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Datasheet

ADVANTECH

MIO-5377

Compact Single Board Computer with 12th Gen. Intel® Core™ Processors Alder Lake-P series

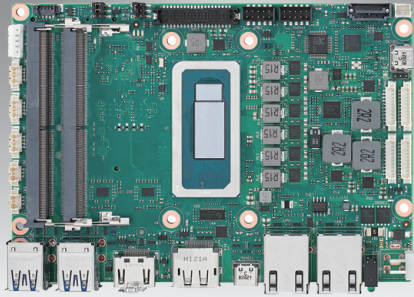


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MIO-5377

12th Gen. Intel® Core™ Processors (Code Name: Alder Lake-P series) 3.5" SBC

Preliminary



Features

- 12th 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
- 2 GbE, 6 USB, USB4/TBT4, 4 UART, 2 CANBus, 3 I2C
- 3 Expansions: M.2 E-Key, B-Key, M-Key (support NVMe)
- Supports iManager & Software APIs, WISE-DeviceOn

Software APIs:



Utilities:



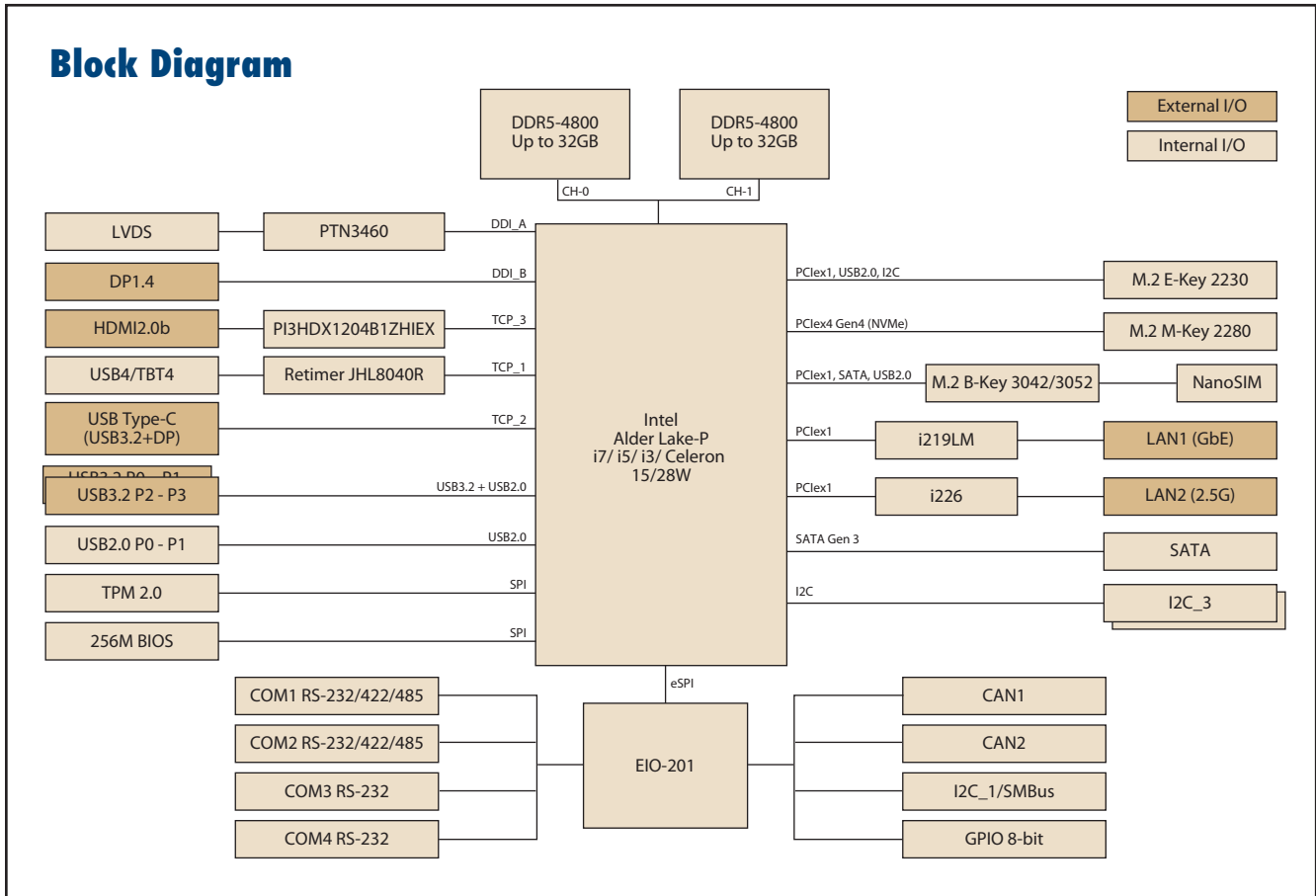
Specifications

	Processor	i7-1270PE	i7-1265UE	i5-1245UE	i3-1215UE	7305E	
Platform	Max. Frequency	4.5GHz	4.7GHz	4.4GHz	4.4GHz	N/A	
	Base Frequency	1.8GHz	1.7GHz	1.5GHz	1.2GHz	1.0GHz	
	Core/Thread	4C+8c/16T	2P+8E/12T	2P+8E/12T	2P+4E/8T	1P+4E/6T	
	LLC	18MB	12MB	12MB	10MB	8MB	
	CPU TDP	28W	15W	15W	15W	15W	
	Chipset	On-package Intel 600 Series Chipset					
	BIOS	AMI EFI 256Mbit					
Memory	Technology	DDR5-4800					
	Max. Capacity	Up to 64GB					
	Channel/Socket	Dual Channels / 2 Sockets					
Graphics	Controller	Intel® Iris® Xe Graphics					
	Max. Frequency	1.35GHz	1.25GHz	1.2GHz	1.1GHz	1.1GHz	
	Execution Unit	96	96	80	64	48	
	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 DisplayPort1.4a Alt. Mode					
	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 (TBT4)		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	TPM2.0				
	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 Gen.4 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	28.86W(12V), 30.24W(24V)		TBU	TBU	TBU	
	Idle Consumption	24.45W(12V), 25.04W(24V)		TBU	TBU	TBU	
Environment	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					
