



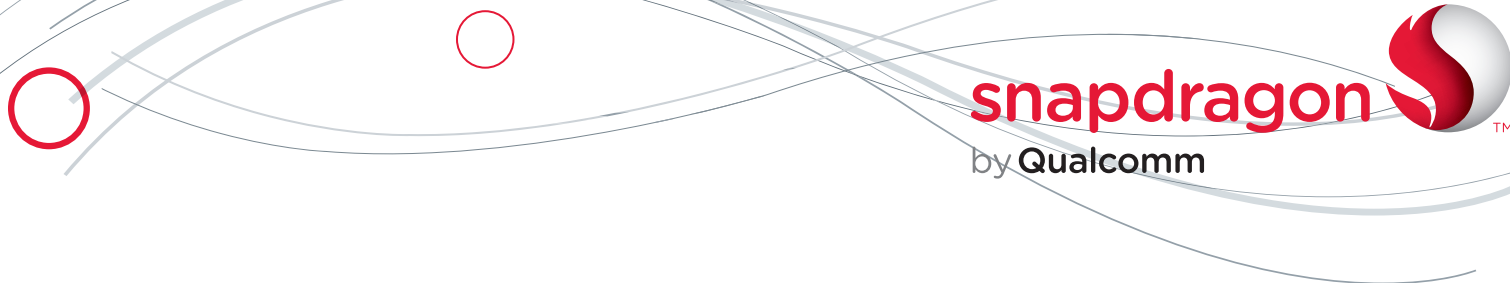
# MSM8X60/APQ8060

## SNAPDRAGON™ DUAL-CORE MOBILE PROCESSOR

This third generation Snapdragon mobile processor includes the industry's first asynchronous SMP dual-core CPU design, delivering superior performance and power optimization for high-tier mobile devices, particularly for mobile entertainment and gaming applications. This latest addition to the Snapdragon lineup represents the next step in mobile technology, improving overall user experience, increasing system performance and further extending battery life. The MSM8x60 dual-core mobile processor and the all new AP-only option APQ8060, deliver superior 3D gaming and full 1080p HD video. The MSM8x60 processor establishes clear industry leadership over rivals with a 60% performance increase and more favorable power profile than standard SMP ARM A9 dual-core processors.<sup>1</sup> Supported operating systems include Android™, Chrome, Blackberry®, and Windows® Phone.

### Key enhancements over previous Snapdragon™ chipsets include:

- Unrivaled system performance with new dual-core Scorpion CPU architecture offering industry first speeds up to 1.5GHz per core.
- The MSM8x60 incorporates an asynchronous dual-core SMP micro-architecture. Unlike synchronous dual-core SMP designs where both cores must run at the same frequency and voltage when operational, the dual-core Scorpion asynchronous power design provides independent clocking and voltage per core, allowing each to work independently. This highly efficient design provides substantial power savings over traditional SMP technology by intelligently adjusting performance to suit the needs of the application.
- Improved web browsing and network connectivity with HSPA+ modem supporting high speed data rates up to 14Mbps.
- AP only option for devices that do not require cellular modem connectivity.
- Full multimedia experience with 1080p HD video and Dolby™ 5.1 audio.
- Snapdragon's fully embedded custom Adreno™ 220 GPU for MSM8x60 firmly establishes Qualcomm's leadership position in advanced mobile graphics for smartphones and tablets. The low power Adreno 220 GPU adds console quality, stereoscopic 3D graphics performance to mobile gaming for new exclusive titles such as "Desert Winds". The Adreno 220 GPU is designed to provide the MSM8x60 with ample 3D graphics performance to accelerate the next generation of customized 3D user interfaces for Android and other mobile operating systems, as well as full support for websites based on Flash & WebGL frameworks. Augmented Reality applications also benefit from the best in class GPU acceleration of the Adreno 220. Adreno development tools and an Augmented Reality SDK and may be downloaded from Qualcomm's developer website.
- Designed to support advanced security options including platform, content and storage memory protection.
  - Secure MSM™ provides encrypted boot, operation and file security
  - Digital Rights Management provides encrypted playback of OMA and Windows Media content
  - Trustzone™ enables mobile payment and conditional access as well as protection of storage media
- Improved Navigation and location-based services using upgraded gpsOne Gen 8 engine with increased tracking sensitivity
- Designed to support up to 16MP cameras and comes with fully integrated image signal processor (ISP).
  - Dual Camera Support (Hi/Lo Res)
  - Fully integrated ISP with advanced imaging software, support for camcorder, stereo3D, augmented reality, and robust image editing
- Advanced multimedia system enables OEM's to seamlessly integrate leading VOD, MOD and broadcast services supported with a full compliment of advanced codec's and features.
  - 24-bit WSXGA Resolution (1440x900)
  - Dual screen support with HDMI output (HDMI Mirroring)
  - Advanced 3D pre-engineered solutions including stereoscopic capture, playback and output up to 1080p
  - Video conferencing fully supported on 3G and IP networks



