

VISION AI-KIT IQ9

Qualcomm Dragonwing™ IQ-9075 Development Kit



Vision AI-KIT IQ9 features an industrial 3.5-inch SBC board fitted with Qualcomm Dragonwing™ IQ-9075 SIP module, that delivers power-efficient on-device Edge AI and compute, for high-performance, heavy workload industrial applications in extreme environments.

The Dragonwing IQ-9075 microprocessor domain (MD) has octa high-performance Kryo Gen6 cores, 100 TOPS of AI-acceleration, plus exceptional multimedia capabilities (up to 16 cameras, multiple displays, 4K170/4K275 enc/dec.). This SOC also features a real time subsystem (RTSS) with quad real-time cores @ 1.85 GHz and peripherals, for low-latency control applications.

Dragonwing™ IQ-9075 SIP resources include 36 GB LPDDR5 (3200MHz, 96bit wide DRAM with inline ECC) plus four PMM8650AU PMICs for efficient power management.

Vision AI-KIT IQ9 packs a wide range of connectivity interfaces, into a standard industrial 3.5-inch SBC form-factor, including 2x local MIPI CSI 4-lane camera inputs, 2x miniDP (4K) and 1x MIPI DSI display outputs, 6x USB ports (plus quad USB debug-bridge), 2x 2.5 GbE LAN interfaces, CAN, UART and GPIO interfaces. Add-on Wi-Fi/BT, cellular modem and NVME SSD storage options are supported via (key-E, key-B, key-M) M.2 slots. A mezzanine camera-adaptor 120-pin connector enables the use of adapter boards for support of multiple concurrent remote cameras. Audio support includes stereo amplified outputs plus onboard PDM microphone.

Fitted with 2x 128 GB UFS 3.1 flash devices, this kit ships with a Yocto-based Linux BSP, plus example AI and multi-camera, multi-display, open-source applications.

Kit includes

- 1x Vision AI-KIT IQ9 carrier board (fitted with Dragonwing™ IQ-9075 SIP module)
- 1x active cooler (LGA2011 narrow ILM footprint)
- 1x MIPI CSI 12MP camera (based on IMX577 sensor)
- Power supply (120W, 24V DC)

Accessory options

- 801.11ax Wi-Fi 6 / Bluetooth 5.4 (M.2 Key-E, 2230 wireless module)
- NVME SSD storage (M.2 Key M, 2280 memory module)
- MIPI DSI 7-inch touchscreen LCD display
- GMSL2 camera adapter board (for up to 8 remote cameras)

Target apps

- Compute-, and AI-intensive industrial applications
- Environment-aware, intelligent decision-making robots
- Industrial robots and autonomous machines
- Edge-based Generative-AI (13B-parameter LLM @12 tokens/sec)
- Agricultural automation machinery
- Inspection and monitoring machines
- Edge AI boxes and Edge Gateways



Features

Dragonwing IQ-9075 SIP Module

[highlighted subset of compute features]

