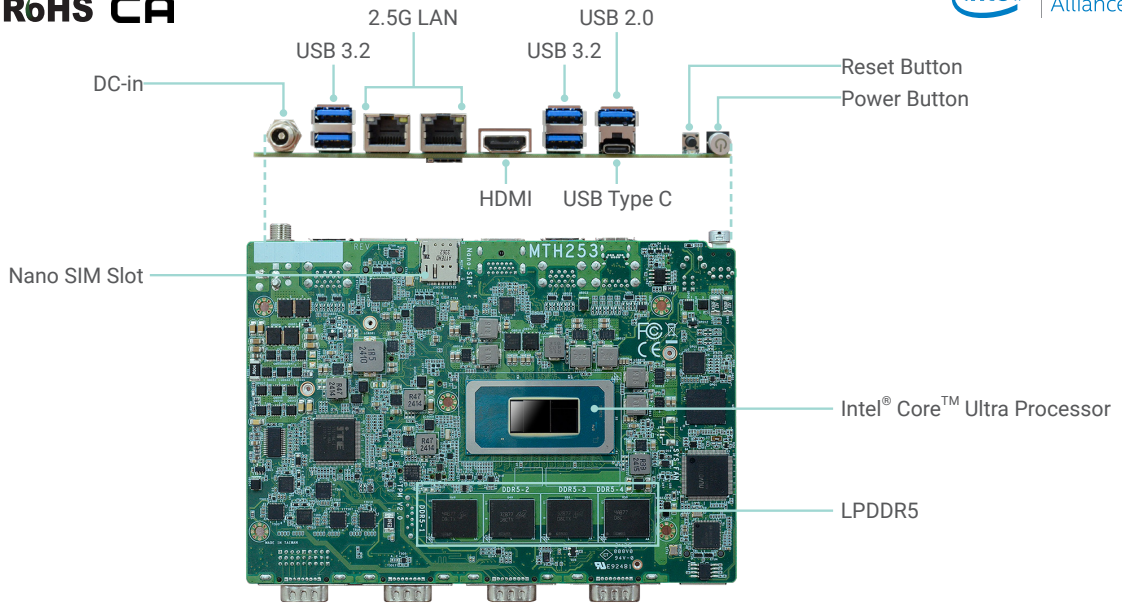
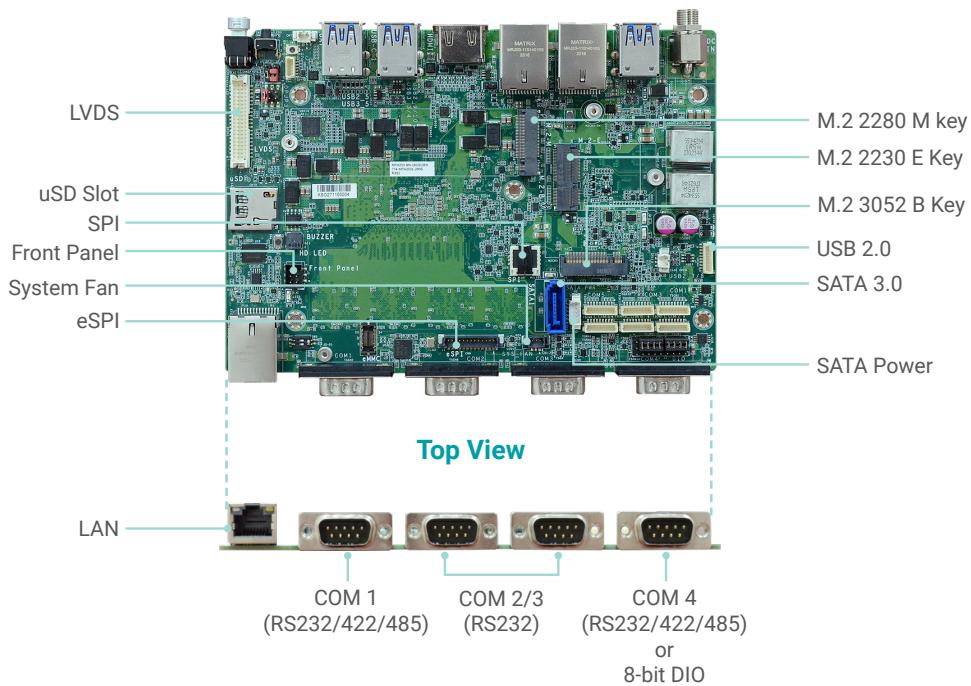


