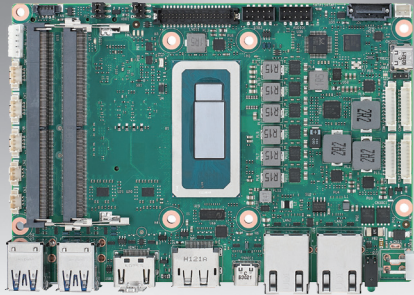


# MIO-5377

## 12<sup>th</sup> Gen. Intel® Core™ Processor (Code Name: Alder Lake-P) 3.5" SBC

NEW



### Features

- 12<sup>th</sup> Gen. Intel® Core™ Processor up to 12 Cores, TDP 28/15W
- Dual Channel DDR5-4800 up to 64GB
- 4 simultaneous displays: LVDS/HDMI/DP/USB-C Alt. DP
- 2x GbE, 6x USB, 1x USB4, 4x UART, 2x CANBus, 3x I2C
- 3 Expansions: M.2 E-Key, B-Key, M-Key (support NVMe)
- Supports iManager & Software APIs, WISE-DeviceOn

**Software APIs:**

- GPIO
- SMBus/I<sup>2</sup>C
- Watch Dog Timer
- Backlight On/Off
- Brightness
- CAN bus

**Utilities:**

- Hardware Monitor
- System Throttling
- Thermal Protection
- Smart Fan
- Data Security
- System Info



