

# QUALCOMM® SNAPDRAGON™ 400 PROCESSORS

**Snapdragon 400 processors are designed to enable the performance, features, connectivity and battery life that consumers expect in mid-tier and high-volume smartphones and tablets.**

Popular mobile user experiences like HD video capture and playback, HD multichannel audio, and high megapixel camera are no longer limited to only newer, relatively higher-priced devices. Our innovative multi-core Snapdragon 400 processors are designed to switch seamlessly between sophisticated applications, support HD display resolutions, and deliver optimal frame rates for graphics intensive 3D games. The Snapdragon 400 tier includes both dual and quad core offerings, based on Snapdragon's superior Qualcomm® Krait™ CPU technology and ARM's quad-core Cortex-A7 and Cortex-A53 CPU technology.

Designed to deliver high-end user experiences to the mid- and high-volume tiers, Snapdragon 400 processors strike an optimal balance of popular mobile features and advanced low-power architecture.

#### **Custom built and optimized for mobile featuring:**

- + Superior Krait CPU architecture<sup>1</sup>
- + High-performance Qualcomm® Adreno™ GPU for console quality 3D graphics
- + Multithreaded Qualcomm® Hexagon™ DSP for ultra-low power applications
- + Dedicated multimedia subsystem for rich media and longer battery life
- + Integrated Qualcomm® Gobi™ 4G LTE Advanced world mode modem for fast connectivity
- + End-to-end content and platform security using Qualcomm® Snapdragon StudioAccess™ technology and Qualcomm® SecureMSM™ technology
- + 32-bit and 64-bit capable<sup>5</sup>

When you need advanced processors for high-volume, mainstream mobile devices, Snapdragon 400 processors offer the ultimate combination of features, performance and power efficiency.

## **USER EXPERIENCES**

**Snapdragon 400 processors bring high-end user experiences to mid- and high-volume smartphones and tablets.**

- + Capture and playback video at up to 1080p HD

- + Take high-resolution, 3D photos with up to 13.5 Megapixel camera support<sup>1</sup>
- + Play multiplayer 3D online games in real time
- + Fast 4G LTE for instant downloads and uploads
- + Bring home theater quality audio with you wherever you go with enhanced audio effects. Enjoy your photos, videos and games on large, high-resolution display devices and HD external displays.<sup>1</sup>
- + Support the latest mobile operating systems (Android, Windows Phone, Blackberry)

## **FEATURES**

### **CPU**

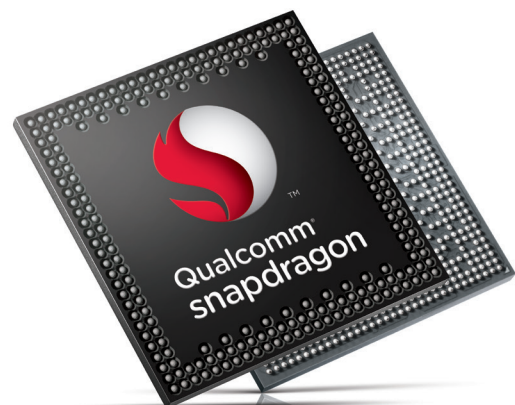
- + Competitive quad core CPU performance in high volume smartphones<sup>1</sup>
- + Dual Krait CPU performance at high clock frequencies<sup>1</sup>
- + LP-DDR2 and LP-DDR3 memory for high performance and low latency<sup>1</sup>

### **GPU**

- + Adreno A305 or A306 GPU delivers over 50% increase in graphics processing performance<sup>2</sup>
- + Support for advanced graphics and compute APIs, including OpenGL ES 3.0, DirectX, OpenCL, Renderscript Compute and FlexRender™ technology<sup>3</sup>
- + Support for popular middleware and game engines like Unity, Epic, and Unigine

### **DSP**

- + Hexagon DSP enables ultra-low power operation for a variety of applications like music playback, enhanced audio effects, computer vision processing and still and video image enhancements
- + Hexagon DSP now supports floating point calculations, byte vector operations, dynamic multithreading and expanded multimedia instructions for enhanced low power performance



