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## **benchmark-1**

AMD Ryzen 9 5900X 12-Core testing with a Gigabyte X570 AORUS MASTER (F31q BIOS) and eVGA NVIDIA GeForce RTX 3080 10GB on Ubuntu 20.04 via the Phoronix Test Suite.

### **Test Systems:**

#### **benchmark-1**

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: Gigabyte X570 AORUS MASTER (F31q BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB Samsung SSD 970 EVO Plus 1TB + Samsung SSD 970 EVO Plus 500GB + 4001GB Seagate ST4000DM005-2DP1, Graphics: eVGA NVIDIA GeForce RTX 3080 10GB (1755/9501MHz), Audio: NVIDIA Device 1aef, Monitor: VG248, Network: Intel I211 + Realtek RTL8125 2.5GbE + Intel Wi-Fi 6 AX200

OS: Ubuntu 20.04, Kernel: 5.4.0-59-generic (x86\_64), Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.8, Display Driver: NVIDIA 460.27.04, OpenGL: 4.6.0, Vulkan: 1.2.155, Compiler: GCC 9.3.0 + CUDA 11.1, File-System: ext4, Screen Resolution: 3640x1920

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: 0xa201009

Security Notes: itlb\_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec\_store\_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre\_v1: Mitigation of usercopy/swapgs barriers and \_\_user pointer sanitization + spectre\_v2: Mitigation of Full AMD retrpeline IBPB: conditional IBRS\_FW STIBP: always-on RSB filling + srbs: Not affected + tsx\_async\_abort: Not affected

## benchmark-1

<b>NAS Parallel Benchmarks - BT.C (Mop/s)</b>	30868
Standard Deviation	0.4%
<b>NAS Parallel Benchmarks - EP.C (Mop/s)</b>	1441
Standard Deviation	0.2%
<b>NAS Parallel Benchmarks - EP.D (Mop/s)</b>	1412
Standard Deviation	2.3%
<b>NAS Parallel Benchmarks - FT.C (Mop/s)</b>	12760
Standard Deviation	0%
<b>NAS Parallel Benchmarks - LU.C (Mop/s)</b>	35987
Standard Deviation	0.3%
<b>NAS Parallel Benchmarks - MG.C (Mop/s)</b>	16639
Standard Deviation	0.1%
<b>NAS Parallel Benchmarks - SP.B (Mop/s)</b>	12686
Standard Deviation	0.3%
<b>Crafty - Elapsed Time (Nodes/s)</b>	11479098
Standard Deviation	0.4%
<b>John The Ripper - Blowfish (Real C/S)</b>	29243
Standard Deviation	0.4%
<b>John The Ripper - MD5 (Real C/S)</b>	1756333
Standard Deviation	1.9%
<b>GraphicsMagick - Swirl (Iterations/min)</b>	892
Standard Deviation	0.4%
<b>GraphicsMagick - Rotate (Iterations/min)</b>	1021
Standard Deviation	1.1%
<b>GraphicsMagick - Sharpen (Iterations/min)</b>	183
<b>GraphicsMagick - Enhanced (Iterations/min)</b>	324
Standard Deviation	0.2%
<b>GraphicsMagick - Resizing (Iterations/min)</b>	1590
Standard Deviation	0.2%
<b>GraphicsMagick - Noise-Gaussian (Iterations/min)</b>	372
Standard Deviation	0.7%
<b>GraphicsMagick - HWB Color Space (Iterations/min)</b>	1042
Standard Deviation	0.3%
<b>x264 - H.2.V.E (FPS)</b>	173.50
Standard Deviation	0.6%
<b>7-Zip Compression - C.S.T (MIPS)</b>	98746
Standard Deviation	0.5%
<b>Timed Apache Compilation - Time To Compile (sec)</b>	17.597
Standard Deviation	0.1%
<b>Timed Linux Kernel Compilation - Time To Compile (sec)</b>	51.082
Standard Deviation	2.1%

**Timed PHP Compilation - Time To Compile (sec)** 40.361

Standard Deviation 0.2%

## NAS Parallel Benchmarks 3.4

Test / Class: BT.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi  
2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: EP.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi  
2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: EP.D



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi  
2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: FT.C



1. (F9X) gfortran options: -O3 -march=native -pthread -lmpi\_usempif08 -lmpi\_mpifh -lmpi  
2. Open MPI 4.0.3

