Qualcomm QCS5430 RB3 Gen 2 Lite Core Kit Owner's Manual

Contents

Qualcomm QCS5430 RB3 Gen 2 Lite Core Kit

Product Specifications

- 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 (Feature Pack 1)
  - Octa-core Kryo 670 CPU from 1.8 GHz to 2.2 GHz (Feature Pack 2)
  - Octa-core Kryo 670 CPU from 1.8 GHz to 2.4 GHz (Feature Pack 3)
- GPU:
  - Adreno 642L GPU @ 315 MHz (Feature Pack 1)
  - Adreno 642L GPU @ 550 MHz (Feature Pack 2)
- 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
- Connectivity: Wi-Fi/ BT, 2.5 GB Ethernet, USB Type-C 3.1, USB 2.0, UFS 2.x/3.1, eMMC 5.1, SD 3.0, 2x PCIe
- 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: 2×22 MP, 3×22 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 Interfaces: Qualcomm GNSS Rx, x2 Ethernet amps, Mini-DP

Product Usage Instructions

Core Kit Contents

- Qualcomm RB3 Gen 2 Lite Core Kit
- Qualcomm RB3 Gen 2 Mainboard
- 12V Wall Adapter
- Micro USB Debug UART to Host PC
- Baseplate
- Power Button
- Interposer with QCS5430 SoM
- Software

Development Steps

1. Connect the RB3 Gen 2 Mainboard to the power supply using the provided wall adapter.
2. Connect the Micro USB Debug UART to your host PC for debugging purposes.
3. Insert the interpreter with QCS5430 SoM into the mainboard.
4. Press the power button to turn on the development kit.
5. You can now start developing IoT solutions using the provided software and SDKs.

FAQ

- **Q:** Can I customize the feature packs on the Qualcomm RB3 Gen 2 Lite Core Kit?
- **A:** Yes, you can select between preset feature packs or customize one according to your product needs.
- **Q:** How can I upgrade the device in the future?
- **A:** You can easily upgrade OTA (Over the Air) via software to unlock even greater performance.
- **Q:** Is the hardware development kit compliant with any standard specifications?
- **A:** Yes, the hardware development kit is compliant with the 96Boards open hardware specification.

Qualcomm® RB3 Gen 2 Lite Core Kit
IoT development kit designed for high-performance computing, accessibility, and flexible and customizable features

Introduction

- The Qualcomm RB3 Gen 2 Lite Core Kit gives developers a valuable combination of impressive performance and customizable features, including powerful AI processing and computer vision, to easily create a broad range of IoT solutions across use cases such as Robotics, industrial, and automation.
- The Qualcomm RB3 Gen 2 Lite is based on the Qualcomm® QCS5430 processor. This processor’s scalable performance is designed to deliver superior features and performance across all dimensions of IoT, specifically for Robotics, Industrial Handhelds (IHH), and Retail applications. This includes support for Wi-Fi 6E for ubiquitous coverage, a unified software stack, powerful AI, and expanded interfaces across ecosystems.
- The QCS5430 processor was designed with premium features and flexibility to design IoT products. It comes loaded with Wi-Fi 6E for multi-gigabit speeds, seamless connectivity, powerful heterogeneous computing, and edge AI. Select between preset feature packs or customize one according to your product needs today, or wait and easily upgrade OTA (Over the Air) in the future via software to unlock even greater performance.

- The platform includes a development kit and software. Developers can select the feature pack that best addresses their needs, and design IoT products that demand advanced performance. The platform includes SDKs that make it easy for developers to use and integrate applications and services. The hardware development kit is also compliant with the 96Boards open hardware specification to support a range of mezzanine-board expansions, beginning with the Vision Mezzanine.
- Multi-gigabit Wi-Fi 6E achieves blazing-fast wireless connectivity and low latency. Our Wi-Fi 6E offerings utilize advanced features like Qualcomm® 4K Quadrature Amplitude Modulation (QAM) and support for high-speed 160 MHz channels for multi-gigabit-per-second speeds with superb stability and consistent experiences. With the Qualcomm® Kryo™ 670 CPU and a Qualcomm® Hexagon™ processor featuring a fused AI-accelerator architecture, this solution delivers powerful connections and computing performance and is purpose-built for industrial and commercial IoT applications such as ruggedized handhelds and tablets, human-machine interface systems, point-of-sale systems, kiosks, edge AI boxes, and more.

Development Kit Contents

Core Kit

- Development board based o the Qualcomm QCS5430 processor
- 12V wall power supply
- USB Type-C cable
- Micro USB cable
- Mini speakers
- Setup guide
- Pick tool for setting switches

Qualcomm RB3 Gen 2 Lite Core Kit

Software

- Support for Linux, Android
- Qualcomm® Intelligent Multimedia SDK (For Linux)
- Qualcomm® Intelligent Robotics Product SDK
- Qualcomm® Neural Processing SDK
- Hexagon SDK

Target Applications

- Robots
- Edge Boxes
- Industrial PCs
- Vehicle Gateways
- Industrial Scanners

QCS5430 Specifications

	Feature Pack 1	Feature Pack 2	Feature Pack 2.5	Feature Pack 3
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	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	~9 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: 2×22 MP		3×22 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® Trusted Execution Environment, Qualcomm® Content Protection (Widevine, Camera Security Framework, Secure User Interface)			
Cellular Modem RF	400 MHz bandwidth (mmWave), 100 MHz bandwidth (sub-6 GHz)			
Location	GPS, GLONASS, NavIC, BeiDou, Galileo, QZSS, and SBAS			

Block Diagram

Ordering Information

- To order the Qualcomm RB3 Gen 2 Lite Core Kit, please visit our website at: https://www.qualcomm.com/developer/hardware/rb3-gen-2-development-kit/purchase.

Related Products

- This development kit is based on the QCS5430 processor, which helps enable powerful connections and reduced latency, and provides dynamic triple ISPs and advanced edge AI and compute, delivering astonishing performance at lower power.
- To learn more visit: **qualcomm.com**.

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Documents / Resources

	**Qualcomm QCS5430 RB3 Gen 2 Lite Core Kit** [pdf] Owner's Manual QCS5430 RB3 Gen 2 Lite Core Kit, QCS5430, RB3 Gen 2 Lite Core Kit, Lite Core Kit, Core Kit, Kit

References

- **Qualcomm: Intelligent Computing Everywhere**
- **Hardware | Qualcomm**
- **User Manual**

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