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## HP Dev One CPU Bench

Testing Against Chris Fisher's Dev One Benchmarks

### Automated Executive Summary

*HP Dev One CPU Bench had the most wins, coming in first place for 67% of the tests.*

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

*ctx\_clock (Context Switch Time) at 2.653x  
x265 (Video Input: Bosphorus 4K) at 1.222x  
x265 (Video Input: Bosphorus 1080p) at 1.21x  
Sysbench (Test: CPU) at 1.148x  
Radiance Benchmark (Test: SMP Parallel) at 1.124x  
Kvazaar (Video Input: Bosphorus 1080p - Video Preset: Ultra Fast) at 1.09x  
OpenSSL (Algorithm: RSA4096) at 1.081x  
NAMD (ATPase Simulation - 327,506 Atoms) at 1.057x  
x264 (Video Input: Bosphorus 4K) at 1.05x  
Stockfish (Total Time) at 1.047x.*

## Test Systems:

### HP Dev One CPU Bench

Processor: AMD Ryzen 7 PRO 5850U @ 1.90GHz (8 Cores / 16 Threads), Motherboard: HP 8A78 (F.04 BIOS), Chipset: AMD Renoir/Cezanne, Memory: 16GB, Disk: 1024GB SK hynix PC711 HFS001TDE9X073N, Graphics: AMD Cezanne 512MB (2000/400MHz), Audio: AMD Renoir Radeon HD Audio, Network: Realtek RTL8822CE 802.11ac PCIe

OS: Pop 22.04, Kernel: 5.17.5-76051705-generic (x86\_64), Desktop: GNOME Shell 42.1, Display Server: X Server 1.21.1.3, OpenGL: 4.6 Mesa 22.0.1 (LLVM 13.0.1 DRM 3.44), Vulkan: 1.3.204, Compiler: GCC 11.2.0, 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-bootstrap --enable-cet --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-serialization=2 --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-11-gBFGDP/gcc-11-11.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-11-gBFGDP/gcc-11-11.2.0/debian/tmp-gcn/usr --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 performance (Boost: Enabled) - CPU Microcode: 0xa50000c  
Security Notes: itlb\_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec\_store\_bypass: Mitigation of SSB disabled via prctl + spectre\_v1: Mitigation of usercopy/swaps barriers and \_\_user pointer sanitization + spectre\_v2: Mitigation of Retpolines IBPB: conditional IBRS\_FW STIBP: always-on RSB filling + srbs: Not affected + tsx\_async\_abort: Not affected

## Testing Against HP Dev One CPU

### Testing Against HP Dev One

Processor: AMD Ryzen 5 5600X 6-Core @ 3.70GHz (6 Cores / 12 Threads), Motherboard: ASUS TUF GAMING X570-PRO (WI-FI) (4021 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB Western Digital WDBRPG0010BNC-WRSN + 2 x 4001GB Western Digital WD40EFZX-68A + 2 x 3001GB Hitachi HUA72303 + 1024GB SATA SSD + 4001GB Seagate ST4000DM004-2CV1 + 6001GB Western Digital WD60EFZX-68B + 4001GB Seagate ST4000VN008-2DR1, Graphics: NVIDIA GeForce GTX 1650 4GB, Audio: AMD Ellesmere HDMI Audio, Monitor: KG271U + C24F390, Network: Realtek RTL8111/8168/8411 + Intel I225-V

OS: Arch rolling, Kernel: 5.18.5-arch1-1 (x86\_64), Desktop: KDE Plasma 5.25.0, Display Server: X Server 1.21.1.3, Display Driver: NVIDIA 515.48.07, OpenGL: 4.6.0, Vulkan: 1.3.205, Compiler: GCC 12.1.0 + CUDA 11.7, File-System: ext4, Screen Resolution: 3640x1920

Kernel Notes: Transparent Huge Pages: always  
Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-\_cxa\_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=c,c++,ada,fortran,go,lto,objc,obj-c++ --enable-link-serialization=1 --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style=gnu  
Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201016  
OpenCL Notes: GPU Compute Cores: 896  
Security Notes: itlb\_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio\_stale\_data: Not affected + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swaps barriers + spectre\_v2: Vulnerable IBPB: disabled STIBP: disabled + srbs: Not affected + tsx\_async\_abort: Not affected

## AMD Ryzen 5 5600X 6-Core

Processor: AMD Ryzen 5 5600X 6-Core @ 3.70GHz (6 Cores / 12 Threads), Motherboard: ASUS TUF GAMING X570-PRO (WI-FI) (4403 BIOS), Chipset: AMD Starship/Matisse, Memory: 32GB, Disk: 1000GB Western Digital WDBRPG0010BNC-WRSN + 2 x 4001GB Western Digital WD40EFZX-68A + 2 x 3001GB Hitachi HUA72303 + 1024GB SATA SSD + 4001GB Seagate ST4000DM004-2CV1 + 6001GB Western Digital WD60EFZX-68B + 4001GB Seagate ST4000VN008-2DR1, Graphics: NVIDIA GeForce GTX 1650 4GB, Audio: AMD Ellesmere HDMI Audio, Monitor:

KG271U + C24F390, Network: Realtek RTL8111/8168/8411 + Intel I225-V

OS: Arch rolling, Kernel: 5.18.5-arch1-1 (x86\_64), Desktop: KDE Plasma 5.25.0, Display Server: X Server 1.21.1.3, Display Driver: NVIDIA 515.48.07, OpenGL: 4.6.0, Vulkan: 1.3.205, Compiler: GCC 12.1.0 + CUDA 11.7, File-System: ext4, Screen Resolution: 3640x1920

