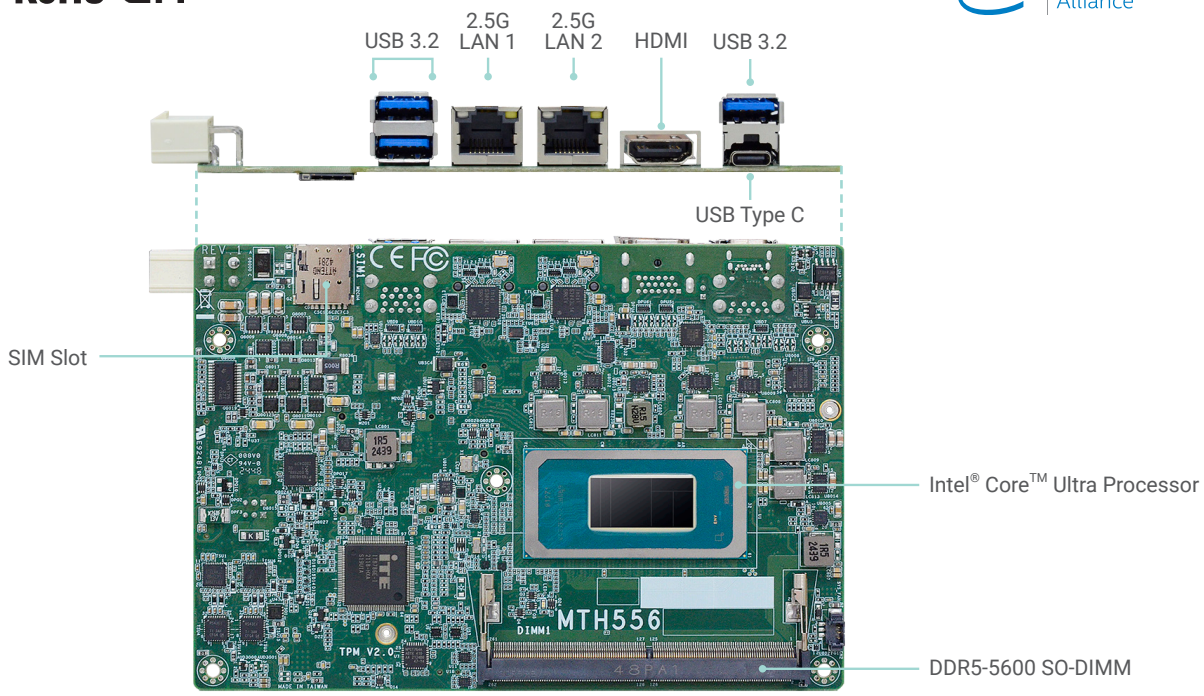
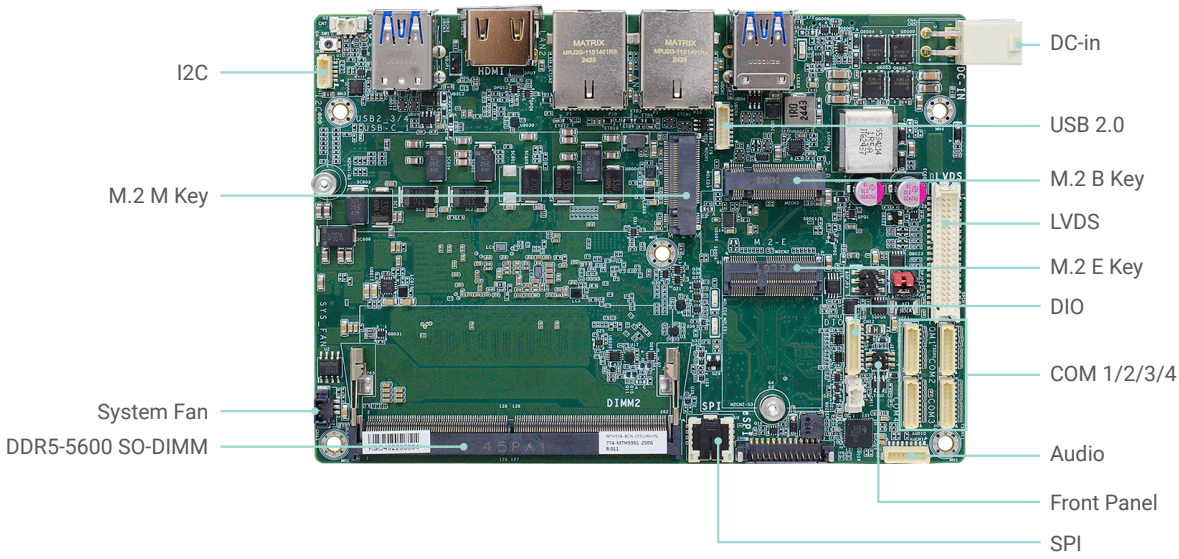
MTH556

