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1300X 2021 Ryzen

AMD Ryzen 3 1300X testing with a ASRock AB350 Pro4 (P3.20 BIOS) and Sapphire AMD Radeon R7 260X/360 2GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 71% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.004x the speed of the slowest (3). 2 was 0.997x the speed of 1 and 3 was 0.999x the speed of 2.

Test Systems:

1

Processor: AMD Ryzen 3 1300X @ 3.50GHz (4 Cores), Motherboard: ASRock AB350 Pro4 (P3.20 BIOS), Chipset: AMD 17h, Memory: 2 x 4096 MB DDR4-2934MT/s, Disk: 128GB ADATA SU800, Graphics: Sapphire AMD Radeon R7 260X/360 2GB (315MHz), Audio: AMD Tobago HDMI Audio, Monitor: DELL S2409W, Network: Realtek

RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.9.0-050900daily20201021-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, OpenGL: 4.5 Mesa 20.0.8 (LLVM 10.0.0), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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

2

Processor: AMD Ryzen 3 1300X @ 3.50GHz (4 Cores), Motherboard: ASRock AB350 Pro4 (P3.20 BIOS), Chipset: AMD 17h, Memory: 2 x 4096 MB DDR4-2934MT/s, Disk: 128GB ADATA SU800, Graphics: Sapphire AMD Radeon R7 260X/360 2GB (339MHz), Audio: AMD Tobago HDMI Audio, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.9.0-050900daily20201021-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, OpenGL: 4.5 Mesa 20.0.8 (LLVM 10.0.0), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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

3

Processor: AMD Ryzen 3 1300X @ 3.50GHz (4 Cores), Motherboard: ASRock AB350 Pro4 (P3.20 BIOS), Chipset: AMD 17h, Memory: 2 x 4096 MB DDR4-2934MT/s, Disk: 128GB ADATA SU800, Graphics: Sapphire AMD Radeon R7 260X/360 2GB (331MHz), Audio: AMD Tobago HDMI Audio, Monitor: DELL S2409W, Network: Realtek RTL8111/8168/8411

OS: Ubuntu 20.04, Kernel: 5.9.0-050900daily20201021-generic (x86_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, OpenGL: 4.5 Mesa 20.0.8 (LLVM 10.0.0), Compiler: GCC 9.3.0, File-System: ext4, Screen Resolution: 1920x1080

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

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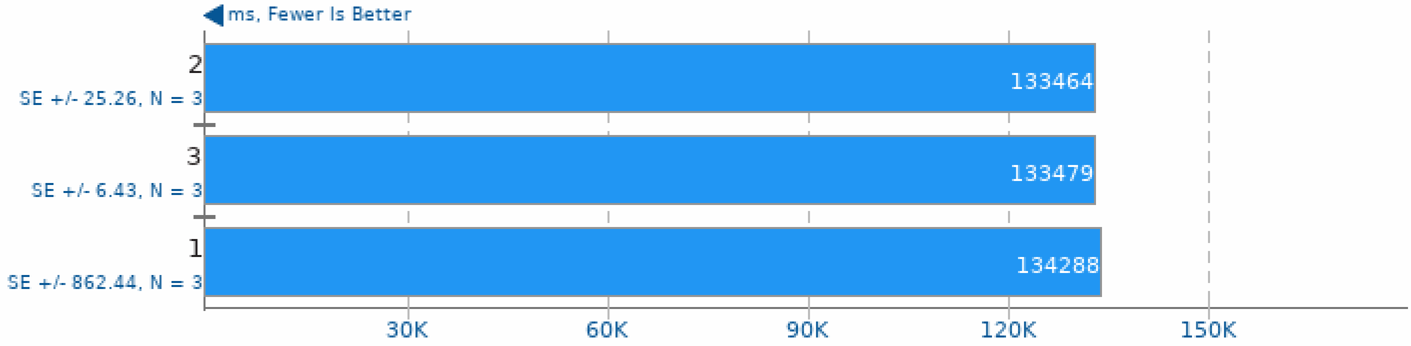
	1	2	3
toyBrot Fractal Generator - OpenMP (ms)	134288	133464	133479
Normalized	99.39%	100%	99.99%
Standard Deviation	1.1%	0%	0%
toyBrot Fractal Generator - C++ Tasks (ms)	133238	133243	133319
Normalized	100%	100%	99.94%
Standard Deviation	0%	0%	0%
toyBrot Fractal Generator - C++ Threads	133390	133502	133873
Normalized	100%	99.92%	99.64%
Standard Deviation	0%	0%	0.6%
JPEG XL - PNG - 5 (MP/s)	32.93	32.85	33.19
Normalized	99.22%	98.98%	100%
Standard Deviation	0.1%	0.6%	1.9%
JPEG XL - PNG - 7 (MP/s)	6.80	6.79	6.81
Normalized	99.85%	99.71%	100%
Standard Deviation	0.1%	0.2%	0.1%
JPEG XL - PNG - 8 (MP/s)	0.61	0.61	0.61
Standard Deviation	0%	0%	0%
JPEG XL - JPEG - 5 (MP/s)	42.60	42.63	42.23
Normalized	99.93%	100%	99.06%
Standard Deviation	1.3%	0.9%	0.4%
JPEG XL - JPEG - 7 (MP/s)	42.81	42.51	42.50
Normalized	100%	99.3%	99.28%
Standard Deviation	1.4%	1.5%	0.1%
JPEG XL - JPEG - 8 (MP/s)	20.07	19.75	19.88
Normalized	100%	98.41%	99.05%
Standard Deviation	0.8%	0.5%	0.9%
JPEG XL Decoding - 1 (MP/s)	27.10	26.94	26.76
Normalized	100%	99.41%	98.75%
Standard Deviation	0.1%	0.3%	0.1%
JPEG XL Decoding - All (MP/s)	81.34	80.63	80.10
Normalized	100%	99.13%	98.48%
Standard Deviation	0.2%	0.1%	0.2%
Ngspice - C2670 (sec)	208.002	209.578	211.552
Normalized	100%	99.25%	98.32%
Standard Deviation	2.1%	2.1%	4.1%
Ngspice - C7552 (sec)	340.002	340.563	342.673
Normalized	100%	99.84%	99.22%
Standard Deviation	1.7%	1.4%	0.6%
GROMACS - water_GMX50_bare (Ns/Day)	0.355	0.355	0.355
Standard Deviation	0.2%	0.2%	0%

