Qualcomm
snapdragon
690 5G mobile platform

690 5G

The Qualcomm® Snapdragon™ 690 5G Mobile Platform is making 6-series history—helping to make 5G accessible to more people than ever before. This platform is smarter, faster, and more impressive than its predecessor, packing remarkable on-device AI and vibrant entertainment experiences backed by efficient performance.

Unlocking 5G for everyone

Breaking new ground in the 6-series, 5G takes your connectivity to new heights—and locations. Upload or download in an instant with faster speeds than its predecessor, and experience far-reaching connectivity indoors or out. Experience superior 5G coverage at global scale, now more accessible than ever.

- Super-fast Qualcomm® Snapdragon™ X51 5G Modem-RF System
- Unlock global 5G with support for SA and NSA modes, TDD and FDD, Dynamic Spectrum sharing and global 5G multi-SIM

Remarkable on-device AI

Our powerful 5th gen Qualcomm® Artificial Intelligence (AI) Engine and Qualcomm® Hexagon™ Tensor Accelerator (HTA) add to the list of firsts we've brought to the 6-series. Together, they power smarter on-device experiences in security, voice, and camera—including intuitive social media filters and seamless transitioning between lenses.

- More than 70% improvement in AI performance compared to the predecessor

Vivid videography, phenomenal photography

Capture your favorite moments in over a billion shades of color with 4K HDR video capture—a first in the 6-series. Or, make a big statement with your best photos—see every brilliant detail with up to 192 MP capture.

- Professional-grade image quality with the Qualcomm Spectra™ 355L ISP
- Capture over a billion shades of color with 4K HDR video capture in HDR10 format

Awesome entertainment value

Embark on the adventure of a lifetime—right from your smartphone. Now with 5G connectivity, stream 4K HDR videos flawlessly and with a boosted display. Combine lifelike graphics powered by the enhanced Qualcomm® Adreno™ 619L GPU with immersive Qualcomm® aptX™ audio and you'll get lost in the most intense movies, games, and shows.

- Adreno 619L GPU delivers up to 60% faster graphics rendering
- First 6-series platform to support 120 Hz display for an ultra-smooth user interface

Pumped-up performance

Whether work, play, or everyday interactions—do it all faster, smoother, and longer on the Snapdragon 690 5G. Our improved 8 nm process allows you to launch apps and complete tasks without lag, plus the Qualcomm® Kryo™ CPU boasts brand new architectures for vigorous, yet efficient, performance.

- Up to 20% improved CPU performance compared to predecessor
- Qualcomm® Quick Charge™ 4+ Technology charges up to 4x faster than conventional charging
- First 6-series to support Dual Wi-Fi Antennas (2x2 Wi-Fi) and key Wi-Fi 6 features, with the Qualcomm® FastConnect™ 6200 System

To learn more visit
snapdragon.com

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SPECIFICATIONS & FEATURES

Qualcomm AI Engine

- Adreno 619L GPU
- Kryo 560 CPU
- Hexagon 692 Processor
  - Hexagon Scalar Accelerator
  - Qualcomm® Hexagon™ Vector eXtensions (HVX)
  - Hexagon Tensor Accelerator
- Qualcomm Sensing Hub
  - Ultra low power hub for audio, voice and sensors
  - Supports AI algorithms at low power
  - Support for fusing contextual data streams including sensors, audio and voice
  - Supports multiple voice assistants
  - Multi-mic far-field detection and echo cancellation

5G Modem-RF System

- Snapdragon X51 5G Modem-RF System – Modem to antenna integrated system for 5G multimode
- 5G standalone (SA) and non-standalone (NSA) modes, FDD, TDD
- Dynamic Spectrum Sharing
- Sub-6 GHz: 100 MHz bandwidth, 4x4 MIMO
- Qualcomm 5G PowerSave
- Qualcomm® Smart Transmit™ technology
- Qualcomm Wideband Envelope Tracking
- Qualcomm® Signal Boost adaptive antenna tuning
- Global 5G multi-SIM
- Downlink: Up to 2.5 Gbps (5G), 1.2 Gbps (LTE)
- Uplink: Up to 900 Mbps (5G), 210 Mbps (LTE)
- Multimode support: 5G NR, LTE including CBRS, WCDMA, HSPA, TD-SCDMA, CDMA 1x, EV-DO, GSM/EDGE

Wi-Fi & Bluetooth

- FastConnect 6200 System
  - Wi-Fi Standards: Wi-Fi 6-ready (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) with MU-MIMO
  - 8-stream sounding (for 8x8 MU-MIMO)
  - Wi-Fi Security: WPA3-Enterprise, WPA3-Enhanced Open, WPA3 Easy Connect, WPA3-Personal
  - Target Wake Time (TWT)

- Integrated Bluetooth
  - Bluetooth version: 5.1
  - Bluetooth audio: Qualcomm TrueWireless™ Technology, aptX Adaptive

Camera

- Qualcomm Spectra 355L Image Signal Processor
- Dual 14-bit ISPs
- Up to 192 MP snapshot capture (up to 48 MP snapshot capture with MFNR)
- Up to 32+16 MP dual camera @ 30 FPS with Zero Shutter Lag
- Rec. 2020 color gamut/10-bits per color video capture
- Slow-mo video capture at 720p @ 240 FPS
- HEIF: HEIC photo capture, HEVC video capture
- Video Capture Formats: HDR10, HLG
- 4K HDR Video Capture with Portrait Mode (Bokeh)
- Multi-frame Noise Reduction (MFNR)

Audio

- Hexagon Voice Assistant Accelerator for hardware accelerated voice signal processing
- Qualcomm Aqstic™ audio codec (up to WCD9385)
  - Total Harmonic Distortion + Noise (THD+N), Playback: -108dB
  - Native DSD support, PCM up to 384 kHz/32-bit
  - Customizable "Golden Ears" filter
- Qualcomm Aqstic smart speaker amplifier (up to WSA8815)

Display

- Maximum On-Device Display Support:
  - FHD+ @ 120 Hz
- Maximum External Display Support:
  - QHD @ 60 Hz
- 10-bit color depth, Rec. 2020 color gamut
- HDR10

CPU

- Kryo 560, Octa-core CPU
  - Up to 2.0 GHz
  - 64-bit Architecture

Visual Subsystem

- Adreno 619L GPU
- Vulkan® 1.1 API support
- 4K HDR10 PQ and HLG Video Playback (10 bit color depth, Rec. 2020 color gamut)
- H.264 (AVC), H.265 (HEVC) VP8 and VP9 playback
- Physically Based Rendering
- API Support: OpenGL® ES 3.2, OpenCL™ 2.0 FP, Vulkan 1.1, DirectX 12

Security

- 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 Secure Camera, Crypto Engine, Malware Protection, Secure Boot, Secure Token

Charging

- Quick Charge 4+ technology

Location

- GPS, Glonass, BeiDou, Galileo, QZSS, NavIC, and SBAS
- Dual Frequency Support
- Low Power Geofencing and Tracking, Sensor-assisted Navigation
- Near Field Communications (NFC): Supported

General Specifications

- Memory Speed: up to 1866 MHz, 8 GB RAM
- Memory Type: 2 x 16-bit, LPDDR4x
- Near Field Communications (NFC) support
- DisplayPort over USB Type-C support
- 8 nm Process Technology
- Part Number: SM6350