Kernel Notes: Transparent Huge Pages: always  
 Compiler Notes: --disable-libssp --disable-libstdcxx-pch --disable-werror --enable-\_\_cxa\_atexit --enable-bootstrap --enable-cet=auto --enable-checking=release --enable-clocale-gnu --enable-default-pie --enable-default-ssp --enable-gnu-indirect-function --enable-gnu-unique-object --enable-languages=c,c++,ada,fortran,go,ito,objc,obj-c++ --enable-link-serialization=1 --enable-lto --enable-multilib --enable-plugin --enable-shared --enable-threads=posix --mandir=/usr/share/man --with-build-config=bootstrap-lto --with-linker-hash-style-gnu  
 Processor Notes: Scaling Governor: acpi-cpufreq performance (Boost: Enabled) - CPU Microcode: 0xa201016  
 OpenCL Notes: GPU Compute Cores: 896  
 Security Notes: itlb\_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio\_stale\_data: Not affected + spec\_store\_bypass: Vulnerable + spectre\_v1: Vulnerable: \_\_user pointer sanitization and usercopy barriers only; no swapgs barriers + spectre\_v2: Vulnerable IBPB: disabled STIBP: disabled + srbds: Not affected + tsx\_async\_abort: Not affected

	HP Dev One CPU Bench	Testing Against HP Dev One CPU	Testing Against HP Dev One	AMD Ryzen 5 5600X 6-Core
<b>Rodinia - OpenMP LavaMD (sec)</b>	<b>295.544</b>			<b>298.926</b>
Normalized	100%			98.87%
Standard Deviation	0.7%			1.8%
<b>Rodinia - OpenMP CFD Solver (sec)</b>	<b>29.621</b>			<b>36.787</b>
Normalized	100%			80.52%
Standard Deviation	0.2%			15.8%
<b>NAMD - ATPase Simulation - 327,506</b>	<b>2.90606</b>			<b>3.07131</b>
Atoms (days/ns)				
Normalized	100%			94.62%
Standard Deviation	0.9%			3%
<b>Kvazaar - Bosphorus 4K - Slow (FPS)</b>	<b>5.67</b>			<b>5.81</b>
Normalized	97.59%			100%
Standard Deviation	0.1%			0.1%
<b>Kvazaar - Bosphorus 4K - Medium</b>	<b>5.79</b>			<b>5.61</b>
Normalized	100%			96.89%
Standard Deviation	0.2%			6.3%
<b>Kvazaar - Bosphorus 1080p - Slow (FPS)</b>	<b>30.37</b>			<b>29.34</b>
Normalized	100%			96.61%
Standard Deviation	0.3%			0.2%
<b>Kvazaar - Bosphorus 1080p - Medium (FPS)</b>	<b>31.21</b>			<b>30.12</b>
Normalized	100%			96.51%
Standard Deviation	0.6%			0.6%
<b>Kvazaar - Bosphorus 4K - Very Fast (FPS)</b>	<b>13.09</b>			<b>13.61</b>
Normalized	96.18%			100%
Standard Deviation	0.1%			0.1%
<b>Kvazaar - Bosphorus 4K - Ultra Fast (FPS)</b>	<b>22.99</b>			<b>24.05</b>
Normalized	95.59%			100%
Standard Deviation	0.5%			0.6%

Kvazaar - Bosphorus 1080p - Very Fast (FPS)	<b>59.15</b>	57.82
Normalized	100%	97.75%
Standard Deviation	0.7%	2.6%
Kvazaar - Bosphorus 1080p - Ultra Fast (FPS)	<b>105.63</b>	96.94
Normalized	100%	91.77%
Standard Deviation	0.2%	1.4%
x264 - Bosphorus 4K (FPS)	<b>20.54</b>	21.57
Normalized	95.22%	100%
Standard Deviation	3%	3.8%
x264 - Bosphorus 1080p (FPS)	<b>91.66</b>	91.54
Normalized	100%	99.87%
Standard Deviation	2.2%	0.7%
x265 - Bosphorus 4K (FPS)	<b>10.45</b>	12.77
Normalized	81.83%	100%
Standard Deviation	2.5%	0.6%
x265 - Bosphorus 1080p (FPS)	<b>46.82</b>	56.63
Normalized	82.68%	100%
Standard Deviation	1.6%	1.3%
7-Zip Compression - Compression Rating (MIPS)	53200	
Standard Deviation	0.7%	
7-Zip Compression - D.R (MIPS)	49295	
Standard Deviation	1%	
Stockfish - Total Time (Nodes/s)	<b>19303229</b>	20210709
Normalized	95.51%	100%
Standard Deviation	2.2%	0.5%
asmFish - 1.H.M.2.D (Nodes/s)	<b>22701643</b>	22227332
Normalized	100%	97.91%
Standard Deviation	0.8%	3%
POV-Ray - Trace Time (sec)	<b>60.803</b>	62.558
Normalized	100%	97.19%
Standard Deviation	0.1%	0.3%
Radiance Benchmark - Serial (sec)	<b>479.641</b>	492.454
Normalized	100%	97.4%
Radiance Benchmark - SMP Parallel (sec)	<b>171.781</b>	152.864
Normalized	88.99%	100%
OpenSSL - SHA256 (byte/s)	<b>9627965163</b>	9415232173
Normalized	100%	97.79%
Standard Deviation	1%	2.1%
OpenSSL - RSA4096 (sign/s)	<b>1831</b>	1694
Normalized	100%	92.54%
Standard Deviation	0.4%	1.8%
OpenSSL - RSA4096 (verify/s)	<b>118270</b>	113058
Normalized	100%	95.59%
Standard Deviation	0.1%	0.4%
Blender - Barbershop - CPU-Only	<b>2289</b>	2240
Normalized	97.86%	100%
Standard Deviation	0.2%	9.1%
ctx_clock - C.S.T (Clocks)	<b>95</b>	252
Normalized	100%	37.7%
Standard Deviation	0%	0%

