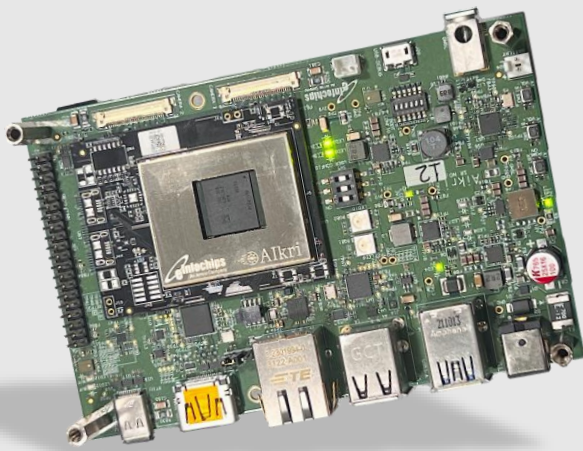# Aikri 8550 Autonomous Robots Development Kit
Based on the Qualcomm® QCS8550 SoC

1. **Autonomous Robots**
2. **Edge AI gateways**
3. **Retail**
4. **Video collaboration**
5. **Healthcare**
6. **Industrial Drones**

About eInfochips

eInfochips, an Arrow Electronics company, is a leading provider of digital transformation and product engineering services. eInfochips accelerates time to market for its customers with its expertise in IoT, AI/ML, security, sensors, silicon, wireless, cloud, and power. eInfochips being a Qualcomm Snapdragon Technology Partner (STP) offers turnkey product designs on multiple Snapdragon and other SoCs of Qualcomm® and have enabled global customers with Qualcomm based product designs.
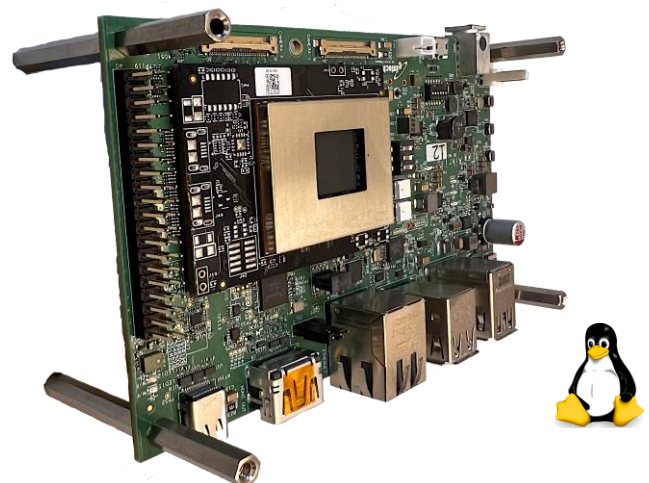
Aikri 8550 Autonomous Mobile Robots Dev Kit

The Aikri 8550 AMR dev kit is Powered by Qualcomm®'s QCS8550 based Aikri System on Module(SoM). This LGA SoM integrates an ARM Cortex-X3 based Octa-Core Kryo™ CPU, Adreno™ 740 GPU, Hexagon™ DSP/HTP with HVX and HMX and Spectra™ ISP with cognitive triple 18-bit ISPs to provide very high edge AI processing capabilities.

The AMR dev kit enables implementation of algorithms to autonomously navigate from point A to point B through multiple sensors and visualization inputs from LiDAR or ToF or cameras. The Aikri 8550 AMR dev kit enables OEMs and engineers to bootstrap development activities for potential robotics product designs based on the QCS8550 with the shortest turnaround time, while minimizing design risk factors.

eInfochips Advantages

- ✓ **28** Years of experience in system design
- ✓ **10** Design centers worldwide
- ✓ **500+** Product designs
- ✓ **35+** Product designs on Qualcomm
- ✓ **15M+** Product deployments across globe
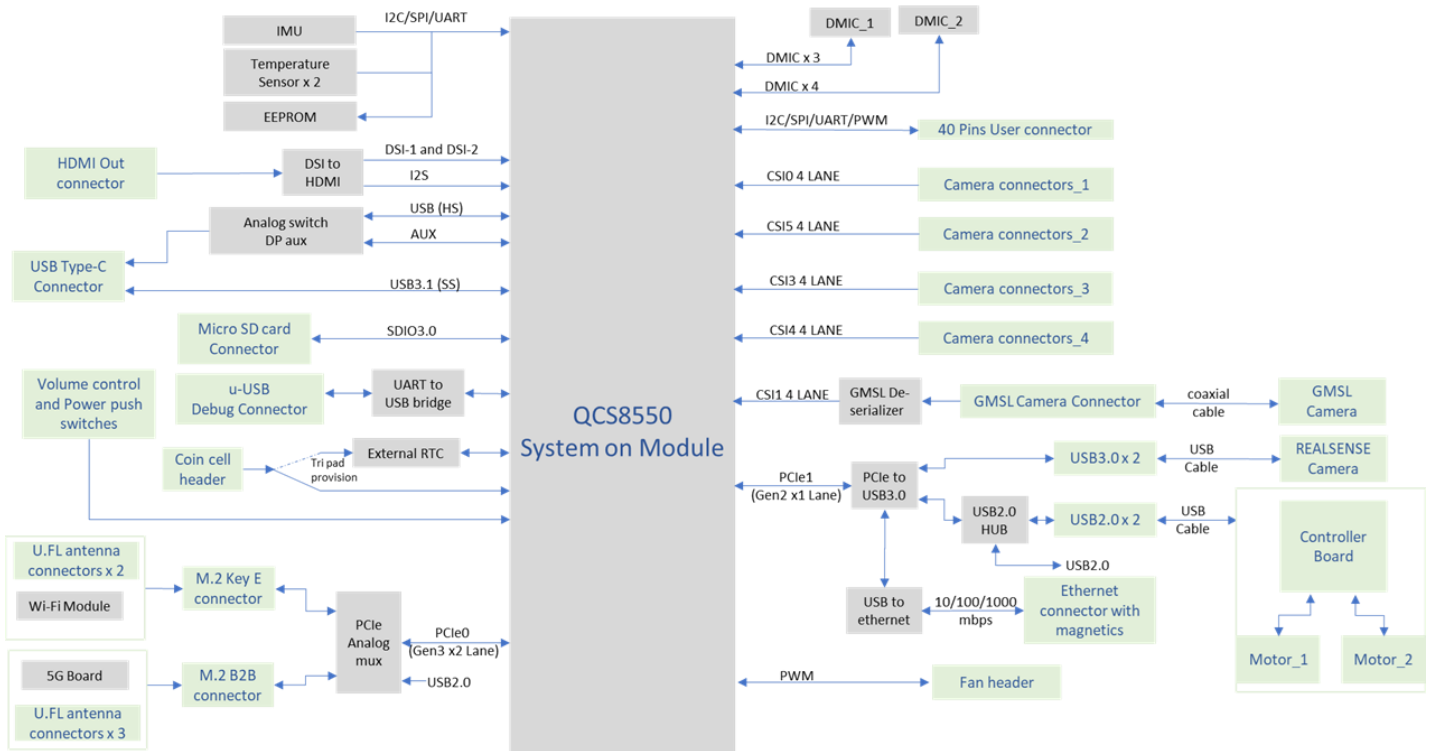- ✓ **ISO 9001, ISO13485, AS9100/EN9100, ISO26262** and **CMMi L3** compliant processes

