Qualcomm® Snapdragon™

855

Mobile Platform

Qualcomm® Snapdragon™ 855 Mobile Platform is the first mobile platform to collectively commercialize 5G, AI and XR, ushering in a new decade of revolutionary experiences. It's the premier mobile platform for a bold new era.

Multi-gigabit everything

The world's first commercial 5G mobile platform unleashes transformative 5G experiences with the Snapdragon™ X50 5G modem while harnessing multi-gigabit 4G connectivity. Combined with a new era of Wi-Fi performance, this is innovation for the next generation.

- Multi-gigabit 5G, 4G LTE and Wi-Fi
- Support for mmWave and sub-6 GHz
- Up to 20x sustained performance leap compared to 4G

Powerful, intuitive experiences

Snapdragon 855 is powered by new architecture improvements and leading 7nm process technology, a giant leap in CPU smartphone performance, and a Qualcomm® Hexagon™ Processor that's purpose-built for AI. This platform packs unimaginable performance and power efficiency for the next echelon of 5G, AI and XR – all while providing what matters most: insane battery life.

- Qualcomm® Kryo™ 485 CPU provides up to a 45% uplift in performance
- Continuous 4K HDR capture thanks to a 30% improvement in energy efficiency
- Qualcomm® Hexagon™ 690 DSP featuring 2x Vector accelerator increase in performance and a new Tensor accelerator

AI to the 4th Power

Our 4th generation on-device AI engine is the ultimate personal assistant for camera, voice, XR and gaming – delivering smarter, faster and more secure experiences. Utilizing all cores, it packs 3 times the power of its predecessor for stellar on-device AI capabilities.

- Built with enhanced architectures geared towards AI
- Greater than 7 trillion operations per second (TOPS)
- Three times improvement over all cores

Cinema-grade videography

From bleeding-edge color to a new evolution of cinema-grade videography, this platform sets brilliant new standards for mobile – including the world's first Computer Vision (CV-ISP) delivering 4K HDR video capture with Portrait Mode.

- World's first HDR10+ video capture
- Real-time object segmentation
- First Snapdragon mobile platform with HEIF saves photos, videos, and computer vision data at half the size

Incredibly captivating entertainment

Go big, even when you're not at home. With 4K HDR video playback, your motion pictures will be brilliant, scene-by-scene and frame-by-frame. 5G makes XR real time, so fully immersive interactions happen at the speed of life. Plus, Snapdragon Elite Gaming equates to multi-player experiences that mimic human reflex. Game on.

- First true HDR gaming on mobile, providing over 1 billion shades of color
- Qualcomm® Adreno™ 640 GPU delivers up to 20% faster graphics rendering
- Qualcomm® aptX™ Adaptive and Qualcomm Aqstic™ deliver a smooth, crystal-clear audio experience

To learn more visit
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SPECIFICATIONS & FEATURES

Qualcomm® Artificial Intelligence Engine

- Qualcomm® Hexagon™ 690 Processor
- Qualcomm® Hexagon™ Vector Accelerator
- Qualcomm® Hexagon™ Tensor Accelerator
- Qualcomm® Hexagon™ Voice Assistant
- Qualcomm® All-Ways Aware™ Hub
- Qualcomm® Adreno™ 640 GPU
- Qualcomm® Kryo™ 485 CPU

5G Modem

- Snapdragon™ X50 5G Modem
- Supported Technologies: 5G NR
- Support for sub-6 GHz and mmWave
- Supported Spectrum:
  - mmWave: 800 MHz bandwidth, 8 carriers, 2x2 MIMO
  - Sub-6 GHz: 100 MHz bandwidth, 4x4 MIMO

4G Modem

- Snapdragon™ X24 LTE modem
- Cellular Technologies: LTE FDD, LTE TDD with CBRS support, LAA, LTE Broadcast, WCDMA, TD-SCDMA, CDMA 1x, EV-DO, GSM/EDGE
- Downlink: LTE Cat 20 up to 2.0 Gbps, 7x20 MHz carrier aggregation, 256-QAM, 4x4 MIMO on five carriers
- Uplink: LTE Cat 13 up to 318 Mbps, 3x20 MHz carrier aggregation, 256-QAM, Uplink Data Compression
- Multi SIM with support for Dual SIM Dual VoLTE (DSDV) and LTE Dual SIM Dual Standby (DSDS) +LAA
- Next-generation Calling Services including VoLTE with SRVCC to 3G and 2G, HD and Ultra HD Voice (EVS), and CSFB to 3G and 2G

