Enabling a more immersive, intuitive and connected experience.

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

- **New X12 LTE:** Industry leading connectivity with LTE download speeds of up to 600 Mbps and multi-gigabit 802.11ad 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:** Up to 40% better graphics and compute performance with the Adreno 530 GPU
- **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 Hexagon 680 DSP includes Hexagon Vector eXtensions and Sensor Core with Low Power Island for always-on sensor processing
- **New Qualcomm® Adreno Visual Display Processing delivers graphics, visual and display enhancements that improve overall visual fidelity while reducing power consumption
- **New Touch-To-Track:** Recognize and track multiple objects on screen using advanced computer vision

### Capturing quality images

- **Qualcomm’s Spectra 14-bit dual image signal processors** tap into the enhanced performance and feature enhancements that Hexagon 680 DSP’s HVX performance adds with amazing features like Low Light Photo and Video and Touch-to-Track where ISP and DSP work intelligently together to enhance imaging as well as track movements and improve zoom.

### 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 and 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 easier, 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.

To learn more visit: [snapdragon.com](http://snapdragon.com) or [mydragonboard.org](http://mydragonboard.org)
As of Nov 1, 2015, Snapdragon 820 has been conformance certified by Khronos for OpenCL™ 2.0, and is expected to be certified for OpenGL® ES 3.1. Conformance criteria for Vulkan™ Specifications have not yet been established. Snapdragon 820 is intended to support this standard.

As compared to its predecessor, the Adreno 430 GPU in the Snapdragon 810 processor.

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

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

### FEATURES & SPECIFICATIONS

#### CPU
- Custom 64-bit Kryo quad-core CPU in 14nm FinFET, with SoC Virtualization

#### GPU
- Adreno 530 GPU: OpenGL ES 3.1 + AEP, OpenGL2.0 Full, Vulkan, Rendscript, 64-bit virtual addressing DirectX 11.2, plus hardware tessellation, geometry shaders, programmable blending and decreased power consumption

#### DSP
- Qualcomm® 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 & Storage
- LPDDR4
- UFS 2.0—Gear 3 storage
- Universal Bandwidth Compression

#### Modem
- Integrated X12 LTE, with Global Mode supporting LTE FDD and TDD, WCDMA (DB-DC-HSUPA, DC-HSUPA), TD-SCDMA, CDMA 1x/EVDO, and GSM/Edge
- Cat 12 download: up to 600 Mbps via 3x carrier aggregation and 256-QAM, up to 4x4 MIMO on one carrier
- Cat 13 upload: up to 150 Mbps via 2x carrier aggregation and 64-QAM
- Support for LTE in unlicensed spectrum (LTE-U) when paired with WTR3950
- Support for enhanced HD Voice and Video calling over Wi-Fi, with real-time Wi-Fi quality monitoring

#### 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 at 60FPS with 10-bit color
- Simultaneous 1080p30+1080p30 inbounds/outbounds
- WCD9335 audio codec
- Hi-Fi 24bit/192kHz FLAC playback

#### Connectivity
- QCA9500 802.11ad 60GHz WiFi
- 1st WTR3950 LTE-U support
- Next Gen QFE3100 Envelope Tracking

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