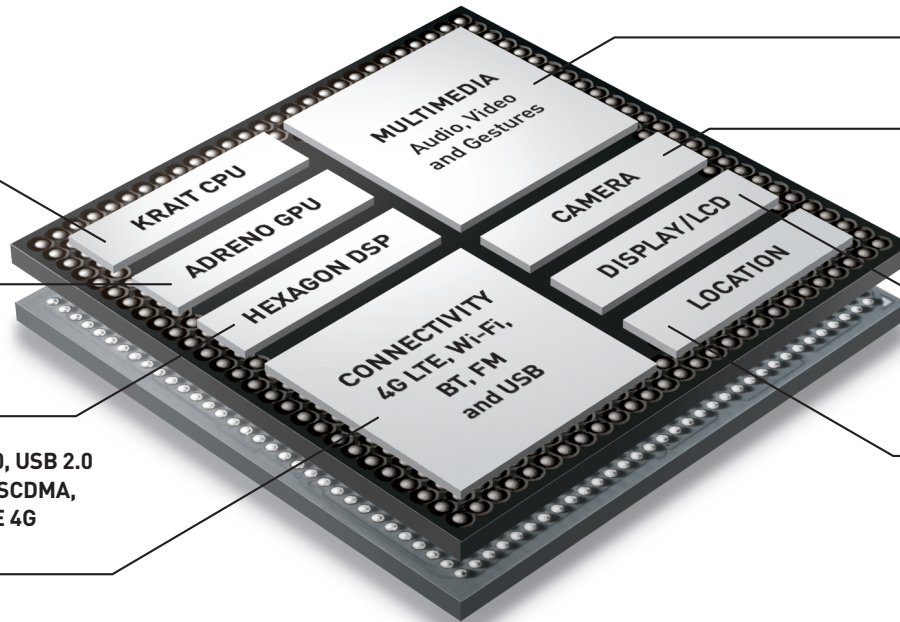
## 400 PROCESSOR

Dual Krait up to 1.7GHz or Quad ARM Cortex A7 up to 1.6GHz for high-speed performance<sup>1</sup>

Adreno 305 for advanced graphics

Hexagon QDSP6 for ultra low power applications

Integrated 802.11ac, BT4.0, USB 2.0 Multi-SIM DSDS, DSDA TDSCDMA, HSPA+ (up to 42Mbps), LTE 4G (up to 150Mbps)<sup>1</sup>



FHD 1080p capture and playback<sup>1</sup>  
HD multichannel, 5.1 Surround Sound<sup>1</sup>

Up to 13.5 megapixel

HD 1080p display<sup>1</sup>

IZat GNSS support

## SPECIFICATIONS

### Connectivity

- + Gobi 4G LTE Advanced with Carrier Aggregation for speeds up to 150 Mbps
- + Gobi 4G LTE World Mode, supporting LTE FDD, LTE TDD, WCDMA, CDMA1x, EV-DO, TD-SCDMA and GSM<sup>1</sup>
- + Multi-sim capabilities of Dual SIM, Dual Standby (DSDS), Dual SIM Dual Active (DSDA), and Triple SIM Triple Standby (TSTS)
- + USB 2.0 for fast transfers
- + Supports legacy 802.11n and new 802.11ac for peak Wi-Fi performance<sup>1</sup>
- + Wi-Fi integrated into the LTE modem for enhanced user experience<sup>1</sup>
- + Miracast support features wireless streaming to HD external display
- + Qualcomm® IZat™ location technology features GNSS for accurate auto and pedestrian navigation and indoor location capabilities for advanced location-based services

### Power Management

- + Energy efficient LP process<sup>1</sup>
- + aSMP dynamic CPU power control for sustained peak performance<sup>1</sup>
- + Dynamic GPU clock and voltage scaling
- + Qualcomm® Quick Charge™ 1.0 technology integrated for up to 40% faster battery charging<sup>4</sup>

To learn more visit [snapdragon.com](http://snapdragon.com) or [mydragonboard.org](http://mydragonboard.org)

### System

- + Quad ARM Cortex-A53 GPU at up to 1.4GHz per core
- + Quad ARM Cortex-A7 CPU at up to 1.6GHz per core<sup>1</sup>
- + Dual core Krait 300 CPU at up to 1.7GHz per core<sup>1</sup>
- + Dual core Krait 200 CPU at up to 1.2GHz per core<sup>1</sup>
- + Adreno A305 or A306 GPU
- + Hexagon QDSP6
- + 32-bit and 64-bit capable<sup>5</sup>

### Multimedia

- + Video: Up to 1080p HD capture/playback
- + Camera: Up to 13.5 Megapixel, stereoscopic 3D<sup>1</sup>
- + Display: Up to 1080p HD external display<sup>1</sup>
- + Audio: HD multichannel sound with DTS-HD and Dolby Digital Plus

### Connectivity

- + USB 2.0
- + BT4.0 + Integrated digital core
- + 802.11n/ac (2.4/5GHz) + Integrated digital core<sup>1</sup>
- + Integrated IZat GNSS
- + Gobi 4G LTE<sup>1</sup> Advanced World Mode

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snapdragon 

<sup>1</sup> Available only in select processors

<sup>2</sup> Compared to its predecessor, Adreno 220

<sup>3</sup> FlexRender is designed to help the Adreno GPU boost speed and save power by dynamically switching between drawing pixels in direct or deferred rendering mode

<sup>4</sup> As compared to devices without fast charge technology

<sup>5</sup> Features only available on select processors

Snapdragon 400 processors include the following part numbers: 8028, 8228, 8628, 8928, 8926, 8030AB, 8226, 8230, 8230AB, 8626, 8630, 8630AB, 8930, 8930AB, and 8916

Qualcomm Quick Charge is a product of Qualcomm Technologies, Inc. Qualcomm IZat is a product of Qualcomm Atheros, Inc.

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