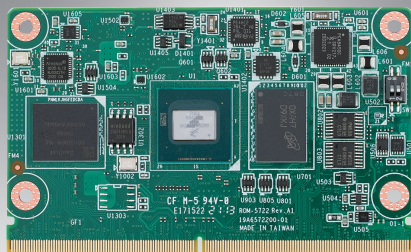


AOM-5721

Qualcomm QCS6490 AI-on-Module Nano

Preliminary



Features

- Qualcomm Arm® v8 Cortex® Gold plus up to 2.7 GHz
- 3x Arm v8 Cortex® Up to 2.4GHz
- Onboard LPDDR5 8GB, 6400MT/s memory
- 1 x 4 lane MIPI DSI, 1x DP and 1x eDP1.4 for Displays
- 4 x MIPI CSI 4-lane
- 2 x USB3.2 Gen1, 4 x USB2.0, 4 x UART, 3 x I2C, 14 x GPIO, 3 x PCIe3.0
- 1 x UFS, 1 x 4-bit SDIO for storages
- Support Windows 11, Yocto, Ubuntu and Android



Introduction

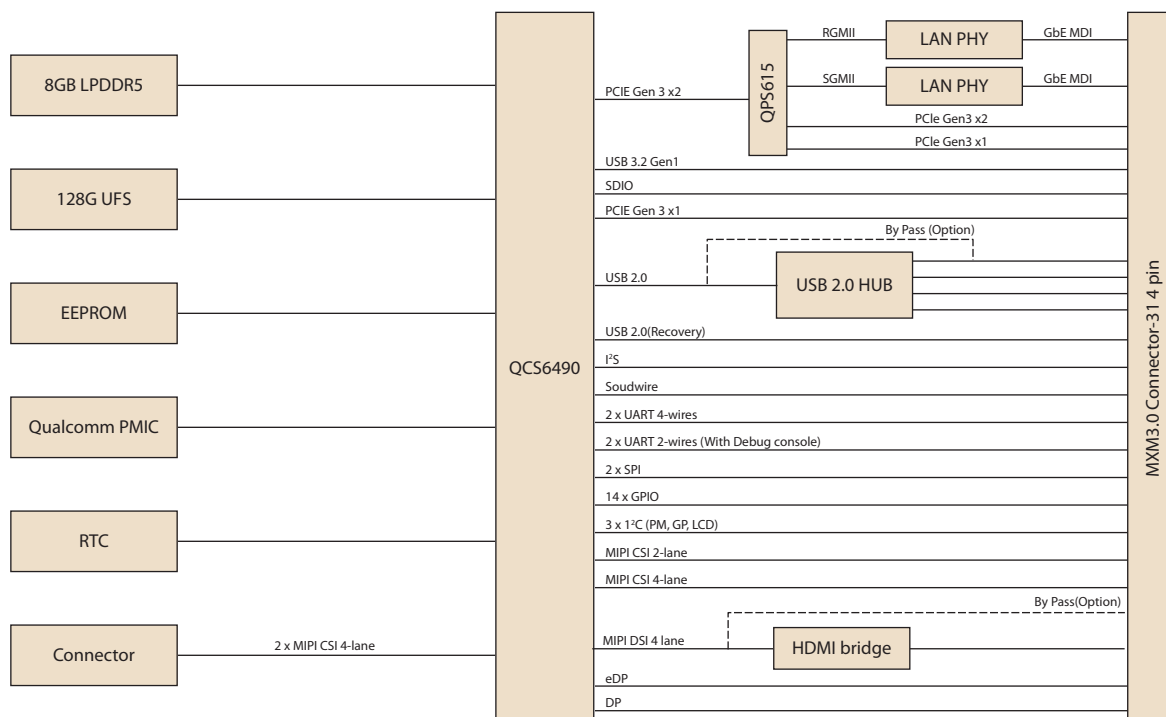
Advantech AOM-5721 AI-on-Module is powered by Qualcomm QCS6490/5430 SoC which includes up to Arm v8 Cortex® in combination with Adreno GPU 643 and Adreno VPU 633 graphics engine. It provides PCIe, USB 3.2, Giga Ethernet, MIPI-CSI, I2C, SPI, GPIO, PWM, eDP, MIPI-DSI display for embedded applications.

AOM-5721 is paired with Advantech AOM carrier board for faster end product peripheral integration and time-to-market. The reference schematics and layout checklists documentations for carrier board development will be provided along with Windows 11 and Ubuntu, test utilities, hardware design utilities and reference drivers.

