

Qualcomm[®] Snapdragon[™] 845 Mobile Platform



Snapdragon 845 Mobile Platform advancements

- **Qualcomm[®] Spectra[™] 280 Image Signal Processor:** The Qualcomm Spectra[™] 280 ISP is designed to deliver a premium camera and XR experience, with high-performance capture of up to 16 MP at 60 images per second. Video enthusiasts will appreciate cinema-like quality video thanks to ultra HD premium capture with richer color.
- **Qualcomm[®] Adreno[™] 630 Visual Processing Subsystem:** Deliver larger-than-life immersive experiences with the Qualcomm[®] Adreno[™] 630 Visual Processing Subsystem (including GPU, VPU and DPU), featuring room-scale 6DoF with SLAM, Adreno Foveation, and significantly improved graphics rendering and video processing compared to the previous generation.
- **Qualcomm[®] Hexagon[™] 685 DSP:** The 3rd Generation Qualcomm[®] Hexagon[™] 685 DSP supports sophisticated, on-device AI processing, delivering richer camera, voice, XR and gaming experiences.
- **Qualcomm[®] Snapdragon[™] X20 LTE modem:** Blazing fast Gigabit LTE download speeds with 5x carrier aggregation and 4x4 MIMO support, enhanced multi-gigabit 802.11ad with diversity module for robust performance, integrated 2x2 802.11ac Wi-Fi with MU-MIMO, BT5 with audio broadcast and ultra-low power ear bud support.
- **Qualcomm[®] Kryo[™] 385 CPU:** Manufactured in 10nm LPP, optimized across 4 performance and 4 efficiency cores.

Featuring the latest in mobile technology

Capturing cinema grade videos

Built with new camera and graphics architectures that are designed to allow mobile users to capture their videos in cinema-grade quality and have access to a billion shades of colors. Snapdragon 845 mobile platform is the first to feature 64x more color information via Ultra HD premium video capture.



Truly immersive experiences

Blur the lines between the physical and virtual worlds for VR headsets by enabling XR users to detect walls and objects in any room. The newly architected Adreno 630 is the first to enable Room-Scale VR for mobile XR headsets with six degrees of freedom (6DoF) and Simultaneous Localization and Mapping (SLAM).



User experiences powered by Artificial Intelligence Engine (AIE)

Snapdragon 3rd generation AI Platform is on-device intelligence that will transform your mobile device into a better personal assistant using voice, better camera using enhanced features like camera bokeh, more true to life XR, gaming, and long lasting battery life.



Vault-like security

Enjoy peace of mind knowing that your device is safeguarded with vault-like security. Your biometric information, like fingerprint, iris, voice, and facial data, as well as mobile payments, are now in a safer place.



Globalizing the "wireless fiber" experience

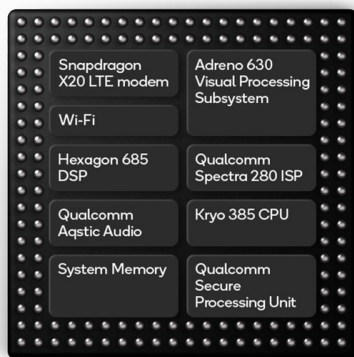
With more spectrum flexibility than ever before, the integrated Snapdragon X20 modem is designed to bring improved app performance and lightning fast access to cloud storage to more users around the world. Experience the same blazing speeds indoors with 11ad multi-gigabit Wi-Fi and broadcast audio to ear buds, speakers and other devices in a power efficient way.



To learn more visit: [snapdragon.com](https://www.qualcomm.com/snapdragon)

Qualcomm Snapdragon, Qualcomm Adreno, Qualcomm Kryo, Qualcomm Spectra, and Qualcomm Hexagon are products of Qualcomm Technologies, Inc.

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Snapdragon 845 Mobile Platform supports next generation immersion, on-device intelligence, new security layers, and an all-day experience.

Features & Specifications¹

Visual Processing Subsystem

- Qualcomm[®] Adreno[™] 630 Visual Processing Subsystem
- Open GL ES 3.2, Open CL 2.0, Vulkan, DirectX 12
- Ultra HD Premium video playback and encoding @ 4K (3840x2160) 60fps, 10bit HDR, Rec 2020 color gamut
- Slow motion HEVC video encoding of either HD (720p) video up to 480fps or FHD (1080p) up to 240fps
- H.264 (AVC), H.265 (HEVC), VP9, DisplayPort over USB Type-C support
- eXtended Reality (XR)
 - Room-Scale 6DoF with simultaneous localization and mapping (SLAM)
 - 2400x2400 @ 120 FPS per eye
 - Adreno Foveation: multiple technology advancements for multi-view, tile-based foveation with eye-tracking and fine grain preemption

