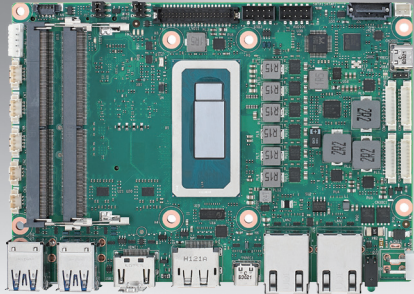


MIO-5377R

13th Gen. Intel® Core™ Processors (Code Name: Raptor Lake-P) 3.5" SBC with USB4 for MXM GPU

NEW



Features

- 13th Gen. Intel® Core™ Processor up to 14 Cores, TDP 28/15W
- Dual Channel DDR5-4800 up to 64GB, IB ECC support by SKU
- 4 simultaneous displays: LVDS/HDMI/DP/USB-C Alt. DP
- 2x LAN, 8x USB (incl. 1x USB4), 4x UART, 2x CANBus, 3x I²C
- 3 Expansions: M.2 E-Key, B-Key, M-Key (support NVMe)
- Supports Windows 10 LTSC & Ubuntu 22.04 LTS, embedded software APIs, DeviceOn



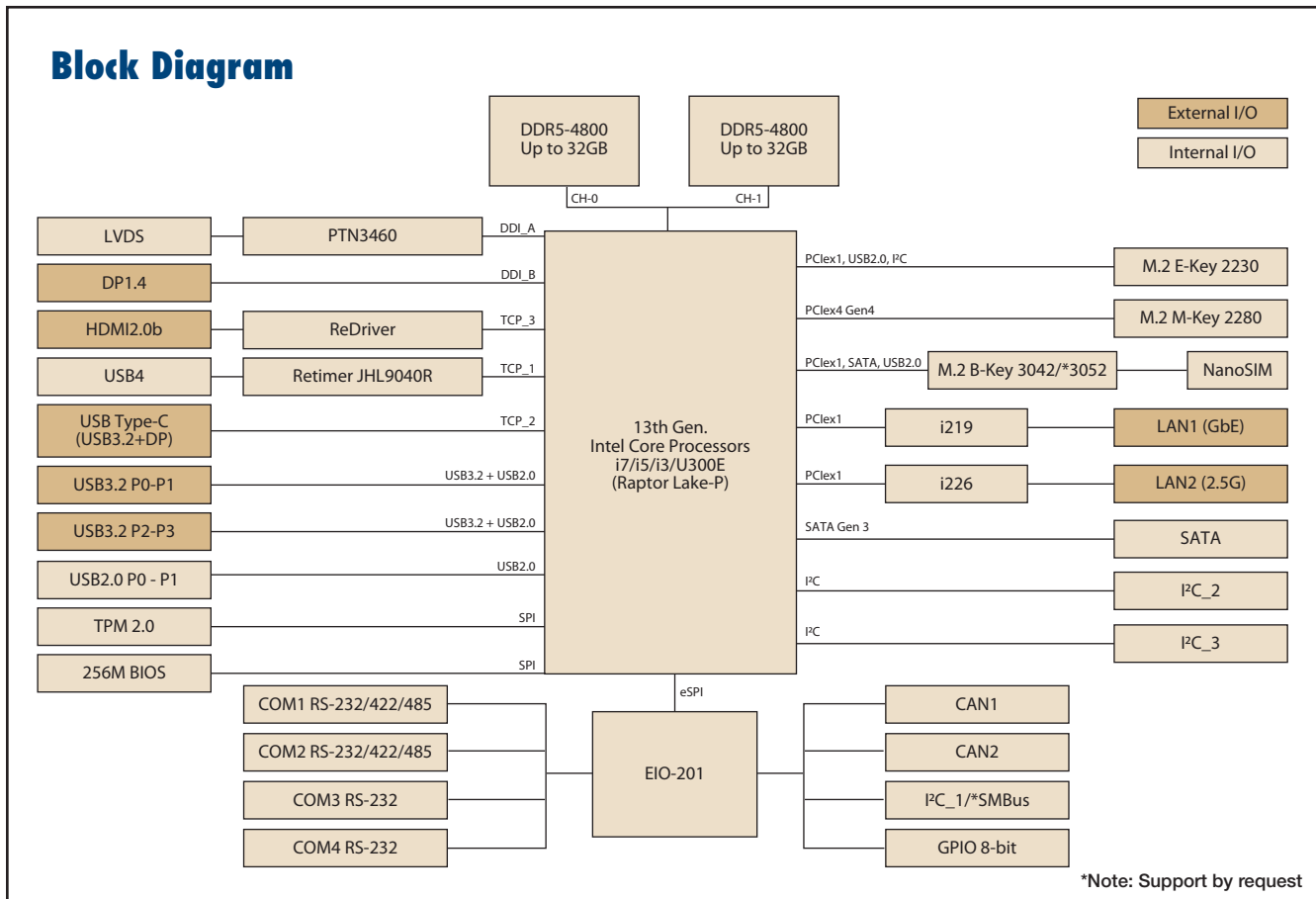
Specifications

	Processor	i7-1370PE	i7-1370PRE	i7-1365UE	i7-1365URE	i5-1345UE	i3-1315UE	U300E	
Platform	Max. Frequency (P-Core)	4.80 GHz	4.80 GHz	4.90 GHz	4.90 GHz	4.60 GHz	4.50 GHz	4.30 GHz	
	Base Frequency (P-Core)	1.90 GHz	1.90 GHz	1.70 GHz	1.70 GHz	1.40 GHz	1.20 GHz	1.10 GHz	
	Core/Thread	6P+8E / 20T	6P+8E / 20T	2P+8E / 12T	2P+8E / 12T	2P+8E / 12T	2P+4E / 8T	1P+4E / 6T	
	Intel® Smart Cache (L3)	24MB	24MB	12MB	12MB	12MB	10MB	8MB	
	CPU TDP	28W	28W	15W	15W	15W	15W	15W	
	Chipset	On-package Intel 600 Series Chipset							
Memory	BIOS	AMI UEFI 256Mbit							
	Technology	DDR5-4800							
	Max. Capacity	Up to 64GB							
	IB ECC	No	Yes	No	Yes	No	No	No	
Graphics	Channel/Socket	Dual Channels / 2 sockets							
	Controller	Intel® Iris® Xe Graphics						Intel® UHD Graphics	
	Max. Frequency	1.40 GHz	1.40 GHz	1.30 GHz	1.30 GHz	1.25 GHz	1.20 GHz	1.10 GHz	
	Execution Units	96	96	96	96	80	64	48	
Display I/F	3D/HW Acceleration	DX12.1, OGL4.6, OCL3.0, HW Encode: H.265/HEVC, H.264, MPEG2, HW Decode: H.265							
	LCD	1 x LVDS: Dual Channel 18/24-bit, up to 1920 x 1200							
Ethernet	HDMI/DP	1 x HDMI 2.0b, up to 4096 x 2160 x 24bpp@60Hz 1 x DP1.4, up to 4096 x 2304 x 36bpp@60Hz							
	Multiple Display	4 simultaneous displays via LVDS + HDMI + DP + USB Type-C Alt. Mode							
External I/O	Controller	LAN1: Intel i219 ; LAN2: Intel i226							
	Speed	LAN1: GbE ; LAN2: 2.5GbE							
	TSN support	No	Yes (LAN2 only)	No	Yes (LAN2 only)	No	No	No	
Internal I/O	Ethernet	2 x RJ-45							
	HDMI/DP	1 x HDMI, 1 x DP							
	USB Type-C	1 x USB3.2 Gen2x1 10Gbps, support DisplayPort1.4 Alt. Mode							
	USB Type-A	4 x USB3.2 Gen2x1 10Gbps							
	LED	Power status, SATA R/W							
	Power DC-Jack	Optional							
	SATA	1 x SATA GenIII 6.0Gbps							
Board Feature	USB4	1 USB4 with USB Type-C, Bandwidth min. 20Gbps, max. 40Gbps, with USB3.2, Display & PCIe							
	USB2.0	2							
	COM Port	2 x RS-232/422/485, 2 x RS-232 (4-wire), max. 1Mbps							
	CAN Bus	2 x CAN2.0							