Intel® Core™ Ultra Processor
3.5" SBC

intel IoT Solutions Alliance



Bottom View



Top View

KEY FEATURES

DDR5
2 DDR5-5600 SODIMM

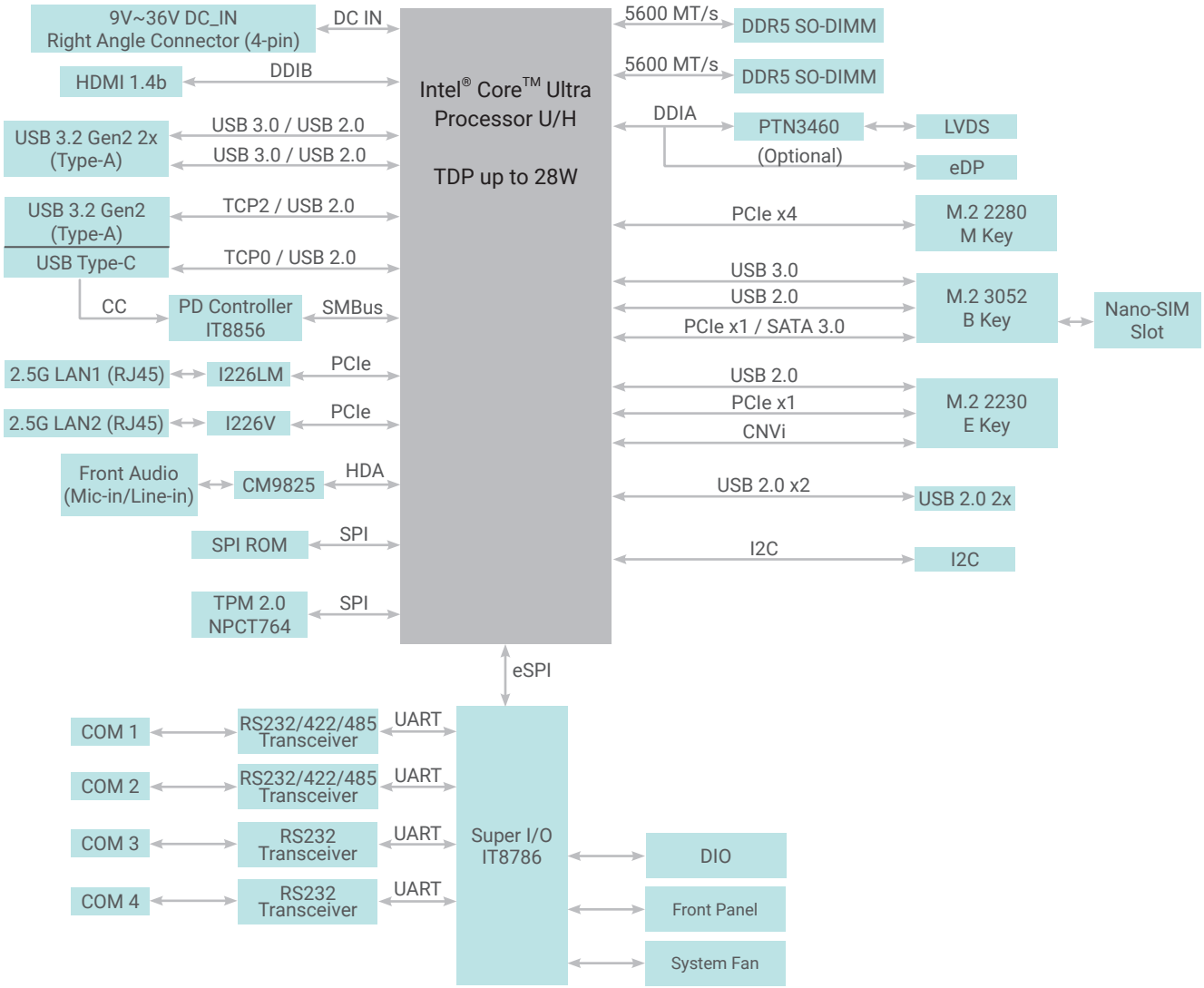
4K High Resolution
Support 4K/2K resolution

