

# MediaTek Helio P60

MEDIATEK

Big core performance, incredible camera and an intelligent edge-AI infusion. This chip changes everything.

**The MediaTek Helio P60 brings together a deep and diverse mix of class-leading hardware. It combines the incredible power of four, big ARM Cortex-A73 processors among its octa-core CPU; a multi-core AI processing unit (mobile APU) for efficient edge-AI application processing; the latest ARM Mali-G72 MP3 GPU; beautiful, full-coverage 20:9 Full HD+ display support; and three power-optimized ISPs and other hardware-enhancements paired to supersized cameras.**

This is all fabrication on TSMC's 12nm process technology, and when combined with MediaTek CorePilot 4.0 is up to 12% more power efficient overall and up to 25% in highly demanding games, which compared to previous generation P series. MediaTek CorePilot 4.0 provides Thermal Management, UX Monitoring and Energy Aware Scheduling to focus on maintaining a sustainable, high performance user experience.

MediaTek Helio P60 brings NeuroPilot™ intelligence to the heart of your smartphone. Its heterogeneous AI-compute architecture works seamlessly across CPU, GPU and Mobile APU within the SoC. The Mobile APU includes multi-core processor combined with an intelligent control logic. It is 2X more power efficient than GPU and generates class-leading edge-AI processing performance of 280GMAC/s.

Up to a 20+16MP dual camera array or single 32MP camera can be fitted. These are paired with three, power-optimized ISPs saving up to 500mW, equating to an 18% power advantage over the previous generation. It's hardware-driven, high resolution depth engine gives a 3X boost in depth-mapping performance, enabling real-time depth of

field (bokeh) calculations and when preparing to shoot any kind of picture.

By combining the Helio P60's incredible camera technology with its powerful Mobile APU, users can enjoy AI-infused experiences in apps with deep-learning facial detection (DL-FD), real-time beautification, novel, real-time overlays, object and scene identification, AR/MR acceleration, enhancements to photography or real-time video previews and much more.

MediaTek's latest generation 4G LTE WorldMode modem focuses a power efficient design with latest cellular features and standards, such as IMS (VoLTE\ViLTE\VoWi-Fi), which is now supported by over 100 cellular operators world-wide; global eMBMS, and HPUE and 600MHz (Band 71) frequency support in North America. Dual 4G Dual VoLTE is available on the MediaTek Helio P60, enabling both SIM's with 4G LTE, providing VoLTE/ViLTE with faster call setup time noticeably better sound quality. The platform includes a Cat-7 (DL) / Cat-13 (UL) performance 4G LTE modem, while local connectivity and location services include 802.11ac Wi-Fi, Bluetooth 4.2, multi-GNSS options and FM radio.

## MediaTek NeuroPilot

- AI-accelerated experiences such as
  - › Deep-learning facial detection (DL-FD),
  - › Real-time beautification with novel overlays,
  - › Object and scene identification,
  - › AR/MR acceleration,
  - › Real-time enhancements
  - › Augmentations to photography or video
- Heterogeneous AI-computing architecture seamlessly across CPU, GPU and APU
- Multi-core Mobile APU
- Class-leading performance of 280GMAC/s
- 2X more power efficient than GPU at AI processing

## Ideal AI Ecosystem

- API Support:
- Fully compliant with Android Networks API (Android NNAPI)
  - MediaTek NeuroPilot SDK (Android NN extension)
  - Close-to-metal performance and power-efficiency advantage
  - Intelligent CPU/GPU/APU selection
- Wide support for common AI frameworks:
- TensorFlow,
  - TF Lite,
  - Caffe,
  - Caffe2,
  - Custom 3rd party frameworks

## Heterogeneous big.LITTLE Octa-core CPU

- 4x A73 2.0GHz + 4x A53 2.0GHz
- CPU + GPU = Up to 70% more performance than previous gen Helio P series
- Big core performance advantage in advanced productivity applications and demanding games

## CorePilot 4.0

- Sustainable high performance at low-power
- Thermal Monitoring
- UX Monitoring
- Energy Awareness

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[mediatek.com](http://mediatek.com)

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## Low-power, Highly Capable Camera Hardware

- Super-sized dual camera 20+16MP or 32MP single camera
  - › Single or Dual Camera bokeh (DoF)
- 3-core ISP 18% power saving vs. previous generation
- Huge resolutions at fast speeds
  - › 32MP@30FPS
  - › 16MP@90FPS

## Camera Hardware Accelerators

- (AI accelerated) facial detection and scene detection for better 3A (AE, AF and AWB)
- Hardware depth engine for Real-time Bokeh preview
- Hardware Warping Engine (EIS)
- Anti-Blooming Engine
- MEMA 3DNR
- Multi-Frame Noise reduction
- Real-time HDR recording and viewing
- Zig-Zag HDR
- RAW-domain multi-frame HDR
- PDAF

## MediaTek Helio P60

<b>CPU</b>	Octa-Core: 4x ARM Cortex-A73 up to 2.0GHz and 4x ARM Cortex-A53 up to 2.0GHz
<b>Memory</b>	LPDDR4x (Up to 8GB, 1800MHz)
<b>Storage</b>	eMMC 5.1 or UFS 2.1
<b>GPU</b>	ARM Mali-G72 MP3 @ 800MHz
<b>APU</b>	Dual-core Mobile AI Processors
<b>Camera</b>	20+16MP or 32MP
<b>Video Decoding</b>	1080P @ 30FPS, H.264/HEVC
<b>Video Encoding</b>	1080P @ 30FPS, H.264
<b>Display</b>	2400 x 1080 (Full HD+) 20:9
<b>Modem</b>	LTE Cat 7 (DL) / Cat-13 (UL) (FDD/TDD), 2x2 UL CA, TAS 2.0, HUPe, IMS (VoLTE\WiLTE\WFC), eMBMS, Dual 4G VoLTE (DSDS), Band 71
<b>Connectivity</b>	802.11 a/b/g/n/ac, Bluetooth 4.2, GNSS options, FM
<b>MediaTek Technologies</b>	NeuroPilot, CorePilot 4.0, Imagiq, Pump Express Wireless