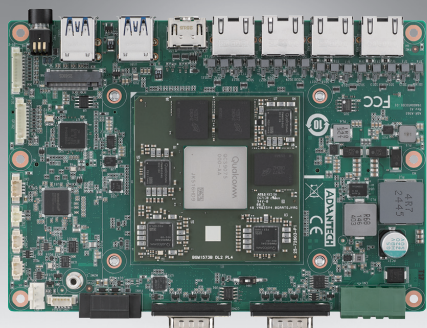


ASR-A503

Qualcomm® IQ9075M, Robot Controller Board



Features

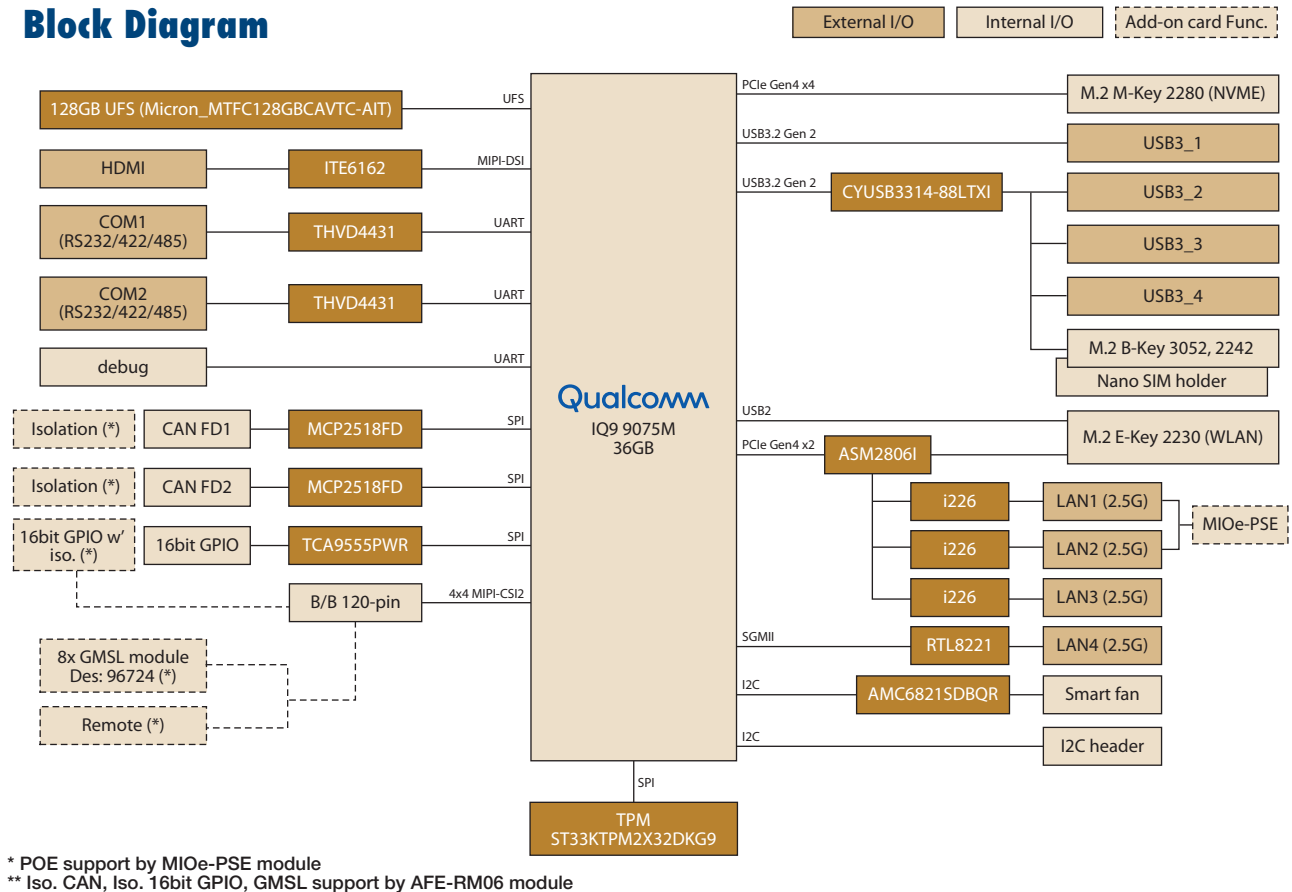
- AMR AI control system up to 100 TOPS
- Dedicated I/Os for AMR: 4x GbE, 4xUSB, 2x CAN FD, 16-bit DIO. Support up to 4x CAN FD (2x Iso.), 32-bit DIO (16-bit Iso.) by option
- 3x M.2 Expansions: 1x E-Key, 1x B-Key, 1x M-Key (support NVMe)
- Sensor connection for camera, LiDAR, IMU, and optional GMSL...etc.
- 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	36GB
	Data Rate	3200MHz
Storage	UFS	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	1 x HDMI port 1.4a up to 4K@ 24Hz, 24bpp
Ethernet	Controller	LAN1-3: Intel i226; LAN4: RTL8221
	Speed	2.5GbE
I/O	Ethernet	4 x RJ-45 Optional PoE: LAN1-2 with PoE (available with MIOe-PSE power solution) PoE out: 50Vdc, each max. 0.3A, total max. 30W
	USB Type-A	1 x USB3.2 Gen 2 (10 Gbps), OTG, each 5V/1.5A 3 x USB3.2 Gen.1 (5 Gbps), each 5V/1.5A
	COM Port	2 x RS-232/422/485
	GPIO	Up to 4 x 8bit general purpose input output I/O (2x 8bit isolation support through AFE-RM06-00A1/ AFE-RM06-00A2 by option)
	CAN Bus	Up to 4x CAN FD (2x isolation support through AFE-RM06-00A1/ AFE-RM06-00A2 by option)
	FAN	1 x Smart Fan 1A@12V
	LED/ Reset	Power-on, Reset
	Watchdog Timer	Support
	TPM	TPM 2.0
Board Feature	Time Sync	Support GNSS-based time sync
	M.2 E-Key	1 x E-Key 2230 (PCIe x1, USB2.0, UART)
	M.2 B-Key	1 x B-Key 3052, 2242 (USB 3.2, USB2.0) w/ Nano-SIM
Expansion	M.2 M-Key	1 x M-Key 2280 (PCIe Gen4x4)
	GMSL	8 x GMSL (coming this September, support through AFE-RM06-00A2 by option)
Power	Supply Voltage	Vin: 20~36V, ± 10%
	Power Management	AT, ATX
Environment	Temperature	SBC Operating: Standard: -20~70°C (-4 ~ 158°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	235g

