Qualcomm

Qualcomm® APQ8016E Application Processor

The APQ8016E application processor is designed to provide an ideal solution for Internet of Things (IoT) applications.

From the DragonBoard™ 410c Community Board to production-ready System-on-Modules (SoMs) for commercialization, the APQ8016E application processor is designed to meet the demanding requirements of embedded computing applications with its high performance, energy efficiency, multimedia features and integrated connectivity.

APQ8016E integrates more and increasingly complex functions, while providing high performance, rich multimedia, low power consumption and support for multiple operating systems (Android, Linux and Windows 10).

The flexible design of the APQ8016E makes it ideal for IoT applications requiring computing horsepower and integrated Wi-Fi and Bluetooth® connectivity, such as connected homes, building automation, industrial control, digital signage, smart surveillance and others.

It supports a clear deployment path for OEMs and developers—from development kits to customized solutions—including integration services and production-ready, customizable SoMs and single-board computers (SBCs).

Highlights

Integrated single-chip solution for smaller designs

Integrated CPU, GPU, Wi-Fi/WLAN, Bluetooth, DSP and memory integrated into a single SoC helps reduce system complexity while supporting small form factor designs.

Powerful processing for industrial and home automation

Superior CPU architecture is capable of both 32-bit and 64-bit processing—designed for an improved user experience.

HD video encode and decode for smart surveillance cameras

The APQ8016E video core supports popular codecs including H.264, MPEG4, MPEG2 and VC1 for better software compatibility.

3D graphics and multimedia for digital media and TV dongles

Qualcomm® Adreno™ 306 GPU supports OpenGL ES 3.0, and DirectX 9.3 for next-generation media players.

Materials are subject to change without notice.
87-PC345-1 Rev D

APQ8016E Target Applications

- Internet of Things (IoT)
- Home Automation
- Industrial Automation
- Building Automation
- Smart Cities
- Healthcare

Features

- Quad-core Arm Cortex A53 up to 1.2GHz with both 32-bit and 64-bit support — commercialized in millions of mobile devices worldwide
- Arm v8-A ISA offers an efficient instruction set
- Adreno A306 3D GPU (up to 400MHz) with support for multiple APIs including: OpenGL ES 3.0, OpenCL, DirectX, content security, and decreased power consumption
- Qualcomm® Hexagon™ QDSP6 V5 (up to 691MHz) for differentiated signal processing
- 13MP camera support with Wavelet Noise Reduction and JPEG Decoder done in hardware
- Worldwide ecosystem of Qualcomm vendors, customers, developers and embedded device OEMs

Ordering Information

Product	Part Numbers*
APQ8016E SoC	APQ-8016E-1-760NSP
Integrated PMIC & Audio Codec	PM8916-0-176NSP
Wi-Fi & Bluetooth Connectivity	WCN3620-0-61WLNSP
GPS & Glonass RF Receiver	WGR7640-0-17WLNSP

* Part numbers are subject to change. Please check with the distributor for most accurate ordering information.

Related Products

Develop using the **DragonBoard 410c Community Board**—designed to support rapid software development and prototyping. Available on arrow.com

To learn more visit:
www.qualcomm.com or
www.developer.qualcomm.com

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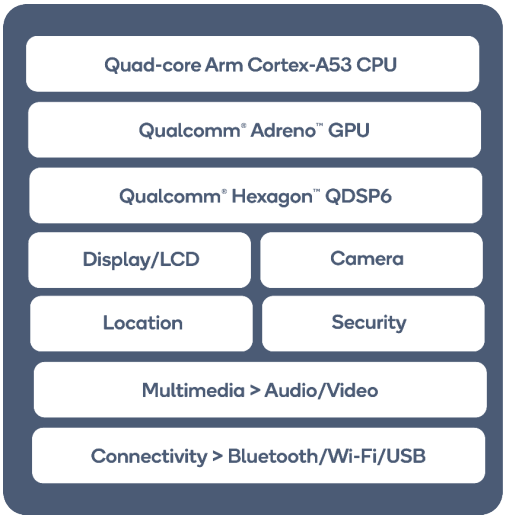
APQ8016E Block Diagram



APQ8016E Specifications

Package	12 x 14 x 0.96mm (760NSP, 0.4mm pitch)
CPU	Quad-core Arm Cortex A53 @ up to 1.2GHz per core with both 32-bit and 64-bit support
Memory and Storage	LPDDR2/3 @ 533MHz single channel SDIO 3.0 (UHS-I), eMMC v4.5
Connectivity	802.11 a/b/g/n/ Wi-Fi, Bluetooth 4.x LE, FM, GPS
GPU	Adreno A306 3D graphics core: OpenGL ES 3.0/2.0/1.1, OpenCL 1.1e (Android only), DirectX 9.3 (Windows 10 only)
DSP	Hexagon QDSP6 v5 core @ up to 691MHz
Display Support	1920x1200 1080p external displays supported 720p Miracast support
Camera Support	Integrated ISP supports up to 13MP
Multimedia	1080p HD @ 30fps H.264 playback and capture
Interfaces	1x USB2.0, 2x MIPI-CSI, MIPI-DSI, SD3.0, eMMC v4.5 with DDR support
Security	Secure Boot, Code signing service

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