**Sysbench - CPU (Events/sec)** **35531**

Normalized 100%

Standard Deviation 0.3%

**Timed GCC Compilation - Time To****Compile (sec)**

Standard Deviation

**30950**

87.11%

2.3%

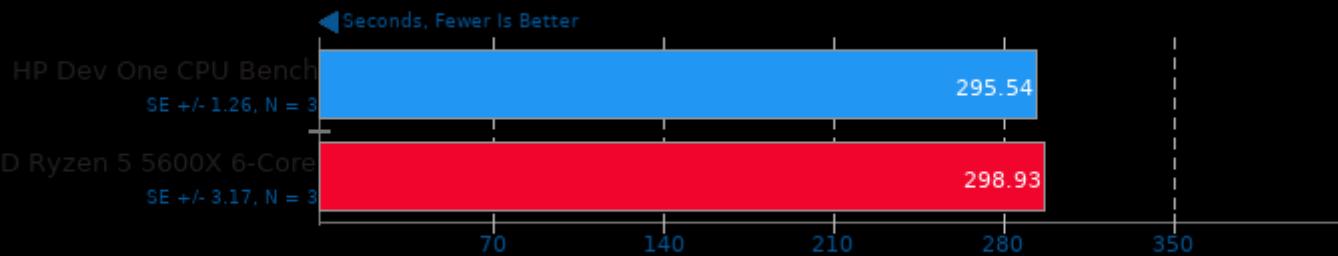
1202

1.1%

## HP Dev One CPU Bench

### Rodinia 3.1

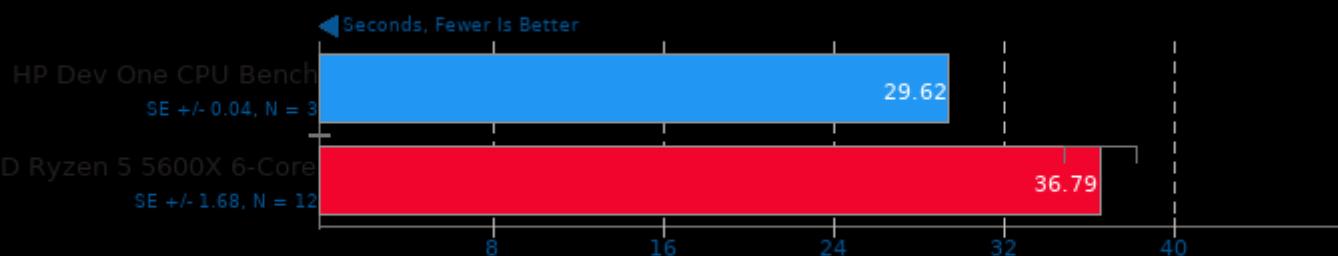
Test: OpenMP LavaMD



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

### Rodinia 3.1

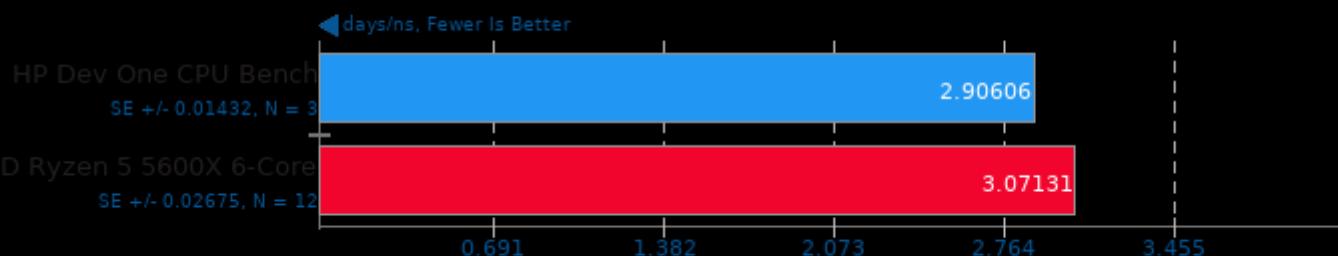
Test: OpenMP CFD Solver



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

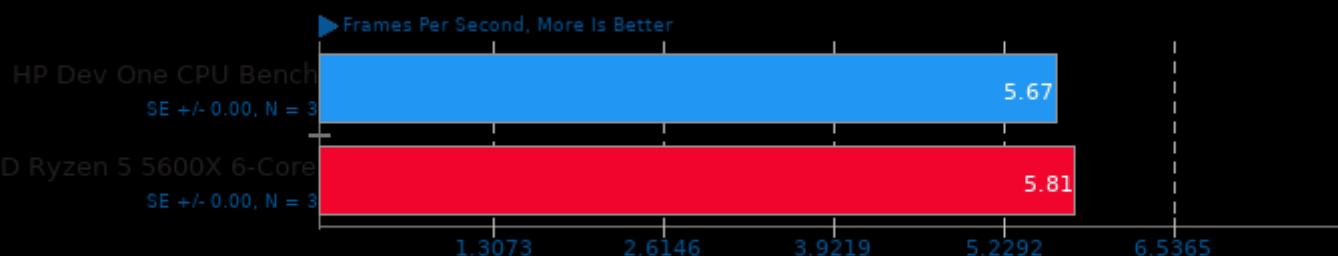
### NAMD 2.14

ATPase Simulation - 327,506 Atoms



### Kvazaar 2.1

Video Input: Bosphorus 4K - Video Preset: Slow

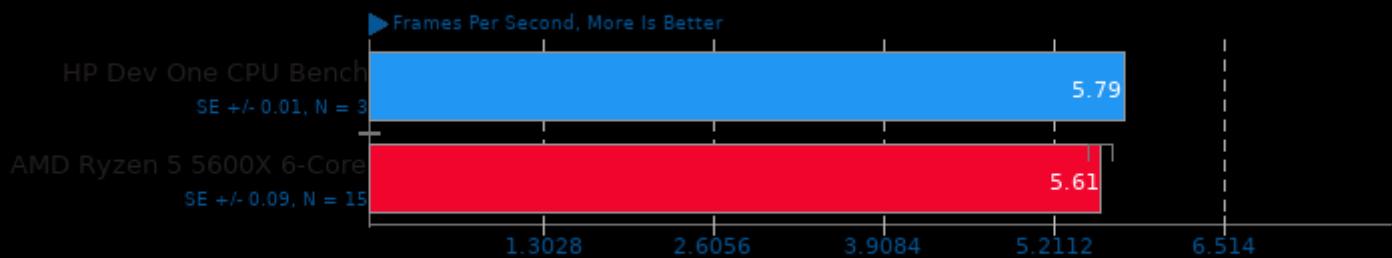


1. (CC) gcc options: -pthread -fno-tree-vectorize -fvisibility=hidden -O2 -fthread -lm -lrt

