

QUALCOMM®
SNAPDRAGON™

820A

AUTOMOTIVE
PROCESSOR

Industry's first automotive
grade SoC with integrated
X12 LTE modem

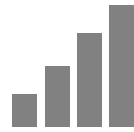
**The Snapdragon 820AU processor offers
many advantages:**

- + Optional integrated super-fast LTE
Advanced connectivity
- + Automotive heterogeneous compute
processor with machine learning
- + 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 high-resolution 4K displays
- + Zeroth Machine Intelligence Platform
supporting cognitive computing and
computer vision for real-time recognition
of potential hazards on the road
- + Scalable platforms allowing integrated
driver assistance features such as
turn-by-turn navigation overlaid on live
camera data
- + Local connectivity solutions including
Bluetooth, WiFi and AllJoyn
- + Location Services with the
Qualcomm IZat™ 8th generation GNSS
engine

To learn more visit:

qualcomm.com/802a

*S820Am includes optional integrated X12 LTE modem
Qualcomm Snapdragon, Qualcomm Hexagon, Qualcomm Adreno, Qualcomm IZat are products of Qualcomm Technologies, Inc. Qualcomm Reference Design is a program of
Qualcomm Technologies, Inc.



Connected

The convenience of continuous secure Wi-Fi connectivity in your vehicle via the available X12 LTE modem - which integrates the most advanced 4G LTE technologies.



Smart

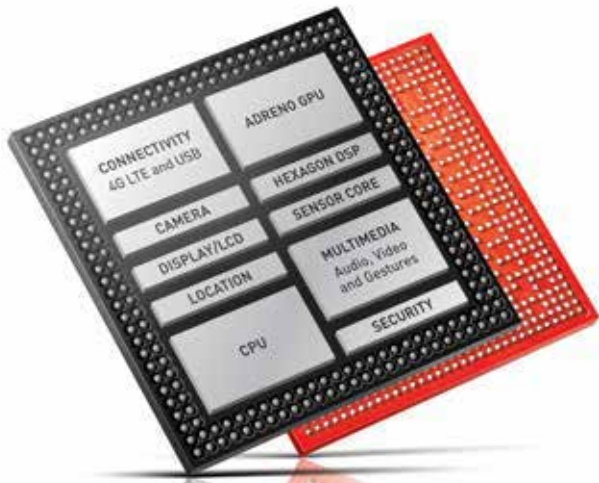
The interconnected systems securely and safely enable intuitive and personalized interaction between all brought-in personal devices and your car. Narrowing the gap between mobile experience and the connected auto experience.



Aware

Vehicle sensor integration provides cognitive awareness for driver assistance using Zeroth Machine Learning Platform and HVX-computer vision engine, location navigation using integrated GNSS and automotive dead reckoning.

Qualcomm®
snapdragon 



Qualcomm Snapdragon 820A processors. Supporting 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
- + EFS
- + UFS 2.0—Gear 3 storage
- + End-to-end universal Bandwidth Compression (UBWC)

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

- + Fully integrated chipset solution with QCA6574 supporting 2-stream 11ac Wi-Fi + BT 4.1
- + Integrated GNSS for global positioning



¹As 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.

²As compared to its predecessor, the Adreno 430 GPU in the Snapdragon 810 processor.

³Certain optional features available subject to Carrier and OEM selection for an additional fee.

Qualcomm Hexagon, Qualcomm RF360, Qualcomm Snapdragon StudioAccess and Qualcomm SecureMSM are products of Qualcomm Technologies, Inc. Qualcomm VIVE and Qualcomm IZat are products of Qualcomm Atheros, Inc.

©2015 Qualcomm Technologies, Inc. All Rights Reserved. Qualcomm, Snapdragon, SecureMSM, Hexagon, WiPower, VIVE, and Adreno are trademarks of Qualcomm Incorporated, registered in the United States and other countries. Snapdragon StudioAccess, Quick Charge, Qualcomm RF360, and IZat are trademarks of Qualcomm Incorporated. All Qualcomm Incorporated trademarks are used with permission. Other products and brand names may be trademarks or registered trademarks of their respective owners.