toyBrot Fractal Generator 2020-11-18

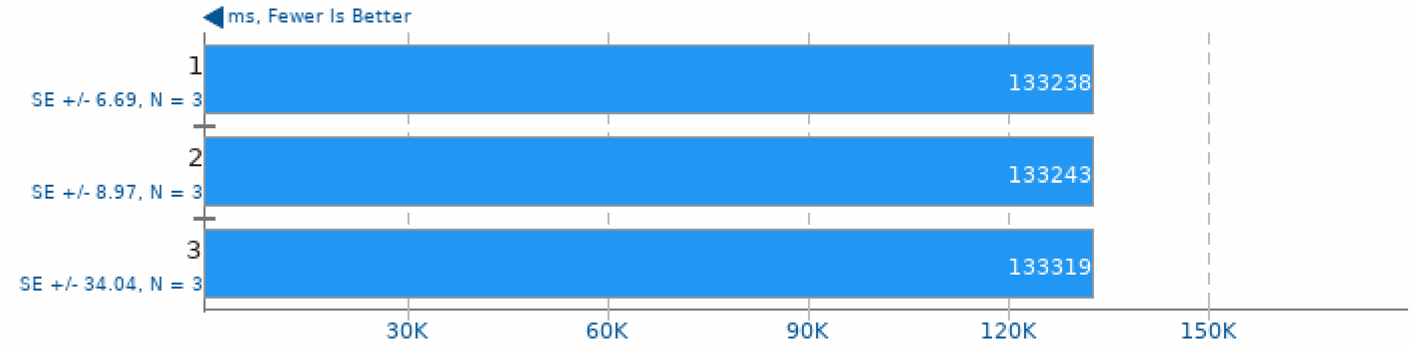
Implementation: OpenMP



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

toyBrot Fractal Generator 2020-11-18

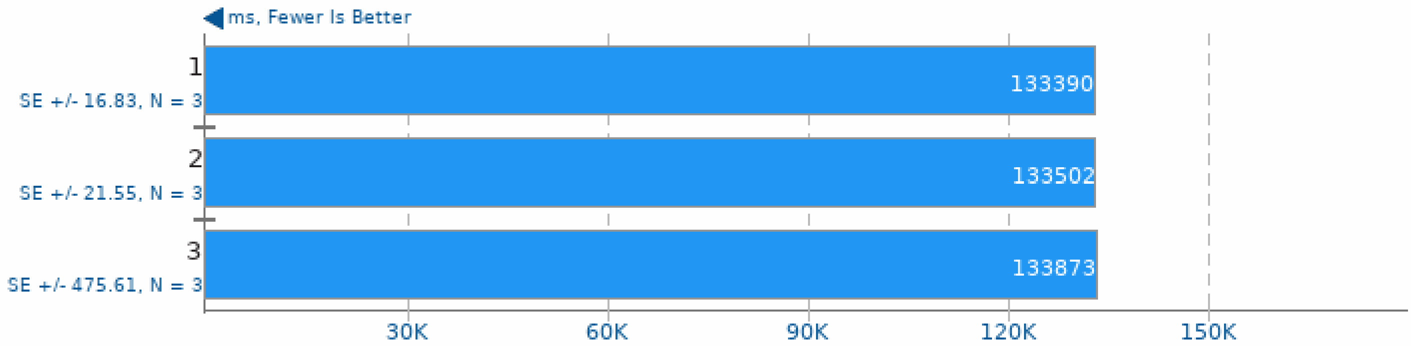
Implementation: C++ Tasks



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

toyBrot Fractal Generator 2020-11-18

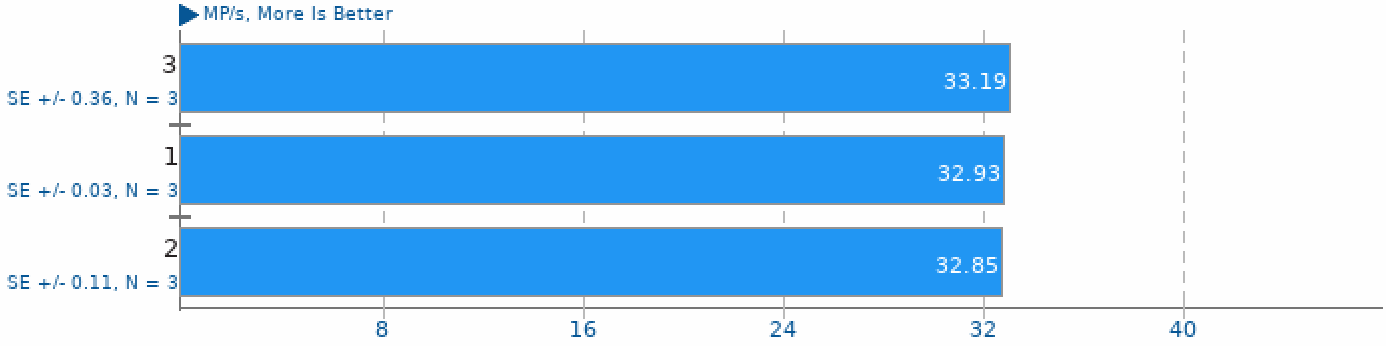
Implementation: C++ Threads



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

