Qualcomm® QCS410/610 SoCs for IoT

QCS410/610 11nm SoCs are purpose-built to deliver high-performing, power-efficient edge computing for next-gen smart cameras and smart enterprise/home applications for the mid-tier segment.

The QCS410/610 family of high performance IoT System-on-Chips (SoCs) incorporates key features for building advanced use cases encompassing machine learning, edge computing, sensor processing, voice UI enablement and integrated wireless connectivity cost effectively.

The QCS410 and QCS610 SoCs are engineered to deliver powerful computing for on-device camera processing and machine learning, with exceptional power and thermal efficiency, across a wide range of IoT applications. They integrate Qualcomm Technologies’ most advanced image signal processor (ISP) to date and the Qualcomm® Artificial Intelligence (AI) Engine, along with a heterogeneous compute architecture including highly optimized custom CPU, GPU and DSP.

The QCS410/610 SoCs feature Qualcomm® Noise and Echo Cancellation, as well as advanced on-device audio analytics and processing features to support natural language processing, audio speech recognition.

To further facilitate fast and cost-effective development, Qualcomm Technologies, Inc. has partnered with ODMs to provide full form factor reference devices, as well as ISVs to provide solutions that address various IOT market segments.

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**Highlights**

**Better performance with low power consumption**

Engineered specifically for camera applications that utilize intensive processing features, QCS410/610 chipsets are designed to use less power while performing better than if running on a more general-purpose chip.

**Highly Integrated SoC designed to reduce BOM costs and faster time to commercialization**

Integrated PMIC, audio codecs and connectivity solutions can reduce the commercialization efforts while keeping BOM costs low.

**Artificial Intelligence for differentiating user experiences**

On-device machine learning through the Qualcomm AI Engine can support AI use cases including face detection, face recognition, object tracking and people counting.

**Dual ISPs and up to 4K Ultra HD video with enhanced image processing features**

Dual ISPs support staggered HDR, low light noise reduction, enhanced auto-focus performance and several hardware accelerated ISP features. Premium 4K @30fps HEVC video capture and playback support on QCS610.
QCS410/610 Target Applications

- Industrial IoT
- Smart AI Home Security
- Home IP Cameras
- Enterprise Security Cameras
- Dash Cam and Body Cam
- Smart Display, Videoconferencing

Features

- Dual 14-bit Qualcomm Spectra™ 230 ISP capable of supporting up to dual sensors. 24 MP @ 30 fps with dual ISPs; each ISP capable of 16 MP
- Fabricated using the advanced 11nm FinFET process for exceptional thermal and power efficiency
- Qualcomm® Adreno® 612 GPU with 64-bit addressing @ up to 845MHz with latest API support
- Qualcomm® Hexagon® DSP with dual Hexagon Vector eXtensions (HVX), 1.1GHz for running DNN models and advanced Qualcomm® Neural Processing Engine SDK support
- Up to eight Qualcomm® Kryo® 360 CPU cores optimized for power and DMIPS
- Qualcomm AI Engine designed to support on-device machine learning
- Low power sensor core helps support always-on use cases at reduced power levels
- Supports Ethernet, 802.11a/b/g/n/ac Wi-Fi® and Bluetooth®
- HW based security designed with features such as secure boot from hardware root of trust, trusted execution environment, hardware crypto engines, storage security, debug security with lifecycle control, key provisioning and wireless protocol security
- Support for Microsoft Azure Machine Learning and Azure services
- Worldwide ecosystem of vendors, customers, developers and embedded device OEMs with experience in commercializing our solutions

QCS410 and QCS610 Specifications

<table>
<thead>
<tr>
<th>Product</th>
<th>Qualcomm Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>QCS 610 SoC</td>
<td>QCS-610-0-PSP806-MT-01-0-AC</td>
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<tr>
<td>PMIC</td>
<td>PM6150, PM6150L</td>
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<td>Connectivity</td>
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<td>QCS 410 SoC</td>
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To learn more visit: qualcomm.com

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