Open-Q™ 8550CS SiP (System in Package)

Based on Qualcomm® QCS8550 System-on-Chip

Ideal for Advanced Video and AI Applications

The Open-Q™ 8550CS offers a premium performance level of 55 TOPs, meeting the higher AI/ML requirements for extreme edge computing, including Edge devices, Edge servers and Edge AI boxes. Based on Qualcomm's QCS8550, the Open-Q 8550 offers several benefits: low power consumption with a 4nm process, maximum heterogeneous computing, an 8th-generation AI engine delivering 10x performance over the previous generation, enterprise-level connectivity with Wi-Fi 7 supporting up to 5.8Gbps, and best-in-class performance across compute processing, camera, AI, security, and audio.

Benefits include the ability to:

- Enhance video conferencing meeting experiences, automated guided vehicle pathing, smart camera image quality and edge AI box scalability with the family's octal-core computing capabilities and 48 AI TOPS tensor performance.

- Perform complex 3D rendering and computer vision tasks with a powerful Adreno 740 GPU supporting ray tracing, Open GL ES, Vulkan and Open CL profiles and 4K240/8K60 video decoding and 4K120/8K30 encoding.

- Connect edge AI boxes leveraging high-speed 2.5G and 10G Ethernet ports.

Lantronix offers TAA and NDAA compliant products with at least 10 years of longevity for the Open-Q 5430CS, Open-Q 6490CS, Open-Q 5165RB, Open-Q 8250CS, and Open-Q 8550CS with strict Bill-of-Material and quality control. 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® 8550 SoC
- Up to 8GB LPDDR5 RAM + 128GB UFS Flash
- Android™ 13 and Linux Yocto Kirkstone
- On-device AI Engine up to 55 TOPS
- Dedicated Computer Vision Engine
- Multiple MIPI camera and display ports
- Multiple high speed connectivity options

Applications

- Multi-camera and smart camera systems
- Edge AI gateways
- Video collaboration
- Video transcoding
- Retail
- Cloud Gaming
- Industrial drones
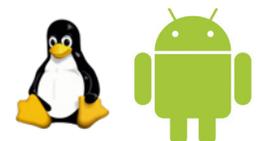- Autonomous mobile robots

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.

Qualcomm

Hardware Specifications:

• **Processors**	Qualcomm® 8550CS SoC built on 4nm technology: Kryo™ Octa-core CPU: 1 Prime @ 3.2 GHz + 4 Gold @ 2.8 GHz + 3 Silver @ 2.0 GHz
	Adreno™740 GPU / Spectra™ Image signal processor / Adreno™ 8550 video processing unit • Adreno™ 1295 display processing unit / Dual eNPU V3, 4x HVX, HMX, 48 INT8, 12 FP16 TOPs / Secure processing unit
• **Memory/Storage**	8GB LPDDR5x @ 4200MHz, and 128GB UFS, or 16GB LPDDR5x @ 4200MHz and 128GB UFS
• **Wireless**	Wi-Fi 7 802.11be 2x2 MU-MIMO + Bluetooth 5.3 capable
• **Display Interfaces**	Up to four concurrent displays. Up to QHD+ @ 144Hz on-device display, up to 4K@60 Hz external display 2x 4-lane MIPI DSI D-PHY 1.2 Support DisplayPort v1.4 on USB Type-C with USB3.2 Gen 2
• **Camera Interfaces**	8x MIPI CSI D-PHY 1.2 or C-PHY 2.0 camera ports + CCI I2C control • Up to five concurrent cameras, 18bpp, 64 + 36 MP30, or 3x 36MP or 1x 108 MP @ 30 fps ZSL, 3IFE + 2 IFE Lite

• **Video Performance** •	Decode	Video decode up to 4K240/8K60. Native decode support for H.265 Main 10, H.265 Main, H.264 High, VP9 profile 2
	Encode	Video encode up to 4K120/8K30. Native encode support for H.265 Main 10, H.265 Main, H.264 High
	Dec & Enc	Concurrent 4K60 Dec and 4K60 Enc

• **Audio**	Supports WCD938x high fidelity audio codec and WSA884x speaker amp on carrier board. Dedicated Hexagon™ audio DSP, SoundWire, MI2S, DMIC interfaces for audio devices on carrier board
• **High Speed Connectivity**	2x PCIe Gen3 2-lane Support SGMII and USXGMII interfaces 1x USB 3.2 Gen 2 with support for Type-C + DisplayPort v1.4 1x USB 3.2 Gen 1
• **I/O Interfaces**	2x SDC v 3.0, 1x SD, UART, I2C, I3C, SPI, configurable GPIOs, sensor I/O to Qualcomm Sensing Hub 3.0
• **Power/Battery**	Power management and battery charging solution on SiP
• **Operating Environment**	Input voltage: 3.7V nominal Operating Temperature: -25 to +85°C
• **Form Factor**	54 x 45 x 3.61 mm LGA SIP

Software:

• **OS Support**	Android™ 13 and Linux Yocto Kirkstone

* QCS8550 Chipset Performance, see SOM Release Notes for details on tested configurations and platforms.
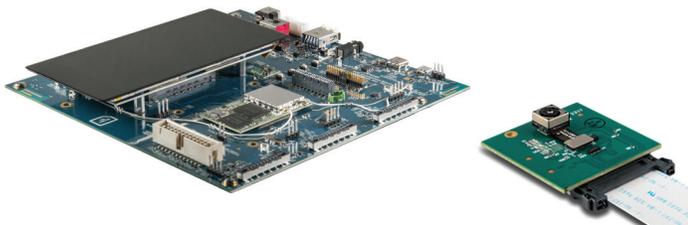
Companion Development Kit, display and camera accessories available separately

Purchasing Information:

QC-SIP-8550W-A	8GB LPDDR5x, 128GB UFS, Wi-Fi
QC-SIP-8550W-B	16GB LPDDR5x, 128GB UFS, Wi-Fi
QC-DK-8550W-A	Open-Q™ 8550 SIP Android Development Kit
QC-DK-8550W-Y	Open-Q™ 8550 SIP Linux Yocto Development Kit

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.

Certifications

Learn more at lantronix.com/open-q-8550-sip

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