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3950x sat

AMD Ryzen 9 3950X 16-Core testing with a ASUS ROG CROSSHAIR VII HERO (WI-FI) (3103 BIOS) and Sapphire AMD Radeon RX 470/480/570/570X/580/580X/590 4GB on Ubuntu 20.04 via the Phoronix Test Suite.

Automated Executive Summary

1 had the most wins, coming in first place for 66% of the tests.

Based on the geometric mean of all complete results, the fastest (1) was 1.001x the speed of the slowest (3). 2 was 0.999x the speed of 1 and 3 was 1x the speed of 2.

Test Systems:

1

2

3

Processor: AMD Ryzen 9 3950X 16-Core @ 3.50GHz (16 Cores / 32 Threads), Motherboard: ASUS ROG CROSSHAIR VII HERO (WI-FI) (3103 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: Samsung SSD 970 EVO 250GB, Graphics: Sapphire AMD Radeon RX 470/480/570/570X/580/580X/590 4GB (1260/1750MHz), Audio: AMD Ellesmere HDMI Audio, Monitor: VA2431, Network: Intel I211 + Realtek RTL8822BE 802.11a/b/g/n/ac

OS: Ubuntu 20.04, Kernel: 5.9.0-050900rc6daily20200922-generic (x86_64) 20200921, Desktop: GNOME Shell 3.36.4, Display Server: X Server 1.20.9, 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

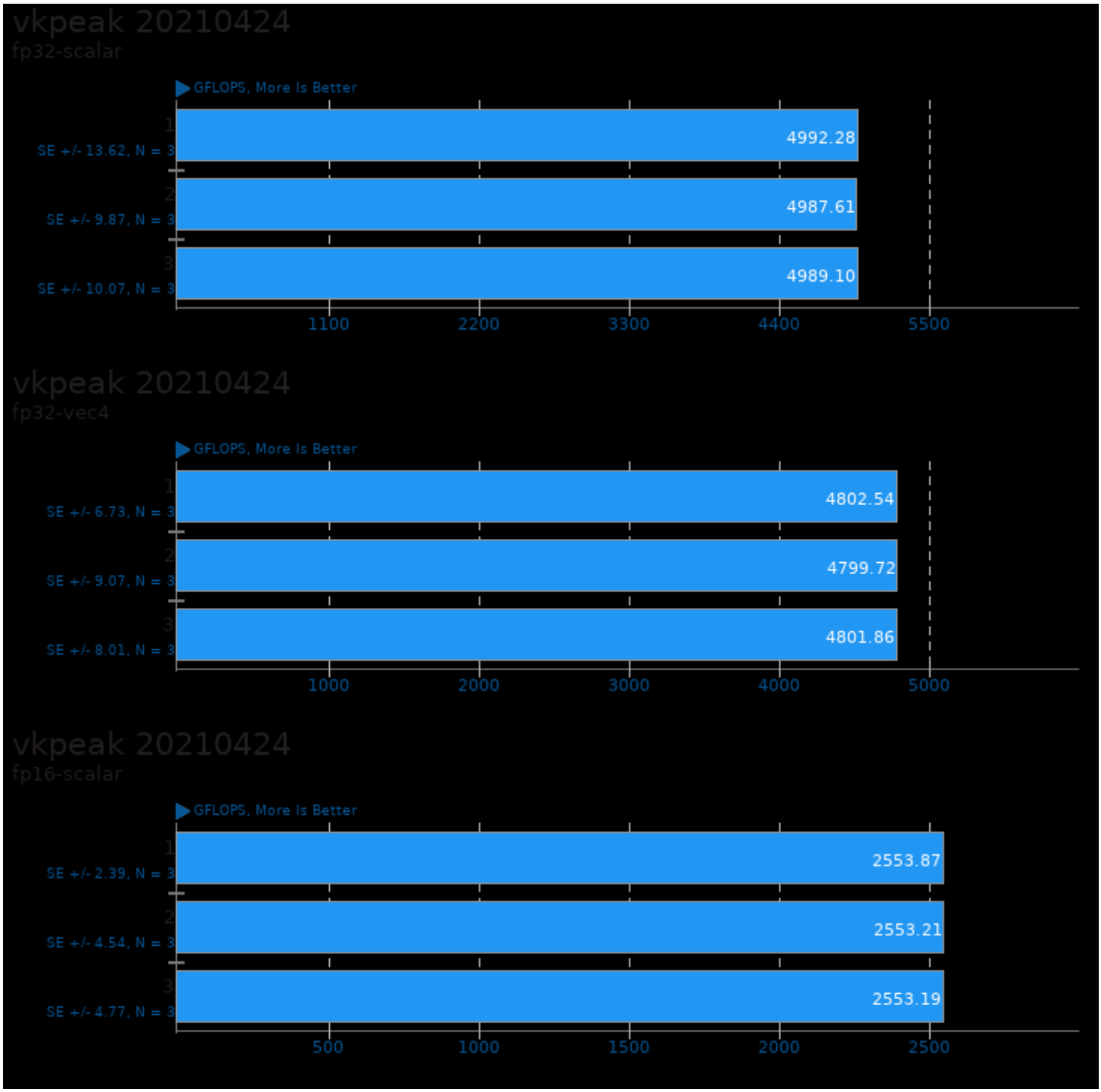
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,gm2 --enable-libstdcxx-debug --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: 0x8701021