## HP Dev One CPU Bench

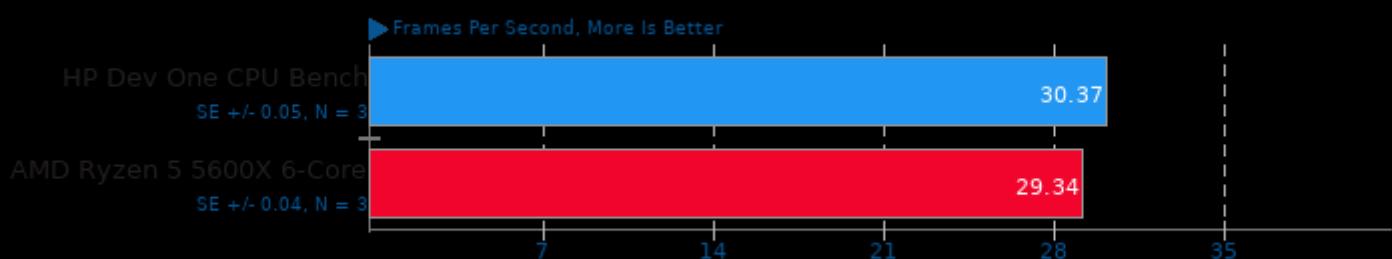
### Kvazaar 2.1

Video Input: Bosphorus 4K - Video Preset: Medium



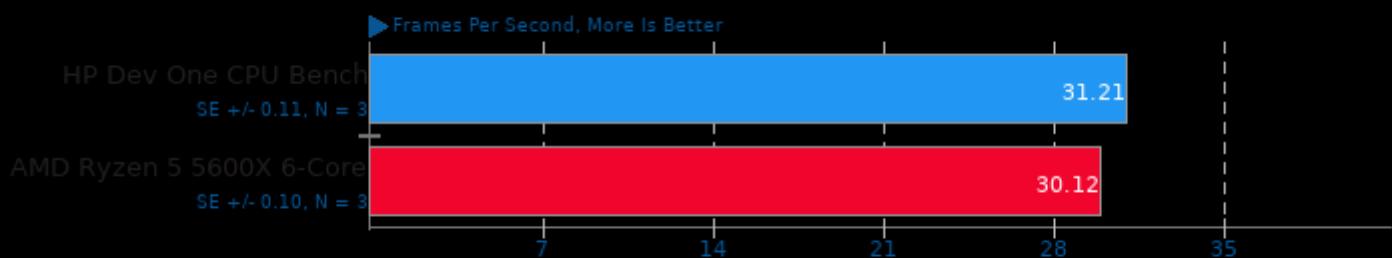
### Kvazaar 2.1

Video Input: Bosphorus 1080p - Video Preset: Slow



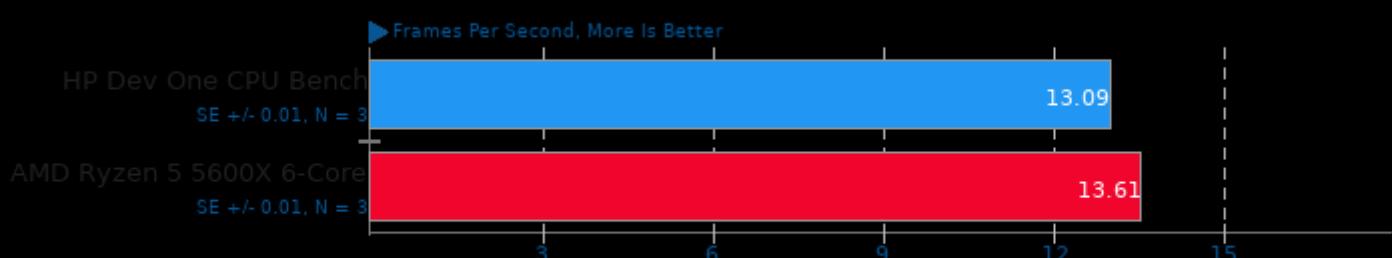
### Kvazaar 2.1

Video Input: Bosphorus 1080p - Video Preset: Medium



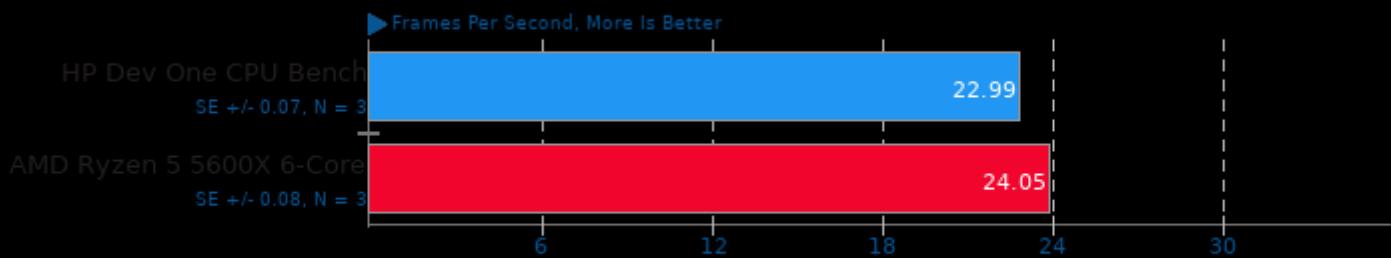
### Kvazaar 2.1

Video Input: Bosphorus 4K - Video Preset: Very Fast



### Kvazaar 2.1

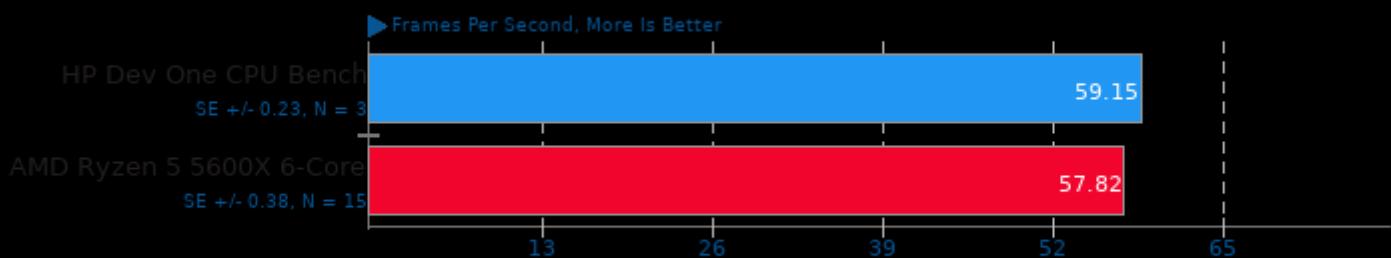
Video Input: Bosphorus 4K - Video Preset: Ultra Fast



