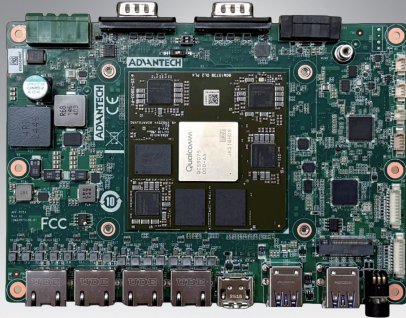


ASR-A503

Qualcomm® IQ9075M, Robot Controller Board

Preliminary



Features

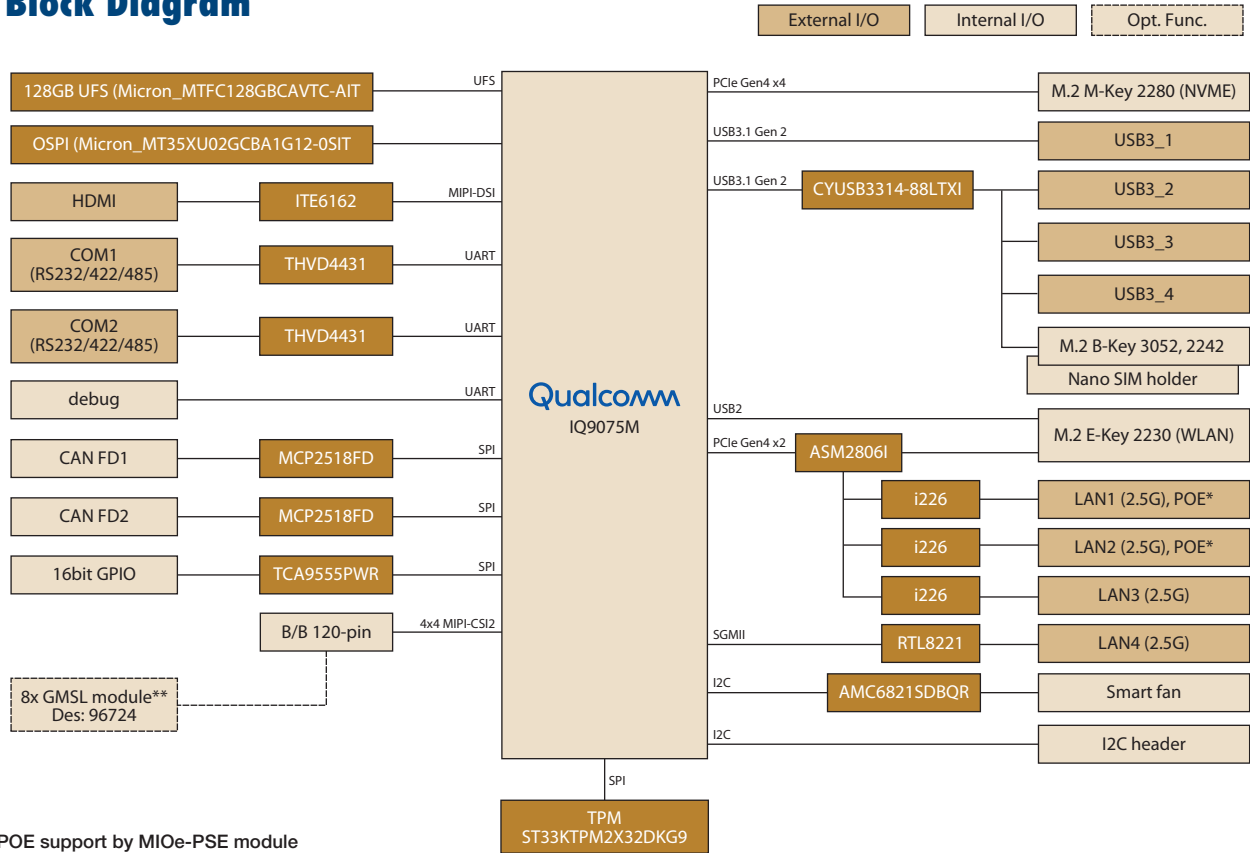
- AMR AI control system up to 100 TOPS
- Dedicated I/Os for AMR: 4x GbE, 4xUSB, 2x CAN FD, 16-bit DIO
- 3x M.2 Expansions: 1x E-Key, 1x B-Key, 1x M-Key (support NVMe)
- Sensor connection for camera, LiDAR, IMU, and optional GMSL...etc.
- Supports Ubuntu 24.04
- Supports Advantech Robotic Suite



