

Qualcomm®  
Snapdragon™  
**S820A**  
Automotive Platform

The industry's first  
automotive grade SoC  
with integrated X12 LTE modem

### Offering many advantages

- Automotive heterogeneous compute processor with machine learning and optional integrated super-fast LTE Advanced connectivity
- Completely new custom 64-bit Kryo™ CPU architecture – high performance with support for ARM V8/Hypervisor
- Qualcomm® Adreno™ 530 GPU with improved performance for advanced graphics and 4K resolution
- Support for multiple camera sensors and and high-resolution 4K displays
- Cognitive computing and computer vision support real-time recognition of potential hazards on the road
- Scalable, integrated platforms that allow better instrumentation with driver assistance and navigation
- Local connectivity solutions including Bluetooth and WiFi
- Optional integrated modem providing X12 LTE connectivity
- Location Services with GNSS
- Support for Automotive Grade Linux



### Connected

The convenience of continuous secure connectivity in your vehicle linking local devices, the cloud, and WiFi via the available X12 LTE modem - which integrates the most advanced 4G LTE technologies announced in an SoC.



### Smart

The interconnected systems securely and safely enable intuitive and personalized behavior amongst all of your personal devices and your auto. Narrowing the gap between mobile experience and the connected auto experience.



### Aware

Vehicle sensor integration provides cognitive awareness for driver assistance using Machine Learning and HVX-computer vision engine, location navigation using Global Navigation Satellite System (GNSS), and dead reckoning.

To learn more visit:  
[snapdragon.com/820a](http://snapdragon.com/820a)

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# Qualcomm® Snapdragon™ 820A Automotive Platform.

Enabling a more connected, immersive  
and intelligent automotive experience.

## Features & Specifications

### CPU

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

### GPU

- Adreno 530 GPU: Open GL ES 3.1+ AEP, OpenCL2.0 Full, Vulkan, Renderscript, 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
- Large SIMD extensions with 1024 bit SIMD \* 4 vector slot VLIW
- Power optimized solution for Vision and neural processing based ADAS features

### Display

- Up to 4K resolution supporting multiple touchscreen displays
- 4K 60 fps display over HDMI 2.0
- Up to 4K Miracast 2.0 streaming to rear seat entertainment displays
- 3:1 frame buffer compression ratio

### Memory & Storage

- LPDDR4
- UFS 2.0—Gear 3 storage
- End-to end universal Bandwidth Compression

### Modem

- Optional integrated X12 LTE, with Global Mode supporting LTE FDD and TDD, WCDMA (DB-DC-HSDPA, DC-HSUPA), TD-SCDMA, CDMA 1x/EVDO, and GSM/Edge
- Cat 12 download: supports 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

### Cameras and sensors

- Support for up to 8 simultaneous camera sensor inputs

### Location

- Qualcomm iZat Gen8c
- GPS, Glonass, BDS, Galileo
- SBAS & QZSS
- Dead Reckoning

### Security

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

### Multimedia

- 10-bit 4K decode
- Up to 4 concurrent 1080p60 decodes
- 4K HEVC video at 60FPS with 10-bit color
- 4Kp60 decode with concurrent 4Kp30 encode
- Hi-Fi 24bit/192kHz FLAC playback

### Connectivity

- QCA6574
- Fully integrated chipset solution with QCA6547 supporting 2x2 WiFi + BT 4.1
- Integrated GNSS for global positioning

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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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