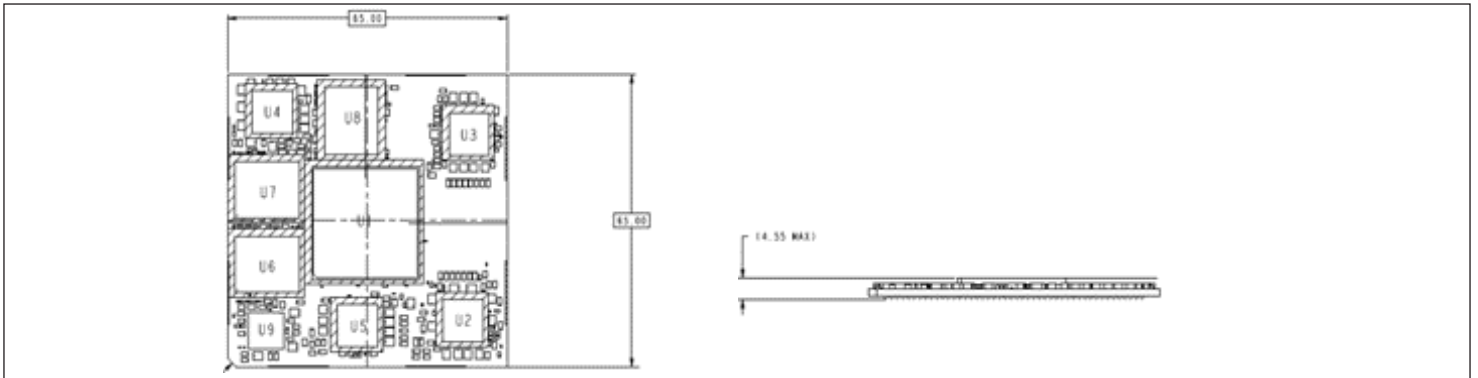


Open-Q™ 9100IQ & 9075IQ SiP

Based on Qualcomm® IQ9 Series Snapdragon® Processor



IQ9 Series SiPs for Industrial and Robotics Applications

- Qualcomm® Kryo™ Gen 6 octal-core CPU and Adreno™ 663 GPU
- On-device Qualcomm® AI Engine™ (100 TOPS) for machine vision, neural networks, deep learning workloads at low power
- Image signal processor supporting up to 16 concurrent video streaming cameras
- Extended operating temperature range from -40°C to 90°C junction temperature

The pin-compatible Open-Q 9100IQ and 9075IQ System-in-Package (SiP) solutions offer scalable, power-efficient, and robust computing capabilities for autonomous devices and next-generation Industry 4.0 designs. These advanced AI-powered SiPs enable a range of critical functionalities, including robust safety features for autonomous mobile robots with functional safety up to SIL-3 level (9100IQ only) and enhanced device robustness through fault-tolerant ECC memory support and a dedicated safety island (9100IQ) or real-time subsystem (9075IQ).

The new SiP series facilitates the deployment of interactive industrial edge AI systems by integrating Large Language Model (LLM) support, achieving a generation rate of up to 22 tokens per second when running the Llama 27B parameter model.

Combined with over 20 years of hardware design and software development experience, and 1200+ successful projects, Lantronix will be your long-term partner, ensuring the ongoing success of your product journey.

Key Features

- Qualcomm® IQ-9100 SoC
- Up to 18GB or 36GB LPDDR5 SDRAM
- On-device AI Engine up to 100 INT-8 TOPS
- Support up to 16 concurrent cameras
- Multiple PCIe, USB, and CAN-FD interfaces
- 2.5Gbps Time Sensitive Ethernet (TSN)
- Up to SIL3 with dedicated island (9100IQ SiP)
- Qualcomm® Linux

Applications

- Multi-camera and smart camera systems
- Autonomous mobile robots
- Industrial drones
- Industrial gateway
- Edge AI gateways
- Video processing box system
- Retail

Engineering Services:

We provide a full solution – our unparalleled engineering expertise and product development skills deliver innovative products that are cost-effective and can jumpstart your go-to-market timeline.

Our business model offers turnkey product development services, or we can augment your team in specific areas of development. The choice is yours.

Key development expertise in:

- Camera development and tuning
- Voice control
- Machine learning
- Mechanical & RF design
- Thermal & power optimization

IoT product development made easy.

