

Compare Snapdragon 8s Gen 3 and Snapdragon 8 Gen 2

This is a benchmark comparison between Snapdragon 8s Gen 3 and Snapdragon 8 Gen 2, including Geekbench, AnTuTu, CPU Throttling test, etc.

Recently, TipsMake compared Snapdragon 8s Gen 3 and Snapdragon 8 Gen 3 and concluded that there is a significant difference in performance between the two chipsets, with Snapdragon 8s Gen 3 not offering the same flagship performance. head.

And if you look at it objectively then 8 Gen 3 seems to have closer performance to SD 7+ Gen 3 and SD 8 Gen 2. So here is the benchmark comparison between Snapdragon 8s Gen 3 and Snapdragon 8 Gen 2 , including Geekbench, AnTuTu, CPU Throttling test, etc.

Note : The author ran the test on Xiaomi Civi 4 Pro running Snapdragon 8s Gen 3 and OnePlus 12R running Snapdragon 8 Gen 2.

Compare specifications

Before proceeding, let's take a look at the specifications of Snapdragon 8s Gen 3 and Snapdragon 8 Gen 2.

	Snapdragon 8s Gen 3	Snapdragon 8 Gen 2
Release date	March 2024	November 2022
Node processing	TSMC 4nm	TSMC 4nm
CPU	Octa-core Kryo CPU 1x 3.0GHz (Cortex-X4) 4x 2.8GHz (Cortex-A720) 3x 2.0GHz (Cortex-A520)	Octa-core Kryo CPU 1x 3.2GHz (Cortex-X3) 2x 2.8GHz (Cortex-A715) 2x 2.8GHz (Cortex-A710) 3x 2.0GHz (Cortex-A510)
GPU	Adreno 735 Ray Tracing is AFME 2.0 hardware accelerated	Adreno 740 GPU Ray Tracing is hardware-accelerated with Unreal Engine 5 Game Post Processing Accelerator
NPU	Hexagon NPU Runs AI models with up to 10B parameters	Hexagon NPU

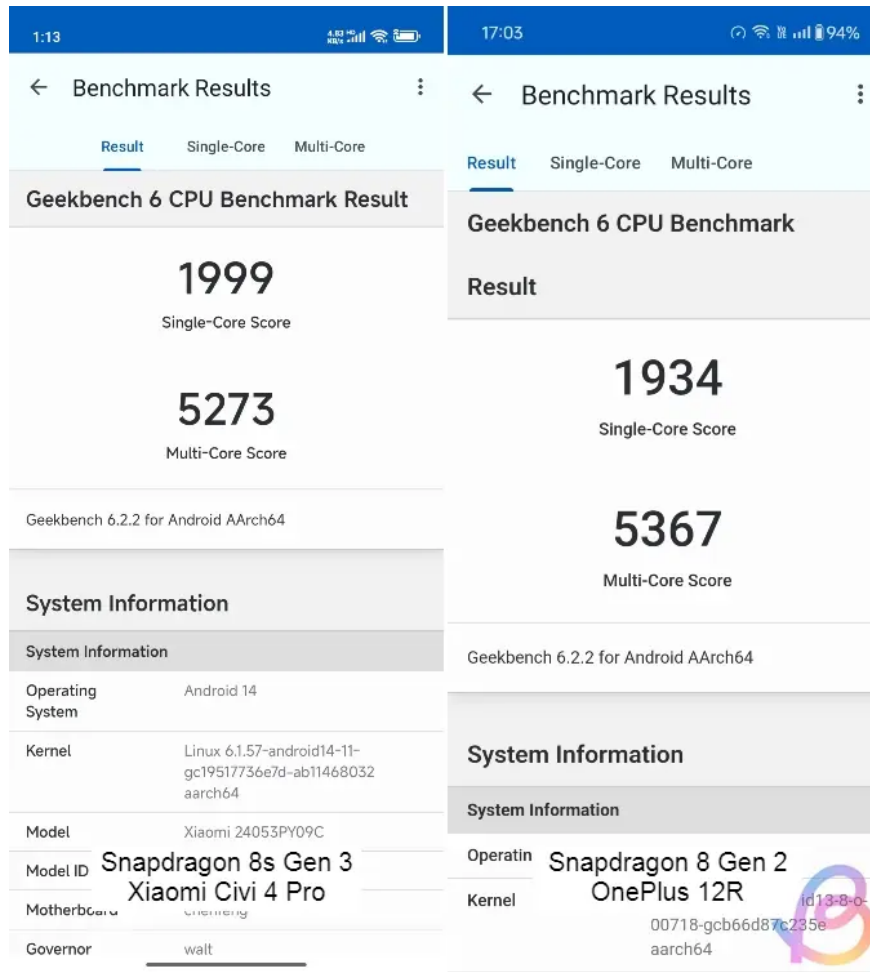
Camera support	Cognitive ISP, 3 18-bit ISPs Capture photos up to 200MP 108MP ZSL, 64+36 ZSL, 36+36+36 ZSL Capture 4K HDR video at 60 FPS	18-Bit Spectra ISP Cognitive ISP Snapdragon Sight
Connect ability	WiFi 7, Bluetooth 5.4, LE	WiFi 7, Bluetooth 5.3, LE
Modem	Snapdragon X70 5G Modem Highest download speed 6.5 Gbps Highest upload speed 3.5 Gbps	Snapdragon X70 5G Modem Highest download speed 10 Gbps Highest upload speed 3.5 Gbps
Memory/RAM	UFS 4.0 LPDDR5X memory up to 4200MHz	UFS 4.0 LPDDR5X memory up to 4200MHz
Supports AV1 Codec	Only AV1 decoding is HW accelerated	Only AV1 decoding is HW accelerated
NavIC support	Have	Have