Graphics Notes: GLAMOR
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: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	1	2	3
vkpeak - fp32-scalar (GFLOPS)	**4992**	**4988**	4989
Normalized	100%	99.91%	99.94%
Standard Deviation	0.5%	0.3%	0.3%
vkpeak - fp32-vec4 (GFLOPS)	**4803**	**4800**	4802
Normalized	100%	99.94%	99.99%
Standard Deviation	0.2%	0.3%	0.3%
vkpeak - fp16-scalar (GFLOPS)	**2554**	2553	**2553**
Normalized	100%	99.97%	99.97%
Standard Deviation	0.2%	0.3%	0.3%
vkpeak - fp16-vec4 (GFLOPS)	**2545**	**2544**	2544
Normalized	100%	99.94%	99.94%
Standard Deviation	0.1%	0.2%	0.3%
vkpeak - fp64-scalar (GFLOPS)	214.83	**214.82**	**214.86**
Normalized	99.99%	99.98%	100%
Standard Deviation	0%	0%	0%
vkpeak - int32-scalar (GIOPS)	**1023**	**1022**	1022
Normalized	100%	99.93%	99.96%
Standard Deviation	0.1%	0.2%	0.2%
vkpeak - int32-vec4 (GIOPS)	**1031**	**1031**	1031
Normalized	100%	99.97%	99.97%
Standard Deviation	0%	0%	0%
vkpeak - int16-scalar (GIOPS)	**4924**	**4924**	4924
Normalized	99.99%	100%	99.99%
Standard Deviation	0.1%	0.1%	0.1%
vkpeak - int16-vec4 (GIOPS)	**4925**	4924	**4923**
Normalized	100%	99.98%	99.96%
Standard Deviation	0%	0.1%	0.1%
libjpeg-turbo tjbench - D.T (Megapixels/sec)	**228.470776**	**226.081717**	226.531083
Normalized	100%	98.95%	99.15%
Standard Deviation	0.3%	2%	1.8%

