

Qualcomm Dragonwing™

QCS5430/QCM5430

Processors



The QCS5430/QCM5430 processors are mid-tier IoT solutions that combine premium connectivity, high-level performance, and edge AI-powered camera capabilities with the option to upgrade features over the air via software now or later, according to your product needs.

These next generation, premium software-defined processors deliver superior system performance, exceptional compute and best-in-class connectivity. The scalable performance of these processors is designed to deliver superior features and performance across IoT, specifically for Robotics, Industrial Handhelds (IHH), Retail, Cameras, and Drone applications. This includes support for 5G and Wi-Fi 6E for ubiquitous coverage, a unified software stack, powerful AI, and expanded interfaces across ecosystems.

The QCS5430/QCM5430 processors were designed with premium features and flexibility to design IoT products. They come loaded with Wi-Fi 6E for multi-gigabit speeds, superior connectivity, powerful heterogeneous computing, and edge AI-powered multi-camera support. Select between pre-set feature packs or customize one according to your product needs today or wait and easily upgrade OTA in the future via software to unlock even greater performance.

The 6 nm QCS5430/QCM5430 are powerful processors that deliver premium-tier features with advanced camera, AI, and compute for powerful performance at low power, purpose-built for industrial and commercial IoT applications such as ruggedized handhelds and tablets, kiosks, industrial scanners, point of sale systems, and human machine interface systems. They are Qualcomm Technologies' first scalable 5G-enabled mid-tier platforms for IoT.

Highlights

SCALABLE PERFORMANCE VIA SOFTWARE-DEFINED SKU

Customize performance or upgrade features via software now or later according to your IoT product needs. Select between pre-defined feature packs or work with our team on designing a Custom Feature Pack.



PREMIUM CONNECTIVITY AT MID-TIER

Enjoy premium connectivity with this mid-tier processor for multi-gigabit speeds, massive capacity and ultra-low latency, enterprise-grade Wi-Fi 6 and Wi-Fi 6E (6 GHz) featuring Qualcomm® 4K Quadrature Amplitude Modulation (QAM), 160 MHz bandwidth, bi-directional Multi-User MIMO, and advanced Dual Band Simultaneous functionality. Transforms connectivity experiences with multi-gigabit support.



AI-POWERED CAMERA FEATURES

Connect, upload, and process streams from multiple connected cameras using low power with advanced edge AI processing. The Qualcomm® AI Engine features a fused, scalable AI accelerator architecture and brings the total performance up to 12 TOPS via software-defined SKUs. On-device machine learning enables Edge computing use cases growing at an exponential scale.



EXPANDED INTERFACES AND PERIPHERALS

Many features supported to enable industrial and commercial IoT devices like: USB 3.1 Type-C with DisplayPort, USB 2.0, 2x PCIe and discrete memory beyond LP4X/LP5 MCP.



LONG LIFECYCLE FOR SOFTWARE AND HARDWARE SUPPORT

Long lifecycle support for Yocto Embedded Linux, Windows 11 Enterprise IoT, Android, and Ubuntu. OS upgrades, security updates and enterprise grade hardware cover a wider footprint of IoT devices and deployment configurations.





Features

- All feature packs include premium connectivity and enterprise-grade security with upgradeable options for:
 - Increased CPU, GPU, and AI performance
 - Expanded peripherals support
- Significant reductions in latency, smooth handoffs and increased responsiveness for latency-sensitive applications
- Superior location accuracy
- QCM5430 also includes:
 - 5G modem – Sub-6/mmW for True Global Support
 - VoNR
- Qualcomm AI Engine includes a hardware and software AI solution with on-device machine learning to enable edge computing
- Qualcomm® Edge AI Box Solutions intelligently chooses between device edge or cloud processing of multiple camera connections, optimizing processing time and power efficiency
- Support for up to five concurrent vision sensor inputs
- Qualcomm® Kryo™ 670 CPU
- 6th Gen Qualcomm AI Engine: A fused AI accelerator packing Qualcomm® Hexagon™ Tensor Accelerator (HTA), Large shared AI memory, Hexagon Scalar Accelerator, Hexagon Vector eExtensions (HVX)
- Security features including Qualcomm® Trusted Execution Environment (TEE)

