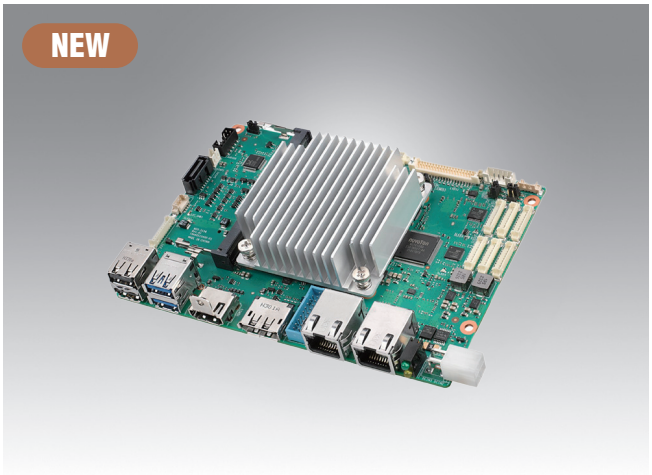
MIO-5154

Intel® Core™ i3-N305 Processor; Core™ 3-N355 Processor; Intel® Processor N-series 3.5" SBC (Code name: Alder Lake N, Twin Lake N)



Windows 10 WISE-DeviceOn iManager ubuntu CE FC

Features

- Intel® Core™ i3-N305; Core™ 3-N355; N-series N97, N50, N150
- DDR5-4800 up to 16GB
- 3 independent display: LVDS + HDMI + DP
- Dual GbE, 6 USB, 6 COM, SMBus/I2C
- Expansion: M.2 E-Key 2230, M.2 B-Key 2280 & 3052
- Supports iManager & Software APIs, WISE-DeviceOn

Software APIs: GPIO, SMBus/I²C, Watch Dog Timer, Backlight On/Off, Brightness

Utilities: Hardware Monitor, System Throttling, Thermal Protection, Smart Fan, Data Security, System Info