JPEG XL 0.3.1

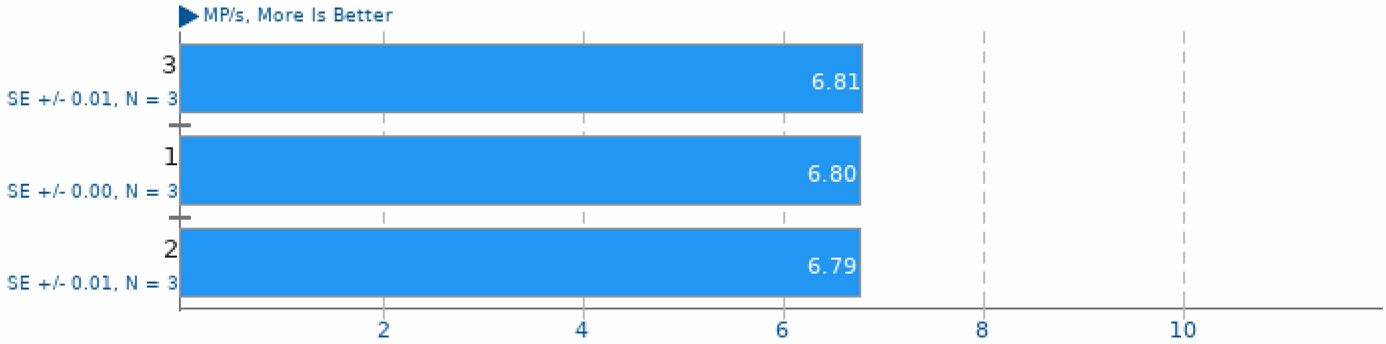
Input: PNG - Encode Speed: 5



1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

JPEG XL 0.3.1

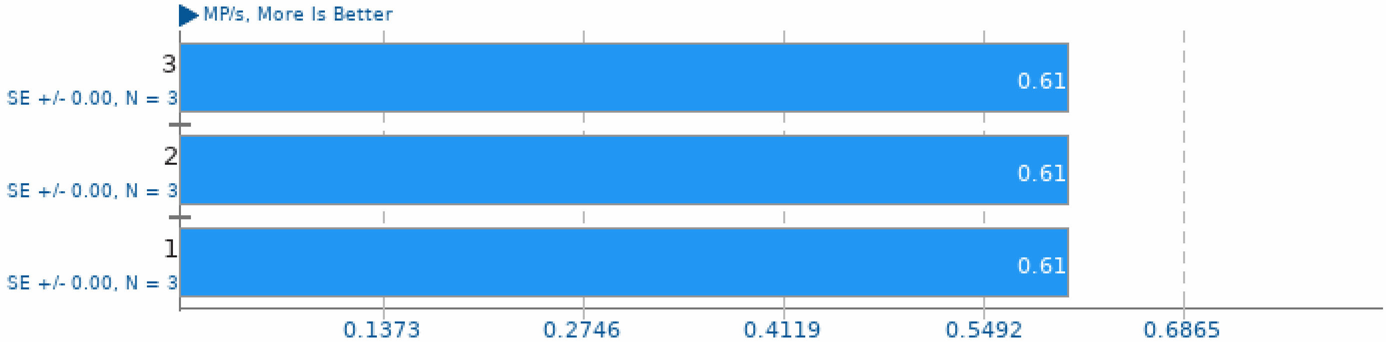
Input: PNG - Encode Speed: 7



1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

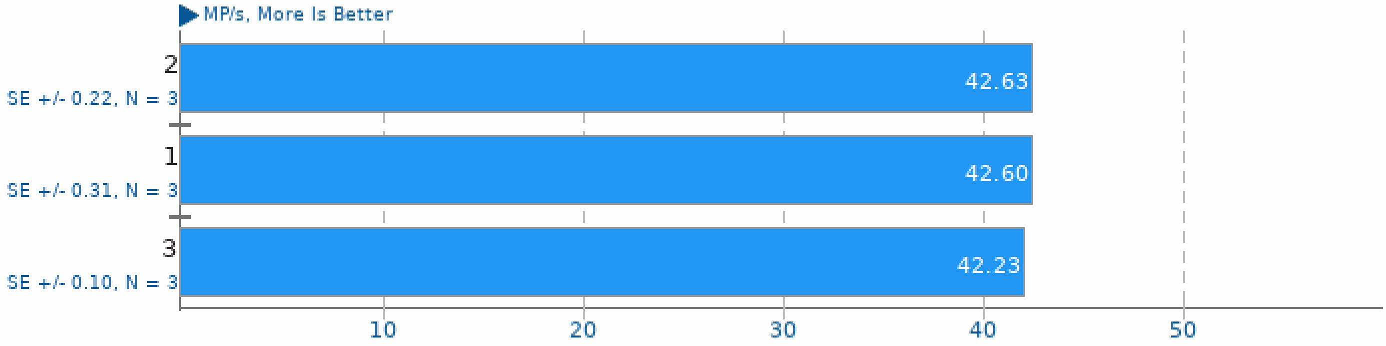
JPEG XL 0.3.1

Input: PNG - Encode Speed: 8



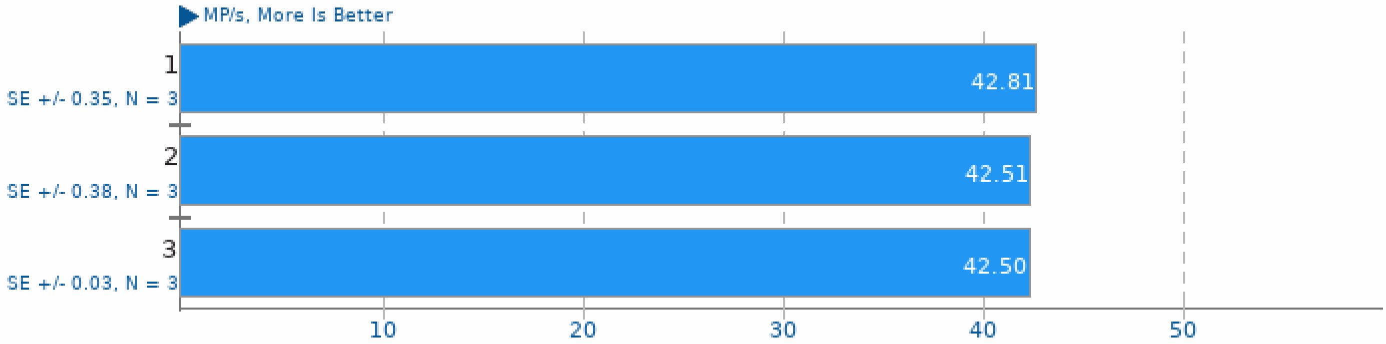
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

