# QUALCOMM® SNAPDRAGON™

# 820

## PROCESSOR

## Enabling a more immersive, intuitive and connected experience

**The Snapdragon 820 mobile processor offers many advantages:**

+ X12 LTE: Industry leading connectivity with LTE download speeds of up to 600 Mbps, multi-gigabit 802.11ad, and 2x2 802.11ac Wi-Fi

+ New Qualcomm® Kryo™ CPU: Delivering maximum performance and low power consumption, Kryo is QTI's first custom 64-bit quad-core CPU, manufactured in advanced 14nm FinFET LPP process

+ New Qualcomm® Adreno™ 530 GPU: Up to 40% better graphics and compute performance for improved visual fidelity while reducing power consumption

+ Qualcomm Spectra™ 14-bit dual image signal processors (ISPs) deliver high resolution DSLR-quality images using heterogeneous compute for advanced processing and additional power savings

+ New Qualcomm® Hexagon™ 680 DSP includes Hexagon Vector eXtensions (HVX) and Sensor Core with Low Power Island for always-on sensor processing

+ New Touch-To-Track: Recognize and track multiple objects on screen using advanced computer vision

**To learn more visit:**
**snapdragon.com** or **mydragonboard.org**

## FEATURING THE LATEST IN MOBILE TECHNOLOGY

### Sharper, higher quality images

Qualcomm Spectra 14-bit dual image signal processors tap into the enhanced performance and feature enhancements Hexagon 680 DSP's HVX performance adds, with amazing features like Low Light Photo and Video, and Touch-to-Track
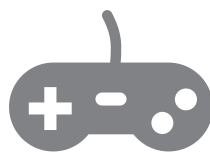
### Immersive, life-like virtual reality

Experience realistic visual and audio immersion and smooth VR action enabled by Snapdragon 820's heterogeneous compute platform, designed for high performance and optimized for long battery life

### Next-generation computer vision

Drive more safely with object detection and enhanced navigation. Enhance your smartphone camera capability with features that can track faces and objects for a more intelligent mobile experience.
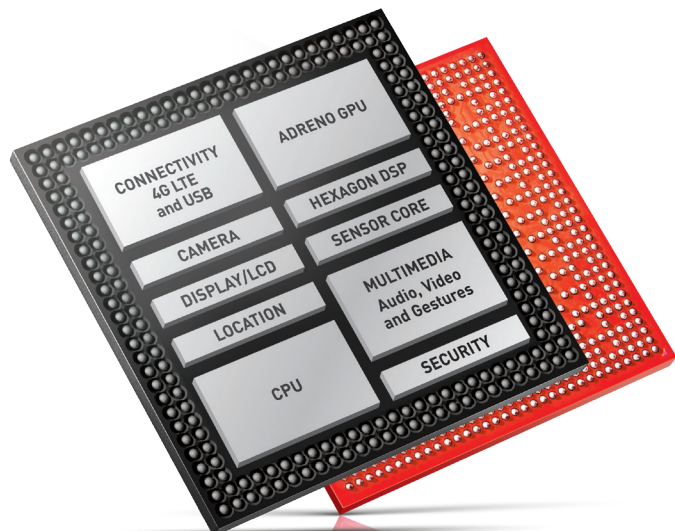
### Deeply immersive 3D gaming

The combination of Snapdragon 820's Adreno 530 GPU and Kryo CPU creates enough compute performance to enable console quality games and exciting, next generation virtual reality applications.

### All day battery life and faster charging

Snapdragon 820 lowers power consumption by 30% over previous generation plus charge a typical phone from zero to 80 percent in about 35 minutes, with Qualcomm® Quick Charge™ 3.0 technology.

## Qualcomm snapdragon

# Snapdragon 820 processors. Enabling a more connected, immersive and intelligent all day experience.

## FEATURES & SPECIFICATIONS[3]

### CPU

+ Custom 64-bit Kryo quad-core CPU up to 2.2GHz
+ 14nm FinFET process technology

### GPU

+ Adreno 530 GPU: OpenGL ES 3.1 + AEP[1], OpenCL2.0 Full1, Vulcan[1], Renderscript, 64-bit virtual addressing DirectX 11.2, plus hardware tessellation, geometry shaders, programmable blending and decreased power consumption[2]

### DSP

+ Hexagon 680 DSP with Hexagon Vector eXtensions and Low Power Island for sensor processing

### Display

+ 4k60 FPS decode 10-bit 4k60 FPS over HDMI 2.0 4k60 Miracast 2.0 streaming HEVC 10-bit and VP9 decode Direct Stream Video for Wireless Display
+ 3:1 Frame Buffer Compression ratio

### Memory

+ LPDDR4
+ UFS 2.0—Gear 3 storage
+ Universal Bandwidth Compression

### Modem

+ Integrated X12 LTE modem, supporting Cat 12 download speeds up to 600 Mbps, Cat 13 upload speeds up to 150 Mbps
+ Snapdragon All Mode with support for LTE FDD and TDD, WCDMA (DB-DC-HSDPA, DC-HSUPA), TD-SCDMA, CDMA 1x/EVDO, and GSM/Edge
+ Support for 256-QAM DL, 64-QAM UL, and 4x4 MIMO
+ Support for Ultra HD Voice with the Enhanced Voice Services (EVS) codec
+ Smart Wi-Fi calling with real-time Wi-Fi quality monitoring
+ Support for Qualcomm® TruSignal™ antenna boost technology
+ LTE-U support
+ Next Gen QFE3100 Envelope Tracking

### Connectivity

+ Qualcomm® VIVE™ 802.11ac 2x2 MU-MIMO
+ Tri-band Wi-Fi
+ QCA9500 802.11ad 60GHz WiFi

### Camera

+ Dual ISPs can support up to 28MP@30fps and 1.2GP/sec throughput

### Charging

+ Quick Charge 3.0

### Security

+ Qualcomm® SecureMSM™ foundation
+ Qualcomm® Snapdragon™ Smart Protect
+ Qualcomm® Snapdragon Sense™ ID fingerprint technology
+ Qualcomm® Snapdragon StudioAccess™ content protection

### Multimedia

+ 10-bit 4K decode
+ 1080p240 FPS decode
+ 4K HEVC video (Decode: 60 fps, 10-bit. Encode: 30 fps)
+ Simultaneous 1080p30+1080p30 inbound/outbound

**Qualcomm® snapdragon™**