# MTH253

Intel® Core™ Ultra Processor  
4" SBC



Bottom View



Top View

## KEY FEATURES



### LPDDR5

LPDDR5 6400 MHz memory down



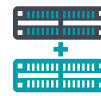
### 4K High Resolution

Supports 4K/2K resolution



### Triple Displays

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



### Multiple Expansion

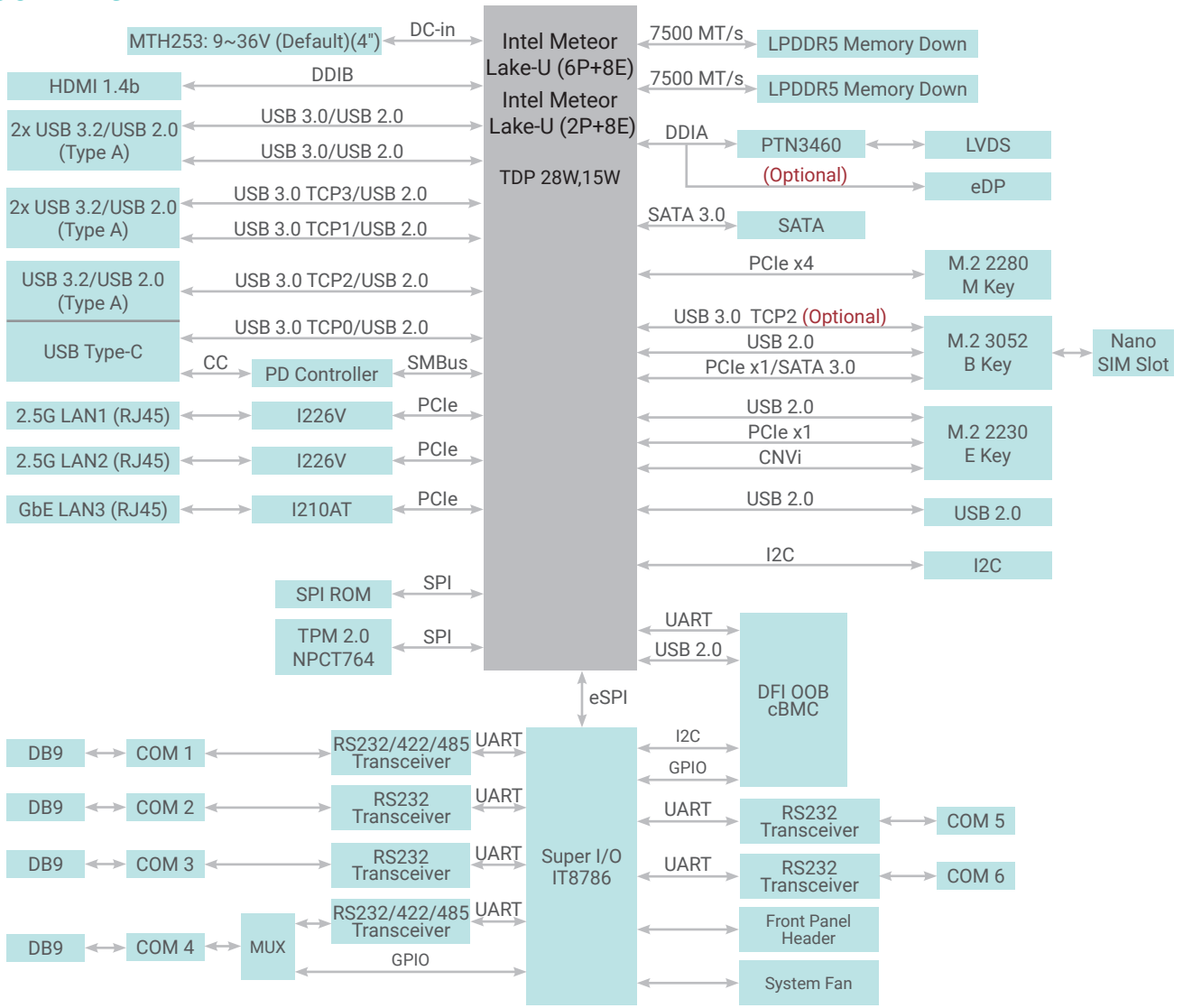
1 M.2 M Key, 1 M.2 B Key, 1 M.2 E Key



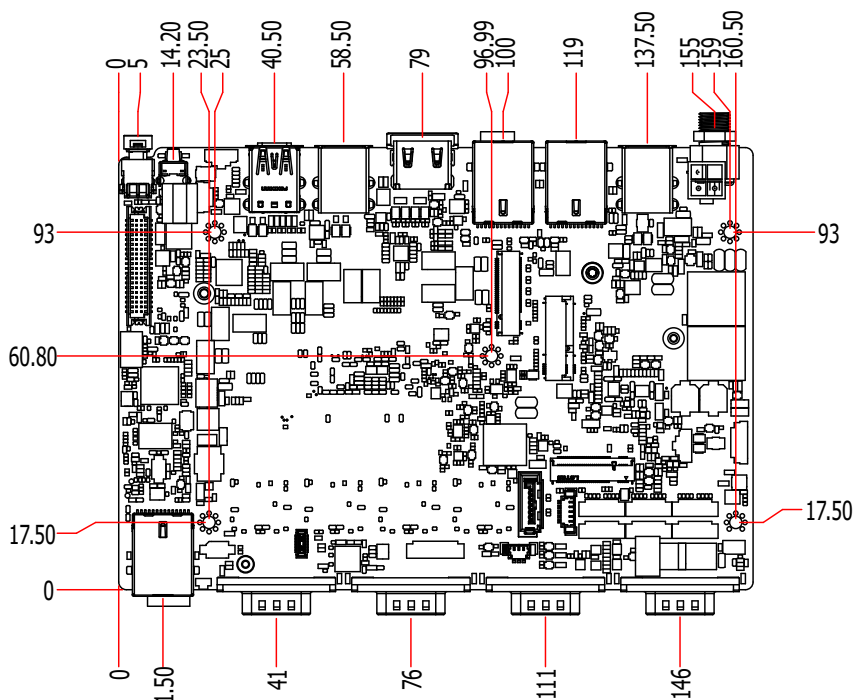
### Rich I/O

2 2.5GbE, 1 GbE, 4 USB 3.2, 1 USB-C, 5 COM, 1 COM/DIO

# BLOCK DIAGRAM



# MECHANICAL DRAWING



## SPECIFICATION

SYSTEM	Processor	Intel® Core™ Ultra 7/5 Processors, TDP up to 28W 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)		
	Memory	Dual Channel LPDDR5/x 6400MHz memory down Up to 32GB		
	BIOS	AMI SPI 256Mbit		
GRAPHICS	Controller	Intel® Arc™ Graphics		
	Feature	OpenGL 4.6, Direct X 12.2, 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 Displays	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 x1, SATA), 1 x SIM slot for 4G/5G 1 x M.2 E key 2230 (USB 2.0/PCIe x1)		
AUDIO	Audio Codec	N/A		
ETHERNET	Controller	2 x Intel® I226V (10/100/1000/2500Mbps)		
REAR I/O	Ethernet	2 x 2.5GbE (RJ-45)		
	USB	5 x USB 3.2 or 4 x USB 3.2 + 1 x USB 2.0 (by BIOS setting) 1 x USB Type C		
	Display	1 x HDMI 1 x USB-C DP Alt. Mode		
	Button	1 x Power Button 1 x Reset Button		