Triple Displays
1 HDMI, 1 LVDS,
1 USB-C DP Alt. mode

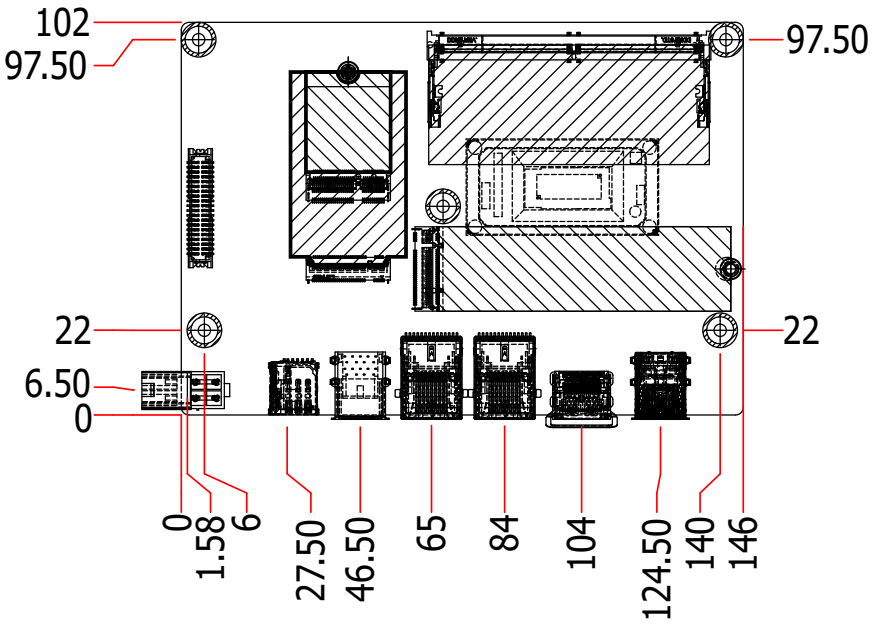
Multiple Expansion
1 M.2 M Key,
1 M.2 B Key,
1 M.2 E Key