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

### Kvazaar 2.1

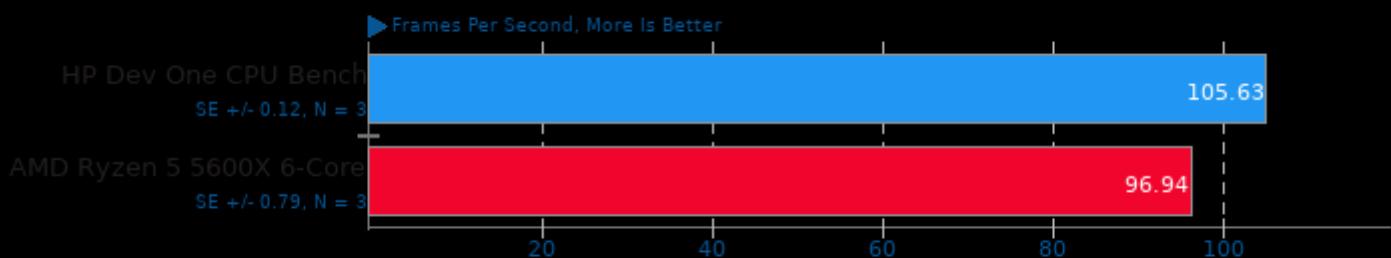
Video Input: Bosphorus 1080p - Video Preset: Very Fast



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

### Kvazaar 2.1

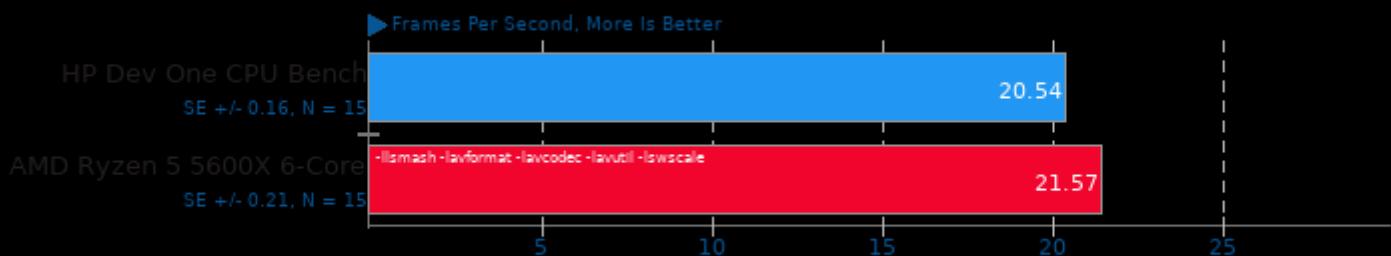
Video Input: Bosphorus 1080p - Video Preset: Ultra Fast



