

/ QCS6490 VISION-AI DEVELOPMENT KIT

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The QCS6490 Vision-AI Development Kit features an energy-efficient, multi-camera, SMARC 2.1.1 compute module, based on the Qualcomm QCS6490 SOC device.

High performance cores on the QCS6490 SOC include an 8-core Kryo™ 670 CPU, Adreno 643 GPU, Hexagon DSP and 6th gen AI Engine (13 TOPS), Spectra 570L ISP (64MP/30fps capability) and Adreno 633 VPU (4K30/4K60 enc/dec rates), ensure that exceptional concurrent video I/O processing performance is delivered.

A useful subset of the SMARC's interfaces are pinned-out on the carrier board, to support four cameras, two displays, five USB interfaces, CAN-FD, Gigabit Ethernet and optional high-speed Wi-Fi networking. The audio subsystem includes two PDM microphones, stereo audio Codec, digital audio interface and analog audio jack I/O.

Integrated TPM and Wi-Fi/BT modules are offered as a SMARC assembly option.

The carrier board has M.2 slots for NVME storage and advanced wireless options. Compact 100 mm x 79 mm carrier board dimensions and mounting hole alignment with similar AI developer boards, enable a drop-in capability with many enclosures.

The development kit ships with a Yocto-based Linux BSP, plus example AI and multi-camera open-source applications. Additional OS options are available, with Windows 11 IoT Enterprise due in 2H24. (Qualcomm also supports Android and Ubuntu Linux on the QCS6490, but for this platform it will depend on demand).

Kit includes

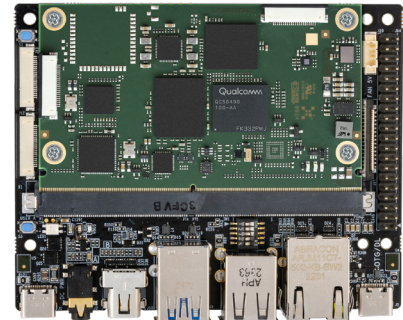
- AES-SM2S-QCS6490-DK-G (Vision-AI Carrier IO Board fitted with SM2S-QCS6490 SMARC compute module)
- 1x MIPI CSI IMX577 12MP camera
- USB-C PD power supply (9V)

Accessory options

- 801.11ax Wi-Fi 6E / Bluetooth 5.4 (M.2 Key-E wireless module)
- NVME SSD storage (M.2 Key M 2280 memory module)
- MIPI DSI 7-inch touchscreen LCD display
- MIPI CSI IMX477 12MP camera

Target apps

- Ruggedized Handheld Industrial Scanners and Tablets
- Drone/UAV/other mobile Vision-AI Edge Compute Applications
- Info kiosks, Vending Machines and Interactive HMI Systems
- Multi-camera Security Systems with Recognition
- Inventory and Asset Monitoring
- Smart City, Smart Camera Systems
- Food Services POS Equipment
- Service & Industrial Robots



Features

SM2S-QCS6490 SMARC Compute Module

- 4x Arm Cortex-A78 (@ up to 2.7 GHz)
- 4x Arm Cortex-A55 (@ 1.9 GHz)
- GPU: Adreno 643 (@ 812 MHz)
- DSP/NPU: 6th gen Qualcomm AI Engine (13 TOPS)
- ISP: Spectra 570L (up to 5 concurrent cameras)
- VPU: Adreno 633, video enc/dec to 4k30 / 4K60
- 8GB LPDDR5 SDRAM, 64GB UFS Flash Memory
- 2x USB 3.1 (2L), 3x USB 2.0 interfaces
- 2x PCIe Gen3 (1L), 1x PCIe Gen3 (2L) interface
- 1x DisplayPort 1.4 (2L) interface
- 1x MIPI-DSI (4L), 1x eDP (4L) display interfaces
- 2x MIPI-CSI (4L) camera 22-pin connectors
- 2x MIPI-CSI (4L, 2L) via SMARC edge connector
- 2x 1 Gigabit Ethernet interfaces
- Wi-Fi 6 / BT 5 (SMARC module assembly option)
- TPM module (SMARC module assembly option)
- UART, SPI, I2C, I2S, GPIO interfaces
- HW Key manager, ECC, Secure boot, Crypto