Geekbench 6 CPU score

As evident from the Geekbench 6 CPU test, the Snapdragon 8s Gen 3 performs at a similar level to the Snapdragon 8 Gen 2. The newly launched Snapdragon 8s Gen 3 achieved a single-core score of 1,999 points and 5,273 in the test. multi-core.

On the other hand, Snapdragon 8 Gen 2 received 1,934 points in the single-core test and 5,367 in the multi-core test. Despite clocking the cores at a lower frequency, the Snapdragon 8s Gen 3 is still competitive with the CPU on the Snapdragon 8 Gen 2 due to the newer cores on the SD 8s Gen 3.

Geekbench 6 CPUs	Snapdragon 8s Gen 3	Snapdragon 8 Gen 2
Single core	1,999	1,934
Multi-core	5,273	5,367

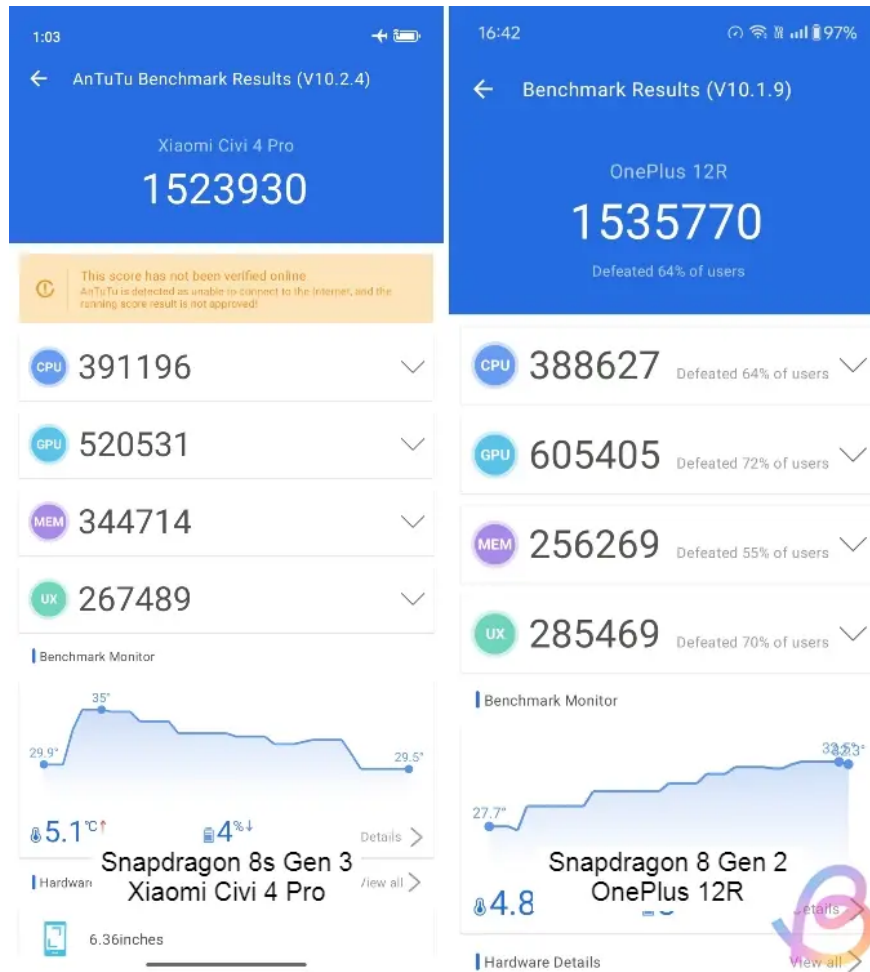


AnTuTu benchmark score

Next, in the AnTuTu benchmark test, Snapdragon 8s Gen 3 once again approached Qualcomm's 2022 flagship, Snapdragon 8 Gen 2. Snapdragon 8s Gen 3 scored 1,523,930 points in AnTuTu and Snapdragon 8 Gen tests. 2 reached 1,535,770 points.

In fact, in the CPU test, the Snapdragon 8s Gen 3 scored slightly higher than the SD 8 Gen 2. That said, the GPU on the 8 Gen 2 is slightly better.

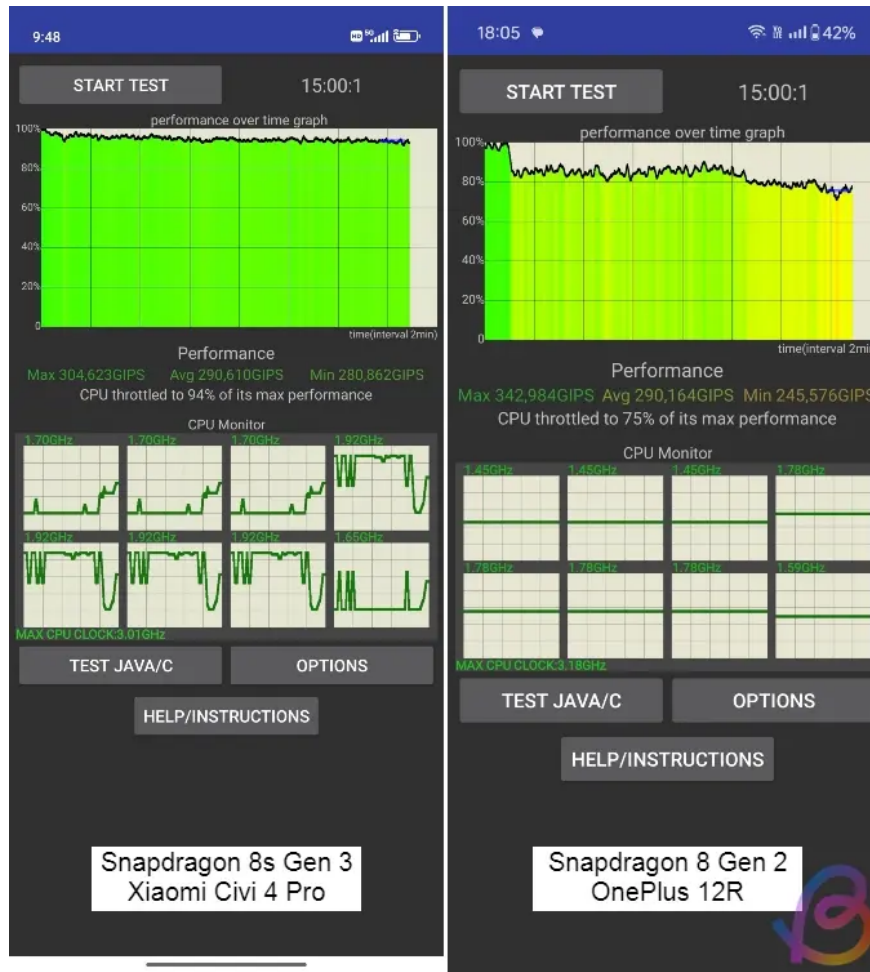
AnTuTu Benchmark	Snapdragon 8s Gen 3	Snapdragon 8 Gen 2
AnTuTu score	1,523,930	1,535,770
CPU	391,196	388,627
GPU	520,531	605,405
Memory	344,714	256,269
UX	267,489	285,469