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

### x264 2022-02-22

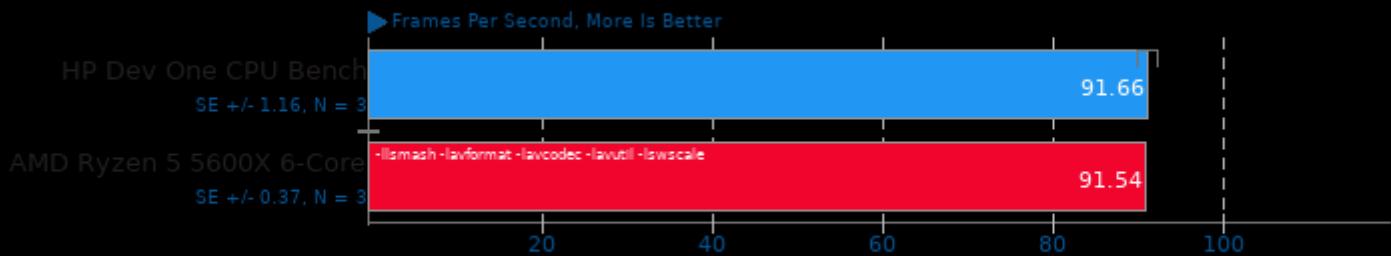
Video Input: Bosphorus 4K



1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -fno

### x264 2022-02-22

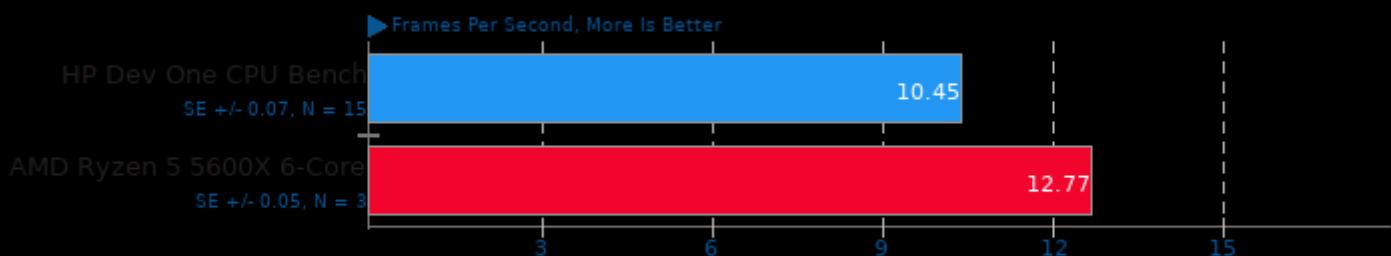
Video Input: Bosphorus 1080p



1. (CC) gcc options: -ldl -m64 -lm -lpthread -O3 -fno

### x265 3.4

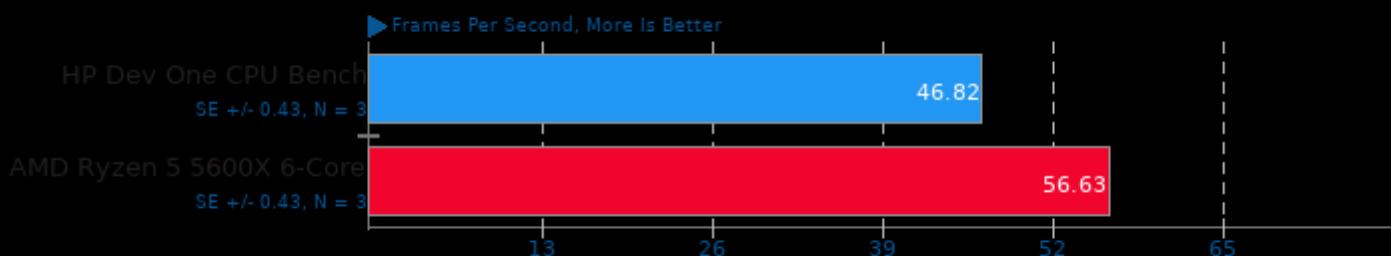
Video Input: Bosphorus 4K



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

### x265 3.4

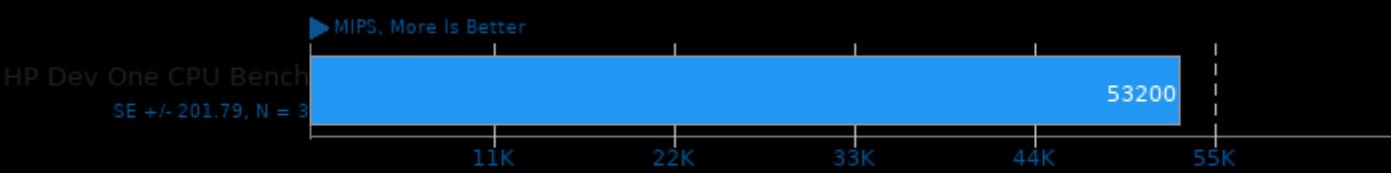
Video Input: Bosphorus 1080p



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

### 7-Zip Compression 21.06

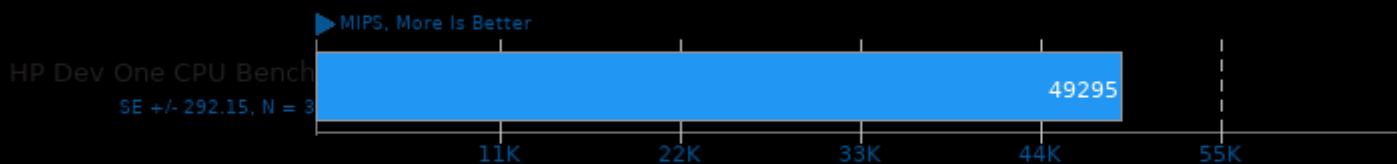
Test: Compression Rating



1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC

### 7-Zip Compression 21.06

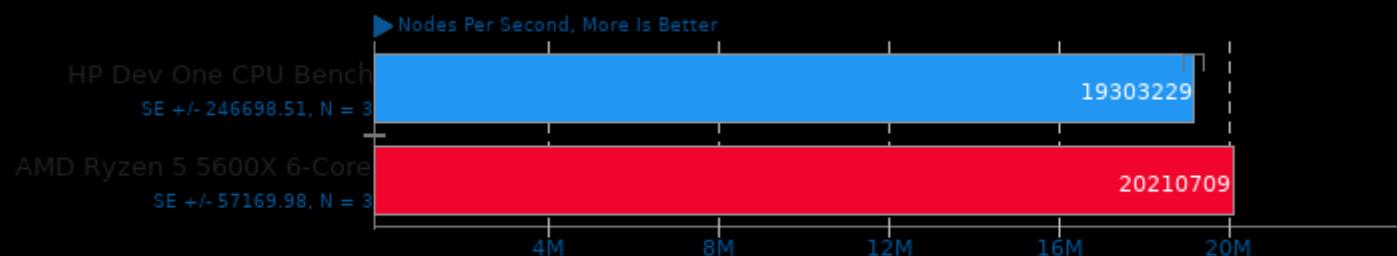
Test: Decompression Rating



1. (CXX) g++ options: -lpthread -ldl -O2 -fPIC

### Stockfish 13

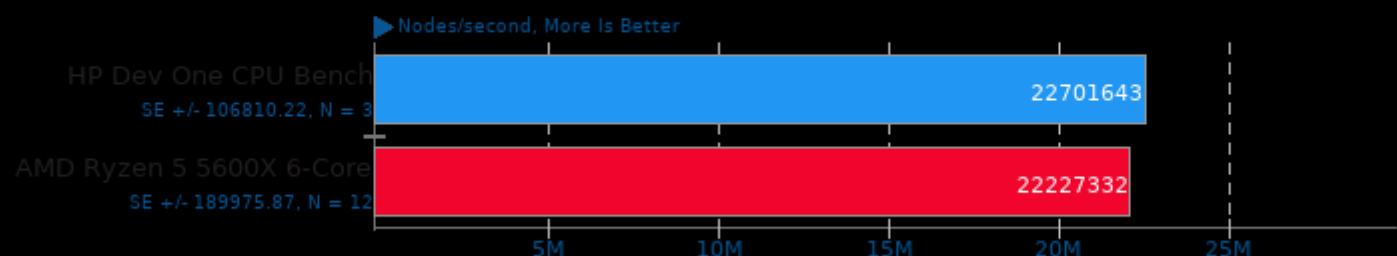
Total Time



1. (CXX) g++ options: -lgcov -m64 -lpthread -fno-exceptions -std=c++17 -fprofile-use -fno-peel-loops -fno-tracer -pedantic -O3 -msse -msse3 -mpopcnt -