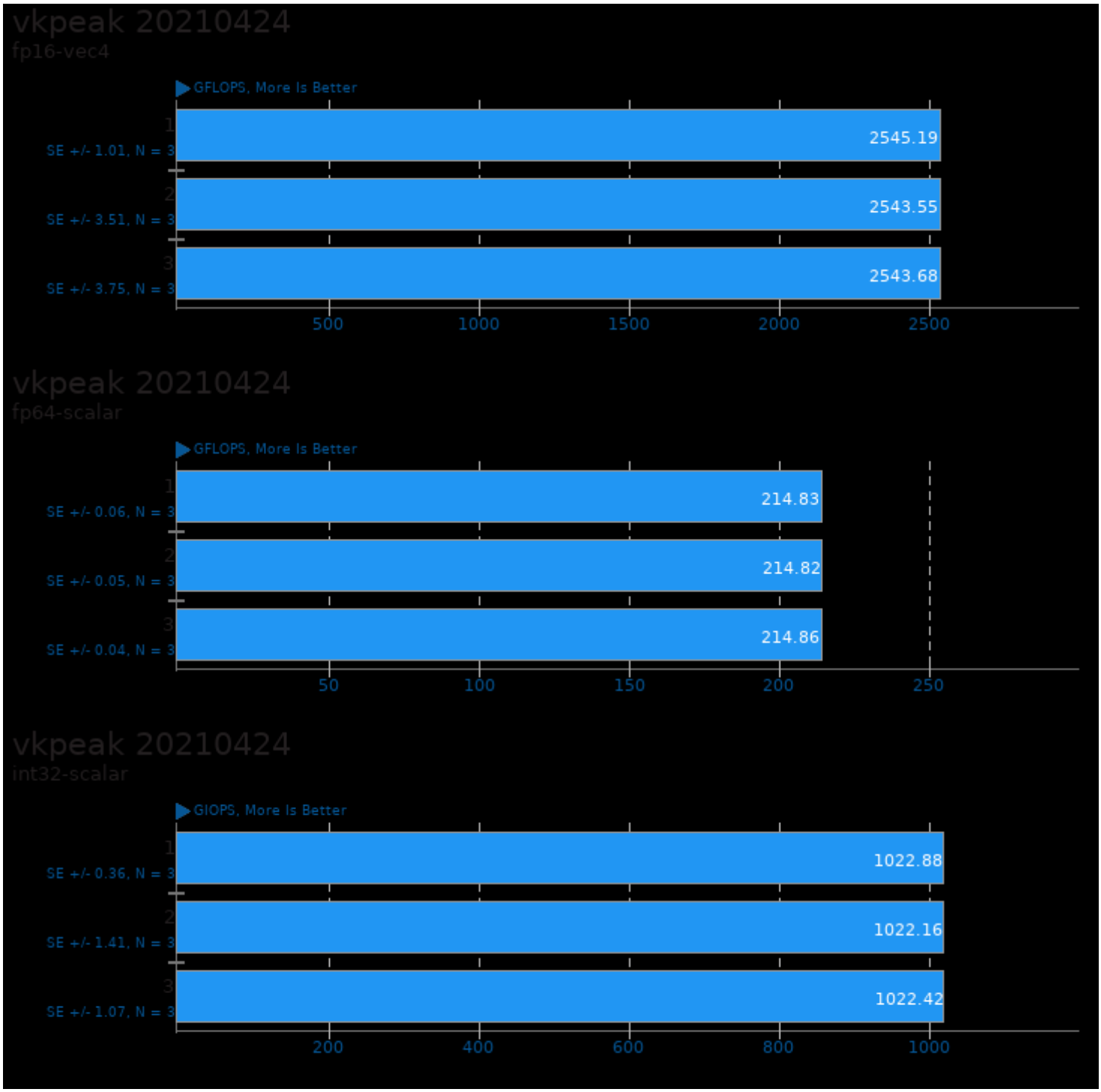
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Xmrig - Monero - 1M (H/s)	6180	**6146**	**6198**
Normalized	99.71%	99.16%	100%
Standard Deviation	0.8%	2.7%	1.6%
Xmrig - Wownero - 1M (H/s)	13850	**13969**	**13797**
Normalized	99.15%	100%	98.77%
Standard Deviation	1.1%	0.3%	0.8%

