

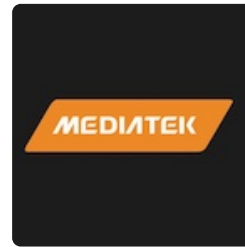


Snapdragon 450 vs Helio G85



Snapdragon 450

VS



Helio G85

We compared two 8-core processors: Qualcomm Snapdragon 450 (with Adreno 506 graphics) and MediaTek Helio G85 (Mali-G52 MP2). Here you will find the pros and cons of each chip, technical specs, and comprehensive tests in benchmarks, like AnTuTu and Geekbench.

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Review

General comparison of performance, power consumption, and other indicators

CPU Performance

Single and multi-core processor tests

Snapdragon 450	17
Helio G85	28

Gaming Performance

GPU performance in games and OpenCL/Vulkan

Snapdragon 450	5
Helio G85	15

Battery life

Efficiency of battery consumption

Snapdragon 450	54
Helio G85	54

NanoReview Score

Overall chip score

Snapdragon 450	23
Helio G85	31

Key Differences

Main differences and advantages of each chip

Pros of Qualcomm Snapdragon 450

- + Performs 2.3x better in floating-point computations
- + Developers optimize games for Snapdragon processors more often than for Helio

Pros of MediaTek Helio G85

- + Shows significantly better (up to 2.2x) AnTuTu 8 score – 195K vs 89K
- + Supports 80% higher memory bandwidth (13.41 against 7.46 GB/s)



- + Announced 2-years and 11-months later
- + Higher GPU frequency (~54%)
- + Has a smaller size transistor (12 versus 14 nm)
- + 11% higher CPU clock speed (2000 vs 1800 MHz)



Benchmarks

Performance tests in popular benchmarks

AnTuTu 8

The AnTuTu Benchmark measures CPU, GPU, RAM, and I/O performance in different scenarios

Snapdragon 450		89198
Helio G85	+119%	195328
CPU	38553	74145
GPU	9140	34415
Memory	25705	42573
UX	12027	40577
Total score	89198	195328

GeekBench 5

The GeekBench test shows raw single-threaded and multithreaded CPU performance

Single-Core Score		Multi-Core Score	
Snapdragon 450	151	Snapdragon 450	965
Helio G85	+139%	361	Helio G85 +32%
Image compression	66.4 Mpixels/s		-
Face detection	8.97 images/s		-

Speech recognition	18.6 words/s	-
Machine learning	11.7 images/s	-
Camera shooting	5.27 images/s	-
HTML 5	1.26 Mnodes/s	-
SQLite	317.5 Krows/s	-

Gaming

Table of average FPS and graphics settings in mobile games

PUBG Mobile	-	43 FPS [High]
Call of Duty: Mobile	-	40 FPS [Medium]
Fortnite	-	21 FPS [Low]
Shadowgun Legends	-	49 FPS [Low]
World of Tanks Blitz	-	51 FPS [Medium]
Mobile Legends: Bang Bang	-	46 FPS [Ultra]
Device	-	Xiaomi Redmi Note 9 1080 x 2340

 We provide average results. FPS may differ, depending on game version, OS and other factors.

Specifications

Full list of technical specifications of Snapdragon 450 and Helio G85

CPU

Architecture	8x 1.8 GHz – Cortex-A53	2x 2 GHz – Cortex-A75 6x 1.8 GHz – Cortex-A55
Cores	8	8
Frequency	1800 MHz	2000 MHz
Instruction set	ARMv8-A	ARMv8-A
Process	14 nanometers	12 nanometers
Transistor count	2 billion	-
TDP	3 W	5 W

Graphics

GPU name	Adreno 506	Mali-G52 MP2
Architecture	Adreno 500	Bifrost
GPU frequency	600-650 MHz	1000 MHz
Execution units	1	2
Shading units	96	32
FLOPS	124 Gigaflops	54 Gigaflops
Vulkan version	1.0	1.0
OpenCL version	2.0	2.0
DirectX version	11.1	12

Memory

Memory type	LPDDR3	LPDDR4X
Memory frequency	933 MHz	1800 MHz
Bus	1x 32 Bit	2x 16 Bit
Max bandwidth	7.46 Gbit/s	13.41 Gbit/s
Max size	4 GB	8 GB

Multimedia (ISP)

Neural processor (NPU)	Hexagon 546	Neural Engine
Storage type	eMMC 5.1	eMMC 5.1
Max display resolution	1920 x 1200	2520 x 1080
Max camera resolution	1x 21MP, 2x 13MP	1x 48MP, 2x 16MP
Video capture	1K at 60FPS	2K at 30FPS
Video playback	1080p at 60FPS	2K at 30FPS
Video codecs	H.264, H.265, VP9	H.264, H.265, VP9
Audio codecs	AIFF, CAF, MP3, MP4, WAV	AIFF, CAF, MP3, MP4, WAV

Connectivity

Modem	X9	-
4G support	LTE Cat. 7	LTE Cat. 7
5G support	No	No
Download speed	Up to 300 Mbps	Up to 300 Mbps

SoC: **Snapdragon 450** **vs** **Helio G85**

Wi-Fi	5	5
Bluetooth	4.1	5.0

Navigation	GPS, GLONASS, Beidou, Galileo, QZSS, SBAS	GPS, GLONASS, Beidou, Galileo
 Info		
Announced	June 2017	April 2020
Class	Low end	Mid range
Model number	SDM450	-
Official page	Qualcomm Snapdragon 450 official site	MediaTek Helio G85 official site

Cast your vote

So, which SoC would you choose?

- Snapdragon 450 **10** (17.9%)
- Helio G85 **46** (82.1%)

VOTE

Total votes: **56**

Related Comparisons

1. [Snapdragon 450 and Exynos 9611](#)
2. [Snapdragon 450 and Snapdragon 665](#)
3. [Snapdragon 450 and Helio P35](#)
4. [Snapdragon 450 and Helio G80](#)
5. [Snapdragon 450 and Helio G35](#)
6. [Helio G85 and Snapdragon 730G](#)
7. [Helio G85 and Snapdragon 665](#)
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Comments

Please give your opinion on the comparison of Helio G85 and Snapdragon 450, or ask any questions

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