

Qualcomm Dragonwing™ QRB2210 Processor



A cost-effective, energy-efficient processor for robotics and everyday IoT devices.

The Dragonwing QRB2210 is a budget-friendly, energy-efficient processor tailored for robotics and IoT applications. It features a quad-core Qualcomm® Kryo™ CPU, a Qualcomm® Adreno™ 702 GPU for 2D and 3D graphics, dual image signal processors, a dedicated DSP, and comprehensive connectivity options, including Wi-Fi, Bluetooth® wireless technology, and GNSS. The processor runs upstream Linux support with Yocto Project and Debian OS.

Related Products

Optimized for edge AI, [Arduino Uno Q](#) supports development and evaluation of the Dragonwing QRB2210 with stability, resource efficiency, and broad hardware support in mind.

Ordering Information

Product / Part Number

Dragonwing QRB2210 / QRB-2210-0-NSP752

Highlights

COMPACT, POWER-EFFICIENT DESIGN

Compact, power-efficient microprocessor—optimized for thermally constrained, battery-powered, and space-limited devices. Designed to support robots and IoT devices with challenging power and thermal dissipation requirements.



HETEROGENEOUS COMPUTING

Powered by a quad-core Kryo CPU clocked up to 2.0 GHz, an Adreno 702 GPU running at 845 MHz, and a dual-core DSP, the Dragonwing QRB2210 enables efficient graphics and compute workloads, including 2D/3D rendering, AI inference, and multimedia processing.



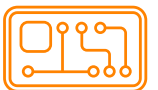
BEST-IN-CLASS CAMERA CAPABILITIES

The Dragonwing QRB2210 delivers exceptional image quality and resolution through its dual ISPs, enabling support for two concurrent cameras—either dual 13 MP or a single 25 MP sensor—at 30 frames per second with Zero Shutter Lag (ZSL). Engineered for low-light performance and clarity, the Dragonwing QRB2210 features multi-frame noise reduction, electronic image stabilization, and forward-looking bad pixel correction.



DEVELOPER-FRIENDLY

[Arduino Uno Q](#) facilitates development and evaluation of the Dragonwing QRB2210. The platform runs upstream Linux support with Yocto Project and Debian OS, a lightweight and resource-efficient OS that uses the XForms Common Environment (XFCE) desktop and Linux kernel v6.16 for stability and broad hardware support. It's optimized for edge AI with integrated TensorFlow Lite, enabling efficient, on-device inference via CPU and GPU—ideal for resource-constrained environments.





Target Applications

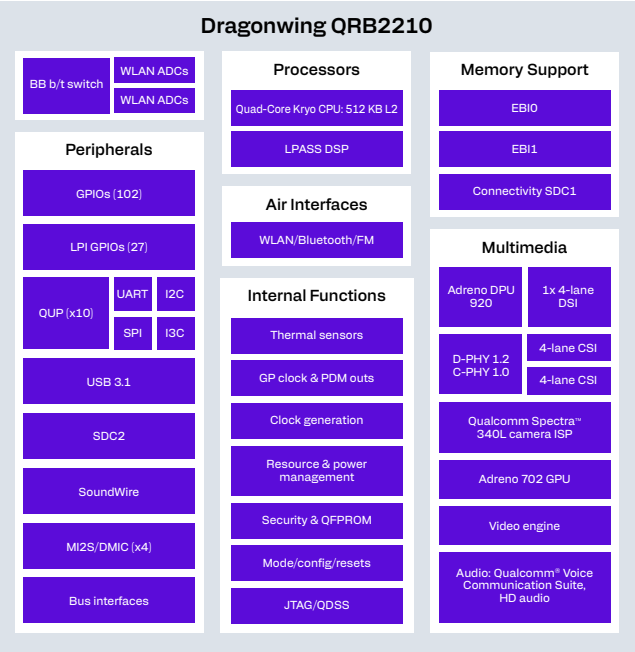
- Edge AI and Vision Applications
- Interactive Displays
- Smart Kiosks
- Robotics & Intelligent Control
- Smart Home Hubs
- Building Automation

Features

- Quad-core Kryo CPU (up to 2.0 GHz): Efficient processing for lightweight AI, control, and compute tasks
- Adreno 702 GPU: Supports OpenGL ES 3.1, OpenCL 2.0, and Vulkan 1.1 for graphics and vision acceleration
- Dual 13 MP Image Signal Processors (ISPs): Supports up to two cameras with real-time image processing
- Always-on Qualcomm® Hexagon™ DSP: Enables low-power sensor fusion and voice/audio handling
- Display Support: MIPI-DSI output for up to 1080p @ 60 fps displays, ideal for embedded UI and visualization
- Optional Integrated Connectivity (with attach devices): Wi-Fi 5 (802.11ac), Bluetooth 5.0, GNSS (GPS, GLONASS, BeiDou, Galileo), USB 3.1, eMMC 5.1, SD 3.0
- Long-term support until May 2032*

* Product longevity dates are subject to change without notice. Refer to the [product longevity page](#) for details.

Block Diagram



Specifications

Dragonwing QRB2210	
CPU	64-bit quad-core Kryo CPU 2.0 GHz
AI Performance	Hexagon Processor
GPU	Adreno 702 @ 845 MHz
	OpenGL ES 3.1, Vulkan 1.1 OpenCL 2.0
	3D graphics accelerator with 64-bit addressing
Memory	2x 16-bit LPDDR4X @ 1804 MHz 1x 32-bit LPDDR3 @ 933 MHz
Addressable Memory	Up to 4 GB non-pop
Audio DSP (LPASS)	Hexagon DSP
	Dual DSP Core supports: Low-power, always-on processing Audio signal processing Lightweight AI inference tasks
	Qualcomm Aqstic™ smart speaker amplifier Qualcomm® aptX™ Voice
Display Support	Adreno DPU 920 One 4-lane DSI D-PHY 1.2 port, up to 1.5 Gbps per lane with split link support 1x HD+ (720 x 1680) @ 60 Hz 1x 4-lane DSI
Video Decode	1080p 8-bit @ 30 fps Formats: H.264, H.265, VP9
Video Encode	1080p 8-bit @ 30 fps Formats: H.264 and H.265
Camera	18-bit (Dual ISP) 2x ISP (13 MP + 13 MP or 25 MP) @ 30 fps ZSL 2x 4-lane MIPI-CSI D-PHY 1.2 @ 2.5 Gbps or C-PHY 1.0 @ 10 Gbps
USB	USB 3.1 Type-C/Micro USB
Other I/O	102x GPIO, 27x LPI GPIO 10x QUP** ports (support UART, I2C, I3C, SPI) 9x PWM 2x I2C dedicated interfaces for camera
Storage	eMMC 5.1 SD 3.0
Wi-Fi/Bluetooth/WAN	802.11a/b/g/n/ac, Bluetooth 5.0, GNSS
OS	Yocto Linux and Debian Trixie 13
Package	12 x 12.4 x 0.91 mm; 0.4 mm pitch
Temp. Range (Tj)	-30 to 95 °C
Longevity	May 2032*

To learn more visit: [qualcomm.com](https://www.qualcomm.com)

** Qualcomm® Universal Peripheral Serial Engines

