Premium
to the core

Outstanding performance

Flagship photo and video

Remarkable intelligence

Snapdragon
8
Gen 5

Robust 5G and Wi-Fi 7

Expert-level gaming
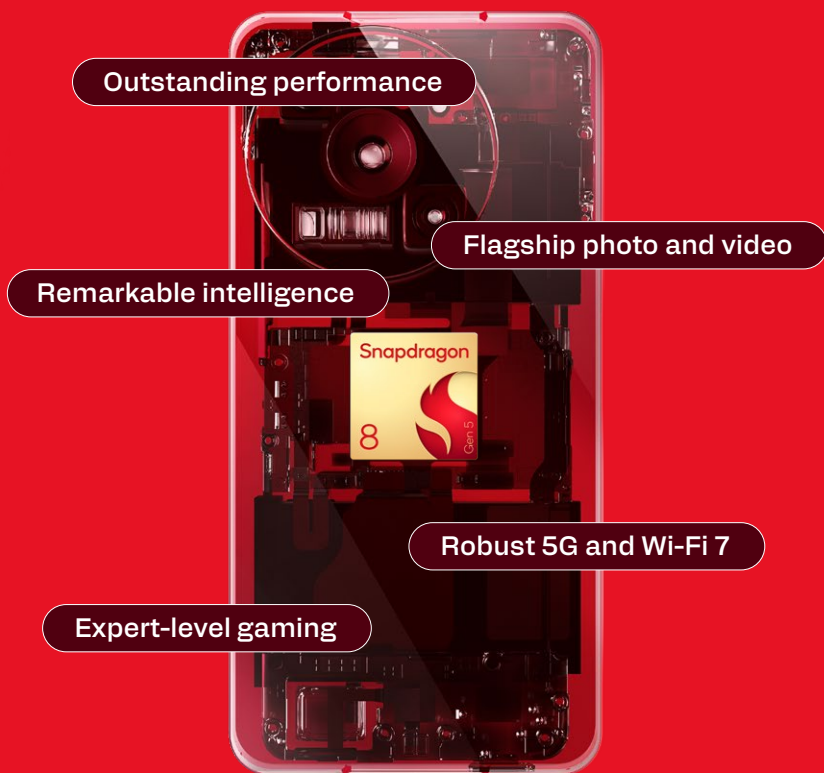
The Snapdragon® 8 Gen 5 Mobile Platform is premium to the core. Outstanding performance is yours to command with our custom-built Qualcomm Oryon™ CPU, supercharging expert-level gaming, remarkable agentic AI experiences, and flagship photography and videography features. Plus, robust 5G and Wi-Fi connections let you unleash creativity—whenever and wherever it strikes.

Outstanding performance

Premium means speed and efficiency with every interaction. Our Qualcomm Oryon CPU is built from the ground up, fueling peak speeds up to 3.8 GHz for fast and fluid flagship experiences. Our entire SoC works together in harmony to achieve gains across the system.

Engineered for what's next

Snapdragon 8 continues its legacy of innovation with unmatched flexibility, unstoppable performance, and innovation at its core.

36%
improved CPU performance

11%
improved GPU performance

46%
improved NPU performance

All comparisons made are in reference to previous generation, Snapdragon 8 Gen 3 Mobile Platform. Results will vary, depending on OEM implementation and other factors.

Remarkable intelligence

Our advanced Qualcomm® Hexagon™ NPU is designed for sustained performance and power efficiency, delivering intuitive AI experiences that empower you to create, discover, and explore. And now, with the Qualcomm® Sensing Hub capturing personal context, your agentic AI assistant is always ready to anticipate your needs.

Intelligence that adapts
Agentic AI learns from your routines and adapts to your preferences, shaping mobile experiences that feel more personal over time. From tailored suggestions to context-aware interactions, this platform takes personalization to a whole new level.

Look and talk
Interact with your device more naturally than ever. With multimodal AI activation, your intuitive assistant not only responds to your voice, but also movement like lifting your phone to speak—wake words no longer required.

Ideas in an instant
Compose, summarize, and brainstorm like never before. With support from the most popular generative AI models running directly on your device, draft emails, create images, or spark new ideas—instantly and securely.

Flagship photo & video

Capture authentic memories with an AI-powered camera that understands your photos and videos with real-time tone control to dynamically adjust skin, sky, and even vegetation—perfect for vivid nature shots. Plus, our Snapdragon® Audio Sense technology comes built-in, introducing audio zoom and wind noise reduction for crystal-clear videos—no external microphone required.

- 20-bit Triple AI ISP includes intelligent, context-aware autofocus, auto-white balance, and autoexposure for crisp details, sharp contrast, and authentic colors.
- Record action scenes anytime, anywhere, with Night Vision 3.0 for silky-smooth low-light video.

Expert-level gaming

Compete at your peak with powerful tools in your arsenal. Our newly architected Qualcomm® Adreno™ GPU dedicates memory to each slice, delivering smoother gameplay with longer battery life. Plus, experience next-level, multi-threaded performance fueled by the Qualcomm Oryon CPU and the full suite of Snapdragon Elite Gaming™ Features.