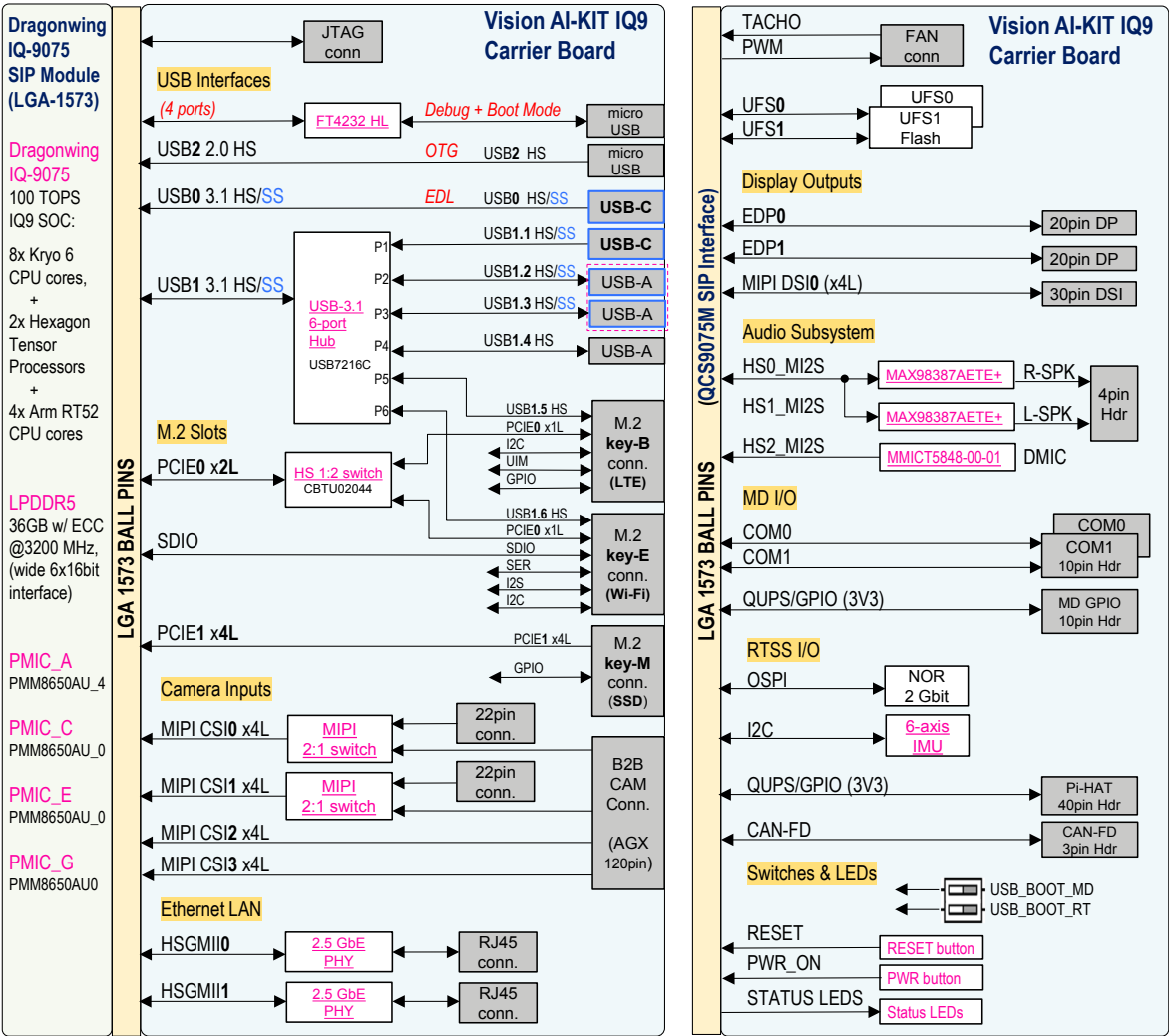
- 8x Kryo Gen6 Prime cores (up to 2.55 GHz)
- 4x real-time cores (@ 1.85 GHz)
- GPU: Adreno 663 (@ 840 MHz)
- NPU: 2x Hexagon Tensor Processors (100 TOPS)
- ISP: Spectra 690 (up to 16 concurrent cameras)
- VPU: Adreno 765, 4K170 / 4K275 enc/dec.
- DPU: 2x Adreno 1190 (for 48MP max, eg, 5x 4K)
- 36 GB LPDDR5 (@3200 MHz, 96b wide, inline ECC)

Vision AI-KIT IQ9

[includes the above SIP features, plus the subset of Dragonwing IQ-9075 interfaces pinned-out by this board]

- 256 GB UFS 3.1 G4 flash memory
- 2 Gb Octal SPI NOR flash memory
- 2x USB3.1 G2 and 1x USB2.0 type-A interfaces
- 2x USB3.1 G2 type-C interfaces
- 1x USB2.0 OTG microUSB interface
- 1x USB2.0 quad debug microUSB interface
- 2x 2.5 Gbps Ethernet (w/ TSN) RJ45 connectors
- 2x miniDisplayPort (4K60) connectors
- 1x 4-lane MIPI-DSI (4K30) touch display connector
- 2x 4-lane MIPI-CSI camera connectors (22-pin)
- Camera-adaptor mezzanine connector (120-pin)
- M.2 key-E slot (Wi-Fi 6E/BT 5.4 accessory option)
- M.2 key-B slot (5G/LTE cellular modem option)
- M.2 key-M slot (PCIe4 x4, NVME storage option)
- 1x PDM Mic and stereo amplified audio output
- 2x button switches and RGB User LED
- 10-pin GPIO header: 6x 3.3V GPIO (MD domain)
- 10-pin UART header: 4w + 2w UARTs (MD domain)
- 40-pin Pi-HAT header: UART, I2C, SPI (RT domain)
- 3-pin CAN header (RT domain)
- 2-pin RTC battery header
- Operating Temperature: -40C~+85°C
- Dimensions: 146mm x 102mm (3.5 inch SBC)

Block diagram



Featured manufacturers



Parts

Part number	Description	For more information
TBD	Vision AI-KIT IQ9 (Qualcomm Dragonwing™ IQ-9075 development kit)	Call for availability

Related parts

Part number	Description	For more information
AES-ACC-MAAX-DISP2	MIPI-DSI 7" LCD Touch Display (720x1280)	avnet.me/maax-disp2-buy
TBD part#	GMSL2 camera adapter (for 8 remote cameras)	Call for availability
M2-JODY-W377-00C	u-blox JODY-W377 Wi-Fi 6/BT5.3 M.2 module	Call for availability

Regions available for purchase: Americas, EMEA, Japan

Global Headquarters

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Worldwide Distributor: **Avnet**

Online sales: **Farnell**