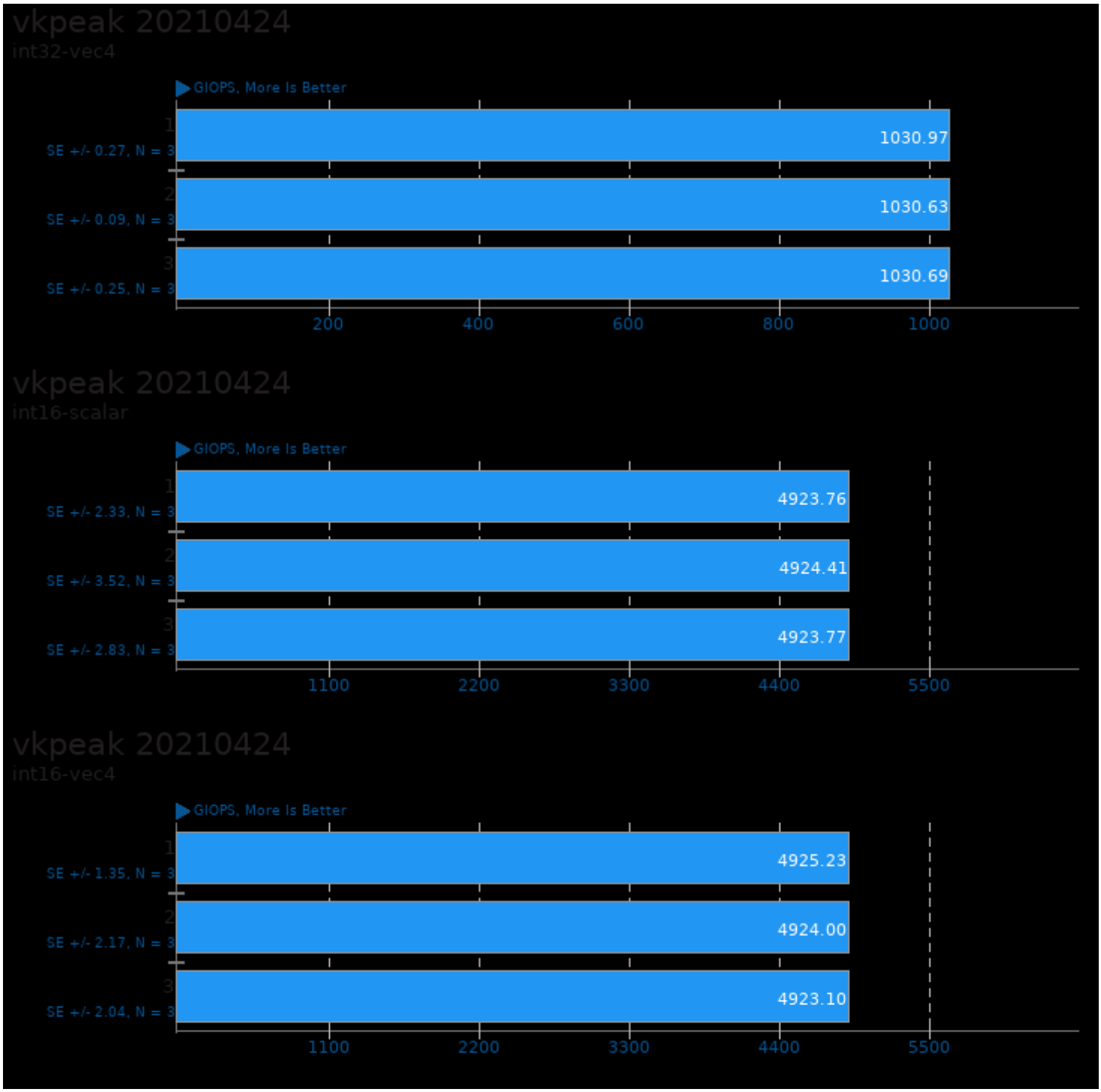
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vkpeak 20210424
fp32-scalar
GFLOPS, More Is Better
1
SE +/- 13.62, N = 3
4992.28
2
SE +/- 9.87, N = 3
4987.61
3
SE +/- 10.07, N = 3
4989.10
1100
2200
3300
4400
5500
vkpeak 20210424
fp32-vec4
GFLOPS, More Is Better
1
SE +/- 6.73, N = 3
4802.54
2
SE +/- 9.07, N = 3
4799.72
3
SE +/- 8.01, N = 3
4801.86
1000
2000
3000
4000
5000
vkpeak 20210424
fp16-scalar
GFLOPS, More Is Better
1
SE +/- 2.39, N = 3
2553.87
2
SE +/- 4.54, N = 3
2553.21
3
SE +/- 4.77, N = 3
2553.19
500
1000
1500
2000
2500