Specifications

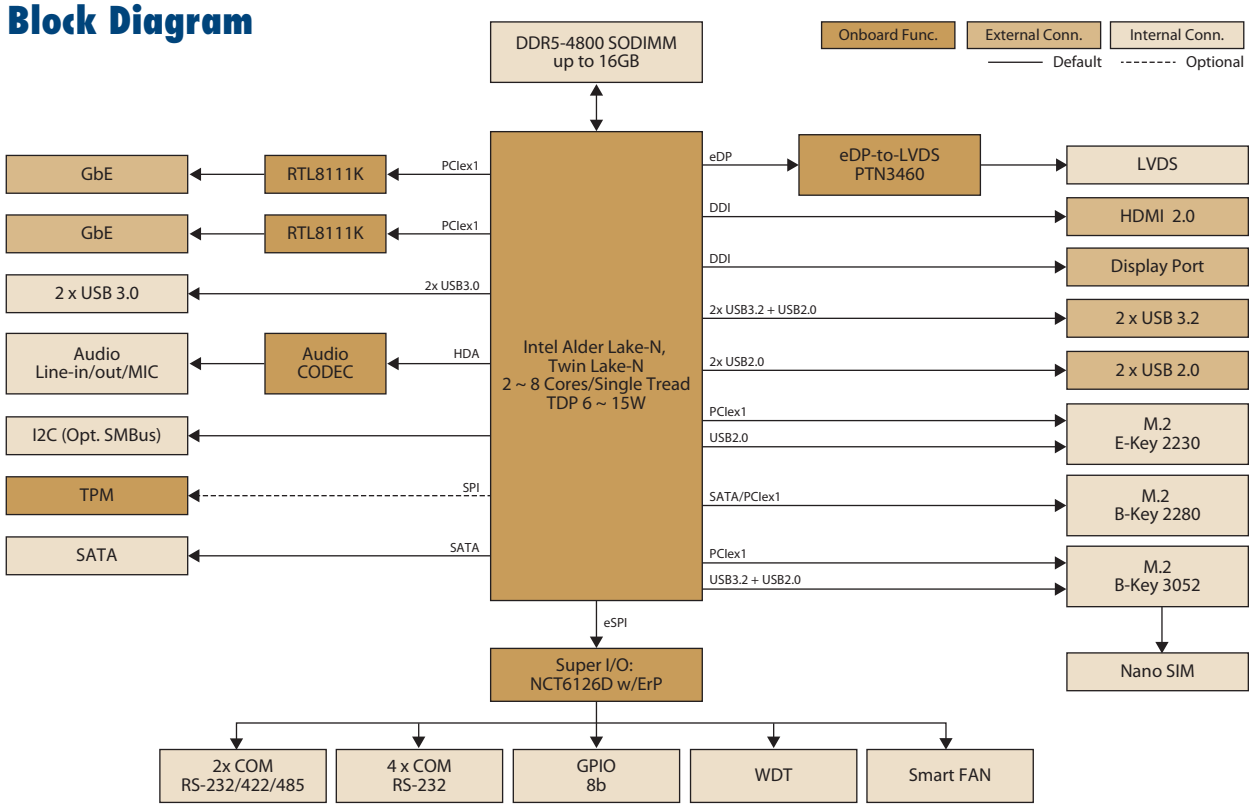
Platform	Processor	i3-N305	N97	N50	N355	N150
	Max. Frequency	3.80 GHz	3.60 GHz	3.40 GHz	3.90 GHz	3.60 GHz
	Base Frequency	TBU	TBU	TBU	TBU	TBU
	Core/Thread	8/8	4/4	2/2	8/8	4/4
	LLC	6MB	6MB	6MB	6MB	6MB
	CPU TDP	15W	12W	6W	15W	6W
	Chipset	Intel 300 Series Chipset (SoC Integrated)				
	BIOS	AMI EFI 256Mbit				
Memory	Technology	DDR5-4800				
	Max. Capacity	Up to 16GB				
	Channel/Socket	Single Channel / One Socket				
	IBECC	Yes	Yes	Yes	Yes	Yes
Graphics	Controller	Intel® UHD Graphics				
	Max. Frequency	1.25 GHz	1.20 GHz	750 MHz	1.35 GHz	1.00 GHz
	Execution Unit	32	24	16	32	24
	3D/HW Acceleration	DX12, OGL4.0, OCL1.2, HW Encode: H265, AVC/H264, VP9, HW Decode: H265, AVC/H264, VP9				
Display I/F	LCD	1 x LVDS, Dual Channel 18/24-bit, up to 1920 x 1080				
	HDMI/DP	1 x HDMI 2.0, up to 4096 x 2160 x 24bpp@48-60Hz 1 x DP1.4a, up to 4096 x 2304 x 36bpp@60Hz				
	Triple Display	3 simultaneous displays by LVDS + HDMI + DP				
Ethernet	Controller	LAN: Realtek RTL8111K				
	Speed	2 x GbE				
External I/O	Ethernet	2 x RJ-45				
	VGA/HDMI/DP	-/1/1				
	USB3.2/USB2.0	2/2				
Internal I/O	SATA	1 x SATA GenIII 6.0Gbps				
	USB3.0	2				
	Serial Bus	I2C(Optional to SMBus)				
	COM Port	2 x RS-232/422/485, 4 x RS-232				
	GPIO	8-bit general purpose input output I/O				
	Audio	Realtek ALC888s, Line-in/Line-out/MIC				
	Invertor	5V @2A				
	Smart Fan	12V, 2A (4-wire)				
	Front Panel Control	Power-on, Reset, Buzzer, SATA LED, Power LED, Case Open				
Board Feature	Watchdog Timer	65536 level, 0~65535 sec				
	TPM	fTPM support by Intel® Platform Trust Technology Discrete TPM2.0 (*optional)				
	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 (PCIe x1, USB2.0)				
	M.2 B-Key	1 x B-Key 2280 (SATA or PCIe x1) 1 x B-Key 3052 (USB3.2, USB 2.0 or *optional PCIe x1) w/ Nano-SIM				
Power	Supply Voltage	Vin: DC 12V ± 10%; RTC Battery: Lithium 3V/210mAH, support w/o CMOS Battery				
	Connector	ATX 2x2pin 90D, optional ATX 2x2pin 180D or DC Jack				
	Power Management	AT, ATX				
	Max. Consumption	30.57W (12V)	27.88W (12V)	18.65W (12V)	TBU	TBU
	Idle Consumption	9.93W (12V)	10.36W (12V)	9.21W (12V)	TBU	TBU
Environment	Temperature	Operating: Standard: 0 ~ 60 °C (32 ~ 140 °F) with 0.7m/s airflow				
		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	CE, FCC Class B, ESD 8KV/15KV Criteria A				
Mechanical	Dimensions	146 x 102 mm (5.7" x 4")				
	Net Weight	145g				

