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Qualcomm Technologies is the largest wireless semiconductor company in the world

15 Billion+

Qualcomm Technologies devices shipped globally

Trusted

Qualcomm Technologies powers telematics in millions of cars worldwide, from every major auto OEM

IT'S A NEW ROAD.

For close to 30 years, Qualcomm has been leading the mobile revolution.

And now, Qualcomm® Snapdragon™ Automotive Solutions are transforming the in-car experience, delivering the underlying technology that will allow automakers and their suppliers to enable the next generation of connected car capabilities and services. This suite of products brings a seamlessly connected world into the car, empowering a new vision behind the wheel, and beyond.

ADVANCING TELEMATICS FOR TOMORROW, TODAY.

As today's consumers become more and more connected, they also expect more connectivity from the in-car experience. From safety benefits and convenience to infotainment and personalization, Snapdragon Automotive Solutions deliver with in-car telematics.

Qualcomm® Snapdragon™ X12 & X5 LTE modems:

- **4G LTE-A CAT 10* with carrier aggregation**
- **LTE Broadcast (eMBMS)**
- **VoLTE**
- **Integrated GNSS**
- **Dedicated processor**
- **Backwards compatibility with 3G/2G**
- **Connectivity companion chip supports Wi-Fi/Bluetooth and DSRC**

All major 4G/3G/2G cellular standards

LTE FDD, LTE TDD, WCDMA (DC-HSPA+, DC-HSUPA), TD-SCDMA, EV-DO, CDMA 1x, GSM/EDGE

Major RF bands and band combinations for global

On-chip integration of global positioning (GNSS) for all major constellations including GPS, BeiDou, GLONASS and Galileo

Dedicated 1.2GHz processor running Linux to support Wi-Fi Hotspot, DSRC, and key global regulatory safety mandates like EU eCall and ERA GLONASS

Interworking with a companion Qualcomm® VIVE™ QCA65x4 chip to support Wi-Fi 802.11ac Hotspots, DSRC, and Bluetooth 4.1

The integration of the LTE modem platform with GNSS, Applications Processing along with Wi-Fi, DSRC and Bluetooth supports safety applications like vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I), vehicle-to-pedestrian (V2P) and vehicle-to-cloud (V2C)

*Snapdragon X12 chip only

Qualcomm VIVE is a product of Qualcomm Atheros, Inc.

~60% of new cars shipped in 2017 will be connected through mobile technology

SNAPDRAGON LETS YOU IMMERSE YOURSELF.

Today's consumers want rich, connected experiences, and that extends to in-vehicle access to all their content. Snapdragon Automotive Solutions make it all possible.

Snapdragon LTE modems, Wi-Fi, and Bluetooth technologies are turning cars into mobile hotspots. Always-on connections between mobile broadband networks, in-car infotainment systems, and brought-in mobile devices are making the time in the car more safe, entertaining, and interactive.

An integrated hardware and software platform built for automotive, Snapdragon Automotive Solutions provide connectivity and multimedia features for **information virtually anywhere, and entertainment everywhere**.

EXPERIENCE MORE ON THE ROAD.

IN-CAR 4G-LTE-ENABLED WI-FI HOTSPOT
Always-on internet connectivity plus content sharing and communication between devices.

MULTIPLE TOUCHSCREEN DISPLAYS
HD video and high-quality graphics for browsing, music and rear-seat entertainment.

CONNECTED NAVIGATION
Enhanced 2D and 3D map navigation with GNSS-enabled position-location services.

OPTIMIZED CPU
Powerful processor designed to create new immersive in-vehicle experiences.

VOICE RECOGNITION
Advanced voice recognition with low-power listening "wakes up" and performs tasks when specific words are spoken.

MEDIA STREAMING SERVICES
4G LTE speeds for streaming audio, video and other cloud-based content.

WIRELESS DEVICE CHARGING
Qualcomm® WiPower™ wireless technology can charge multiple devices simultaneously and easily.

FACIAL AND DEVICE RECOGNITION
Customizable media and automatic seat, mirror, and window adjustment, based on smartphone or facial recognition.

SURROUND VIEW FOR ENVIRONMENT MAPPING
Multiple camera support with HD image capture and stitching delivers a 360-degree view.

SAFETY AND SECURITY SERVICES
Stolen vehicle tracking, remote door unlock, vehicle diagnostics, and distracted driver alerts are just part of the story.

EMERGENCY ASSISTANCE
Support for EU eCall/ERA GLONASS to meet global regulatory safety mandates.

Qualcomm WiPower is a product of Qualcomm Technologies, Inc.

SAFETY FIRST.
FIRST IN SAFETY.

Snapdragon Automotive Solutions are helping to keep people connected *and* safe, wherever the road may go.

HANDS-FREE COMMUNICATION is fully integrated with telematics, Bluetooth and Wi-Fi. Voice activation, real-time 3D navigation, and cloud-based services and content delivery keep hands on the wheel and eyes on the road.

ENHANCED DRIVER ASSISTANCE FEATURES include advanced forward and rear vision camera processing, 360-degree surround view, gesture control, and sensor processing that measures driver performance and provides alerts for impaired driving.

COLLISION AVOIDANCE SYSTEMS enabled by vehicle-to-vehicle and vehicle-to-pedestrian communications, like DSRC, offer safety benefits for drivers, passengers and everyone who shares the road.