Rich I/O
2 2.5GbE, 4 COM,
4 USB 3.2, 1 USB-C

BLOCK DIAGRAM



MECHANICAL DRAWING



SPECIFICATION

SYSTEM	**Processor**	Intel® Core™ Ultra Processors, TDP up to 28W (Code Name: Meteor Lake) Intel® Core™ Ultra 7 165H, 16C, 24M Cache, 1.4GHz (5.0GHz) Intel® Core™ Ultra 5 135H, 14C, 18M Cache, 1.7GHz (4.6GHz) Intel® Core™ Ultra 7 155U, 12C, 12M Cache, 1.7GHz (4.8GHz) Intel® Core™ Ultra 5 125U, 12C, 12M Cache, 1.3GHz (4.3GHz) (Code Name: Arrow Lake) Intel® Core™ Ultra 7 255U, 12C, 12M Cache, 2.0GHz (5.2GHz) Intel® Core™ Ultra 5 225U, 12C, 12M Cache, 1.5GHz (4.8GHz)	
	Memory	Two 262-Pin DDR5-5600 SO-DIMM up to 96GB	
	BIOS	AMI SPI 256Mbit	
GRAPHICS	**Controller**	**165H/135H:** Intel® Arc™ Graphics **255U/225U/155U/125U:** Intel® Graphics	
	Feature	OpenGL 4.6, Direct X 12.1, OpenCL 3.0 **HW Decode:** HEVC, VP9, AV1, AVC **HW Encode:** HEVC, VP9,AV1, AVC	
	Display	1 x HDMI 1.4b 1 x LVDS 1 x USB-C DP Alt. mode	**HDMI:** resolution up to 4096x2160@24Hz **LVDS:** dual channel 24-bit, resolution up to 1920x1200@60Hz **DP:** resolution up to 4096x2304@60Hz
	Triple Display	HDMI + LVDS + USB-C DP Alt. mode	
EXPANSION	**Interface**	1 x M.2 M key 2280 (PCIe Gen4 x4) 1 x M.2 B key 3052(USB 3.0/2.0, PCIe Gen4 x1, SATA), 1 x SIM slot for 4G/5G 1 x M.2 E key 2230 (USB 2.0/PCIe Gen4 x1)	
ETHERNET	**Controller**	2 x Intel® I226V/I226LM (10/100/1000/2500Mbps)	
FRONT I/O	**Ethernet**	2 x 2.5GbE (RJ-45)	
	USB	3 x USB 3.2 Gen2 x1 (Type A) 1 x USB 3.2 Gen2 x2 (Type C)	
	Display	1 x HDMI 1 x USB-C DP Alt. Mode	
INTERNAL I/O	**Serial**	2 x RS-232/422/485 2 x RS-232 (1.0mm pitch)	
	USB	2 x USB 2.0 (1.0mm pitch)	
	DIO	1 x 8-bit DIO (4 in, 4 out)	
	Audio	1 x Audio (Line_out/Mic_in)	
	Fan	1 x Smart Fan (3-pin, 12V)	
WATCHDOG TIMER	**Output & Interval**	System Reset, Programmable via Software from 1 to 255 Seconds	
SECURITY	**TPM**	TPM 2.0	
POWER	**Type**	9~36V DC	
	Connector	Right Angle Connector (ATX 4-pin) Vertical connector (ATX 4-pin) (available upon request)	
	Power Consumption	Typical: 165H (28W), 36V @ 0.31A (11.16W) Max: 165H (28W), 36V @ 2.37A (85.32W) Typical: 265U (15W), 36V @ 0.29A (10.44W) Max: 265U (15W), 36V @ 2.19A (78.84W)	
	RTC Battery	CR2032 Coin Cell (Cable type)	
OS SUPPORT	**Microsoft**	Windows 11 & 10 IoT Enterprise 64-bit	
	Linux	Linux	
ENVIRONMENT	**Temperature**	**Operating:** -5 to 65°C or -20 to 70°C (15W CPU only) **Storage:** -40 to 85°C	
	Humidity	**Operating:** 5 to 90% RH **Storage:** 5 to 90% RH	
	MTBF	379,660 hrs @ 25°C; 171,659 hrs @ 45°C; 78,131 hrs @ 60°C; 44,593 hrs @ 70°C Calculation Model: Telcordia Issue 4 Environment: GB, GC - Ground Benign, Controlled	
MECHANISM	**Dimensions**	3.5" SBC Form Factor 146mm (5.75") x 102mm (4.02")	
	Height	**PCB:** 1.6mm	
STANDARDS AND CERTIFICATIONS	**Certifications**	CE, FCC Class B, RoHS, UKCA	

ORDERING INFORMATION

Model Name	Part Number	Processor	Display	RJ45	Serial	USB 3.2	Power	Temp.
MTH556-BCN-165H	770-MTH5561-000G	Intel® Core™ Ultra 7 165H, 16 cores, 28W	HDMI + LVDS + USB- C DP	2	4	4	9~36 VDC	-5~65°C
MTH556-BCN-135H	770-MTH5561-100G	Intel® Core™ Ultra 5 135H, 14 cores, 28W						-5~65°C
MTH556-ECN-155U	770-MTH5561-200G	Intel® Core™ Ultra 7 155U, 12 cores, 15W						-20~70°C
MTH556-ECN-125U	770-MTH5561-300G	Intel® Core™ Ultra 5 125U, 12 cores, 15W						-20~70°C
MTH556-ECN-255U	770-MTH5561-400G	Intel® Core™ Ultra 7 255U, 12 cores, 15W						-20~70°C
MTH556-ECN-225U	770-MTH5561-500G	Intel® Core™ Ultra 5 225U, 12 cores, 15W						-20~70°C

PACKING LIST

• 1 MTH556 board	
• Cooler	A71-108309-000G

OPTIONAL ITEMS

• 4-pin power to DC jack cable (Length: 100mm)	A81-004051-016G
• 1 COM port cable (Length: 250mm, 1x COM port)	A81-015130-018G
• USB 2.0 cable (Length: 200mm, 2 USB ports)	A81-001201-018G
• Front panel cable (Length: 250mm)	A81-020047-016G
• Audio cable (Length: 200mm)	A81-022043-054G
• Heat spreader (Available upon request, MOQ 50pcs)	A71-808372-000G

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