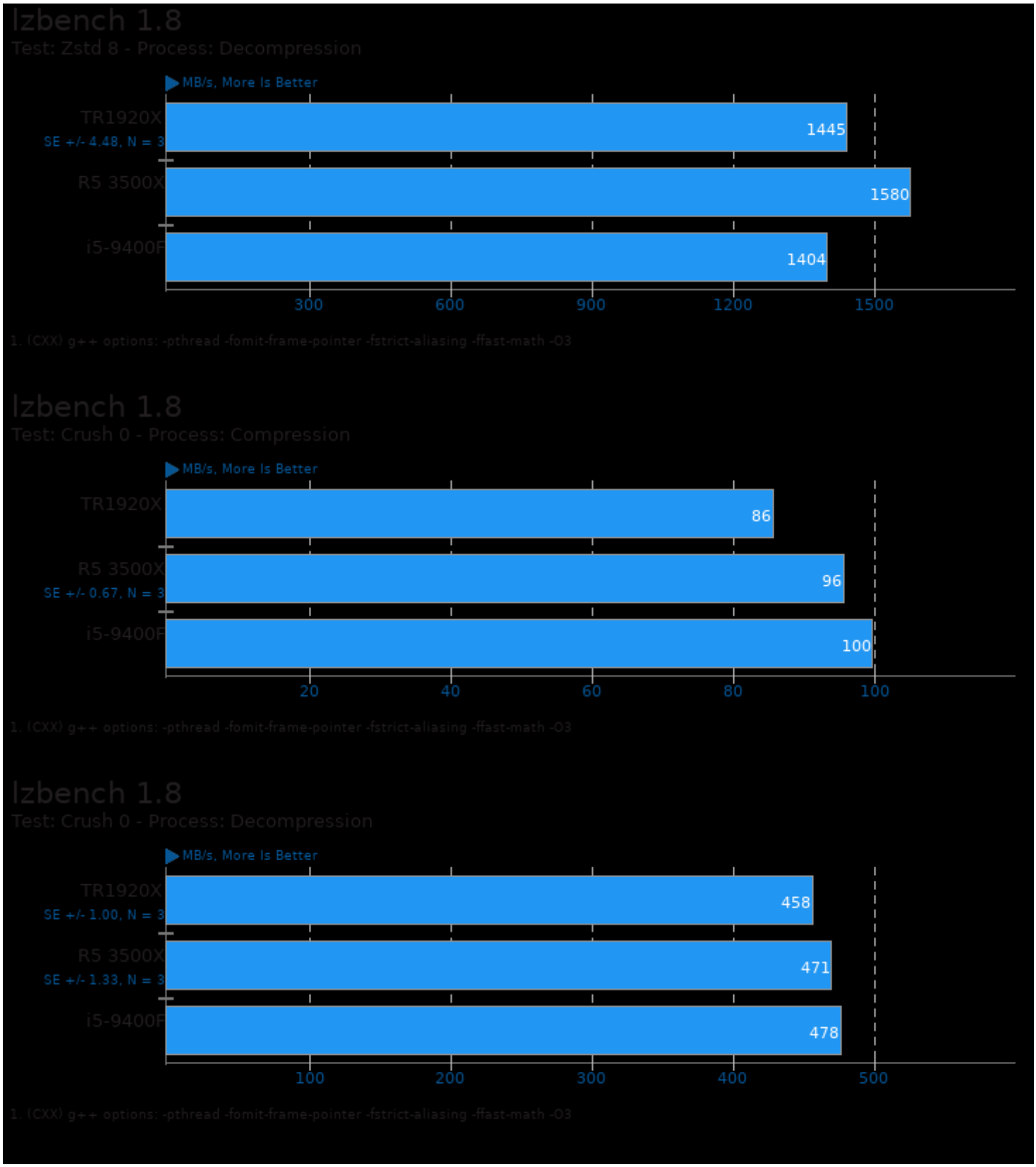


1. (CXX) g++ options: -pthread -fomit-frame-pointer -fstrict-aliasing -ffast-math -O3