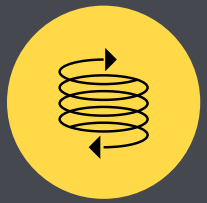
REAL-TIME VEHICLE DIAGNOSTICS, location tracking, and automatic emergency call systems provide drivers with real peace of mind.

Dedicated short-range communications (DSRC) are expected to soon be mandated by the National Highway Traffic Safety Administration (NHTSA) for all vehicles in the US.

73% of drivers consider safety and diagnostic features among the most important.

A NEW PERSPECTIVE.

3D navigation and 360-degree surround-view driver assistance



Now see it all with driver assistance, courtesy of the Qualcomm® Snapdragon™ 602A processor.

Today, drivers are accustomed to getting directions at the touch of a button, but in the connected car, high-quality 2D and 3D maps—viewable either on the center console infotainment screen or in the cluster display—take navigation assistance to a new level.

Powered by the Qualcomm® IZat™ GNSS engine and supported by multiple constellations, the 3D navigation system pinpoints location, and offers context like never before. Images of the route are captured, rendered, processed and filtered, generating an overlay for the 3D map, leaving difficult lane changes and collisions far behind.

Parking comes with a view, too. A 360-degree real-time aerial picture means there's no twisting or stepping out of the car to check the curb and other bumpers.

Multiple cameras outfitted with ultra-wide-angle lenses capture fields of view from around the car. The GPU, designed to support continuous image capturing at 30 fps, processes all the independent HD images, while camera aggregation software unwarps each frame from the original view, stitching together a complete image, with a top-view perspective. The post-processing also includes blending and color correction for a clear, reliable picture. This computationally intensive process results in a seamless, finished product, and unprecedented support for any parking situation.

Qualcomm IZat is a product of Qualcomm Atheros, Inc.

AHEAD OF THE CURVE.

Safety for the road and beyond

"V2V crash avoidance technology has game-changing potential to significantly reduce the number of crashes, injuries and deaths on our nation's roads."

Anthony Foxx,
US Transportation Secretary

The road looks different up ahead. With a network of cameras, sensors, and technology, today's connected car is always thinking, helping to prevent accidents and saving lives.

Imagine a car that warns a distracted driver whose gaze wanders for more than a few seconds. Or consider a gesture sensing camera that offers music control with the wave of a hand. Collision avoidance, adaptive cruise control, and automated braking and lighting are all making driving safer for everyone on the road.

With LIDAR (light detection and ranging), drivers receive forward-facing collision warnings up to 50 meters in advance. A set of ultrasonic and optical sensors near each side mirror sees pedestrians, cyclists, and obstacles in blind spots. The rear-view camera provides an unobstructed view of what's coming up from behind. And a strip of LEDs on the windshield keeps drivers focused on the road, alerting them to what's up ahead.

Dedicated short-range communications (DSRC) and V2X technology are taking advanced driver assistance systems (ADAS) technology even further, revolutionizing the road, and enabling safer, better driving. The two-way wireless communications technology allows cars to exchange data about speed and position 10 times a second. Now, drivers and their cars can distinguish and react to pets, people, hazards on the road, and even traffic signals.

Snapdragon Automotive Solutions support these safety applications with a seamless combination of Wi-Fi, DSRC, and LTE.

51% of US drivers
will pay up to $1499 to add tech features

AN INTEGRATED APPROACH FOR AUTOMOTIVE.

As a leader in wireless technology, Qualcomm Technologies is uniquely positioned to offer unparalleled insight to the automotive industry. Through close collaboration with automakers, Qualcomm Technologies works to future-proof the car of tomorrow, developing fully integrated products and solutions that incorporate the most advanced technology available.

COMPLIANCE
Qualcomm Technologies has strong relationships with standards and regulatory bodies, ensuring compliance with evolving government regulations.

REVENUES
Snapdragon Automotive Solutions help auto manufacturers and suppliers achieve higher revenues and lower costs.

DEPLOYMENT
Global solutions facilitate easy development and faster time-to-launch for automakers.

OPPORTUNITY
Snapdragon Automotive Solutions help OEMs and after-market service providers deliver innovative products, enhance safety, and improve vehicle maintenance.

SNAPDRAGON AUTOMOTIVE SOLUTIONS. BRINGING CONNECTED CARS TO LIFE.

Snapdragon Automotive Solutions provide a first-hand glimpse of the future of the connected car. The results are delivered through in-car ecosystems that give these machines an entirely new dimension.

Today, there are tens of millions of connected vehicles in operation globally from over fifteen leading automotive manufacturers and, moving forward, only Qualcomm Technologies has the scale and expertise to continue to fulfill the needs of the automotive industry.

Wherever you're going, Snapdragon Automotive Solutions will change how you get there.

TO LEARN MORE, VISIT SNAPDRAGON.COM/AUTOMOTIVE

By 2018

one in five cars on the road will be self-aware

39%

of car buyers consider in-vehicle technology as the top selling point

69%

of drivers want to access car diagnostics as easily as checking a phone or tablet

At the heart of devices you love

snapdragon.com/automotive

Sources: Qualcomm Incorporated data; ABI, 2013; Telefonica, Jan. 2014; Gartner, Jan. 2014; Accenture, Dec. 2013