JPEG XL 0.3.1
Input: JPEG - Encode Speed: 5



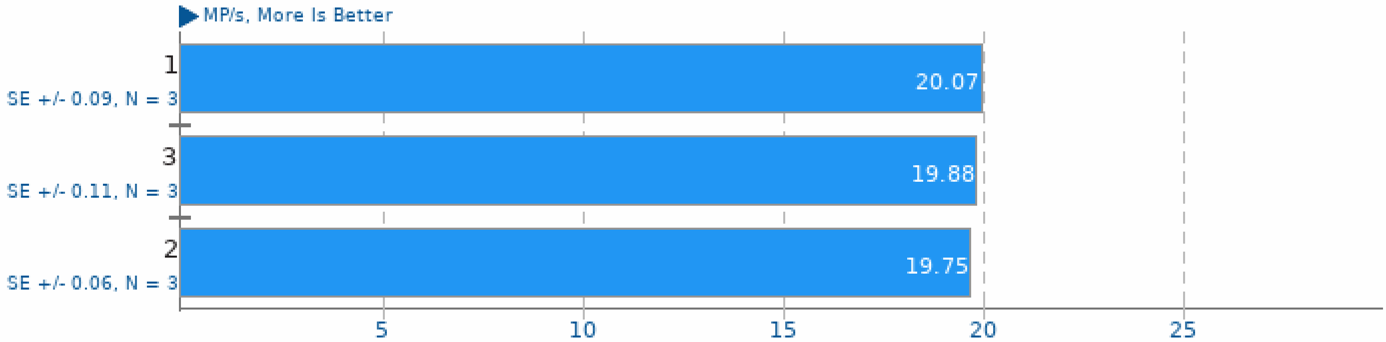
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

JPEG XL 0.3.1
Input: JPEG - Encode Speed: 7



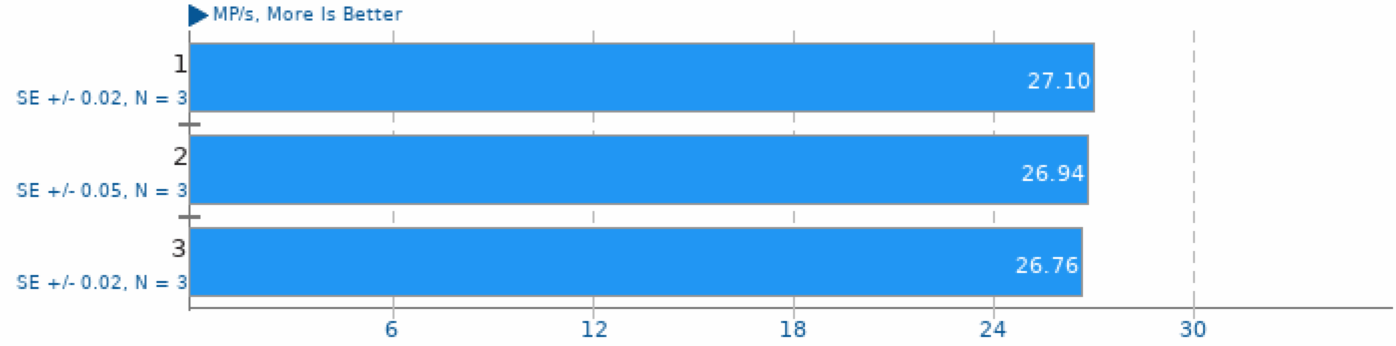
1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