	Serial Bus	3 x I ² C (CN6 is BOM option to 1 x SMBus by request; First priority is to use CN6; On Windows, CN7 & CN8 are supported by custom BIOS)							
	Audio	Realtek ALC888s, Line-in/Line-out/MIC							
	GPIO	8-bit general purpose input output I/O							
	Invertor	12V/5V/3.3V selectable							
	Fan	12V, 1A (4-wire)							
	Front Panel Control	Power-on, Reset, Buzzer, SATA LED, CaseOpen							
Expansion	Watchdog Timer	65536 level, 0-65535 sec							
	TPM	Discrete TPM2.0 IC (*iTPM support by request)							
	iManager 3.0	SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I ² C, GPIO, WDT							
Power	M.2 E-Key	1 x E-Key 2230 (PCIex1, USB2.0) for WiFi/BT module							
	M.2 B-Key	1 x B-Key 3042 (PCIex1, SATA, USB2.0) for storage and 4G/LTE module w/ Nano SIM (Default with 3042. **Support 3052 for 5G module by request.)							
	M.2 M-Key	1 x M-Key 2280 (PCIe Gen.4 x4) for NVMe SSD							
	Supply Voltage	Vin: DC 12V-24V ± 10%; RTC Battery: Lithium 3V/220mAh (*200mAh for Extend Temp. SKU)							
Environment	Connector	ATX 2x2 pin 90D, optional DC-Jack, or ATX 2x2 pin 180D							
	Power Management	AT, ATX							
	Max. Consumption	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
Certification	Idle Consumption	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
	Temperature	Operating: Standard: 0 ~ 60 °C (32 ~ 140 °F); *Extend: -40 ~ 85 °C (-40 ~ 185 °F), support with selected SKU Storage: -40 ~ 85 °C (-40 ~ 185 °F)							
	Humidity	Operating: 40 °C @ 95% relative humidity, non-condensing Storage: 60 °C @ 95%relative humidity, non-condensing							
Mechanical	Vibration Resistance	3.5 Grms							
	EMC	CE, FCC Class B							
	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	Core	Max. Frequency	TDP	Memory IB ECC	GPU	GPU Max. Frequency	Execution Units	LAN2 with TSN support	Thermal Solution	Operating Temperature
MIO-5377RC7P-Q8A1	i7-1370PE	6P+8E	4.80 GHz	28W	No	Xe Graphics	1.40 GHz	96 EUs	No	Active Cooler	0 ~ 60 °C
MIO-5377RC7PX-Q8A1	i7-1370PRE	6P+8E	4.80 GHz	28W	Yes	Xe Graphics	1.40 GHz	96 EUs	Yes	Active Cooler	-40 ~ 85 °C
MIO-5377RC7-Q9A1	i7-1365UE	2P+8E	4.90 GHz	15W	No	Xe Graphics	1.30 GHz	96 EUs	No	Passive Heatsink	0 ~ 60 °C
MIO-5377RC7X-Q9A1	i7-1365URE	2P+8E	4.90 GHz	15W	Yes	Xe Graphics	1.30 GHz	96 EUs	Yes	Passive Heatsink	-40 ~ 85 °C
MIO-5377RC5-Q6A1	i5-1345UE	2P+8E	4.60 GHz	15W	No	Xe Graphics	1.25 GHz	80 EUs	No	Passive Heatsink	0 ~ 60 °C
MIO-5377RC3-Q5A1	i3-1315UE	2P+4E	4.50 GHz	15W	No	UHD Graphics	1.20 GHz	64 EUs	No	Passive Heatsink	0 ~ 60 °C
MIO-5377RU-Q3A1	U300E	1P+4E	4.30 GHz	15W	No	UHD Graphics	1.10 GHz	48 EUs	No	Passive Heatsink	0 ~ 60 °C

