QUALCOMM® SNAPDRAGON™ AUTOMOTIVE SOLUTIONS
FOR CONNECTED AUTOMOTIVE INFOTAINMENT

Snapdragon Automotive Solutions build on Qualcomm Technologies' technology leadership in wireless communications, location determination, and voice and multimedia processing to bring to the consumer's car the same Snapdragon enabled experience found in their favorite mobile devices. Snapdragon Automotive Solutions integrate multiple technologies that enable automakers and their suppliers to readily create feature rich connected infotainment solutions.

TRANSFORMING THE IN-CAR EXPERIENCE

Snapdragon Automotive Solutions include the new automotive grade Qualcomm® Snapdragon™ 602A processor, Qualcomm® Gobi™ 3G/4G LTE wireless modems and Qualcomm® VIVE™ Wi-Fi® and Bluetooth technologies, to enable automakers and their suppliers to readily create new, breakthrough connected infotainment capabilities and services. Building on more than a decade of success with Gobi modems that enable connected car services in more than 10 million vehicles globally, Snapdragon Automotive Solutions bring the leading edge capabilities that power many of today's top smartphone and tablet experiences to the car.

OPTIMIZED FOR AUTOMOTIVE

Snapdragon Automotive Solutions are purpose-built for automotive applications.

Snapdragon Automotive Solutions feature pre-integrated support for Android and QNX operating systems with automotive-specific optimizations and integrated application frameworks that enable automakers to build connected infotainment systems compliant with automotive requirements for fast boot of critical services. In addition, Snapdragon Automotive Solutions offers power and performance optimized graphics, audio and video frameworks, as well as dual mode support for 802.11, Miracast, and automotive Bluetooth profiles such as A2DP, AVRCP, HFP, PBAP and MAP. The platform is designed to interoperate with consumer devices from leading smartphone and tablet ecosystems to deliver the right blend of in-car integrated infotainment with brought-in experiences Use of this production quality, optimized software supporting BSPs, OSs, stacks and frameworks enables infotainment system integrators to significantly reduce software development time and risk and begin final production software qualification earlier.

USER EXPERIENCES

Snapdragon Automotive Solutions are tightly integrated and have the capabilities that enable infotainment system integrators to deliver next generation connected infotainment features and experiences.

+ Cloud-based content access and streaming
+ In-vehicle high speed Wi-Fi hotspot for multiple consumer devices
+ Enhanced 3D navigation and GNSS-enabled location-based services
+ High-resolution sophisticated graphics and HMIs
+ Optimized graphic and user interfaces
+ High-quality audio processing and full surround sound
+ High resolution video
+ Mobile device screen sharing
+ Hands free telephony
+ Multiple HD screen entertainment
+ Rear seat 3D gaming
+ Multi-camera technology
+ Natural voice recognition
+ Facial processing
+ Gesture recognition
+ Multiple OS support

SNAPDRAGON AUTOMOTIVE DEVELOPMENT PLATFORM

In conjunction with the Snapdragon Automotive Solutions, Qualcomm Technologies offers the Snapdragon Automotive Development Platform. The platform enables development and demonstration of a wide range of connected infotainment use cases on a highly integrated, optimized hardware platform that offers support for both Android and QNX software environments, and allows automakers, tier-1 suppliers and application developers to rapidly develop, test and deploy next generation connected infotainment solutions. Commercial sampling is anticipated to begin in Q1 2014.

Snapdragon Automotive Solution: Builds on 10+ years of 3G/4G LTE Telematics experience to bring Connected Infotainment to the car.