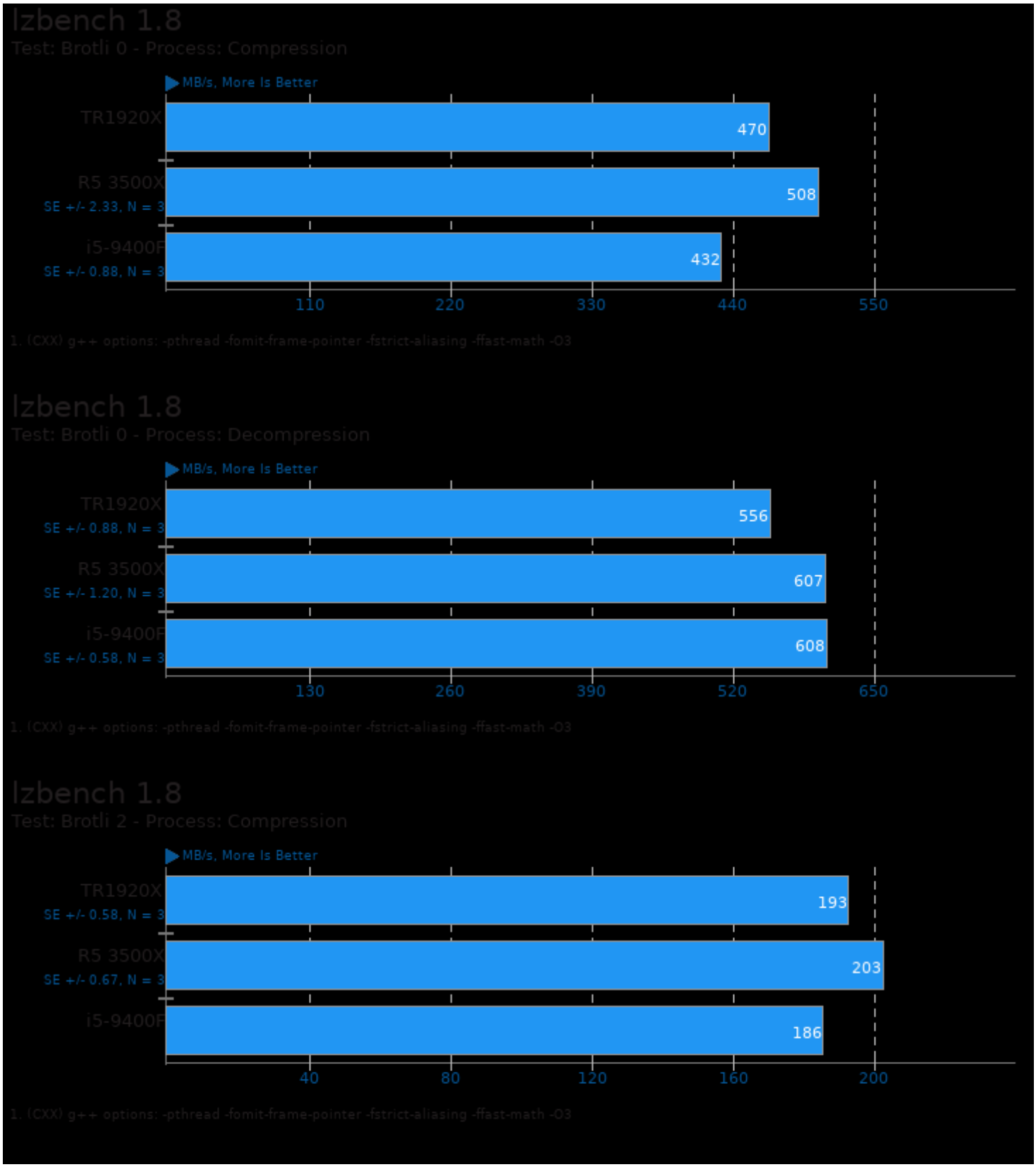
CPU comparison



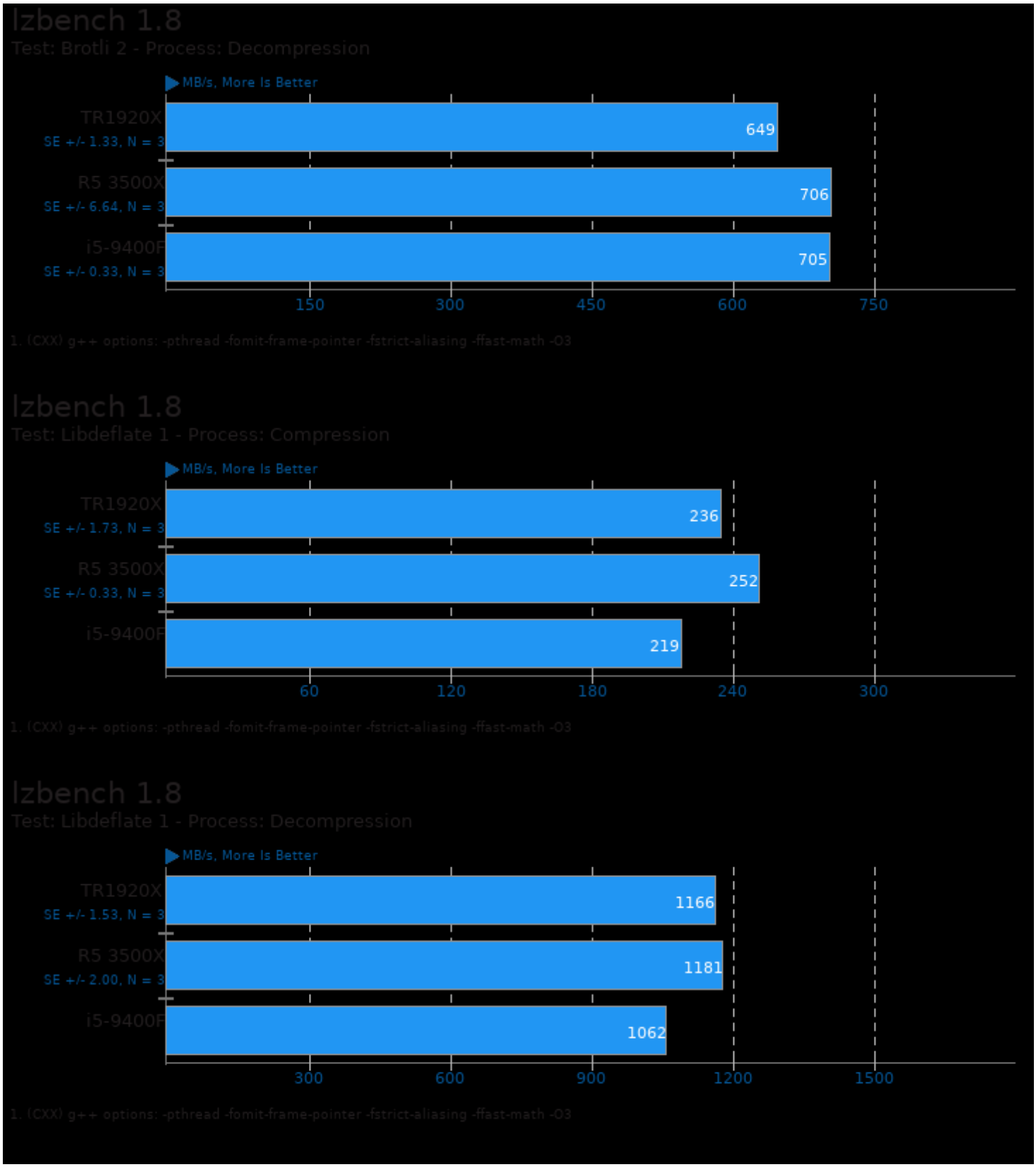
CPU comparison



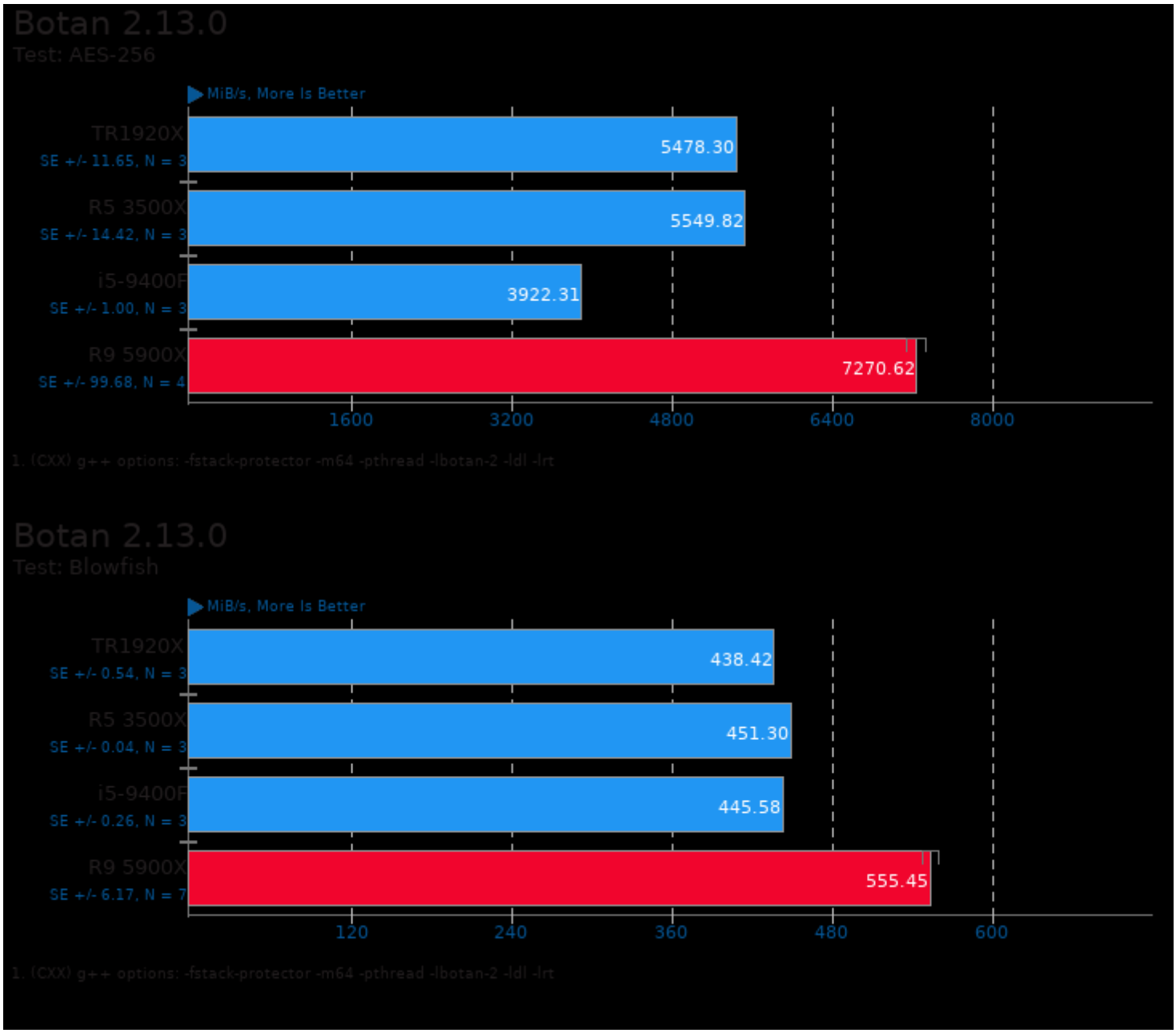
CPU comparison



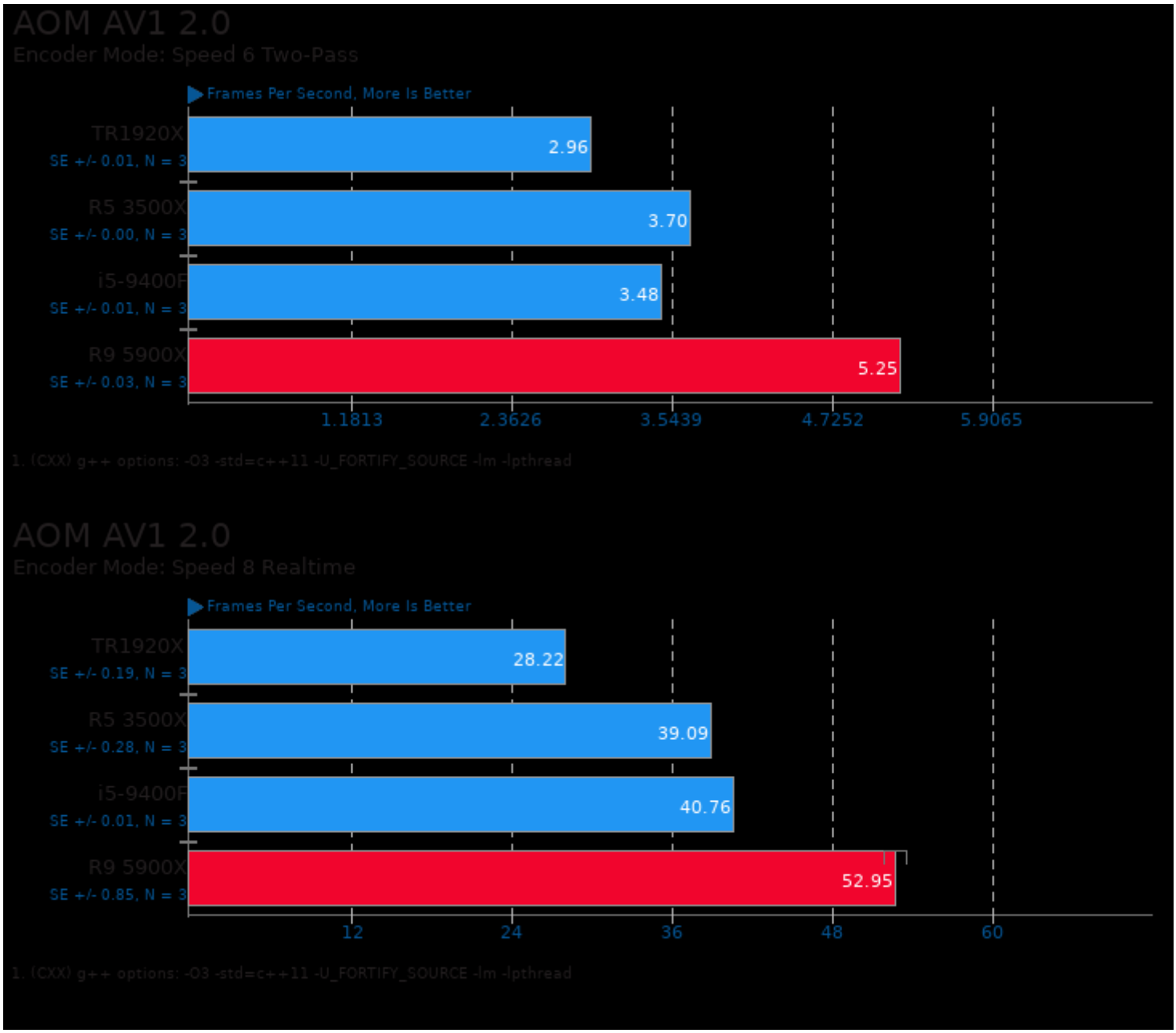
CPU comparison



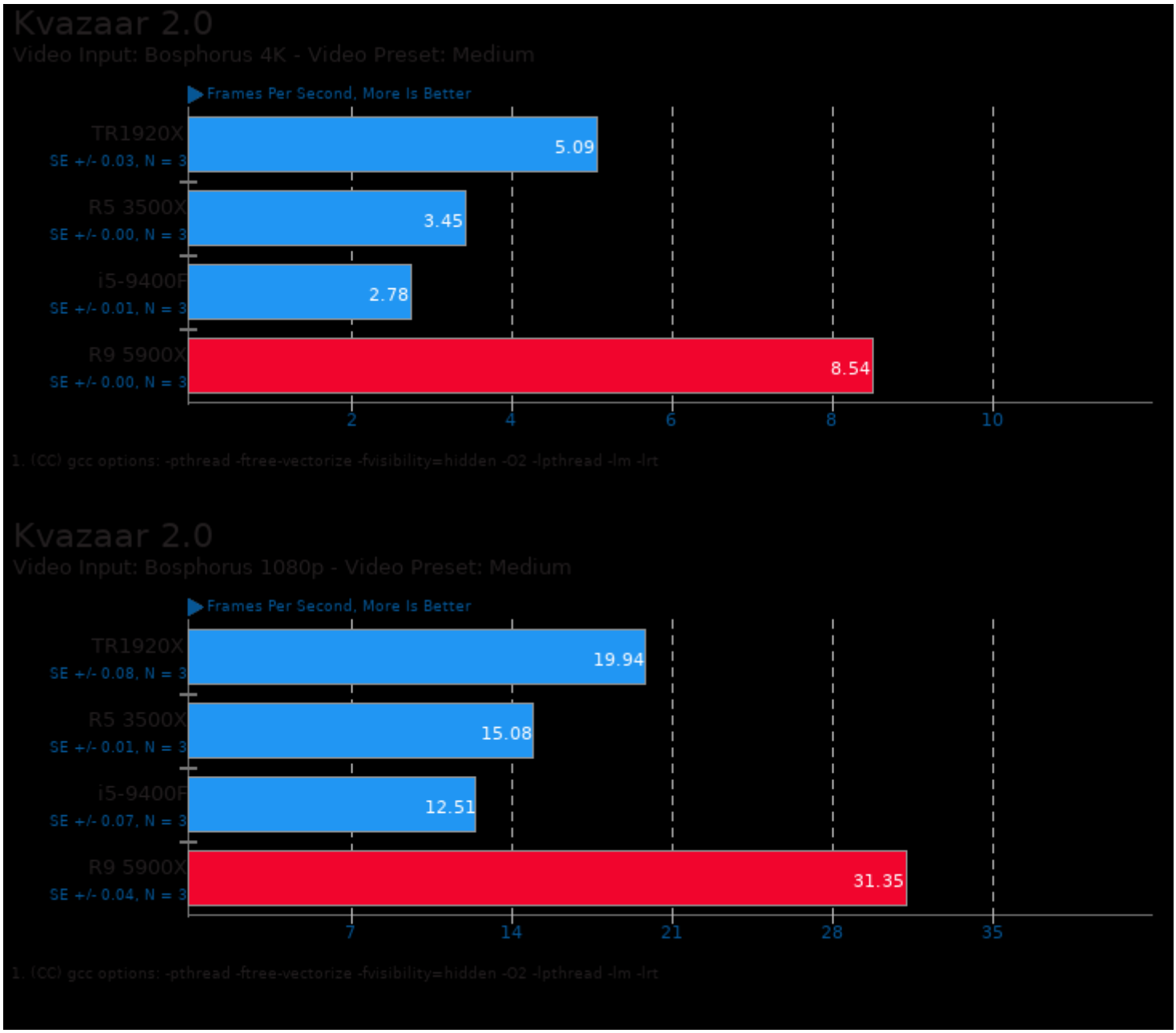
CPU comparison