JPEG XL 0.3.1
Input: JPEG - Encode Speed: 8

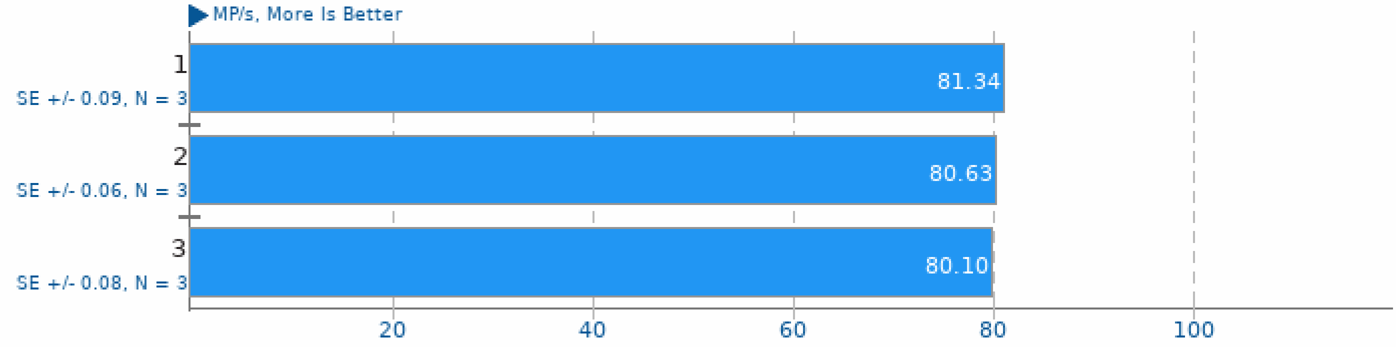


1. (CXX) g++ options: -funwind-tables -O3 -O2 -fPIE -pie -pthread -ldl

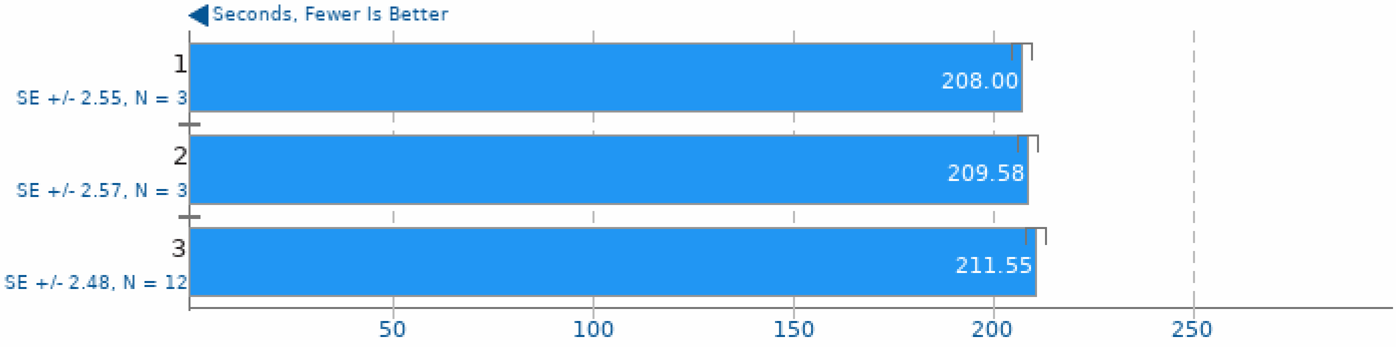
JPEG XL Decoding 0.3.1
CPU Threads: 1



JPEG XL Decoding 0.3.1
CPU Threads: All

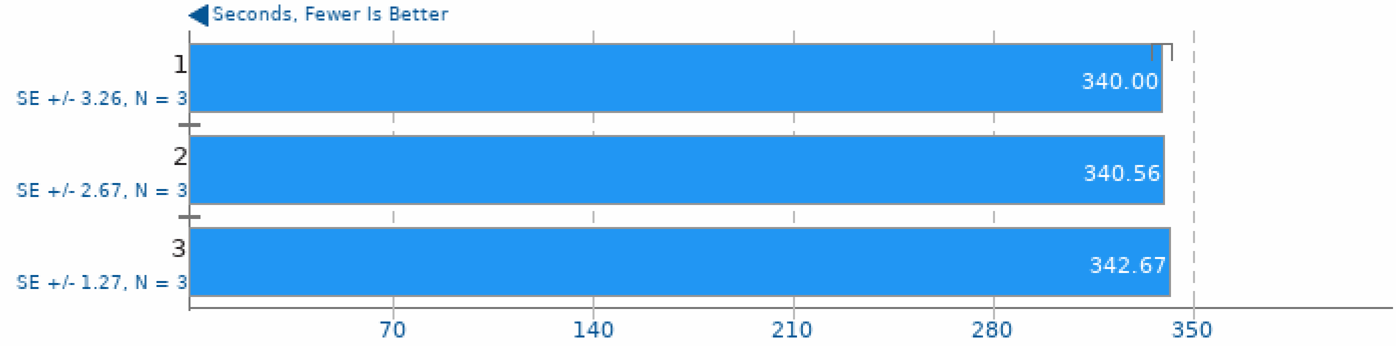


Ngspice 34
Circuit: C2670



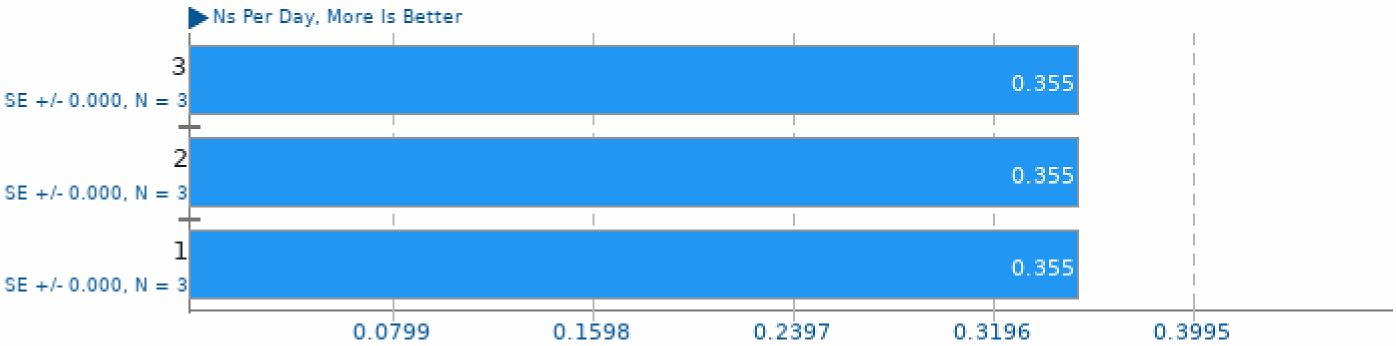
1. (CC) gcc options: -O0 -fopenmp -lm -lstdc++ -lfftw3 -lXaw -lXmu -lXt -lXext -lX11 -lSM -lICE

