Aikri QCS6490 System on Module (SoM)

Based on the Qualcomm® QCS6490 SoC

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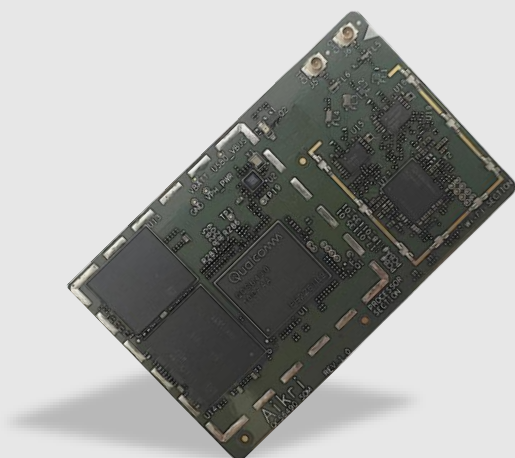
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About eInfochips

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.
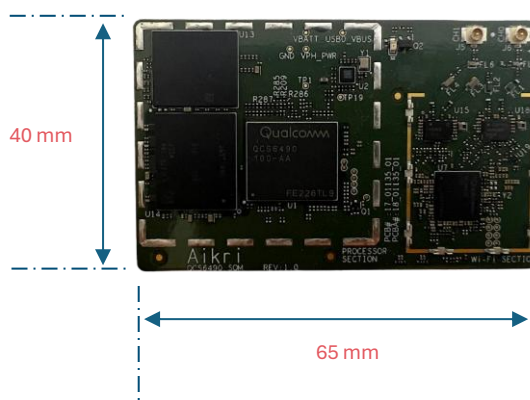
eInfochips Aikri QCS6490 SoM

The Aikri 6490 System on Module (SoM) is based on Qualcomm® QCS6490 System on Chip and delivers greater performance, better graphics, and broader connectivity options. This SoM integrates a 64-bit Octa-Core application processor Kryo™ 670 CPU, Adreno™ GPU 643, Hexagon™ DSP with HVX and Hexagon Tensor Accelerator, AI Engine that features a fused AI-accelerator architecture and Spectra™ ISP 570L image-processing engine to provide exceptional performance at low power. The SoM supports Wi-Fi 6E and Bluetooth 5.2 and provides excellent processing capabilities of multiple UltraHD video streams with enhanced security for robust connections.

The Aikri 6490 SoM enables OEMs and engineers to evaluate performance of QCS6490 for their next-gen designs while minimizing design risk factors and reducing design cycle time with early time to market.

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
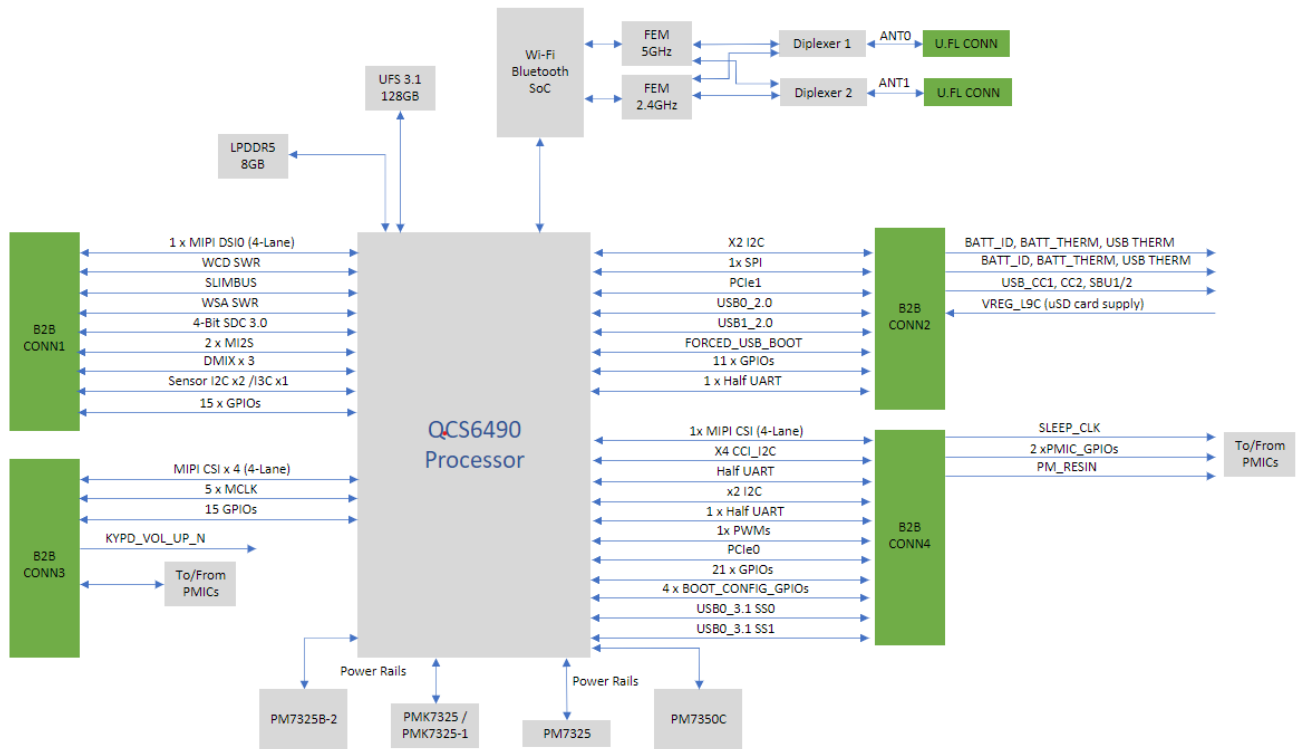- ✓ **ISO 9001, ISO13485, AS9100/EN9100, ISO26262** and **CMMi L3** compliant processes