	Vibration Resistance	3.5 Grms					
Certification	EMC, FCC Class B						
Mechanical	Dimensions	146 x 102 mm (5.7" x 4")					
	Net Weight	TBU					

*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
MIO-5377CR-S0A1	7305E	15W	NA	Y	Passive	0 ~ 60 °C

Packing List

Part No.	Description	Quantity
	MIO-5377 SBC	
	Startup Manual	
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
TBU	MIO-5377 Heatsink (Passive)	1
1970005512T001	MIO-5377 QFCS (Active)	1

Optional Accessories

Part No.	Description
TBU	MIO-5377 Heatspreader

Embedded OS/API

OS	Part No.	Description
WIN10	TBD	64-bit (UEFI mode only)
Ubuntu 20.04 LTS	TBD	
Software API	Download by website	
Yocto BSP		

Rear I/O View



Our company network supports you worldwide with offices in Germany, Austria, Switzerland, the UK and the USA. For more information please contact:

Headquarters

Germany



FORTEC Elektronik AG

Augsburger Str. 2b
82110 Germering

Phone: +49 89 894450-0
E-Mail: info@fortecaq.de
Internet: www.fortecaq.de

Fortec Group Members

Austria



Distec GmbH Office Vienna

Nuschinggasse 12
1230 Wien

Phone: +43 1 8673492-0
E-Mail: info@distec.de
Internet: www.distec.de

Germany



Distec GmbH

Augsburger Str. 2b
82110 Germering

Phone: +49 89 894363-0
E-Mail: info@distec.de
Internet: www.distec.de

Switzerland



ALTRAC AG

Bahnhofstraße 3
5436 Würenlos

Phone: +41 44 7446111
E-Mail: info@altrac.ch
Internet: www.altrac.ch

United Kingdom



Display Technology Ltd.

Osprey House, 1 Osprey Court
Hinchingsbrooke Business Park
Huntingdon, Cambridgeshire, PE29 6FN

Phone: +44 1480 411600
E-Mail: info@displaytechnology.co.uk
Internet: www.displaytechnology.co.uk

USA



Apollo Display Technologies, Corp.

87 Raynor Avenue, Unit 1
Ronkonkoma, NY 11779

Phone: +1 631 5804360
E-Mail: info@apolloDisplays.com
Internet: www.apolloDisplays.com