CPU comparison

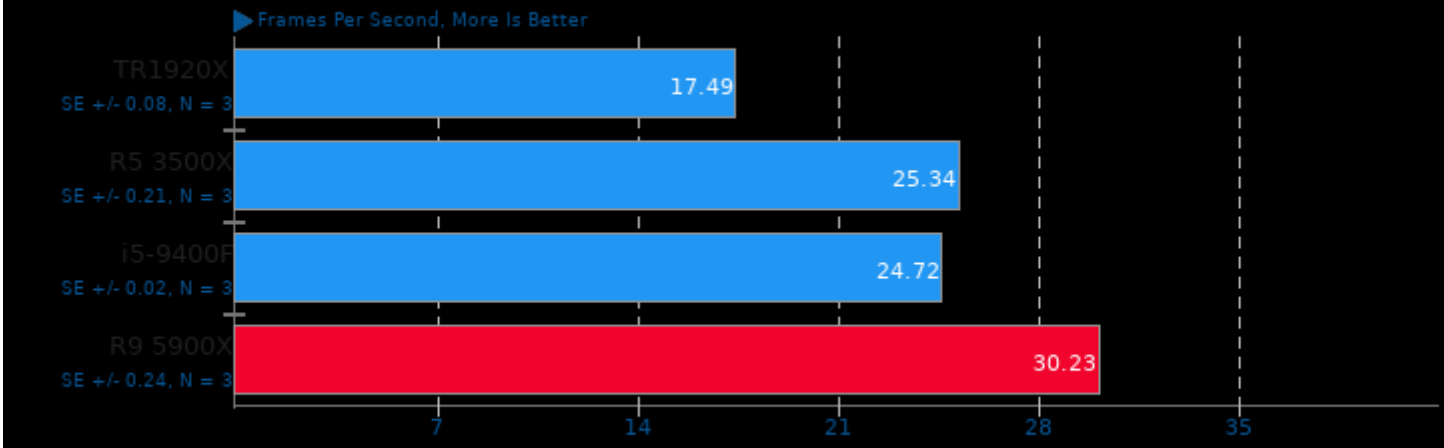


CPU comparison



VP9 libvpx Encoding 1.8.2

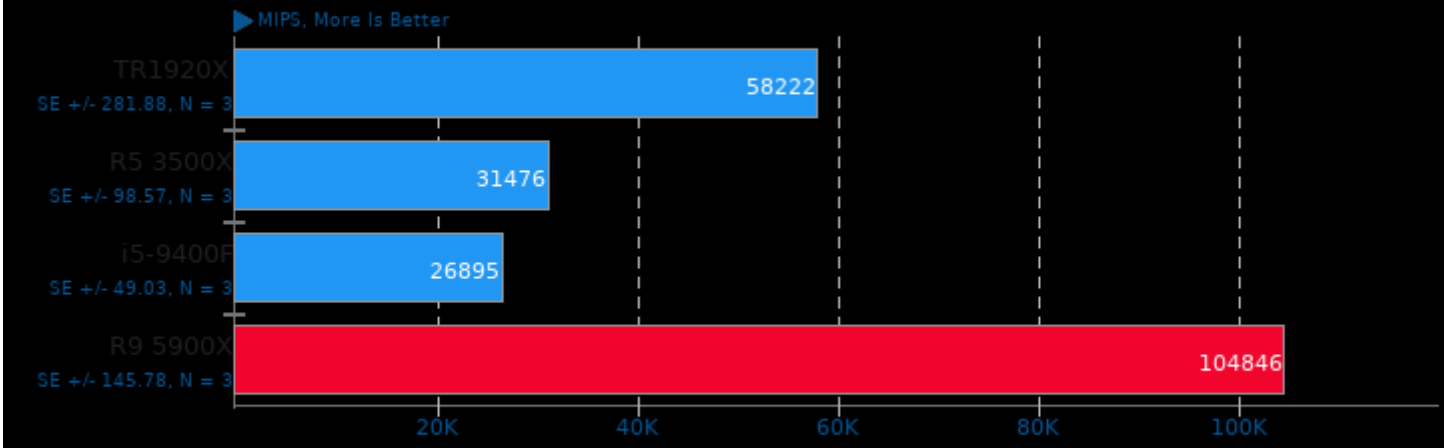
Speed: Speed 5



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

7-Zip Compression 16.02

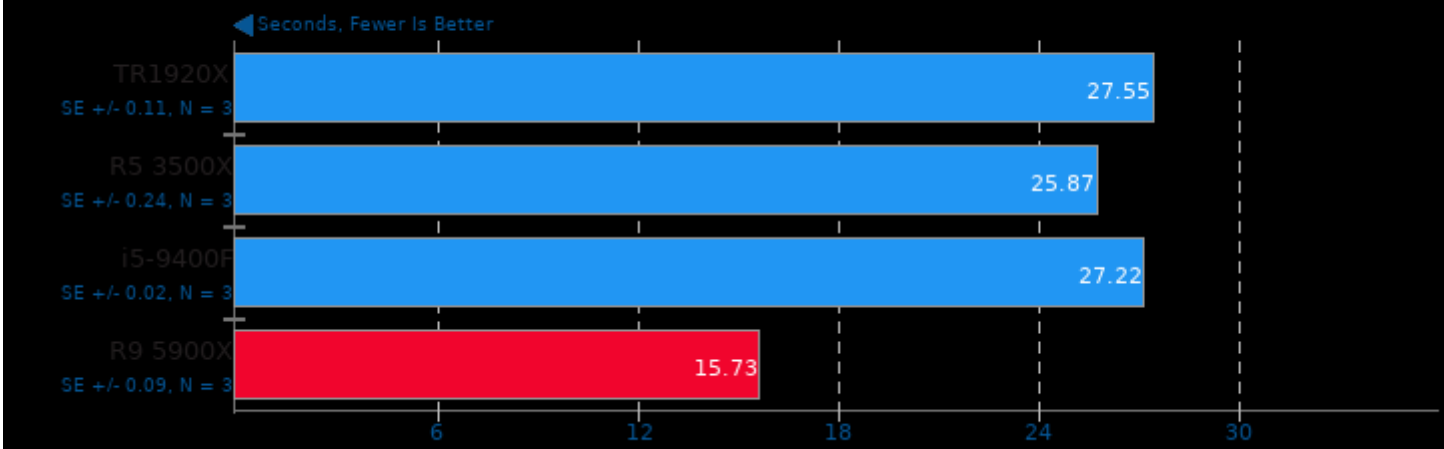
Compress Speed Test