DSP

- Qualcomm[®] Hexagon[™] 685 DSP with:
 - 3rd Gen Vector Extensions
 - Qualcomm All-Ways Aware Sensor[™] Hub
- Qualcomm[®] Snapdragon[™] Neural Processing Engine (NPE) SDK
- Caffe, Caffe2 and Tensorflow support

Audio

- Qualcomm[®] Aqstic[™] audio codec and speaker amplifier
- Qualcomm[®] aptX[™] audio playback with support for aptX Classic and HD
- Native DSD support, PCM up to 384kHz/32bit

CPU

- 8x Qualcomm[®] Kryo[™] 385 CPU
- Up to 2.8 GHz
- 2nd Gen 10nm LPP process technology

Memory

- LPDDR4x, 4x16 bit
- Up to 1866MHz, 8GB RAM

Image Signal Processor

- Qualcomm[®] Spectra[™] 280 Image Signal Processor
- New architecture for 14-bit image signal processing, with support for up to:
 - Single HFR 16 MPix camera at 60fps ZSL
 - Dual 16 MPix cameras at 30fps ZSL
 - Single 32 MPix camera at 30fps ZSL
- Can connect up to 7 different cameras (many configurations possible)
- Multi-frame Noise Reduction (MFNR) with accelerated image stabilization
- Hybrid Autofocus with support for dual phase detection (2PD) sensors
- Ultra HD Premium video capture @ 4K (3840x2160) 60fps, 10bit HDR, Rec 2020 color gamut
- Higher quality video capture with Motion Compensated Temporal Filtering (MCTF)
- 3D structured light active depth sensing, with accelerated face detection/recognition

Charging

- Qualcomm[®] Quick Charge[™] 4/4+ technology

Optimized Software Solutions

- Android and Windows OS

Security

- Qualcomm[®] Secure Processing Unit (SPU)
- Qualcomm[®] Processor Security
- Qualcomm[®] Mobile Security
- Qualcomm[®] Content Protection

Modem

- Snapdragon[™] X20 LTE Modem
- Support for 1.2 Gbps Gigabit LTE

- Downlink: LTE Cat 18 up to 1.2 Gbps, 5x20 MHz carrier aggregation, up to 256-QAM, up to 4x4 MIMO on three carriers
- Uplink: LTE Cat 13 up to 150 Mbps, Qualcomm[®] Snapdragon[™] Upload+ (2x20 MHz carrier aggregation, up to 64-QAM)
- License Assisted Access (LAA)
- Citizens Broadband Radio Service (CBRS) shared radio spectrum
- Dual SIM Dual VoLTE (DSDV)
- Qualcomm[®] All Mode with support for all major cellular modes plus LAA. Support for:
 - VoLTE with SRVCC to 3G and 2G, HD and Ultra HD Voice (EVS), CSFB to 3G and 2G
 - Voice over Wi-Fi (VoWiFi) with LTE call continuity

Connectivity

- Qualcomm[®] Wi-Fi
 - 802.11ad Multi-gigabit with 60 GHz diversity module
 - Wi-Fi integrated 802.11ac 2x2 with MU-MIMO
 - Tri-band Wi-Fi: 2.4 GHz and 5 GHz with Dual Band Simultaneous (DBS) + 60 GHz
 - 11k/r/v: Enhanced mobility, fast acquisition and congestion mitigation for Carrier Wi-Fi
- Qualcomm[®] TrueWireless[™] Bluetooth 5.0 with proprietary enhancements for:
 - Ultra-low power wireless ear buds
 - Direct audio broadcast to multiple devices

RF Front End

- Qualcomm[®] Signal Boost[™] adaptive antenna tuning
- High-power transmit (HPUE)

Location

- GPS, Glonass, BeiDou, Galileo, QZSS, and SBAS
- Low Power Geofencing and Tracking, Sensor-assisted Navigation

¹ Certain optional features available subject to Carrier and OEM selection for an additional fee.

Qualcomm Adreno, Qualcomm Hexagon, Qualcomm All-Ways Aware Sensor, Qualcomm Neural Processing Engine, Qualcomm Aqstic, Qualcomm Kryo, Qualcomm Spectra, Qualcomm Clear Sight, Qualcomm Quick Charge, Qualcomm Secure Processing Unit, Qualcomm Processor Security, Qualcomm Mobile Security, Qualcomm Content Protection, Qualcomm Snapdragon Upload+, Qualcomm All Mode, Qualcomm Signal Boost, and Qualcomm Wi-Fi, are products of Qualcomm Technologies, Inc. Qualcomm aptX and Qualcomm TrueWireless are products of Qualcomm Technologies International, Ltd.

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