Wi-Fi

- Qualcomm® Wi-Fi 6-ready mobile platform
  - Wi-Fi Standards: 802.11ax-ready, 802.11ac Wave 2, 802.11a/b/g, 802.11n
  - Wi-Fi Spectral Bands: 2.4 GHz, 5 GHz
  - Channel Utilization: 20/40/80 MHz
  - MIMO Configuration: 2x2 (2-stream)
  - MU-MIMO
  - Dual-band simultaneous (DBS)
  - Key Features: 8x8 sounding (up to 2x improvement over 4x4 sounding devices), Target Wakeup Time for up to 67% better power efficiency, latest security with WPA3
- Qualcomm® 60 GHz Wi-Fi mobile platform
  - Wi-Fi Standards: 802.11ad, 802.11ay
  - Wi-Fi Spectral Band: 60 GHz
  - Peak speed: 10 Gbps

- Key Features: multi-gigabit speeds, wire-equivalent latency, always-on ambient Wi-Fi sensing

Camera

- Qualcomm® Spectra™ 380 Image Sensor Processor
- Dual 14-bit ISPs
- Hardware accelerator for computer vision (CV-ISP)
- Up to 22 MP dual camera
- Up to 48 MP single camera
- Rec. 2020 color gamut video capture
- Up to 10-bit color depth video capture
- Slow motion video capture at 720p HDR, 480fps
- HEIF photo capture, HEVC video capture
- Video Capture Formats: HDR10+, HDR10, HLG
- 4K HDR Video Capture with Portrait Mode (Bokeh)
- Multi-frame Noise Reduction (MFNR)
- Real-time object classification, segmentation and replacement

Audio

- Low-power Audio Subsystem with AI
- Hexagon Voice Assistant Accelerator for advanced voice use cases
- Qualcomm Aqstic™ Audio Technology
  - Native DSD support, PCM up to 384 kHz/32-bit
  - Supports two wake words simultaneously (Google Assistant, Amazon Alexa, Baidu, Cortana)
- Always-on echo cancellation and noise suppression; up to 4 mic far-field mic support for better voice recognition in tough conditions
- Qualcomm® aptX™ Adaptive audio technology
  - aptX Adaptive adjusts performance for optimum quality, latency, and efficiency
- Qualcomm TrueWireless™ Stereo Plus technology

Display

- Maximum On-Device Display Support: Up to 4K HDR
- Maximum External Display Support: Up to two 4K HDR displays
- 10-bit color depth, Rec. 2020 color gamut

CPU

- 8x Qualcomm® Kryo™ 485
- Up to 2.84 GHz
- 64-bit Architecture
- 7nm Process Technology

Visual Subsystem

- Adreno 640 GPU
- Vulkan® 1.1 API support
- HDR gaming (10-bit color depth, Rec. 2020 color gamut)
- Physically Based Rendering
- API Support: OpenGL® ES 3.2, OpenCL™ 2.0 FP, Vulkan 1.1
- Hardware-accelerated H.265 and VP9 decoder
- HDR Playback Codec support for HDR10+, HDR10, HLG and Dolby Vision
- Volumetric VR video playback
- 8K 360 VR video playback

RF Front-End

- Comprehensive 5G/4G modem-to-antenna solution
- QTM052 5G mmWave antenna module
- Qualcomm Adaptive Antenna Tuning
- Qualcomm Envelope Tracking
- High-power transmit (HPUE)

Security

- Secure Processing Unit featuring mobile payments and Qualcomm® 3D Sonic Sensor
- Biometric Authentication: Fingerprint, Iris, Voice, Face
- On-Device: Qualcomm® Mobile Security, Key Provisioning Security, Qualcomm® Processor Security, Qualcomm® Content Protection, Qualcomm® Trusted Execution Environment, Camera Security, Crypto Engine, Malware Protection, Secure Boot, Secure Token

Memory

- Memory Speed: 2133 MHz
- Memory Type: 4x16-bit, LPDDR4x
- Memory Density: up to 16 GB

Connectivity Specifications

- Bluetooth Version: 5.0
- Bluetooth Speed: 2 Mbps
- Satellite Systems Support: Dual frequency GNSS, GPS, GLONASS, Beidou, Galileo, QZSS, SBAS
- Near Field Communications (NFC): Supported
- USB Version 3.1; USB Type-C Support

Charging

- Qualcomm® Quick Charge™ 4+ technology