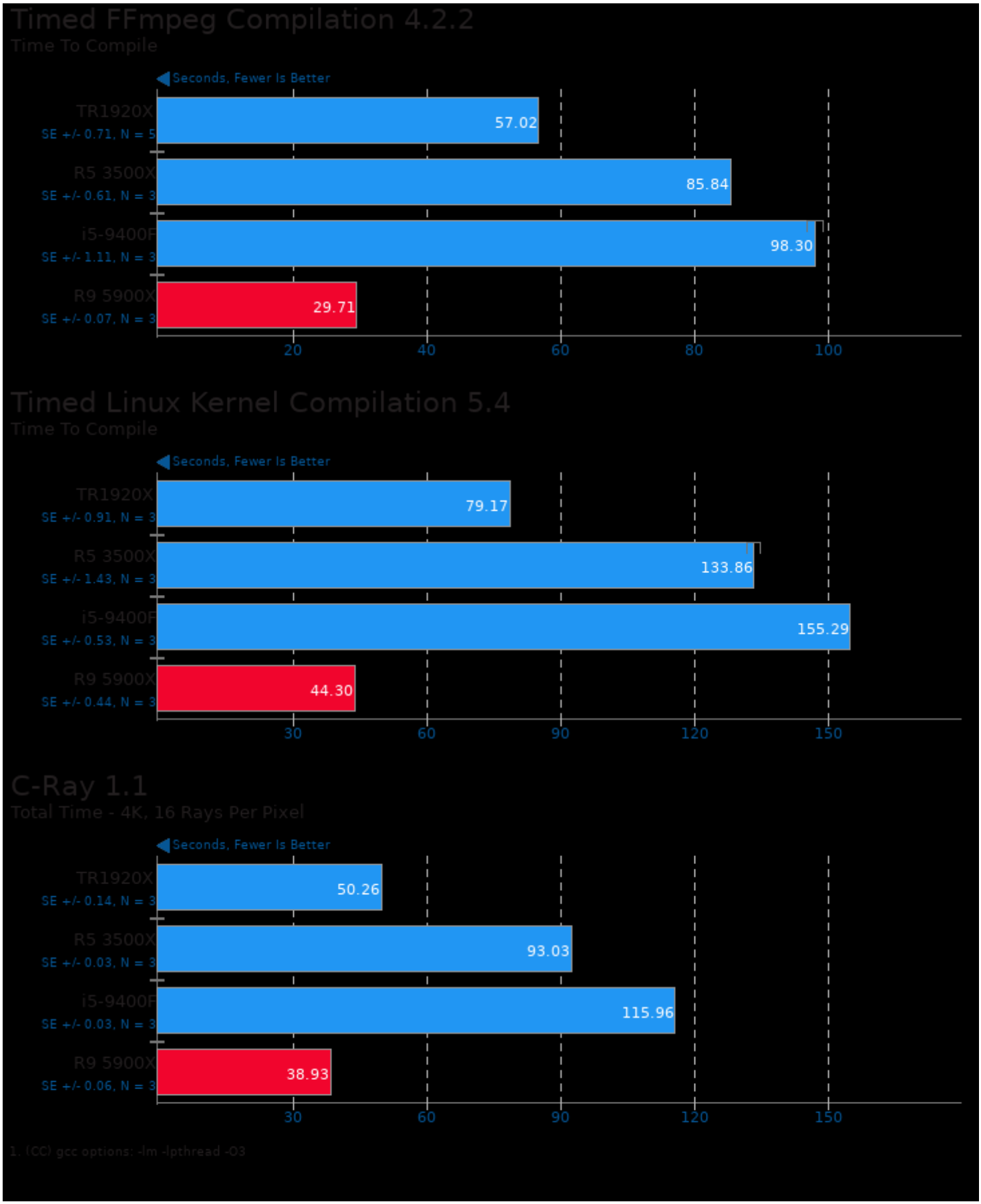
1. (CXX) g++ options: -pipe -lpthread

Timed Apache Compilation 2.4.41

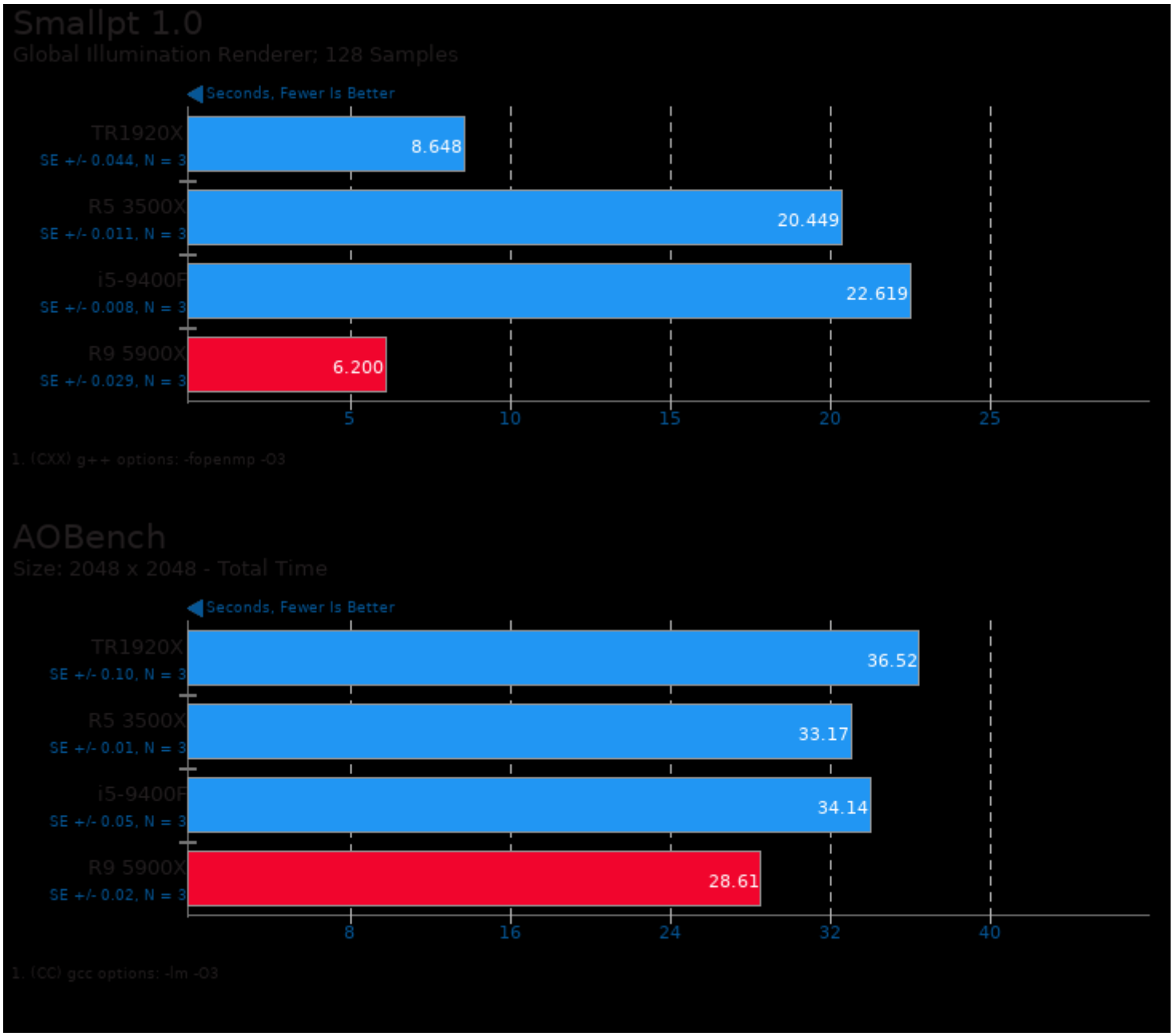
Time To Compile



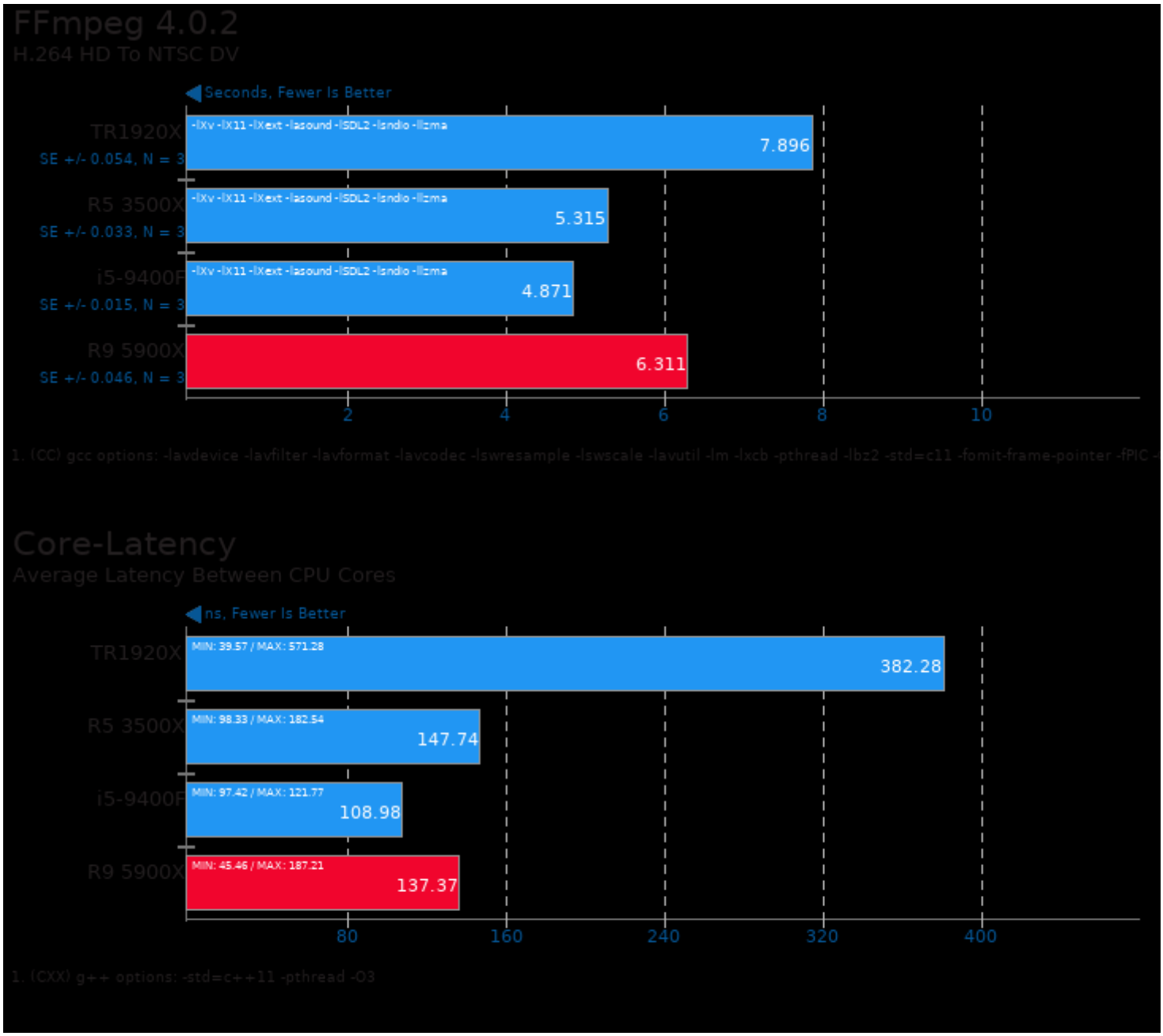
CPU comparison



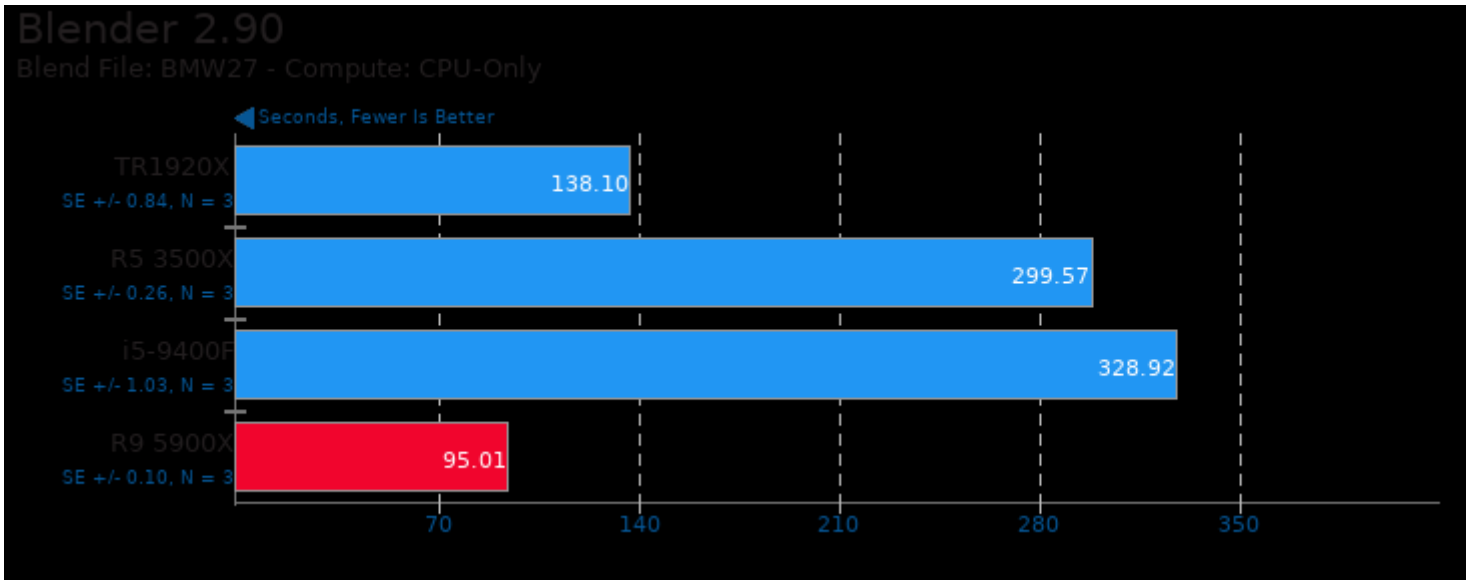
CPU comparison