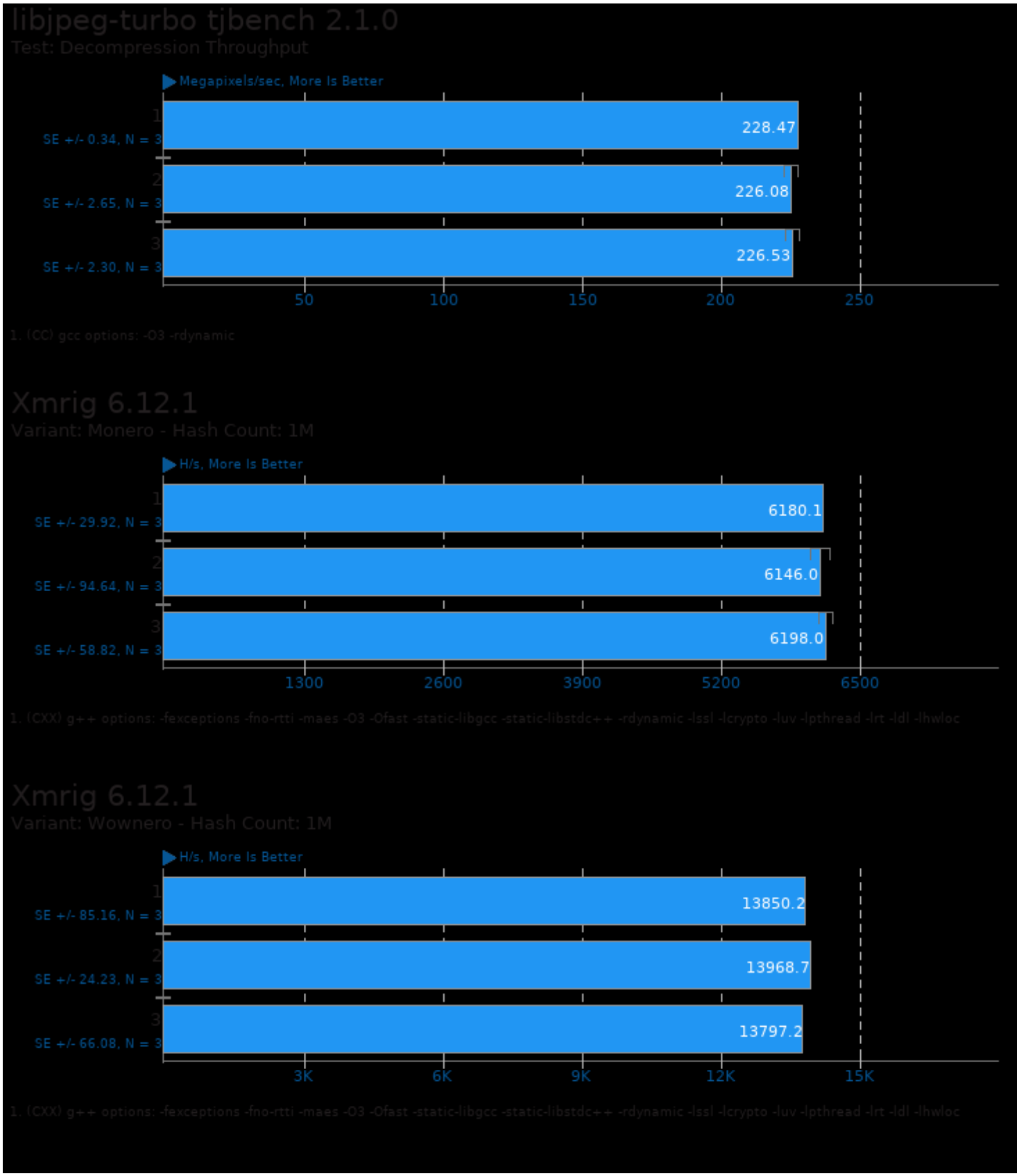
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vkpeak 20210424
fp16-vec4
GFLOPS, More Is Better
1
SE +/- 1.01, N = 3
2545.19
2
SE +/- 3.51, N = 3
2543.55
3
SE +/- 3.75, N = 3
2543.68
500
1000
1500
2000
2500
vkpeak 20210424
fp64-scalar
GFLOPS, More Is Better
1
SE +/- 0.06, N = 3
214.83
2
SE +/- 0.05, N = 3
214.82
3
SE +/- 0.04, N = 3
214.86
50
100
150
200
250
vkpeak 20210424
int32-scalar
GIOPS, More Is Better
1
SE +/- 0.36, N = 3
1022.88
2
SE +/- 1.41, N = 3
1022.16
3
SE +/- 1.07, N = 3
1022.42
200
400
600
800
1000

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vkpeak 20210424
int32-vec4
GIOPS, More Is Better
1
SE +/- 0.27, N = 3
1030.97
2
SE +/- 0.09, N = 3
1030.63
3
SE +/- 0.25, N = 3
1030.69
200
400
600
800
1000
vkpeak 20210424
int16-scalar
GIOPS, More Is Better
1
SE +/- 2.33, N = 3
4923.76
2
SE +/- 3.52, N = 3
4924.41
3
SE +/- 2.83, N = 3
4923.77
1100
2200
3300
4400
5500
vkpeak 20210424
int16-vec4
GIOPS, More Is Better
1
SE +/- 1.35, N = 3
4925.23
2
SE +/- 2.17, N = 3
4924.00
3
SE +/- 2.04, N = 3
4923.10
1100
2200
3300
4400
5500

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