

ASR-D501

Compact Companion/Mission Computer for Drone Powered by Qualcomm QCS6490

Preliminary



Features

- Qualcomm® QCS6490 on SBC, support extend operating temperature -20~70°C
- Powerful but Low Power with 8x Kryo 670 CPU from 1.9 up to 2.7 GHz + Adreno GPU 643 + up to 12.3 TOPs iNPU
- Rugged Design with On-board 8GB LPDDR5 and 128GB UFS
- Display: Mini DisplayPort
- 1x 2.5GbE, 2x CAN-FD, 2x USB Type-C, 2x I2C, 3x UART, 5x MIPI-CSI
- Expansions: 1x M.2 E-Key, 1x M.2 B-Key
- OS Support: Ubuntu
- Support Advantech Robotic Suite with compatible ROS2 and MAVLink/MAVROS/MAVSDK

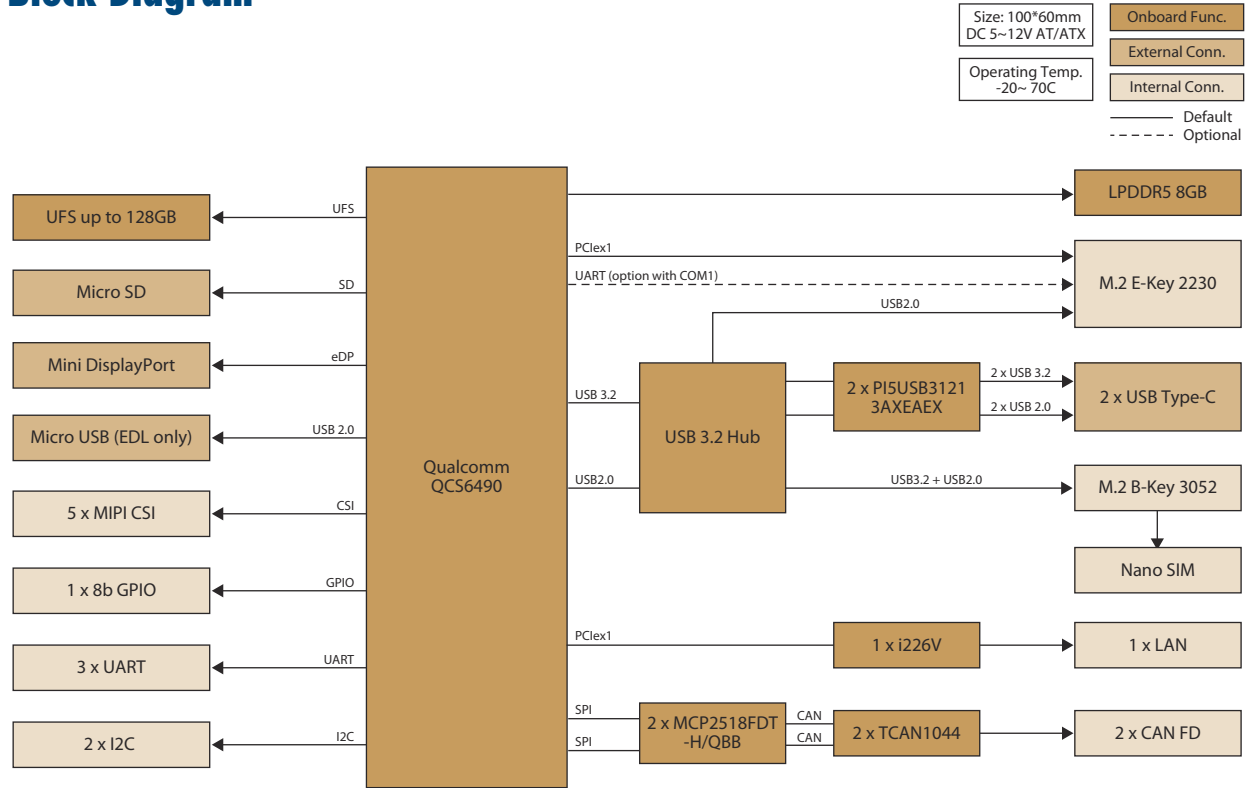


Specifications

CPU	SoC	QCS6490
	Clock Speed	1x A78 @ 2.7 GHz, 3x A78 @ 2.4 GHz, 4x A55 @ 1.9 GHz
	Number of CPU Cores	8
Memory	Technology	LPDDR5 8533MT/s
	Max. Capacity	Up to 8GB
Storage	UFS	Up to 128GB
	GPU	Adreno™ 643
GPU & AI	Clock Speed	Up to 812 MHz
	AI DSP	Hexagon™ 770
	Clock Speed	1.45 GHz
Display I/F	LCD	1 x eDP1.4, up to 4096 x 2160 @60Hz
	Single Display	Mini DisplayPort
Ethernet	Controller	i226V
	Speed	2.5 GbE (GH connector)
External I/O	Mini DisplayPort	1
	Micro SD	1
	USB Type-C	2 x USB3.2 Gen. 2 (10Gbps)
	Micro USB	1 (for EDL only)
Internal I/O	Serial Bus	2 x I²C
	UART	3 x UART 3.3V
	MIPI-CSI	5 x 4-Lane MIPI-CSI
	GPIO	8-bit general purpose input output I/O
	CANBus	2 x CAN-FD
	Front Panel Control	External Power Button, and 3.3V
Board Feature	Security	Qualcomm® Trusted Execution Environment (TEE) v5.3
Expansion	M.2 E-Key	1 x E-Key 2230 (PCIe x1, USB2.0)
	M.2 B-Key	1 x B-Key 3052 (USB3.2 Gen1, USB 2.0) w/ Nano-SIM
Power	Supply Voltage	Vin: DC 5V~12V; RTC Battery: Lithium 3V/200mAH, support w/o CMOS Battery
	Connector	2-pin phoenix connector