Test CPU Throttling

In the CPU Throttling test, Snapdragon 8s Gen 3 performed much better than Snapdragon 8 Gen 2. Since 8s Gen 3 has newer cores with better performance, it can sustain high workloads on the CPU without reducing performance.

In the 15-minute test, Snapdragon 8s Gen 3 accelerated to 94% of maximum performance while Snapdragon 8 Gen 2 accelerated to 75% of maximum performance. However, this also depends on the cooling system used by the OEMs and how well they implement it.

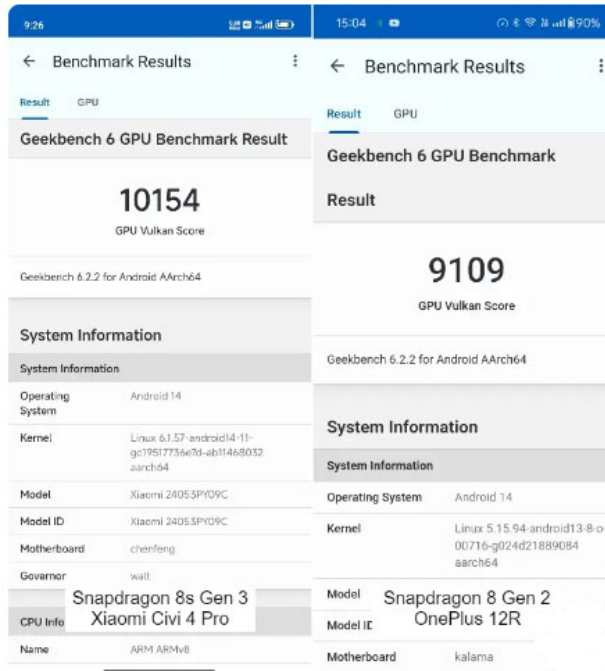


Test GPU Geekbench

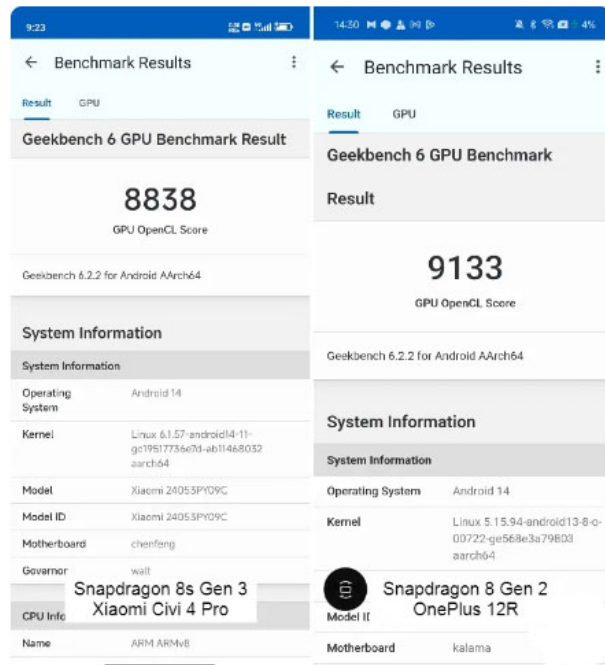
Because 3DMark kept crashing on the Xiaomi Civi 4 Pro, the author of the article performed the Geekbench GPU test to find out the performance difference between both Adreno GPUs. The Adreno 735 GPU on Snapdragon 8s Gen 3 scored 8,838 in the OpenCL test and 10,154 in the Vulkan test.