## NAS Parallel Benchmarks 3.4

Test / Class: 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

## Crafty 25.2

Elapsed Time



1. (CC) gcc options: -pthread -lstdc++ -fprofile-use -lm

## John The Ripper 1.9.0-jumbo-1

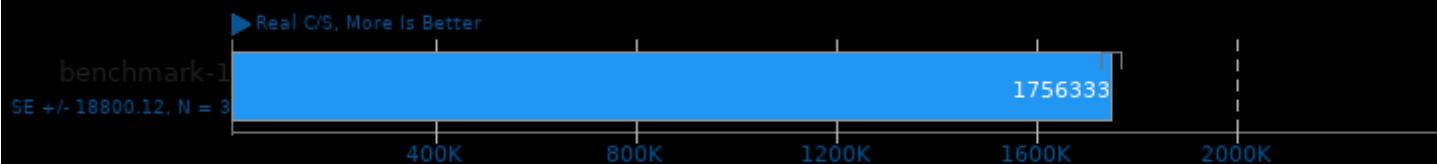
Test: Blowfish



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

## John The Ripper 1.9.0-jumbo-1

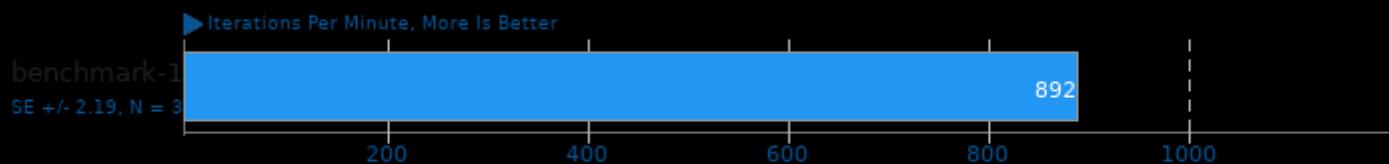
Test: MD5



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

## GraphicsMagick 1.3.33

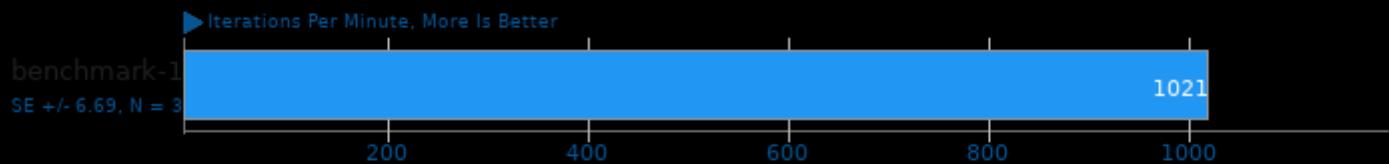
Operation: Swirl



1. (CC) gcc options: -fopenmp -O2 -pthread -lfreetype -jpeg -Xext -ISM -ICE -X11 -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

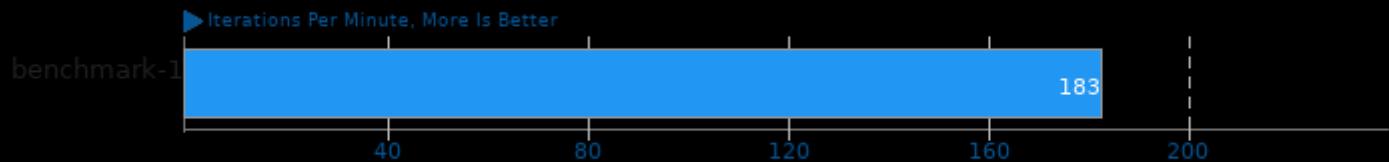
Operation: Rotate



1. (CC) gcc options: -fopenmp -O2 -pthread -lfreetype -jpeg -Xext -ISM -ICE -X11 -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

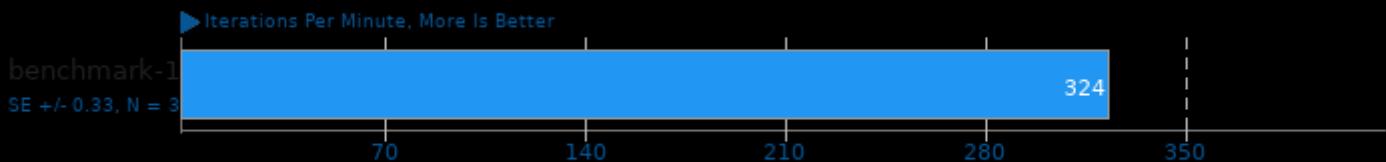
Operation: Sharpen



1. (CC) gcc options: -fopenmp -O2 -pthread -lfreetype -jpeg -Xext -ISM -ICE -X11 -bz2 -xml2 -lz -lm -pthread

## GraphicsMagick 1.3.33

Operation: Enhanced



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

## GraphicsMagick 1.3.33

Operation: Resizing



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

## GraphicsMagick 1.3.33

Operation: Noise-Gaussian



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

## GraphicsMagick 1.3.33

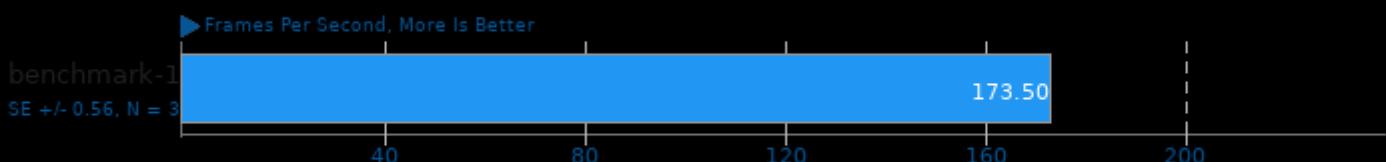
Operation: HWB Color Space



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

## x264 2019-12-17

H.264 Video Encoding



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

## 7-Zip Compression 16.02

Compress Speed Test



l. (CXX) g++ options: -pipe -fthread

## Timed Apache Compilation 2.4.41

Time To Compile



## Timed Linux Kernel Compilation 5.4

Time To Compile



## Timed PHP Compilation 7.4.2

Time To Compile



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