Specifications

Form Factor	Form Factor	AOM Nano (SMARC compatible)	
Processor System	CPU	QCS6490	QCS5430
	Core	8x Kryo 670 CPU from 1.9 up to 2.7 GHz	Up to 6x Kryo 670 CPU from 1.8 GHz to 2.4 GHz
Memory	Technology	LPDDR5 6400MT/s	
	Capacity	Up to 16GB LPDDR5 (On-board)	
	Flash	Up to 1TB UFS	Up to 1TB UFS(Optional)
Graphics	LVDS/MIPI DSI	1 x 4 lane MIPI DSI (Optional instead of HDMI)	
	eDP	1 x eDP (4K60fps)	
	DP	1 x DP	
	GPU	Adreno GPU 643 @812 MHz, Support for Open GL ES 3.2, Open CL 2.0, Vulkan 1.x, DX FL 12	Adreno 642L GPU @ 550 MHz, Support for Open GL ES 3.2, Open CL 2.0, Vulkan 1.x, DX FL 12
	VPU	Adreno VPU 633, Up to 4K60 decode for H.264/H.265/VP9, Up to 4K30 encode for H.264/H.265; Support for HDR10 and HDR10+ playback	
	Chipset	1 x RGMII and 1 x SGMII	
Ethernet	Speed	10/100/1000 Mbps	
RTC		Yes	
Security		Qualcomm® Trusted Execution Environment (TEE) v5.3, TPM	
I/O	PCIe	1 x PCIe Gen 3 x2(QPS615), 1 x PCIe Gen 3 x1(QPS615), 1 x PCIe Gen3 x1	
	USB	1 x USB 3.2 Gen 1, 4 x USB 2.0 (Type-A), 1 x USB 2.0 (Recovery)	
	Audio	1 x I²S, 1 x Soundwire	
	SDIO	1	
	Serial Port	2 x UART with TX/RX (Data Only), 2 x UART with TX/RX/RTS/CTS (2 wire handshake)	
	SPI	2	
	GPIO	14	
	I²C	3	
	Camera Input	1 x MIPI CSI 4-lane, 1 x MIPI CSI 2-lane (SMARC Edge Connector), 2 x MIPI CSI 4-lane (Connector)	1 x MIPI CSI 2-lane (SMARC Edge Connector), 2 x MIPI CSI 4-lane (Connector)
	PWM	1	
Power	Power Supply Voltage	Fixed 5V DC source	
	Power Consumption	TBD	
Environment	Standard temperature	0° to 60°C	
	Extend temperature	-20° to 70°C	
	Operating Humidity	95% @ 40°C (non-condensing)	
Mechanical	Dimensions (W x D)	82 x 50 mm	
Operating System		Yocto Linux, Ubuntu Linux, Windows 11 IoT, Android	
Certifications		CE/FCC Class B	

Block Diagram



Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	GbE	USB3.2 Gen1	USB 2.0	Display	I2S	I2C	SPI	Operating Temperature
A0M-5721W8XX-XXXX	QCS6490	Up to 16GB	Up to 1TB UFS	4	2	1	4	1 x 4 lane MIPI DSI	3	3	2	-20° ~ 70° C
A0M-5721C8XX-XXXX	QCS6490			4	2	1	4	(Optional instead of HDMI),	3	2	2	0 ~ 60 °C
A0M-5721W6XX-XXXX	QCS5430		Up to 1TB UFS (Optional)	4	2	1	4	1 x eDP(4K60fps),	3	3	2	-20° ~ 70° C
A0M-5721C6XX-XXXX	QCS5430			4	2	1	4	1 x DP	3	2	2	0 ~ 60 °C

* DRAM and eMMC of other capacity are available through project-based support. Please contact sales for details.

Development Board

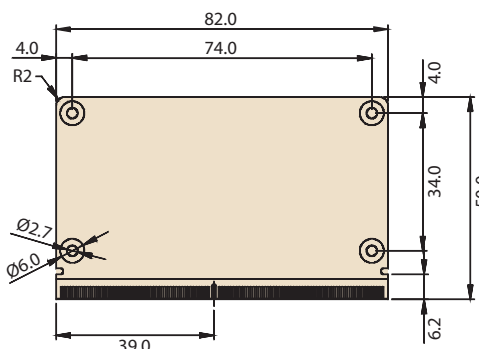
Part No.	Description
TBD	Carrier Board

Optional Accessories

Part No.	Description
1701200220	Debug port cable
1700019474	D-SUB 9P(F)/D-SUB 9P(F) RS232/RS485 100c
TBD	Heat Spreader
TBD	Semi Heat Sink (0 ~ 60 °C)
TBD	Semi Heat Sink (-40 ~ 85 °C)
96PSA-A36W12R1-3	ADAPTER 100-240V 36W 12V 3A
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Cord 3P Europe (WS-010+WS-083) 183cm
1700019146	Power Cord CCC 3P 10A 250V 183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700008921	Power Cord 3P PSE 183cm
SQF-ISDM1-16G-21C	SQF SD Card 1-SD UHS-I MLC 16G (0-70°C)
SQF-ISDM1-16G-21E	SQF SD 1-SD UHS-I MLC 16G (-40-85°C)
EWM-W163M201E	802.11 a/b/g/n/ac, QCA6174A, 2T2R, w/BT4.1, M.2 2230
1750008717-01	Dipole Ant. D.B 2.4/5G WIFI 3dBi SMA/M-R BLK
1750007965-01	Antenna Cable R/P SMA (M) to MHF4, 300mm
EWM-C117FL06E*	LTE 4G,3G WCDMA/DC-HSPA+, 2G module, MPCCI-L280H
1750008303-01	Antenna AN0727-64SP6BSM
1750006009	Antenna Cable SMA (F) to MHF 1 32 25cm

Dimensions

Unit: mm



*Please contact us for suggesting suitable cellular module for your region.