Ngspice 34
Circuit: C7552



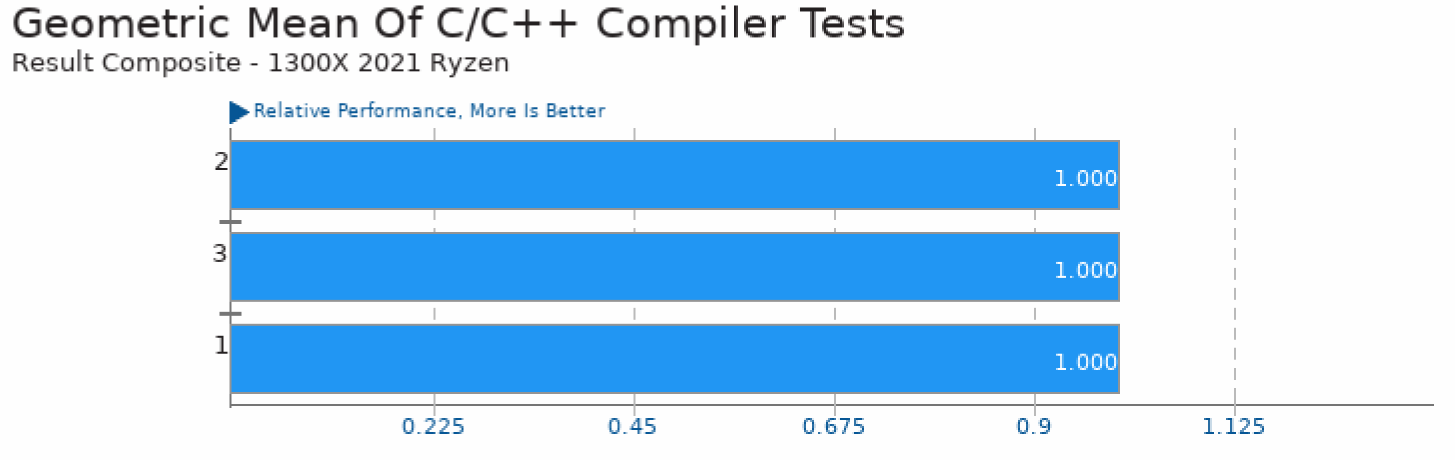
1. (CC) gcc options: -O0 -fopenmp -lm -lstdc++ -lfftw3 -lXaw -lXmu -lXt -lXext -lX11 -lSM -lICE