FRONT I/O	Serial	COM 1: RS-232/422/485 COM 2/3: RS-232 COM 4: RS-232/422/485 or 8-bit DIO by jumper setting		
	Ethernet	1 x GbE (RJ-45), Intel® i210AT (10/100/1000Mbps) (support OOB)		
INTERNAL I/O	Serial	2 x RS-232 (1.0mm pitch)		
	USB	1 x USB 2.0 (1.0mm pitch)		
	SATA	1 x SATA 3.0		
	FAN	1 x Smart FAN		
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 (4-pin) DC-in Jack (available upon request)		
	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	Storage: -40 to 85°C	
	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH	
	MTBF	TBD		
MECHANISM	Dimensions	4" SBC Form Factor	165mm (6.49") x 115mm (4.53")	
	Height	PCB: 1.6mm		
STANDARDS AND CERTIFICATIONS	Certification	CE, FCC Class B, RoHS, UKCA		

## ORDERING INFORMATION

Model Name	P/N	Processor	Memory	Display	RJ45	Serial	USB 3.2	Power	Temp.
MTH253-BN-32U7165H	770-MTH2531-000G	Intel® Core™ Ultra 7 165H, 16 cores, 28W	32GB	HDMI + LVDS + USB-C DP	3	6	5	9~36 VDC	-5~65°C
MTH253-BN-16U5155U	770-MTH2531-100G	Intel® Core™ Ultra 7 155U, 12 cores, 15W	16GB						
MTH253-BN-16U5135H	770-MTH2531-200G	Intel® Core™ Ultra 5 135H, 14 cores, 28W	16GB						
MTH253-BN-16U5125U	770-MTH2531-300G	Intel® Core™ Ultra 5 125U, 12 cores, 15W	16GB						

## PACKING LIST

• 1 MTH253 board	
• 1 Heatsink for 15W CPU or 1 Cooler for 28W CPU	TBD

## OPTIONAL ITEMS

• Heat spreader	TBD
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