*Note: Support by request

All product specifications are subject to change without notice.

Last updated: 23-Nov-2026

Block Diagram



Ordering Information

Part No.	CPU	TDP	Max. Frequency	Core	Display Port	External USB 3.2	Internal USB 3.0	RS232/422/485	RS232	Cable kits	Thermal Solution	Operating Temperature	COO
MIO-5154C3-P8A1	i3-N305	15W	3.80 GHz	8	Y	Y	Y	2	4	Y	Passive	0 ~ 60 °C	China
MIO-5154N-P6A1	N97	12W	3.60 GHz	4	Y	Y	Y	2	4	Y	Passive	0 ~ 60 °C	China
MIO-5154N-P4A1	N50	6W	3.20 GHz	2	Y	Y	Y	2	4	Y	Passive	0 ~ 60 °C	China
MIO-5154NL-P6A1	N97	12W	3.60 GHz	4	N	Y	N	1	3	COM cable*2 only	Passive	0 ~ 60 °C	China
MIO-5154C3-P8A1U	i3-N305	15W	3.80 GHz	8	Y	Y	Y	2	4	Y	Passive	0 ~ 60 °C	Taiwan
MIO-5154N-P6A1U	N97	12W	3.60 GHz	4	Y	Y	Y	2	4	Y	Passive	0 ~ 60 °C	Taiwan
MIO-5154C3-P9A1	N355	15W	3.90 GHz	8	Y	Y	Y	2	4	Y	Passive	0 ~ 60 °C	Taiwan
MIO-5154N-P7A1	N150	6W	3.60 GHz	4	Y	Y	Y	2	4	Y	Passive	0 ~ 60 °C	Taiwan

Packing List

Part No.	Description	Quantity
	MIO-5154 SBC	
	Startup Manual	
1700006291	SATA cable 30cm	1
17000031583-01	A CABLE SATA 15P/1*2P-2.0 35cm	1
1700032181-01	M Cable 2x10P-2.0/USB-A 9P(F)x2 35CM	1
1700030404-01	RS-232 9P(M)/1*10P-1.25 20cm	2
1700019584-01	A Cable 2*5P-2.0/Audio JACK*3 20cm	1
1970005854T001	MIO-5154 15W/12W CPU Heatsink	1
1960064228T021	MIO-5154 6W CPU Heatsink	1

Optional Accessories

Part No.	Description
1970005925T001	MIO-5154 CPU Heatspreader
1970005931T001	MIO-5154 CPU Active Cooler

Embedded OS/API

OS	Part No.	Description
Windows 10 LTSC	20706WX1ES0086	Win10 IOT Ent. 2021 LTSC 64bit, Entry: N97 & N50 & N355 & N150
	20706WX1VS0086	Win10 IOT Ent. 2021 LTSC 64bit, Value: Core i3
	20706WX1HS0086	Win10 IOT Ent. 2021 LTSC 64bit, High End
Windows 11 LTSC	20706WLE1S0003	Win11 IOT Ent. 2024 LTSC 64bit, Entry: N97 & N50 & N355 & N150
	20706WLV1S0003	Win11 IOT Ent. 2024 LTSC 64bit, Value: Core i3
	20706WLH1S0003	Win11 IOT Ent. 2024 LTSC 64bit, High End
Ubuntu 22.04 LTS	20706U22DS0042	Ubuntu Desktop 22.04 LTS 64bit
Software API	Download by website	

Rear I/O View