Specifications

CPU	SoC	IQ9075M
	CPU	Kryo™ CPU Gen 6
	Clock Speed	2.36 GHz
	Number of CPU Cores	8
Memory	Technology	LPDDR5 3200MHz
	Max. Capacity	Up to 32GB
	Data Rate	3200MHz
Storage	UFS	Up to 128GB
	NVMe	Support through M.2 M-Key
GPU & AI	GPU	Adreno 663
	Clock Speed	Up to 800 MHz
	AI DSP	Hexagon
	Performance	Up to dense 100 TPOS, sparse 200 TOPS
Display	HDMI	1x HDMI port 1.4a up to 4K@ 24Hz, 24bpp
Ethernet	Controller	LAN1-3: Intel i226; LAN4: RTL8221
	Speed	2.5GbE
I/O	Ethernet	4x RJ45 Optional PoE: LAN1-2 with PoE (available with MIOe-PSE power solution)
	USB Type-A	1x USB3.1 Gen 2 (10 Gbps), OTG 3x USB3.1 Gen.1 (5 Gbps)
	COM Port	2x RS-232/422/485
	GPIO	16bit general purpose input output I/O
	CAN Bus	1x CAN2.0 A/B& CAN-FD
	GMSL	8x GMSL (MIPI-CSI 4x 4-lane)
	FAN	1x Smart Fan 1A@12V
	LED/ Reset	Power-on, Reset
Board Feature	Watchdog Timer	Support
	TPM	TPM 2.0
	Time Sync	Support GNSS-based time sync
Expansion	M.2 E-Key	1x E-Key 2230 (PCIe x1, USB2.0, UART)
	M.2 B-Key	1x B-Key 3052, 2242 (USB 3.2, USB2.0) w/ Nano-SIM
	M.2 M-Key	1x M-Key 2280 (PCIe Gen4x4)
	GMSL	8x GMSL (by option)
Power	Supply Voltage	Vin: 20~36V, ± 10%
	Power Management	AT, ATX
	Max. Consumption	TBD
	Idle Consumption	TBD
Environment	Temperature	Operating: Standard: -20~55° C (-4°F to 131°F), 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	Up to 3.5 Grms
Certification	EMC	CE/FCC Class B, ESD 8KV/15KV Criteria A
Mechanical	Dimensions (W x D x H)	115 x 165 mm (4.5 x 6.5 inches)
	Net Weight	TBD

Block Diagram



*POE support by MIOe-PSE module
 **GMSL support by AFE-RM06 module

Ordering Information

Part No.	SoC	Memory	HDMI	GbE	USB	COM	CAN	DIO	DC-in	Made in
TBD	IQ9075M	32GB LPDDR5	1	4	4	2	2	16bit	20-36V DC	Taiwan

Packing List

Part Number	Description	Quantity
TBD	ASR-A503 Unit	1
TBD	Active cooler for ASR-A503	1
1700030518-01	CANBus Cable D-SUB 9P 15cm	2

Embedded OS/ API

Part Number	Description
TBD	Ubuntu 24.04
TBD	Ready by Advantech Robotic Suite

Optional Accessories

Part Number	Description	Suggest Quantity per ASR-A503
TBD	AC to DC adapter, DC 24V 230W, -20 ~ 60 °C	1
TBD	Power Adapter Cable	1
MIOe-PSE-DPA1	MIOe-PSE Dual Port 15.4W PoE PSE module	1
AFE-RM06	MAX96724, 8ports GMSL and isolated CANBus and GPIO ports	1
1751000758-01	1 to 4 MINI FAKRA GMSL cable	2