Gobi™ 9x15 2G/3G/4G LTE	**Snapdragon™** 602A Processor CPU, GPU, DSP Multimedia OS: QNX™, Android	**VIVE™** Wi-Fi/ Bluetooth	**PMIC**	**IZAT™** Location/ GNSS

Snapdragon™ Automotive Development Platform

FEATURES

Qualcomm® Snapdragon™ 602A Automotive-Grade Processor

Process Node
+ 28nm LP
+ Lidded 23 x 23 BGA, 0.8mm pitch, 784 pins

CPU
+ 1.5GHz Quad-Core Krait™ CPU (ARM v7 ISA compatible)
+ Four VeNum (Neon compatible) 128-bit SIMD multimedia coprocessors

Cache/External memory
+ L2: 2MB cache (Shared/Coherent)/ 2 x32-bit PC-DDR3—533 MHz

Graphics
+ Adreno™ 320 GPU
+ OpenGL ES 3.0 and OpenCL
+ FlexRender™ technology

DSP
+ Hexagon™ QDSP6 v4
+ Audio playback, Audio effects, Echo Cancellation/Noise Suppression, HD voice, Multi-format audio decoding, Video functions, 2D to 3D auto-conversion, Augmented reality processing

Display
+ Dual LVDS, HDMI 1.4

Camera
+ MIPI—CSI with support for up to 3 simultaneous cameras

Multimedia
+ Open Framework support for Graphics, Audio, Video, Camera including OpenGL, Open CL, OpenMAX, V4L2, ALSA
+ Audio—MP3, AAC, AAC+, eAAC, AMR-NB, AMR-WB, G.711, WMA 9/10 Pro
+ Video—MP4/H.263/H.264/VC-1/DIVX/MP2

I/O and Interfaces
+ PCIe 2.0, I2S, I2C, SDIO, HSIC, General Serial Bus Interfaces, GPIOs

Storage
+ USB 2.0 interfaces—1 HS with PHY, 1 HSIC and 1 FS
+ SD3/eMMC4.5 support including UHS-I & DDR @ 104 MHz for 8-bit eMMC mode
+ SATA interface

Security
+ Secure Boot/Secure File System
+ OMA DRM 1.0/2.1
+ HDCP, OMA DRM 1.0/2.1
+ TrustZone/SecureMSMv3

Qualcomm® Gobi™ 9x15 Multimode 3G/4G LTE

3G/4G LTE Modem
+ Qualcomm Technologies' 2nd generation category 3 LTE/3G modem capable of 100mbps DL/50 mbps UL
+ Supports FDD/TDD LTE, TD-SCDMA, 3G DC-HSPA+/HSPA, 3G CDMA EV-DOrB/rA, 3G CDMA 1x EDGE/GPRS/GSM
+ Onboard integrated Cortex ARM A5 @ 550 MHz and support for Linux OS and QNX
+ Support for eCall, application processing for telematics services suite
+ Integrated GNSS solution with support for concurrent GPS/Glonass

PMM8920

PMIC
+ Power Management Module

Qualcomm® VIVE™ QCA6574

Wi-Fi
+ 802.11 a/b/g/n/ac with 2x2 MIMO support
+ Station mode, Access Point and Miracast support
+ Mirror Link 1.2 support
+ AllJoyn enabled

Bluetooth
+ Bluetooth Low Energy Profile 4.0
+ Automotive profile support including A2DP, AVRCP, HFP, PBAP and MAP

Qualcomm IZat ™ Location (RGR 7640 AU)

Location Services
+ gpsOne Gen 8A Engine
+ GNSS/GPS, Glonass
+ Sensitivity: Up to -161 dBm Tracking

Software

Automotive Optimization
+ Tight integration of BSP, Graphics and Multimedia for enriched system experiences
+ Provides boot time critical services including quick boot, early splash, early camera and system audio
+ Integrated seamless connectivity for audio, data with Gobi 3G/4G LTE multimode modem
+ Integrated seamless connectivity for Wi-Fi/Bluetooth and Navigation via Location engines and APIs
+ Integration with 'brought-in' smart devices for audio and display "projection"
+ Support for up to 3 displays; concurrent displays with concurrent decode of multiple streams

OS Support
+ QNX, Android

To learn more visit qualcomm.com/solutions/automotive

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snapdragon™