Qualcomm
eInfochips
An Arrow Company

IMU — I2C/SPI/UART
Temperature Sensor x 2
EEPROM

DMIC_1   DMIC_2
DMIC x 3
DMIC x 4
I2C/SPI/UART/PWM — 40 Pins User connector
CSI0 4 LANE — Camera connectors_1
CSI5 4 LANE — Camera connectors_2
CSI3 4 LANE — Camera connectors_3
CSI4 4 LANE — Camera connectors_4

HDMI Out connector — DSI to HDMI — DSI-1 and DSI-2
I2S
USB (HS)
Analog switch DP aux — AUX
USB Type-C Connector — USB3.1 (SS)

Micro SD card Connector — SDIO3.0

Volume control and Power push switches
u-USB Debug Connector — UART to USB bridge
Coin cell header — External RTC — Tri pad provision

CSI1 4 LANE — GMSL De-serializer — GMSL Camera Connector — coaxial cable — GMSL Camera
PCIe1 (Gen2 x1 Lane) — PCIe to USB3.0 — USB3.0 x 2 — USB Cable — REALSENSE Camera
USB2.0 HUB — USB2.0 x 2 — USB Cable — Controller Board
USB2.0
USB to ethernet — 10/100/1000 mbps — Ethernet connector with magnetics
Motor_1   Motor_2

QCS8550 System on Module

U.FL antenna connectors x 2
Wi-Fi Module
M.2 Key E connector — PCIe Analog mux — PCIe0 (Gen3 x2 Lane)
5G Board — M.2 B2B connector — USB2.0
U.FL antenna connectors x 3
PWM — Fan header

Aikri QCS8550 SoM

Processors	ARM Cortex-X3 compliant octo-core (1 prime + 4 gold + 3 silver), Hexagon DSP with HVX and HMX, Adreno™ 740 GPU, 1295 DPU and 8550 VPU, and Spectra™ ISP
Memory	8/16GB LPDDR5, 128/256GB UFS
AI Performance (INT 8)	48 TOPS

Aikri QCS8550 AMR Dev Kit

Display Interfaces	• 1x HDMI Out port (MIPI_DSI to HDMI) • 1x USB-C Alt DP	
Camera Interface	• 2x 4-lane CSIs on 30-pin connectors • 2x 4-lane CSIs on 24-pin connectors	• 1x GMSL Camera
Sensor Interface	• 1x IMU Sensor • 2x PCBA Temperature Sensors	
Wireless connectivity	• WiFi and BT through an external M.2 E-key module OR external 5G LTE module (mutually exclusive)	
Audio Interfaces	Input: • 2x DMICs for audio capture. • Bluetooth Audio Capture.	Output: • Bluetooth Audio playback • MI2S interface Audio out over HDMI out (DSI to HDMI bridge). • DP AUX Audio output on Type-C USB using USB Alt mode
I/O Interfaces	• 1x MicroSD Card • I2C, SPI, GPIOs and UARTs on header • 1x USB-C, 2x USB2.0, 2x USB3.0, 1x USB Micro B	• 1x 10/100/1000 Mbps RJ45 Ethernet • 3x User LEDs; 2x user configurable DIP switches • 1x RTC
Operating Environment	• Input voltage: 12V5A	• Operating temperature: -20 to +60° C
Mechanical Specification	• SoM: 40.27mm x 33.41mm LGA	• Carrier board: 130mm x 85mm
Software and OS	• Linux Ubuntu, kernel v5.15.149	
Dev Kit Contents	• 1x Aikri-85X-50LS-X SoM • 1x Carrier board	• 12V power adapter; USB cable
Orderable Part	• Aikri AMR dev kit : Aikri-85X-50LD-8-2	

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