Block Diagram



Ordering Information

Part No.	SoC	Memory	HDMI	GbE	USB	COM	CAN	DIO	DC-in	Made in
ASR-A503-M1A1U	IQ9075M	36GB LPDDR5	1	4	4	2	4 (2x Iso. by option)	32 (2x8 Iso. by option)	20-36V DC	Taiwan

Packing List

Part Number	Description	Quantity
-	ASR-A503 unit	1
1970006284T001	ASR-A503 active cooler	1
1700030518-01	CANBus Cable D-SUB 9P 15cm	2
1700030508-01	DIO D-SUB cable 25cm	2
1652004519	1 x 3-pin plug-in block for power in	1

Front I/O View



Optional Accessories

Part Number	Description	Suggest Quantity per ASR-A503
96PSA-A150W24T2-4	AC to DC adapter, DC 24V 150W	1
MIOe-PSE-DPA1* (need thermal pad)	MIOe-PSE Dual Port 15.4W PoE PSE module	1
AFE-RM06-00A1	Isolation IO board	1
AFE-RM06-00A2	8ports GMSL, isolation IO board	1
1751000759-01	Cable Ant. FAKRA-Z/F FAKRA-Z/F RG174 BLK 1M	8
1751000758-01	Cable MINI FAKRA B-Z/F FAKRA-Z/M 1x4 BLK L300	2
20706U24VS0023	Image Ubuntu 24.04	1

Rear I/O View