Packing List

Part No.	Description	Quantity
	MIO-5377 SBC	1
	Startup Manual	1
1700006291	SATA Cable, 30cm	1
1700031583-01	SATA Power Cable, 35cm	1
1700030406-01	USB 2.0 Cable, 20cm	1
1700030404-01	COM Port Cable: COM1/COM2, 20cm	2
1700031582-01	COM Port Cable: COM3/COM4, 20cm	2
1700019584-01	Audio Cable, 20cm	1
1970005548T001	MIO-5377 Heatsink (Passive for TDP 15W CPU)	1
1970005512T001	MIO-5377 QFCS (Active for TDP 28W CPU)	1

Optional Accessories

Part No.	Description
1970005615T001	MIO-5377 Heatspreader
MIOe-UMXM-FVA1	USB4 to MXM carrier card, ATX conn., 12V
MIOe-UMXM-WVA1	USB4 to MXM carrier card, Phoenix conn., 12-24V

Embedded OS/API

OS	Part No.	Description
Windows 10 LTSC	TBD	Win10 IoT Ent. 2021 LTSC 64bit
Ubuntu 22.04 LTS	TBD	Ubuntu Desktop 22.04 LTS 64-bit
Software API	Website Download	SUSI v4.0
Yocto BSP	Support by Request	Yocto BSP and Test Image

Rear I/O View