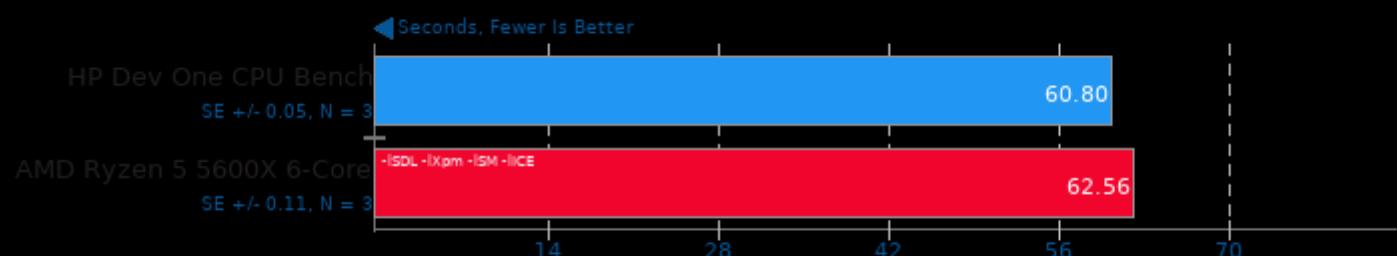
### asmFish 2018-07-23

1024 Hash Memory, 26 Depth



### POV-Ray 3.7.0.7

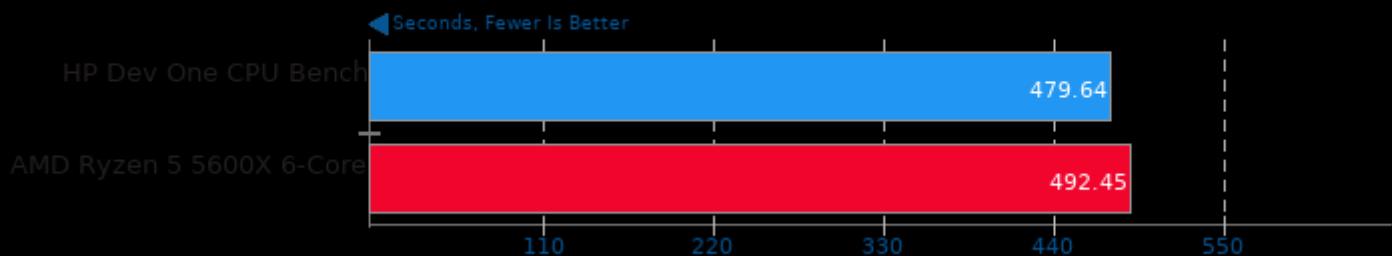
Trace Time



1. (CXX) g++ options: -pipe -O3 -ffast-math -march=native -R/usr/lib -lX11 -ltiff -ljpeg -lpng -lz -lrt -lm -lboost\_thread -lboost\_system