## SNAPDRAGON FAMILY OVERVIEW

Qualcomm Snapdragon processors continue to redefine the ultimate in high performance – low power solutions available for smartphones and tablets worldwide.

The Snapdragon family of mobile processors is a highly integrated and optimized “system on a chip” incorporating Qualcomm advanced technologies including Qualcomm’s own Scorpion CPU micro architecture, Adreno graphics processor (GPU), advanced wireless modem, GPS engine and a rich multimedia system capable of delivering the most advanced 3D, HD audio, video and camera support available to mobile devices.

- Qualcomm’s Scorpion CPU cores are designed and built from the ground up with mobile in mind. Based on the ARM v.7 instruction set, Scorpion CPUs are highly optimized for mobile applications, allowing manufacturers to design slim and powerful devices that last longer between charges.
- Our Adreno GPU cores offer world-class graphics capabilities including an industry leading level of performance and resolution, as well as graphics API support to enable manufacturers and developers to deliver a wide variety of 2D and advanced 3D applications.
- The Snapdragon family incorporates Qualcomm’s advanced modem technology for high-speed mobile broadband.
- Every Snapdragon mobile processor includes a sophisticated multimedia sub-system that delivers a broad list of supported audio/video codec’s, advanced noise cancellation, echo cancellation, and a wide variety of screen resolution support.

Features	MSM8x60 and APQ8060 (AP only)
Process Technology	45nm
Package	976 NSP 14x14x1.4mm (0.4mm pitch)
Processor	Dual Scorpion – up to 1.5GHz
Modem	MSM8260 – UMTS / Single Mode MSM8660 – CDMA / Multimode APQ8060 - No WWAN Modem
Frequency Support	CDMA: 800MHz (BC0/BC10&JCDMA), 1700MHz (KPCS), 1900MHz (PCS+Block G), 1700MHz/2100MHz(AWS), 2100MHz (IMT) UMTS: 800/850/900/1700/1900/2100/AWS GSM: QB 850/900/1800/1900
Memory	333MHz ISM/266MHz LPDDR2 Up to 2GB density
LCD Support	24-bit, WSXGA (1440x900)
Bluetooth	BT3.x + HS, BT4.0/LE FM Rx/Tx *Requires WCN2243
WLAN	802.11b/g/n *Requires WCN1314
USB	USB2.0 High Speed OTG (480Mbps)
Qcamera	16M Pixel
Audio	128-Voice Polyphony QconcertPlus, Dolby 5.1 Surround, Low Power Audio Core Enhanced Echo Cancellation FLUENCE (Noise cancellation)
Graphics	Adreno 220 - Dedicated 2D engine APIs:OpenGL ES 1.1, OpenGL ES 2.0, Direct3D 9.0c, GDI, OpenVG1.1, SVG Tiny 1.2
GPS	gpsOne Gen 8 with GNSS Standalone, Assisted, gpsOneXTRA, 2dB improvement vs. Gen 7
Security and DRM	OMA DRM 1.0/2.1 SecureMSM v4 with TrustZone Microsoft WMDRM 10 / HDCP OEM Programmable OTP Storage

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