GROMACS 2021
Input: water_GMX50_bare

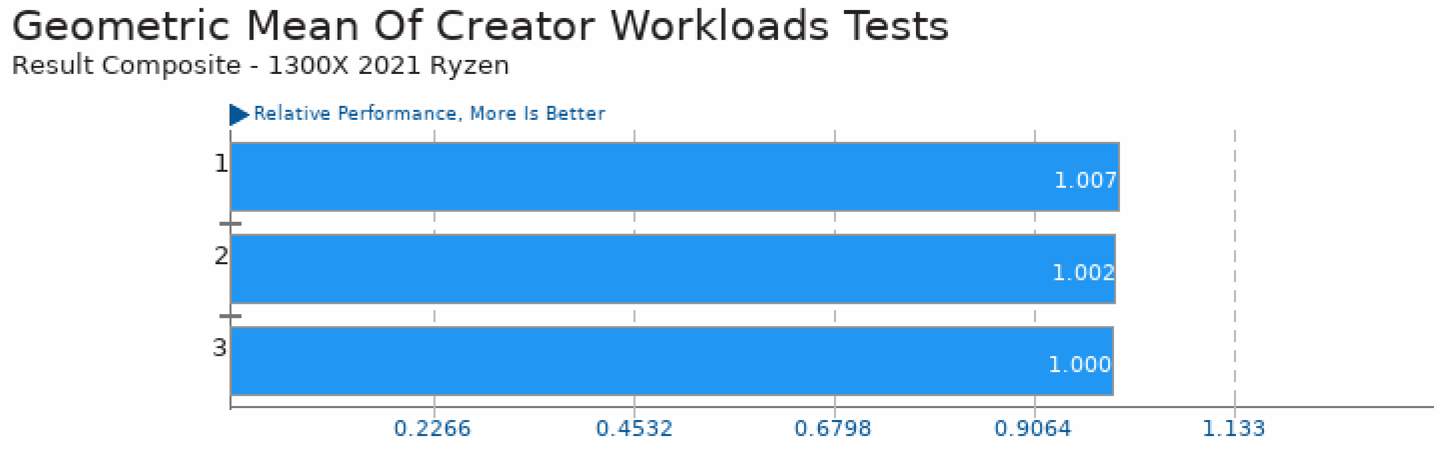


1. (CXX) g++ options: -O3 -pthread

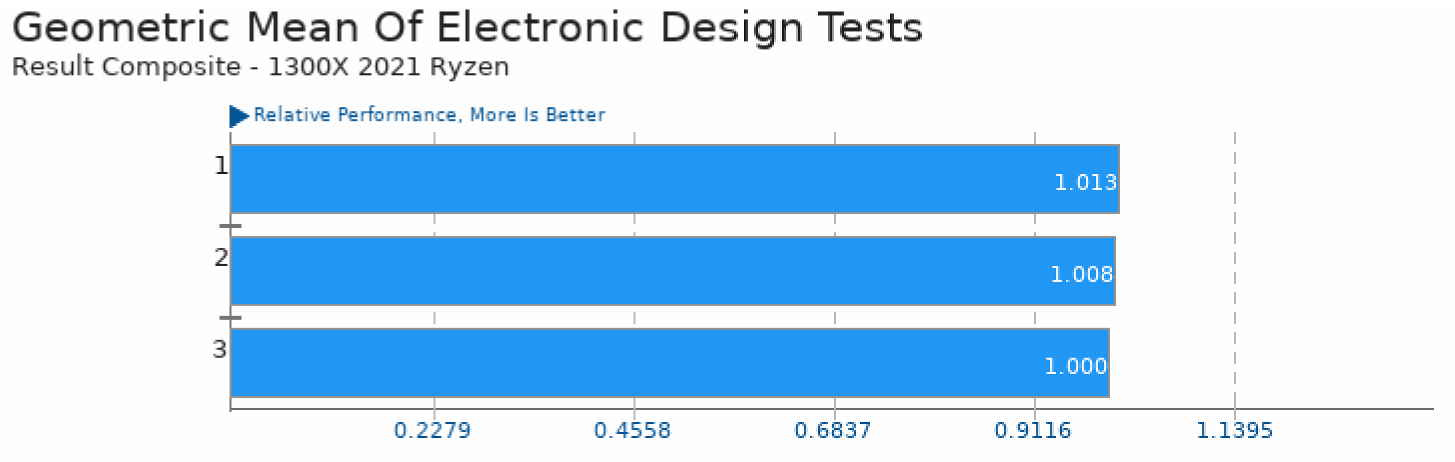
These geometric means are based upon test groupings / test suites for this result file.



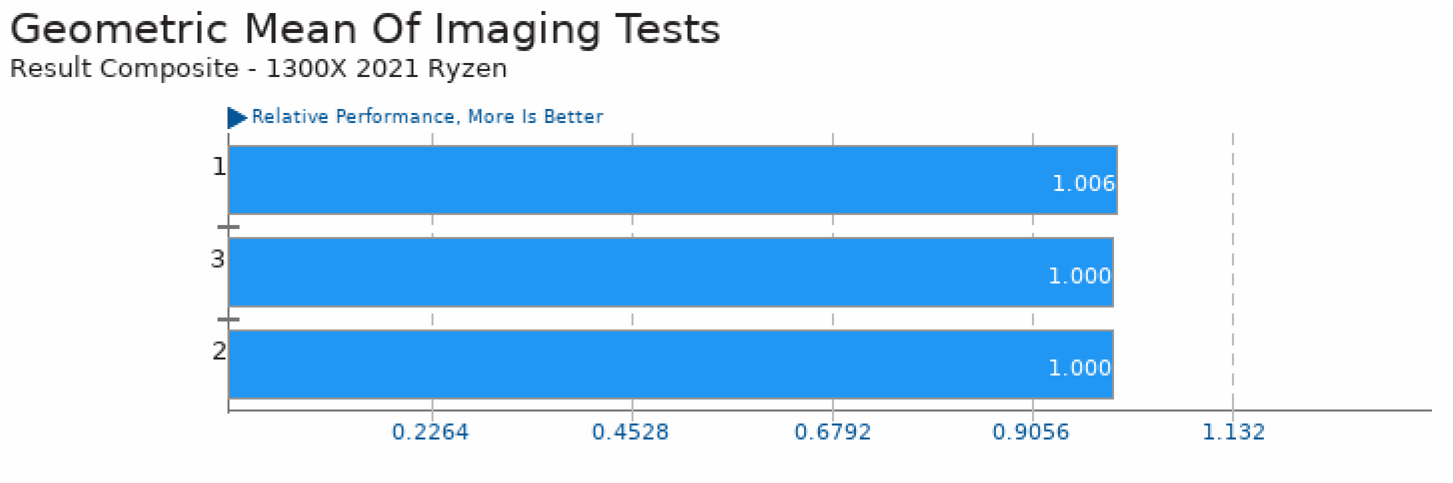
Geometric mean based upon tests: pts/gromacs and pts/toybrot



Geometric mean based upon tests: pts/jpegxl, pts/jpegxl-decode and pts/ngspice



Geometric mean based upon tests: pts/ngspice



Geometric mean based upon tests: pts/jpegxl and pts/jpegxl-decode

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