Ordering Information

Product	Part Number
QCS5430	QCS-5430-1-PSP1287-TR-00-0-AA
QCM5430	QCM-5430-1-PSP1287-TR-00-0-AA

Please check part numbers for accuracy before ordering

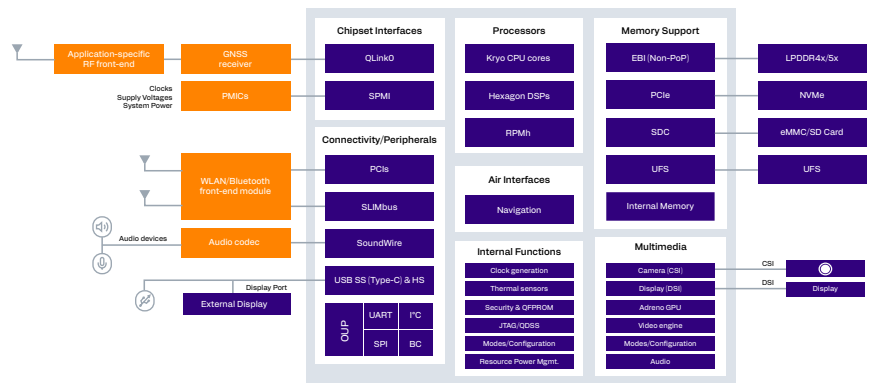
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Target Applications

- Robotics
- Industrial Handheld
- Retail
- Cameras
- Drones and Controllers
- Edge AI Box
- Autonomous Mobile Robots

Block Diagram



Specifications

	Feature Pack 1	Feature Pack 2	Feature Pack 2.5
Process Node/Technology	6 nm, 12 mm x 14 mm; non-PoP		
CPU	Hex-core Kryo 670 CPU from 1.8 GHz to 2.1 GHz	Octa-core Kryo 670 CPU from 1.8 GHz to 2.2 GHz	Octa-core Kryo 670 CPU from 1.8 GHz to 2.4 GHz
GPU	Qualcomm® Adreno™ 642L GPU @ 315 MHz		Adreno 642L GPU @ 550 MHz
	Support for OpenGL ES 3.2, OpenCL 2.0, Vulkan 1.x, DX FL 12		
Memory/Storage	Dual-channel, non-PoP LPDDR5/LPDDR4X SDRAM, UFS 2.x/3.1, two-lane HS gear 4, SD v3.0, eMMC 5.1		
Compute DSP	Hexagon DSP with dual HVX and 2K HMX (~3.5 INT8 TOPS) Clock Speed 1.4 GHz		~6 INT8 TOPS
Connectivity	WLAN: Wi-Fi 6 (802.11ax) & Wi-Fi 6E (6 GHz), Bluetooth® 5.2 & FM supported, Uplink/Downlink MU-MIMO, 4K QAM, 160 MHz channels (5 & 6 GHz)		
Display Technology	Adreno 1075 DPU, On-device Display Resolution: FHD+ (1080 x 2520 pixels) 8L @ 120 fps, 1x DSI D-PHY (4-lane), DP 1.4 SST		
Camera ISP	Qualcomm Spectra™ 570L ISP, Dual Camera: 2x22 MP		3x22 MP
Video	Up to 4K60 decode for H.264/H.265/VP; Up to 4K30 encode for H.264/H.265; Support for HDR10 and HDR10+ playback		
Audio	Qualcomm® Noise and Echo Cancellation V10, Integrated low-power VA (more keywords, Command First), Audio ML DSP: LPI, Shared 2 MB, 1.4 GHz		
Interfaces	USB Type-C 3.1, USB 2.0, UFS 2.x/3.1, eMMC 5.1, SD 3.0, 2x PCIe		
Security Features	Hardware Key Manager & ECC, Secure boot, Crypto Engine, Secure key provisioning, Qualcomm TEE, Qualcomm® Content Protection (Widevine, Camera Security Framework, Secure User Interface)		
Cellular Modem RF (QCM5430)	400 MHz bandwidth (mmWave), 100 MHz bandwidth (sub-6 GHz)		
Location (QCM5430)	GPS, GLONASS, NavIC, BeiDou, Galileo, QZSS, and SBAS		



Expected Product Longevity: July 2032

The QCS5430 processor 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.

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