CPU comparison

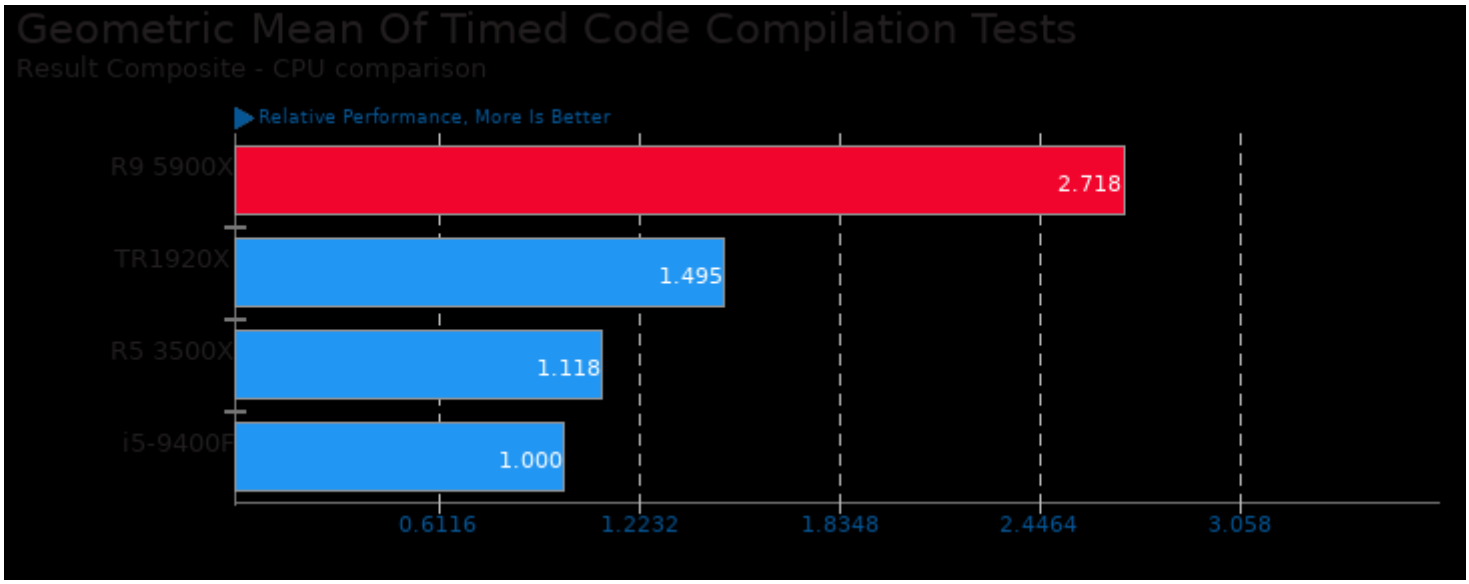


CPU comparison

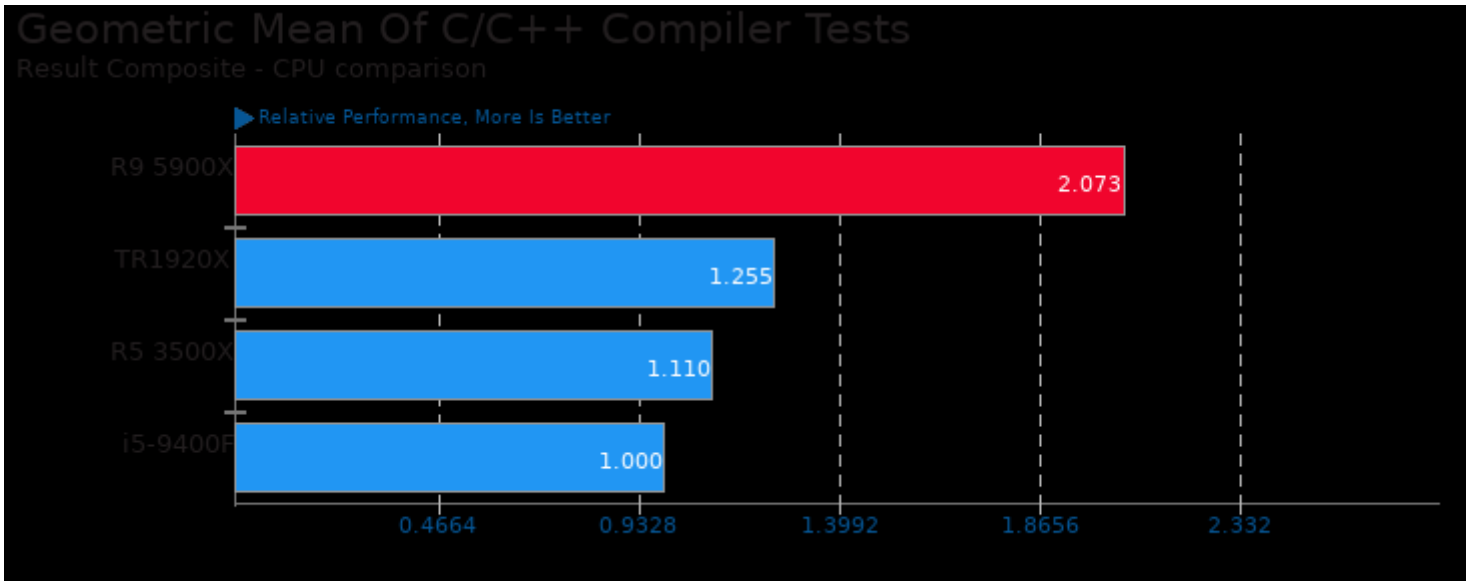


CPU comparison

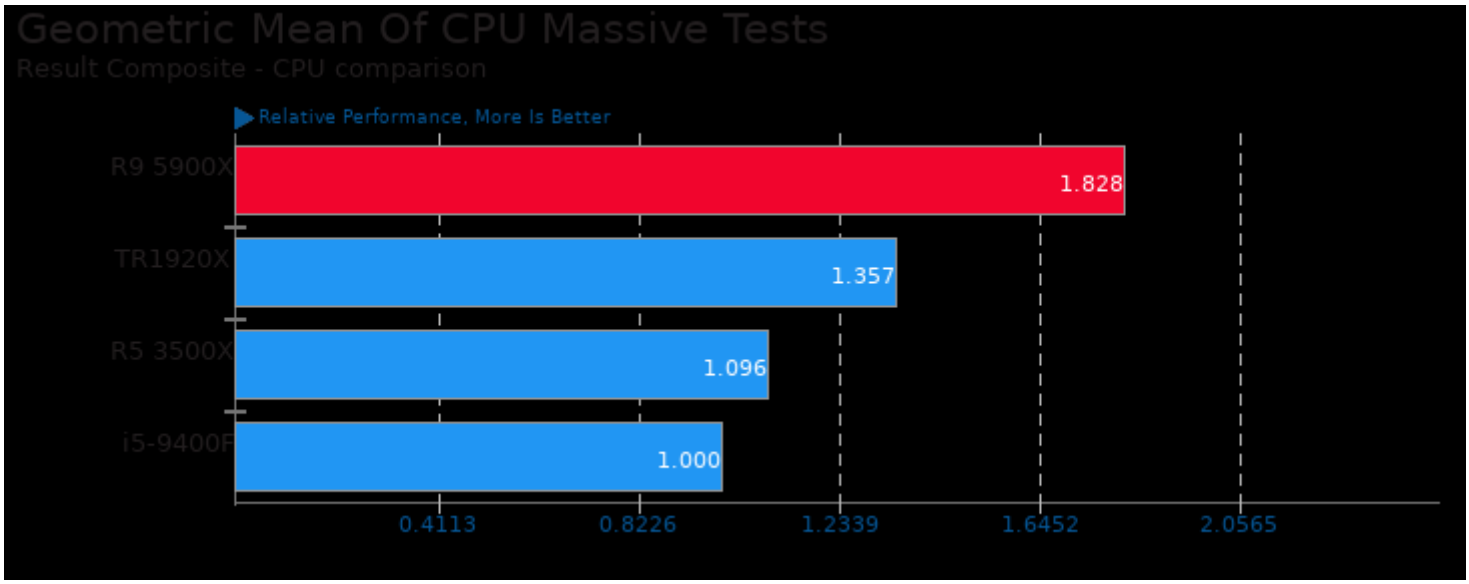
These geometric means are based upon test groupings / test suites for this result file.



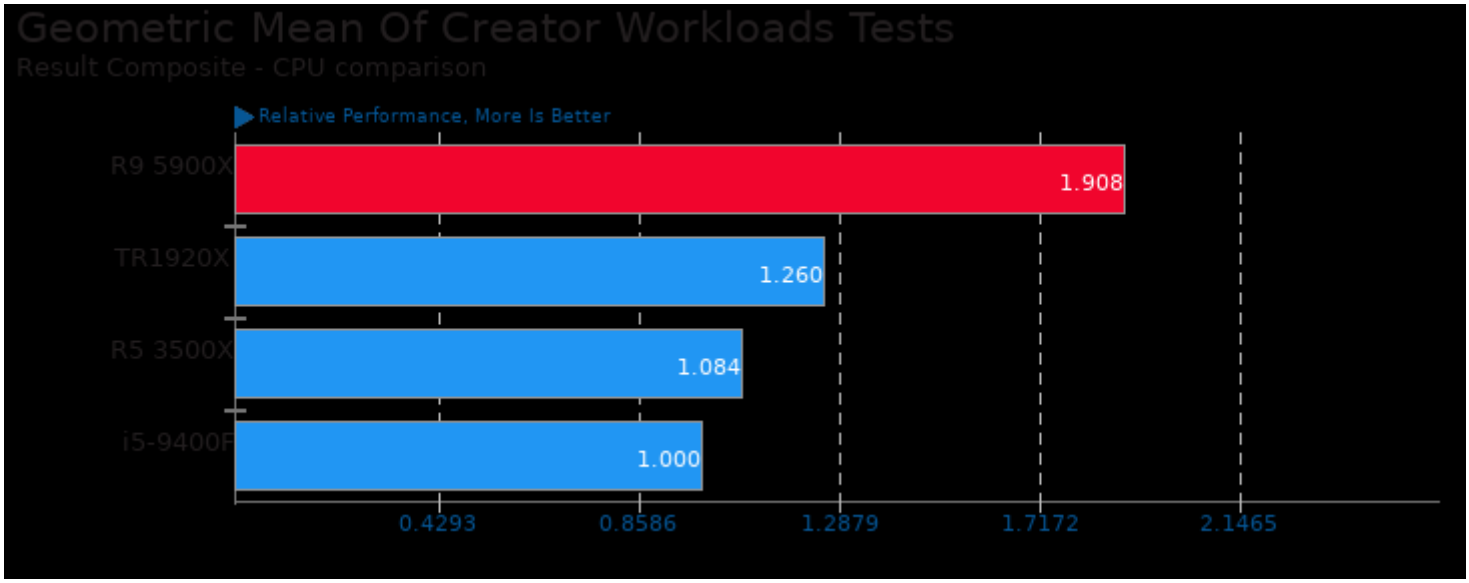