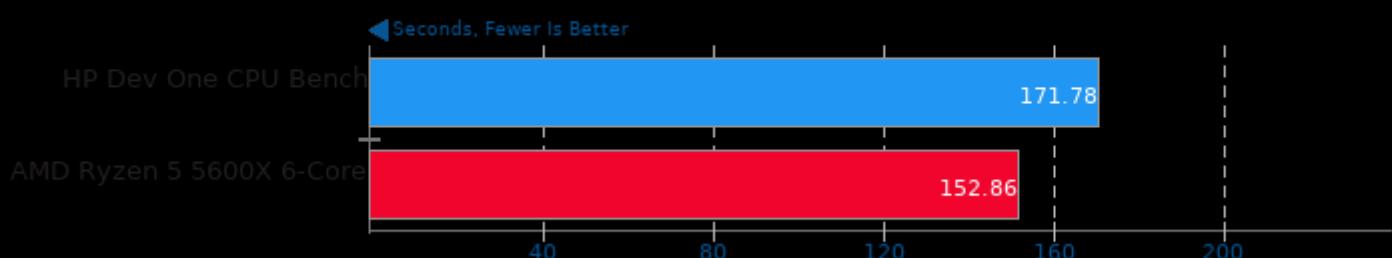
### Radiance Benchmark 5.0

Test: Serial



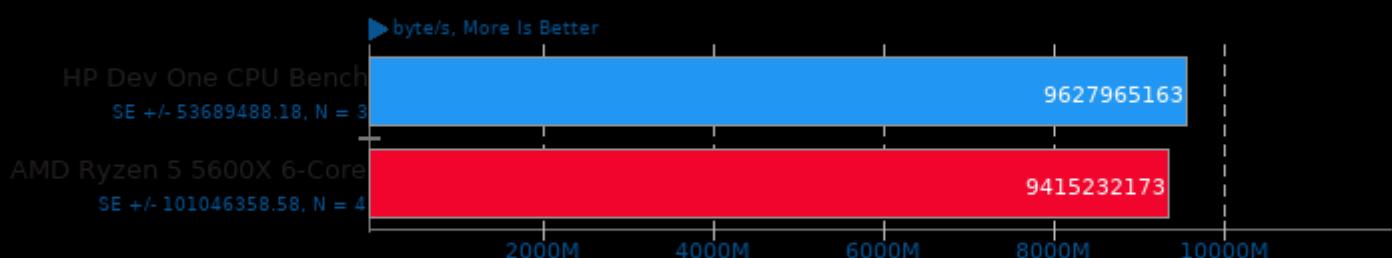
### Radiance Benchmark 5.0

Test: SMP Parallel



### OpenSSL 3.0

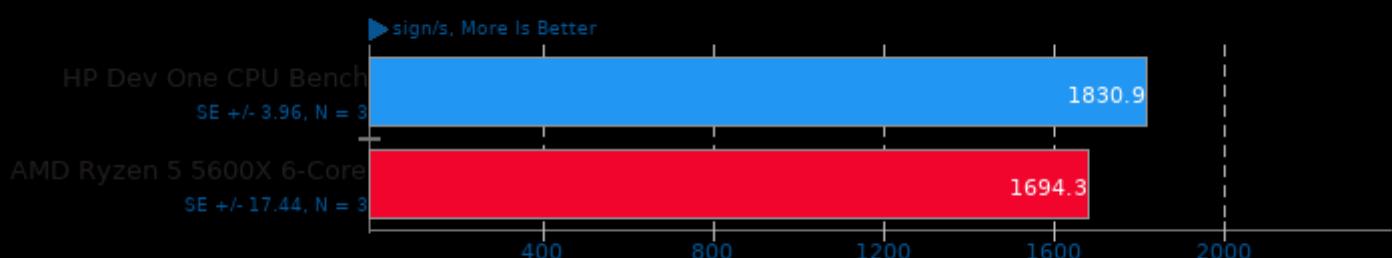
Algorithm: SHA256



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

### OpenSSL 3.0

Algorithm: RSA4096

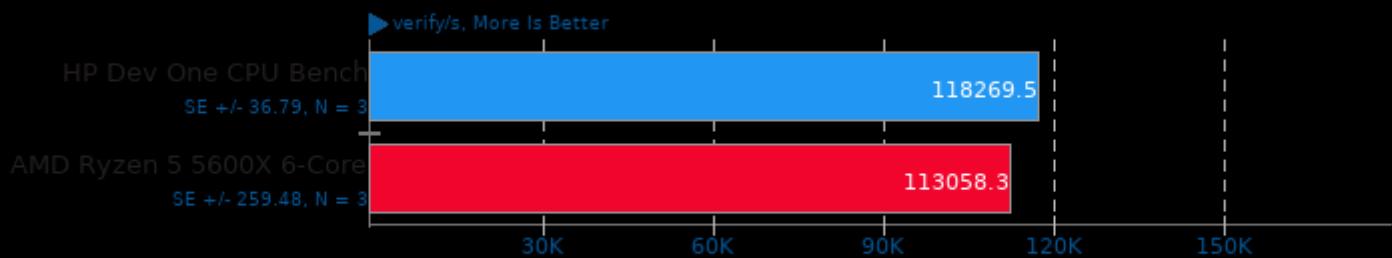


1. (CC) gcc options: -pthread -m64 -O3 -lssl -lcrypto -ldl

## HP Dev One CPU Bench

### OpenSSL 3.0

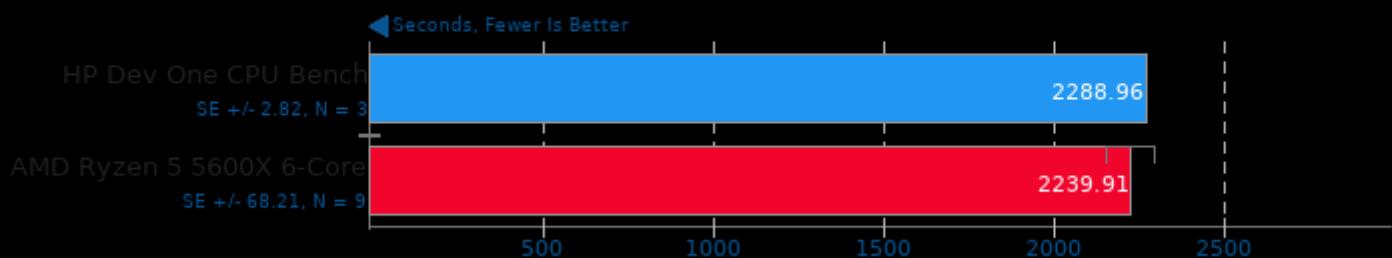
Algorithm: RSA4096



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

### Blender 3.2

Blend File: Barbershop - Compute: CPU-Only



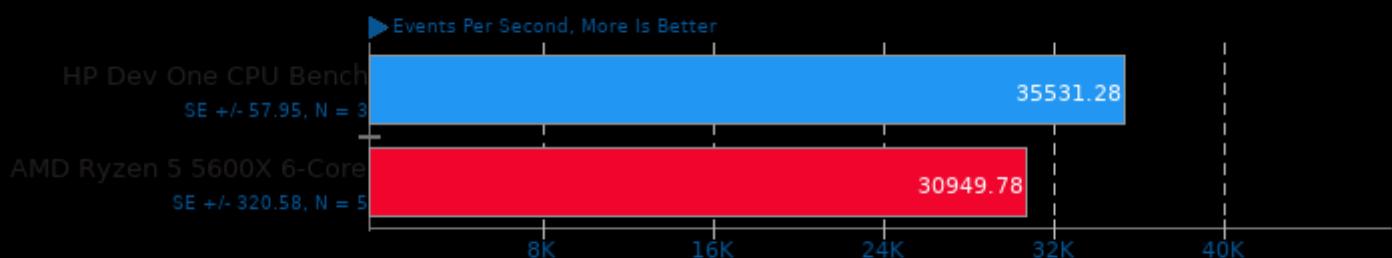
### ctx\_clock

Context Switch Time



### Sysbench 1.0.20

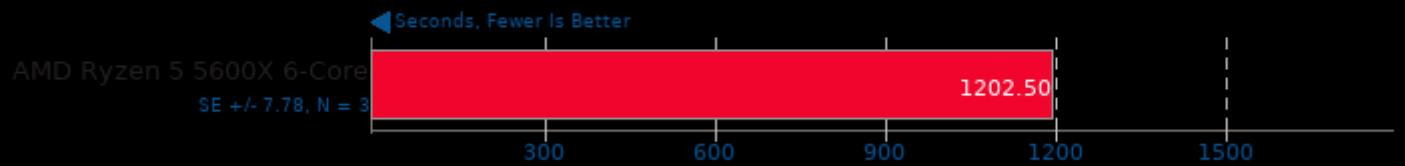
Test: CPU



1. (CC) gcc options: -O2 -funroll-loops -rdynamic -ldl -laio -lm

## Timed GCC Compilation 11.2.0

Time To Compile



*This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 17:16.*