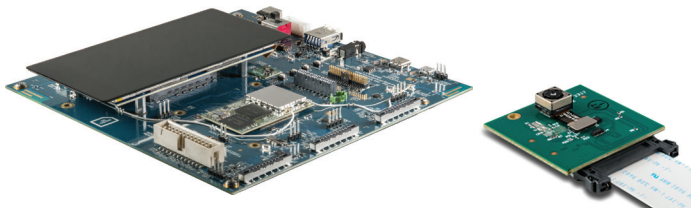
Hardware Specifications:

• Processors	Qualcomm® IQ-9100 SoC built on 5nm LPE process. Kryo™ Octa-core CPU: 1 Prime @ 3.36 GHz + 3 Gold @ 2.8 GHz + 2 Silver @ 2.0 GHz Quad Kryo Gold Prime with 512 KB L2 cache per core, targeting up to 2.36 GHz 2 MB shared L3 cache per cluster	
	Adreno™ 663 GPU Spectra™ Image signal processor 690 Adreno™ 670 Video processing unit Adreno™ 1199 Display processing unit	Dual Hexagon Tensor Processor (integrated with Hexagon DSP, quad Hexagon Vector eXtensions, and dual Hexagon Matrix eXtensions co-processors), two general-purpose DSPs and one audio DSP Safety Island subsystem (9100IQ) or Real-time subsystem (9075IQ)
• Memory/Storage	18GB or 36GB LPDDR5 up to @ 3200MHz, two UFS 3.1 gear 4, 2-lane interfaces, NVMe via PCIe NOR flash memory as SAIL domain boot up device	
• Wireless	Supports Wi-Fi 6 802.11ax 2x2 MU-MIMO with external PCIe module	
• Display Interfaces	2x 4-lane MIPI DSI with VESA DSC v1.2, D-PHY v1.2 up to 20 Gbps total, or C-PHY v1.1 up to 34 Gbps total 4x eDP/DisplayPort v1.4 at 8.1 Gbps/lane, 32.4 Gbps/port, MST, and VESA DSC v1.2a and forward error correction Up to maximum of 48MP, example configuration is up to 5x 4K display	
• Camera Interfaces	4x MIPI CSI D-PHY 1.2 or C-PHY 2.0 camera ports with eight dedicated CCI I2C	Up to 16 concurrent cameras, 2 IFE + 5 IFE Lite
• Video Performance•	Decode	Video decode up to UHD275. Native decode support for AV1, HEVC, H.264, H.265, VP9, and MPEG-2 codecs
	Encode	Video encode up to UHD170. Native encode support for HEVC, H.264, and H.265
	Dec & Enc	Concurrent UHD120 decode and UHD60 encode, or UHD60 decode and UHD120 encode
• Audio	Support LS-I2S interfaces, PCM/TDM interfaces, and High-speed I2S interfaces	
• High Speed Connectivity	1x PCIe Gen4 2-lane, 1x PCIe Gen4 4-lane 2x USB 3.1 Gen 2 (HS + SS, support device and host modes) 1x USB 2.0 (HS, support device and host modes) 1x SAIL domain RGMII interface with MDIO for Ethernet with AVB 8x CAN-FD interfaces located in SAIL domain 2x SGMII interfaces supporting up to 2.5 Gbps each	
• I/O Interfaces	Qualcomm Universal Peripheral (QUP), UART, I2C, SPI master, SPI slave, QSPI, GPIO ports, and SAIL domain GPIO ports	
• Power/Battery	Power management	
• Operating Environment	Input voltage: 3.3V Typical Operating Temperature: -40 to +90°C Junction temperature	
• Form Factor	65 x 65 x 4.55 mm LGA SiP	

Software:

• OS Support	Qualcomm® Linux
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* Open-Q 9100IQ and 9075IQ Chipset Performance, see SiP Release Notes for details on tested configurations and platforms.



Companion Development Kit, display and camera accessories available separately

Certifications



Purchasing Information:

QC-SIP-9100-A	Octo Kryo Gen 6, Adreno 663 GPU, Dual Neural Tensor Processors, 6x16bit LPDDR5 – 18GB; TAA
QC-SIP-9100-B	Octo Kryo Gen 6, Adreno 663 GPU, Dual Neural Tensor Processors, 6x16bit LPDDR5 – 36GB; TAA
QC-SIP-9075-A	Octo Kryo Gen 6, Adreno 663 GPU, Dual Neural Tensor Processors, 6x16bit LPDDR5 – 18GB; TAA
QC-SIP-9075-B	Octo Kryo Gen 6, Adreno 663 GPU, Dual Neural Tensor Processors, 6x16bit LPDDR5 – 36GB; TAA
QC-DK-9100	Open-Q 9100IQ development kit (36GB LPDDR5)
QC-DK-9075	Open-Q 9075IQ development kit (36GB LPDDR5)

Alternate SiP configurations available by special order (minimum order quantities apply)
- e.g. different memory size, etc. Contact sales to discuss your specific needs today.