Geometric mean based upon tests: pts/build-apache, pts/build-linux-kernel and pts/build-ffmpeg



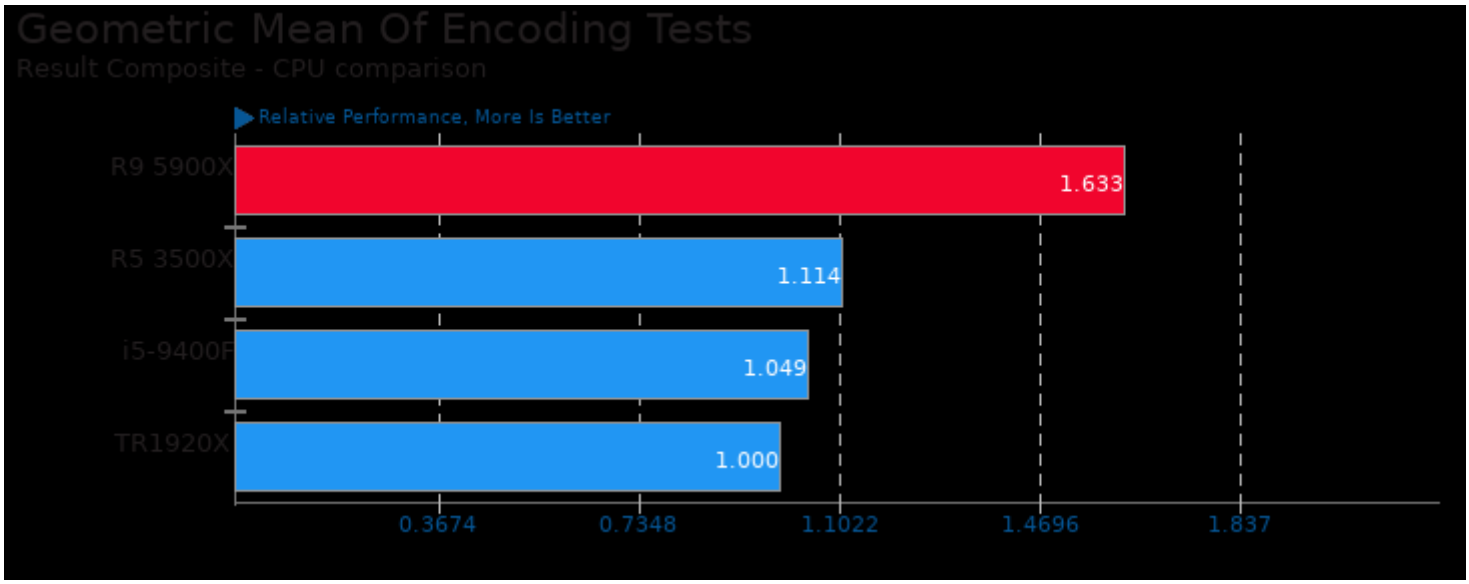
Geometric mean based upon tests: pts/aobench, pts/vpxenc, pts/c-ray, pts/compress-7zip, pts/kvazaar, pts/aom-av1, pts/build-ffmpeg and pts/build-apache



