Qualcomm

Qualcomm® QCS7230 SoC for IoT

The powerful QCS7230 processor is designed to help you deliver superior performance for compute intensive camera and Edge AI applications with Wi-Fi 6 for the Internet of Things (IoT).

The QCS7230 System-on-Chip (SoC) brings the latest technologies in a highly integrated chipset that delivers high performance with exceptional features. This chip is purpose- built for enterprise and commercial IoT applications such as video collaboration, smart camera, connected healthcare, smart retail and more.

The QCS7230 offers a powerful heterogeneous computing architecture coupled with the Qualcomm® AI Engine to efficiently run complex AI and deep learning workloads and on-device edge inferencing at incredibly low power.

The processor also offers a powerful image signal processor (ISP) with support for up to seven concurrent cameras, or up to 24 video streaming cameras, a dedicated computer vision engine for enhanced video analytics (EVA), as well as the new Qualcomm® Hexagon™ Tensor Accelerator (HTA). With support for Wi-Fi 6 connectivity speeds via a companion module, the QCS7230 represents a highly comprehensive set of features for developing powerful IoT devices and enterprise grade solutions.

The dedicated Engine for Video Analytics (EVA) provides enhancement for computer vision (CV) applications with reduced latencies for real time image processing, freeing up the DSP, GPU, and CPU capacity for other critical AI applications.

To further facilitate fast and cost-effective development, Qualcomm Technologies, Inc. has collaborated with ODMs to provide a variety of development kits, tools and reference devices, as well as ISVs to provide solutions that address various industry segments.

Highlights

Superior camera support

Feature packed with an advanced Image Quality (IQ) and support for up to 7 cameras running concurrent AI models. Also, support for up to three 4K displays with independent content plus intelligent zoom in and out. Up to 8K video encode/decode, and up to 64 megapixel photo capture and video capturing for exceptional high-definition videos.

Powerful Edge AI and video analytics

This processor contains a dedicated CV hardware block and HTA designed to deliver up to 7 TOPS of AI performance for compute intensive enterprise and commercial IoT applications. Heterogenous computing of sensor inputs from camera, audio, Bluetooth® and hubs deliver a power optimized enterprise grade experience. Also support for popular cloud applications for distributed AI model use cases.

5G and Wi-Fi 6 support

Supporting a broad set of wired and wireless connectivity options, including 5G mmW and Sub-6 GHz, and Bluetooth 5.1, for a variety of enterprise and commercial IoT applications.

Wide range of interfaces and peripherals support

Rich set of interfaces such as 2x USB 3.1, Type-C with DisplayPort, MIPI-CSI/DSI, PCIe (3-lane), and memory support interfaces for LPDDR4x/LPDDR5 – suited for industrial and commercial IoT applications.

Flexible design options to accelerate faster time to commercialization

To give you flexibility in your design, our ecosystem partners offer full form factor reference designs, development board offerings for prototyping, or off-the-shelf System-on-Module (SoM) solutions, to chip-onboard designs – all to enable ease of development and accelerate commercialization and scale.
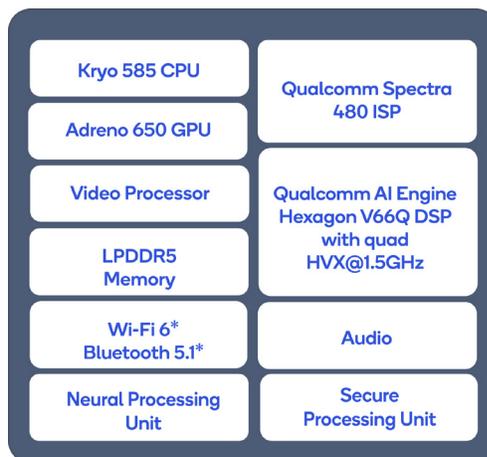
QCS7230 Target Applications

- Connected Cameras
- Retail Self Checkout
- Video Collaboration
- Digital Signage
- Fleet Management
- Healthcare

Features

- Qualcomm® Kryo™ 585 CPU with 1x Kryo Gold (2.8GHz) + 3x Gold @2.42GHX + 2x Kryo Silver (1.8 GHz) with 4MB L3 cache
- Camera: Dual 14-bit Qualcomm Spectra™ 480 ISP support 64MP single camera capture
- Qualcomm® Adreno™ 650 GPU with improved GPU performance and power efficiency
- Native 8-bit integer support for efficient GPU DNN
- Hexagon DSP with quad Hexagon Vector eXtensions (HVX) V66Q, 1.5 GHz, for machine learning, integrated DNN for advanced VA and Qualcomm® Neural Processing SDK framework
- Support for up to 24 cameras, or seven concurrent cameras
- Superior image quality in zzHDR, video denoising, mid/low frequency denoising, lens shading correction, video super resolution
- Supports triple 4K displays
- Video/display: Concurrent UHD encode/decode, 2X display port, MIPI-DSI
- Video processing at up to 4K240 decode/4K120 encode, multiple video codecs
- Computer Vision: CVP 2.0 for improved video de-noising, digital video stabilization and image correction adjustment
- NPU (Neural Processing Unit) for performance and always-on Neural Network (NN) use cases
- Audio: Multi-mic, source tracking, ECNS, voice activation
- Support for 2x2 11ax 80MHz for faster downloads
- Qualcomm Technologies video collaboration reference design feature set

Ordering Information

Product	Part Number
QCS7230 (LPDDR5 PoP)	QCS7230-0-AA

Please check part numbers for accuracy before ordering

QCS7230 Block Diagram

*5G, Wi-Fi 6 and Bluetooth 5.1 supported with a companion module.

Specifications

Process Node	7nm FFP
Package	12.4 x 12.7mm LP4, 12.4 x 14mm LP5 MEP
CPU	Kryo 585, Hexa-core 64-bit Arm V-8 compliant
Memory	Quad-channel PoP high speed LPDDR5 SDRAM up to 2750 MHz
GPU	Adreno GPU 650
Compute DSP	Hexagon DSP with Quad HVX V66Q, 1.5 GHz
Machine Learning	Dedicated NPU 230
Camera	Dual ISP: 64 MP @ 30fps ZSL
Connectivity	WLAN 2 x 2 802.11ax with DBS, Bluetooth 5.1
PMIC	Discrete power supply, clock source
Display	Adreno 995 DPU, supports up to three 4K display, 2x 4-Lane DSI, Display Port and Miracast support.
Video	Decode: 8K60/4K240; Encode: 8K30/4K120
Security	Dedicated SPU with Improved Crypto
I/O Storage	eMMC 5.1, SPI NOR/NAND flash, SD 3.0
Operating System	Android 10

Qualcomm Kryo, Qualcomm Spectra and Qualcomm Adreno are products of Qualcomm Technologies, Inc. and/or its subsidiaries.

To learn more visit: qualcomm.com