- Game Ready Drivers are tailored for the top mobile games, so consumers can dive into the action with superior performance right from the start—no need to adjust any settings.
- Auto Variable Rate Shading (VRS) intelligently optimizes GPU resources to boost performance and save power.
- Mesh Shading graphics technology enables an increase in geometric detail for efficient rendering of complex scenes.
- Qualcomm FPS 3.0 stabilization, optimization game scheduler, and power tuning all provide enhanced power savings.

Robust 5G & Wi-Fi 7

Experience the freedom of flagship connectivity. The Snapdragon® X80 5G Modem-RF System puts AI-powered 5G in your pocket, now with 6Rx and 6 channel support making every connection lightning-fast and reliable for conversing, streaming, or multiplayer gaming on the go. Plus, a highly integrated Qualcomm® FastConnect™ 7900 Mobile Connectivity System with 6nm architecture offers AI-optimized Wi-Fi 7 at speeds up to 5.8 Gbps with Bluetooth® 6.0 and UWB.

- 5G-advanced readiness supports download speeds up to 10 Gbps.
- Global support for DSDA yields up to 30% improved throughput.
- NB-NTN Satellite support for two-way messaging, even in the most remote locations.
- Game smoothly with up to 50% lower latency thanks to AI-enhanced Wi-Fi 7.

Performance
36% Improved CPU
11% Improved GPU
46% Improved AI

Gaming
Sliced Adreno GPU
Multi-threaded performance
Mesh Shading
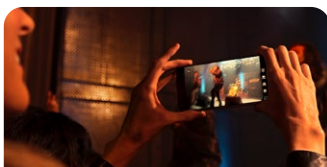Support for up to 165 FPS gaming experiences

Camera
Triple AI ISP
Snapdragon Audio Sense
Night Vision

AI
Agentic AI assistants
Multimodal AI activation
Sensing Hub

Power Efficiency
42% CPU power savings
28% GPU power savings
13% overall SoC power savings

Connectivity
5G Modem-RF System
FastConnect Mobile Connectivity System
Bluetooth 6.0 technology

Comparisons are made to previous generation.

Specs & Features

Artificial Intelligence

Qualcomm® AI Engine

Qualcomm® Adreno™ GPU

Qualcomm Oryon™ CPU with hardware matrix acceleration

Qualcomm® Hexagon™ NPU
- Fused AI accelerator architecture
- 6 scalar + 8 vector + 1 accelerator configuration
- Hexagon Direct Link
- Micro Tile Inferencing
- 64-bit memory virtualization
- Support for INT2, INT4, INT8, INT16, FP8, FP16 precisions, including mix precision
- Support for Gen AI model encryption for extra security

Qualcomm® Sensing Hub
- Dual Micro NPUs for audio, voice, and sensors
- Dual Always-Sensing ISPs to support two concurrent always-sensing cameras
- Support for INT4, INT8, INT16 precision

AI software
- Qualcomm AI Stack

5G Modem-RF System

Snapdragon® X80 5G Modem-RF System
- 5G-advanced, 5G mmWave, and sub-6 GHz, 5G standalone (SA) and non-standalone (NSA) modes, standalone mmWave and mmWave-sub-6 dual connectivity, FDD, TDD

Downlink: Up to 10 Gbps

Uplink: Up to 3.5 Gbps

mmWave: 8 carriers, 2x2 MIMO
- Sub-6 GHz: 4x6 MIMO

Qualcomm® 5G AI Suite Gen 3 includes:
- AI-enhanced performance improvements in power handling, coverage, latency, and QoS
- AI-assisted mmWave beam management
- AI-based GNSS Location Gen 3
- Qualcomm® 5G AI Processor Gen 2 with dedicated tensor hardware accelerator
- Qualcomm® 5G PowerSave Gen 5
- Fully integrated satellite with NB-NTN support
- Qualcomm® Smart Transmit™ Gen 5 technology with satellite support
- Switched uplink (TDD and FDD)
- Qualcomm® Power RF Efficiency Suite
- Global 5G multi-SIM, including Qualcomm DSDA Gen 2 with dual-data

3GPP Release 18 support

6xCA Downlink

6-antenna support (6 Rx for 4x6 MIMO)

Multimode support: 5G NR, NR-DC, EN-DC, LTE, CBRS, WCDMA, LAA, GSM/EDGE, Dynamic Spectrum Sharing (DSS)

Wi-Fi, Bluetooth®, & UWB

Qualcomm® FastConnect™ 7900 Mobile Connectivity System
- Wi-Fi Generation: Wi-Fi 7
- Peak Speed: 5.8 Gbps
- 802.11be, 802.11ax, 802.11ac, 802.11a/b/g/n
- Wi-Fi Spectral Bands: 6 Ghz, 5 GHz, 2.4 GHz
- Channel Bandwidth: 320/240/160/80/40/20 MHz
- Features: AI-enhanced Wi-Fi, 4K QAM, High Band Simultaneous (HBS) Multi-Link
- Wi-Fi Security: WPA3-Enterprise, WPA3-Enhanced Open, WPA3 Easy Connect, WPA3-Personal