Vision-AI IO Board

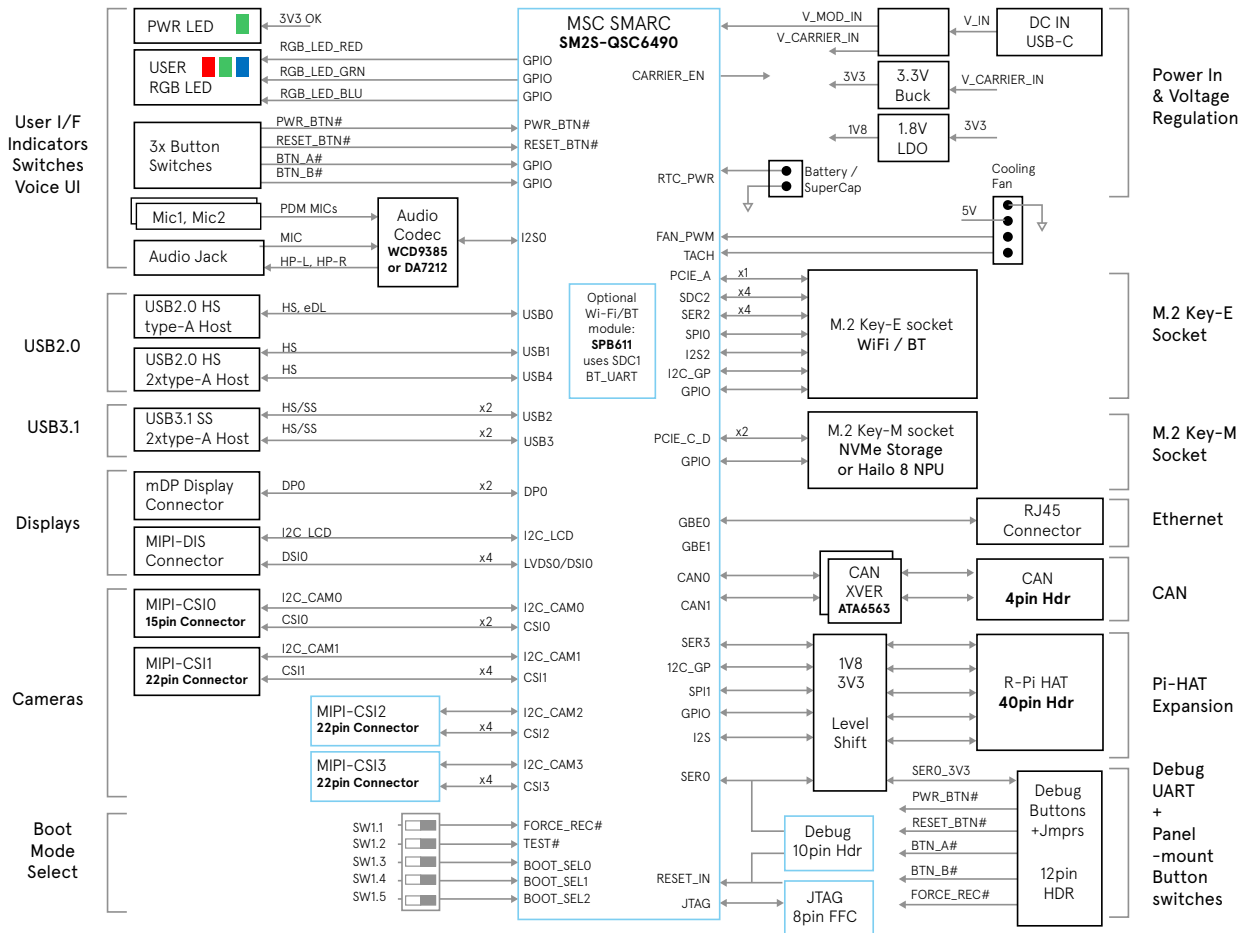
[Supported subset of the SMARC interfaces]

- SMARC 2.1.1 edge connector (314 pin)
- M.2 key-M slot (NVME storage accessory option)
- M.2 key-E slot (Wi-Fi 6E/BT 5.4 accessory option)
- 1x 1 Gigabit Ethernet RJ45 connector
- 2x USB 3.1, 2x USB 2.0, 1x USB-C OTG
- 1x miniDP and 1x MIPI-DSI display connectors
- 1x 4L and 1x 2L MIPI-CSI 22pin connectors
- 2x PDM Mics, Audio Codec, Stereo HP jack
- 2x button switches and RGB User LED
- 40-Pin Pi-HAT header
- 4-pin CAN header, 10-pin Test IO header
- 2-pin RTC battery header
- DC Power supply: USB-C PD (9V / 3A)
- Operating Temperature: -40C~+85°C
- Dimensions: 100mm x 79mm

For more information visit: avnet.me/qcs6490-vision-dk

To purchase this kit, visit: avnet.me/qcs6490-vision-dk-pdp

Block diagram



Featured manufacturers

Qualcomm

Parts

| Part number | Description | Price and availability |
|------------------|-----------------------------------|------------------------|
| AES-QCS6490-DK-G | QCS6490 Vision-AI Development Kit | TBD |

Related parts

| Part number | Description | Price and availability |
|--------------------|---------------------------------------------|-----------------------------------------------------------------------|
| AES-ACC-MAAX-PWRUL | UL Certified 5V/3A USB Type-C Power Supply | avnet.me/maax-pwrul-buy |
| AES-ACC-MAAX-DISP2 | MIPI-DSI LCD Touch Display (720 x 1280) | avnet.me/maax-disp2-buy |
| TBD part# | MIPI-CSI Camera (12 MP IMX577 image sensor) | call for availability |
| 453-00165 | Laird Sona NX611 Wi-Fi 6E/BT5.4 M.2 module | call for availability |

Countries available for purchase: Americas, EMEA

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