40 mm

65 mm

Block Diagram

Wi-Fi Bluetooth SoC — FEM 5GHz — Diplexer 1 — ANT0 — U.FL CONN
FEM 2.4GHz — Diplexer 2 — ANT1 — U.FL CONN

UFS 3.1 128GB

LPDDR5 8GB

QCS6490 Processor

B2B CONN1
- 1 x MIPI DSI0 (4-Lane)
- WCD SWR
- SLIMBUS
- WSA SWR
- 4-Bit SDC 3.0
- 2 x MI2S
- DMIX x 3
- Sensor I2C x2 /I3C x1
- 15 x GPIOs

B2B CONN3
- MIPI CSI x 4 (4-Lane)
- 5 x MCLK
- 15 GPIOs
- KYPD_VOL_UP_N
- To/From PMICs

B2B CONN2
- X2 I2C
- 1x SPI
- PCIe1
- USB0_2.0
- USB1_2.0
- FORCED_USB_BOOT
- 11 x GPIOs
- 1 x Half UART
- BATT_ID, BATT_THERM, USB THERM
- BATT_ID, BATT_THERM, USB THERM
- USB_CC1, CC2, SBU1/2
- VREG_L9C (uSD card supply)

B2B CONN4
- 1x MIPI CSI (4-Lane)
- X4 CCI_I2C
- Half UART
- x2 I2C
- 1 x Half UART
- 1x PWMs
- PCIe0
- 21 x GPIOs
- 4 x BOOT_CONFIG_GPIOs
- USB0_3.1 SS0
- USB0_3.1 SS1
- SLEEP_CLK
- 2 xPMIC_GPIOs
- PM_RESIN
- To/From PMICs

Power Rails

PM7325B-2 | PMK7325 / PMK7325-1 | PM7325 | PM7350C

Aikri QCS6490 SoM

Processors	Qualcomm® QCS6490
	• 64-bit customized Octa-core Kryo™ CPU 670
	  • Quad high-performance Gold+ core at 2.7GHz
	  • Quad low power silver cores at 1.9GHz
	• Adreno™ 643 GPU at 812 MHz with 64-bit addressing and 1075 DPU
	• 6th gen AI Engine: Compute Hexagon DSP with dual Hexagon Vector eXtensions (HVX), Hexagon Co-processor 2.0 and Tensor Accelerator
	• Spectra™ 570L ISP

AI Performance (INT 8)	13 TOPS
Memory	8GB LPDDR5, 128GB UFS
Wireless	• Qualcomm® Wi-Fi via WCN6856 WLAN 802.11ax (WiFi 6E); Bluetooth5.2 • 2x UFL connector on SoM
Display Interfaces	• 1x MIPI-DSI 4-lane - D-PHY 1.2 at 1.5 Gbps per lane; split link supported • DisplayPort on USB-C
Camera Interface	• 5x MIPI-CSI 4-lane - D-PHY 1.2 at 2.5 Gbps per lane supported. • Triple 14-bit image signal processing (ISP) + two lite ISP 22 + 22 + 22 MP, 64 MP/30 fps
Audio Interfaces	• 1x PDM MIC (from QCS6490) • 1x SLIM bus port interface to WCN6856 BT audio • 1x Sound-Wire interface (two Tx and two Rx data lines) for WCD9375 codec.
I/O Interfaces	• 1x USB-C 3.1 • 1x PCIe Gen 3 1-lane (for WCN6856); 1x PCIe Gen 3 2-lane (for NVMe but can be used for other use-cases) • GPIOs, SPIs, I2Cs, I3C, UARTs; GPIO connections to sensor core DSP
Operating Environment	• Input voltage: 3.6V • Operating temperature: -30 to +85° C
Mechanical Specification	• SoM: 65mm x 40mm x 4mm*/5.41mm# with 4x 90-pin board to board connectors *Stacking height #Standalone height
Software and OS	• Android 13, Kernel 5.4.226 • Linux Ubuntu Kernel 5.4.233
Orderable Parts	**Android** • System On Module (SOM): Aikri-64X-90AS-8 • Development kits: Aikri-64X-90AD-8 – Basic dev kit Aikri-64X-90AD-8-1 – Dev kit with all accessories for video collaboration use-cases **Linux** • System On Module (SOM): Aikri-64X-90LS-8 • Development kit: Aikri-64X-90LD-8 – Basic dev kit Aikri-64X-90LD-8-1 –Dev kit with all accessories for video collaboration use-cases

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