Integrated Bluetooth
- Bluetooth 6.0, LE Audio, Bluetooth Channel Sounding

Integrated Ultra Wideband (UWB)
- IEEE 802.15.4z, FiRA, CCC

Audio

Snapdragon Sound™ Technology Suite:
- Qualcomm® aptX™ Adaptive and aptX Lossless audio
- Qualcomm® Expanded Personal Area Network (XPAN) technology
- Qualcomm Aqstic Speaker Max: Total Harmonic Distortion + Noise (THD+N)
- Playback: -108 dB
- Qualcomm® Audio and Voice Communication Suite
- Spatial audio with head-tracking
- Qualcomm Closed Loop Smart Haptics

Display

On-Device Display Support
- 4K+ @ 120 Hz
- QHD+ @ 240 Hz

Maximum External Display Support
- Up to 4K @ 120 Hz
- Up to 8K @ 30 Hz

Scaling and Detail Enhancement
- 10-bit color depth, Rec. 2020 color gamut
- HDR10, HDR10+, HDR vivid, and Dolby Vision HDR
- Display Uniformity Correction
- Display Aging Compensation

CPU

Custom-built Qualcomm Oryon CPU
- 2 Prime cores, up to 3.8 GHz, 4 MB L2 cache
- 6 Performance cores, up to 3.32 GHz, 12 MB L2 cache

Camera

Qualcomm Spectra™ Image Signal Processor
- Triple 20-bit AI-ISPs

Engine for Visual Analytics (EVA) 5.0 with significant quality improvement in local motion estimation (optical flow)

Support for the latest HDR, LOFIC, DCG+VS, DCG, Staggered, QDOL, Less Blanking, and Multi-Frame HDR image sensors

Support for triple video capture from HDR image sensors, with seamless switching between any HDR mode
- Up to 48 MP triple camera @ 30 FPS with Zero Shutter Lag
- Up to 108 MP single camera @ 30 FPS with Zero Shutter Lag
- Up to 320-megapixel photo capture

Context-Aware 3As (autofocus, autoexposure, and auto-white balance)

Snapdragon® Audio Sense

Rec. 2020 color gamut photo and video capture

Up to 10-bit color depth photo and video capture

10-bit HEIF: HEIC photo capture, HEVC video capture

Google Ultra HDR photo capture

Video capture HDR formats: HDR10+, HDR10, HLG, Dolby Vision

8K HDR video playback @ 30 FPS

4K video capture @ 120 FPS

Slow-mo video at 1080p @ 480 FPS

Night Vision 3.0 low-light video capture

Video super resolution

Massive Multi-Frame Noise Reduction with AI

AI Video Processing
- Enhanced AI video segmentation @ 4K60 FPS
- Real-time AI skin and sky tone adjustments in 4K60 FPS

Truepic photo capture with C2PA-compliant certificate authority

Visual Subsystem

Adreno GPU
- Real-time Hardware-Accelerated Ray Tracing with Global Illumination
- Support for Unreal Engine 5
- Snapdragon Adaptive Game Configuration
- Snapdragon Game Super Resolution
- Adreno Frame Motion Engine 2.1
- Snapdragon Game Post Processing Accelerator
- HDR gaming (10-bit color depth, Rec. 2020 color gamut)
- Snapdragon Shadow Denoiser
- API support: OpenGL® ES 3.2, OpenCL™ 3.0 FP, Vulkan® 1.3
- Hardware-accelerated H.265, VP9, AV1 decoder
- HDR Playback Codec support for HDR10+, HDR10, HLG, and Dolby Vision

Security

Trust Management Engine (Root of Trust)

Qualcomm® Trusted Execution Environment (TEE)

Qualcomm® Type-1 Hypervisor for isolation from the high-level OS

Qualcomm® 3D Sonic Sensor and Qualcomm 3D Sonic Max (fingerprint sensor)

C2PA support for media provenance attestation

Enhanced AI processing isolation and model protection

Location

Concurrent GPS, Glonass, BeiDou, Galileo, QZSS, NavIC

Triple frequency GNSS (L1/L2C/L5)

AI-based GNSS Location Gen 3

Sensor-Assisted Positioning 6.0

Urban pedestrian navigation with sidewalk accuracy

Global freeway lane-level vehicle navigation

Charging

Qualcomm® Quick Charge™ 5 Technology

Memory

Support for LP-DDR5x memory, up to 4800 MHz

Memory Density: Up to 24 GB

General Specifications

Snapdragon Elite Gaming™ Features

3nm Process Technology

USB Version 3.1 Gen 2; USB Type-C Support

Storage: UFS 4.1

Part Number: SM8845