For comparison, the Adreno 740 GPU on the Snapdragon 8 Gen 2 SoC scored slightly higher on the OpenCL test, scoring 9,133 points. However, in the Vulkan test, the 8 Gen 2 scored 9,109 points. Both GPUs are capable of supporting hardware-accelerated Ray Tracing and both are equivalent.

Geekbench 6 GPU	Snapdragon 8s Gen 3	Snapdragon 8 Gen 2
OpenCL	8,838	9,133
Vulkan	10,154	9,109



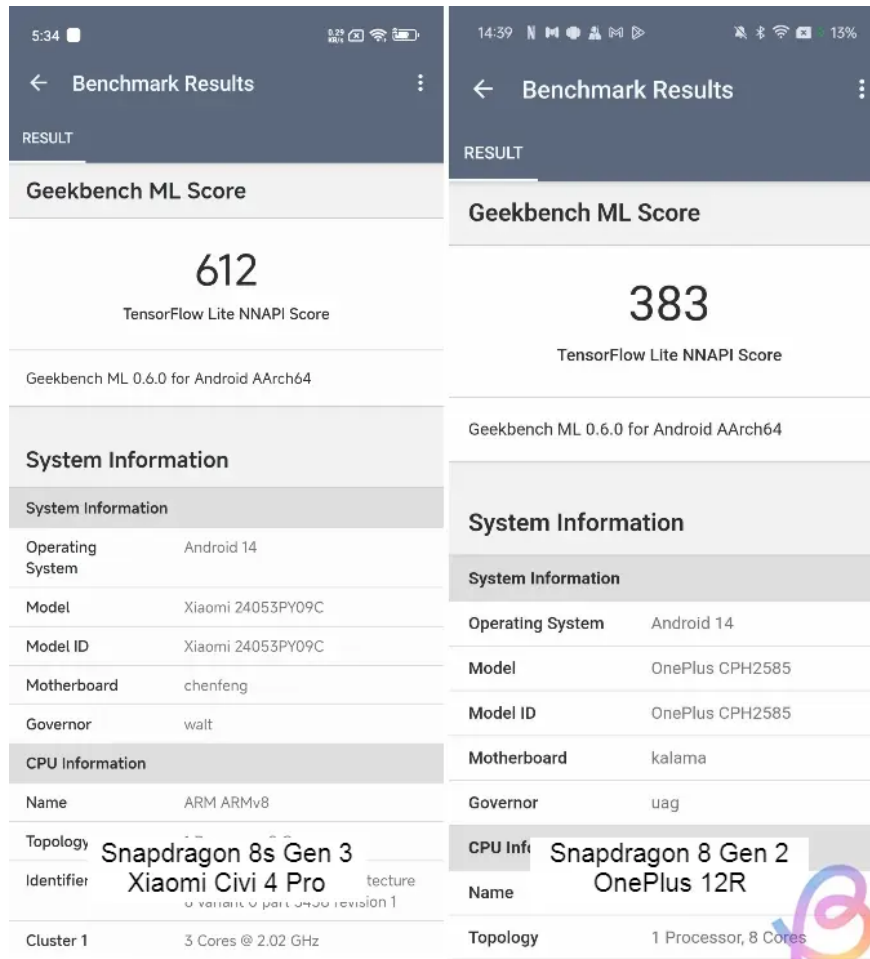
Vulkan



OpenCL

Test AI performance

For the final AI performance test, the author ran the Geekbench ML application to evaluate the NPU performance of both chipsets. Snapdragon 8s Gen 3 scored 612 points and Snapdragon 8 Gen 2 scored 383 points. The low scores of both chipsets can be attributed to the fact that Qualcomm chipsets currently do not support NNAPI backend properly. The author also tried to run other AI benchmark applications, but Xiaomi Civi 4 Pro refused to launch those applications.



Conclude

Qualcomm's new Snapdragon 8s Gen 3 has comparable performance to the Snapdragon 8 Gen 2 in most aspects. If I had to choose between the two chipsets, the choice would definitely be the Snapdragon 8s Gen 3. Because it boasts a newer but slightly overclocked ARM core, which improves the battery life and thermal performance of the chipset.

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