Qualcomm

Qualcomm® IQ6 Series Platform

The Qualcomm IQ6 Series delivers essential, industrial-grade performance in a wide temperature operating range, offering powerful and especially efficient compute capabilities, AI workload processing capabilities, and rich peripheral support, including Wi-Fi, Ethernet, and USB, tailor-made for industrial devices in the entry and mid-tier segments.

Qualcomm IQ6 Series delivers industrial-grade performance and features for building intelligent edge computing devices, including industrial gateways, controllers, industrial machine vision, industrial HMIs, and more in a cost-effective manner. It integrates a powerful image signal processor (ISP) and the Qualcomm® AI Engine, along with a heterogeneous compute architecture that includes a highly optimized CPU, GPU, and DSP for industrial-grade AI performance at the entry to mid-tier segment.

Features

- Qualcomm® Kryo™ 460 CPU with a 64-bit Octa-Core processor
- Qualcomm Spectra™ 230 ISP
- Qualcomm® Adreno™ 612 GPU
- Thermal junction (Tj) temperature range of -40°C to +105°C allows deployment in demanding industrial environments
- Adreno Video Processing Unit (VPU) 443 that features 4K60 decode and 1080p60 encode with native support for H.265/H.264, VP8, VP9 (decode)

Ordering Information

Product	Part Number
IQ-615	QCS615-0-AA

Highlights

Powerful and Efficient Computing

The Qualcomm® Kryo™ CPU delivers powerful computing with an extra emphasis on efficiency for essential, industrial-grade performance, on-device AI workload processing, and rich peripheral support.

Wide Temperature Range

The Qualcomm IQ6 Series is built to deliver essential, industrial-grade performance in a wide junction temperature operating range of -40°C to +105°C for use cases that may not need to meet the most extreme temperature demands, but still operate in far-ranging temperatures.

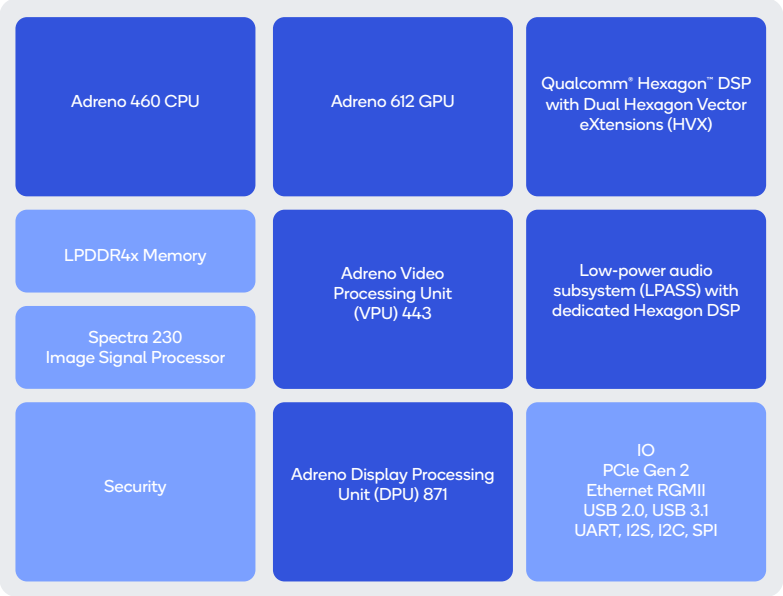
Peripheral Support

With a rich array of input and output interfaces, the Qualcomm IQ6 Series supports peripherals, including Wi-Fi, PCIe, Ethernet, and USB.

Developer-Friendly Design

The Qualcomm IQ6 Series is designed to be developer-friendly, with multi-OS support for Qualcomm® Linux® software stack and Ubuntu. Combined with product longevity support for 10+ years, developers can easily build, test, and deploy solutions based on this platform with confidence that their designs will be supported for years to come.

Block Diagram



Materials are subject to change without notice.
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Target Applications

- Industrial Gateways, Controllers
- Industrial Handheld (IHH) Devices
- Industrial HMI
- Industrial Machine Vision



Specifications

Technology		11 nm FINFET low power
Kryo CPU	**Architecture**	64-bit Octa-Core
	Cores	2x Kryo4 Gold @ 1.9 GHz + 6x Kyro4 Silver-lite @ 1.6 GHz
Memory	**Architecture**	2x 16-bit LPDDR4x 1555 MHz, up to 8 GB
GPU, Video, and Display	**GPU**	Adreno 612 GPU
	APIs	OpenGL ES3.2, OpenCL 2.0, DX12FL9.3, Vulkan 1.x
	Video Decode	4K 60fps 10-bit: HEVC/H.265, 8-bit VP9, VP8, and H.264
	Video Encode	1080p 60fps, 8-bit: HEVC/H.265, H.264, and VP8
	Video Decode + Encode	4K 30fps Decode + 1080p 30fps Encode
	Display Resolutions	Up to a maximum of 5 MP, e.g.: 2x 1920x1080 @ 60fps (FHD) + 1x 1280x720 @ 60fps
	Display Interfaces	1x 4-lane MIPI DSI-2 + 1x DP v1.4 (supports: SST and MST)
Camera	**Camera Lanes**	Up to 6 cameras over 3x 4-lane MIPI CSI-2 v1.3 (D-PHY 1.2, C-PHY 1.0)
Audio	**Audio DSP (aDSP)**	Hexagon QDSP6 v66K @ 1.0 GHz
	Audio Interfaces	Up to 5x I2S/PCM/TDM, 2x SLIMbus
I/O Interfaces	**ETH AVB**	1x RGMII / RMII with MDIO GB ETH AVB (1V8 only)
	PCIe	1-lane PCIe Gen 2 RC / EP
	USB	1x USB 3.1 Gen 1 (SS), 1x USB 2.0 (HS) OTG
	Secure Digital Interfaces	1x 4-bit SD/SDIO 3.0 (UHS-I), 1x 8-bit eMMC 5.1, 1-lane UFS2.1 Gear3 (1-lane UFS3.1 can be supported with UFS2.1 feature set), QSPI for boot
	Software-Defined Radio	2x high-speed I2S
	Multiport SPI / I2C / UART	Up to 14x 4-wire QUPv3 (UART, I2C, SPI)
	GPIOs	100+ GPIOs
Package	**Balls, Dimensions**	FCBGA761+HS: 23 x 23 x 2.45 mm (incl metallic heat spreader); 0.8 mm pitch, non-PoP
Power Management	**PMIC**	1x PMM6155AU (0.8 mm pitch)
Vector DSP	**Compute DSP (cDSP)**	Hexagon QDSP6 v66A @ 1.1 GHz, 2x HVX (vector extensions)
Connectivity	**WLAN / Bluetooth**	**Optional:** Wi-Fi 6E 802.11ax 2x2 Dual MAC DBS + Bluetooth 5.3. Tri-band support of 2.4GHz, 5GHz, and 6GHz
Temperature Range	**Junction Temp (Tj)**	-40°C to +105°C
Operating System	**Multiple OS**	Linux Yocto, Ubuntu
Build Design	**Ball pitch**	FCBGA761+HS, 23 mm x 23 mm, 0.8 mm ball pitch

The Qualcomm IQ6 Series is a part of the Product Longevity Program for Qualcomm IoT Portfolio. These products are developed and engineered with product longevity and durability in mind, helping to bring stability to our customer product designs. Product longevity dates are subject to change without notice.

To learn more visit: qualcomm.com

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