	Power Management	AT, ATX
	Max. Consumption (*Ref. data. Contact FAE for adapter selection.)	17.58W (12V), 18.27W (5V)
	Idle Consumption	4.88W (12V), 4.41W (5V)
Environment	Temperature	Operating: Extend: -20~70 °C (-4~158 °F) with 0.7m/s airflow Storage: -40 ~ 85 °C (-40 ~ 185 °F)
	Humidity	Operating: 40 °C @ 95% relative humidity, non-condensing Storage: 60 °C @ 95%relative humidity, non-condensing
	Vibration Resistance	3.5 Grms
Certification	EMC	CE, FCC Class B, ESD 8KV/15KV Criteria A
Mechanical	Dimensions	100 x 60 mm (3.9" x 2.4")
	Net Weight	50g (without Heatsink)
Operating system	Linux	Ubuntu 24.04

*Note: Support by request

Block Diagram



Ordering Information

Part No.	SoC	CPU Core & Clock Speed	GPU	Clock Speed	AI DSP	Clock Speed	Memory	Storage	Thermal Solution	Operating Temperature	COO
ASR-D501-N1A1U	QCS6490	8 Cores (1x A78 @ 2.7 GHz, 3x A78 @ 2.4 GHz, 4x A55 @ 1.9 GHz)	Adreno™ 643	up to 812 MHz	Hexagon™ 770	1.45 GHz	8GB LPDDR5	128GB UFS	Passive	-20 ~ 70 °C	Taiwan

Packing List

Part No.	Description	Quantity
	ASR-D501 SBC	1
1970006381T001	Passive Heatsink	1
1652002024	Plug-in Block 2P/3.5mm/(F)/NY66/RA/Sn/GR/W SC	1

Optional Accessories

Part No.	Description
TBD	Heatspreader
1970006379T001	Active Cooler
170P000036-01	COM Cable D-SUB 9P(M)/1*6P-1.25 20cm
170P000037-01	CANBus Cable D-SUB 9P(M)/1*4P-1.25 20cm
170P000038-01	GPIO Cable D-SUB 9P(F)/1*10P-1.25 20cm
1700025149-11	LAN cable RJ45-8P8C(F)/1x14P-1.25 22cm
1700036505-01	Mini DP to DP cable 0P(M)/DP 20P(M) CB803E-4000-10F
AIW-356	5G(Sub-6G)/LTE/WCDMA module, with GNSS
AIW-170BQ-001	Wi-Fi 6E + BT 5.3, WCN6856/QCA2066, 2T2R, M.2 2230 E key
20706U24BS0002	Image Ubuntu V1.0.0 ASR-D501

Rear I/O View