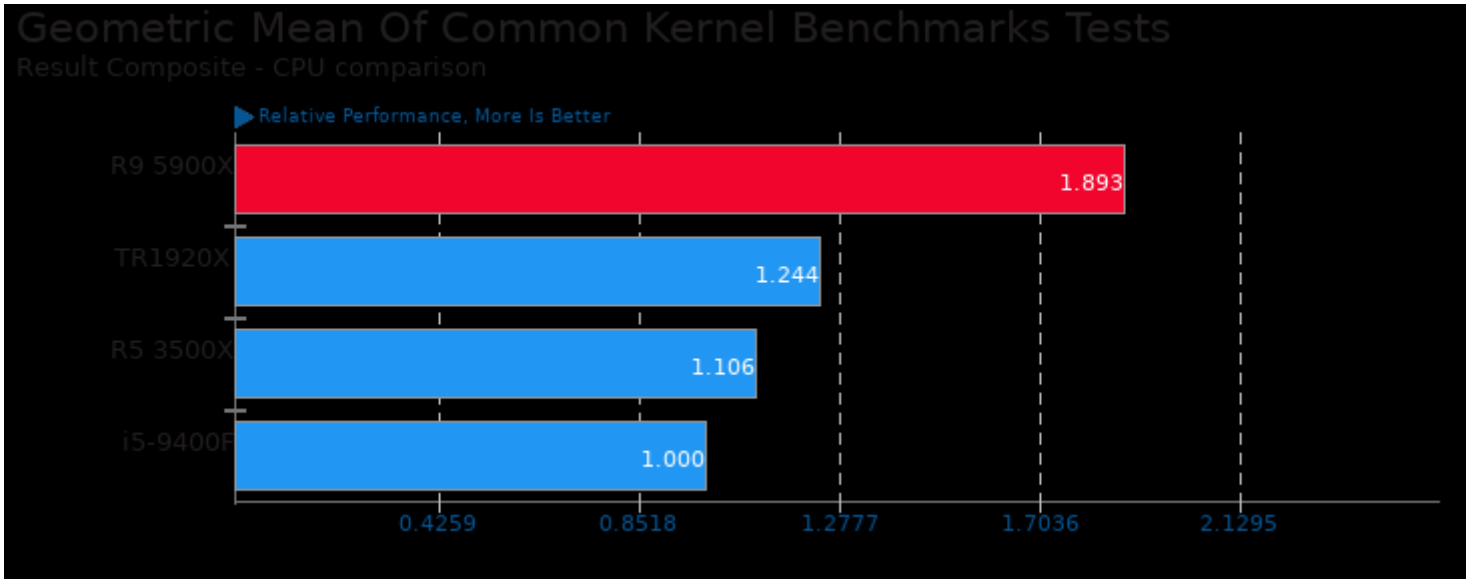
Geometric mean based upon tests: pts/build-apache, pts/build-linux-kernel, pts/c-ray, pts/compress-7zip, pts/vpxenc, pts/lzbench, pts/npb, pts/parboil, pts/stream, pts/blender and pts/botan



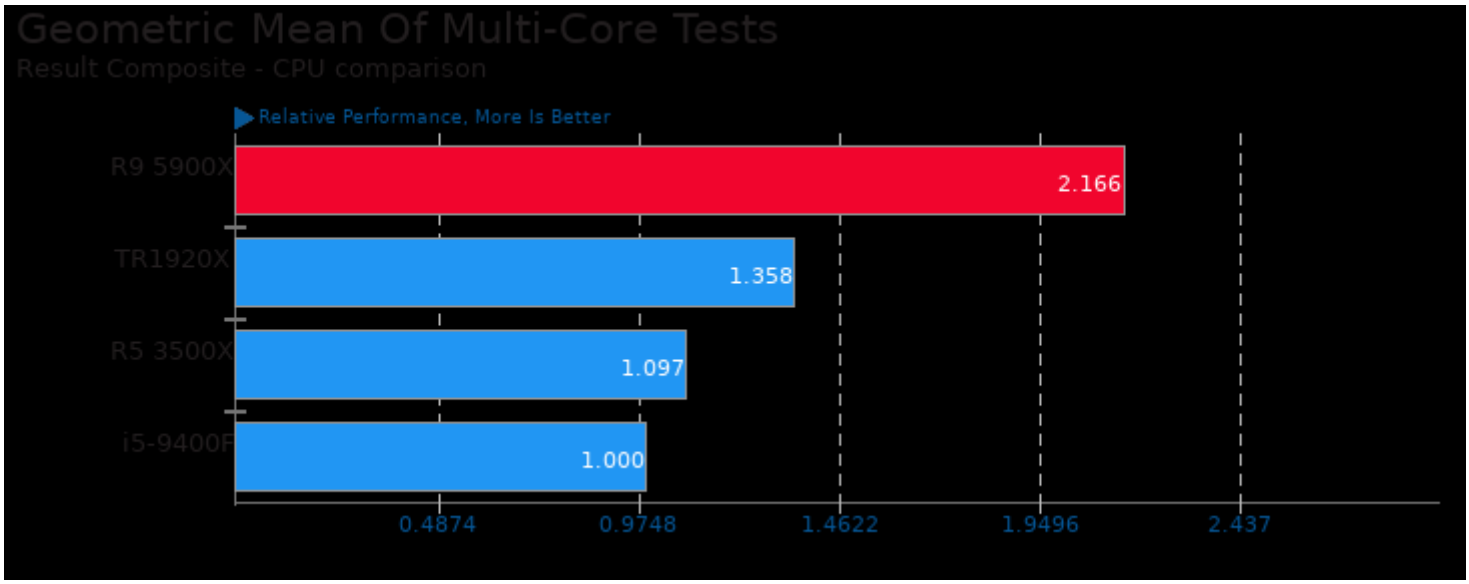
Geometric mean based upon tests: pts/c-ray, pts/blender, pts/aobench, pts/smallpt, pts/kvazaar, pts/ffmpeg, pts/vpxenc and pts/aom-av1



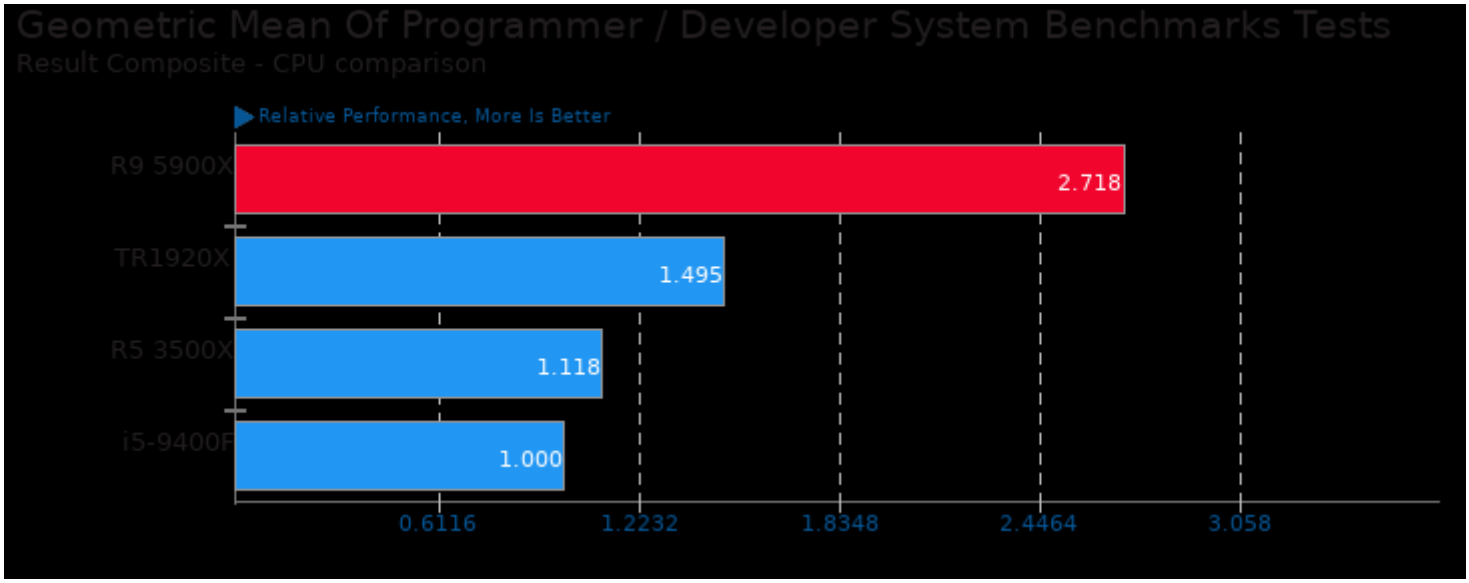
Geometric mean based upon tests: pts/kvazaar, pts/ffmpeg, pts/vpxenc and pts/aom-av1



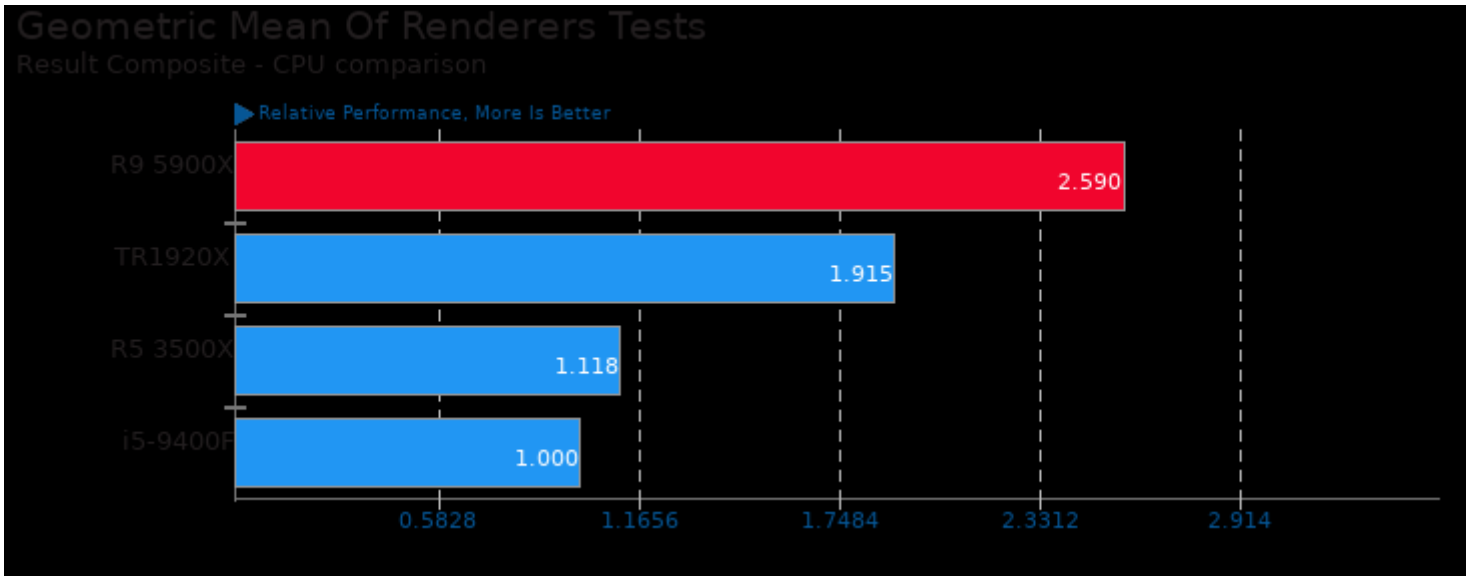
Geometric mean based upon tests: pts/pmbench and pts/ipc-benchmark