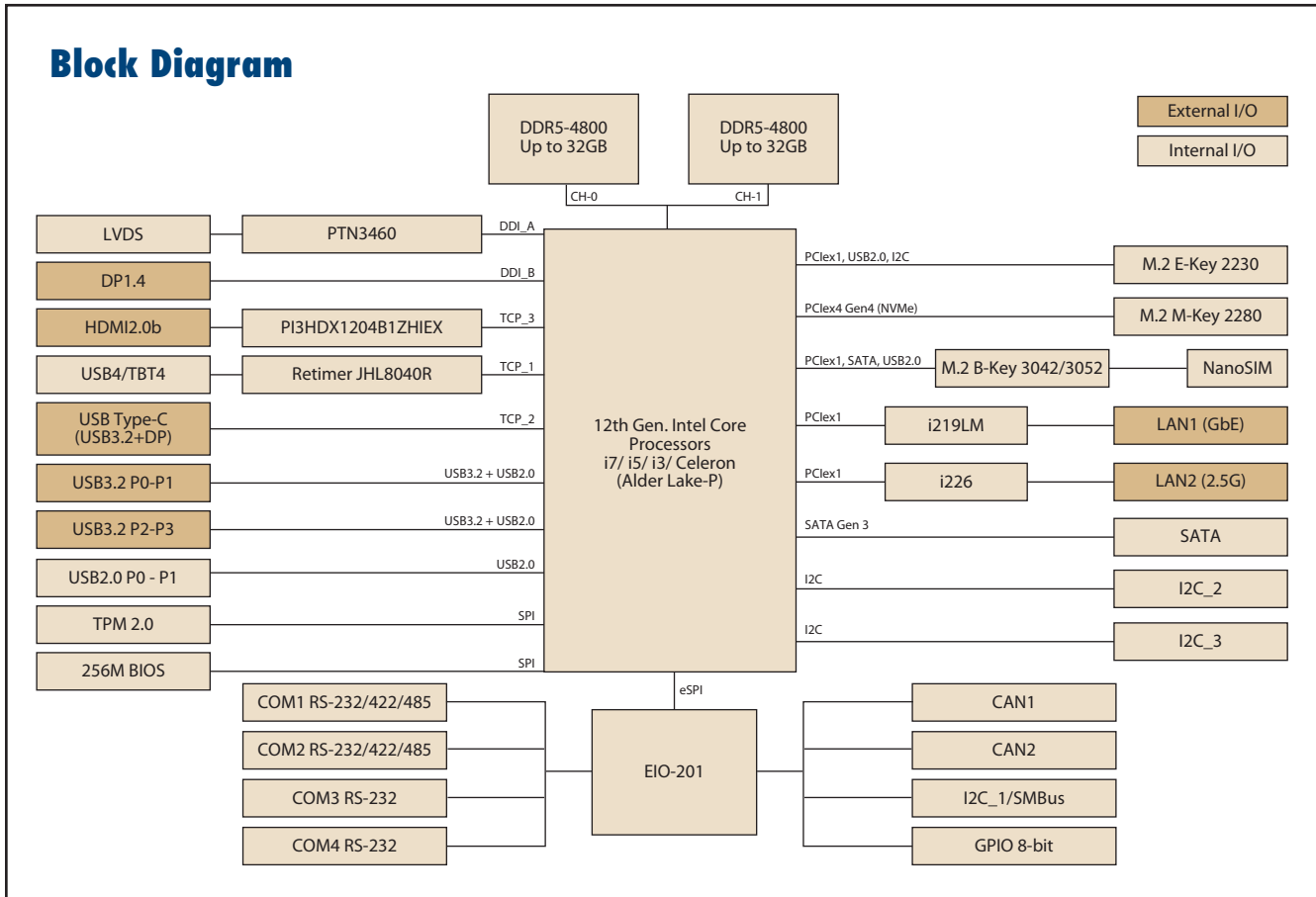
### Specifications

	Processor	i7-1270PE	i7-1265UE	i5-1245UE	i3-1215UE
Platform	Max. Frequency	4.5GHz	4.7GHz	4.4GHz	4.4GHz
	Base Frequency	1.8GHz	1.7GHz	1.5GHz	1.2GHz
	Core/Thread	4P+8E/16T	2P+8E/12T	2P+8E/12T	2P+4E/8T
	LLC	18MB	12MB	12MB	10MB
	CPU TDP	28W	15W	15W	15W
	Chipset	On-package Intel 600 Series Chipset			
Memory	Technology	DDR5-4800			
	Max. Capacity	Up to 64GB			
Graphics	Channel/Socket	Dual Channels / 2 Sockets			
	Controller	Intel® Iris® Xe Graphics			
	Max. Frequency	1.35GHz	1.25GHz	1.2GHz	1.1GHz
	Execution Unit	96	96	80	64
	3D/HW Acceleration	DX12, OGL4.0, OCL1.2, HW Encode: H.265/HEVC, H.264, MPEG2, HW Decode: H.265			
	Display I/F	LCD	1 x LVDS: Dual Channel 18/24-bit, up to 1920 x 1200		
HDMI/DP		1 x HDMI 2.0b, up to 4096 x 2160 x 24bpp@60Hz 1 x DP1.4a, up to 4096 x 2304 x 36bpp@60Hz			
Multiple Display		4 simultaneous displays via LVDS + HDMI + DP + USB Type-C Alt. Mode			
Ethernet	Controller	LAN1: Intel i219LM, LAN2: Intel i226			
	Speed	LAN1: GbE; LAN2: 2.5GbE			
External I/O	Ethernet	2 x RJ-45			
	HDMI/DP	1/1			
	USB Type-C	1 x USB3.2 Gen2, support DisplayPort 1.4a Alt. Mode, up to 3840x2160@60Hz			
	USB3.2	4 x USB3.2 Gen2x1 10Gbps			
	LED	Power status, SATA R/W			
	Power DC-Jack	Optional			
Internal I/O	SATA	1 x SATA Gen3 6.0Gbps			
	USB4	1 (Type-C)			
	USB2.0	2			
	COM Port	2 x RS-232/422/485, 2 x RS-232 (4-wire), max. 1Mbps			
	CANBus	2 x CAN2.0			
	Serial Bus	3 x I2C 1Mbps (default), 1 x SMBus* (optional to I2C1)			
	Audio	Realtek ALC888s, Line-in/Line-out/MIC			
	GPIO	8-bit general purpose input output I/O			
	Inverter	12V/5V/3.3V selectable			
	Fan	12V, 1A (4-wire)			
	Front Panel Control	Power-on, Reset, Buzzer, SATA LED, CaseOpen			
Board Feature	Watchdog Timer	65536 level, 0-65535 sec			
	TPM	Discrete TPM2.0, fTPM* support by request			
	iManager 3.0	SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I2C, GPIO, WDT			
Expansion	M.2 E-Key	1 x E-Key 2230 (PCIex1, USB2.0)			
	M.2 B-Key	1 x B-Key 3042 LTE/3052 5G™ w/ Nano SIM, B-Key default 3042 length			
	M.2 M-Key	1 x M-Key 2280 (PCIex4 Gen4 NVMe)			
Power	Supply Voltage	Vin: DC 12V-24V +/- 10%; RTC Battery: Lithium 3V/210mAh			
	Connector	ATX 2x2 pin 90D, optional DC-Jack or ATX 2x2 pin 180D			
	Power Management	AT, ATX			
	Max. Consumption	97.83W (12V)/ 113.04W (24V)	73.86W (12V)/ 102.83W (24V)	72W (12V)/ 76.17W (24V)	60.72W (12V)/ 74.84W (24V)
Environment	Idle Consumption	64.21W (12V)/ 75.94W (24V)	22.93W (12V)/ 44.4W (24V)	21.08W (12V)/ 28.56W (24V)	20.12W (12V)/ 25.2W (24V)
	Temperature	Operating: Standard: 0 - 60° C (32 - 140° 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			
Certification	Vibration Resistance	3.5 Grms			
	EMC	CE, FCC Class B			
Mechanical	Dimensions	146 x 102 mm (5.7" x 4")			

\*Note: Support by request

\*\*Note: 5G module test with Fibocom FM350 (MediaTek)

## Block Diagram



## Ordering Information

Part No.	CPU	TDP	Max Frequency	Cable Kit	Thermal Solution	Operating Temperature
MIO-5377C7P-Q5A1	i7-1270PE	28W	4.5GHz	Y	Active	0 ~ 60 °C
MIO-5377C7-Q7A1	i7-1265UE	15W	4.7GHz	Y	Passive	0 ~ 60 °C
MIO-5377C5-Q4A1	i5-1245UE	15W	4.4GHz	Y	Passive	0 ~ 60 °C
MIO-5377C3-Q4A1	i3-1215UE	15W	4.4GHz	Y	Passive	0 ~ 60 °C

## Packing List

Part No.	Description	Quantity
	MIO-5377 SBC	
2046537700	Startup Manual	1
1700006291	SATA cable 30cm	1
1700031583-01	SATA Power cable, 15P/1*2P-2.0 35cm	1
1700030406-01	M Cable 2*5P-2.0/USB-A 4P(F)*2 20cm	1
1700030404-01	RS-232 9P(M)/1*10P-1.25 20cm	2
1700031582-01	COM3/4 Cable, D-SUB 9P(M)/1*5P-1.25 20cm	2
1700019584-01	A Cable 2*5P-2.0/Audio JACK*3 20cm	1
1970005548T001	MIO-5377 Heatsink (Passive)	1
1970005512T001	MIO-5377 QFCS (Active)	1

## Optional Accessories

Part No.	Description
1970005615T001	MIO-5377 Heatspreader

## Embedded OS/API

OS	Part No.	Description
WIN10	20706WX1HS0006 (Win10 PN)	64-bit (UEFI mode only)
Ubuntu 22.04 LTS	20706U22DS0001	
Software API	Download by website	
Yocto BSP		

## Rear I/O View