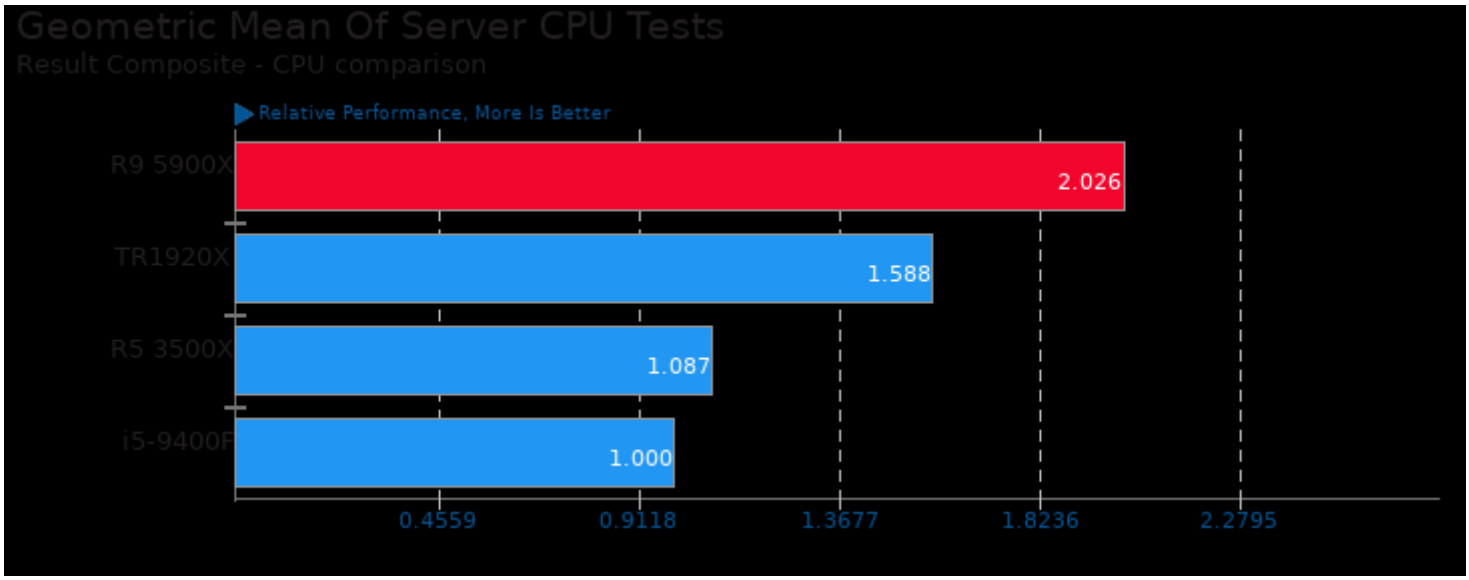
Geometric mean based upon tests: pts/blender, pts/c-ray, pts/kvazaar, pts/ffmpeg, pts/vpxenc, pts/aom-av1, pts/parboil, pts/npb, pts/smallpt, pts/compress-7zip, pts/build-apache, pts/build-linux-kernel, pts/build-ffmpeg and pts/aobench



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

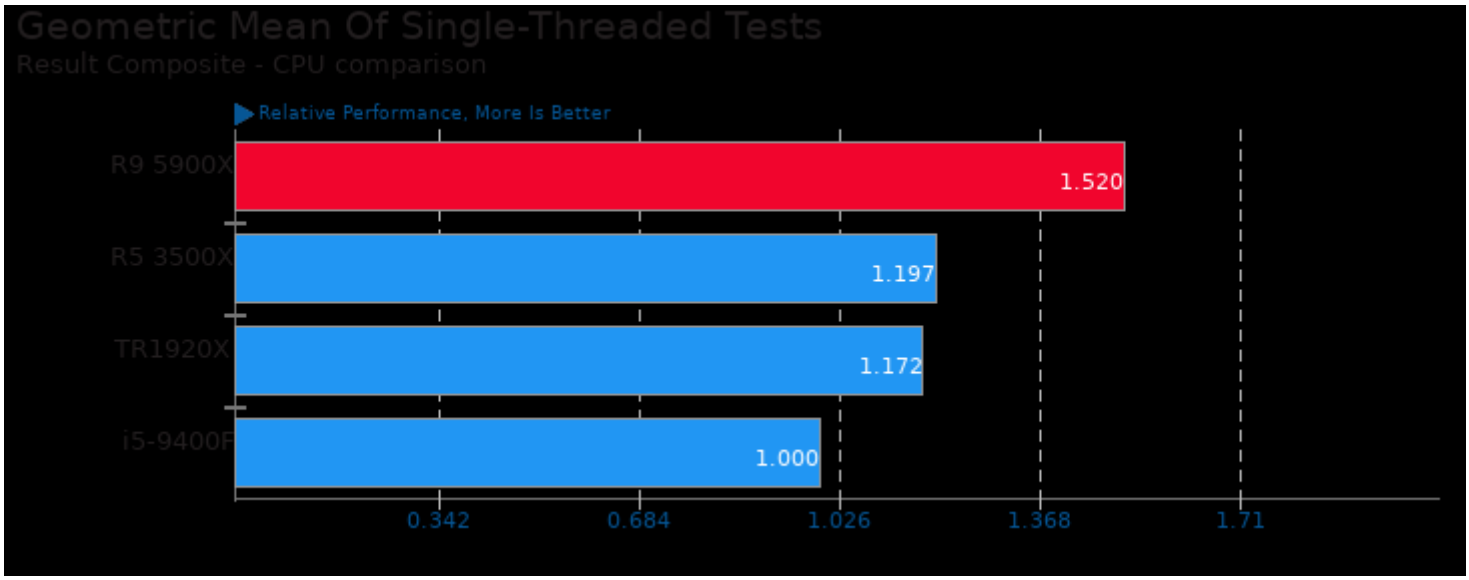


Geometric mean based upon tests: pts/c-ray, pts/blender, pts/aobench and pts/smallpt

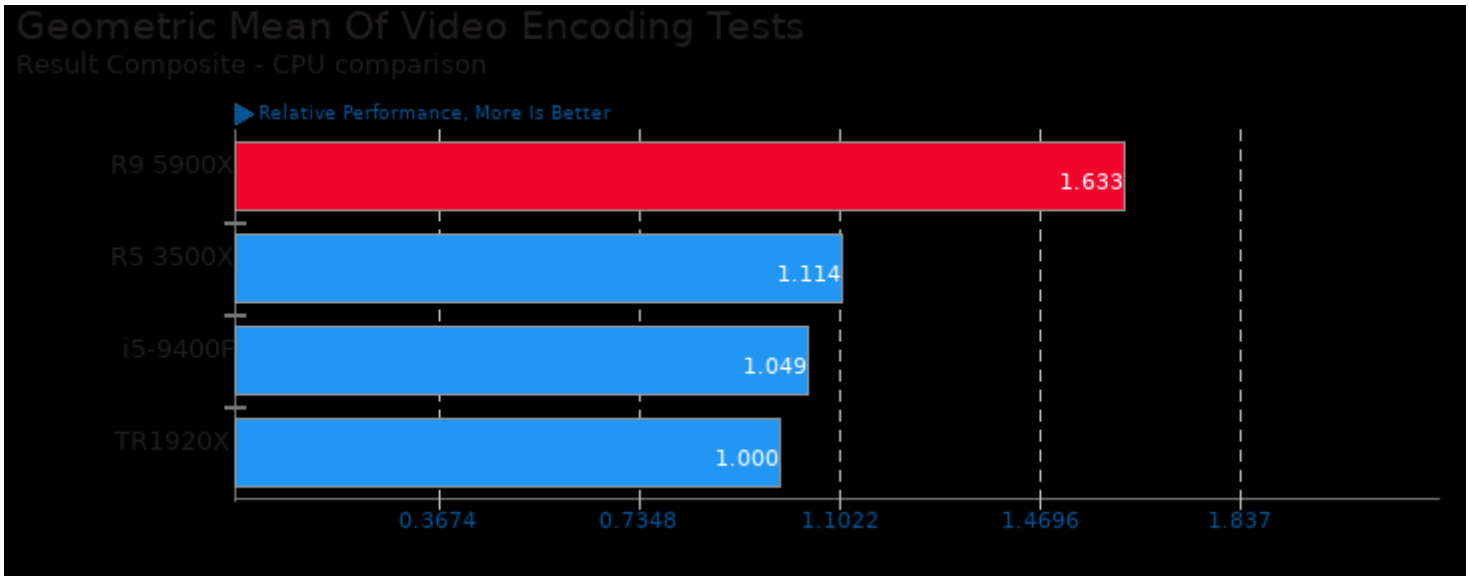


Geometric mean based upon tests: pts/npb, pts/compress-7zip, pts/build-linux-kernel, pts/c-ray, pts/blender and pts/stream

CPU comparison



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 Thursday, 28 March 2024 19:14.